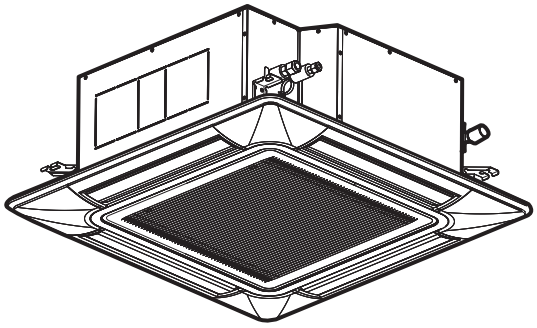
HITACHI

TECHNICAL CATALOG

HITACHI INVERTER-DRIVEN SPLIT SYSTEM
HEAT PUMP AIR CONDITIONERS

- SET FREE FSN3 INDOOR UNITS -



Technical Catalog

Models

< Indoor Units >

- **4-Way Cassette Type**

RCI-1.0FSN3	RCI-1.5FSN3
RCI-2.0FSN3	RCI-2.5FSN3
RCI-3.0FSN3	RCI-4.0FSN3
RCI-5.0FSN3	RCI-6.0FSN3

TCI-12001

IMPORTANT NOTICE

- HITACHI pursues a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- HITACHI cannot anticipate every possible circumstance that might involve a potential hazard.
- This heat pump air conditioner is designed for standard air conditioning only. Do not use this heat pump air conditioner for other purposes such as drying clothes or refrigerating foods, or for any other cooling or heating process.
- Do NOT install the unit in the following places. It may cause a fire, deformation, corrosion or failure.
  * places where no open flames, oil, steam or dust might directly be drawn into the unit, such as right above a kitchen, etc.
  * places where much oil (including machinery oil) may be splattered around.
  * places where there is a lot of sulfide gas generated, such as in a hot spring.
  * places where flammable gas can be generated or flow.
  * places where strong salty wind blows, such as in coast regions.
  * In an atmosphere of acidity or alkalinity.
  * Where gas from festering trash, etc. can be generated.
- Do not install the unit where silicon gas is present. If the silicon gas comes into contact with the surface of the heat exchanger, the fin surface repels water. As a result, drain water splashes outside of the drain pan, resulting in water leakage. If water splashes on the electrical box, electrical device failure might occur.
- Pay attention to the following points when installing the unit in a hospital or other facilities where electromagnetic waves are generated from medical equipment.
  * Do not install the unit to the place where electromagnetic waves are directly radiated to the electrical box, remote control cable or remote control switch.
  * Install the unit at least 3 meters away from devices generating electromagnetic waves, such as a radio.
- Do not install the unit in the place where animals and plants catch the direct outlet air. It could adversely affect animals and plants.
- The installer and system specialist shall secure safety against the refrigerant leakage according to local regulations or standards. The following standards may be applicable, if local regulations are not available. International Organization for Standardization, ISO5149 or European Standard, EN378 or Japan Standard, KHKS0010.
- No part of this manual may be reproduced without written permission.
- It is assumed that this heat pump air conditioner will be operated and serviced by English speaking people. If this is not the case, the customer should be provided with safety, caution and operating signs in the native language.
- If you have any questions, contact your distributor or dealer of HITACHI.
- This manual provides common descriptions and information covering other models as well as the one you are using.
- This heat pump air conditioner is designed with the following temperatures in mind. Operate the heat pump air conditioner within this range.

Temperature (°C)

		Maximum	Minimum
Cooling Operation	Indoor	30 DB	21.5 DB
	Outdoor	43 DB	-5 DB
Heating Operation	Indoor	25 DB	17 DB
	Outdoor	15 WB	-20 WB

DB: Dry Bulb, WB: Wet Bulb

This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

CHECKING PRODUCT RECEIVED

- Upon receiving this product, inspect it for any shipping damage.
  Claims for damage, either apparent or concealed, should be filed immediately with the shipping company.
- Check the model number, electrical characteristics (power supply, voltage and frequency) and accessories to determine if they are correct.

The standard utilization of the unit shall be explained in these instructions.
Therefore, the utilization of the unit other than those indicated in these instructions is not recommended.
Please contact your local agent, as the occasion arises.
HITACHI's liability shall not cover defects arising from the alteration performed by a customer without HITACHI's consent in a written form.

SAFETY SUMMARY

< Signal Words >

- Signal words are used to identify levels of hazard seriousness.
  Definitions for identifying hazard levels are provided below with their respective signal words.

⚠ DANGER : DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠WARNING : WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION : CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE : NOTICE is used to address practices not related to personal injury.

NOTE : NOTE is useful information for operation and/or maintenance.

SAFETY SUMMARY

⚠ DANGER

- Do not perform the installation work, refrigerant piping work, drain pump, drain piping and electrical wiring connection without referring to our installation manual. If the instructions are not followed, it may result in a water leakage, electric shock or a fire.
- Use the specified non-flammable refrigerant (R410A) to the outdoor unit in the refrigerant cycle. Do not charge the unit with materials other than R410A, such as hydrocarbon refrigerants (propane, etc.), oxygen, flammable gases (acetylene, etc.) or poisonous gases when installing, maintaining and moving the unit. Contamination of these are extremely dangerous and may cause an explosion, a fire, and an injury.
- Do not pour water into the indoor unit or outdoor unit. These products are equipped with electrical parts. If water is poured, it will cause a serious electrical shock.
- Do not open the service cover or access panel for the indoor or outdoor unit without turning OFF the main power supply.
- Do not touch or adjust safety devices inside the indoor unit or outdoor unit. If these devices are touched or readjusted, it may cause a serious accident.
- Refrigerant leakage may lead to insufficient air and cause difficulty with breathing. Turn OFF the main switch, extinguish all naked flames and contact your service contractor, if refrigerant leakage should occur.
- Prior to installation work, make sure to conduct refrigerant leakage test. The refrigerant (Fluorocarbon) for this unit is non-flammable, non-toxic and odorless. However, if it should leak and contact with fire, toxic gas will be generated. Also because the fluorocarbon is heavier than air, it settles close to the floor, which could cause suffocation.
- The installer and system specialist shall secure safety against refrigerant leakage according to local regulations or standards.
- Use an ELB (Earth Leakage Breaker).
  If it is not used, an electric shock or a fire can be caused in the event of a fault.
- Do not install the outdoor unit where there is high level of oil mist, flammable gases, salty air or harmful gases such as sulfur.
- When installing the unit, make sure to connect the refrigerant pipes before the compressor starts operating. When maintaining, relocating and disposing the unit, remove the refrigerant pipe after the compressor stops. If the refrigerant pipes are not connected and the compressor are operated with the stop valve opened, the refrigerant cycle will be subjected to extremely high pressure, which may cause an explosion, a fire and an injury.
- Do not modify protection devices such as a pressure switch. Modification to protection devices (short circuit, etc.) might cause a fire and an explosion.

SAFETY SUMMARY

⚠WARNING

- Do not use any sprays such as an insecticide, lacquer or hair spray, or other flammable gases within approximately one (1) meter from the system.
- If the circuit breaker or fuse is often activated, stop the system and contact your service contractor.
- Check that the ground wire is securely connected. If the unit is not correctly grounded, it lead electric shock. Do not connect the ground wiring to a gas piping, water piping, lighting conductor or ground wiring for telephone.
- Connect a fuse with specified capacity.
- Before performing any brazing work, check to ensure that there is no flammable material around. When handling the refrigerant be sure to wear leather gloves to prevent cold injuries.
- Protect the wires, electrical parts, etc. from rats or other small animals. If not, rats may gnaw at unprotected parts, which may lead to a fire.
- Fix the cables securely to make sure that the terminals are not subjected to an external force. External forces on the terminals could lead to heat generation and a fire.
- Provide a sufficiently strong foundation. If not, the unit may fall down and it may lead to injuries.
- Do not install the unit in a place where oil, vapor, organic solvent and corrosive gas (ammonia, sulfur compound and acid) may be present in quantities.
  It may cause refrigerant leakage due to corrosion, electrical shock, deteriorated performance and breakage.
- Perform electrical work according to this Installation Manual and all the relevant regulations and standards. Failing to follow these instructions can cause capacity shortage and performance degradation, resulting in an electric shock and a fire.
- Use specified cables between units. Selecting incorrect cables may cause an electric shock or a fire.
- Ensure that the wiring terminals are tightened securely with the specified torques. If not, generating fire or an electric shock at the terminal connection part may occur.

⚠CAUTION

- Do not step on the product nor put any material on it.
- Do not put any foreign material on the unit or inside the unit.
- Provide a strong and correct foundation so that;

  a. the outdoor unit does not incline.
  b. abnormal sound dose not occur.
  c. the outdoor unit will not fall down due to a strong wind or an earthquake.

SAFETY SUMMARY

NOTICE

- Do not install the indoor unit, outdoor unit, remote control switch and cable within approximately 3 meters from strong electromagnetic wave radiators such as medical equipment.
- Supply electrical power to the system to energize the crankcase heater for 12 hours before startup after a long shutdown.
- Make sure that the outdoor unit is not covered with snow or ice, before operation.
- The packaged air conditioner may not be operated normally under the following cases.

  * In case that electrical power for the packaged air conditioner is supplied from the same power transformer as the device with high electricity consumption*.

  * In case that the power source wires for the device* and for the packaged air conditioner are located close to each other.

  Device*: (Ex) Lift, container crane, rectifier for electric railway, inverter power device, arc furnace, electric furnace, large-sized induction motor and large-sized switch.

  Regarding the cases mentioned above, surge voltage may be inducted in the power supply wiring for the packaged air conditioner due to a rapid change in power consumption of the device and an activation of switch.
  Therefore, check the field regulations and standards before performing electrical work in order to protect the power supply for the packaged air conditioner.

NOTE

- It is recommended that the room be ventilated every 3 to 4 hours.
- The heating capacity of the heat pump unit decreases according to the outdoor air temperature. Therefore, it is recommended that auxiliary heating equipment be used in the field when the units is installed in a low temperature region.

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Technical Data

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1. Features

1.1 System Features

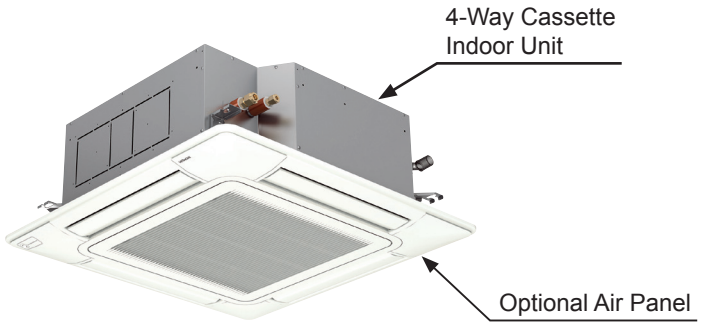
New SET FREE FSN3 4-Way Cassette Type Indoor Units

HITACHI proudly introduces the New SET FREE FSN3 4-Way Cassette Type Indoor Units, the highly-efficient and reliable air conditioning system, for the East and the Southeast asian markets. Recently, an increasing number of buildings are requiring "Intelligent" facilities - communication networks, office automation, as well as a comfortable environment. Particularly, comfortable space is required all the day through the year in office buildings. This multi-split system air conditioner, SET FREE can meet these requirements. The proven combination of the scroll compressor and the inverter provides the best air conditioning for small/medium office buildings.

New Line-up

Type		Model Name
Indoor Unit	4-Way Cassette	RCI-1.0FSN3
		RCI-1.5FSN3
		RCI-2.0FSN3
		RCI-2.5FSN3
		RCI-3.0FSN3
		RCI-4.0FSN3
		RCI-5.0FSN3
		RCI-6.0FSN3
Air Panel (Optional)	without Motion Sensor	P-AP160NA1
	with Motion Sensor	P-AP160NAE

1.2 Appearance



RCI-1.0 - 6.0FSN3

1.3 Features of Indoor Units

Characteristic	Outline
Improvement of Energy Saving (1) The high performance heat exchanger, the high efficient turbo fan and the new DC drain pump are adopted. (2) The energy saving is improved by the air panel with the motion sensor.	The energy saving is improved by the developed new heat exchanger and the turbo fan, and adopting the motion sensor.
Adoption of New Structured Silky Flow Louver	It softens the discomfort by temperature irregularity and cold draft.
Flexibility of Installation to High Ceiling	The air flow volume “HIGH 2” is added, which is larger than “HIGH”.
Drain Pan: Adoption of New Antibacterial Agent and Larger Diameter of Drain Plug	It prevents the generation of slime, and the maintainability is improved.

NOTICE

The remote control switch “PC-ARF” must be used for this 4-Way Cassette type indoor units.
(The remote control switch “PC-AR” can NOT be used.)

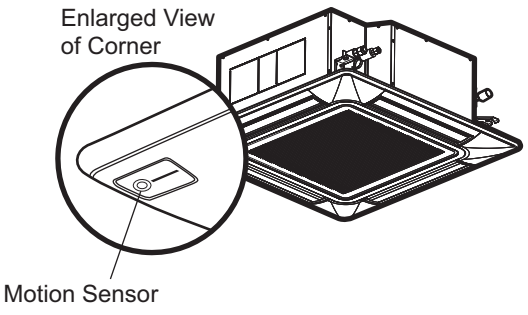
The details are described as follows.

▮ Improvement of Energy Saving

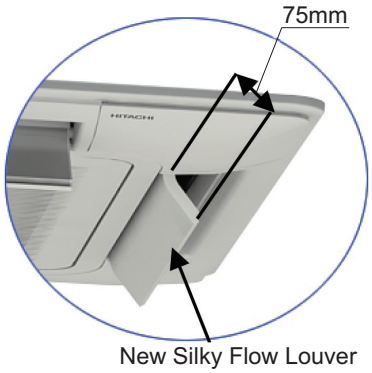
(1) Adoption of High Performance Heat Exchanger, High Efficient Turbo Fan and New DC Drain Pump
The high energy-saving operation is realized by adopting the high performance heat exchanger with the small diameter pipe (ϕ5mm), the turbo fan with 3D twisted blade and the electrical-power-saving drain pump with DC motor.

(2) Improvement of Energy-Saving Operation by Adopting Air Panel with Motion Sensor

* Adoption of Motion Sensor Function
-The motion sensor function controls the setting temperature, air flow volume and air flow direction according to the extent of human activity.
-The energy saving has also been improved by combining the motion sensor function and the individual operating function, compared with the standard operation.



■ Adoption of New Structured Silky Flow Louver
The newly-structured silky flow louver is adopted to soften the discomfort by the temperature irregularity and the cold draft. The individual control setting for each louver is available.



■ Flexibility of Installation to High Ceiling
The air flow volume setting function “HIGH 2” is added to the existing air flow volumes of “HIGH”, “MED” and “LOW”. As a result, high speed mode setting by the remote control switch is not required in the case of installation to the high ceiling.

[Current Model]	Added	[New Model]
		HIGH 2
HIGH		HIGH
MED		MED
LOW		LOW

< Supported Ceiling Height (In the case of 4 Air Flow Directions >

High Speed Mode (C5)	Air Flow Volume Mode	1 to 3HP	4 to 6HP
Standard (00)	HIGH	2.7m	3.2m
	HIGH 2	3.5m	4.2m

NOTES:

1. If the high speed 2 setting (02) is selected with the remote control switch, the air flow volume of both “HIGH 2” and “HIGH” will be indicated as “HH2” as shown in the table. This is because the air flow volume “HIGH” and “HIGH2” are regarded as “HH2” in high speed 2 (02) setting.

High Speed Mode (C5) *(1)	Air Flow Volume Mode (Remote Control Switch LCD Indication)			
	HIGH 2	HIGH	MED	LOW
	Internal Air Flow Volume Mode *(2)			
Standard (00)	HH2	Hi	Me	Lo
High Speed 1 (01)	HH2	HH1	Hi	Me
High Speed 2 (02)	HH2	HH2	HH1	Hi

*(1): Optional setting item No. for Function Selection of Remote Control Switch.
*(2): Five (5) internal modes, HH2, HH1, Hi, Me and Lo, are used as shown above according to selected air flow volume.

2. In the case of using the optional filter (except the long life filter), the high speed mode setting is required.

■ Drain Pan: Adoption of New Antibacterial Agent and Larger Diameter of Drain Plug

* The silver ions antibacterial agent is newly adopted in the drain pan, and it inhibits generation of mold or bacterium, which is the cause of slime. The antibacterial agent (cased) is fixed in the drain pan. (Exchangeable, term of validity is 10,000 hours of the cooling operation (Approx. 5 years))
* The maintainability is improved because the drain plug diameter is changed from ϕ10 to ϕ22.


Antibacterial Agent (Cased)

Motion Sensor Control

The air conditioning capacity is saved automatically depending on a situation and the amount of detected human activity by adopting the motion sensor on the corner of the air panel. The energy saving can be improved more with the individual operating function. In addition, the operation can stop automatically if the absent situation continues for more than 30 minutes[*1)]. The motion sensor keeps the indoor environment more comfortable and reduces unnecessary operations[*2)].

*1): The default setting is “30 minutes”. However, the setting is changeable.

*2): The default setting is “Running Operation”. However, “Automatic Stop” can be selected by setting from the remote control switch.

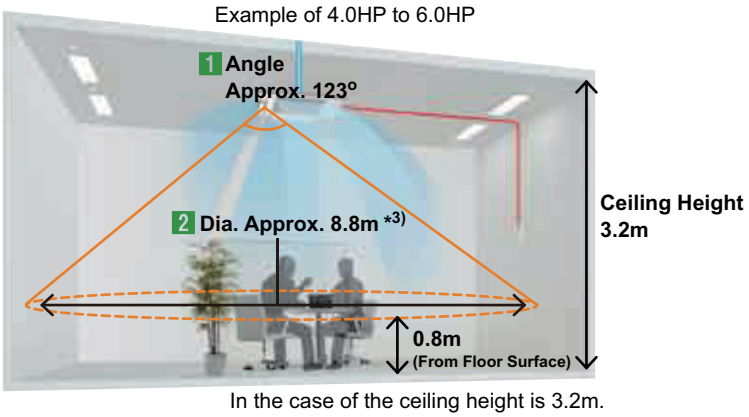
- Detecting Angle: Approx 123°
- Detecting Area for Human Activity

< for RCI-1.0FSN3 to RCI-3.0FSN3 >
Detecting Diameter: Approx. 7m[*3)] (0.8m…height from floor surface)

< for RCI-4.0FSN3 to RCI-6.0FSN3 >
Detecting Diameter: Approx. 8.8m[*3)] (0.8m…height from floor surface)

*3): The detecting area is smaller if a person in the room hardly moves just like when one stretches on a chair, etc. The detecting diameter can change to approximately 6.0m.

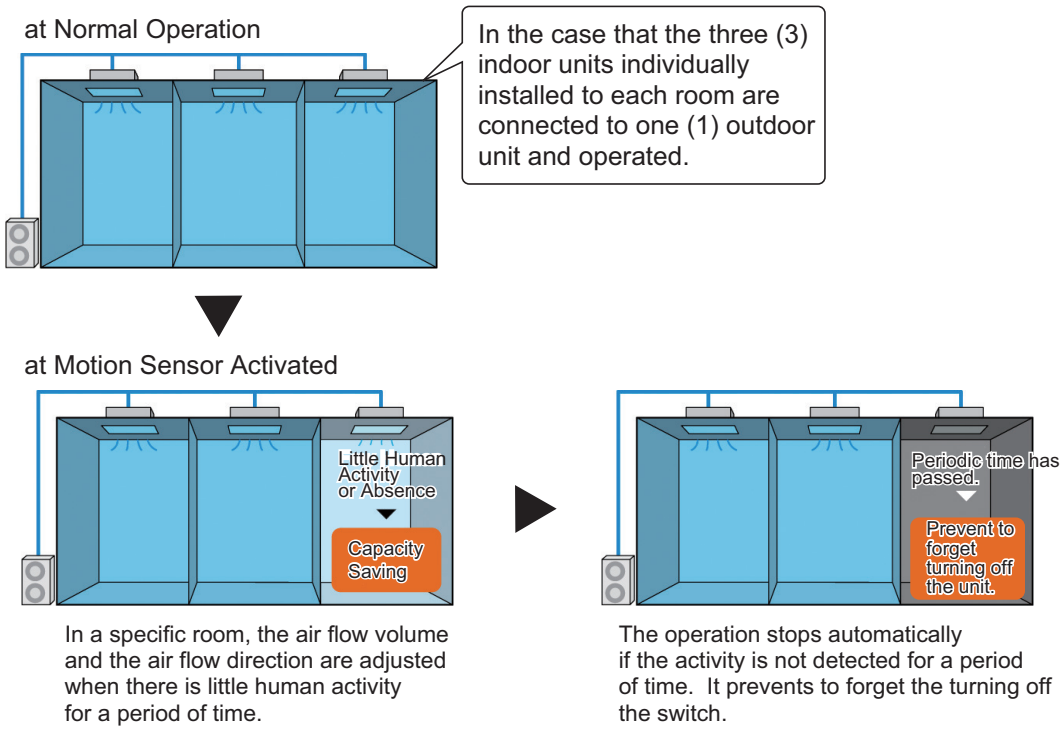
Detecting Area



In the case of the ceiling height is 3.2m.

NOTICE: About Motion Sensor

1. The motion sensor detects the human activity. However, if someone is in a room with a bit motion, the motion sensor may detect the absence of human.
2. The motion sensor may detect human activity, if the indoor unit with the motion sensor is installed near a moving object having different temperature from ambient atmosphere.
3. The motion sensor may detect the absence of human even if someone is in a room, when the indoor unit with the motion sensor is installed on a high ceiling (higher than 4m).



ATTENTION:

Do not use the motion sensor function when a baby or a handicapped person stays alone.
The motion sensor may detect the absence of human and the operation may stop in the case of someone staying for long time with a bit motion.

▮ Effect of Energy Saving by Motion Sensor

In the case of the motion sensor being set at “ON” by the remote control switch the power consumption can be reduced as follows, compared with the temperature setting before adjusting the operation (at cooling mode).

The power consumption can be reduced by max 7% by adjusting 1°C increased.

The power consumption can be reduced by max 14% by adjusting 2°C increased.

(Based on Japanese Model)

▮ Sequence of Detection by Motion Sensor

Motion Sensor detects the infrared variation by sensor elements.

↓

Analog voltage is generated according to the infrared variation.

↓

Analog voltage is convert to an digital signal at the threshold.

▮ Sequence of Controlling Motion Sensor at Indoor Unit

The Indoor unit detects whether someone is present or not according to the condition of the digital signal.

↓

The Indoor unit measures the frequency of detected human activity for a period of time.

↓

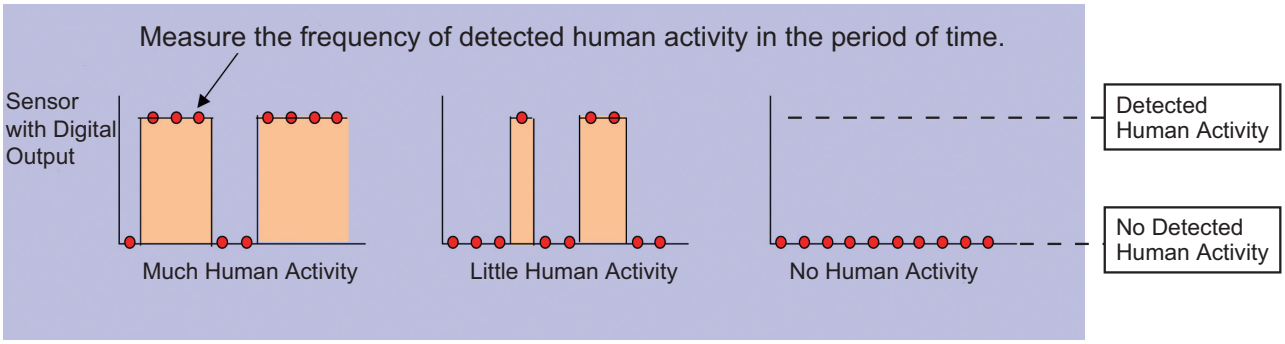
The Indoor unit determines the extent of human activity depending on the calculated reaction rate (frequency).

↓ *Reaction Rate (Frequency) = Detected Counts of Human Activity / Measured Counts of Time

The Indoor unit changes to each operating mode depending on the extent of human activity and the elapsed time.

↓

The Indoor unit controls the operation automatically in each operating mode.

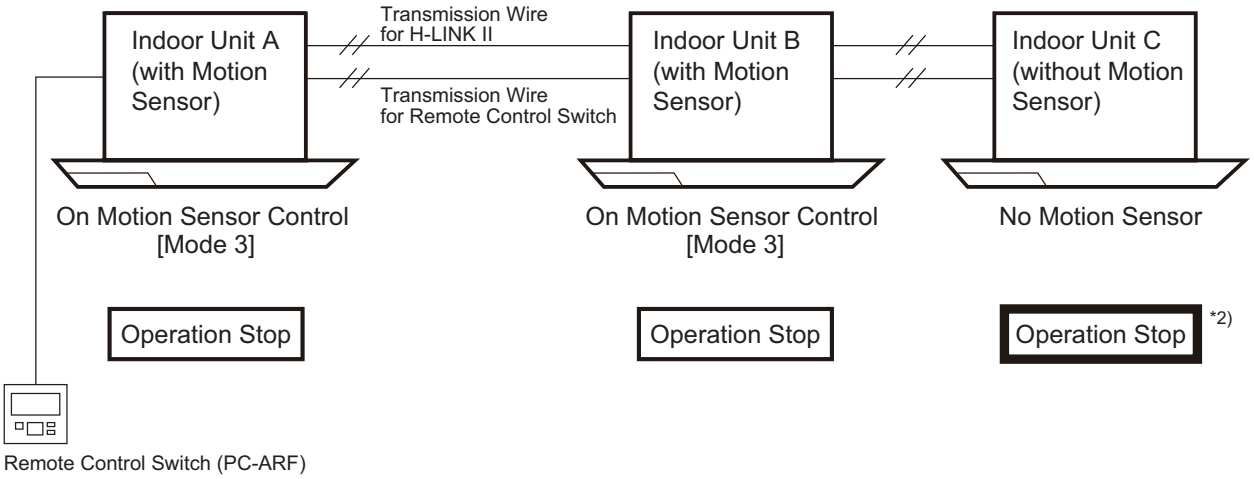


▮ Descriptions of Motion Sensor Control Condition

Condition		[Standard Operation]	[MODE 1]	[MODE 2]	[MODE 3]		
MENU on Remote Control Switch	"If Absent"	-	-	-	Running Operation	Standby	Stop*1)
Indoor Unit	Adjusting Value of Temperature Setting	Adjusting 0°C	Adjusting 1°C	Adjusting 2°C		Forced Thermo-OFF	[Mode3] Same Condition as Standby
	Air Flow Volume	Setting Air Flow Volume	Setting Air Flow Volume-1 (Min: Low)	Setting Air Flow Volume-1 (Min: Low)		Slo	
	Air Flow Direction	Set Air Flow Direction	Horizontal	Horizontal		Horizontal	

*1): The operation will be stopped by the wired remote control switch PC-ARF when all the indoor units with the motion sensors switch to "MODE 3". If the operation is stopped by the wired remote control switch PC-ARF, it will not restart even if the motion sensor detects the human motion. The indoor unit without the motion sensor and the indoor unit with the motion sensor can be mixed. In this case, the indoor unit without the motion sensor will also be stopped by the wired remote control switch PC-ARF as shown in the figure below*2).

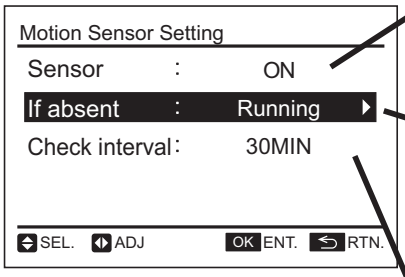
In the case of the motion sensor setting "If Absent: OFF" is set by the remote control switch.



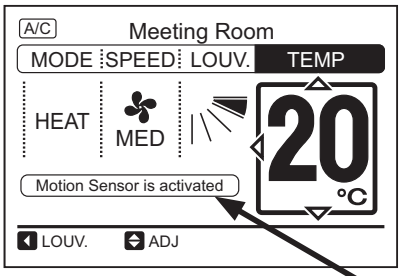
▮ Remote Control Switch (PC-ARF) Setting and Display

The motion sensor setting can easily be set with the remote control switch. The indication of “Motion sensor is activated” is displayed on the remote control switch LCD during controlling the motion sensor.

LCD Indication during Setting



LCD Indication during Operation



1. Sensor
   - ON: The operating control function by the motion sensor is activated.
   - OFF: The operating control function by the motion sensor is not activated.

2. If absent
   - Stop:
     The operation is stopped by the remote control switch when all the indoor units (with motion sensor) connected with same remote control switch detect absence of human.
   - Stand-by:
     The operation mode is the fan operation at “Slo” speed.
   - Running:
     The operation continues with the capacity saved after the absence of human is detected. (default setting)

3. Check interval
   If the motion sensor detects human absence continuously within the selected time (30, 60, 90, 120 or 180 minutes), the function “If absent” will be executed. (The default setting is 30 minutes.)

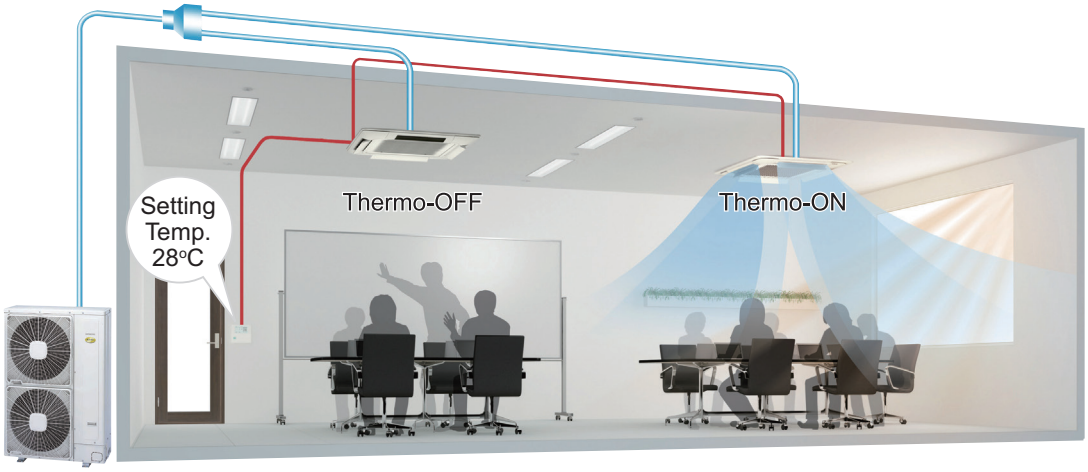
“Motion sensor is activated” is displayed on the remote control switch LCD during capacity saved operation or operation stopped by the motion sensor control.

▮ Comfortability and Installability

(1) Reduction of Local Temperature Irregularity and Making Comfortable Room Condition

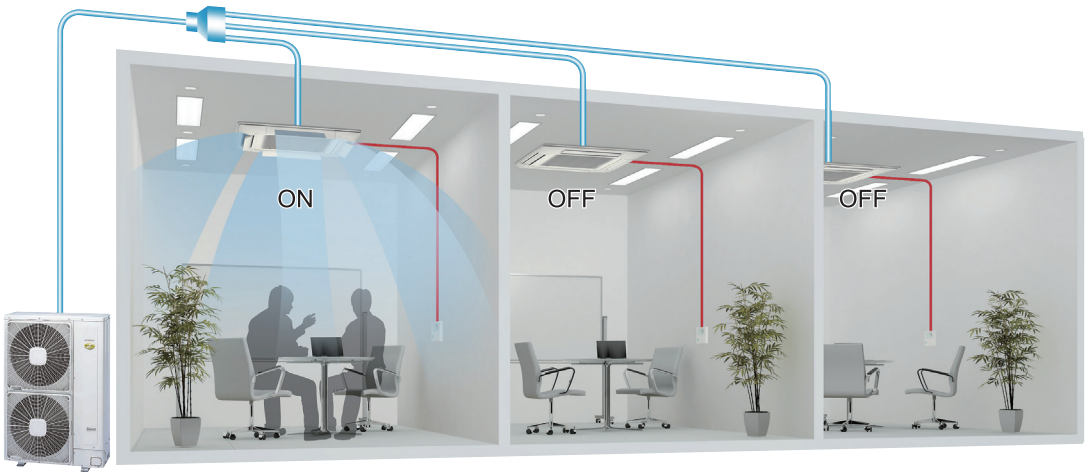
The individual thermo-ON/OFF control is available with one remote control switch to control for multiple indoor units. The air conditioning operation can keep the room temperature appropriate according to the different air-conditioning load such as an interior zone and a perimeter zone of each room. As a result, this function provides the comfortable air conditioning and energy saving.

- Interior Zone: a zone that is not affected by the insolation or air outside
- Perimeter Zone: a zone that is affected by the insolation or air outside



(2) Individual Operation

The individual thermo-ON/OFF control is available by connecting a remote control switch to each indoor unit. This makes it possible to operate the indoor unit only for a room in use, leading to energy saving .



▮ Adoption of Transmission System H-LINK II

The total number of the indoor units to be controlled is increased from 128 to 160, and the total number of the refrigerant cycles to be controlled is increased from 16 to 64 by combination with the equipments supporting the transmission system H-LINK II.

● Comparison with H-LINK System

Item	H-LINK	H-LINK II
Number of Max. Ref. Group / System	16	64
Address Setting Range of Indoor Units / Ref. Group	0 to 15	0 to 63
Number of Max. Indoor Unit / System	128	160
Total Devices Q'ty in the same H-LINK	145	200
Max. Wiring Length	Total 1,000m (5,000m*)	
Recommended Cable	Twist Pair Cable with Shield, Over 0.75mm^2 (Equivalent to KPEV-S)	

*: In the case that 4 (four) H-Link relays “PSC-5HR” are used (opetional).

● H-LINK II System

The provided H-LINK II wiring system requires only two transmission wires to connect each indoor unit and outdoor unit up to 64 refrigerant cycles, and to connect wires for all indoor units and outdoor units.

<Specifications>
* Transmission Wire: 2-Wire
* Polarity of Transmission Wire: Non-Polar Wire
* Maximum Outdoor Units to be Connected: 64 Units per System
* Maximum Indoor Units to be Connected: 160 Units per H-LINK II System
* Maximum Wiring Length: Total 1,000m (including CS-NET)
* Recommended Cable: Twist-Pair Cable with Shield, over 0.75mm^2 (Equivalent to KPEV-S)
* Voltage: DC5V

1.4 Features on Options

HITACHI provides the optional accessories for indoor units.

		RCI-FSN3
Liquid Crystal Remote Control Switch	PC-AR	×
	PC-ARF	○ (✳1)
Wireless Remote Control Switch	PC-LH3A	×
	PC-LH3B	○
Half Size Remote Control Switch	PC-ARH	×
7-Day Timer	PSC-A1T	○
Central Station	PSC-A64S	○ (✳2)
	PSC-5S	○ (✳2)
	PSC-A64GT	○
Central Station DX	PSC-A128WX + PSC-AS2048WXB	○ (✳2)
Centralized ON/OFF Controller	PSC-A16RS	○
H-Link Relay	PSC-5HR	○
Receiver Kit	PC-ALHZ	×
	PC-ALH3	○
Remote Control Cable	PRC-5K	○
	PRC-10K	○
	PRC-15K	○
3P Connector Cable	PCC-1A	○
Remote Sensor	THM-R2A	○

○ : Available
× : Not Available

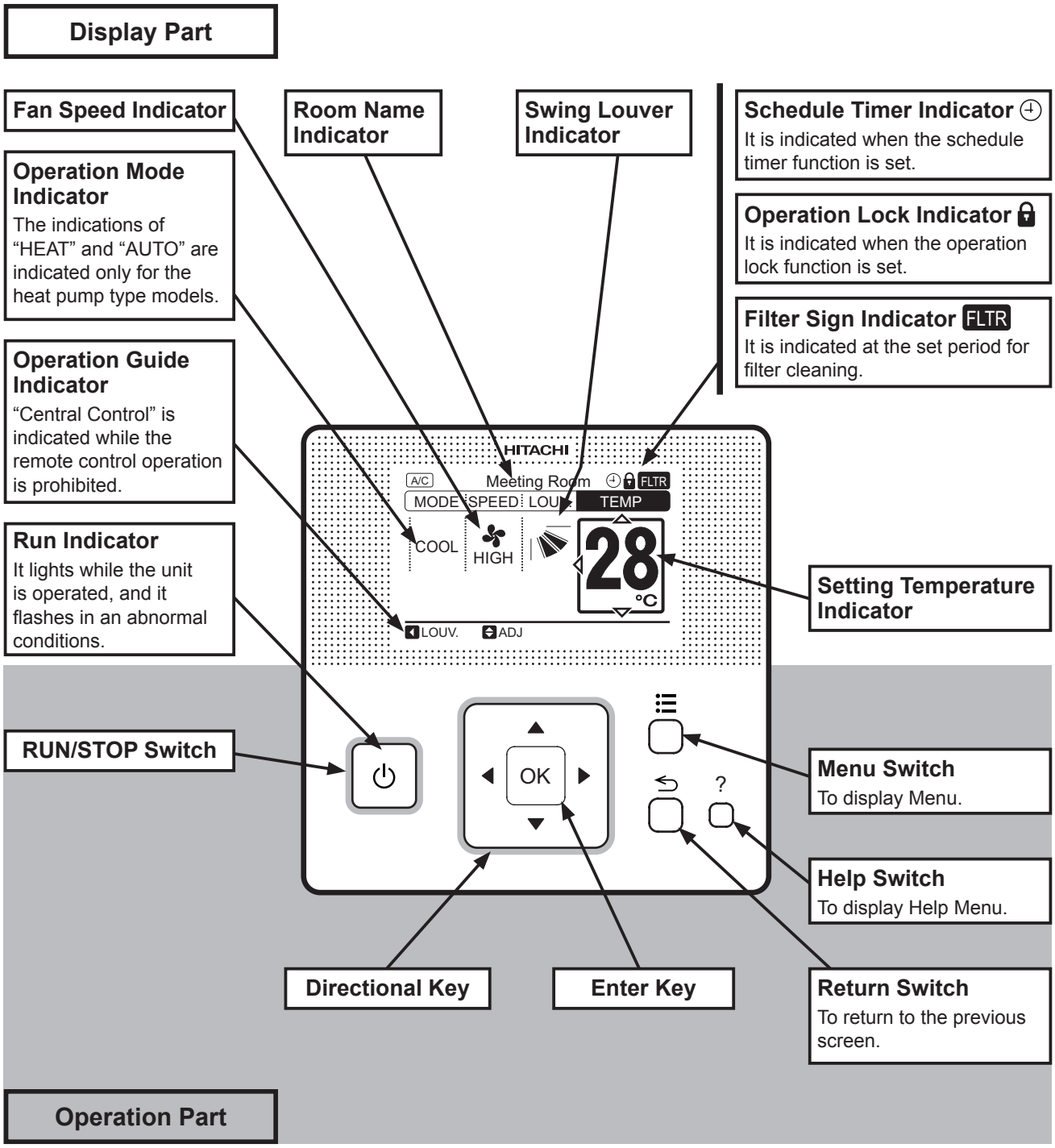
(✳1) : When FSN3 4-way cassette type indoor unit is used with the remote control switch, PC-ARF must be used.

(✳2) : These central stations do not provide support for the air flow volume function “HIGH 2” of FSN3 4-way cassette type. Therefore, when FSN3 4-way cassette type indoor unit is used with the central stations, the remote control switch “PC-ARF” or “PC-LH3B with PC-ALH3” is required.

1.4.1 Liquid Crystal Remote Control Switch: PC-ARF

Model: PC-ARF
Order No.: 60291722

The figure below shows all the indications for reference. The actual display during operation is different.

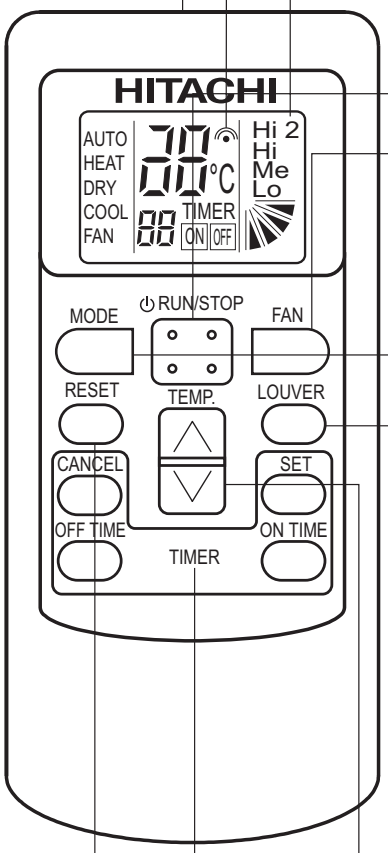


NOTE:
Do NOT press the switches hard or press with sharply pointed material such as a ball point pen.
The operation part of the remote control switch may be damaged.
Make sure that the switches are pressed softly with fingers.

When 4-Way Cassette type indoor unit is selected, "PC-ARF" or "PC-LH3B" shall be used together.
Other remote control switches can not be used.

1.4.2 Wireless Remote Control Switch: PC-LH3B

Model: PC-LH3B
Order No.: 60291769



● Transmitter
Point the transmitter towards the receiver of the indoor unit when sending commands. The transmitting indication on the liquid crystal display flashes when sending commands.

● Transmitting Indication

● Liquid Crystal Display
The set temperature, timer operation, position of air louver, operation mode, air flow mode, etc., are indicated. The diagram of the display shown on the left is for explanation purposes only. The display will differ during actual operation.

● Run/Stop Switch
Operation of the unit can be started or stopped by pressing this switch.

● Fan Speed Switch
Press this switch to select the fan speed. By repeatedly pressing the button, the setting will change sequentially through HIGH 2, HIGH, MED and LOW. (Fan speed is fixed at Low for dry operation.)

● Mode Selection Switch
By repeatedly pressing the mode switch, the unit cycles through the different operating modes in the order of HEAT, DRY, COOL and FAN. To select auto operation, press the switch for more than 3 seconds. If the switch is pressed again, it will return to FAN mode.

● Louver Angle Switch
The airflow angle and auto-louver operation can be set by this switch. When pressing the switch, the angle is changed in the following order. (In cool or dry operation modes, steps 1-5 and Auto swing are available.)

● Temp. Switch
The setting temperature can be adjusted using this switch.

● Timer Switches
Four switches control the timer operation.
The set time can be changed by pressing “ON TIME” or “OFF TIME” and is set by pressing the “SET” switch. Timer operation can be cancelled using “CANCEL”.

● Reset Switch
(1) Press the “RESET” switch to turn off the filter indicator lamp after filter cleaning.
(2) If the unit is stopped abnormally due to protection devices etc., press the “RESET” switch to cancel the control stoppage after the cause of the abnormality has been removed.

1.4.3 7-Day Timer: PSC-A1T

Model: PSC-A1T
Order No.: 60291483

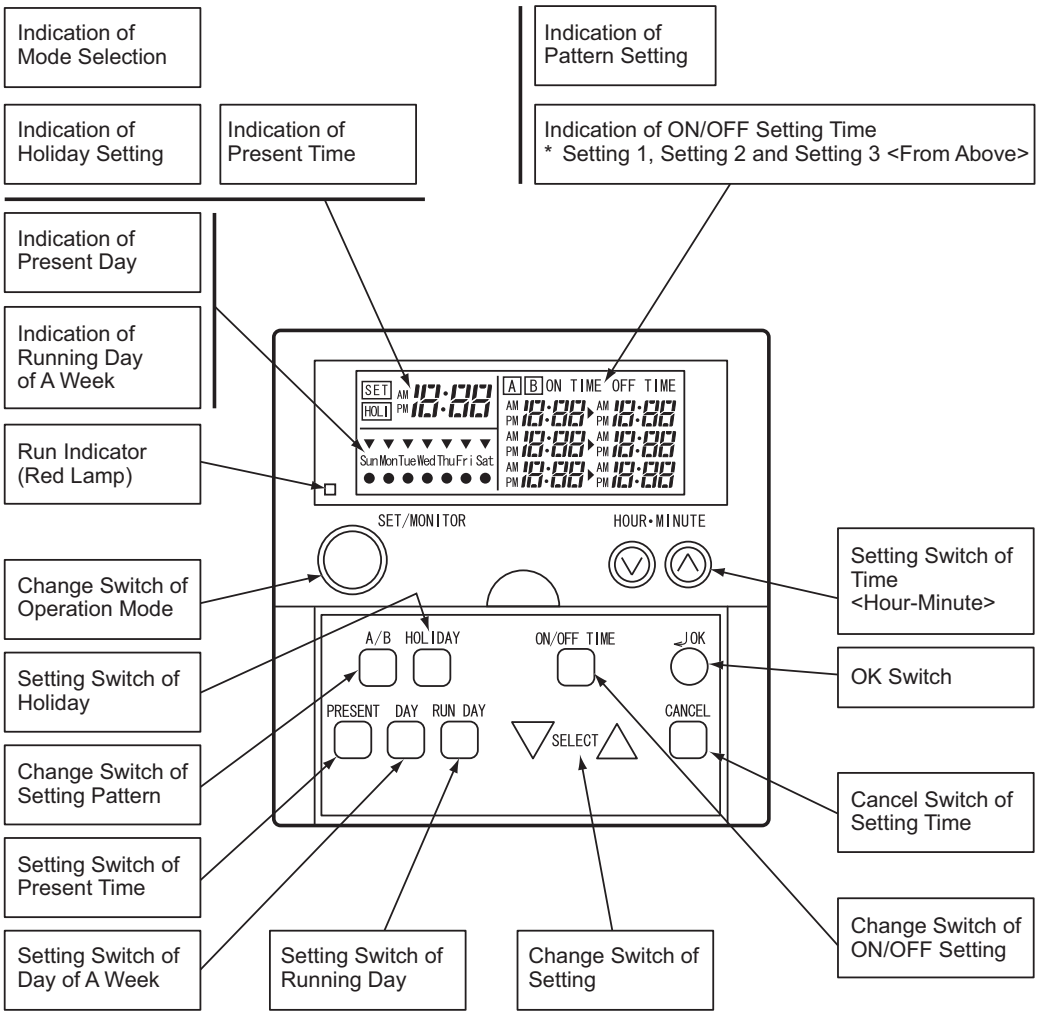
By plugging this timer into the optional remote control switch, daily ON/OFF operation control throughout the week is available.
7-Day Timer has power failure back-up dry cell. The ON/OFF control is available three times a day at a maximum and the ON/OFF time can be set by the minute.

Functions
This 7-day timer provides the following functions.

- ON/OFF Setting Time in a Week.
- ON/OFF Setting is available three times a day.
- Present time is indicated.
- Running time is indicated.

Liquid Crystal Display Section

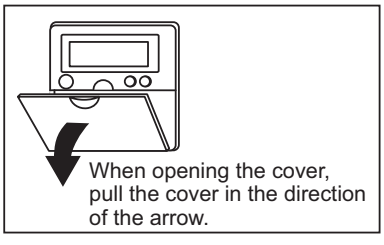
The figure below shows all the indications for reference.
The actual display during operation is different.



Operation Switch Section

The above figure shows the control timer with the cover opened.

The present time and the ON/OFF setting time are indicated by 12-hour units (AM0:00 – 11:59, PM0:00 – 11:59).

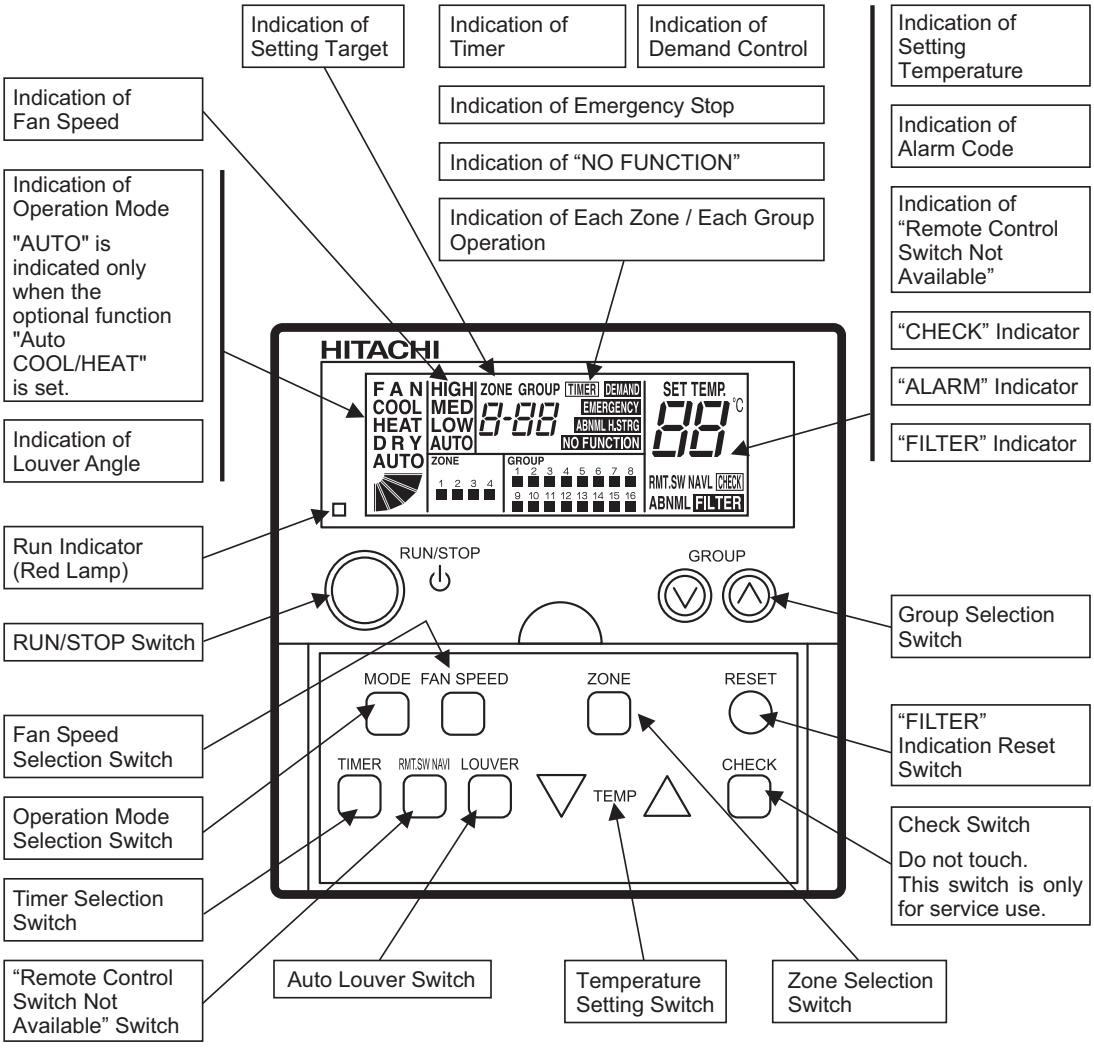


1.4.4 Central Station: PSC-A64S

Model: PSC-A64S
Order No.: 60291480

Liquid Crystal Display Selection

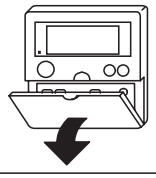
The figure below shows all the indications for reference.
The actual display during operation is different.



Operation Switch Selection

The above figure shows the control timer with the cover opened.

When opening the cover, pull the cover in the direction of the arrow.



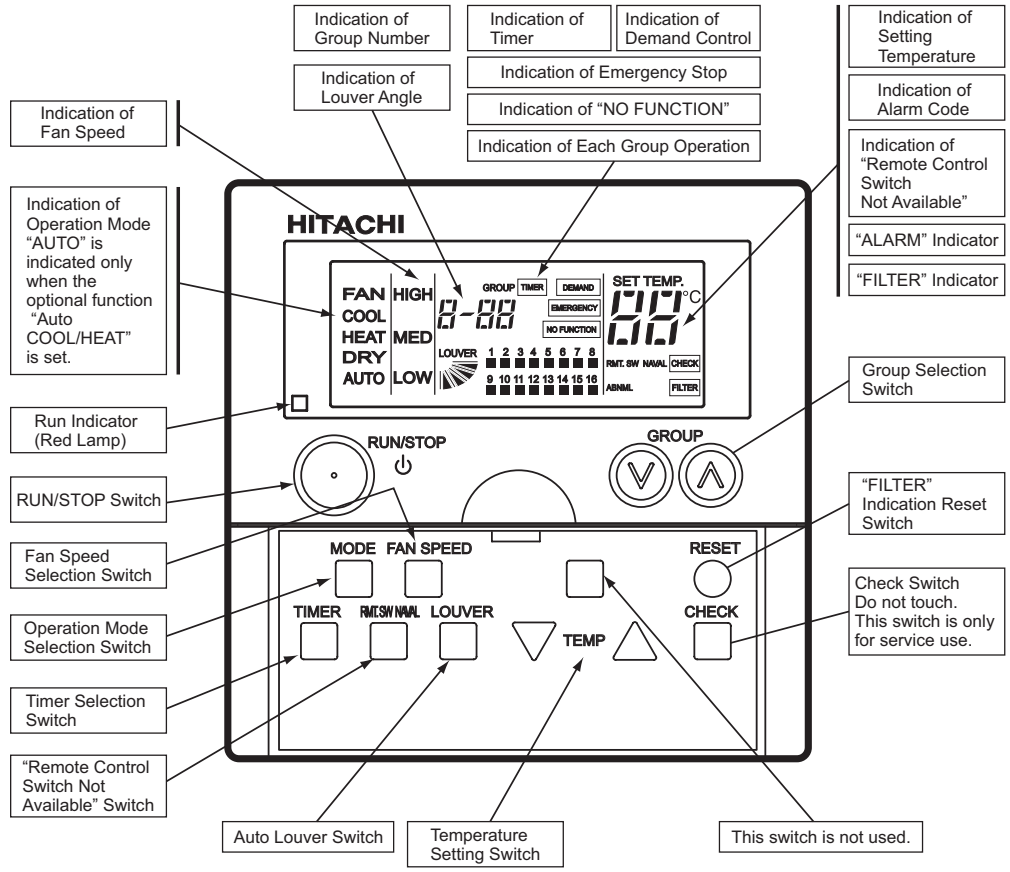
1.4.5 Central Station: PSC-5S

Model: PSC-5S
Order No.: 60299956

This central station is of the soft touch type. (Operation except with finger is not recommended.)
Activation can be checked by referring to the liquid crystal display and LEDs.

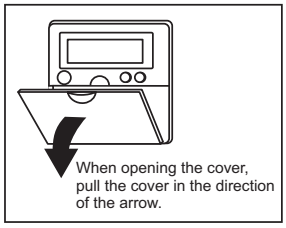
Liquid Crystal Display Section

The figure below shows all the indications for reference.
The actual display during operation is different.



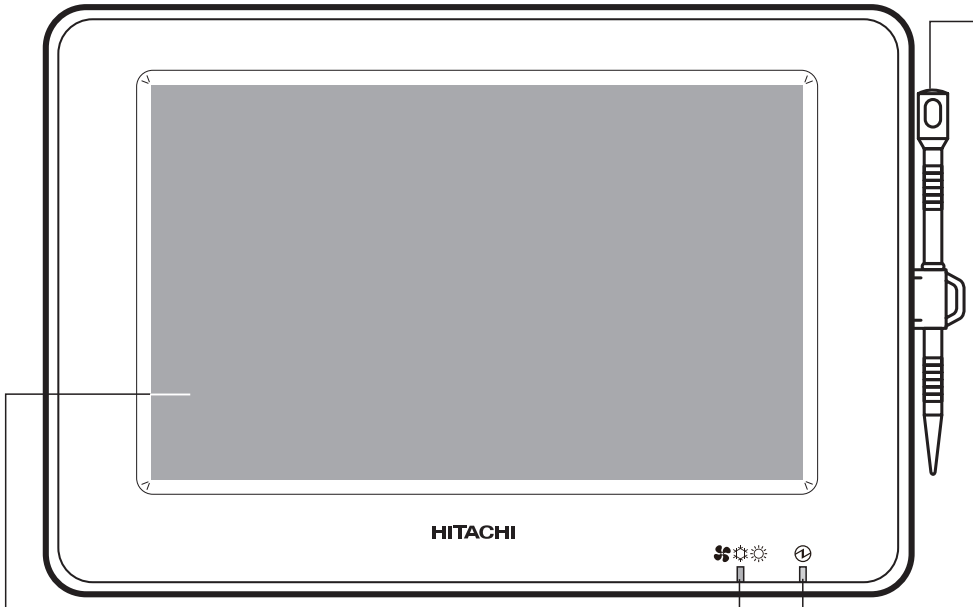
Operation Switch Section

The above figure shows the central station with the cover opened.



1.4.6 Central Station: PSC-A64GT

Model: PSC-A64GT
Order No.: 60291730



Touch Pen

To operate
the touchscreen of
the central station.

Color LCD Display with Touchscreen

To operate and monitor the units on the touchscreen display. It is operated by using touch pen (accessory). The touchscreen display will automatically sleep when the touchscreen is not operated for the given length of time.

Power Indicator

To indicate the power condition of the central station.
OFF (lamp): Power is turned OFF
ON (lamp): Power is turned ON

Operation Indicator

To indicate the Run/Stop condition of the units.
OFF: All the units are stopped.
ON (Green): One or more units are in operation.
Flashing (Red): In abnormal condition

NOTE:
Remove the protection sheet on LCD (liquid crystal display) before using this product.

1.4.7 Central Station DX: PSC-A128WX, PSC-AS2048WXB

Product Name	Model	Order No.
Central Station DX: Adapter	PSC-A128WX	60291728
Central Station DX: Management Software	PSC-AS2048WXB	60291729

(1) Managing Maximum 2048 Groups (2560 Indoor Units) of Air Conditioners
Up to 2560 units of Air Conditioners can be controlled and monitored by one computer.

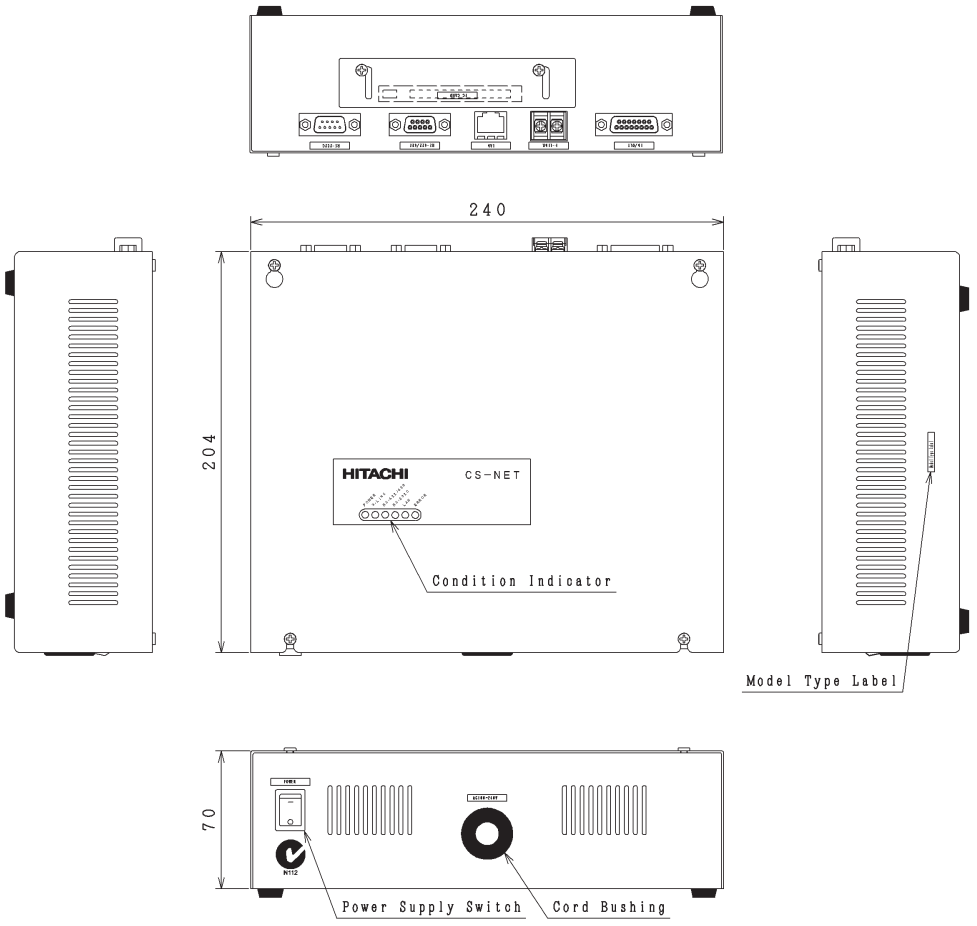
(2) Improved Operability by Tree View and Simple Schedule Setting
- User-friendly display is achieved by laying out whole configuration of the air conditioning system by the tree view.
- "Simple Schedule Setting" is adopted to achieve easy schedule setting.

(3) Graphic Display for Trend Data
"Visualization" is achieved by showing graphics of elapsed operation time, temperature setting and intake temperature for each specified Group or air conditioner.
* Some items may be shown upon certain condition only.

(4) Outdoor Unit Optional Function Setting, Capacity Control, Lower Noise Control
- Outdoor Unit Optional Function Setting, Capacity Control and Lower Noise Control can be set from this system.
- Capacity and Noise can be controlled via schedule setting or manual operation by a user.
* Available only if these functions are supported by the outdoor unit.

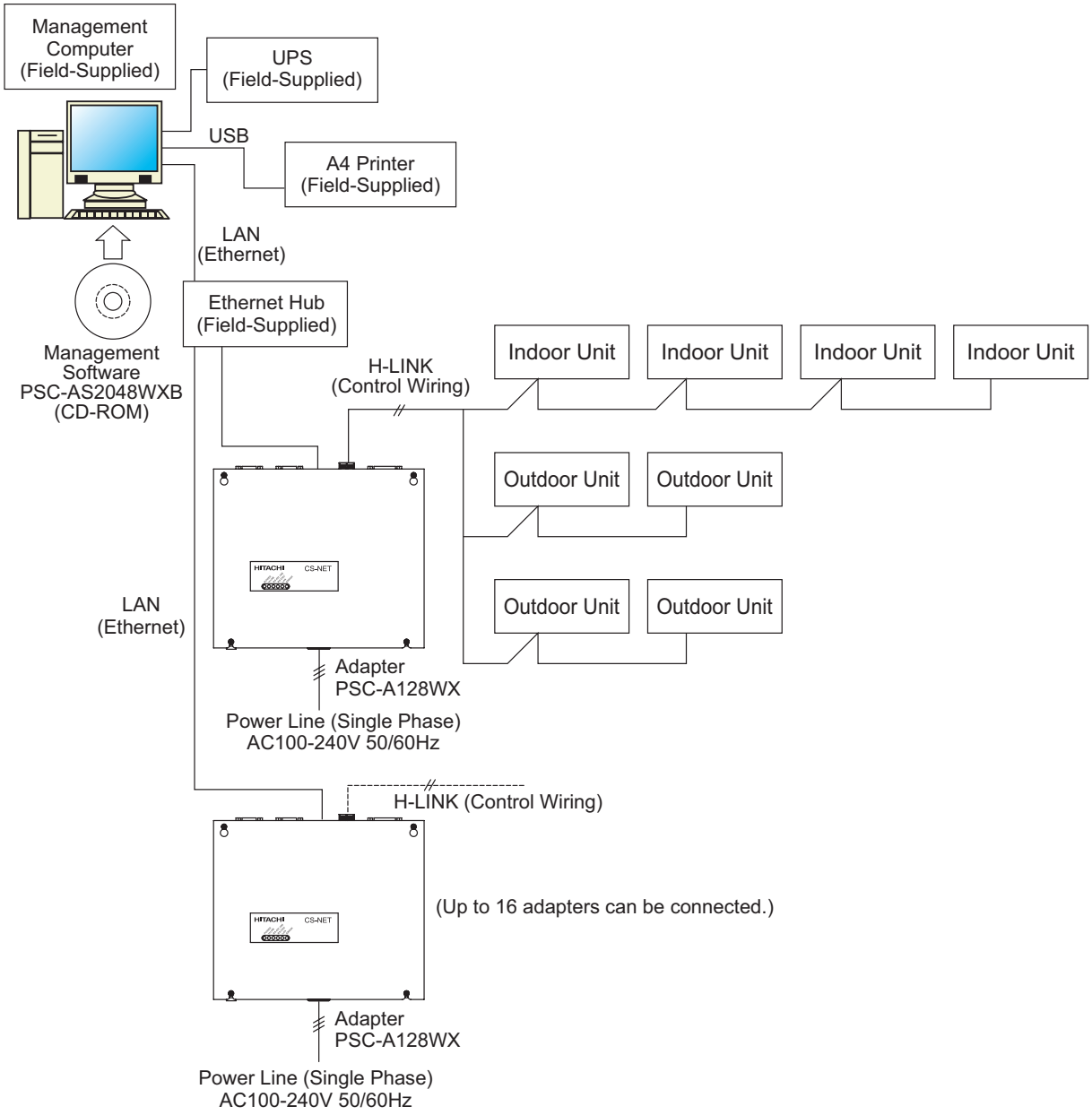
(5) Adopting Operation Ratio
The operation ratio function can be controlled on the same display with monitored air conditioners using the changeover button.

- Adapter
Model: PSC-A128WX



- Management Software
Model: PSC-AS2048WXB

< Example for System Configuration >



< Notice Regarding System Configuration >

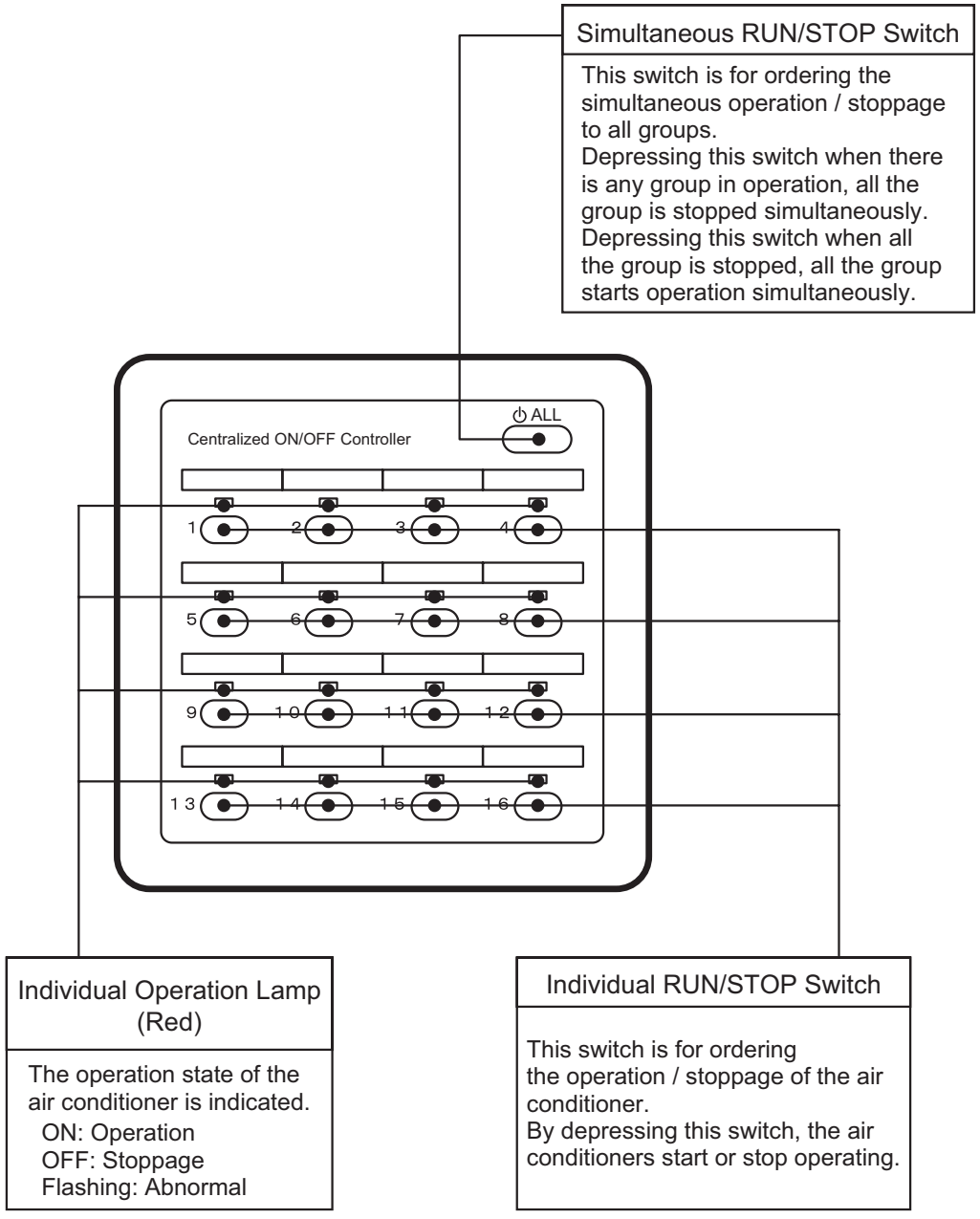
1. It is recommended to connect UPS (Uninterruptible Power Supply) to the magagement computer.
2. Only 1 (one) management computer can exist on 1 (one) system.
3. Management computer is assumed to be always ON. Trend Data, Alarm History and Check Data can not be recorded while the computer is not in the operational state.
4. Use the management computer exclusively to this system.
5. Up to 16 adapters can be connected to 1 (one) system.

< Notice Regarding Power Line >

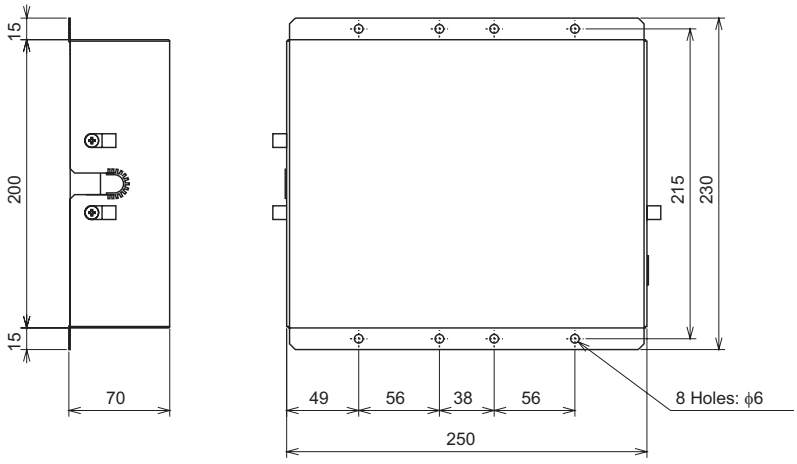
1. UPS will be required for automatic restart of the management computer upon recovery from a power failure.
2. LAN with Wake on LAN functionality or RS-232C will be required for using UPS.

1.4.8 Central Station: PSC-A16RS

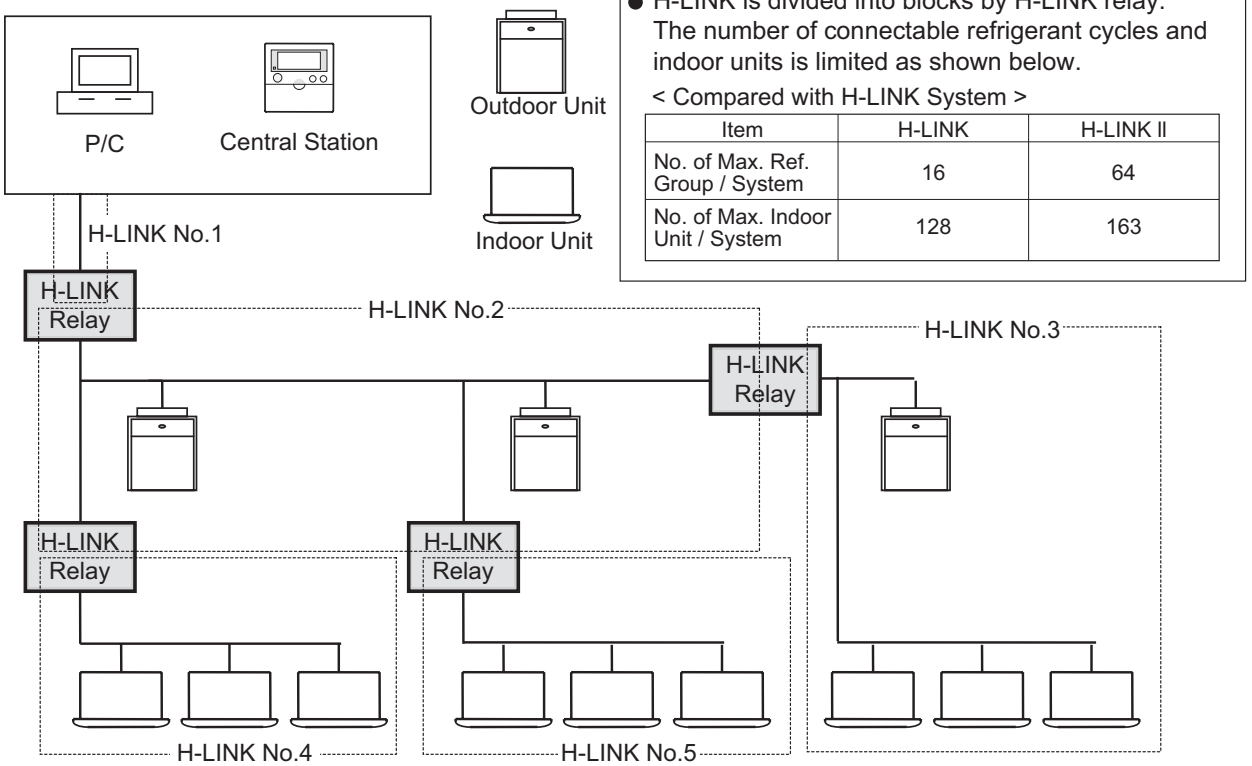
Model: PSC-A16RS
Order No.: 60291485



1.4.9 H-LINK Relay: PSC-5HR



< System Configuration >



- Four H-LINK Relays can be installed at a maximum.
- H-LINK is divided into blocks by H-LINK relay. The number of connectable refrigerant cycles and indoor units is limited as shown below.

< Compared with H-LINK System >

Item	H-LINK	H-LINK II
No. of Max. Ref. Group / System	16	64
No. of Max. Indoor Unit / System	128	163

< Adapted Wires and Wire Length >

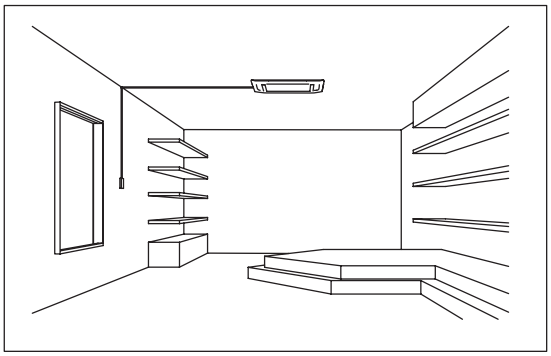
- In the case of the above figure, H-LINK is divided into five blocks. Set up Terminal Resistance in each H-LINK (Refer to the item 4 ”Setting Dip Switch” for details.)
- It is recommended to use twist pair cable (1P-0.75mm^2). The cable type is shown in the following table.
- If twist pair cable is used, the maximum length of each divided H-LINK is 1000m.
- Either shielded or non-shielded cable can be used.
- Twist Pair Cable is available as an optional system accessory. Model: PRC-50L (50m), PRC-100L (100m), PRC-200L (200m)

TYPE	NIHONDENSEN KOUGYOUKAI	HITACHIDENSEN	NIHONDENSEN KOUGYOUKAI	SEKISAIKISAI SIRYOU
without Shield	JKEV	KPEV	KNPEV	KPEV
with Shield (Copper foil)	JKEV-S	KPEV-S	KNPEV-S	KPEV-S
with Shield (stranded)	JKEV-SB	KPEV-SB	KNPEV-SB	KPEV-SV

Length of Wire Cable for Optional Remote Control Switch, Timer and Central Station

As the remote control switches, timer and central stations do not include a remote control cable, prepare one in the field, or use PRC-5K, 10K or 15K.
Use the twist pair cable (1P-0.75mm^2) as transmission wire cable for prevention of the malfunction (The total cable length is max. 500m). When the total cable length is within 30m, other types of cable (more than 0.3mm^2) can be used.

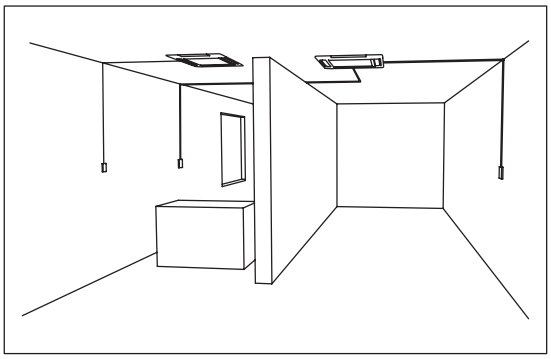
Indoor Unit Quantity: 1
Remote Control Switch Quantity: 1



Application Function of Remote Control Switch

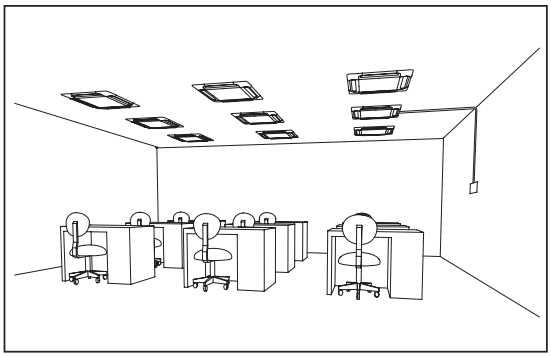
One indoor unit can be controlled by two optional remote control switches separately mounted on the wall.

Indoor Unit Quantity: 1
Remote Control Switch Quantity: 2



One optional remote control switch can start/stop up to 16 indoor units.

Indoor Unit Quantity: 16 (Maximum)
Remote Control Switch Quantity: 1



2. General Data

Indoor Unit Type		4-Way Cassette Type			
Model		RCI-1.0FSN3	RCI-1.5FSN3	RCI-2.0FSN3	RCI-2.5FSN3
Indoor Unit Power Supply		AC 1ϕ, 220-240V/50Hz, 220V/60Hz			
Sound Pressure Level (Overall A Scale) (Hi2/Hi/Me/Lo)	dB	33/30/28/27	35/31/30/27	37/32/30/27	42/36/32/28
Outer Dimensions					
Height	mm	248	248	248	248
	(in.)	(9-3/4)	(9-3/4)	(9-3/4)	(9-3/4)
Width	mm	840	840	840	840
	(in.)	(33-1/16)	(33-1/16)	(33-1/16)	(33-1/16)
Depth	mm	840	840	840	840
	(in.)	(33-1/16)	(33-1/16)	(33-1/16)	(33-1/16)
Net Weight	kg	20	21	21	22
	(lbs.)	(44)	(46)	(46)	(49)
Refrigerant		R410A			
Indoor Fan					
Air Flow Rate	m^3/min.	15/13/11/9	21/17/14/11	22/17/14/11	27/23/18/14
(Hi2/Hi/Me/Lo)	(ℓ/s)	(250/217/183/150)	(350/283/233/183)	(367/283/233/183)	(450/383/300/233)
Motor Output	W	57	57	57	57
Connections		Flare-Nut Connection (with Flare Nuts)			
Refrigerant Piping					
Liquid Line	mm	ϕ6.35	ϕ6.35	ϕ6.35	ϕ9.52
	(in.)	(1/4)	(1/4)	(1/4)	(3/8)
Gas Line	mm	ϕ12.7	ϕ12.7	ϕ15.88	ϕ15.88
	(in.)	(1/2)	(1/2)	(5/8)	(5/8)
Condensate Drain		VP25	VP25	VP25	VP25
Approximate Packing Measurement	m^3	0.21	0.21	0.21	0.21

NOTES:

1. The above cooling and heating capacities show the maximum capacities when the outdoor and indoor temperature are below condition.
   Cooling Operation Conditions
   Indoor Air Inlet Temperature: 27°C DB (80°F DB)
   19.0°C WB (66.2°F WB)
   Outdoor Air Inlet Temperature: 35°C DB (95°F DB)
   Heating Operation Conditions
   Indoor Air Inlet Temperature: 20°C DB (68°F DB)
   Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
   6°C WB (43°F WB)
   Piping Length: 7.5 Meters Piping Lift: 0 Meter
2. The sound pressure level is based on following conditions.
   1.5 Meters Beneath the Unit.
   The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

Indoor Unit Type		4-Way Cassette Type			
Model		RCI-3.0FSN3	RCI-4.0FSN3	RCI-5.0FSN3	RCI-6.0FSN3
Indoor Unit Power Supply		AC 1ϕ, 220-240V/50Hz, 220V/60Hz			
Sound Pressure Level (Overall A Scale) (Hi2/Hi/Me/Lo)	dB	42/36/32/28	48/43/39/33	48/45/40/35	48/46/41/37
Outer Dimensions					
Height	mm	298	298	298	298
	(in.)	(11-3/4)	(11-3/4)	(11-3/4)	(11-3/4)
Width	mm	840	840	840	840
	(in.)	(33-1/16)	(33-1/16)	(33-1/16)	(33-1/16)
Depth	mm	840	840	840	840
	(in.)	(33-1/16)	(33-1/16)	(33-1/16)	(33-1/16)
Net Weight	kg	26	26	26	26
	(lbs.)	(57)	(57)	(57)	(57)
Refrigerant		R410A			
Indoor Fan					
Air Flow Rate	m^3/min.	27/23/18/14	37/31/24/20	37/33/26/21	37/35/28/22
(Hi2/Hi/Me/Lo)	(ℓ/s)	(450/383/300/233)	(617/517/400/333)	(617/550/433/350)	(617/583/467/367)
Motor	W	57	127	127	127
Connections		Flare-Nut Connection (with Flare Nuts)			
Refrigerant Piping					
Liquid Line	mm	ϕ9.52	ϕ9.52	ϕ9.52	ϕ9.52
	(in.)	(3/8)	(3/8)	(3/8)	(3/8)
Gas Line	mm	ϕ15.88	ϕ15.88	ϕ15.88	ϕ15.88
	(in.)	(5/8)	(5/8)	(5/8)	(5/8)
Condensate Drain		VP25	VP25	VP25	VP25
Approximate Packing Measurement	m^3	0.25	0.25	0.25	0.25

NOTES:

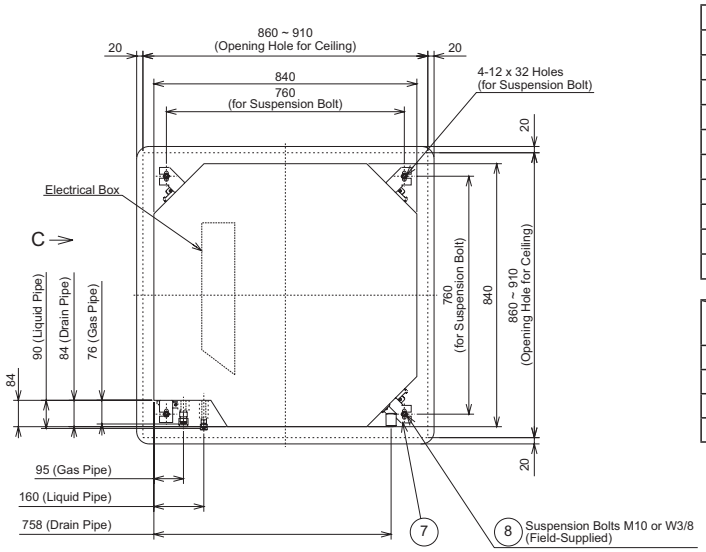
1. The above cooling and heating capacities show the maximum capacities when the outdoor and indoor temperature are below condition.
   Cooling Operation Conditions
   Indoor Air Inlet Temperature: 27°C DB (80°F DB)
   19.0°C WB (66.2°F WB)
   Outdoor Air Inlet Temperature: 35°C DB (95°F DB)
   Heating Operation Conditions
   Indoor Air Inlet Temperature: 20°C DB (68°F DB)
   Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
   6°C WB (43°F WB)
   Piping Length: 7.5 Meters Piping Lift: 0 Meter
2. The sound pressure level is based on following conditions.
   1.5 Meters Beneath the Unit.
   The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

Adaptable Panel Model		P-AP160NA1 (without Motion Sensor)	P-AP160NAE (with Motion Sensor)
Color		Natural White	
Outer Dimensions			
Height	mm	37	37
	(in.)	(1-7/16)	(1-7/16)
Width	mm	950	950
	(in.)	(37-3/8)	(37-3/8)
Depth	mm	950	950
	(in.)	(37-3/8)	(37-3/8)
Net Weight	kg	6.5	6.5
	(lbs.)	(14)	(14)
Approximate Packing Measurement	m^3	0.10	0.10

3. Dimensional Data

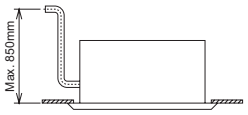
Models: RCI-1.0FSN3, RCI-1.5FSN3, RCI-2.0FSN3 and RCI-2.5FSN3 with Air Panel P-AP160NA1

Unit: mm

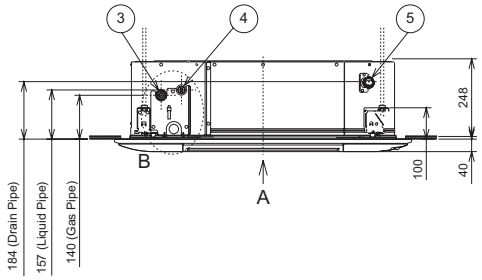


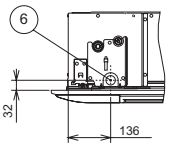
Mark	Name	Remark
1	Air Outlet	4-Way
2	Air Inlet	
3	Refrigerant Gas Pipe Connection	with ϕa Flare Nut
4	Refrigerant Liquid Pipe Connection	with ϕb Flare Nut
5	Drain Pipe Connection	VP25
6	Wiring Hole	ϕ30 Hole
7	Suspension Bracket	
8	Suspension Bolt	4-M10 or W3/8
9	Remote Control Switch (PC-ARF)	without Cable
10	Shielded Twist-Pair Cable for PC-ARF	Min. 0.75mm^2, Field-Supplied

HP \ Dimension	a	b
1.0	12.7	6.35
1.5	12.7	6.35
2.0	15.88	6.35
2.5	15.88	9.52

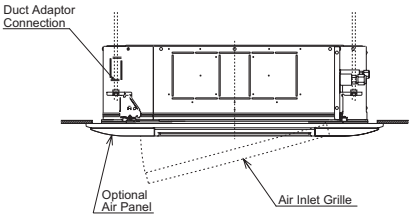


Lifting Drain Piping

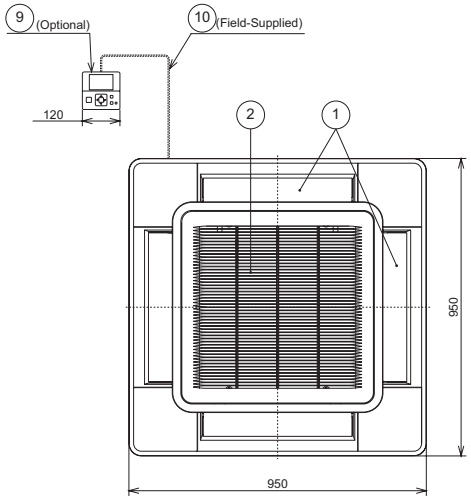




Viewed from B

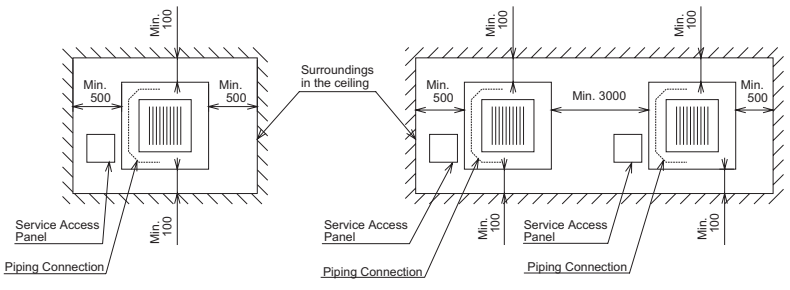


Viewed from C



Viewed from A

Service Panel



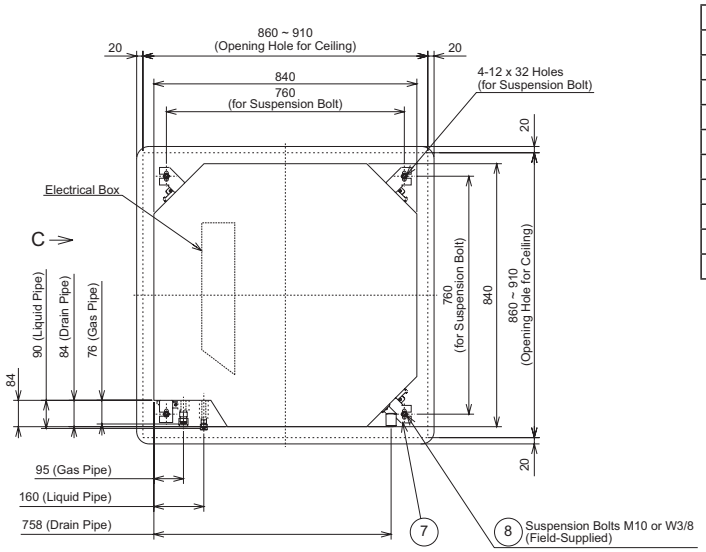
Separated Installation

Closed Installation

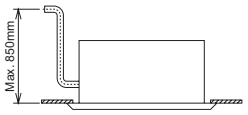
NOTE:
Distance between the wall and panel edge must be min. 1500mm to prevent short circuiting.

Models: RCI-3.0FSN3, RCI-4.0FSN3, RCI-5.0FSN3 and RCI-6.0FSN3 with Air Panel P-AP160NA1

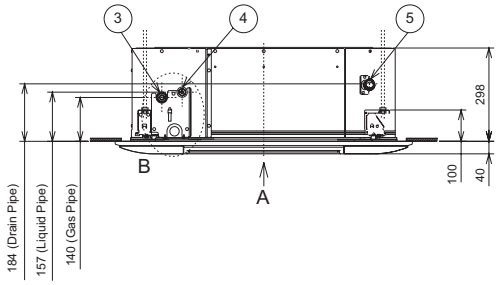
Unit: mm

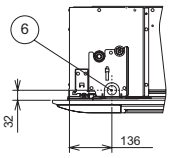


Mark	Name	Remark
1	Air Outlet	4-Way
2	Air Inlet	
3	Refrigerant Gas Pipe Connection	with ϕ15.88 Flare Nut
4	Refrigerant Liquid Pipe Connection	with ϕ9.52 Flare Nut
5	Drain Pipe Connection	VP25
6	Wiring Hole	ϕ30 Hole
7	Suspension Bracket	
8	Suspension Bolt	4-M10 or W3/8
9	Remote Control Switch (PC-ARF)	without Cable
10	Shielded Twist-Pair Cable for PC-ARF	Min. 0.75mm^2, Field-Supplied

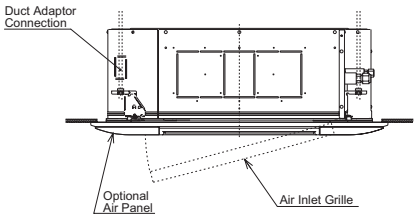


Lifting Drain Piping

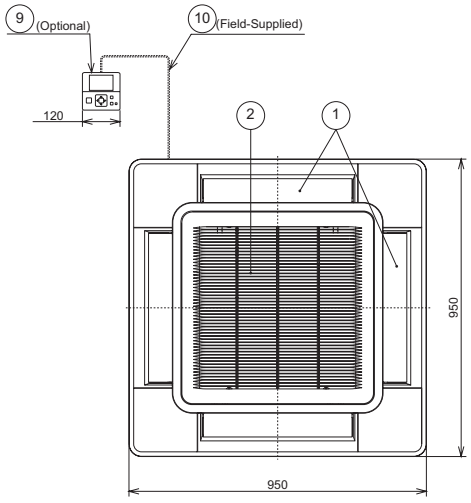




Viewed from B

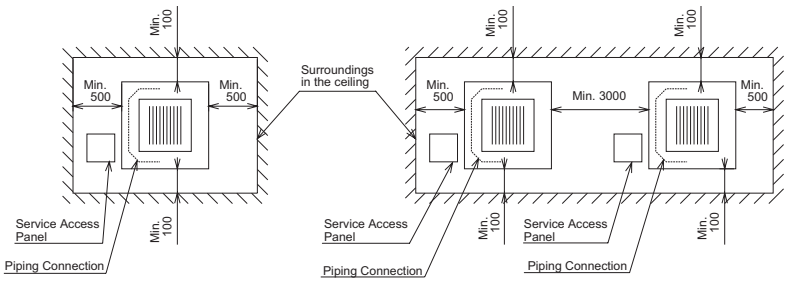


Viewed from C



Viewed from A

Service Panel



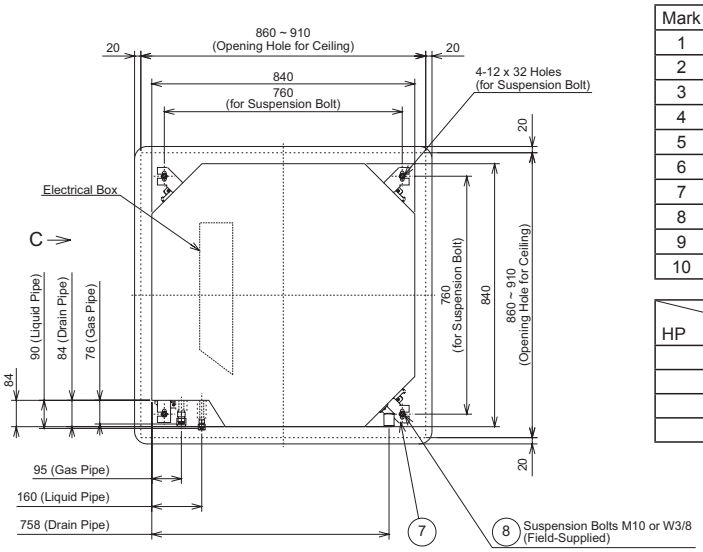
Separated Installation

Closed Installation

NOTE:
Distance between the wall and panel edge must be min. 1500mm to prevent short circuiting.

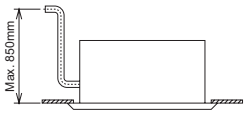
Models: RCI-1.0FSN3, RCI-1.5FSN3, RCI-2.0FSN3 and RCI-2.5FSN3 with Air Panel P-AP160NAE

Unit: mm

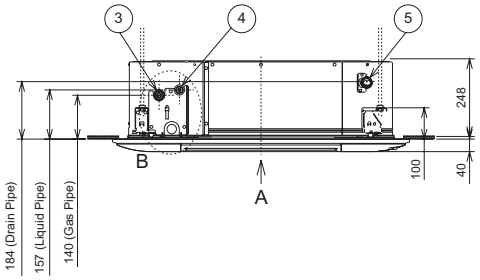


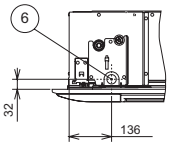
Mark	Name	Remark
1	Air Outlet	4-Way
2	Air Inlet	
3	Refrigerant Gas Pipe Connection	with ϕa Flare Nut
4	Refrigerant Liquid Pipe Connection	with ϕb Flare Nut
5	Drain Pipe Connection	VP25
6	Wiring Hole	ϕ30 Hole
7	Suspension Bracket	
8	Suspension Bolt	4-M10 or W3/8
9	Remote Control Switch (PC-ARF)	without Cable
10	Shielded Twist-Pair Cable for PC-ARF	Min. 0.75mm^2, Field-Supplied

HP \ Dimension	a	b
1.0	12.7	6.35
1.5	12.7	6.35
2.0	15.88	6.35
2.5	15.88	9.52

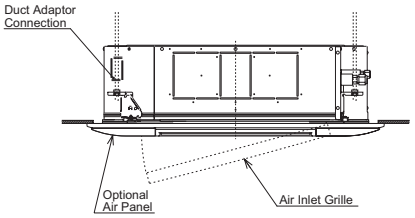


Lifting Drain Piping

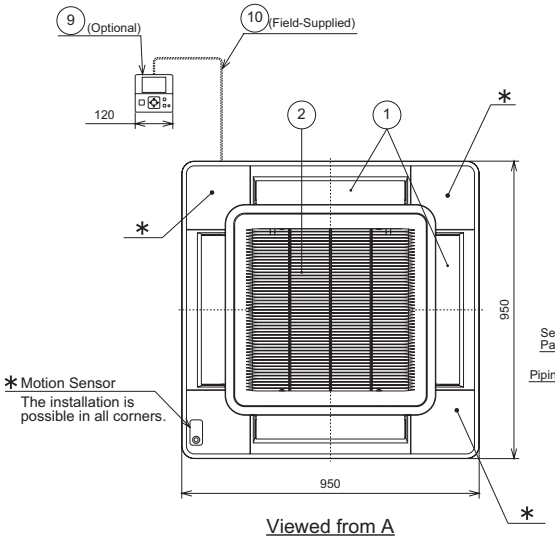




Viewed from B

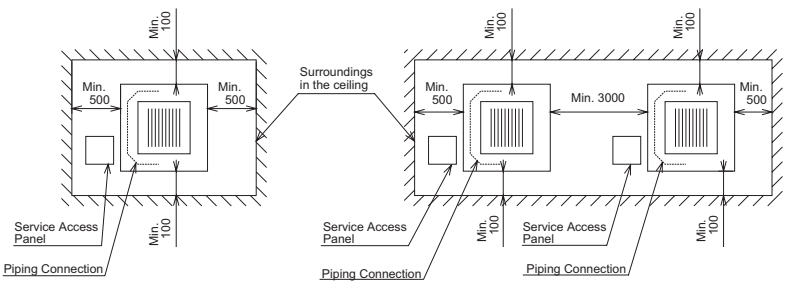


Viewed from C



Viewed from A

Service Panel



Separated Installation

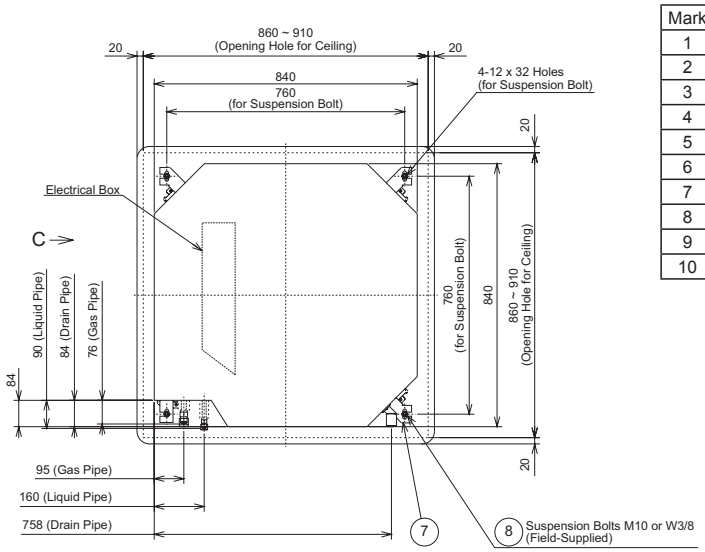
Closed Installation

NOTE:

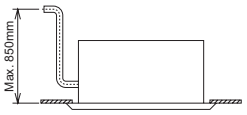
Distance between the wall and panel edge must be min. 1500mm to prevent short circuiting.

Models: RCI-3.0FSN3, RCI-4.0FSN3, RCI-5.0FSN3 and RCI-6.0FSN3 with Air Panel P-AP160NAE

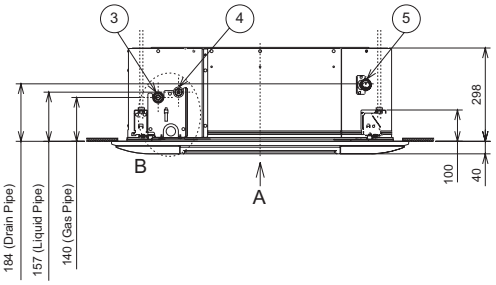
Unit: mm

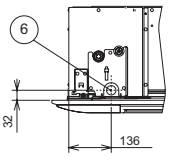


Mark	Name	Remark
1	Air Outlet	4-Way
2	Air Inlet	
3	Refrigerant Gas Pipe Connection	with ϕ15.88 Flare Nut
4	Refrigerant Liquid Pipe Connection	with ϕ9.52 Flare Nut
5	Drain Pipe Connection	VP25
6	Wiring Hole	ϕ30 Hole
7	Suspension Bracket	
8	Suspension Bolt	4-M10 or W3/8
9	Remote Control Switch (PC-ARF)	without Cable
10	Shielded Twist-Pair Cable for PC-ARF	Min. 0.75mm^2, Field-Supplied

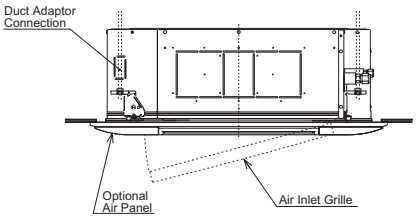


Lifting Drain Piping

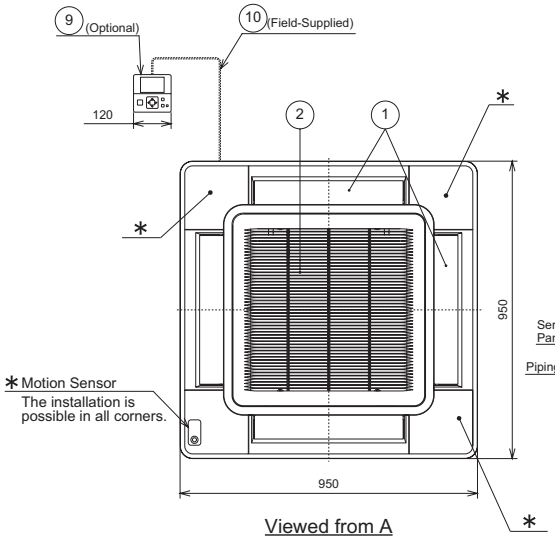




Viewed from B

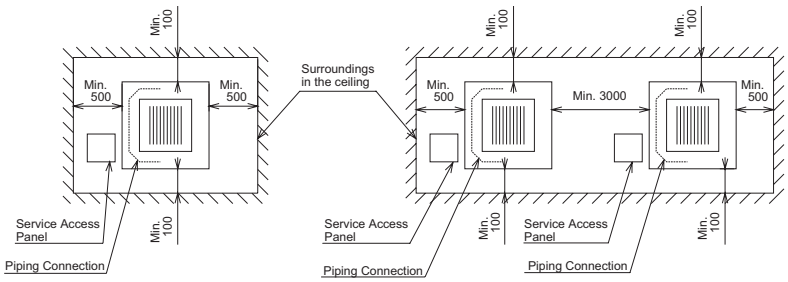


Viewed from C



Viewed from A

Service Panel



NOTE:

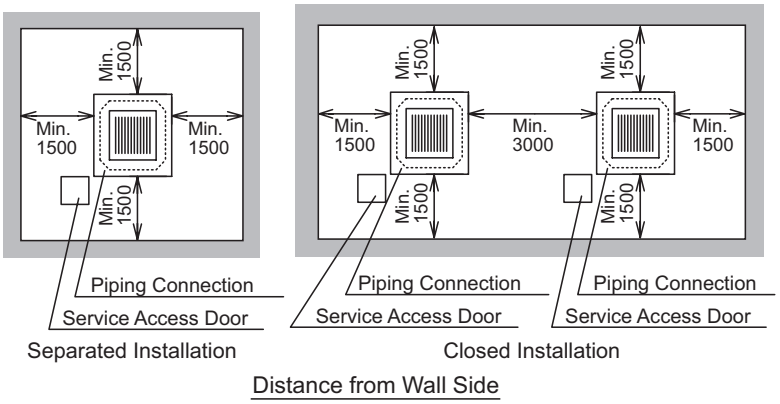
Distance between the wall and panel edge must be min. 1500mm to prevent short circuiting.

4. Selection Data

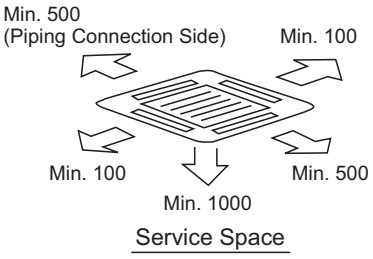
4.1 Operation Space

Models: RCI-1.0FSN3, RCI-1.5FSN3, RCI-2.0FSN3, RCI-2.5FSN3, RCI-3.0FSN3, RCI-4.0FSN3, RCI-5.0FSN3 and RCI-6.0FSN3

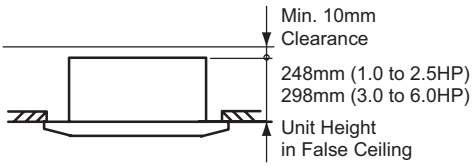
Unit: mm



Distance from Wall Side



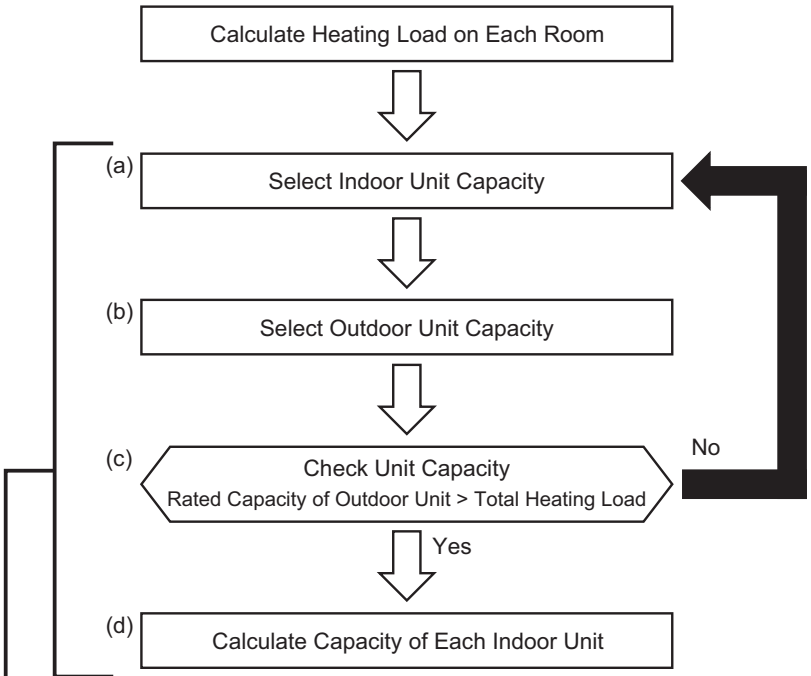
Service Space



4.2 Selection Guide

The various indoor units can be combined with the HITACHI DC Inverter UTOPIA Series.

Selection of Unit Model Capacity Procedure is shown below.



(a) Selecting Indoor Unit Capacity
Set temporarily the indoor unit capacity in each room as follows.
Heating Load on Each Room < Capacity of Indoor Unit
Consider the correction factor according to temperature condition.
Then, sum up each indoor unit capacity.

(b) Selecting Outdoor Unit Capacity
Set temporarily the outdoor unit capacity according to the total capacity of indoor units calculated in (a).
Then, calculate the maximum capacity of the outdoor unit, considering the correction factor based on temperature condition, pipe length, lift and defrosting operation.

Capacity of Outdoor Unit = Rated Capacity x Correction Factor

(Correction Factor = Total Capacity of Indoor Unit x Outdoor Temperature Correction Value
x Pipe Length Correction Value x Frost Formation Correction Value (at Heating))

(c) Checking Unit Capacity
Check that the value of the rated capacity of the outdoor unit calculated in (b) is larger than that of the total heating load of each room. If the differential between those values is too small, increase the total capacity of the indoor and outdoor units for adjustment.

(d) Calculating each Indoor Unit Capacity
Calculate the indoor unit capacity by dividing the rated capacity of the outdoor unit according to the indoor unite capacities calculated in (a).

Indoor Unit Capacity = Rated Capacity x Correction Factor (Room Temperature)

(1) Meaning of Model Name for Indoor Unit

Example: RCI - 1.0 FSN3

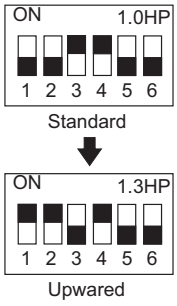
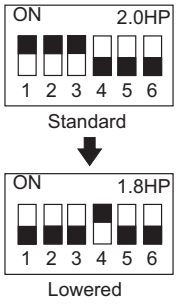
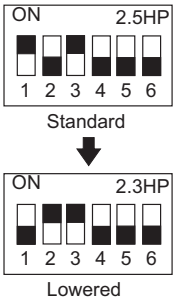
- FSN3 — SET FREE
- 1.0 — Horsepower
- RCI — Unit Type

NOTE:
When selecting the indoor and outdoor units, make sure that the total indoor unit horsepower is closer to the outdoor unit horsepower.

(2) Nominal Capacity of Indoor Unit

Horsepower (HP)		1.0	1.5	2.0	2.5	3.0	4.0	5.0	6.0
Cooling Capacity	kW	2.8	4.0	5.0	7.1	8.0	11.2	14.0	16.0
Heating Capacity	kW	3.2	4.8	5.6	8.5	9.0	12.5	16.0	18.0

Capacity Adjustment by Dip Switch Setting

Horsepower (HP)		1.3	1.8	2.3
Variable Capacity (HP)		1.0 → 1.3	1.8 ← 2.0	2.3 ← 2.5
Nominal Cooling Capacity	kW	2.8 → 3.8	5.2 ← 5.6	6.7 ← 7.1
Nominal Heating Capacity	kW	3.2 → 4.2	5.6 ← 6.3	7.5 ← 8.5
Applicable Model		RCI-1.0FSN3	RCI-2.0FSN3	RCI-2.5FSN3
Indoor Unit Dip Switch Setting (DSW3)				

NOTE:
This function is usually not utilized. It is only for utilizing when adjusting the indoor and outdoor units capacity ratio or adjusting load of unit type selection.

(3) Given Condition (Example)

Total Load for Each Room

Item		Room (1)	Room (2)	Room (3)	(1) + (2) +(3)
Estimated Cooling Load	kW	2.92	3.86	4.88	11.66
Estimated Heating Load	kW	3.29	4.34	5.49	13.12

Temperature Condition

Cooling	Heating
Outdoor Coil Air Inlet	Outdoor Coil Air Inlet
Dry Bulb: 30°C	Dry Bulb: 1°C
Indoor Coil Air Inlet	Wet Bulb: 0°C
Dry Bulb: 27°C	Indoor Coil Air Inlet
Wet Bulb: 19°C	Dry Bulb: 20°C

Equivalent Piping Length between Indoor Units and Outdoor Unit: 60m
Piping Lift: 20m

(4) Selecting Matching Indoor Units and Nominal Capacity (Example)

Item		Room (1)	Room (2)	Room (3)	(1) + (2) + (3)
Selected Model		RCI-1.5FSN3	RCI-2.0FSN3	RCI-2.5FSN3	-
Nominal Cooling Capacity	kW	4.0	5.0	7.1	16.1
Nominal Heating Capacity	kW	4.8	5.6	8.0	18.4

(5) Actual Capacity

In the case of the example, the total indoor horsepower is 6HP.
Therefore, the outdoor unit capacity at the nominal temperature selected from the “Capacity Characteristic Curve” is 16.0kW at the cooling operation, and 20.0kW at the heating operation under nominal conditions.

a) Actual Capacity of Outdoor Unit
Maximum Actual Capacity of Outdoor Unit
= Outdoor Unit Capacity at Nominal Temperature selected from Total Indoor Unit Capacity
× Correction Factor According to Piping Length and Lift
× Correction Factor According to Temperature Condition
× Correction Factor According to Defrosting Operation

Refer to the Correction Factor in Technical Catalog of outdoor unit.

< Example >
Cooling: 16.0kW × 0.84 × 1.05 = 14.11
Heating: 20.0kW × 0.95 × 0.87 × 0.85 = 14.05

b) Actual Capacity of Each Indoor Unit
Actual Capacity of Each Indoor Unit
= Actual Capacity of Outdoor Unit
× (Each Indoor Unit's Horsepower ÷ Summation of Each Indoor Unit Horsepower)

ex.
< RCI-1.5FSN3 >
Cooling Capacity: 14.11 × (1.5HP/6.0HP) = 3.53kW
Heating Capacity: 14.05 × (1.5HP/6.0HP) = 3.51kW
< RCI-2.0FSN3 >
Cooling Capacity: 14.11 × (2.0HP/6.0HP) = 4.70kW
Heating Capacity: 14.05 × (2.0HP/6.0HP) = 4.68kW
< RCI-2.5FSN3 >
Cooling Capacity: 14.11 × (2.5HP/6.0HP) = 5.88kW
Heating Capacity: 14.05 × (2.5HP/6.0HP) = 5.85kW

< Result >

Item			Room (1)	Room (2)	Room (3)	(1)+(2)+(3)
Selected Model			RCI-1.5FSN3	RCI-2.0FSN3	RCI-2.5FSN3	-
Actual Capacity	Actual Maximum Cooling Capacity	kW	3.53	4.70	5.88	14.11
	Actual Maximum Heating Capacity	kW	3.51	4.68	5.85	14.05
Design Load	Estimated Cooling Load	kW	2.92	3.86	4.88	11.66
	Estimated Heating Load	kW	3.29	4.34	5.49	13.12

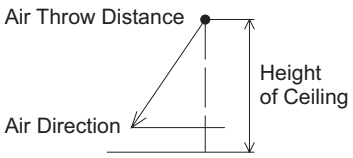
4.3 Temperature Distribution

(1) Vertical Temperature Distribution

Air-Throw-Distance (When Air Velocity is 0.3m/s)

RCI-1.0 - 3.0FSN3: 2.7m

RCI-4.0 - 6.0FSN3: 3.2m



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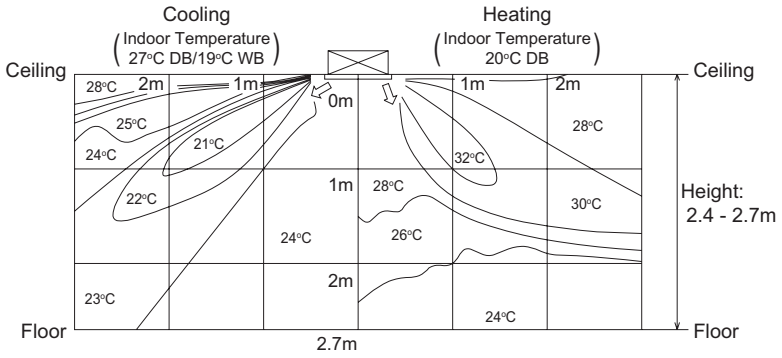

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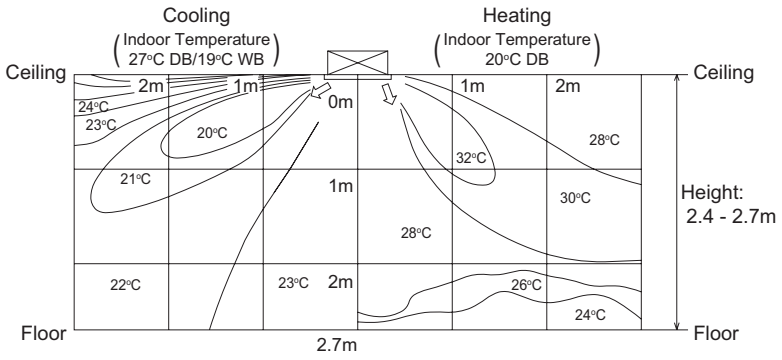

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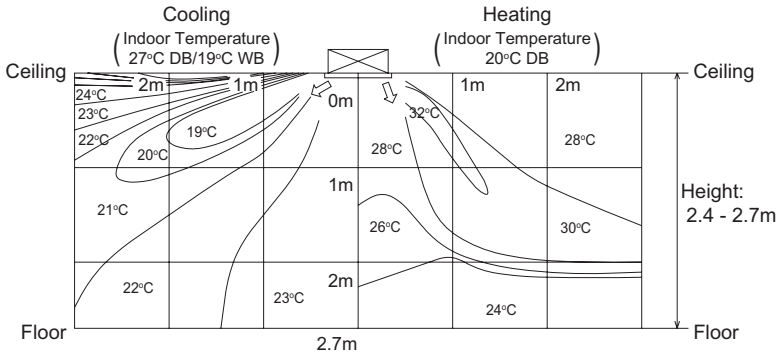

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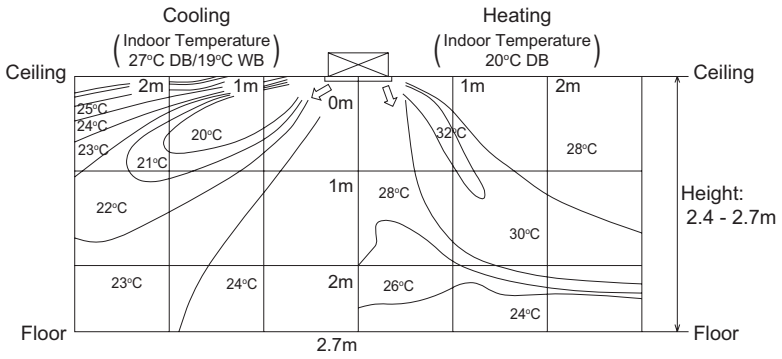

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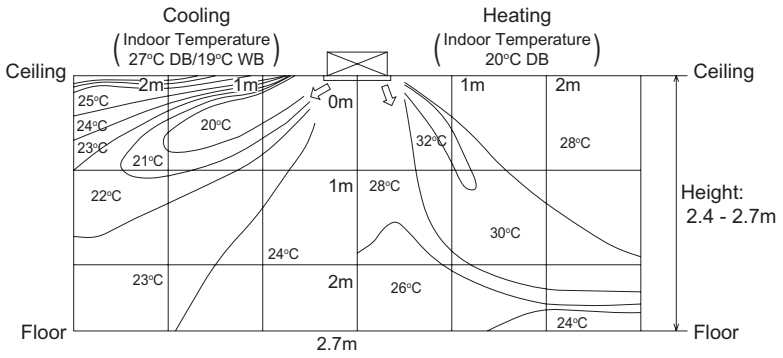
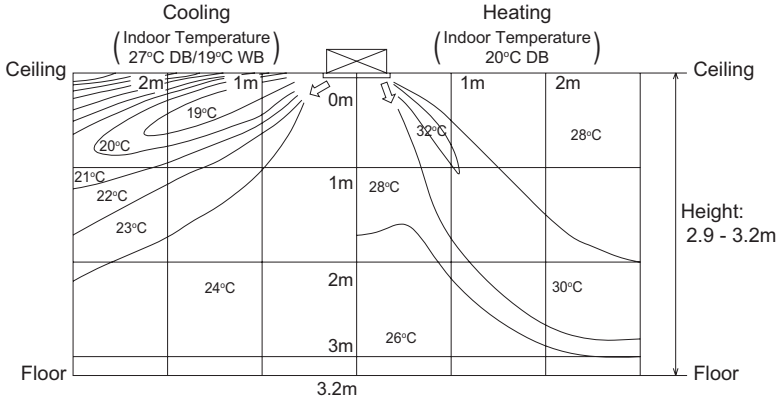


< RCI-4.0FSN3 >



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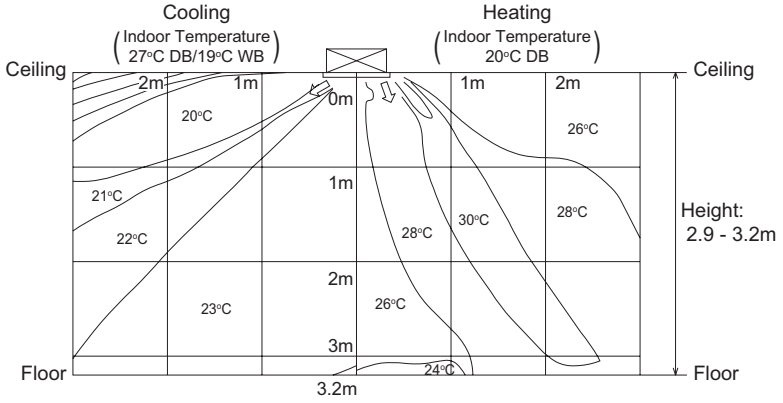

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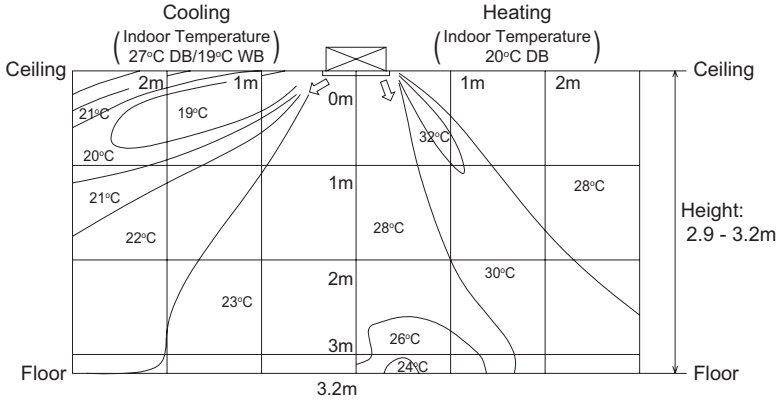
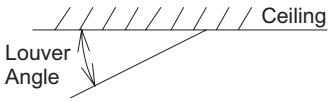


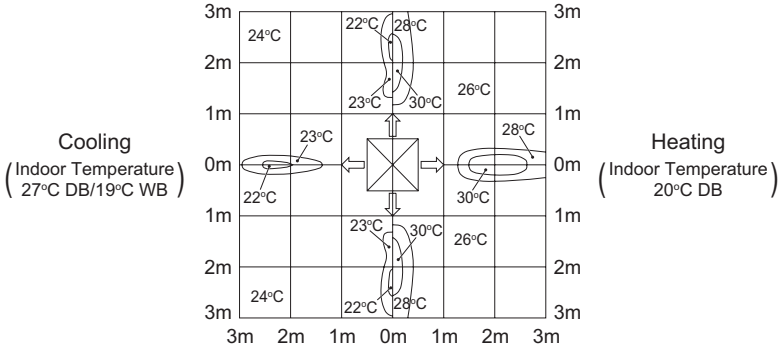
(2) Horizontal Temperature Distribution (Height: 1.2m)

* Louver Angle
  Cooling: 25°, Heating: 60°



* The air is almost symmetrically discharged.
* These figures show the distribution when no obstruction exists.

< RCI-1.0FSN3 >



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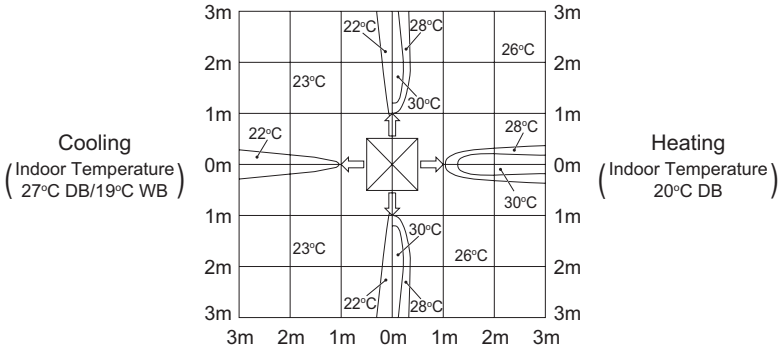

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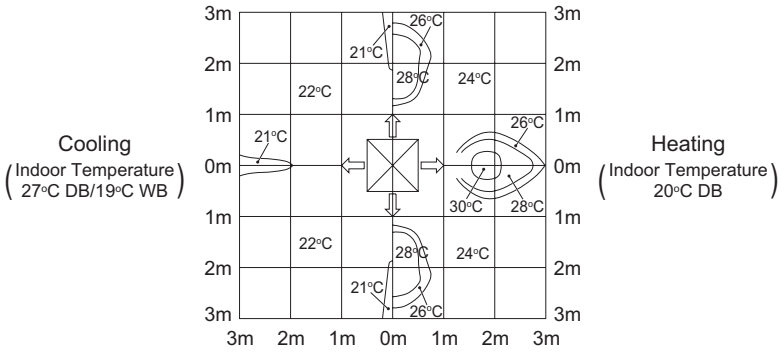

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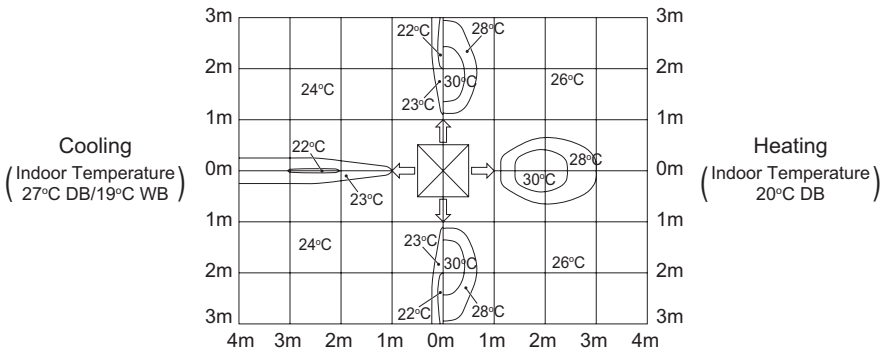

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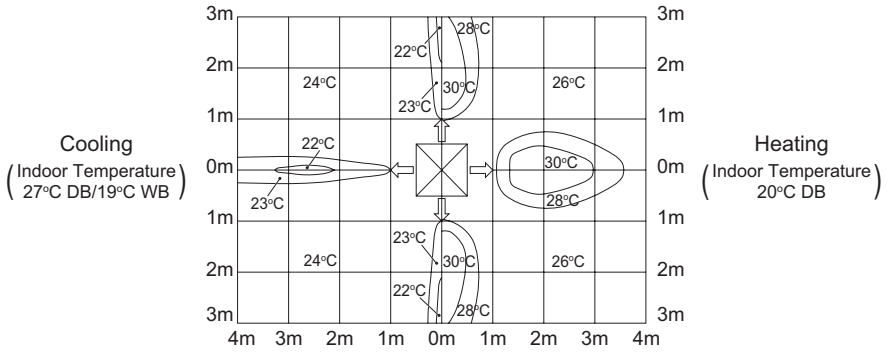

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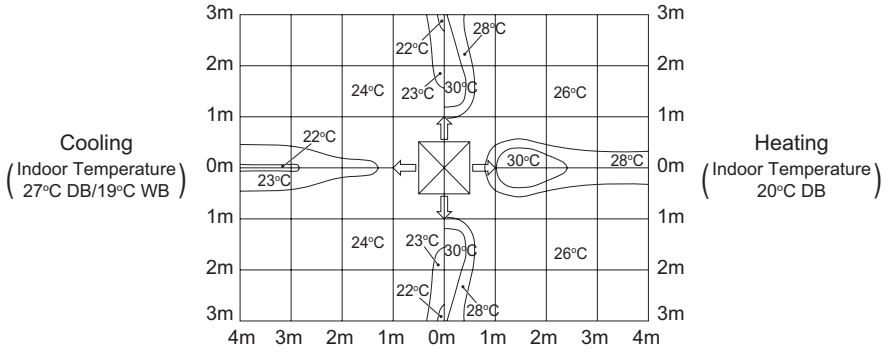

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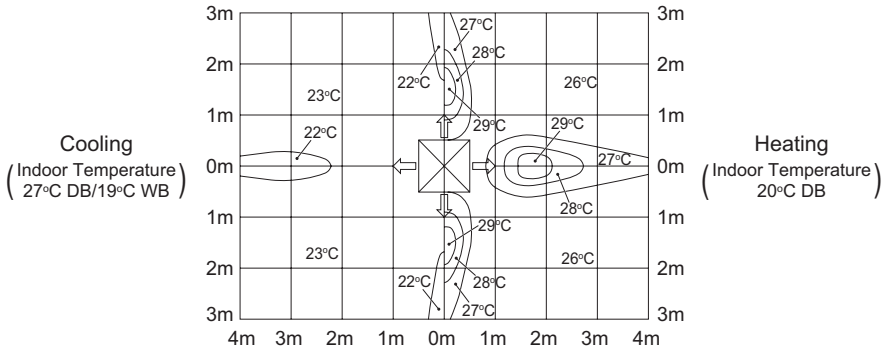

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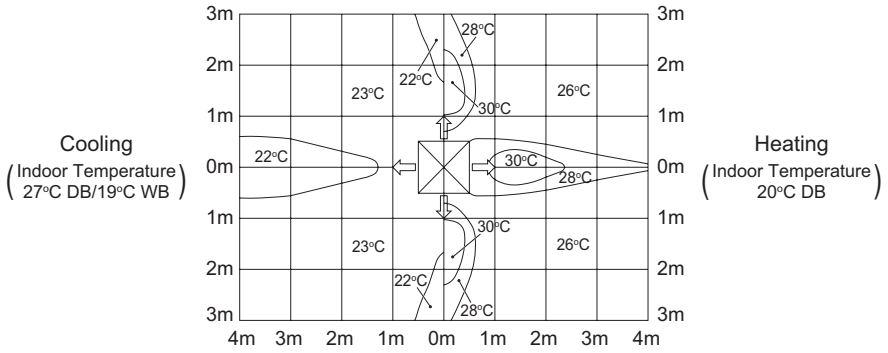


5. Electrical Data

< 220-240V/50Hz >

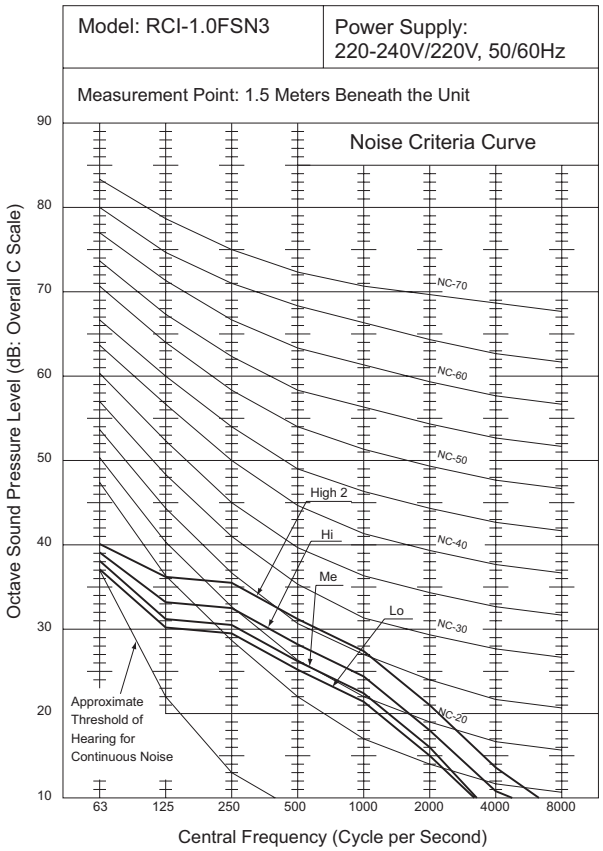
Model	Unit Main Power			Applicable Voltage		Indoor Fan Motor		
	VOL	PH	HZ	Maximum	Minimum	PH	RNC	IPT
RCI-1.0FSN3	220/240	1	50	264	198	1	0.2/0.2	0.03
RCI-1.5FSN3							0.3/0.3	0.05
RCI-2.0FSN3							0.4/0.4	0.07
RCI-2.5FSN3							0.8/0.7	0.12
RCI-3.0FSN3							0.8/0.7	0.12
RCI-4.0FSN3							1.0/0.9	0.15
RCI-5.0FSN3							1.1/1.0	0.17
RCI-6.0FSN3							1.1/1.0	0.17

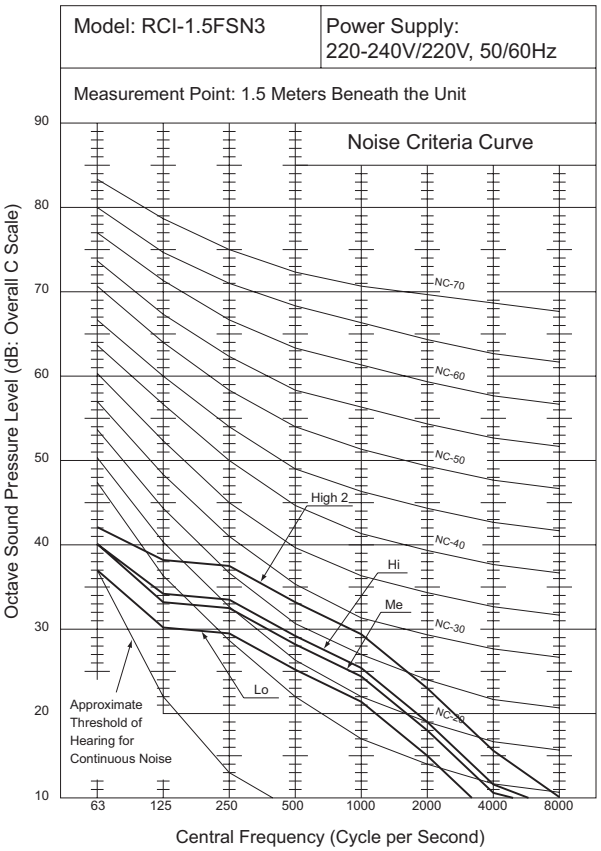
< 220V/60Hz >

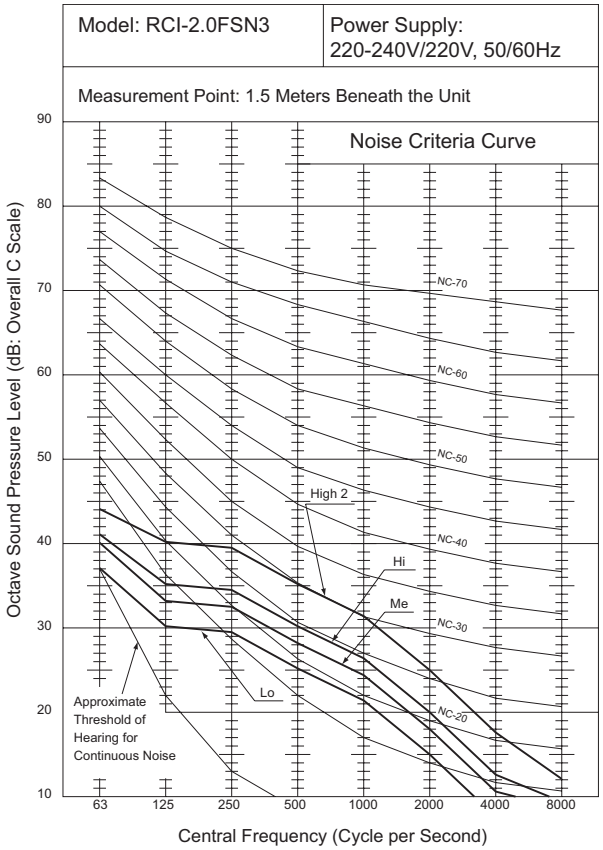
Model	Unit Main Power			Applicable Voltage		Indoor Fan Motor		
	VOL	PH	HZ	Maximum	Minimum	PH	RNC	IPT
RCI-1.0FSN3	220	1	60	242	198	1	0.2	0.03
RCI-1.5FSN3							0.3	0.05
RCI-2.0FSN3							0.4	0.07
RCI-2.5FSN3							0.8	0.12
RCI-3.0FSN3							0.8	0.12
RCI-4.0FSN3							1.0	0.15
RCI-5.0FSN3							1.1	0.17
RCI-6.0FSN3							1.1	0.17

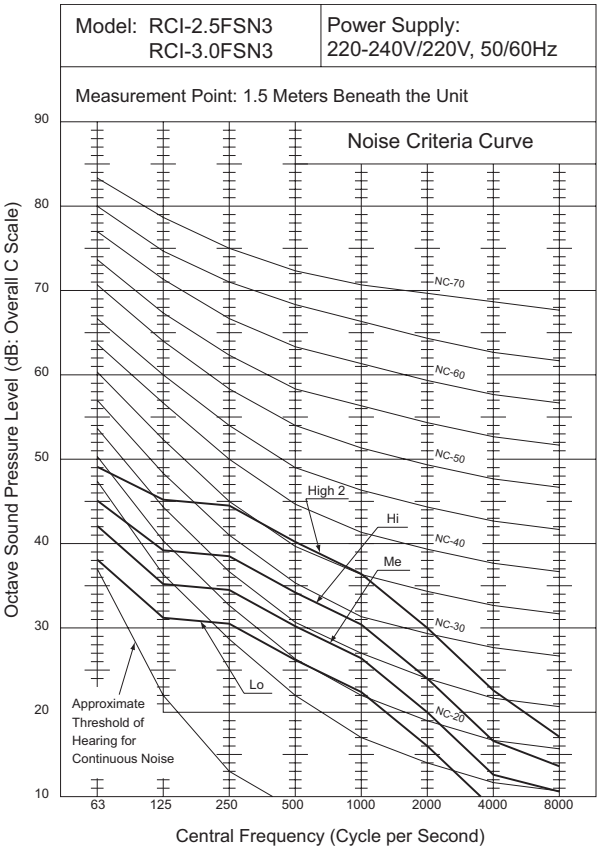
VOL: Rated Unit Power Supply Voltage (Plated)(V)
PH: Phase (ϕ)
HZ: Frequency (Hz)
RNC: Running Current (A)
IPT: Input (kW)

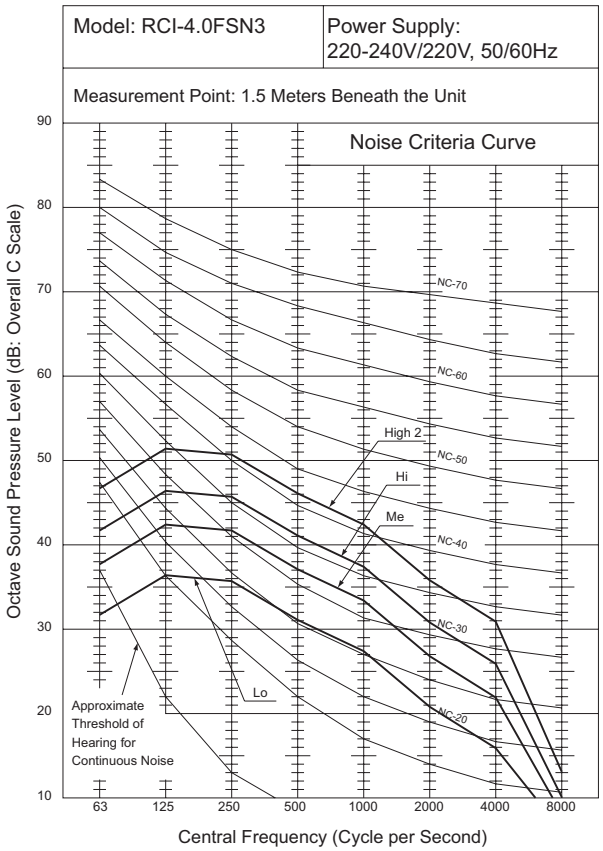
6. Sound Data

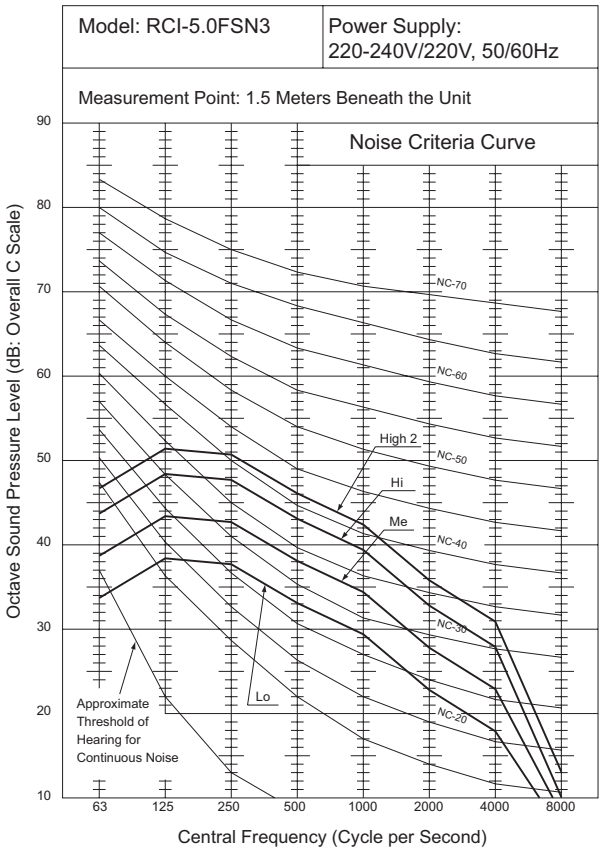

Model: RCI-1.0FSN3
Power Supply:
220-240V/220V, 50/60Hz
Measurement Point: 1.5 Meters Beneath the Unit
Noise Criteria Curve
Octave Sound Pressure Level (dB: Overall C Scale)
Central Frequency (Cycle per Second)
NC-70
NC-60
NC-50
NC-40
NC-30
NC-20
High 2
Hi
Me
Lo
Approximate
Threshold of
Hearing for
Continuous Noise
90
80
70
60
50
40
30
20
10
63
125
250
500
1000
2000
4000
8000

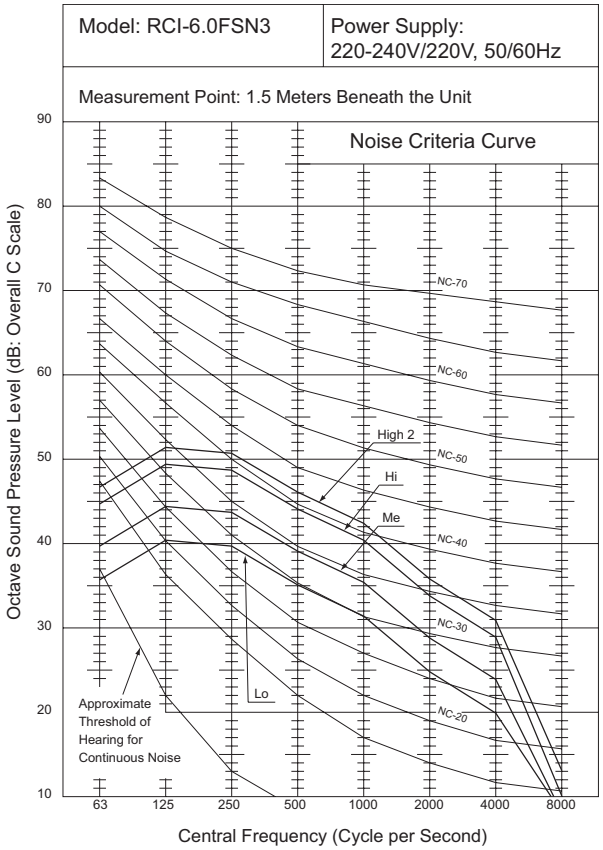

Model: RCI-1.5FSN3
Power Supply:
220-240V/220V, 50/60Hz
Measurement Point: 1.5 Meters Beneath the Unit
Noise Criteria Curve
Octave Sound Pressure Level (dB: Overall C Scale)
Central Frequency (Cycle per Second)
NC-70
NC-60
NC-50
NC-40
NC-30
NC-20
High 2
Hi
Me
Lo
Approximate
Threshold of
Hearing for
Continuous Noise
90
80
70
60
50
40
30
20
10
63
125
250
500
1000
2000
4000
8000


Model: RCI-2.0FSN3
Power Supply:
220-240V/220V, 50/60Hz
Measurement Point: 1.5 Meters Beneath the Unit
Noise Criteria Curve
Octave Sound Pressure Level (dB: Overall C Scale)
Central Frequency (Cycle per Second)
NC-70
NC-60
NC-50
NC-40
NC-30
NC-20
High 2
Hi
Me
Lo
Approximate
Threshold of
Hearing for
Continuous Noise
90
80
70
60
50
40
30
20
10
63
125
250
500
1000
2000
4000
8000


Model: RCI-2.5FSN3
RCI-3.0FSN3
Power Supply:
220-240V/220V, 50/60Hz
Measurement Point: 1.5 Meters Beneath the Unit
Noise Criteria Curve
Octave Sound Pressure Level (dB: Overall C Scale)
Central Frequency (Cycle per Second)
NC-70
NC-60
NC-50
NC-40
NC-30
NC-20
High 2
Hi
Me
Lo
Approximate
Threshold of
Hearing for
Continuous Noise
90
80
70
60
50
40
30
20
10
63
125
250
500
1000
2000
4000
8000


Model: RCI-4.0FSN3
Power Supply:
220-240V/220V, 50/60Hz
Measurement Point: 1.5 Meters Beneath the Unit
Noise Criteria Curve
Octave Sound Pressure Level (dB: Overall C Scale)
90
80
70
60
50
40
30
20
10
63
125
250
500
1000
2000
4000
8000
NC-70
NC-60
NC-50
NC-40
NC-30
NC-20
High 2
Hi
Me
Lo
Approximate
Threshold of
Hearing for
Continuous Noise
Central Frequency (Cycle per Second)


Model: RCI-5.0FSN3
Power Supply:
220-240V/220V, 50/60Hz
Measurement Point: 1.5 Meters Beneath the Unit
Noise Criteria Curve
Octave Sound Pressure Level (dB: Overall C Scale)
90
80
70
60
50
40
30
20
10
63
125
250
500
1000
2000
4000
8000
NC-70
NC-60
NC-50
NC-40
NC-30
NC-20
High 2
Hi
Me
Lo
Approximate
Threshold of
Hearing for
Continuous Noise
Central Frequency (Cycle per Second)


Model: RCI-6.0FSN3
Power Supply:
220-240V/220V, 50/60Hz
Measurement Point: 1.5 Meters Beneath the Unit
Noise Criteria Curve
Octave Sound Pressure Level (dB: Overall C Scale)
90
80
70
60
50
40
30
20
10
63
125
250
500
1000
2000
4000
8000
NC-70
NC-60
NC-50
NC-40
NC-30
NC-20
High 2
Hi
Me
Lo
Approximate
Threshold of
Hearing for
Continuous Noise
Central Frequency (Cycle per Second)

7. Working Range

Power Supply

Working Voltage: 90% to 110% of the Rated Voltage
Voltage Imbalance: Within a 3% Deviation from Each Voltage at the Main Terminal
Starting Voltage: Higher than 85% of the Rated Voltage

Temperature Range

The temperature range are given in the following table.

		Cooling Operation	Heating Operation
Indoor Temperature	Minimum	21.5°C DB	17°C DB
	Maximum	30°C DB	25°C DB
Outdoor Temperature	Minimum	-5°C DB	-20°C WB
	Maximum	43°C DB	15°C WB

DB: Dry Bulb, WB: Wet Bulb

8. Optional Accessories

8.1 for Control Systems

HITACHI provides the optional accessories for indoor units.

		RCI-FSN3
Liquid Crystal Remote Control Switch	PC-AR	×
	PC-ARF	○ (✳1)
Wireless Remote Control Switch	PC-LH3A	×
	PC-LH3B	○
Half Size Remote Control Switch	PC-ARH	×
7-Day Timer	PSC-A1T	○
Central Station	PSC-A64S	○ (✳2)
	PSC-5S	○ (✳2)
	PSC-A64GT	○
Central Station DX	PSC-A128WX + PSC-AS2048WXB	○ (✳2)
Centralized ON/OFF Controller	PSC-A16RS	○
H-Link Relay	PSC-5HR	○
Receiver Kit	PC-ALHZ	×
	PC-ALH3	○
Remote Control Cable	PRC-5K	○
	PRC-10K	○
	PRC-15K	○
3P Connector Cable	PCC-1A	○
Remote Sensor	THM-R2A	○

○ : Available
× : Not Available

(✳1) : When FSN3 4-way cassette type indoor unit is used with the remote control switch, PC-ARF must be used.

(✳2) : These central stations do not provide support for the air flow volume function “HIGH 2” of FSN3 4-way cassette type. Therefore, when FSN3 4-way cassette type indoor unit is used with the central stations, the remote control switch “PC-ARF” or “PC-LH3B with PC-ALH3” is required.

8.1.1 Liquid Crystal Remote Control Switch: PC-ARF

Refer to chapter 1.4.1 for details.

8.1.2 Wireless Remote Control Switch: PC-LH3B

Refer to chapter 1.4.2 for details.

8.1.3 7-Day Timer: PSC-A1T

Refer to chapter 1.4.3 for details.

8.1.4 Central Station: PSC-A64S

Refer to chapter 1.4.4 for details.

8.1.5 Central Station: PSC-5S

Refer to chapter 1.4.5 for details.

8.1.6 Central Station: PSC-A64GT

Refer to chapter 1.4.6 for details.

8.1.7 Central Station DX: PSC-A128WX, PSC-AS2048WXB

Refer to chapter 1.4.7 for details.

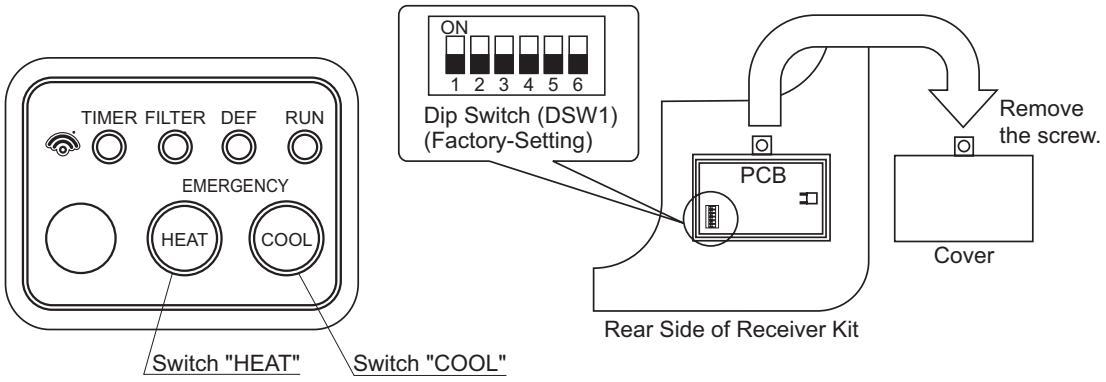
8.1.8 Centralized ON/OFF Controller: PSC-A16RS

Refer to chapter 1.4.8 for details.

8.1.9 H-Link Relay: PSC-5HR

Refer to chapter 1.4.9 for details.

8.1.10 Wireless Receiver Kit: PC-ALH3



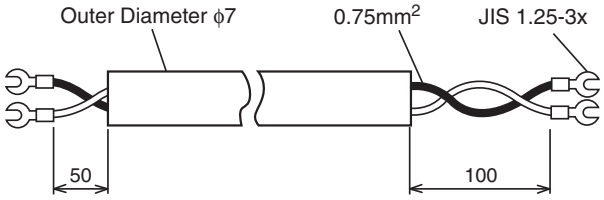
Optional Setting for Dip Switch

Optional Function	Dip Switch Setting (DSW1)						Details
	1	2	3	4	5	6	
Main/Sub Setting	○	×	×	×	×	×	Change main (OFF setting)/ sub (ON setting) remote control switches for 2 remote control system.
Identifying of Indoor Unit	×	○	×	×	×	×	It functions as B Mode (identifying of indoor unit) of wireless remote control switch when it sets to “ON”.
Invalidity of Emergency Operation	×	×	×	○	×	×	The switches for emergency operation are invalid.

○: ON, ×: OFF

8.1.11 Remote Control Cable: PRC-5K to 15K (for Remote Control Switches and Central Stations)

As the remote control switches and central stations do not include a remote control cable, use PRC-5K to 15K, or prepare one in the field.



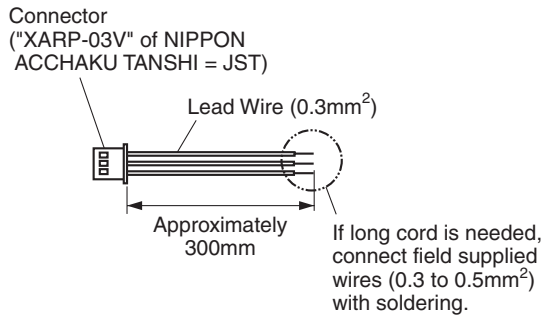
Shielded Twist-Pair Cable

Model	Cable Length
PRC-5K	5m
PRC-10K	10m
PRC-15K	15m

When the total cable length is within 30m, other type of cable (more than 0.3mm^2) can be used.

8.1.12 3P Connector Cable: PCC-1A

This connector is utilized when the remote ON/OFF device is connected or signals are taken out on the printed circuit board. (System Parts: One set contains five 3p cords.)

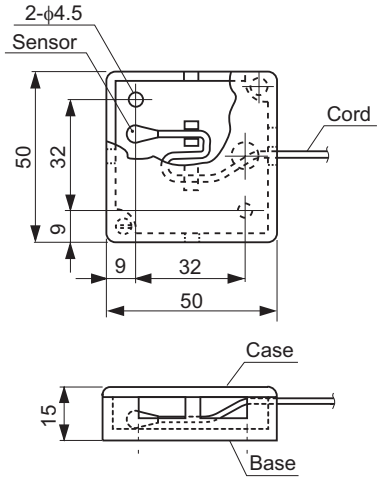


3P Connector Cable

Name	3P Connector Cable
Model	PCC-1A
Remarks	One set contains five 3P connector cables.

8.1.13 Remote Sensor: THM-R2A

When the room temperature sensing thermistor (Remote Sensor) is attached to the auxiliary connector, the unit is controlled at average air temperature at the indoor inlet and Remote Sensor point.



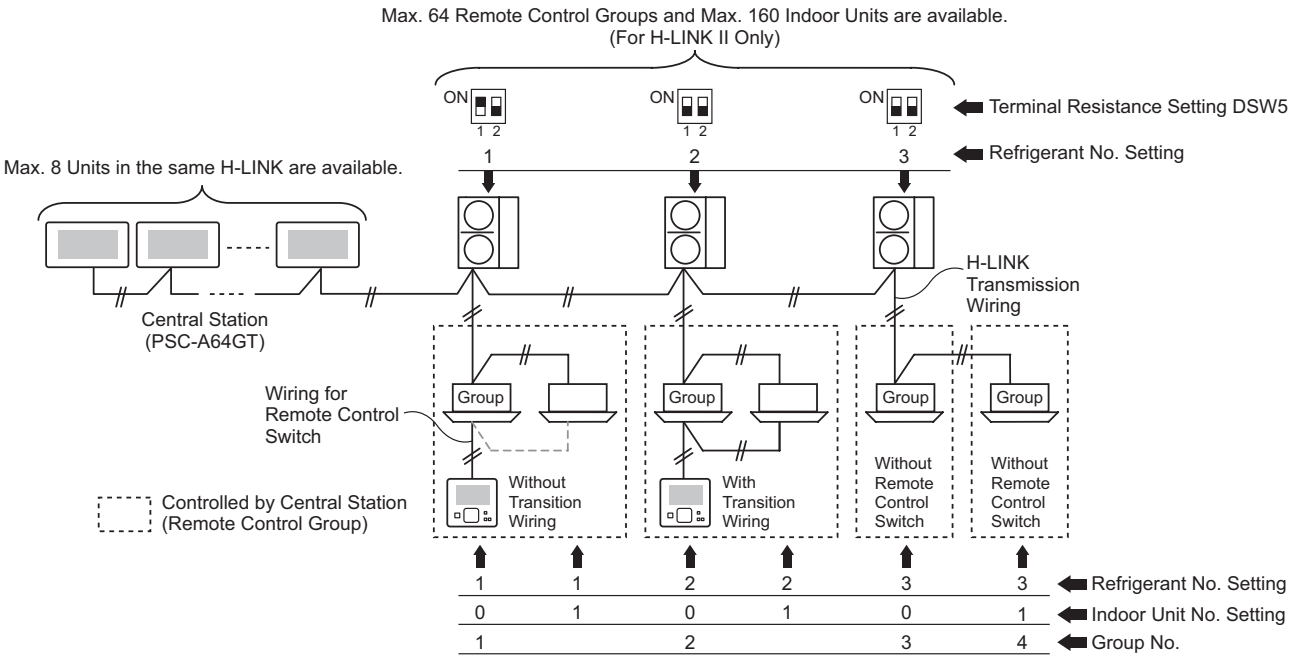
Specifications

Item		Specification
Model		THM-R2A
Case	Material	ABS Resin
	Color	Silky White
Base	Material	ABS Resin
	Color	Silky White
Sensor	Part Name	Thermistor
	Cord Length	approx. 8m

Connector: XARP-02V

(1) System Example (PSC-A64GT)

This central station (PSC-A64GT) is connected to H-LINK and used for the central control and monitoring of the air conditioners. The system configuration example is shown below.



NOTES:

1. Turn OFF all the power supply of the indoor unit and the outdoor unit before Dip Switch setting. If not, the setting is invalid.
2. Do not set the same indoor unit number in the same refrigerant cycle. If the same number exists, the alarm code “35” will be indicated.

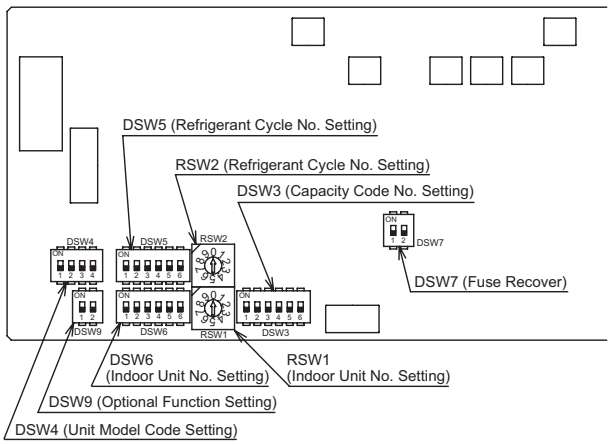
(2) Dip Switch Setting for Indoor Unit

The positions of Dip Switches on PCB are shown in the figure below.

● **Setting of Unit No.**

The indoor unit Nos. of all indoor units are not required. The indoor unit Nos. are set by the auto-address function. If the indoor unit No. setting is required, set the unit Nos. of all indoor units respectively and serially by following setting position. It is recommended to assign a number to each indoor unit from "1." Though Max. 64 indoor units per refrigerant cycle can be connected to H-LINK II System, available numbers range from 0 to 63. Therefore, the applicable number for the 64th indoor unit shall be "0."

PCB1



<Unit No. Setting (RSW1 & DSW6)>

Setting is required. RSW1 and DSW6 are all set to OFF and "0" before shipment.

Unit No. Setting

DSW6 (Tens Digit)	RSW1 (Units Digit)	Ex.) Set at No.16 Unit
ON / OFF 1 2 3 4 5 6	Setting Position; Set by inserting slotted screwdriver into the groove.	DSW6: ON / OFF 1 2 3 4 5 6; Set No.1 Pin at ON side; RSW1; Set at "6"
Before shipment, DSW6 and RSW1 are set at "0". (a) for Units Supporting H-LINK II The unit Nos. can be set for Max. 64 indoor units (No.0~63). (b) for Units Supporting H-LINK The unit Nos. can be set for Max. 16 indoor units (No.0~15).		

<Refrigerant Cycle No. Setting (RSW2 & DSW5)>

Setting is required. RSW2 and DSW5 are all set to OFF and "0" before shipment.

Refrigerant Cycle No. Setting

DSW5 (Tens Digit)	RSW2 (Units Digit)	Ex.) Set at No.5 Cycle
ON / OFF 1 2 3 4 5 6	Setting Position; Set by inserting slotted screwdriver into the groove.	DSW5: ON / OFF 1 2 3 4 5 6; Set All Pins OFF; RSW2; Set at "5"
Before shipment, DSW5 and RSW2 are set at "0". (a) for Units Supporting H-LINK II The ref. cycle Nos. can be set for Max. 64 cycles. (No. 0~63) (b) for Units Supporting H-LINK The ref. cycle Nos. can be set for Max. 16 cycles. (No. 0~15)		

(3) Dip Switch Setting for Outdoor Unit

● **Setting for Transmitting**

It is required to set the outdoor unit Nos., refrigerant cycle Nos. and end terminal resistance for this H-LINK or H-LINK II system.

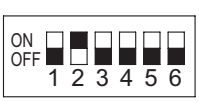
● **Setting of Refrigerant Cycle No.**

In the same refrigerant cycle, set the same refrigerant cycle No. for the outdoor unit and the indoor units as shown below.

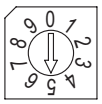
As for setting indoor unit refrigerant cycle No., set the RSW2 and DSW5 on the indoor unit PCB.

	Ref. Cycle No. Setting	
	10 digit	1 digit
	ON / OFF 1 2 3 4 5 6	Setting Position; Set by inserting slotted screwdriver into the groove.
Outdoor Unit	DSW4	RSW1
Indoor Unit (H-LINK II)	DSW5	RSW2

Ex.: In the Case of Setting Refrigerant Cycle No. 25



Turn ON No. 2 pin.



Set Dial No.5.

DSW and RSW setting before shipment is 0.
Maximum in setting refrigerant cycle No. is 63.

● **Setting of End Terminal Resistance**

Before shipment, No. 1 pin of DSW5 is set at "ON" side. In the case that the outdoor units quantity in the same H-LINK or H-LINK II is 2 or more, set No. 1 pin of DSW5 at "OFF" side from the 2nd refrigerant group outdoor unit. If only one outdoor unit is used, no setting is required.

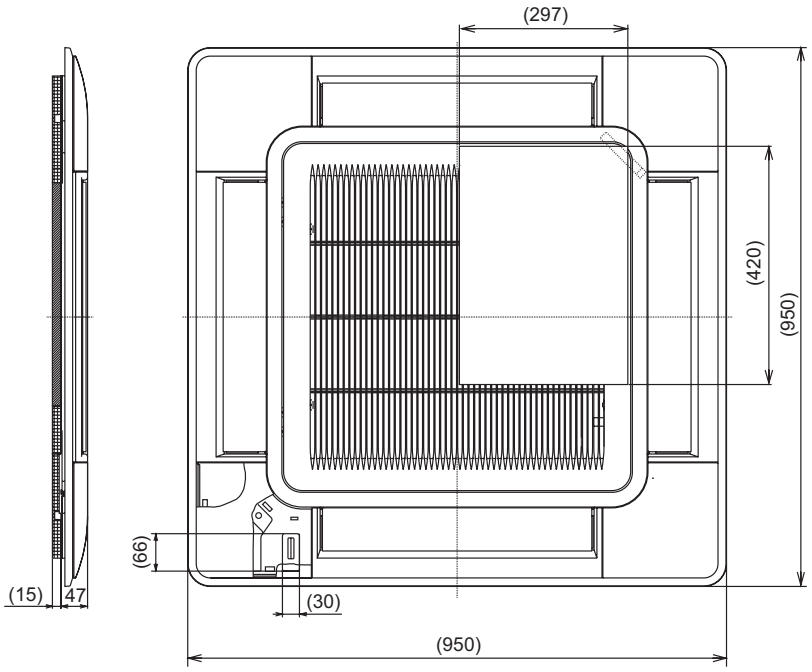
Setting of End Terminal Resistance

DSW5

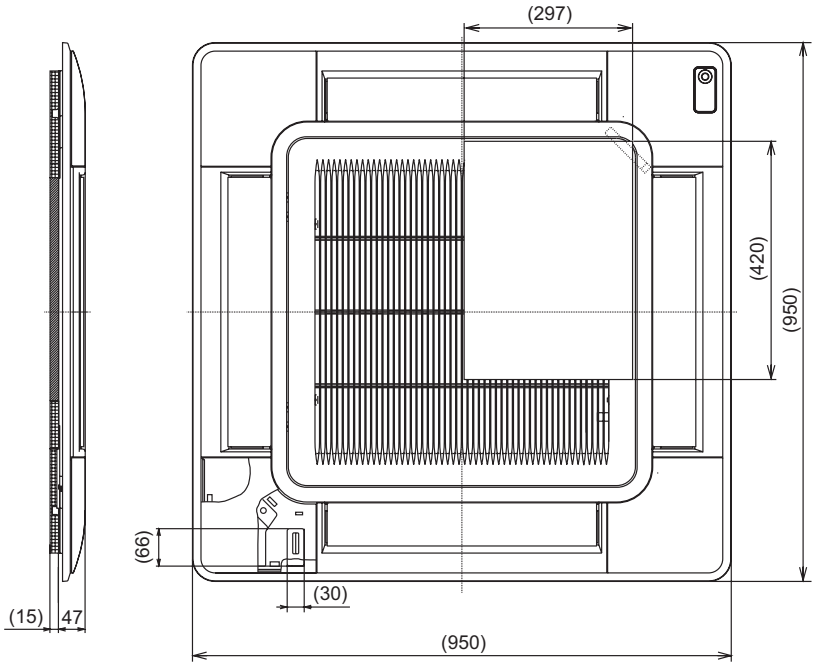
Before Shipment	Cancellation
ON / OFF 1 2	ON / OFF 1 2

8.2 for 4-Way Cassette Type

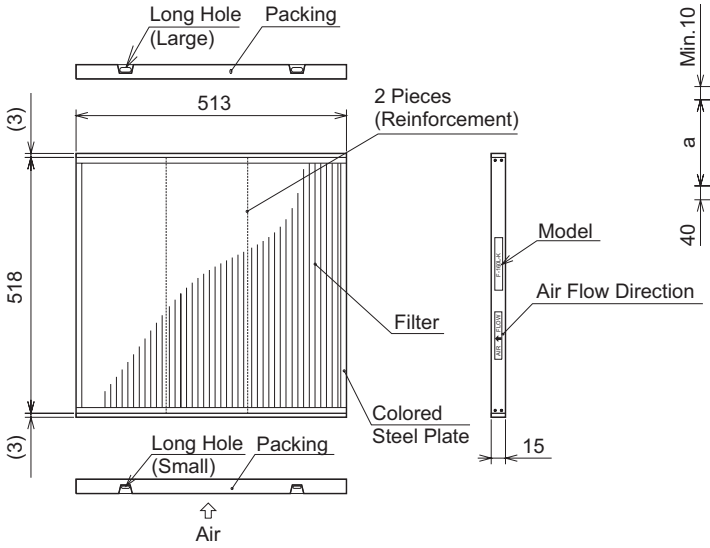
8.2.1 Air Panel (Standard): P-AP160NA1

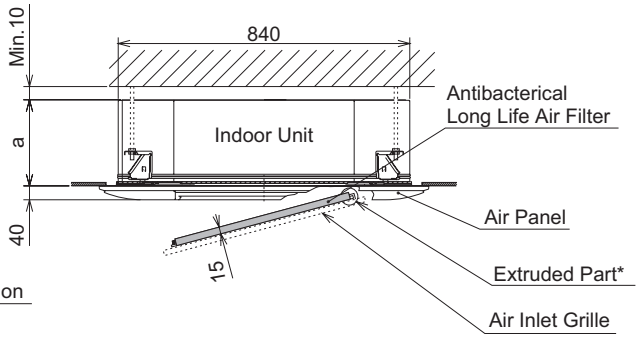


8.2.2 Air Panel (with Motion Sensor): P-AP160NAE



8.2.3 Antibacterial Long Life Air Filter: F-160L-K





*Put the square holes into the extruded parts of air inlet grille.

Model \ Dim.	a
1.0 - 2.5	248
3.0 - 6.0	298

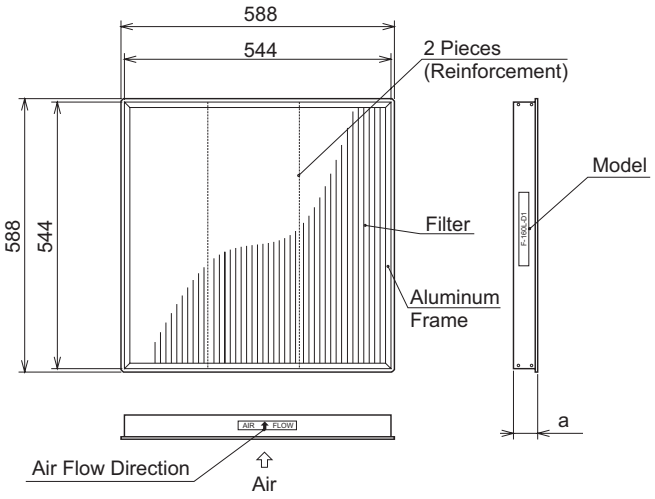
Specifications

Item \ Model		F-160L-K
Applicable Indoor Unit Model (RCI-**FSN3)		1.0 to 6.0
Dust Collection Efficiency	%	50 (Gravimetric Method *1)
Air Flow	m^3/min.	35.0
Initial Pressure Loss	Pa (mmAq)	28.0
End Pressure Loss	Pa (mmAq)	62.0
Color (Filter/Frame)		White/Brown
Life Period		4 Years (with maintenance per 1,250 hours)
Cleaning		Available *2
Accessory		Installation Manual
Weight	kg	0.6
Performance		Prevent Bacteria and Mold from Multiplying
Filter Material	Antibacterial Fiber	Modified Acrylic Fiber 1 (Inorganic Antibacterial Substance Contained) Modified Acrylic Fiber 2 (Organic Antibacterial Substance Contained)
	Reinforce Net	PP

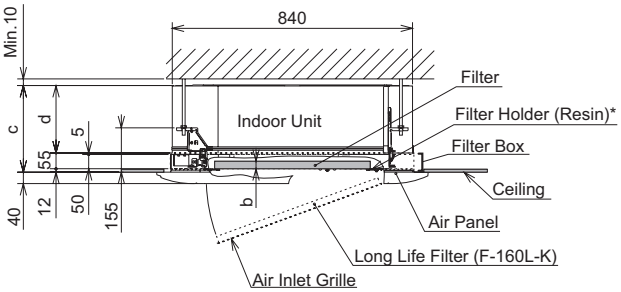
NOTES:

1. This product is designed for standard air conditioning only.
   Do not use this product for specific purposes, such as oil drifts, etc.
2. The dust collection efficiency is against the general airborne dust (Dust Concentration: 0.1mg/m^3).
   It is not the collection efficiency for bacteria and mold. (*1)
3. The life period may differ depending on environment. If the dust accumulates on the filter, the antibacterial efficiency may decrease.
   Perform the maintenance periodically by cleaning (removing dust).
4. Change the filter if its life period is over.
5. Wash this filter by water or the neutral detergent. (*2)
6. This filter can be used with the deodorant air filter (option).
7. Select the function selection mode with the remote control switch and set the high speed mode to “High Speed 1” before using this antibacterial long life air filter.
   Refer to “Installation & Maintenance Manual” for details of high speed mode.
8. When the high speed mode “HIGH” or “HIGH 2” is used, the noise level may increase.
9. For this antibacterial long life air filter, the air flow volume “HIGH 2” will be equaled to “HIGH”.
10. The cleaning period of the filter using the air volume “HIGH 2” is somewhat shorter than that of the filter using “HIGH.”

8.2.4 Deodorant Air Filter: F-71L-D1, F-160L-D1



Model / Symbol	F-71L-D1	F-160L-D1
a	25	45



*Insert the air filter into the filter box and fix the air filter by filter holder.

Dim. / Model	b	c	d
1.0 - 2.5	25	303	236
3.0 - 6.0	45	353	286

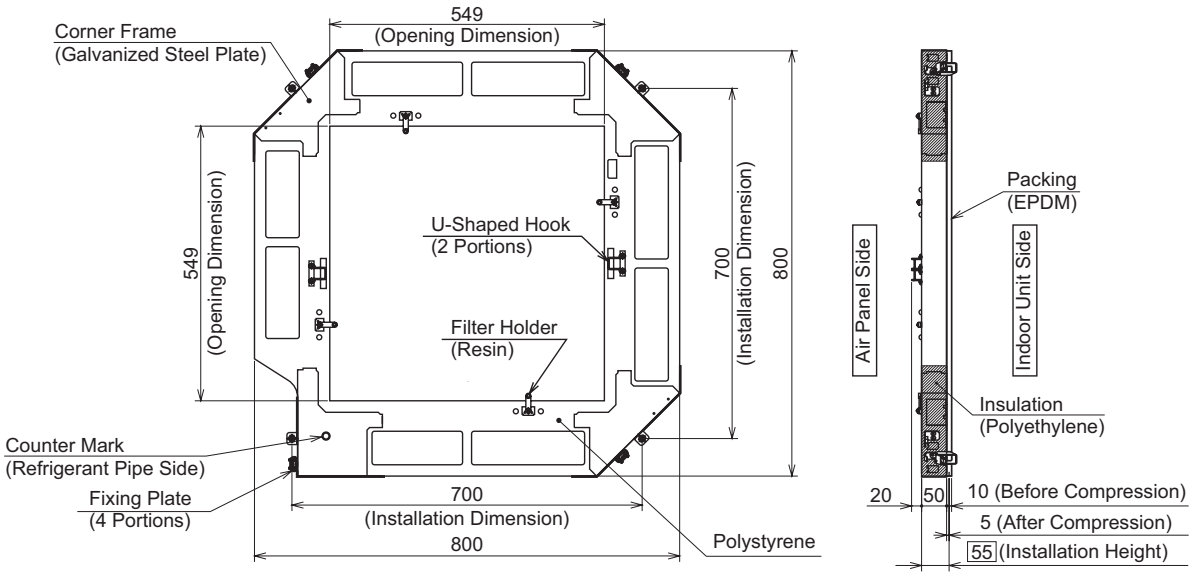
Specifications

Item / Model		F-71L-D1	F-160L-D1
Applicable Indoor Unit Model (RCI-**FSN3)		1.0 to 2.5	3.0 to 6.0
Dust Collection Efficiency	%	50 (Gravimetric Method *1)	
Air Flow	m^3/min.	22.0	35.0
Initial Pressure Loss	Pa (mmAq)	19.0	36.0
End Pressure Loss	Pa (mmAq)	48.0	78.0
Color (Filter/Frame)		Pink/Silver	
Life Period		3 Years (with maintenance per 3~6 months)	
Reuse		Available (Dry by Sunlight) *2	
Cleaning		Available (Wash by Water) *3	
Accessory		Installation Manual	
Weight	kg	0.8	1.2
Performance		Adsorbs Smoke, Body Odor, etc. (Ex. Ammonia, Acetic Acid, Acetaldehyde)	
Fiber Material	Antibacterial Fiber	Acrylate Fiber 1 (Absorbed Fiber for Basic Gas) Acrylate Fiber 2 (Absorbed Fiber for Acidic Gas)	
	Reinforce Net	PP/PE	
	Reinforce Sheet	PP	
Applicable Filter Box (Option)		B-160H2	
Restriction on Usage		Washing by the detergent is prohibited.	

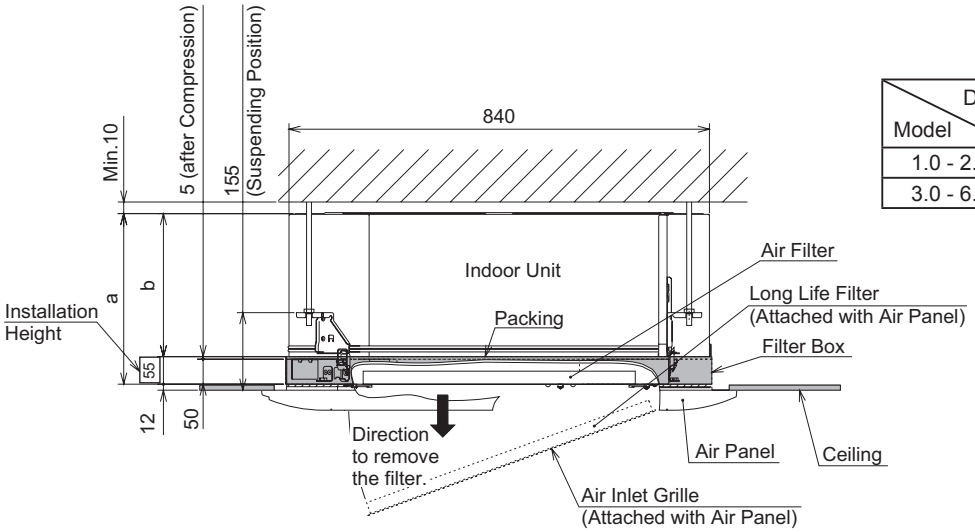
NOTES:

1. This product is designed for standard air conditioning only.
   Do not use this product for specific purposes, such as oil drifts, etc.
2. The dust collection efficiency is against the general airborne dust (Dust Concentration: 0.15mg/m^3).
   It is not the collection efficiency for bacteria and mold. (*1)
3. The life period may differ depending on environment. If dust accumulates on the filter, the antibacterial efficiency may decrease.
   Perform the maintenance periodically by cleaning (removing dust).
4. Change the filter if its life period is over.
5. This filter adsorbs smoke, body odor, etc. However, some special odors (such as organic silvent and sulfur gas) cannot be adsorbed.
6. This filter is reusable by atmospheric emission of adsorbed odor by drying it by sunlight. (*2)
7. When washing this deodorant air filter, wash it by water.
   Do not use the detergent for prevention of decreasing adsorptivity of odor. (*3)
8. This deodorant air filter does not have the deodorant effect when the water leakage occurs from the filter or the air conditioning operation is stopped.
9. Select the function selection mode with the remote control switch and set the high speed mode to “High Speed 1” before using this deodorant air filter. Refer to “Installation & Maintenance Manual” for details of high speed mode.
10. When the high speed mode “HIGH” or “HIGH 2” is used, the noise level may increase.
11. For this deodorant air filter, the air flow volume “HIGH 2” will be equaled to “HIGH”.
12. The cleaning period of the filter using the air volume “HIGH 2” is somewhat shorter than that of the filter using “HIGH.”

8.2.5 Filter Box: B-160H2



< Service Space >



Model \ Dim.	a	b
1.0 - 2.5	291	236
3.0 - 6.0	341	286

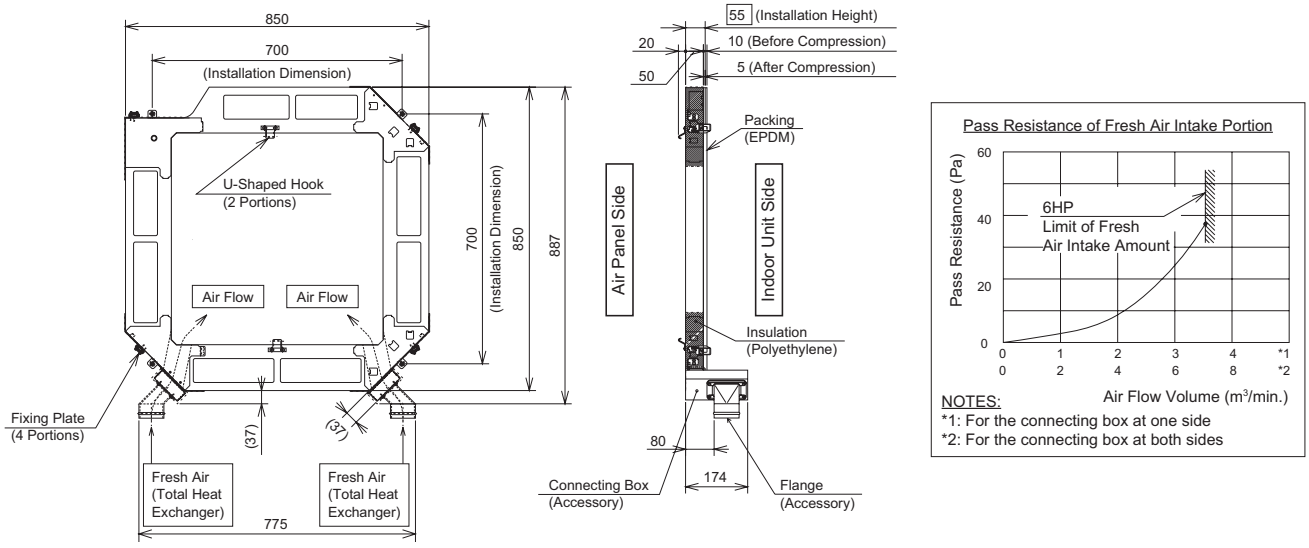
Specifications

Item \ Model		B-160H2	
Applicable Indoor Unit Model (RCI-**FSN3)		1.0 to 6.0	
Quantity		1	
Installation Height	mm	55	
Material		Polyethylenes, Galvanized Steel Plate, EPDM-FO, Polystyrenes	
Color (Frame)		Bluish Grey	
Accessory		Installation Manual	
Weight	kg	2.5	
Applicable Air Filter (Option)	Deodorant Air Filter (Gravimetric Method: 50%)	F-71L-D1	F-160L-D1

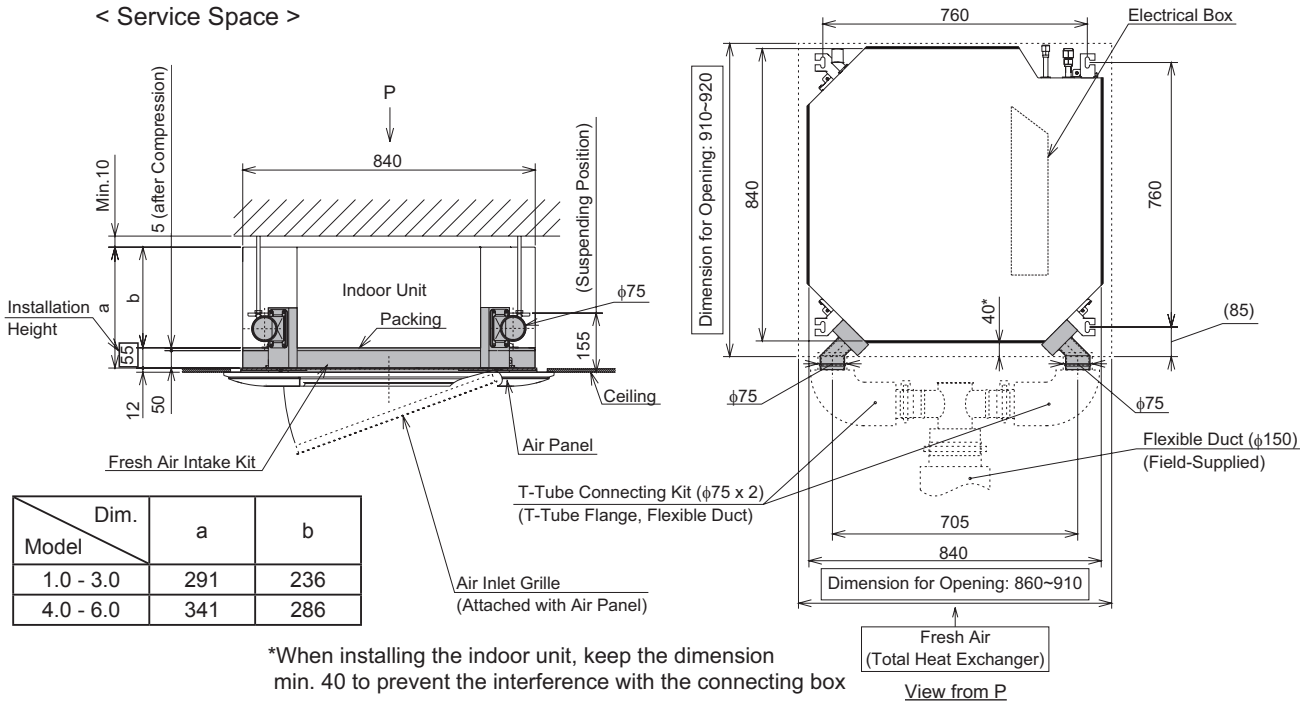
NOTES:

1. The total height of the unit is increased by approximately 55mm when the filter box is installed. Therefore, pay attention to the installation space.
2. The indoor unit and the filters shown in the figure are sold separately. Order them for each.
3. Refer to “Installation & Maintenance Manual” of the filter box for details of installation of the filter box.

8.2.6 Fresh Air Intake Kit: OACI-160K2



< Service Space >



Dim. / Model	a	b
1.0 - 3.0	291	236
4.0 - 6.0	341	286

*When installing the indoor unit, keep the dimension min. 40 to prevent the interference with the connecting box

Specifications

Item \ Model		OACI-160K2
Applicable Indoor Unit Model (RCI-**FSN3)		1.0 to 6.0
Quantity		1
Installation Height	mm	55
Material		Polyethylenes, Galvanized Steel Plate, EPDM-FO, Polystyrenes
Color (Frame)		Bluish Grey
Accessory		Packing, Installation Manual, Connecting Box (ϕ75)
Weight	kg	2.3

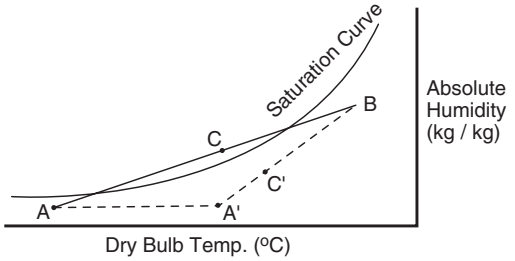
NOTES:

1. The total height of the unit is increased by approximately 55mm when the fresh air intake kit is installed. Therefore, pay attention to the installation space.
2. The indoor unit and the T-tube connecting kit shown in the figure are sold separately. Order them for each. (▭ in the figure shows the fresh air intake kit.)

< Cautions for Installation of Fresh Air Intake Kit >

(1) Do not use the fresh air intake kit under the following conditions;

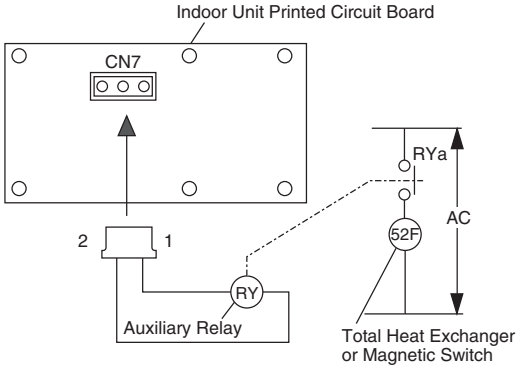
a) where there is oil vapor and oil is dispersed (machine shops, kitchen, etc.).
b) where generation, flowing or staying of flammable gas and corrosive gas may occur.
c) under the condition that dewing may occur inside the fresh air intake kit; (C): condition of mixed air connecting (A): temperature/humidity of fresh air and (B): temperature/humidity of room air, intersects the saturation curve in the psychrometric chart as shown right. (Countermeasure: In heating operation as shown right, heat (A) up to (A)' and move (C) to (C)' not to intersect the saturation curve.)



d) where the temperature difference between supply air from the room air and the outside air is over 15 deg.

(2) This kit cannot supply the fresh air by itself. Therefore, connect the duct to the kit and supply the fresh air from the total heat exchanger or the duct fan.

(3) When connecting this kit to the total heat exchanger or the duct fan, make an interlock to the fan of the indoor unit. The example is shown in the right figure.



(4) The standard maximum air volume of fresh air intake when using the total heat exchanger, is within 20% of the rated air volume of the indoor unit (at "HIGH" mode).
(In the case without total heat exchanger, use the fresh air intake kit within the specified range so that dew condensation does not occur at this kit, duct and inside the indoor unit.)
With or without the total heat exchanger, follow the countermeasure according to the temperature difference between the supply air from the room air and the outside air as shown in the table below.

Temperature Difference between Supply Air from Room Air and Outside Air	Countermeasure
Below 10 deg.	No Countermeasure Required
Below 15 deg.	Perform Insulation
Over 15 deg.	Use with Total Heat Exchanger or Operation is Not Permissible.

(5) When this kit is installed with the receiver kit, the installation position for receiver kit is limited.

(6) Keep the dimension for opening shown in the figure on the previous page for the connecting box not to be interfered with.

(7) The chart “Pass Resistance of Fresh Air Intake Portion” shows the value when the kit is used by itself. In the case that the kit is installed with T-tube connecting kit, refer to the chart in the item “T-Tube Connecting Kit” for the value.

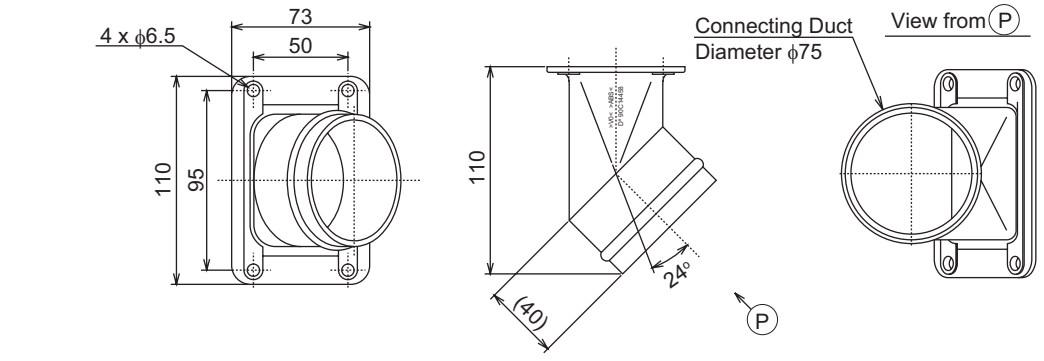
(8) When the fresh air is taken from one side, cover the gap with insulation for the other side to prevent air leakage and dewing.

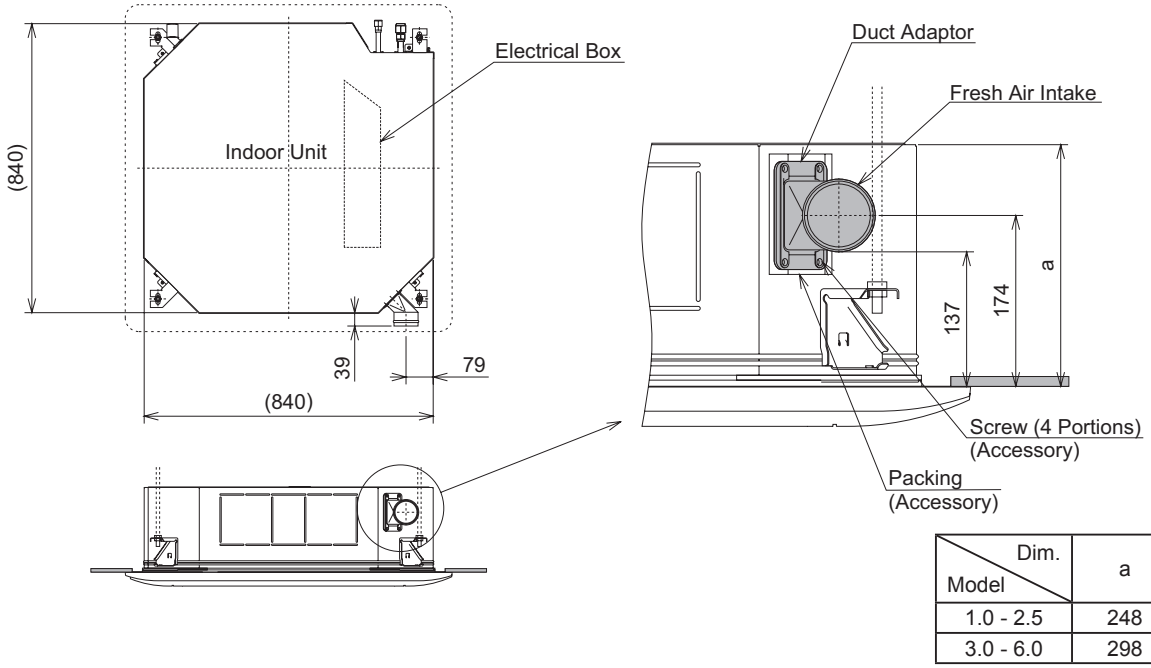
(9) The air through the duct does not pass the air filter of the indoor unit. Therefore, install an air filter (field-supplied) at the supply side of the fresh air.

(10) Insulate the duct and the duct connection (including the plate band and the T-tube connection).
The materials of the duct and the insulation shall be nonflammable.

(11) When selecting the total heat exchanger with the air flow beyond the permissible range of the fresh air intake volume, adjust the air flow and use the kit within the permissible range.

8.2.7 Duct Adapter: PD-75A





Model \ Dim.	a
1.0 - 2.5	248
3.0 - 6.0	298

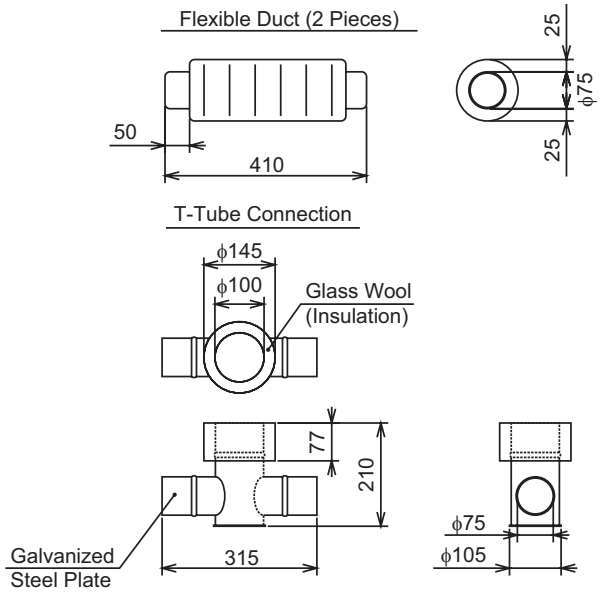
Specifications

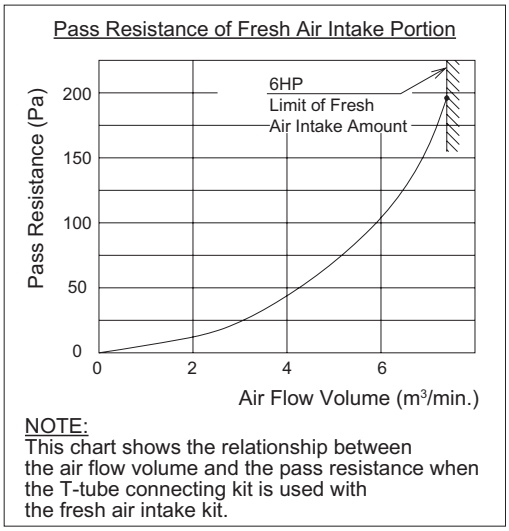
Item \ Model		PD-75A	
Applicable Indoor Unit Model (RCI-**FSN3)		1.0 to 2.5	3.0 to 6.0
Max. Capacity of Flesh Air Intake	m^3/min.	1.0	2.0
Usage		Fresh Air Intake Outlet	
Connecting Duct Diameter	mm	ϕ75	
Material		ABS Resin (Flame Resistance: UL94V-0)	
Accessory		Insulation, Fixing Screw, Installation Manual	

NOTES:

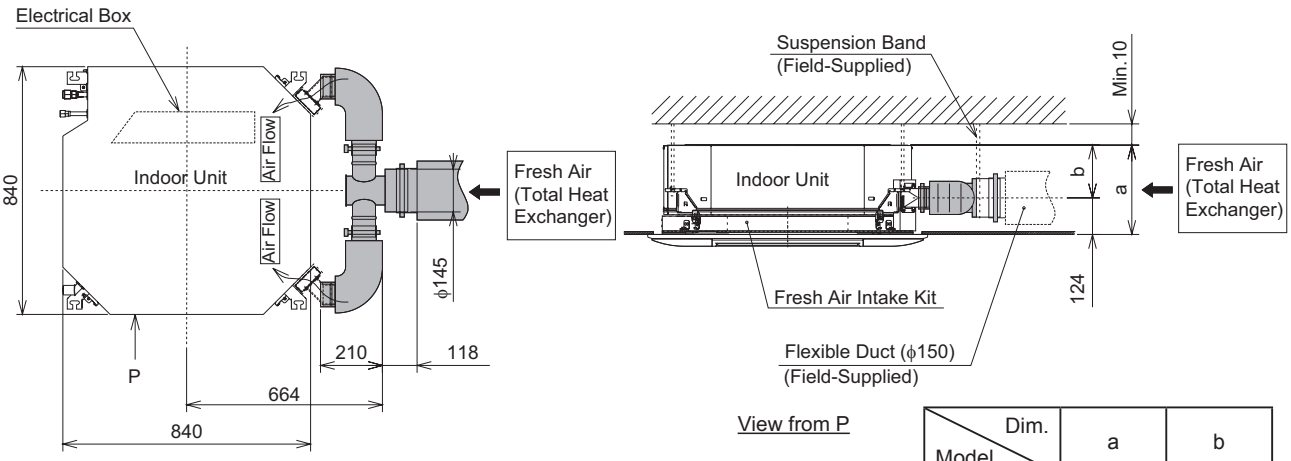
1. This duct adaptor is used as the connection flange to attach the fresh air intake outlet (for connecting the flexible duct (ϕ75).)
2. Refer to “Installation & Maintenance Manual” of duct adopter for details of the installation of fresh air intake duct.

8.2.8 T-Tube Connecting Kit: TKCI-160K





NOTE:
This chart shows the relationship between the air flow volume and the pass resistance when the T-tube connecting kit is used with the fresh air intake kit.



View from P

Model \ Dim.	a	b
1.0 - 2.5	303	179
3.0 - 6.0	353	229

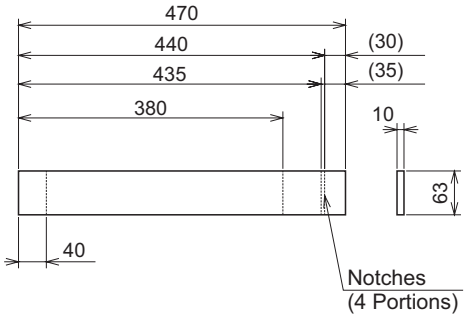
Specifications

Item \ Model		TKCI-160K
Applicable Indoor Unit Model (RCI-**FSN3)		1.0 to 6.0
Usage		Connecting Parts for Fresh Air Intake Kit Duct
Quantity		1
Material		T-Tube Connecting: Galvanized Steel Plate Flexible Duct: Vinyl Chloride Tube, Glass Wool
Accessory		Insulation, Plate Band (for ϕ75 x 4 and ϕ150 x 1) Installation Manual
Weight	kg	2.0
Applicable Fresh Air Intake Kit (Option)		OACI-160K2

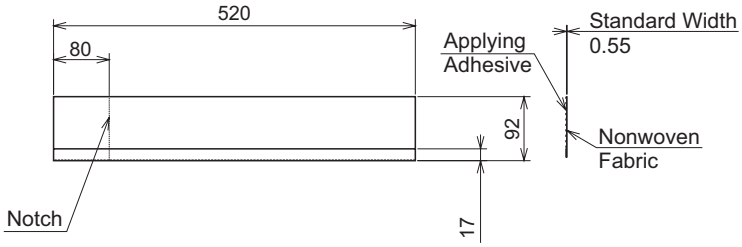
NOTES:
1. The indoor unit and the fresh air intake kit shown in the figure are sold separately. Order them for each. (▭ in the figure shows the T-tube connecting kit.)
2. The chart “Pass Resistance of Fresh Air Intake Portion” shows the value when this kit is used with the fresh air intake kit.
3. The installation notes for this kit are also described in the item “Fresh Air Intake Kit”

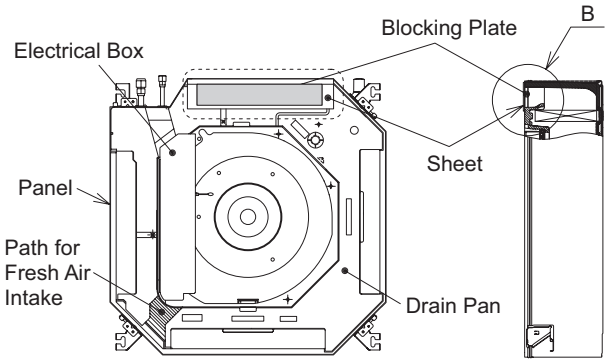
8.2.9 3-Way Outlet Parts Set: PI-160LS1

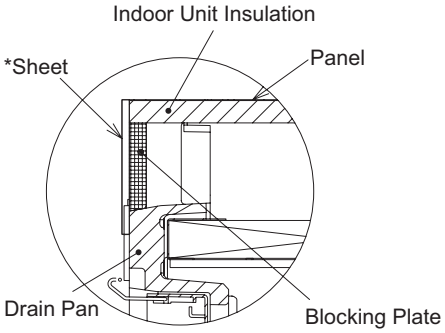
< Blocking Plate >



< Sheet >





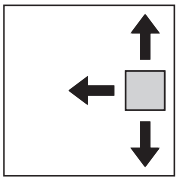


View from B

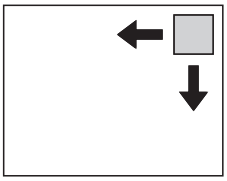
*Do not attach the sheet to the indoor unit insulation and the panel. If it is adhered, the drain pan cannot be removed.

< Example for 3-Way and 2-Way Outlet >

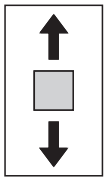
• Near the Wall: 3-Way Outlet



• In a Corner: 2-Way Outlet



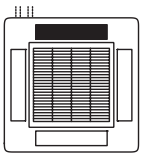
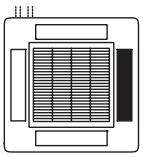
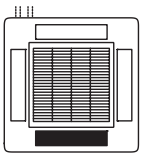
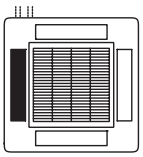
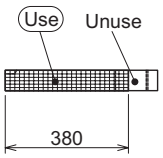
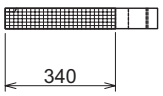
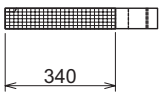
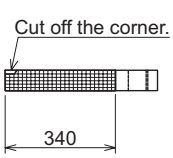
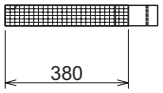
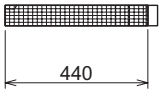
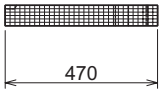
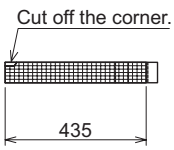
• In Rectangular Room: 2-Way Outlet



OPTIONAL ACCESSORIES

(1) 3-Way Outlet

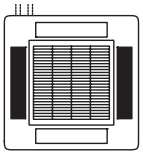
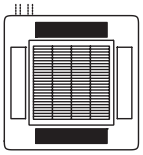
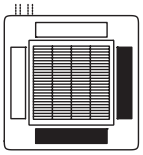
■: Blocking Part (Use ▦ Part of Blocking Plate)

Installation Example / Indoor Unit Model	Example 1 (*1)	Example 2	Example 3	Example 4
	(Piping Side) 	(Piping Side) 	(Piping Side) 	(Piping Side) 
RCI-1.0 - 1.5FSN3				
RCI-2.0 - 6.0FSN3				

(2) 2-Way Outlet

The air outlet directions can not be selected other than the figure below.
(If other air outlet directions are selected, dew condensation may occur.)

■: Blocking Part

Installation Example / Indoor Unit Model	Example 1	Example 2 (*1)	Example 3 (*2)
	(Piping Side) 	(Piping Side) 	(Piping Side) 
RCI-1.0 - 6.0FSN3	Refer to the item (1) “3-Way Outlet” for the size of Blocking Plate of each model.		

*1 Change the position of the outlet temperature thermistor.
If not, the room temperature adjustment may not be available.
*2 In the case of Example 3, the air flow volume will decrease compared with other cases.
Set the high speed setting.

Specifications

Item / Model		PI-160LS1
Applicable Indoor Unit Model (RCI-**FSN3)		1.0 to 6.0
Quantity (per indoor unit)		1
Material	Blocking Plate	Polyethylenes
	Sheet	Unwoven Fabric (Flame Resistance: UL94V-0)
Accessory		Blocking Plate x 2, Sheet x 2, Installation Manual

NOTE:
This parts is for blocking the air flow to the unnecessary direction by changing the air outlets for 4-Way casette type to 3-Way or 2-Way outlet.

9. Component Data

Indoor Heat Exchanger and Fan

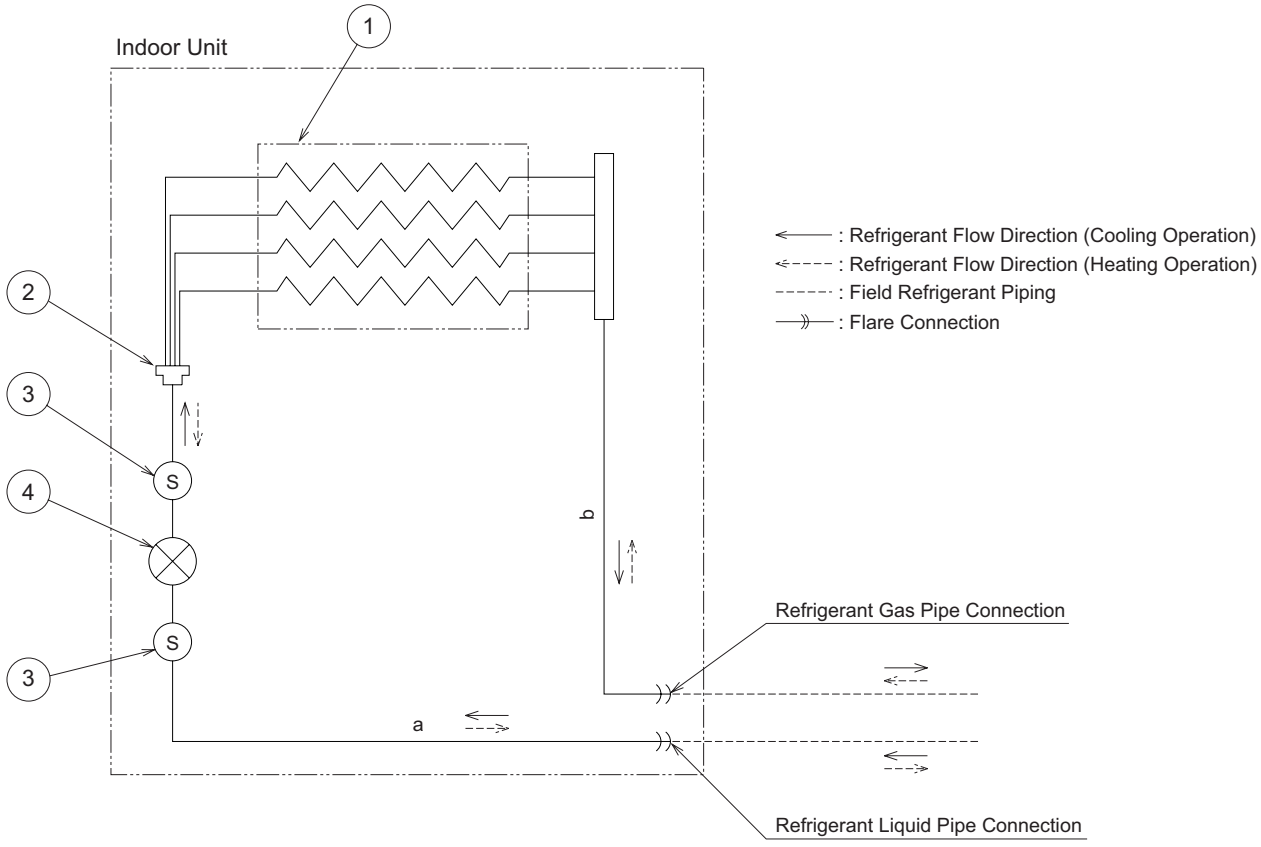
Model		RCI-1.0FSN3	RCI-1.5FSN3	RCI-2.0FSN3	RCI-2.5FSN3
Heat Exchanger Type		Multi-Pass Cross Finned Tube			
Tube Material		Copper Tube			
Outer Diameter	mm	5	5	5	5
Rows		2	2	2	3
Number of Tube/Coil		20	28	28	42
Fin Material		Aluminum			
Pitch	mm	1.3	1.3	1.3	1.3
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15
Total Face Area	m^2	7.6	10.6	10.6	15.8
Number of Coil/Unit		1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan			
Number/Unit		1	1	1	1
Outer Diameter	mm	490	490	490	490
Revolution (Hi2/Hi/Me/Lo)	rpm	378/297/254/211	471/377/324/270	480/380/322/262	620/493/425/354
Nominal Air Flow (Hi2/Hi/Me/Lo)	m^3/min. (ℓ/s)	15/13/11/9 (250/217/183/150)	21/17/14/11 (350/283/233/183)	22/17/14/11 (367/283/233/183)	27/23/18/14 (450/383/300/233)
Indoor Fan Motor Starting Method		Drip-Proof Type Enclosure DC Motor			
Nominal Output	W	57	57	57	57
Quantity		1	1	1	1
Insulation Class		E	E	E	E

Model		RCI-3.0FSN3	RCI-4.0FSN3	RCI-5.0FSN3	RCI-6.0FSN3
Heat Exchanger Type		Multi-Pass Cross Finned Tube			
Tube Material		Copper Tube			
Outer Diameter	mm	5	5	5	5
Rows		3	3	3	3
Number of Tube/Coil		54	54	54	54
Fin Material		Aluminum			
Pitch	mm	1.3	1.3	1.3	1.3
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15
Total Face Area	m^2	20.3	20.3	20.3	20.3
Number of Coil/Unit		1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan			
Number/Unit		1	1	1	1
Outer Diameter	mm	490	490	490	490
Revolution (Hi2/Hi/Me/Lo)	rpm	575/491/425/359	774/651/555/443	774/711/579/487	774/732/601/527
Nominal Air Flow (Hi2/Hi/Me/Lo)	m^3/min. (ℓ/s)	27/23/18/14 (450/383/300/233)	37/31/24/20 (617/517/400/333)	37/33/26/21 (617/550/433/350)	37/35/28/22 (617/583/467/367)
Indoor Fan Motor Starting Method		Drip-Proof Type Enclosure DC Motor			
Nominal Output	W	57	127	127	127
Quantity		1	1	1	1
Insulation Class		E	E	E	E

10. Control System

10.1 Refrigeration Cycle

Models: RCI-1.0FSN3, RCI-1.5FSN3, RCI-2.0FSN3, RCI-2.5FSN3, RCI-3.0FSN3, RCI-4.0FSN3, RCI-5.0FSN3 and RCI-6.0FSN3

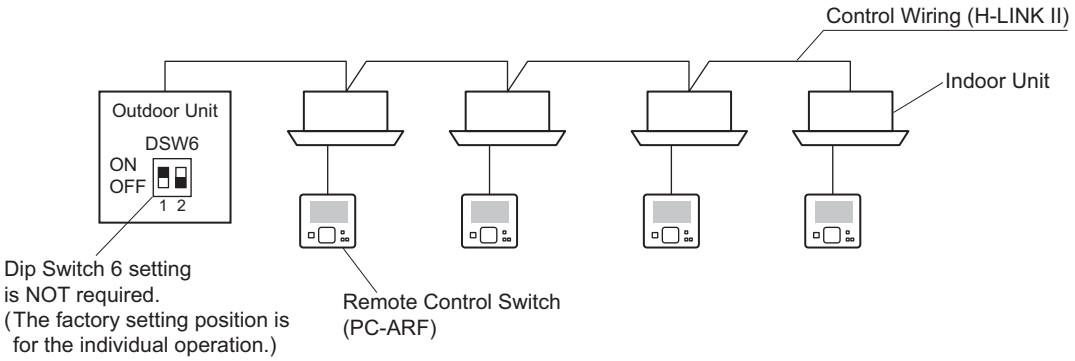


Mark	Part Name
1	Heat Exchanger
2	Distributor
3	Strainer
4	Micro-Computer Control Expansion Valve

HP	1.0	1.5	2.0	2.5	3.0	4.0	5.0	6.0
Distributor	5Pass	7Pass	7Pass	7Pass	20Pass	20Pass	20Pass	20Pass
Liquid Pipe Connection	ϕ6.35	ϕ6.35	ϕ6.35	ϕ9.52	ϕ9.52	ϕ9.52	ϕ9.52	ϕ9.52
Gas Pipe Connection	ϕ12.7	ϕ12.7	ϕ15.88	ϕ15.88	ϕ15.88	ϕ15.88	ϕ15.88	ϕ15.88
a (OD x T)	ϕ12.7 x 0.8	ϕ12.7 x 0.8	ϕ12.7 x 0.8	ϕ12.7 x 0.8	ϕ12.7 x 0.8	ϕ12.7 x 0.8	ϕ12.7 x 0.8	ϕ12.7 x 0.8
b (OD x T)	ϕ12.7 x 0.8	ϕ12.7 x 0.8	ϕ12.7 x 0.8	ϕ15.88 x 1.0	ϕ15.88 x 1.0	ϕ15.88 x 1.0	ϕ15.88 x 1.0	ϕ15.88 x 1.0

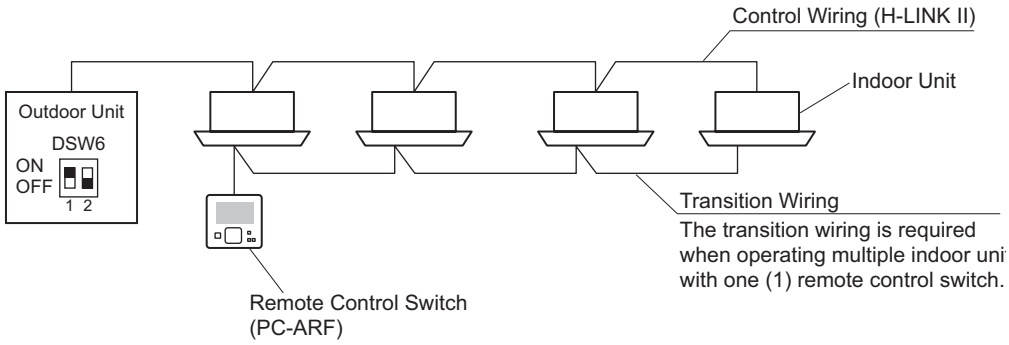
10.2 System Control

10.2.1 Individual Operation



< Individual Thermo ON/OFF Operation >

The individual Thermo ON/OFF operation for each indoor unit is available even if multiple indoor units are controlled simultaneously by one remote control switch.



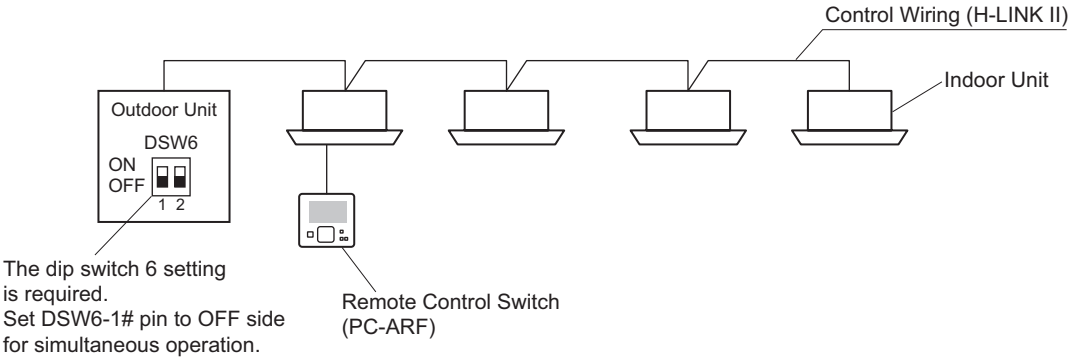
Control Method	by each Optional Remote Control Switch
Operation Method	by One Group
(1) ON/OFF	Yes
(2) Setting of Operation Mode	Yes *1)
(3) Room Temperature Setting	Yes
(4) Fan Speed Setting	Yes
(5) Timer Setting	Yes
(6) ON/OFF by Timer Control	Yes
(7) Operation Indication	Yes
(8) Alarm Indication	Yes
(9) Self-Checking	Yes
(10) Test Mode	Yes
(11) Individual Louver Setting	Yes *2)
(12) Motion Sensor Setting	Yes *3)

Yes : Available
*1) : Cooling and heating can not be operated simultaneously.
*2) : Only for RCI-FSN3 series with PC-ARF
*3) : Only for RCI-FSN3 + P-AP160NAE + PC-ARF
Do not mix other indoor unit, air panel (P-AP160NA1) and remote control switch (PC-AR) if this setting is set from one remote control switch.

NOTE:
Refer to “Installation and Maintenance Manual” of each equipment for details of electrical wiring.

10.2.2 Simultaneous Operation

This unit can be operated simultaneously with twin, triple and quad combinations.
One remote control switch (PC-ARF) can control without transition wiring up to 4 units of FSN2 series or later model types (H-LINK II-supporting models) simultaneously.
(Available if it is with the transition wiring.)



Control Method	by One Optional Remote Control Switch
Operation Method	by One Group
(1) ON/OFF	Yes
(2) Setting of Operation Mode	Yes *1)
(3) Room Temperature Setting	Yes
(4) Fan Speed Setting	Yes
(5) Timer Setting	Yes
(6) ON/OFF by Timer Control	Yes
(7) Operation Indication	Yes
(8) Alarm Indication	Yes
(9) Self-Checking	Yes
(10) Test Mode	Yes
(11) Individual Louver Setting	Yes *2)
(12) Motion Sensor Setting	Yes *3)

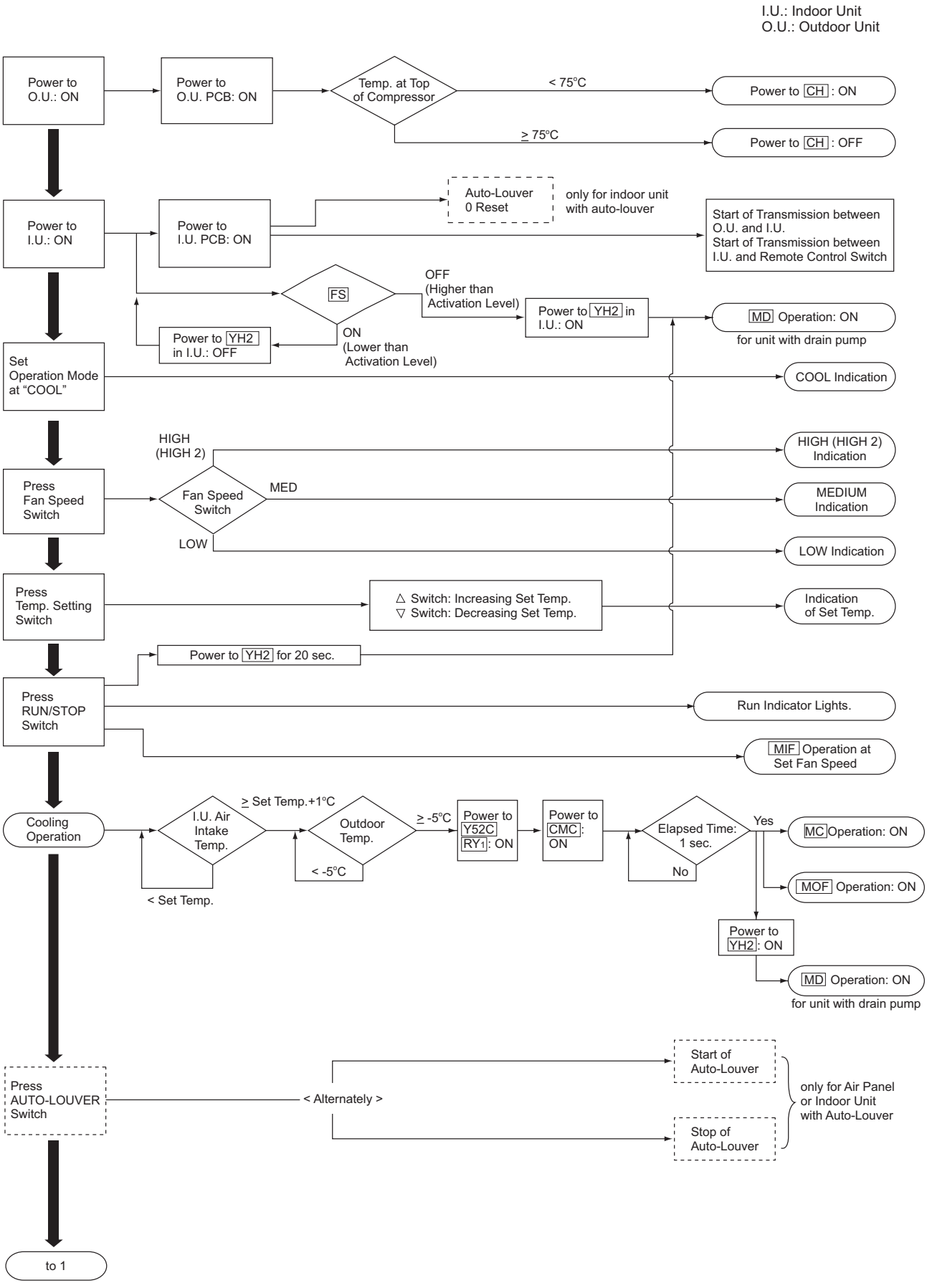
Yes : Available
*1) : Only if all units in one group are connected to the same outdoor unit.
*2) : Only for RCI-FSN3 series with PC-ARF
*3) : Only for RCI-FSN3 + P-AP160NAE + PC-ARF
Do not mix other indoor unit, air panel (P-AP160NA1) and remote control switch (PC-AR) if set from one remote control switch.

NOTE:
Refer to “Installation and Maintenance Manual” of each equipment for details of electrical wiring.

10.3 Standard Operation Sequence

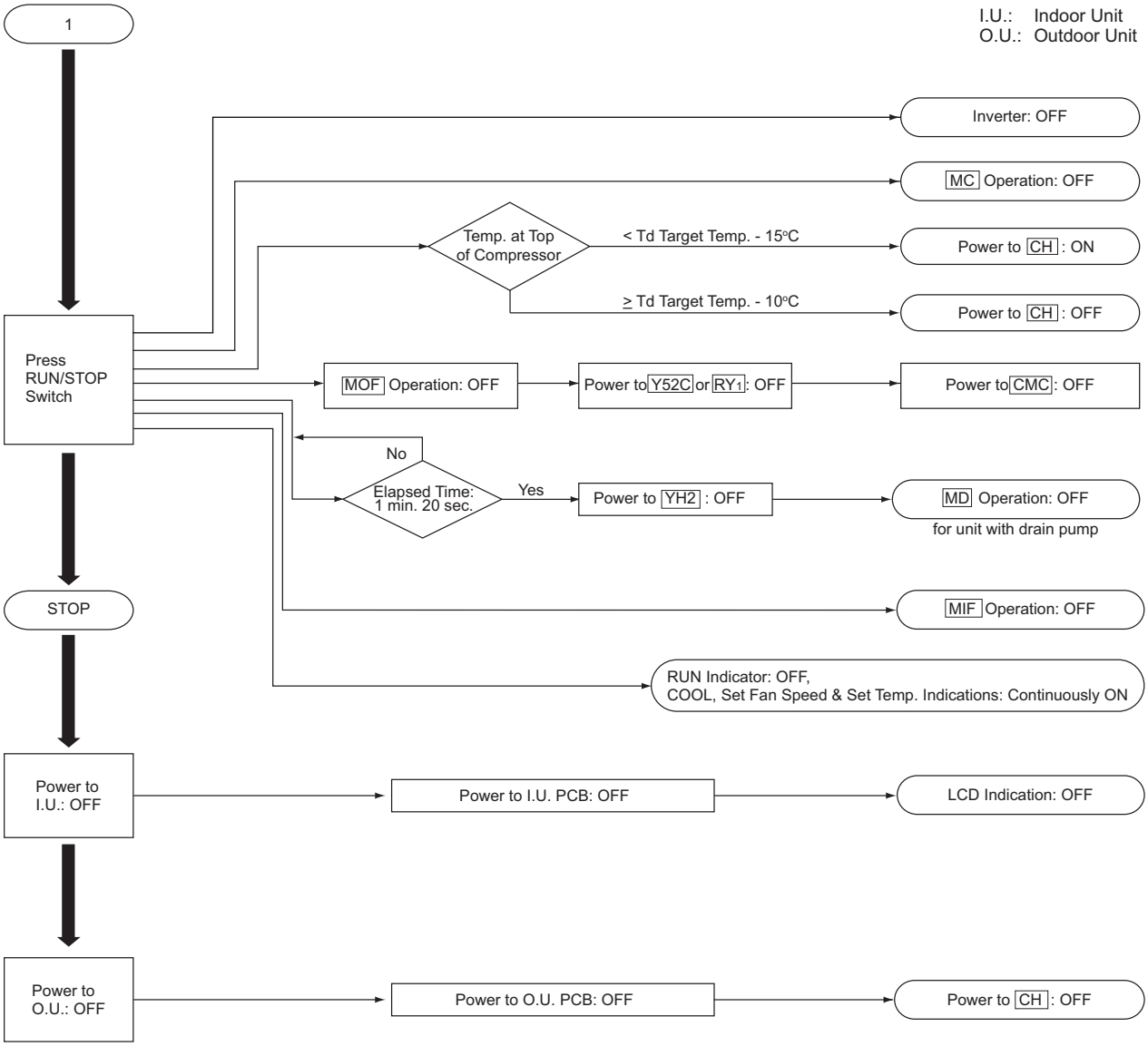
■ Cooling Operation

Following is only one example. The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Technical Catalog” for details.



■ Cooling Operation

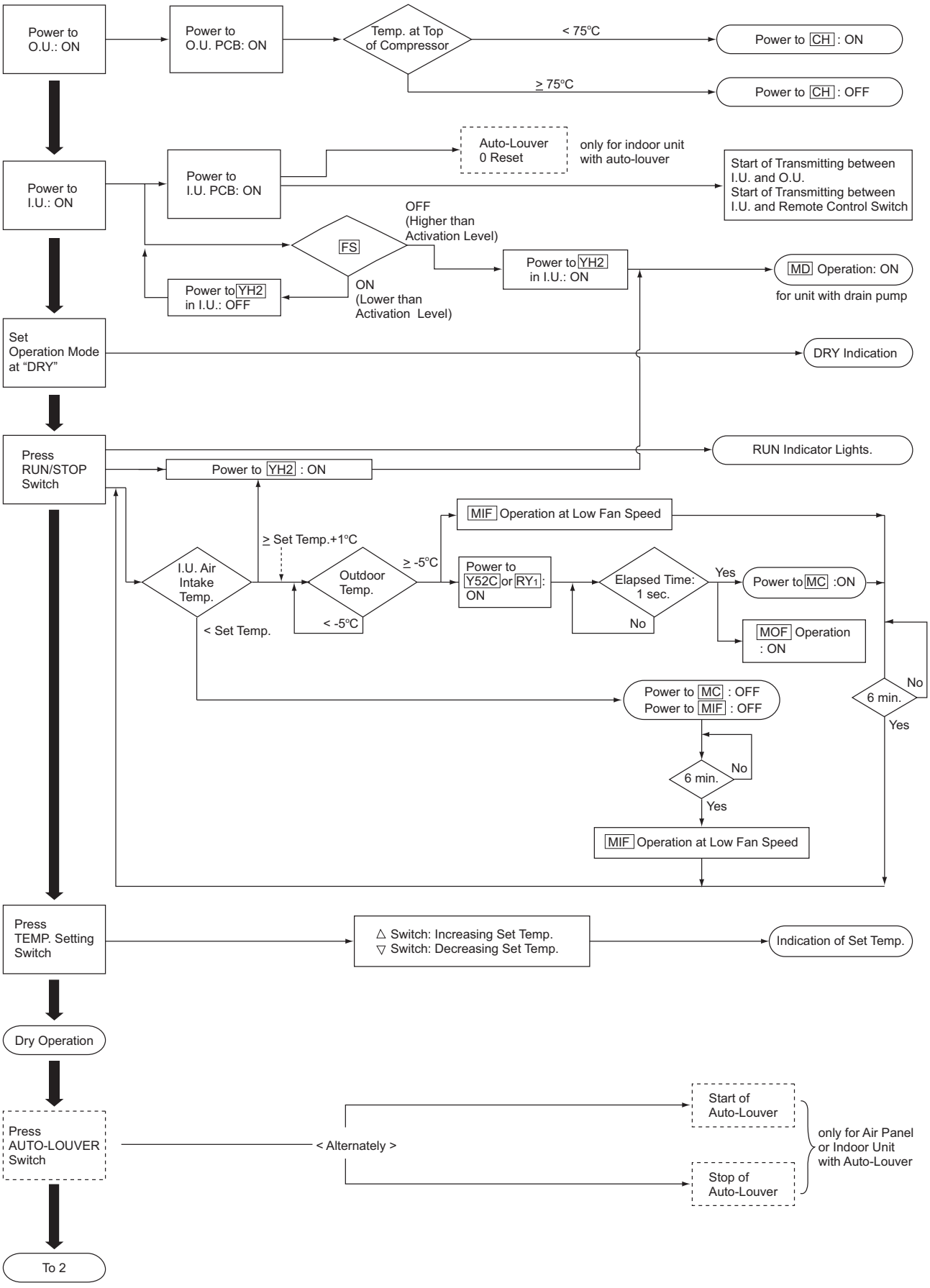
Following is only one example. The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Technical Catalog” for details.



■ Dry Operation

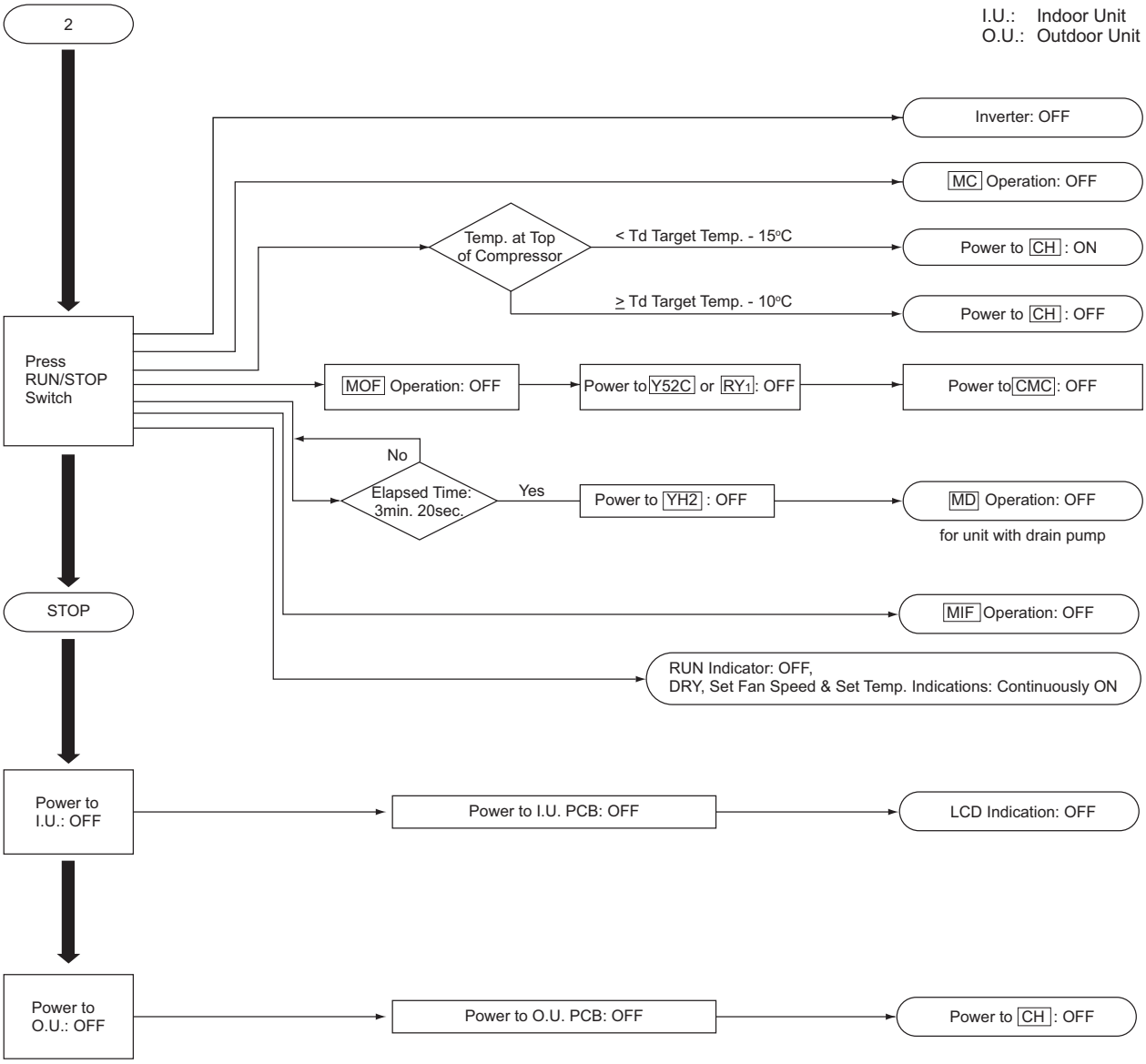
Following is only one example. The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Technical Catalog” for details.

I.U.: Indoor Unit
O.U.: Outdoor Unit



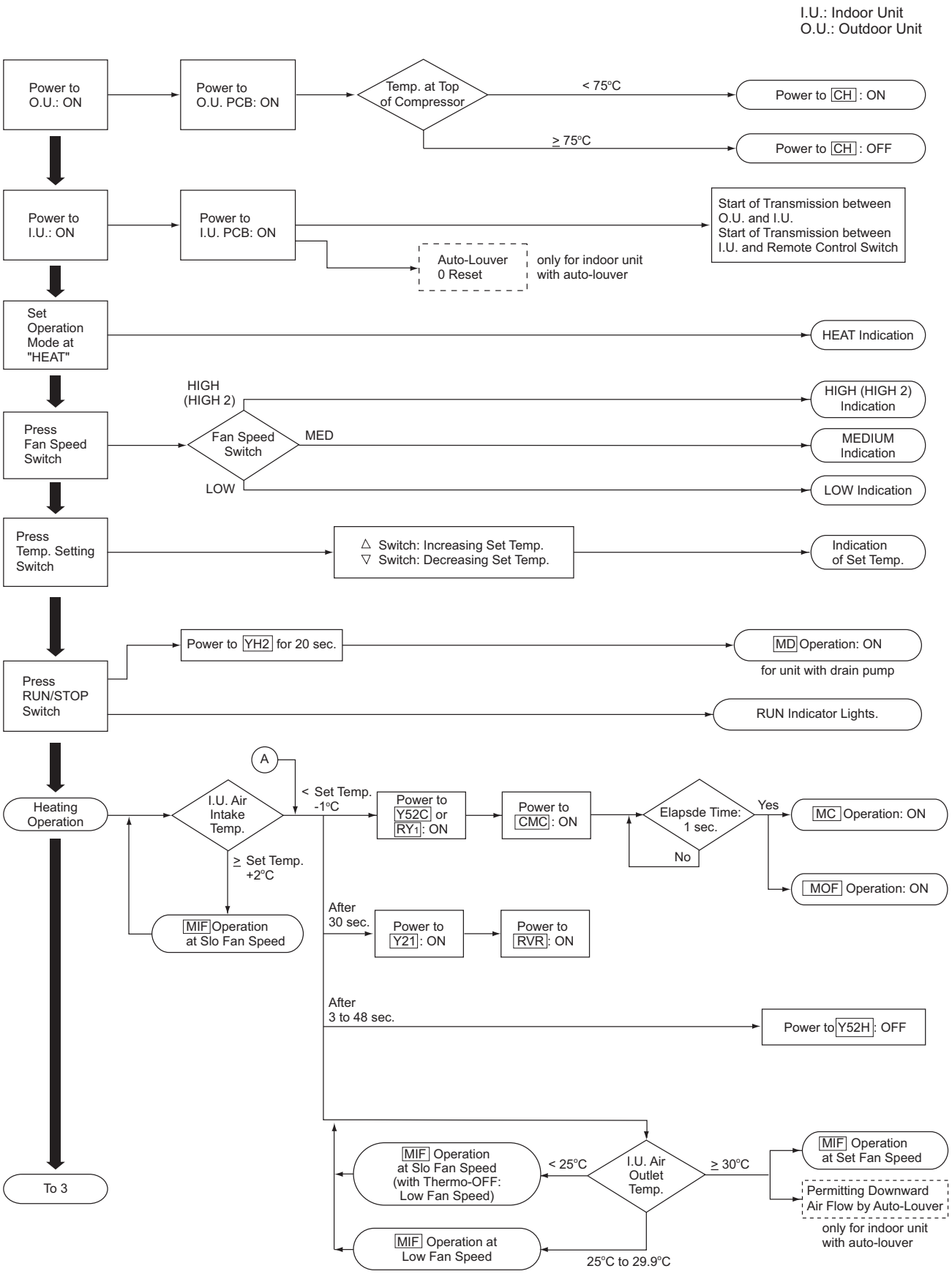
■ Dry Operation

Following is only one example. The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Technical Catalog” for details.



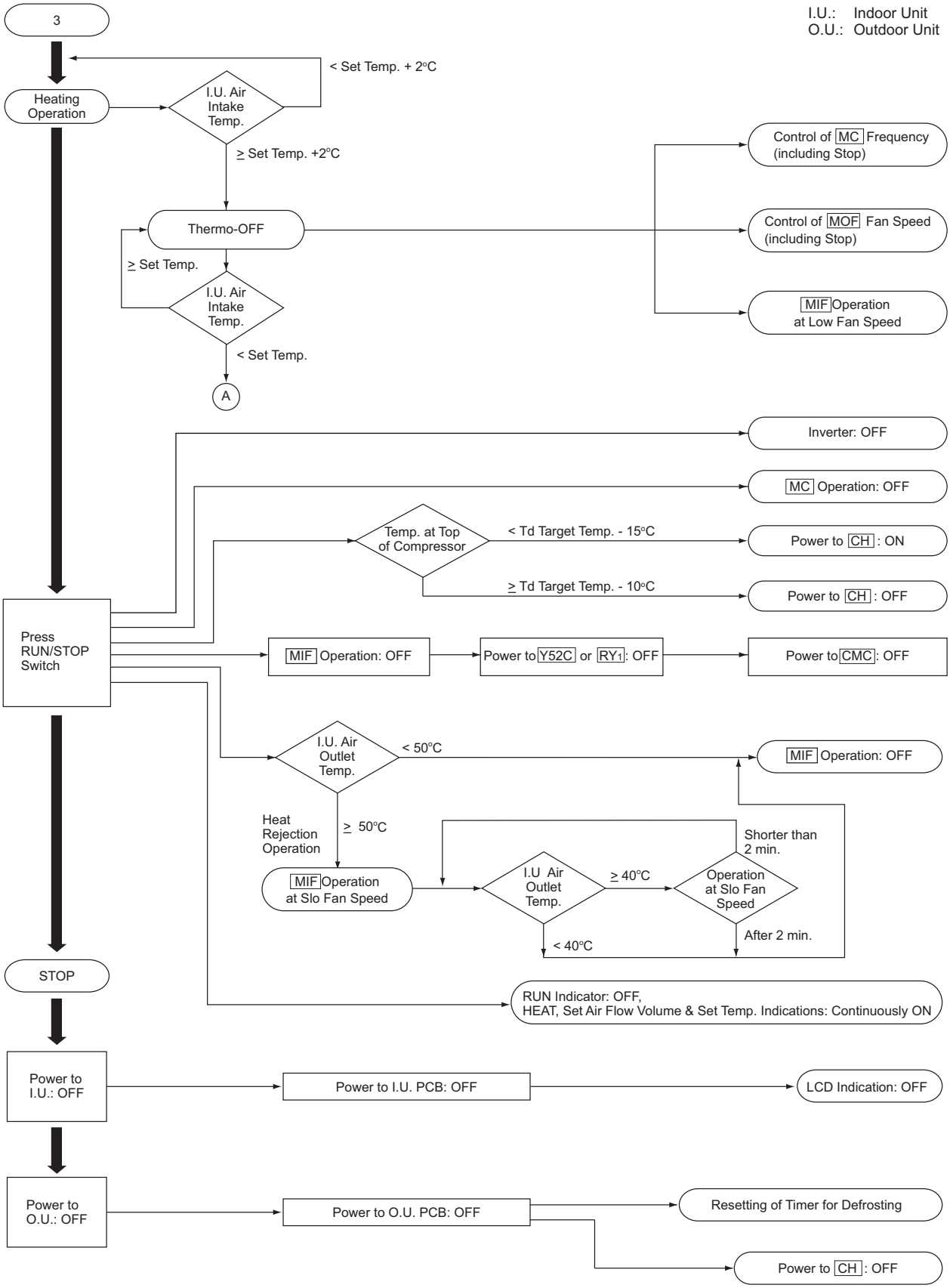
■ Heating Operation

Following is only one example. The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Technical Catalog” for details.



■ Heating Operation

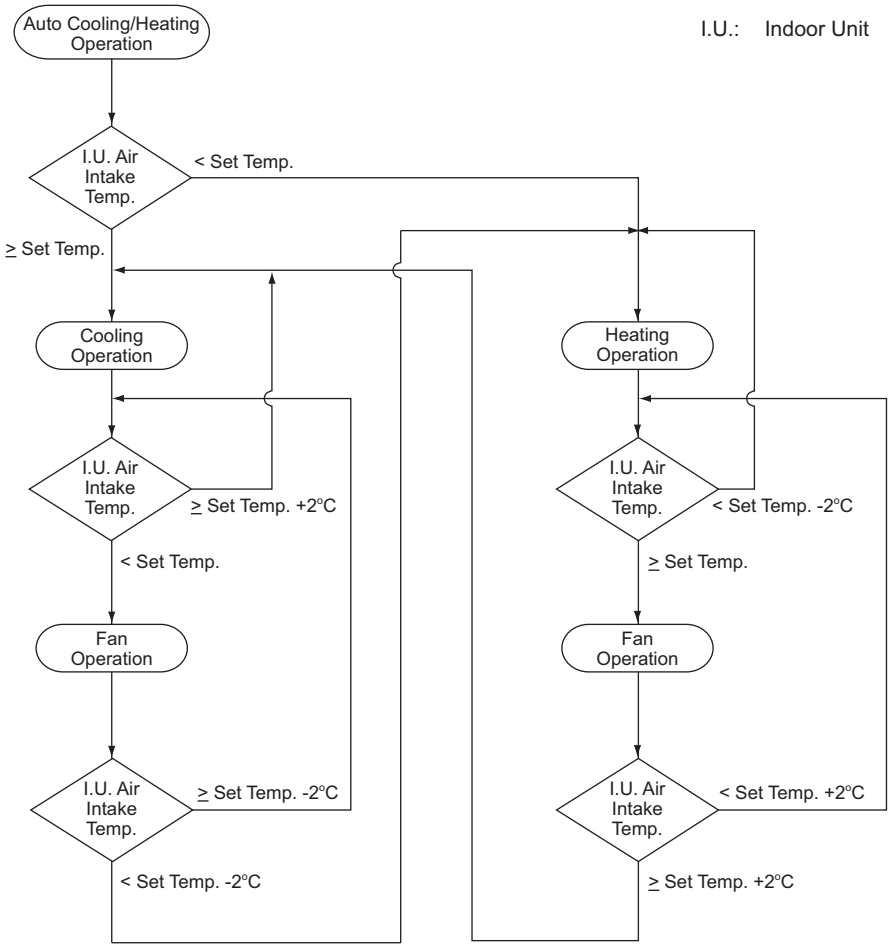
Following is only one example. The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Technical Catalog” for details.



■ Automatic Cooling and Heating Operation

Following is only one example. The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Technical Catalog” for details.

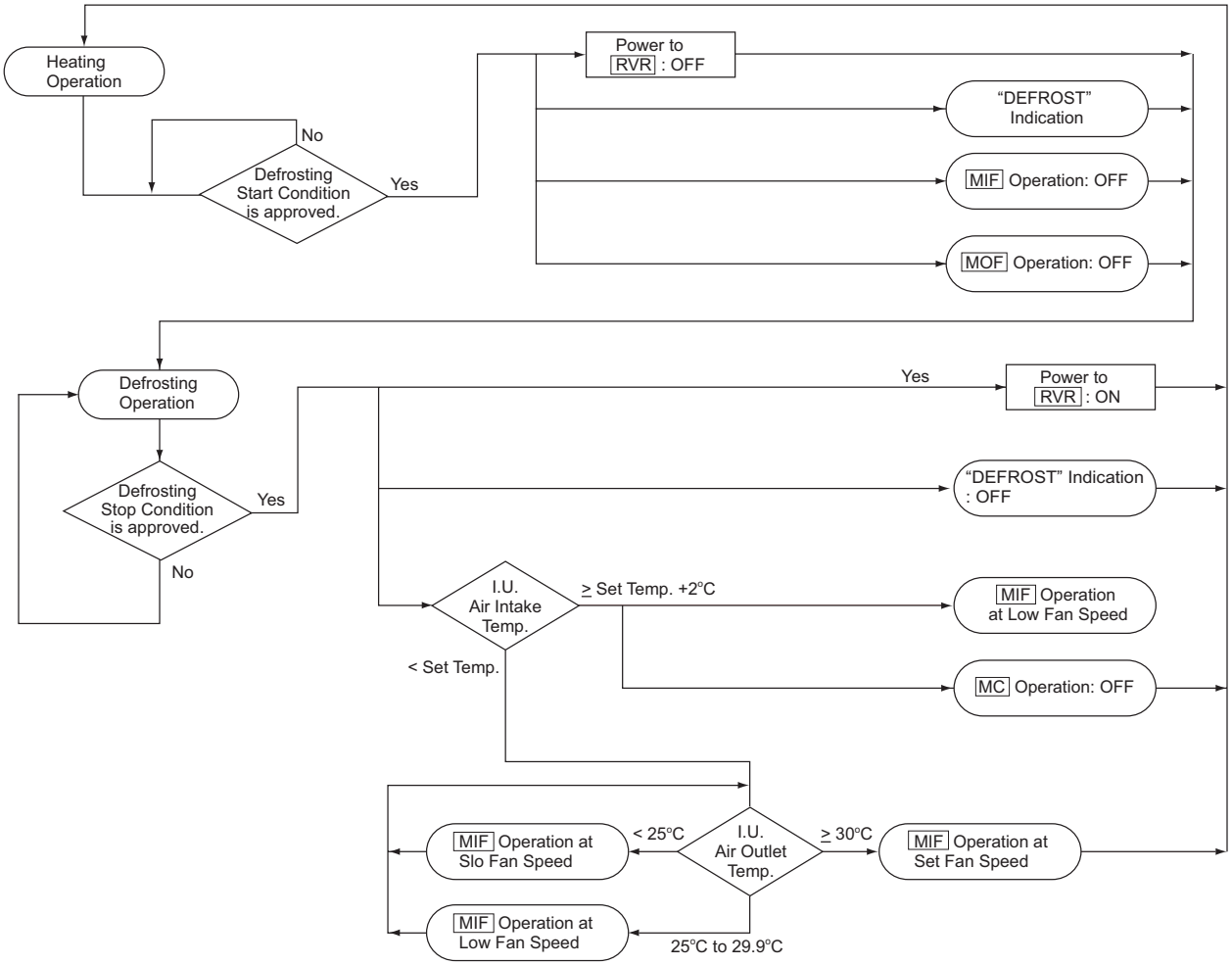
It is applicable only for single.



■ Defrosting Operation

Following is only one example. The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Technical Catalog” for details.

I.U.: Indoor Unit



< Defrosting Operation >

The following defrosting operations, “Standard Defrost”, “Forced Defrost” and “Manual Defrost” are available.

(1) Standard Defrost
This operation starts according to the outdoor temperature, the outdoor evaporating temperature and operating time.

(2) Forced Defrost
This operation starts when Thermo-ON/OFF operation for each indoor unit is repeated and the standard defrost is not used.

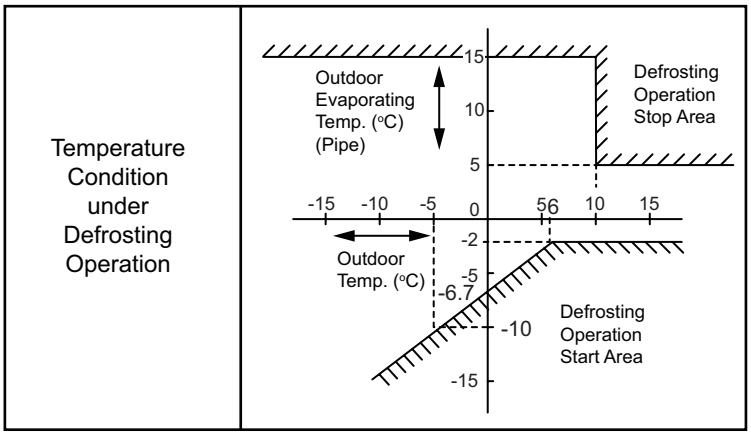
(3) Manual Defrost
This operation starts when the push switch “PSW1” on the outdoor PCB is pressed and hold for more than 3 seconds during the maintenance work. (This function cannot be used when the pressure and the outdoor evaporating temperature is high at the start of the defrosting operation.)

NOTE:
Do not repeat defrost operation frequently.

< Condition for Starting Defrost >

(1) Standard Defrost

(a) Temperature Condition



(b) Condition for Operating Time of Defrosting Operation Start

The defrosting operation starts when the temperature condition shown in "(a) Temperature Condition" is met after the heating operation is performed for 40 to 120 minutes. The heating operation time is determined by estimating the amount of frost on the heat exchanger.

(2) Forced Defrost

< Condition for Starting >

The forced defrosting operation starts when all the following conditions are met.

(a) The reversing valve is "ON" for more than 120 minutes.

(b) The outdoor temperature is lower than 10°C.

(c) The accumulated heating operation time is more than 60 minutes.
(The accumulated time is reset when the operation is stopped or the defrosting operation is performed.)

(d) The compressor is operated continuously for more than 1 and a half minutes.

(e) The outdoor evaporating temperature is lower than 5°C right before the operation starts.

(f) The pressure switch for control is "OFF".

< Condition for Completing Defrosting Operation >

The defrosting operation stops when any of the following conditions is met.

(1) The outdoor evaporating temperature reaches more than 25°C for 2 minutes after the defrosting operation starts.

(2) The outdoor evaporating temperature reaches more than 15°C (the outdoor temperature < 10°C) 2 minutes after the defrosting operation starts.

(3) The outdoor evaporating temperature reaches more than 5°C (the outdoor temperature ≥ 10°C) 2 minutes after the defrosting operation starts.

(4) The pressure switch for control is "ON".

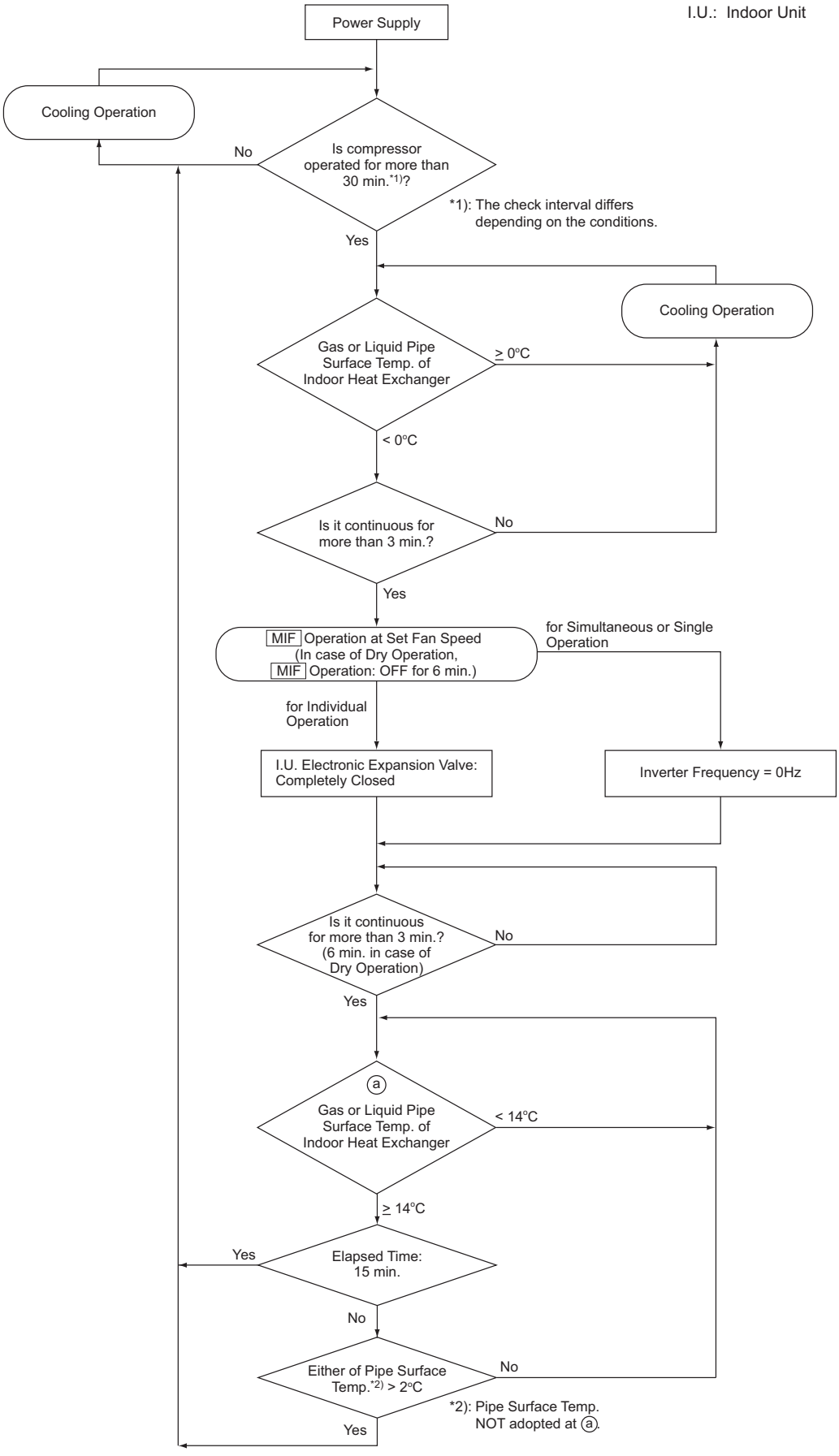
(5) More than 9 minutes pass after the defrosting operation starts.

NOTE:

The defrosting operation does not start immediately even if the above conditions are met.
(The defrosting condition may be met temporarily depending on the refrigerant cycle variability.)
The defrosting operation starts when the conditions are met continuously for a period of time.

■ Freezing Protection Control during Cooling or Dry Operation

Following is only one example. The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Technical Catalog” for details.



■ Prevention Control for High Pressure Increase during Cooling Operation

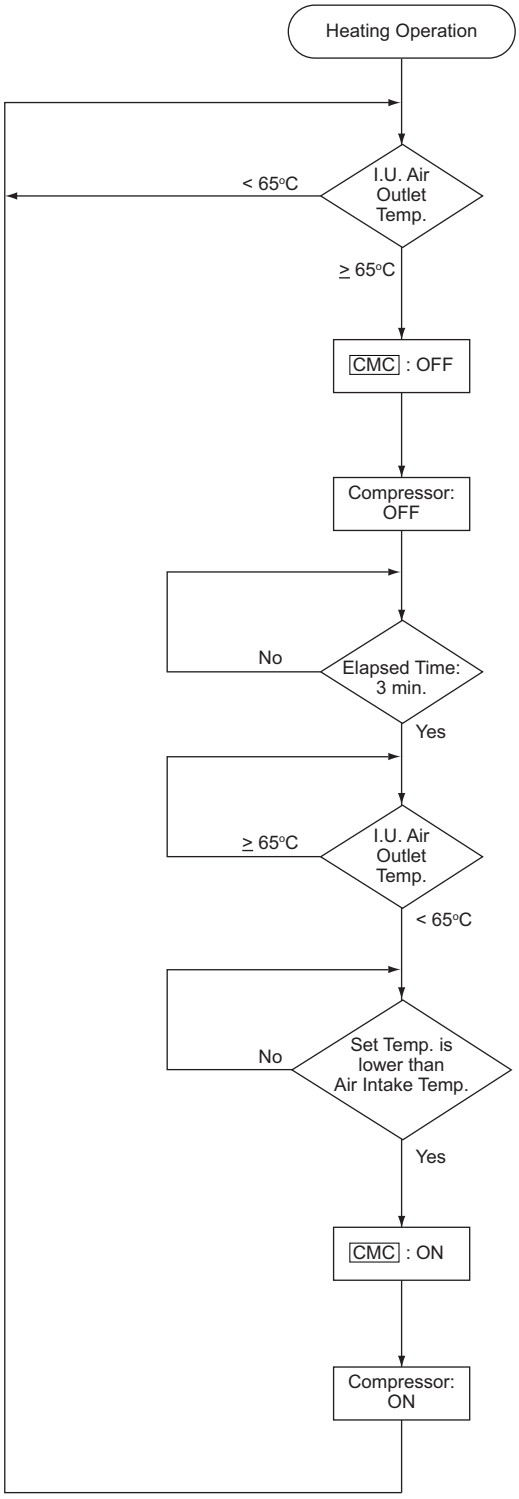
This function is performed to prevent the abnormal condition (Alarm Code: 02) when the air flow volume decreases due to a seasonal wind against air outlet of the outdoor unit. When the following conditions are met, the forced Thermo-OFF operation will be performed.
The cause of stoppage will be “13” during Thermo-OFF.

(1) Y52C is turned “ON” during the cooling operation, or RY1 is turned “ON” (during the compressor operation).

(2) High Pressure $\geq$ 3.8MPa

■ Prevention Control for Excessively High Discharge Gas Temperature

Following is only one example. The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Technical Catalog” for details.

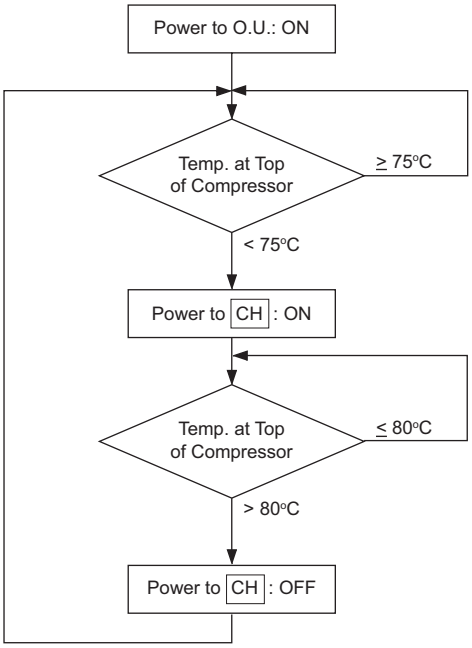


Thermo-ON/OFF Control for Indoor Unit

■ Control for Crankcase Heater

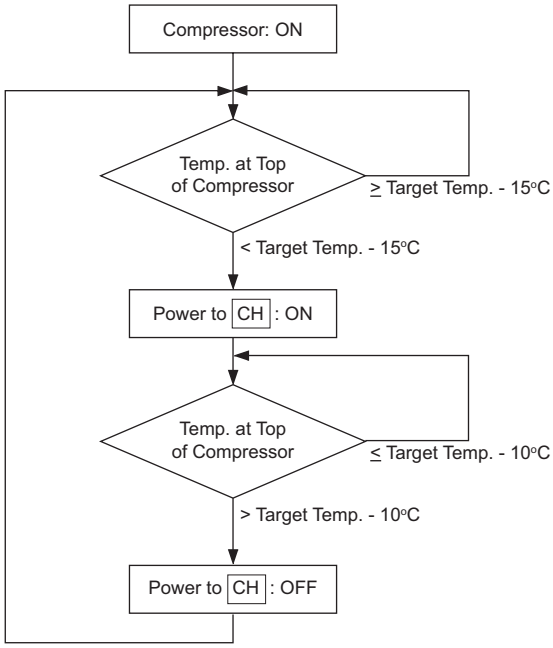
Following is only one example. The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Technical Catalog” for details.

< During Stopping Compressor >



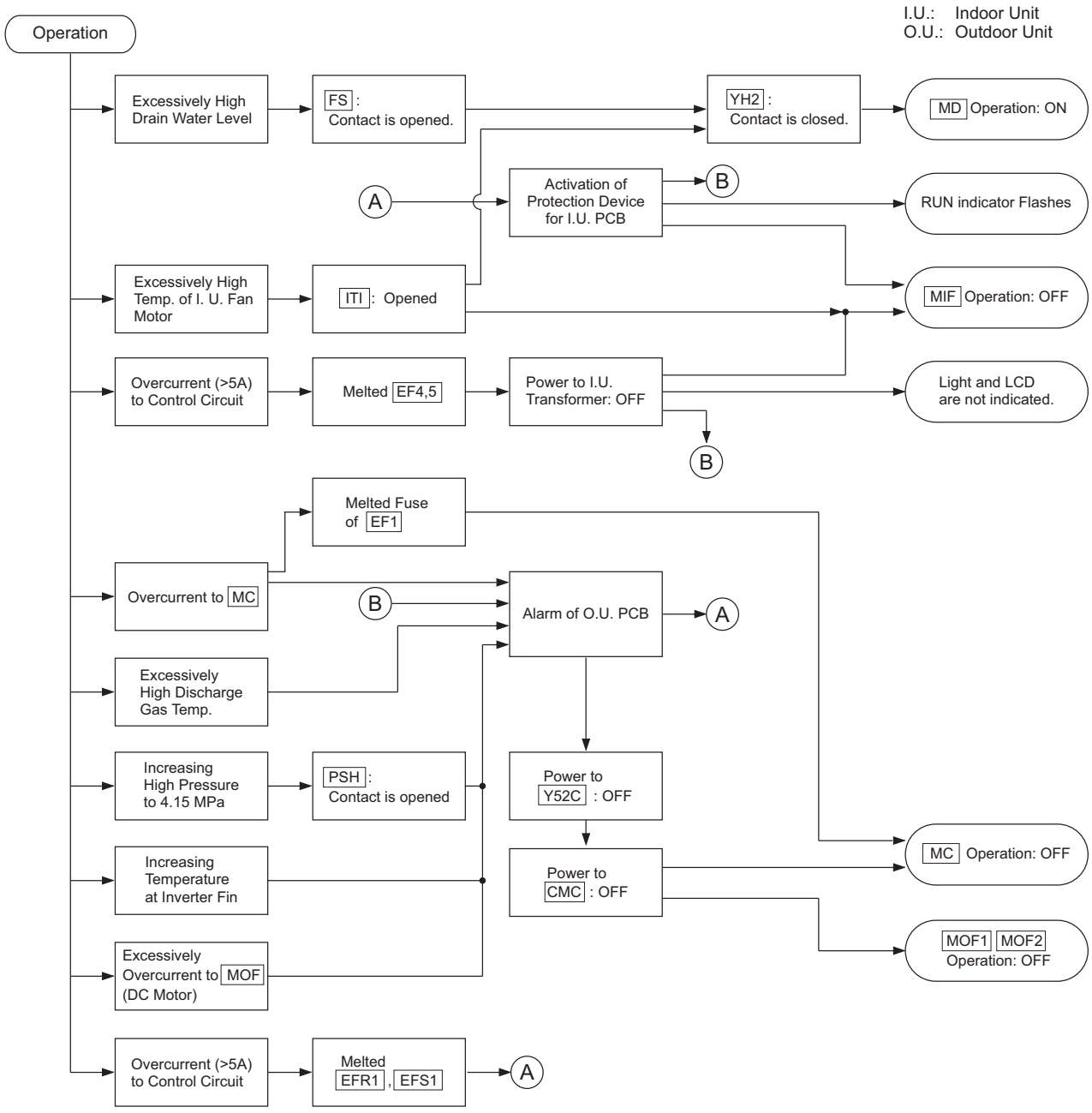
< During Operating Compressor >

O.U.: Outdoor Unit



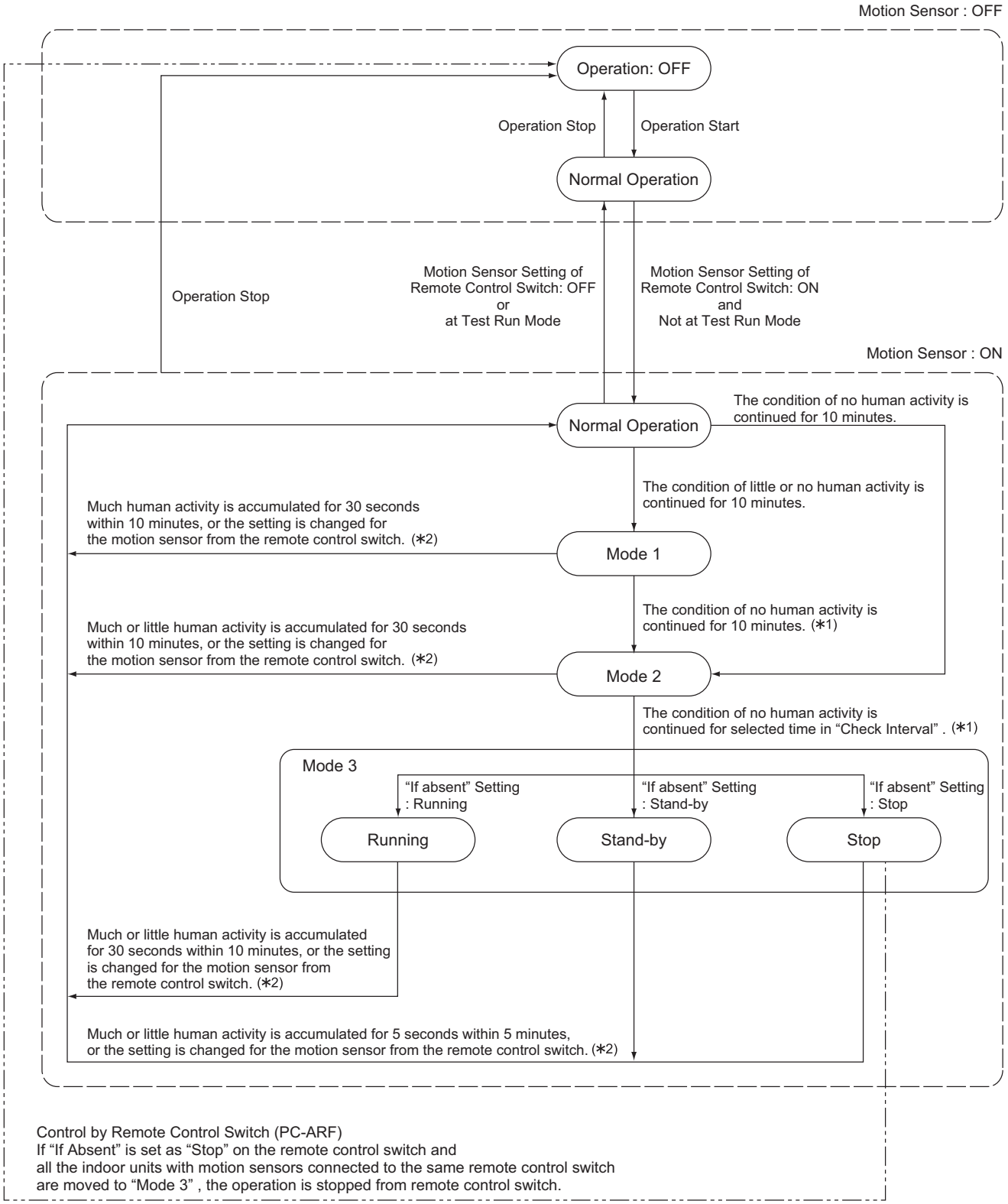
■ Actuation for Protection Instrument

Following is only one example. The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Technical Catalog” for details.



■ Control for Motion Sensor

Following is only one example. The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Technical Catalog” for details.



(*1) If no human activity is continued before moving to the next mode, the accumulated interval will be included to the next mode. (The duration of no human activity is not reset.)

(*2) The motion sensor settings on the remote control switch are “Sensor”, “If Absent”, “Check Interval” and “Simultaneous Operation / Individual Operation”.

The amount of human activity is detected as follows according to the information detected by motion sensor.

No: No Human Activity (Absent)

Small: Little Human Activity

Large: Much Human Activity

10.4 Protection and Safety Control

Chip Ceramic for Fan Motor Protection
PTC Thermistor (POSISTOR ®) in the DC fan motor controls the fan motor revolution when the fan motor internal temperature exceeds the setting.

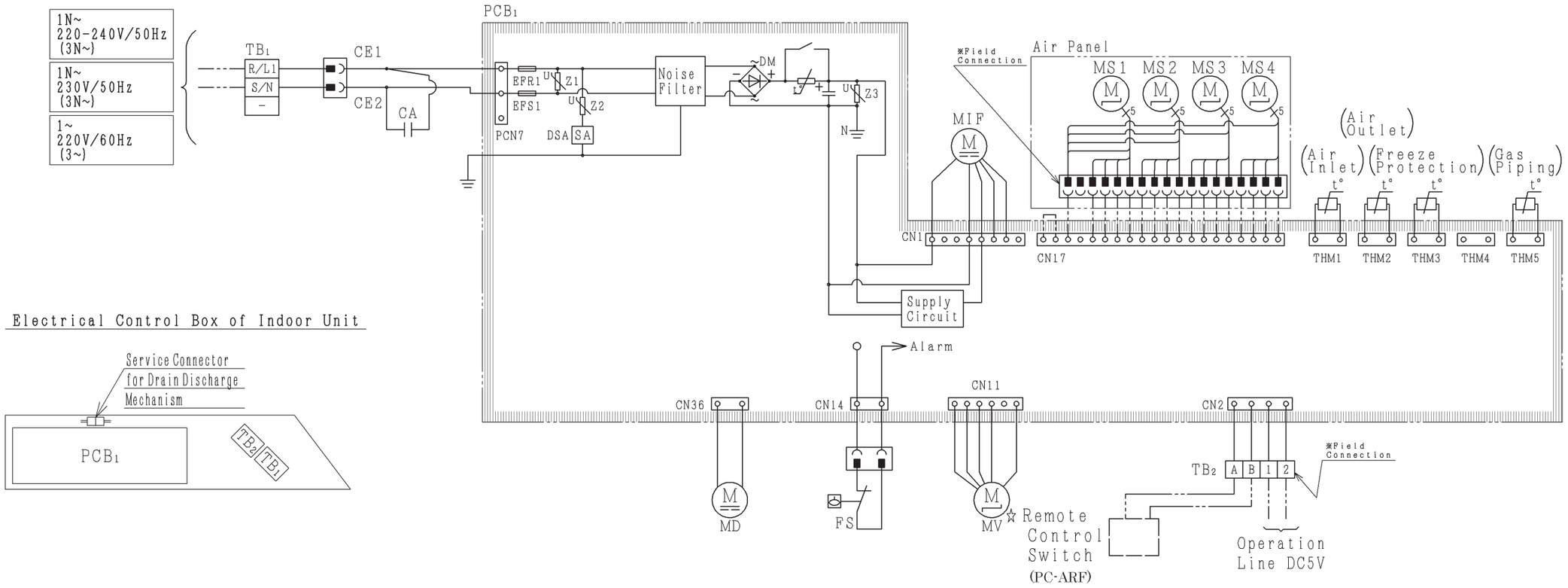
10.5 Safety and Control Device Setting

Indoor Unit

Model			RCI-1.0FSN3, RCI-1.5FSN3, RCI-2.0FSN3, RCI-2.5FSN3, RCI-3.0FSN3	RCI-4.0FSN3, RCI-5.0FSN3, RCI-6.0FSN3
For Evaporator Fan Motor				
Thermostat	Cut-Out	°C	100 $\pm^{4}$	100 $^{+15}_{-10}$
	Cut-In	°C	90 $\pm^{4}$	95 $^{+15}_{-10}$
For Control Circuit Fuse Capacity		A	5	
Freeze Protection Thermostat	Cut-Out	°C	0	
	Cut-In	°C	11	
Thermostat Differential		°C	2	

10.6 Electrical Wiring Diagram

ELECTRICAL WIRING DIAGRAM (FOR MODELS: RCI-1.0FSN3, RCI-1.5FSN3, RCI-2.0FSN3, RCI-2.5FSN3, RCI-3.0FSN3, RCI-4.0FSN3, RCI-5.0FSN3 AND RCI-6.0FSN3 WITH AIR PANEL P-AP160NA1)

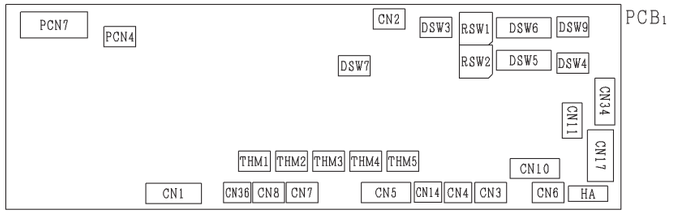


Electrical Control Box of Indoor Unit

Mark	Name
CA	Capacitor
$TB_{1,2}$	Terminal Board
PCB_1	Printed Circuit Board
$PCN_{4,7}$	Connector on PCB
$CN_{1\sim36}$	Connector on PCB
RSW	Rortaly Switch
$DSW_{3\sim9}$, SW_1	Dip Switch for Setting
MV	Micro-Computer Control Expansion Valve
MIF	Motor for Indoor Fan
MS	Motor for Automatic Swing Louver
MD	Motor for Drain Discharge Mechanism
FS	Float Switch
$THM_{1\sim5}$	Thermistor
EFR_1, EFS_1	Fuse
◎	Terminals

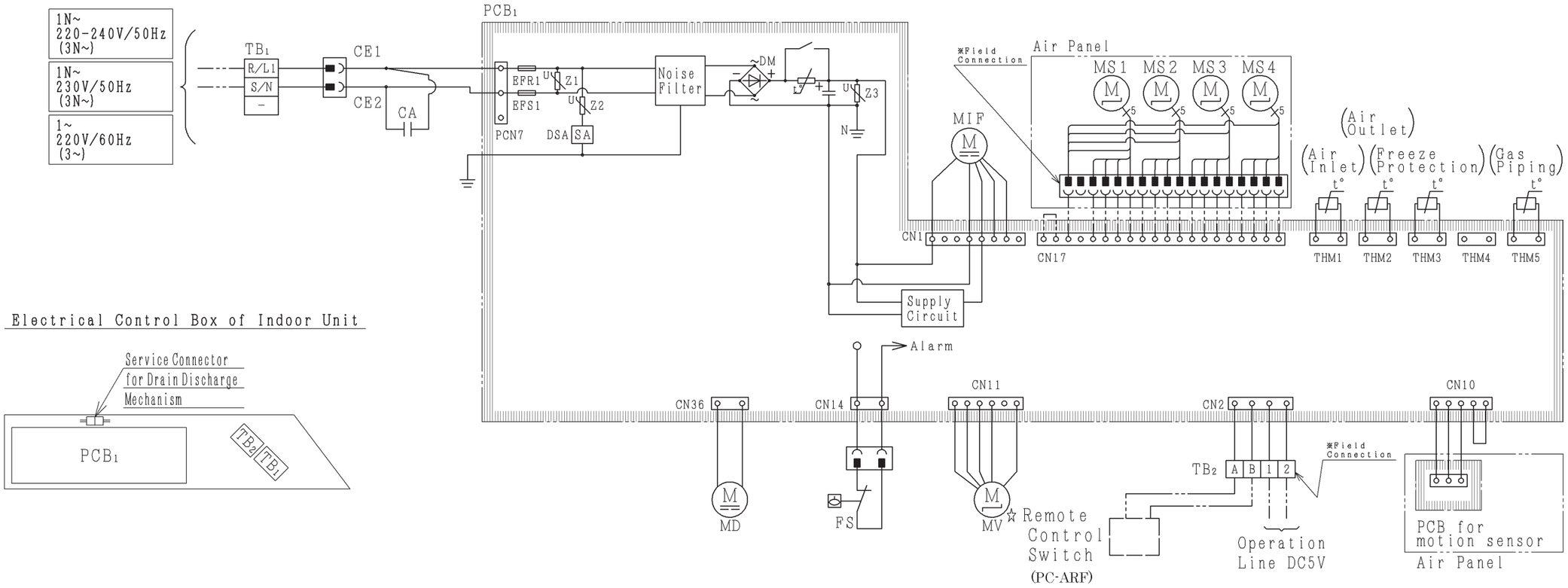
——— : Factory Wiring
——— : Earth Wiring
—·—· : Field Wiring
※ : Field Connection
☆ : Optional Parts

Printed Circuit Board



Note:
1. All the field wiring and equipment must comply with local codes.

ELECTRICAL WIRING DIAGRAM (FOR MODELS: RCI-1.0FSN3, RCI-1.5FSN3, RCI-2.0FSN3, RCI-2.5FSN3, RCI-3.0FSN3, RCI-4.0FSN3, RCI-5.0FSN3 AND RCI-6.0FSN3 WITH AIR PANEL P-AP160NAE)

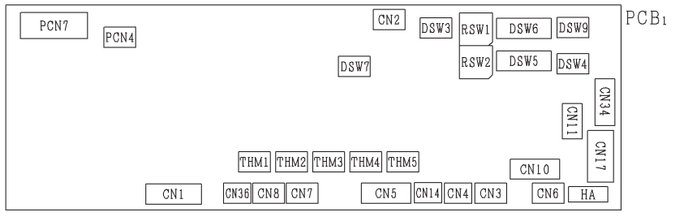


Electrical Control Box of Indoor Unit

Mark	Name
CA	Capacitor
$TB_{1,2}$	Terminal Board
PCB_1	Printed Circuit Board
$PCN_{4,7}$	Connector on PCB
$CN_{1\sim36}$	Connector on PCB
RSW	Rortaly Switch
$DSW_{3\sim9}$, SW_1	Dip Switch for Setting
MV	Micro-Computer Control Expansion Valve
MIF	Motor for Indoor Fan
MS	Motor for Automatic Swing Louver
MD	Motor for Drain Discharge Mechanism
FS	Float Switch
$THM_{1\sim5}$	Thermistor
EFR_1, EFS_1	Fuse
◎	Terminals

——— : Factory Wiring
——— : Earth Wiring
—·—·— : Field Wiring
※ : Field Connection
☆ : Optional Parts

Printed Circuit Board



Note:
1. All the field wiring and equipment must comply with local codes.

11. Miscellaneous Notes

Special Notes

1. Provide a service access door near the unit piping connection part on the false ceiling for the cassette type units.
2. Consider the air distribution from the unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
   Avoid unit installation in a room where the ceiling height (distance between the floor to the false ceiling) exceeds three meters. If the indoor unit is installed in a room with a ceiling more than three meters in height, it is recommended that an air circulation fan be installed separately to obtain uniform air temperature in the room, especially during the heating operation.
3. Check to ensure that the ceiling slab is strong enough and that the false ceiling is flat and level.
4. Avoid obstacles which may restrict the air intake or the discharge flow.
5. Do not install the unit in a machinery shop or kitchen where vapor from oil or its mist can enter the unit.
   The oil will deposit on the heat exchanger, which may reduce the unit performance, cause deformation, and in the worst case, break the plastic parts of the unit.
6. Pay attention to the following points when the unit is installed in a hospital or other facilities where electromagnetic wave is radiated from medical equipment.
   (A) Do not install the unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
   (B) Install the unit and component as far from an electromagnetic wave radiator (at least three meters) as possible.
   (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit pipe and wire the remote control cable in it. And then, connect earth wire with the box and the pipe.
   (D) Install a noise filter when the power supply emits harmful noise.
7. Do not install the units in an acid or alkaline environment, as the heat exchanger will be damaged by corrosive action. In the case that outdoor units are installed near the sea, it is recommended that optional corrosion-resistant-type outdoor unit be used.
8. Do not install the units in a flammable environment, as there is a danger of an explosion.
9. Regarding cassette type indoor units, consider the direct and reflected sound level, when selecting the unit for spaces where extremely low sound is required.
10. During heating operation, the outdoor heat exchanger produces condensate dew condensation or melted frost water.
    Install the outdoor unit where such water can be drained, or provide a drain passage.
11. Heating Performance: The heating capacity normally decreases when outdoor temperatures decrease. Therefore, provide an auxiliary heating unit if outdoor temperatures are very low.
12. In the case that an outdoor temperature is low and humidity is high, the outdoor heat exchanger will covered with frost, resulting in lower heating capacity. In order to remove the frost, the unit is automatically changed to the defrosting mode. During this defrosting operation, the unit stops for approximately 3 to 10 minutes.
13. As this unit is of heat pump type by circulating hot air in the whole room space, it takes time to heat up the room temperature.
14. The operating sound data is based on an anechoic chamber. Therefore, the actual operating sound will be higher due to reflected sound from the floor and wall.
15. In the case that the unit is operated for a long time at an indoor temperature of over 27°C DB or at an indoor humidity of over 80%, dew condensation may occur on the cabinets, resulting in dew drops.
    If dew condensation occurs, it is required to add thermal insulator on the cabinets.
16. Provide snow-protection hoods to prevent snow from clogging the outdoor heat exchanger.
    If the unit is operated in an area where it snows heavily, provide a base under the outdoor unit, which should be 50cm higher than the presumable maximum snow height.
17. It is recommended that periodical service and maintenance be performed by authorized service engineers before air conditioning seasons, in order to avoid performance decrease due to dust or dirt.
18. This heat pump air conditioner has been designed for normal air conditioning for men. Do not use the product for other purposes such as for food, animals, plants, high precision machines or work of art. Also do not use the product for vehicles or vessels. It will results in water leakage or electrical leakage.
19. It is recommended that the system be installed by authorized engineers. If not, it may cause water leakage, electric shock or fire.
20. In a place where fibers or dusts are floating, the air filter or heat exchangers or the drain pipe may be clogged, resulting in water leakage from the drain pan.

12. Standard Specifications

UNIT - The unit shall be a multi-split system inverter-driven heat pump air conditioner for application with R410A refrigerants, and shall be composed of 4-way cassette type indoor units and an outdoor unit, with a distributed refrigeration cycle, electrical components and enclosing cabinets. Optional accessories shall also be provided upon customer request. The indoor unit shall be constructed for installation, and the outdoor unit shall be completely weather-proofed for outdoor installation. Both indoor unit and the outdoor unit shall be properly assembled, internally piped and wired, throughly tested, and charged with R410A refrigerant at the factory and shall comply with Japanese Industrial Standards and other Japanese standardization statues.

CAPACITY - The total capacity of the multi-split system inverter-driven heat pump air conditioner shall be _____kW or greater with _____°C air inlet dry bulb, _____°C air inlet wet bulb, _____°C outdoor air inlet temperature and _____m^3/min. indoor air flow. The total compressor power inputs shall not exceed _____kW. The total heating capacity of the split-type air conditioners shall be _____kW or greater, with _____°C indoor heat exchanger air inlet dry bulb, _____°C outdoor heat exchanger air inlet dry bulb, _____°C outdoor heat exchanger air inlet wet bulb, and _____m^3/min. indoor air flow.
The total compressor power input shall not exceed _____kW.

INDOOR UNIT

CABINET - The cabinet shall be constructed of galvanized steel sheet or finished steel sheet, baked with synthetic resin-paint, with a plastic air panel assembly for cassette type unit.

REFRIGERATION CYCLE - The refrigeration cycle shall be equipped with a heat exchanger, an electronic expansion valve, solenoid valves and flare connections.

INDOOR FAN AND FAN MOTOR - The indoor fan shall be the multi-blade centrifugal type, statically and dynamically balanced, and directly driven by a _____W motor for model _____ and a _____W motor for model _____. The fan motor bearing shall be permanently lubricated. The fan shall deliver _____m^3/min. air flow for model _____ and _____m^3/min. for model _____ at the nominal air flow. Three operating positions Hi, Me and Lo can be selected according to the required conditions.

INDOOR HEAT EXCHANGER - The heat exchanger shall be the multi-pass, cross-finned tube type, equipped with highly-efficient aluminum fins, mechanically bonded to seamless, oxygen-free copper tubes. The fins shall be spaced at no more than 12 fins per 25.4mm. The face area shall not be less than _____m^2 for model _____ and _____m^2 for model _____. The coil shall be cleaned, dehydrated and tested for leakage at the factory.

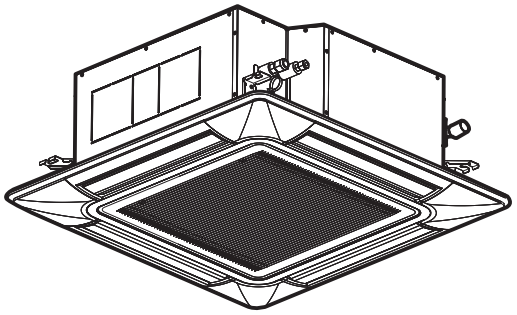
Installation and Maintenance

- CONTENTS -

HITACHI

Installation & Maintenance Manual

INVERTER-DRIVEN
MULTI-SPLIT SYSTEM
HEAT PUMP
AIR CONDITIONERS



Type	Model
4-Way Cassette	RCI-1.0FSN3 RCI-1.5FSN3 RCI-2.0FSN3 RCI-2.5FSN3 RCI-3.0FSN3 RCI-4.0FSN3 RCI-5.0FSN3 RCI-6.0FSN3

IMPORTANT:

READ AND UNDERSTAND THIS MANUAL BEFORE USING THIS HEAT-PUMP AIR CONDITIONERS. KEEP THIS MANUAL FOR FUTURE REFERENCE.

P5416532

IMPORTANT NOTICE

- HITACHI pursues a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- HITACHI cannot anticipate every possible circumstance that might involve a potential hazard.
- This heat pump air conditioner is designed for standard air conditioning only. Do not use this heat pump air conditioner for other purposes such as drying clothes or refrigerating foods, or for any other cooling or heating process.
- Do NOT install the unit in the following places. It may cause a fire, deformation, corrosion or failure.
  * places where no open flames, oil, steam or dust might directly be drawn into the unit, such as right above a kitchen, etc.
  * places where much oil (including machinery oil) may be splattered around.
  * places where there is a lot of sulfide gas generated, such as in a hot spring.
  * places where flammable gas can be generated or flow.
  * places where strong salty wind blows, such as in coast regions.
  * In an atmosphere of acidity or alkalinity.
  * Where gas from festering trash, etc. can be generated.
- Do not install the unit where silicon gas is present. If the silicon gas comes into contact with the surface of the heat exchanger, the fin surface repels water. As a result, drain water splashes outside of the drain pan, resulting in water leakage. If water splashes on the electrical box, electrical device failure might occur.
- Pay attention to the following points when installing the unit in a hospital or other facilities where electromagnetic waves are generated from medical equipment.
  * Do not install the unit to the place where electromagnetic waves are directly radiated to the electrical box, remote control cable or remote control switch.
  * Install the unit at least 3 meters away from devices generating electromagnetic waves, such as a radio.
- Do not install the unit in the place where animals and plants catch the direct outlet air. It could adversely affect animals and plants.
- The installer and system specialist shall secure safety against the refrigerant leakage according to local regulations or standards. The following standards may be applicable, if local regulations are not available. International Organization for Standardization, ISO5149 or European Standard, EN378 or Japan Standard, KHKS0010.
- No part of this manual may be reproduced without written permission.
- It is assumed that this heat pump air conditioner will be operated and serviced by English speaking people. If this is not the case, the customer should be provided with safety, caution and operating signs in the native language.
- If you have any questions, contact your distributor or dealer of HITACHI.
- This manual provides common descriptions and information covering other models as well as the one you are using.
- This heat pump air conditioner is designed with the following temperatures in mind. Operate the heat pump air conditioner within this range.

Temperature (°C)

		Maximum	Minimum
Cooling Operation	Indoor	30 DB	21.5 DB
	Outdoor	43 DB *	-5 DB *
Heating Operation	Indoor	25 DB	17 DB
	Outdoor	15 WB *	-20 WB *

DB: Dry Bulb, WB: Wet Bulb

* The temperature may change depending on the outdoor unit.

This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

CHECKING PRODUCT RECEIVED

- Upon receiving this product, inspect it for any shipping damage.
  Claims for damage, either apparent or concealed, should be filed immediately with the shipping company.
- Check the model number, electrical characteristics (power supply, voltage and frequency) and accessories to determine if they are correct.

The standard utilization of the unit shall be explained in these instructions.
Therefore, the utilization of the unit other than those indicated in these instructions is not recommended.
Please contact your local agent, as the occasion arises.
HITACHI's liability shall not cover defects arising from the alteration performed by a customer without HITACHI's consent in a written form.

TABLE OF CONTENTS

1. Safety Summary

< Signal Words >

● Signal words are used to identify levels of hazard seriousness.
Definitions for identifying hazard levels are provided below with their respective signal words.

⚠ DANGER : DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠WARNING : WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION : CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE : NOTICE is used to address practices not related to personal injury.

NOTE : NOTE is useful information for operation and/or maintenance.

⚠ DANGER

- Do not perform the installation work, refrigerant piping work, drain pump, drain piping and electrical wiring connection without referring to our installation manual. If the instructions are not followed, it may result in a water leakage, electric shock or a fire.
- Use the specified non-flammable refrigerant (R410A) to the outdoor unit in the refrigerant cycle. Do not charge the unit with materials other than R410A, such as hydrocarbon refrigerants (propane, etc.), oxygen, flammable gases (acetylene, etc.) or poisonous gases when installing, maintaining and moving the unit. Contamination of these are extremely dangerous and may cause an explosion, a fire, and an injury.
- Do not pour water into the indoor unit or outdoor unit. These products are equipped with electrical parts. If water is poured, it will cause a serious electrical shock.
- Do not open the service cover or access panel for the indoor or outdoor unit without turning OFF the main power supply.
- Do not touch or adjust safety devices inside the indoor unit or outdoor unit. If these devices are touched or readjusted, it may cause a serious accident.
- Refrigerant leakage may lead to insufficient air and cause difficulty with breathing. Turn OFF the main switch, extinguish all naked flames and contact your service contractor, if refrigerant leakage should occur.
- Prior to installation work, make sure to conduct refrigerant leakage test. The refrigerant (Fluorocarbon) for this unit is non-flammable, non-toxic and odorless. However, if it should leak and contact with fire, toxic gas will be generated. Also because the fluorocarbon is heavier than air, it settles close to the floor, which could cause suffocation.
- The installer and system specialist shall secure safety against refrigerant leakage according to local regulations or standards.
- Use an ELB (Earth Leakage Breaker).
  If it is not used, an electric shock or a fire can be caused in the event of a fault.
- Do not install the outdoor unit where there is high level of oil mist, flammable gases, salty air or harmful gases such as sulfur.
- When installing the unit, make sure to connect the refrigerant pipes before the compressor starts operating. When maintaining, relocating and disposing the unit, remove the refrigerant pipe after the compressor stops. If the refrigerant pipes are not connected and the compressor are operated with the stop valve opened, the refrigerant cycle will be subjected to extremely high pressure, which may cause an explosion, a fire and an injury.
- Do not modify protection devices such as a pressure switch. Modification to protection devices (short circuit, etc.) might cause a fire and an explosion.

⚠WARNING

- Do not use any sprays such as an insecticide, lacquer or hair spray, or other flammable gases within approximately one (1) meter from the system.
- If the circuit breaker or fuse is often activated, stop the system and contact your service contractor.
- Check that the ground wire is securely connected. If the unit is not correctly grounded, it lead electric shock. Do not connect the ground wiring to a gas piping, water piping, lighting conductor or ground wiring for telephone.
- Connect a fuse with specified capacity.
- Before any brazing work, check to ensure that there is no flammable material around. Otherwise, it might lead to a fire.
- When handling the refrigerant, be sure to wear leather gloves to prevent cold injuries.
- Protect the wires, electrical parts, etc. from rats or other small animals. If not, rats may gnaw at unprotected parts, which may lead to a fire.
- Fix the cables securely to make sure that the terminals are not subjected to an external force. External forces on the terminals could lead to heat generation and a fire.
- Provide a sufficiently strong foundation. If not, the unit may fall down and it may lead to injuries.
- Do not install the unit in a place where oil, vapor, organic solvent and corrosive gas (ammonia, sulfur compound and acid) may be present in quantities.
  It may cause refrigerant leakage due to corrosion, electrical shock, deteriorated performance and breakage.
- Perform electrical work according to this Installation Manual and all the relevant regulations and standards. Failing to follow these instructions can cause capacity shortage and performance degradation, resulting in an electric shock and a fire.
- Use specified cables between units. Selecting incorrect cables may cause an electric shock or a fire.
- Ensure that the wiring terminals are tightened securely with the specified torques.
  If not, generating fire or an electric shock at the terminal connection part may occur.

⚠CAUTION

- Do not step on the product nor put any material on it.
- Do not put any foreign material on the unit or inside the unit.
- Provide a strong and correct foundation so that;

  a. the outdoor unit does not incline.
  b. abnormal sound dose not occur.
  c. the outdoor unit will not fall down due to a strong wind or an earthquake.

NOTICE

- Do not install the indoor unit, outdoor unit, remote control switch and cable within approximately 3 meters from strong electromagnetic wave radiators such as medical equipment.
- Supply electrical power to the system to energize the crankcase heater for 12 hours before startup after a long shutdown.
- Make sure that the outdoor unit is not covered with snow or ice, before operation.
- The packaged air conditioner may not be operated normally under the following cases.

  * In case that electrical power for the packaged air conditioner is supplied from the same power transformer as the device with high electricity consumption*.

  * In case that the power source wires for the device* and for the packaged air conditioner are located close to each other.

  Device*: (Ex) Lift, container crane, rectifier for electric railway, inverter power device, arc furnace, electric furnace, large-sized induction motor and large-sized switch.

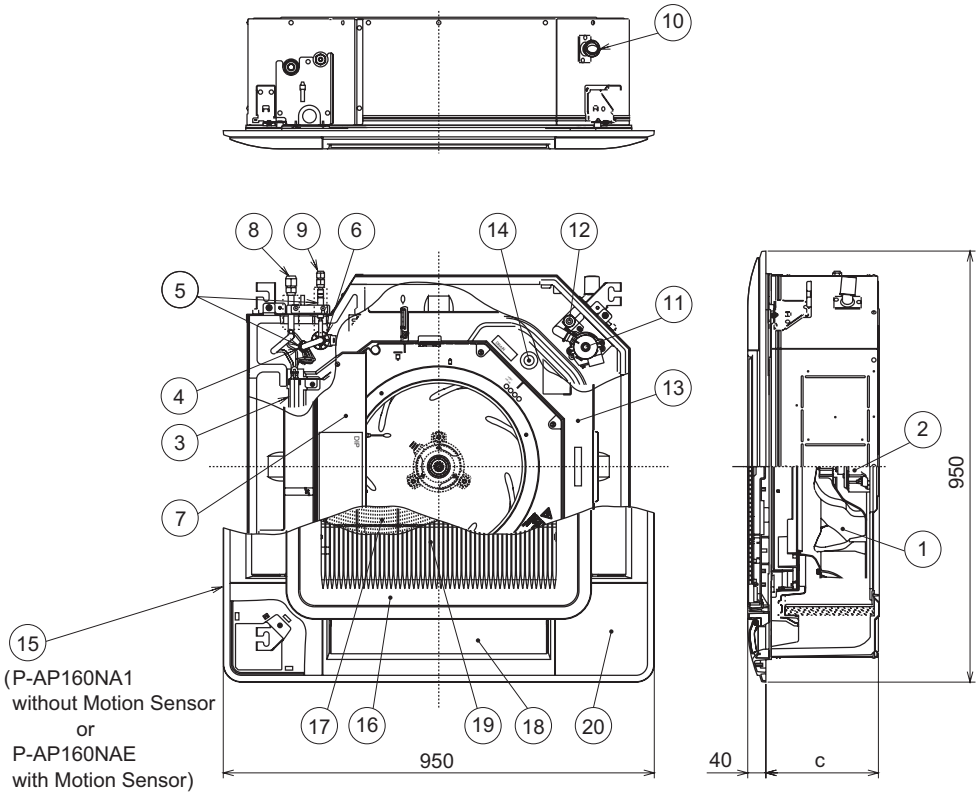
  Regarding the cases mentioned above, surge voltage may be inducted in the power supply wiring for the packaged air conditioner due to a rapid change in power consumption of the device and an activation of switch.
  Therefore, check the field regulations and standards before performing electrical work in order to protect the power supply for the packaged air conditioner.

NOTE

- It is recommended that the room be ventilated every 3 to 4 hours.
- The heating capacity of the heat pump unit is decreased according to the outdoor air temperature. Therefore, it is recommended that auxiliary heating equipment be used in the field when the units is installed in a low temperature region.

2. Structure

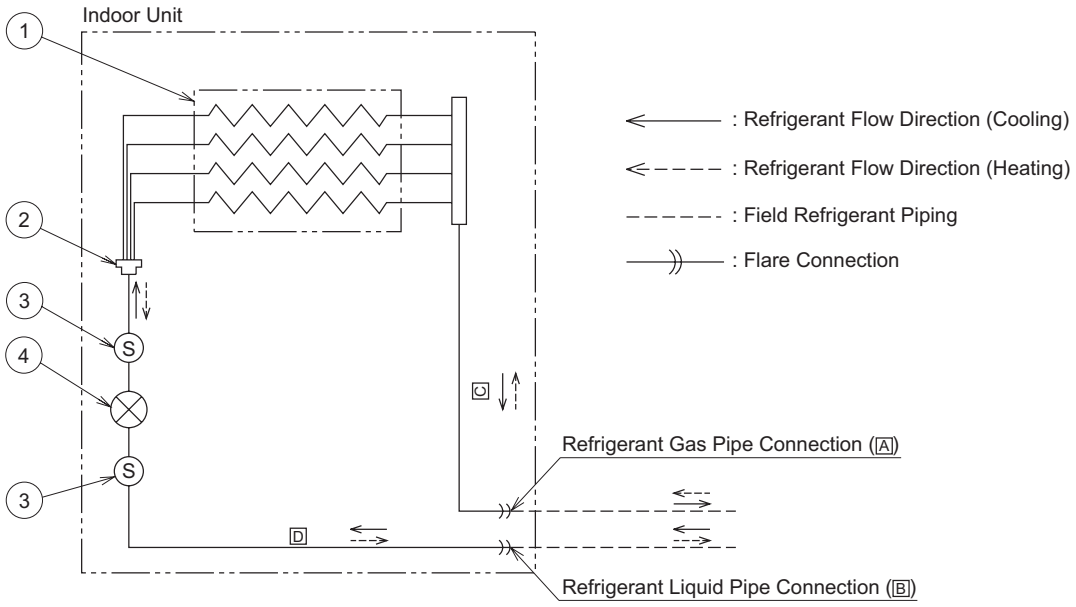
2.1 Name of Parts



No.	Part Name	Remarks
1	Fan	
2	Fan Motor	DC
3	Heat Exchanger	
4	Distributor	
5	Strainer	
6	Micro-Computer Control Expansion Valve	
7	Electrical Control Box	
8	Refrigerant Gas Pipe Connection	with ϕa Flare Nut
9	Refrigerant Liquid Pipe Connection	with ϕb Flare Nut
10	Drain Pipe Connection	VP25
11	Drain Discharge Mechanism	
12	Float Switch	
13	Drain Pan	
14	Rubber Plug for Drain	
15	Air Panel (P-AP160NA1, P-AP160NAE)	Optional
16	Air Inlet Grille	
17	Air Filter	
18	Air Outlet	
19	Air Inlet	
20	Cover for Corner Pocket	(P-AP160NA1) (P-AP160NAE)

Model	a	b	c
RCI-1.0FSN3	12.7	6.35	248
RCI-1.5FSN3	12.7	6.35	248
RCI-2.0FSN3	15.88	6.35	248
RCI-2.5FSN3	15.88	9.52	248
RCI-3.0FSN3	15.88	9.52	298
RCI-4.0FSN3	15.88	9.52	298
RCI-5.0FSN3	15.88	9.52	298
RCI-6.0FSN3	15.88	9.52	298

2.2 Refrigerant Cycle



Mark	Part Name
1	Heat Exchanger
2	Distributor
3	Strainer
4	Micro-Computer Control Expansion Valve

HP	1.0, 1.5	2.0	2.5 to 6.0
A (Gas Pipe Connection)	ϕ12.7 x 0.8	ϕ15.88 x 1.0	ϕ15.88 x 1.0
B (Liquid Pipe Connection)	ϕ9.52 x 0.8	ϕ9.52 x 0.8	ϕ9.52 x 0.8
C (OD x T)	ϕ12.7 x 0.8	ϕ12.7 x 0.8	ϕ15.88 x 1.0
D (OD x T)	ϕ12.7 x 0.8	ϕ12.7 x 0.8	ϕ12.7 x 0.8

2.3 Necessary Tools and Instrument List for Installation

No.	Tool	No.	Tool
1	Handsaw	11	Spanner
2	Phillips Screwdriver	12	Charging Cylinder
3	Vacuum Pump	13	Gauge Manifold
4	Refrigerant Gas Hose	14	Cutter for Wires
5	Megohmmeter	15	Gas Leak Detector
6	Copper Pipe Bender	16	Leveller
7	Manual Water Pump	17	Clamper for Solderless Terminals
8	Pipe Cutter	18	Hoist (for Indoor Unit)
9	Brazing Kit	19	Ammeter
10	Hexagon Wrench	20	Voltage Meter
		21	Wrench

NOTE

Use tools and measuring instruments (vacuum pump, gas hose, charging cylinder, manifold gauge, etc.) exclusively for the refrigerant R410A.

3. Transportation and Handling

3.1 Transportation

- Transport the product as close to the installation location as possible before unpacking.
- Do not put any material on the indoor unit.
- The indoor unit is packed upside down against the installation direction and the foamed polystyrene drain pan is exposed to the upper side. Do not put the indoor unit with the drain pan downward during the process from unpacking the indoor unit until hanging up the unit to a ceiling. In addition, do not handle the indoor unit with the drain pan portion or the air outlet portions.
- Pay attention to handle the indoor unit. If an excessive force is applied to the indoor unit, it may cause a breakage because the indoor unit is adopted the foamed polystyrene.

⚠CAUTION

Do not put any material on the product or the air panel.
Do not step on the product.

3.2 Handling of Indoor Unit

⚠WARNING

Do not put any foreign material into the indoor unit and check to ensure that nothing exist in the indoor unit before installation and test run. Otherwise a fire or failure, etc., may occur.

⚠CAUTION

Do not hold the resin covers when holding or lifting the indoor unit.

- To avoid damage to the resin covers, before lifting or moving the indoor unit, put a cloth on the resin covers.

4. Indoor Unit Installation

⚠ DANGER

Do not install the indoor unit in a flammable environment to avoid fire or an explosion.

⚠ WARNING

- **Do not put any foreign material into the indoor unit and check to ensure that nothing exist in the indoor unit before installation and test run. Otherwise a fire or failure, etc., may occur.**
- **Check to ensure that the ceiling is strong enough. If it is not strong enough, the indoor unit may fall down on you.**
- **Do not install the indoor unit outdoors. If it is installed, an electric hazard or electric leakage will occur.**

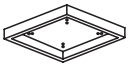
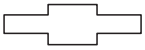
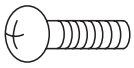
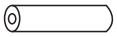
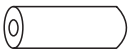
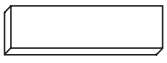
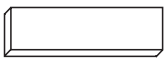
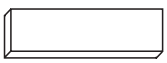
4.1 Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the indoor unit.
The hose band, screws, washers and plastic bands are put in the pipe insulation.

NOTE

- If any of these accessories is not packed with the unit, please contact your contractor.
- The air panel, remote control switch and branch pipes are optional accessories and so are not included.

Table 4.1 Factory-Supplied Accessories

Accessory	Q'ty	Purpose
Pattern Board (Carton Board) 	1	For Adjusting Space of False Ceiling Opening and Position of the Unit
Checking Scale (Cut and Take Out it from the Carton Board) 	1	
Cross Recessed Head Screws (M6) 	4	For Fitting Paper Pattern
Washer with Insulation Material (M10) 	4	For Unit Installation
Washer (M10) 	4	
Drain Hose 	1	For Drain Hose Connection
Hose Clamp 	1	
Pipe Insulation 	1	For Refrigerant Piping Connection
Pipe Insulation 	1	
Cord Clamp 	2	For Fixing Remote Control Switch Wiring, Louver Sensor and Insulation of Piping
Cord Clamp 	6	
Insulation (5Tx50x200) 	1	For Covering Wiring Connection
Insulation (5Tx100x200) 	1	For Covering Drain Connection
Insulation (5Tx25x500) 	1	For Covering Drain Connection

Applicable Air Panel (Option): P-AP160NA1 (without Motion Sensor)
P-AP160NAE (with Motion Sensor)

4.2 Initial Check

- Install the indoor unit with sufficient space around it for operation and maintenance as shown below.
- Provide a service access door near the unit pipe connection area on the ceiling.
- Check that the ceiling is strong enough to hang the indoor unit.
- Check that the ceiling surface is flat and suitable for the air panel installation. If the ceiling is not flat, drain water could not flow smoothly.

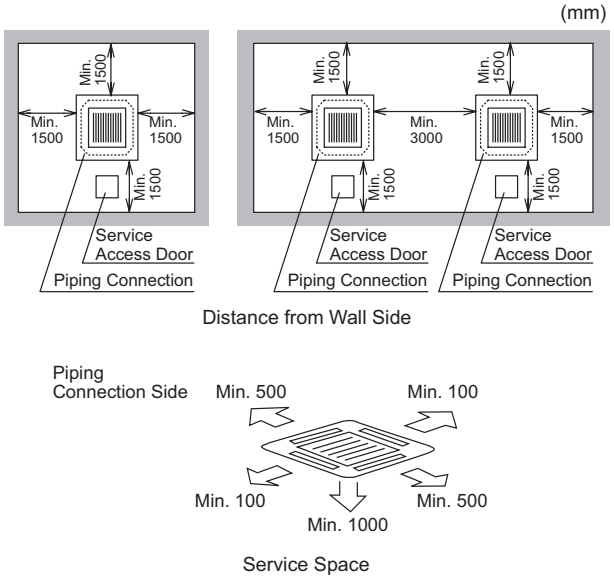


Fig. 4.1 Space around Indoor Unit

- Select the installation location as follows:
  (A) Minimum Space
  (B) Down Slope Pitch of Drain Pipe: 1/25 to 1/100

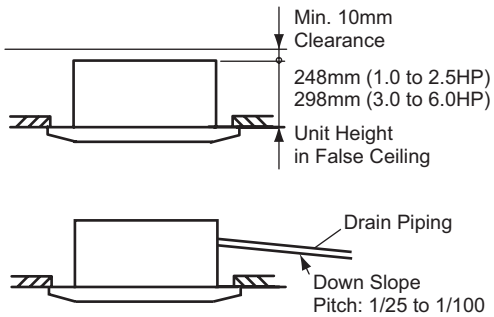
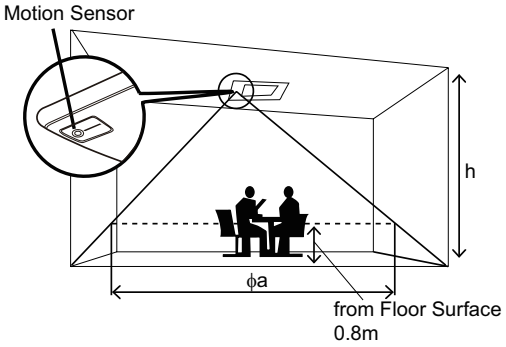


Fig. 4.2 Installation Location of Indoor Unit

- The sensing area for the motion sensor is shown in the figure below when applying the motion sensor with the air panel.

Installation Height of Indoor Unit h (m)	2.7	3.2
Sensing Area for Motion Sensor ϕa (m)	Approx. 7.0	Approx. 8.8
Motion Detection	Human Motion	



- Consider the air distribution from the indoor unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
  It is recommended that the indoor unit be installed 2.4 to 2.7 (2.9 to 3.2)* meters from the floor level. If the unit is installed higher than 2.7 (3.2)* meters, it is also recommended that the setting of increasing fan speed or 3-way Outlet Parts Set (Option) be utilized so that uniform air distribution is available.
  ( )*: In the case of 4.0, 5.0 and 6.0HP
- Do not place flammable materials in the service space for the indoor unit.
- Install the unit where there is no obstacles which may hamper the suction air and discharged air.
- Do not install the indoor unit in a machinery shop or kitchen, where vapor from oil and its mist can flow into the indoor unit. Oil deposited on the heat exchanger may reduce the indoor unit performance, deform the plastic parts, and in the worst case, break the unit.
- Do not install the unit near a door or a window where the indoor unit may contact humid outside air. Otherwise, dew condensation may occur.
- Pay attention to the following points when installing the indoor unit in a hospital or other facilities where electromagnetic waves are generated from medical equipment, etc.
  (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
  (B) Install the indoor unit and components as far as possible, at least 3 meters from the electromagnetic wave radiator.

(C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then, connect the ground wire with the box and the tube.

(D) Install a noise filter when the power supply emits harmful noises.

- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment.
- In case temperature and humidity inside the ceiling exceeds 30oC/RH (Relative Humidity) 80%, apply additional insulation materials to the external surface of the indoor unit to avoid dew condensation.
- If installing the indoor unit to a high ceiling, the warmed air may stay around the ceiling during heating operation. Thus, the parallel installing of a circulator is recommended.
- Do not install the indoor unit where the airflow from the air outlet blows directly to the temperature detecting devices such an alarm device or a control device. It may cause a failure of an alarm device or a control device.
- For simultaneous operation of multiple units (twin, triple and quad combination) , the units must be installed in the same room and be operated under the same conditions. If the room is partitioned by a wall, furniture or a curtain, etc., it may cause an operation failure. Take care when rearranging furniture or remodeling the room after installation as well.

⚠WARNING

● **Check to ensure that the number below is within 0.3kg/m^3. Otherwise it may cause dangerous situation if the refrigerant in the Outdoor Unit leaks into the room where this Indoor Unit is installed.**

$$\frac{\text{(Total Refrigerant Quantity per one Outdoor Unit)}}{\left(\text{Volume of the room where this Indoor Unit is installed.}\right)} \leq 0.3\text{kg/m}^3$$

Refer to the "Installation & Maintenance Manual" of outdoor unit for details.

● **Prior to installation work, make sure to onduct refrigerant leakage test. The refrigerant (Fluorocarbon) for this unit is non-flammable, non-toxic and odorless. However, if it should leak and contact with fire, toxic gas will be generated. Also because the fluorocarbon is heavier than air, it settles close to the floor, which could cause suffocation.**

4.3 Installation

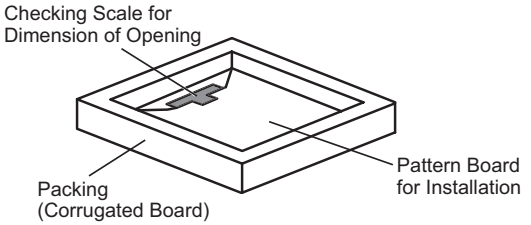
4.3.1 Opening of False Ceiling and Location of Suspension Bolts

(1) Determine the final location and installation direction of the indoor unit paying attention to the space for the piping, wiring and maintenance.

(2) Then cut out the false ceiling for the indoor unit installation and install suspension bolts, according to Fig. 4.3.

(3) Pattern Board for Installation and Scale for Dimension of Opening

The pattern board for installation and the checking scale are printed on the packing. Cut off the checking scale for dimension of opening from packing. The usage is shown in the item 4.3.4.



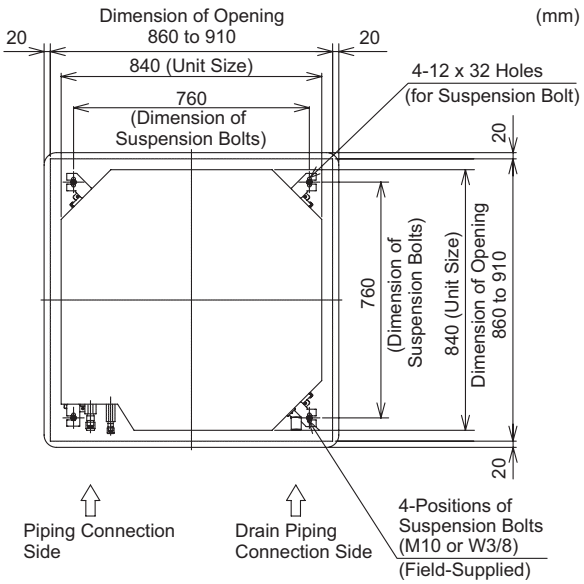


Fig. 4.3 Opening of False Ceiling and Suspension Bolts

NOTE:

1. Ceiling work differs depending on the building structure. Consult with a building constructor or an interior finish worker for more information.
2. Do not install electric light and the indoor unit to the same furring of the ceiling. Otherwise, electric lights may flicker or vibrate due to indoor unit operation.

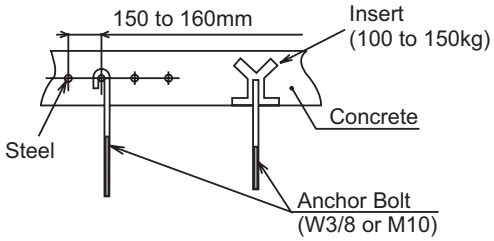
(4) Check to ensure that the ceiling is horizontally level, otherwise drainage can not flow.

(5) Strengthen the opening parts of the false ceiling.

(6) Mount suspension bolts, as shown in Fig. 4.4.

(7) Strengthen suspension bolts with support plates as required in preparation for an earthquake.
Suspension bolts and support plates shall be M10 (field-supplied).

- For Concrete Slab



- For Steel Beam

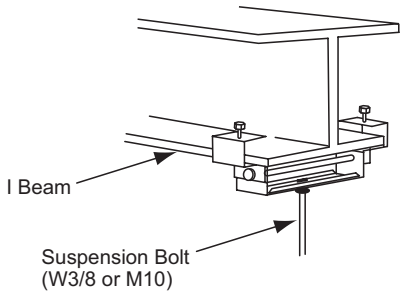


Fig. 4.4 Mounting the Suspension Bolts

4.3.2 Mounting Position of Indoor Unit

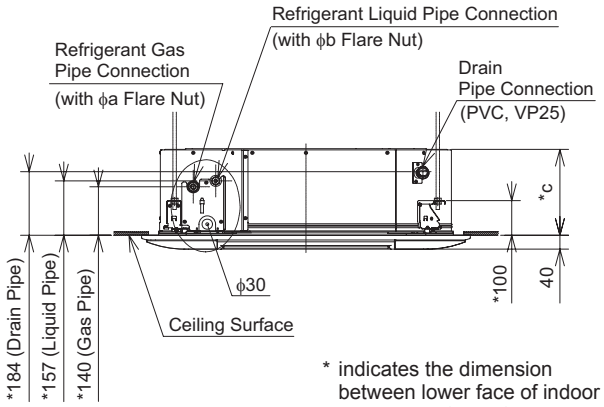
(1) Check the mounting position of the indoor unit shown in Fig. 4.5.

NOTE:

The air panel (optional) may be deformed if the levelness of the indoor unit and the position of the suspension brackets are incorrect, and dew condensation may occur due to air leakage from the gap between the indoor unit and the air panel.

(2) The positional relation between the indoor unit and the air panel (optional) is shown in Fig. 4.5.

(mm)



* indicates the dimension between lower face of indoor unit and surface of ceiling.

Model	a	b	c
RCI-1.0FSN3	12.7	6.35	248
RCI-1.5FSN3	12.7	6.35	248
RCI-2.0FSN3	15.88	6.35	248
RCI-2.5FSN3	15.88	9.52	248
RCI-3.0FSN3	15.88	9.52	298
RCI-4.0FSN3	15.88	9.52	298
RCI-5.0FSN3	15.88	9.52	298
RCI-6.0FSN3	15.88	9.52	298

Fig. 4.5 Mounting Position

4.3.3 Mounting the Indoor Unit

(1) Mount the nuts and washers to the suspension bolts.

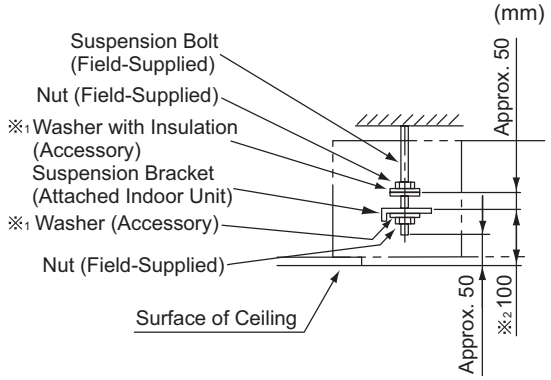


Fig. 4.6 Mounting Nuts and Washers

※1 Make sure to use washers (accessories) for fixing the suspension bolts to the suspension brackets. The washer with insulation must be fitted with the insulation side downward to facilitate hanging work.

(2) Lift up the indoor unit by a hoist, and do not apply any force to the drain pan (the air outlet portions and the drain pan portion).

(3) Insert the suspension bolts into the notches of the suspension brackets to hook the indoor unit. Secure the indoor unit using nuts and washers. Then check that the washers serve as stoppers at the rising parts of the suspension brackets.

※2 After hooking up the indoor unit, piping and wiring work inside the ceiling are required. Thus, especially if the false ceiling has already been installed, determine the pipe direction and complete the rest of the piping and wiring work before hooking the indoor unit.

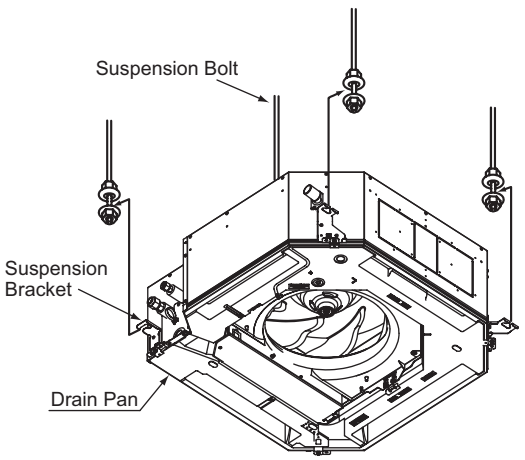


Fig. 4.7 Mounting the Indoor Unit

4.3.4 Adjusting the Space between Indoor Unit and False Ceiling Opening

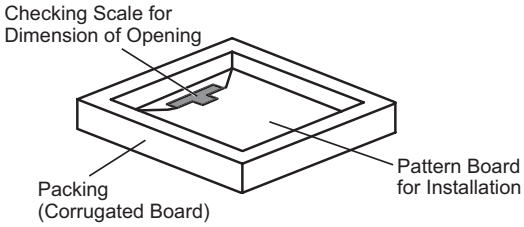
⚠CAUTION

- **Check the level of the drain pan using a water level to avoid incorrect operation of the drain discharge mechanism in the indoor unit.**
- **Tighten the nuts of the suspension brackets after the adjustment is completed. Apply LOCK-TIGHT paint* to the bolts and nuts in order to prevent them from loosening. If not done, abnormal noises or sounds may occur and the indoor unit may fall down.**

LOCK-TIGHT paint*: Paint the lock bolts and nuts. Adjust the indoor unit to the correct position while checking with the checking scales (factory-supplied).

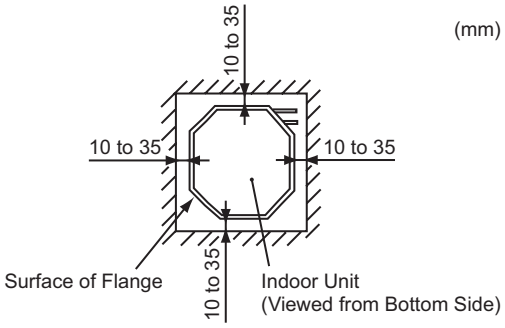
Adjust the position of the indoor unit with the checking scale as required.

(1) The pattern board for the installation and the checking scale are printed on the packing. Cut off the checking scale for dimension of opening from packing.

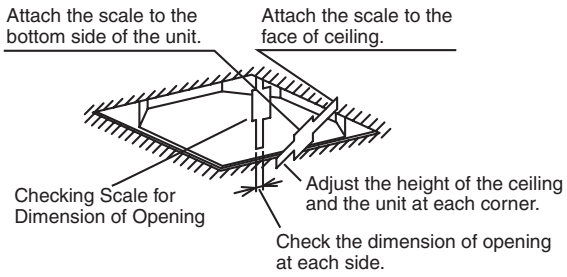


(2) Adjust the position of the indoor unit, as shown below by using the checking scale.

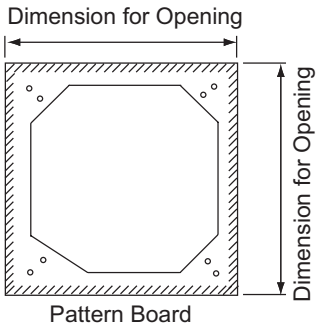
(a) Adjust the position between the indoor unit and the opening.



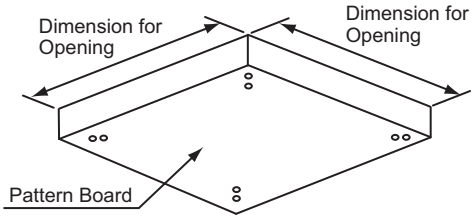
(b) For False Ceiling with Opening
When installing the indoor unit to the false ceiling with an opening, cut off the scale for measuring the dimension of opening and adjust the clearance between the indoor unit and the opening, as shown in the figure.

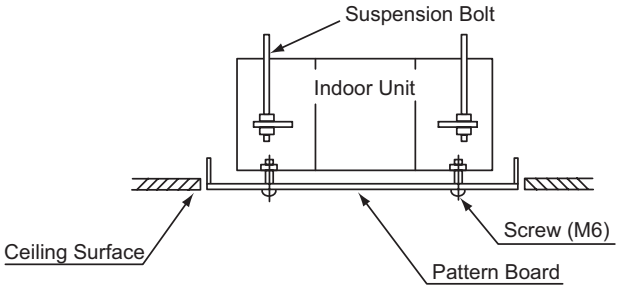


(c) For False Ceiling without Opening
If there is no opening in the existing false ceiling, provide an opening in it before mounting the indoor unit. Cut out the false ceiling along the outline of the pattern board (the dimension of the opening is the same as the outline dimension of the pattern board). After hooking up the indoor unit, adjust the position according to the procedure “b.”



(d) Ceiling Not Completed with Panels yet
When the false ceiling is not completed yet, attach the pattern board to the indoor unit with the screw (M6), as shown in the figure. And specify the location of the opening. Adjust the position of the indoor unit as the procedure (b) after ceiling is completed with the panel.

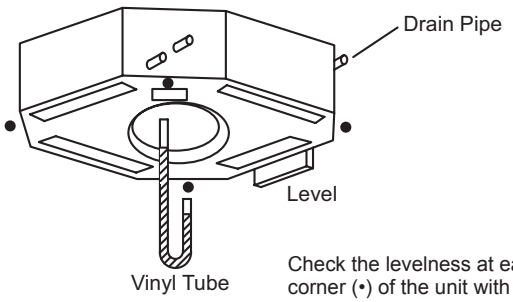




(3) Tighten the nuts of the suspension brackets after the adjustment is completed. Apply LOCK-TIGHT paint to the suspension bolts and nuts in order to prevent them from loosening. Adjust the indoor unit to the correct position, using the checking scale.

NOTE:

While adjusting the space between the indoor unit and the ceiling surface, keep the indoor unit level. Otherwise, it may cause a malfunction of the float switch. Check the levelness of the unit with a level.



Check the levelness at each corner (•) of the unit with a level or by pouring water to the clear vinyl tube as shown in the figure.

4.3.5 Installation Details for Air Panel

NOTICE

- The details of installation work for air panel shall be according to the Installation Manual for Air Panel.
- Check to ensure the connection of connectors between the indoor unit and the air panel.

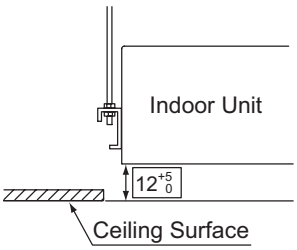
(1) Check the distance between the indoor unit and the false ceiling. It is 12+5mm as shown in the figure. If not, adjust the distance by using the checking scale with maintaining the levelness of the indoor unit.

(2) Check that the fixing screws for the panel are tightened. Tighten the fixing screws for the panel until touching the stopper to the suspension bracket.

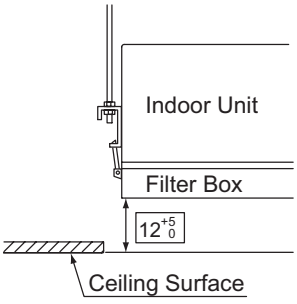
NOTE:
Pay attention to the distance between the indoor unit and the false ceiling. If it is 17mm or more, it may cause dew condensation by leaking air from the seal packing.

(3) Check the indoor unit height from the false ceiling surface.

< For Air Panels >
P-AP160NA1 and P-AP160NAE



< For Air Panels with Other Optional Parts >
* Filer Box (B-160H2)
* Fresh Air Intake Kit (OACI-160K2)



(4) Connect surely air panel (optional) connecters to the indoor unit.

The standard air panel:
P-AP160NA1 ··· 1 connector
The air panel with the motion sensor:
P-AP160NAE ··· 2 connectors

5. Refrigerant Piping Work

⚠ DANGER

Use the specified non-flammable refrigerant (R410A) to the outdoor unit in the refrigerant cycle. Do not charge the unit with material ther than R410A such as hydrocarbon refrigerants (propane or etc.), oxygen, flammable gases (acetylene or etc.) or poisonous gases when installing, maintaining and moving the unit. These flammables are extremely dangerous and may cause an explosion, a fire, and injury.

5.1 Piping Materials

(1) Prepare locally-supplied copper pipes.

(2) Select the appropriate pipe size according to the table below.

mm (in.)

Model	Gas Pipe	Liquid Pipe
RCI-1.0FSN3 RCI-1.5FSN3	ϕ12.7 (1/2)	ϕ6.35 (1/4)
RCI-2.0FSN3	ϕ15.88 (5/8)	ϕ6.35 (1/4)
RCI-2.5FSN3 RCI-3.0FSN3 RCI-4.0FSN3 RCI-5.0FSN3 RCI-6.0FSN3	ϕ15.88 (5/8)	ϕ9.52 (3/8)

(3) Select clean copper pipes. Make sure there is no dust and water inside. Use a pipe cutter when cutting the pipes, to avoid a grind swarf generation. Do not use a saw or a grind stone to cut pipes. Blow the inside of the pipes with nitrogen or dry air, to remove any dust or foreign materials before connecting pipes.

5.2 Piping Connection

(1) Position of piping connection is shown in Fig. 5.1. (Indoor Unit)

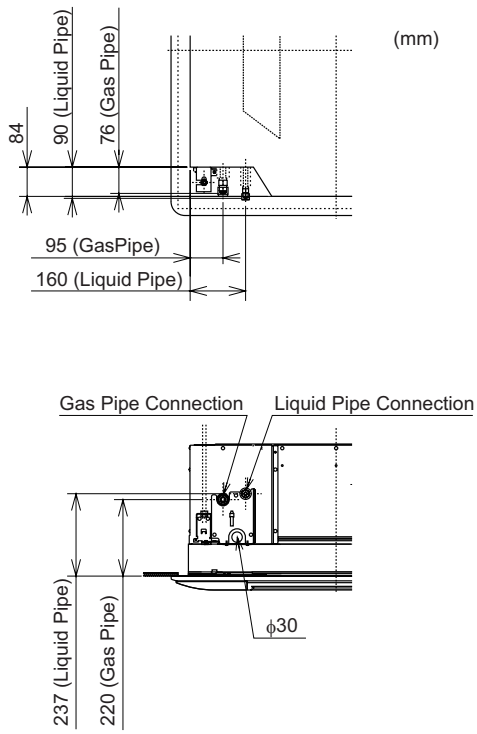
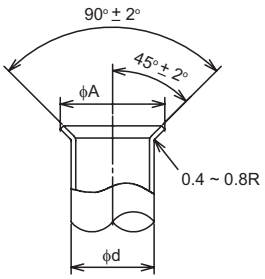


Fig. 5.1 Position of Piping Connection

(2) Perform flaring work according to the figure and tables below.



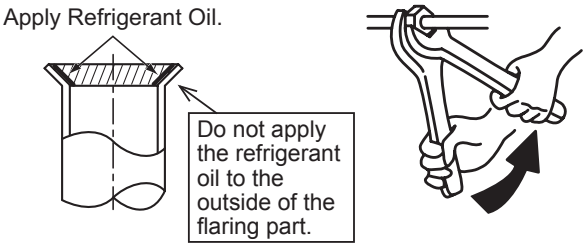
mm (in.)

Diameter (ϕd)	A +0 -0.4
6.35 (1/4)	9.1
9.52 (3/8)	13.2
12.7 (1/2)	16.6
15.88 (5/8)	19.7

(3) Apply the refrigerant oil in a thin layer to the inside of the flaring part of the pipe before tightening the flare nut. And the flare nut must be tightened using two spanners according to the tightening torque as shown in the figure below. The tightening work will be easier if tightening the flare pipe in order of the liquid pipe, the gas pipe. Check the leakage of the refrigerant after the tightening work.

* If the refrigerant oil attaches to the air panel, it may cause a crack. Pay attention not to attach.

NOTE:
Refrigerant oil is field-supplied.
[Ethereal Oil FVC50K, FVC68D
(Idemitsu Kousan Co. Ltd.)]



Required Tightening Torque (JIS B8607)

Pipe Size	Tightening Torque
ϕ6.35 mm (1/4)	14 - 18 (N-m)
ϕ9.52 mm (3/8)	34 - 42 (N-m)
ϕ12.7 mm (1/2)	49 - 61 (N-m)
ϕ15.88 mm (5/8)	68 - 82 (N-m)

Fig. 5.2 Tightening Work of Flare Nut

⚠CAUTION

Tighten the flare nuts according to the pecified torque. If an excessive force is applied, the flare nuts may crack due to aging degradation, causing refrigerant leakage.

(4) If temperature and humidity inside the ceiling exceed 27oC/RH80%, dew condensation occurs on the surface of the accessory insulation. Wrap additional insulation (approx. 5 ~ 10mm thickness) around the accessory insulation of the refrigerant pipe as a preventive measure.

(5) For buried pipe with joints such as an elbow or a socket, provide service access doors to facilitate the check for connection.

(6) The pipes must be reinforced by an earthquake resistant support so that they will not be damaged by an external force.

(7) Do not clamp the refrigerant pipe tightly when supporting them for prevention of heat stress.

(8) When connecting indoor/outdoor units with refrigerant pipes, fix the pipes as required so that the pipes may not to contact weak portions of the wall, ceiling, etc. Failure to take this measure may lead to an abnormal sound caused by the vibration of the pipe.

(9) Perform the air tight test according to “Installation & Maintenance Manual” of the outdoor unit.

(10) Insulate each flare connection without gap with accessory insulations to prevent dew condensation. Then insulate each refrigerant pipe as well.

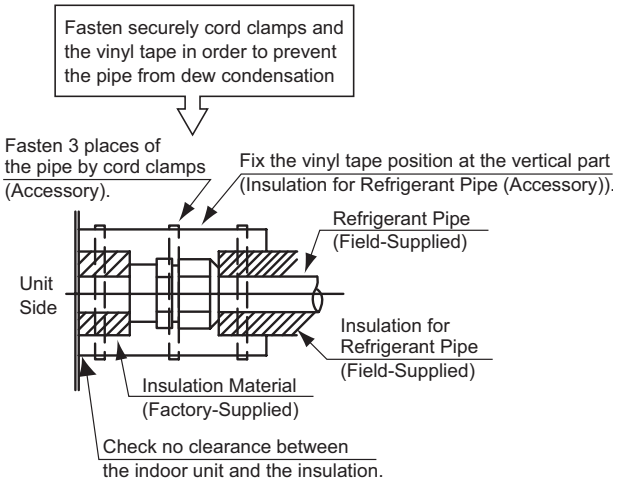
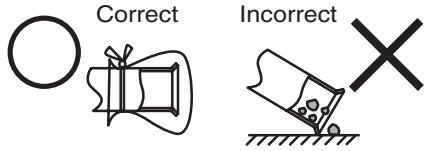


Fig. 5.3 Insulation on Pipes

(11) If coating the optional air panel with a forming agent (recommended Gupoflex) after installation, make sure that the forming agent does not contact it. Otherwise, it could cause a breakage of the panel, resulting in the panel falling. If the forming agent contacts the air panel, completely wipe it off.

NOTICE

- Cap the end of the pipe when the pipe is to be inserted through a hole.
- Cap the end of the pipe to avoid rain or water entering.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



(12) Evacuation and refrigerant charging procedures should be performed according to “Installation & Maintenance Manual” of the outdoor unit.

6. Drain Piping

Perform drain piping work and attach the insulations before refrigerant piping work.

WARNING

Do not put the drain pipe for the indoor unit into the drainage trench where corrosive gases occur. Otherwise, poisonous gases flow into the room, which may cause poisoning.

NOTICE

- Do not provide an upward slope or a rising part for the drain pipe. Otherwise, the drain water will flow back into the unit and it may cause the water leakage when the unit operation is stopped.
- Do not connect the drain pipe with sanitary or sewage pipe or any other drainage pipe.
- When the common drain pipe is connected with other indoor units, the connected position of each indoor unit must be higher than the common pipe. The pipe size of the common drain pipe must be large enough according to the unit size and number of units.
- After performing drain piping work and electrical wiring, check to ensure that water flows smoothly as in the following procedure.

(1) The position of the drain pipe connection is shown in Fig. 6.1.

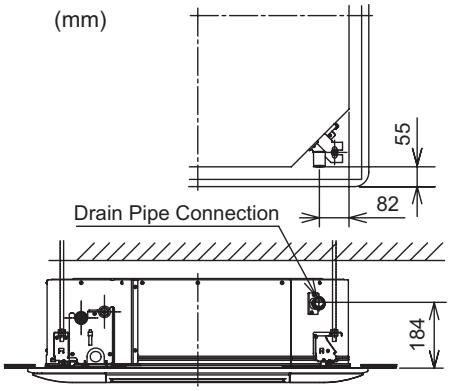


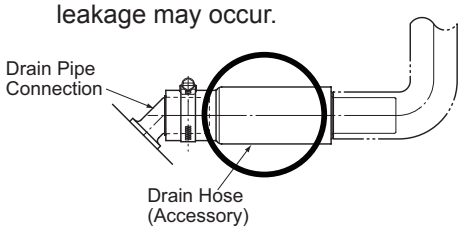
Fig. 6.1 Position of Drain Pipe Connection

(2) Prepare a polyvinyl chloride pipe with a 32mm outer diameter. [VP25 (based on JIS K6741) is recommended.]

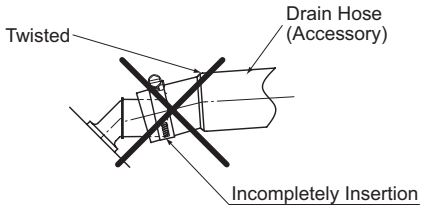
(3) Connecting Drain Piping

(a) Connect the factory-supplied drain hose to the drain pipe connection using the polyvinyl chloride adhesive. When cleaning the connection surface, applying the adhesive, inserting, retaining and curing the drain pipe, refer to information given by the adhesive manufacturer. The adhesive Eslon No.73 (Sekisui Chemical Co. Ltd) is recommended.

(b) Insert the drain hose completely. If it is not inserted properly, or if it is twisted, water leakage may occur.



(Correct)

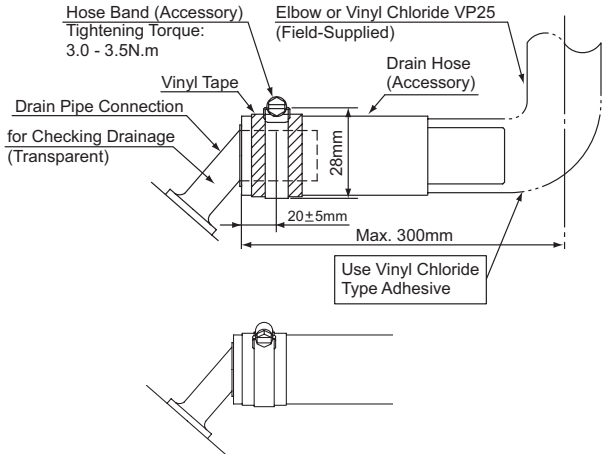


(Incorrect)

Twisted, incompletely insertion.

Fig. 6.2 Insertion of Drain Hose

(c) Attach the factory-supplied hose clamp to the vinyl tape (white) attached to the drain hose. The hose clamp shall be 20mm away from the end face of the drain hose. Then tighten the hose clamp to make sure that it is approximately 28mm in length from the screw to the edge of the hose clamp as shown in Fig. 6.3.



Tightening Torque: 3.0 - 3.5N.m

Fig. 6.3 Drain Hose Connection

NOTE

If connecting the factory-supplied drain hose to the drain pipe connection without adhesive, for future relocation, follow the procedure (b) and (c).

NOTICE

- Use the factory-supplied drain hose and the hose clamp. Others may cause water leakage.
- Do not bend or twist the factory supplied drain hose. It will cause water leakage.
- Do not apply an excessive force to the drain pipe connection. It could cause a damage.

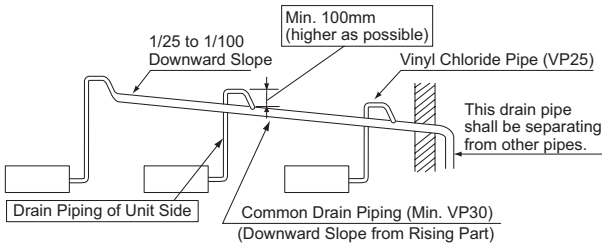
(4) On-site Drain Piping Work

(a) Connect the factory-supplied drain hose to the drain pipe connection using the polyvinyl chloride adhesive.

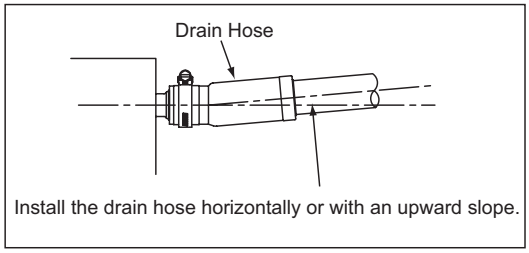
(b) When cleaning the connection surface, applying the adhesive, inserting, retaining and curing the drain pipe, refer to information given by the adhesive manufacturer.

(c) Install the support parts at an interval of 1m to 1.5m in order not to bend the drain pipe.

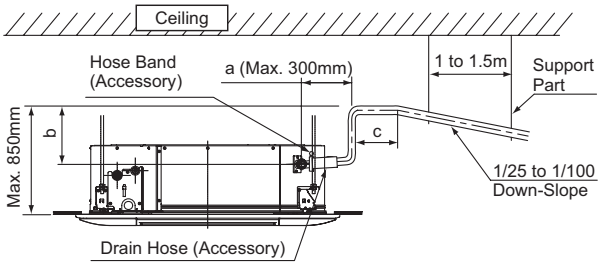
(d) The drain piping shall be installed on a downward slope of 1/25 to 1/100 as shown in the figure below.



(e) Install the drain hose horizontally or slightly on an upward slope to prevent air pockets from forming inside it. If air pockets form, the drain water will flow back into the unit, which could cause an abnormal noise and leakage to the room when the unit operation is stopped.

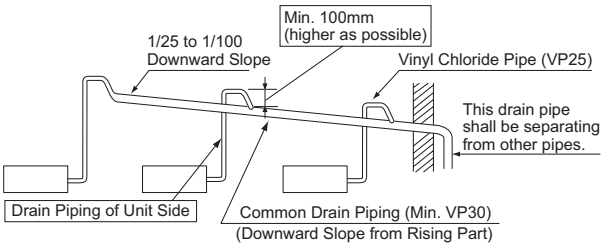


(f) Raising Drain Piping
In case of raising the drain pipe, install it according to the dimension shown in the figure below. The total drain piping length of a+b+c shall be within 1,100mm.



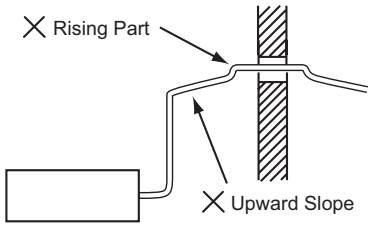
(g) Installing Common Drain Piping

* Install the common drain pipe on a downward slope to make sure that it is lower than each rising part of the drain pipe from the indoor unit..
* The pipe size of the common drain pipe must be larger than VP30 (nominal diameter 30mm, outer diameter 38mm) according to the number of the connected indoor units.



NOTICE

- Do not provide an upward slope or a rising part for the drain pipe. Otherwise, the drain water will flow back into the unit and it may cause the water leakage when the unit operation is stopped.



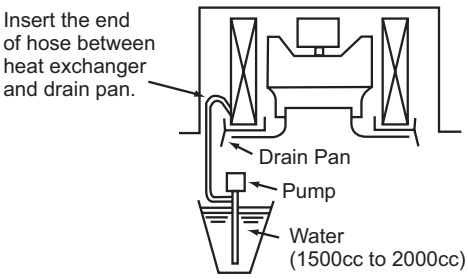
Incorrect Installation of Drain Piping

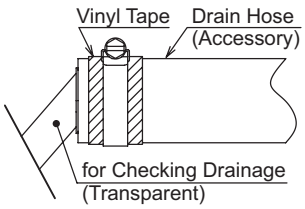
- Do not connect the drain pipe with sanitary or sewage pipe or any other drainage pipe.

(5) Drainage and Water Leakage Check
After performing drain piping work and electrical wiring, check to ensure that water flows smoothly according to the following procedure.

- Drainage Operation by Float Switch
The following is regular procedure to check the float switch operation.
  a) Turn ON the power supply.
  b) Pour 1500cc to 2000cc of water gradually into the drain pan.
  c) Check to ensure that the water flows smoothly inside the transparent drain pipe and drained at the pipe end, and that no water leakage occurs.
  d) If the end of the drain pipe cannot be checked visually, pour another 1500cc to 2000cc of water to the drain pan. If the water overflows from the drain pan, there might be some failure inside the drain pipe. Recheck the drain pipe.

- In case of pouring water through the air outlet.





Position for Checking Drainage

WARNING

Be careful that water does not splash on the electrical parts such as the fan motor, float switch or thermistors.

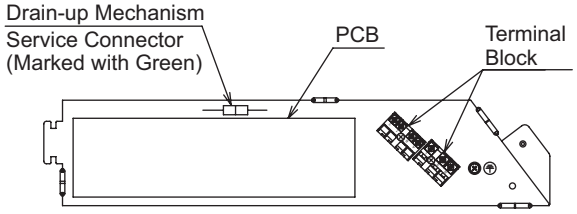
- Simplified operation of Drain-up mechanism

  The following is the simplified operation procedure of the drain-up mechanism.

  a) Turn OFF the power supply.
  b) Disconnect the service connector (marked with green).
  c) Turn ON the power supply and start the simplified operation of the drain-up mechanism.
  d) Turn OFF the power supply.
  e) Reconnect the service connector.

  NOTE:

  Make sure to hold the connector part. Do not take out and plug in the connector frequently (more than 2 or 3 times).

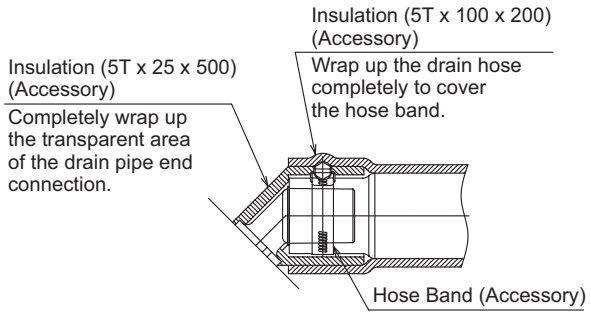


⚠WARNING

Turn OFF the power supply when handling the service connector. Otherwise, it may cause an electric shock.

(6) Insulate the drain pipe connection and the drain hose after connecting them. If improperly insulated, dew condensation will occur.

(mm)



NOTICE

- Drain water which is poured to the drain pan to check the drainage in the heating season should be drained completely from the drain pan.
- The heat exchanger is heated since the slight amount of refrigerant circulates inside the indoor unit during stoppage. As a result, water in the drain pan evaporates so that may cause dew condensation or dew drop.
- After the drain check is completed, insert the ruber plug again and seal the gap by a silicon sealant.
- Wrap the field-supplied insulation around the drain pipe running through the indoor.

7. Electrical Wiring

⚠WARNING

- **The electrical wiring work must be performed by authorized installers. If not, it may cause an electric shock or a fire.**
- **Perform electrical work according to this Installation Manual and all the relevant regulations and standards. Failing to follow these instructions can cause capacity hortage and performance degradation, resulting in an electric shock and a fire.**
- **Use specified cables between units. Selecting incorrect cables may cause an electric shock or a fire.**
- **Use an ELB (Earth Leakage Breaker). If it is not used, an electric shock or a fire can be caused in the event of a fault.**
- **Turn OFF the main power switch of the indoor unit and the outdoor unit before an electrical wiring work or a periodical check is performed. If not, it will cause an electric shock or a fire.**
- **Check to ensure that the indoor fan and the outdoor fan have stopped before electrical wiring work or a periodical check is performed.**
- **Protect the wires, drain pipe, electrical parts, etc. from rats or other small animals. If not, rats may gnaw at unprotected parts, which may lead to a fire.**
- **Tighten screws according to the following torque.**

  M3.5: 1.2 N-m
  M4: 1.0 to 1.3 N-m

⚠CAUTION

- **Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate water or insects.**
- **Tightly secure the wires with the cord clamp inside the indoor unit.**
- **Lead the wires through the knockout hole in the side cover when using conduit.**
- **Secure the cable of the remote control switch using the cord clamp inside the electrical box.**

NOTICE

Perform wiring work according to this manual and “Installation & Maintenance Manual” of the outdoor unit.

7.1 General Check

(1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data given in “Technical Catalog”. Make sure that the components comply with National Electrical Code (NEC).

(2) Use the shielded twist pair cable for the control cable between the outdoor unit and the indoor unit, the control cable between indoor units and the remote control switch cable of PC-ARF.

(3) Check to ensure that the power supply voltage is within ±10% of the rated voltage.

(4) Check the capacity of the electrical wires. If the power source capacity is too low, the system cannot be started due to the voltage drop.

(5) Check to ensure that the earth wire is connected.

7.2 Electrical Wiring Capacity

7.2.1 Field Minimum Wire Sizes for Power Source

- Use an ELB (Earth Leakage Breaker).
  If not used, it will cause an electric shock or a fire.
- Do not operate the system until all the check points have been cleared.

(A) Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If it is less than 1 megohm, do not operate the system until the electrical leakage is found and repaired.

(B) Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.

(C) Check to ensure that the switch on the main power source has been ON for more than 12 hours, to warm the compressor oil by the crankcase heater.

- Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.

Model	Power Source	Maximum Current	Power Source Cable Size		Transmitting Cable Size	
			IEC 60335-1 *1	MLFC *2	IEC 60335-1 *1	MLFC *2
RCI-1.0FSN3 RCI-1.5FSN3 RCI-2.0FSN3 RCI-2.5FSN3 RCI-3.0FSN3 RCI-4.0FSN3 RCI-5.0FSN3 RCI-6.0FSN3	220-240V/1ϕ/50Hz 220V/1ϕ/60Hz	5A	0.75mm^2	0.5mm^2	0.75mm^2	0.5mm^2

NOTES:

1) Follow the local codes and regulations when selecting field wires.
2) The wire sizes marked with *1 in the above table are selected at the maximum current of the unit according to the European Standard, IEC 60335-1. Use the wires which are not lighter than the ordinary tough rubber sheathed flexible cord (code designation H05RN-F) or ordinary polychloroprene sheathed flexible cord (code designation H05RN-F).
3) The wire sizes marked with *2 in the above table are selected at the maximum current of the unit according to the wire, MLFC (Flame Retardant Polyflex Wire) manufactured by Hitachi Cable Ltd., Japan.
4) Use a shielded cable for the transmitting circuit and connect it to ground.
5) In the case that power cables are connected in series, add maximum current to each unit and select wires below.

Selection According to IEC 60335-1

Current i (A)	Wire Size (mm^2)
i ≤ 6	0.75
6 < i ≤ 10	1
10 < i ≤ 16	1.5
16 < i ≤ 25	2.5
25 < i ≤ 32	4
32 < i ≤ 40	6
40 < i ≤ 63	10
63 < i	*3

Selection According to MLFC (at Cable Temperature of 60°C)

Current i (A)	Wire Size (mm^2)
i ≤ 15	0.5
15 < i ≤ 18	0.75
18 < i ≤ 24	1.25
24 < i ≤ 34	2
34 < i ≤ 47	3.5
47 < i ≤ 62	5.5
62 < i ≤ 78	8
78 < i ≤ 112	14
112 < i ≤ 147	22

*3: In the case that current exceeds 63A, do not connect cables in series.

7.2.2 Details of Electrical Wiring Connection

The electrical wiring capacity of the outdoor unit should be referred according to “Installation & Maintenance Manual” of the outdoor unit. Setting dip switch may be required depending on the combination with the outdoor unit.

NOTE:
When installing the unit in Australia, connect the both ends of shielded twist pair cable (remote control switch cable and control cable) to the earth. (Refer to the item 7.3 (8) for details.)

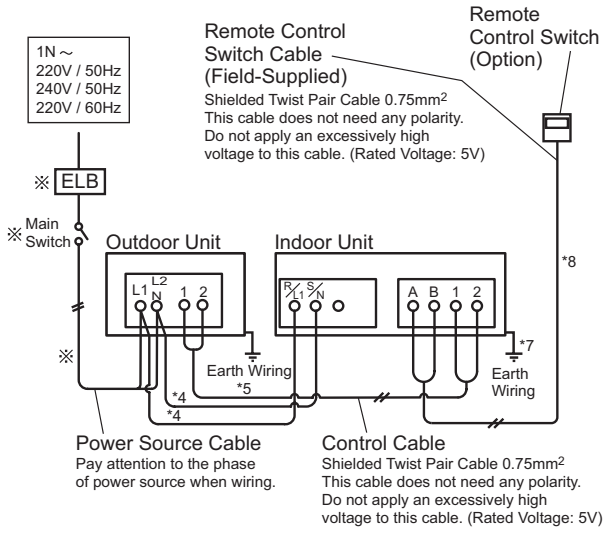
(1) For UTOPIA Series
Select wiring capacity according to the table 7.1. Install an ELB and a main switch to each as shown in the following figures.

Use CASE B method wiring for Australia.

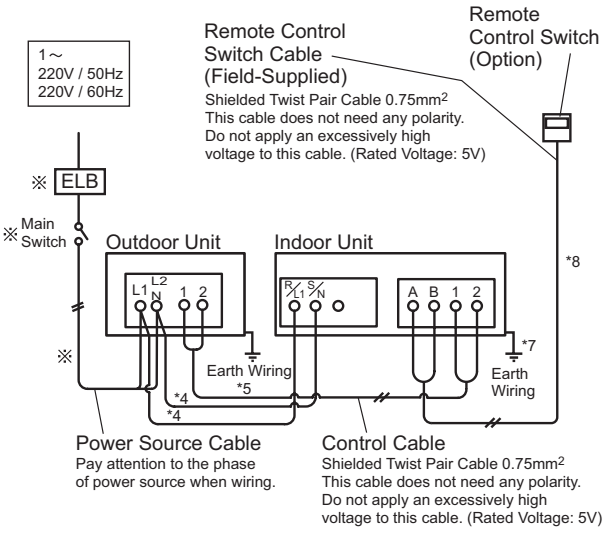
The control cable length between the outdoor unit and the indoor unit shall be less than 75m.

< Case A >

Power Source Type: 3 Phase 4 Wires



Power Source Type: 3 Phase 3 Wires



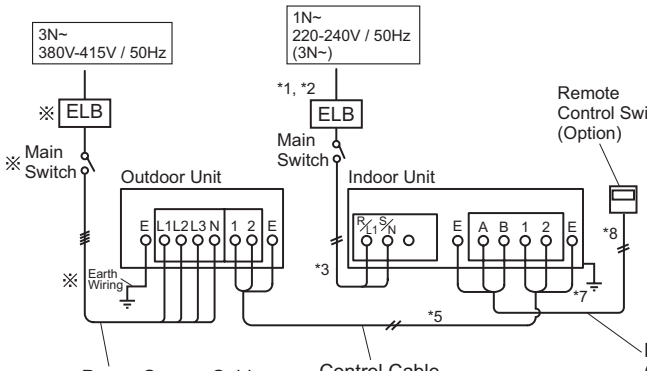
※ Refer to “Installation & Maintenance Manual” of connected outdoor unit for details of wire, ELB and main switch.

< Case B >

● Wiring Connection (Single Indoor Unit)

Power Source Type: 3 Phase 4 Wires

< 3ϕ 380-415V/50Hz >



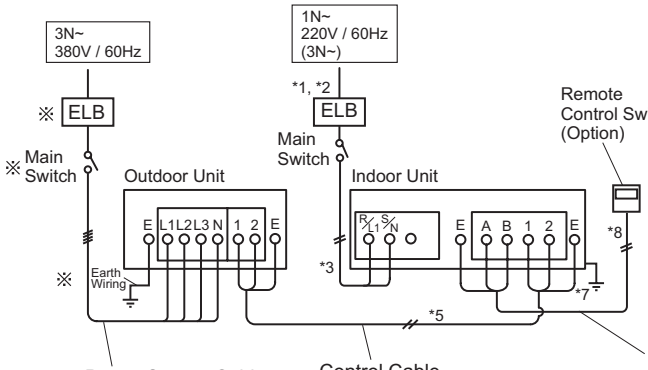
Power Source Cable
Pay attention to the phase of power source when wiring.

Control Cable
Shielded Twist Pair Cable 0.75mm^2
This cable does not need any polarity.
Do not apply an excessively high voltage to this cable. (Rated Voltage: 5V)
Connect both ends of shield tube to earth.

Remote Control Switch Cable (Field Supplied)
Shielded Twist Pair Cable 0.75mm^2
This cable does not need any polarity.
Do not apply an excessively high voltage to this cable. (Rated Voltage: 5V)
Connect both ends of shield tube to earth.

※ Refer to “Installation & Maintenance Manual” of connected outdoor unit for details of wire, ELB and main switch.

< 3ϕ 380V/60Hz >



Power Source Cable
Pay attention to the phase of power source when wiring.

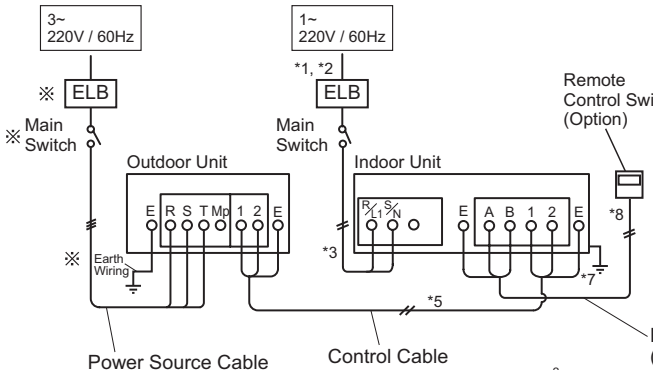
Control Cable
Shielded Twist Pair Cable 0.75mm^2
This cable does not need any polarity.
Do not apply an excessively high voltage to this cable. (Rated Voltage: 5V)
Connect both ends of shield tube to earth.

Remote Control Switch Cable (Field Supplied)
Shielded Twist Pair Cable 0.75mm^2
This cable does not need any polarity.
Do not apply an excessively high voltage to this cable. (Rated Voltage: 5V)
Connect both ends of shield tube to earth.

※ Refer to “Installation & Maintenance Manual” of connected outdoor unit for details of wire, ELB and main switch.

Power Source Type: 3 Phase 3 Wires

< 3ϕ 220V/60Hz >



Power Source Cable
Pay attention to the phase of power source when wiring.

Control Cable
Shielded Twist Pair Cable 0.75mm^2
This cable does not need any polarity.
Do not apply an excessively high voltage to this cable. (Rated Voltage: 5V)
Connect both ends of shield tube to earth.

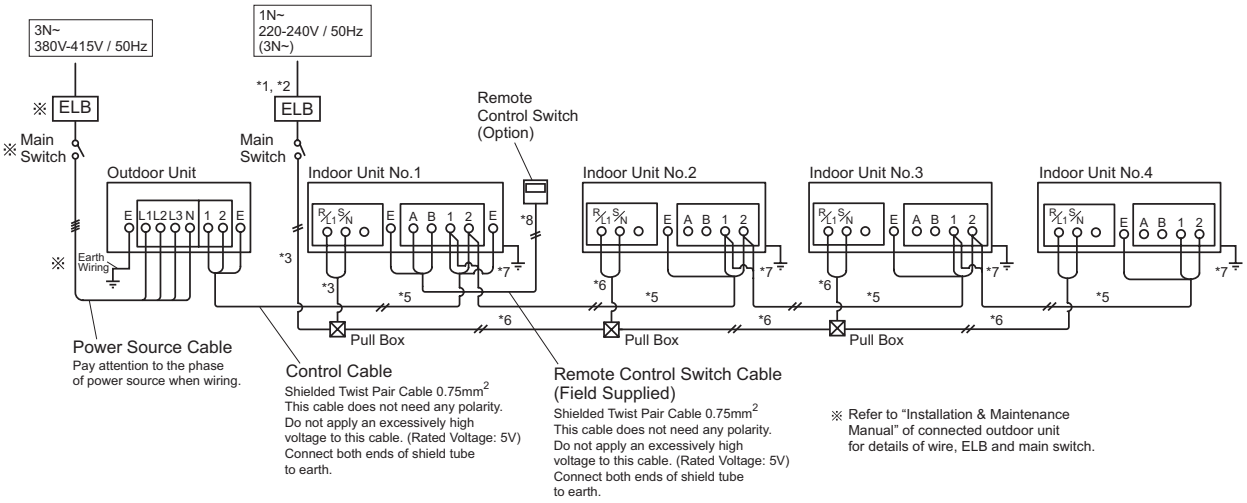
Remote Control Switch Cable (Field Supplied)
Shielded Twist Pair Cable 0.75mm^2
This cable does not need any polarity.
Do not apply an excessively high voltage to this cable. (Rated Voltage: 5V)
Connect both ends of shield tube to earth.

※ Refer to “Installation & Maintenance Manual” of connected outdoor unit for details of wire, ELB and main switch.

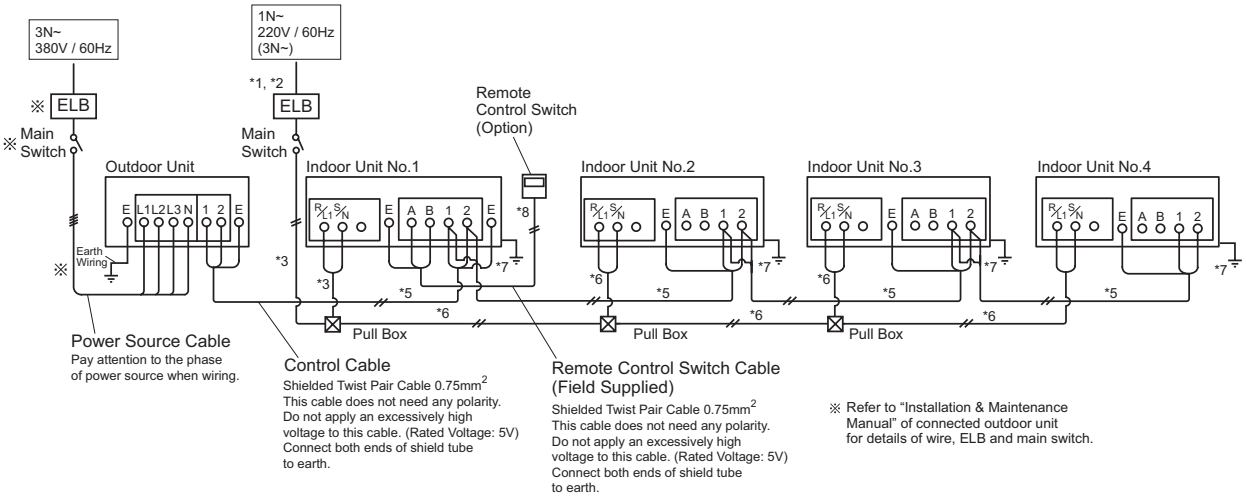
● Wiring Connection (Twin, Triple and Quad Combinations for Simultaneous Operation)

Power Source Type: 3 Phase 4 Wires

< 3ϕ 380-415V/50Hz >

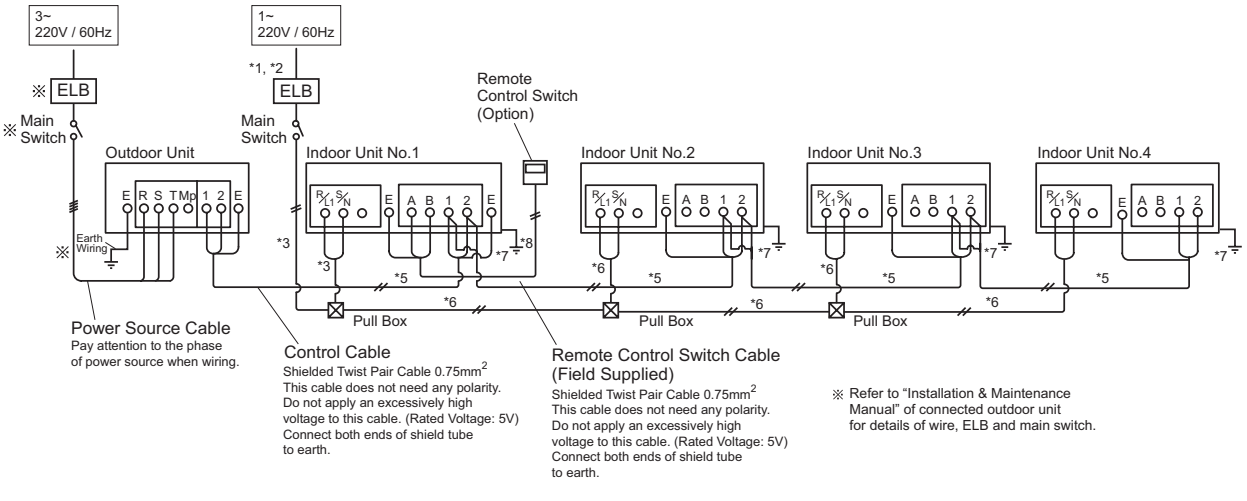


< 3ϕ 380V/60Hz >



Power Source Type: 3 Phase 3 Wires

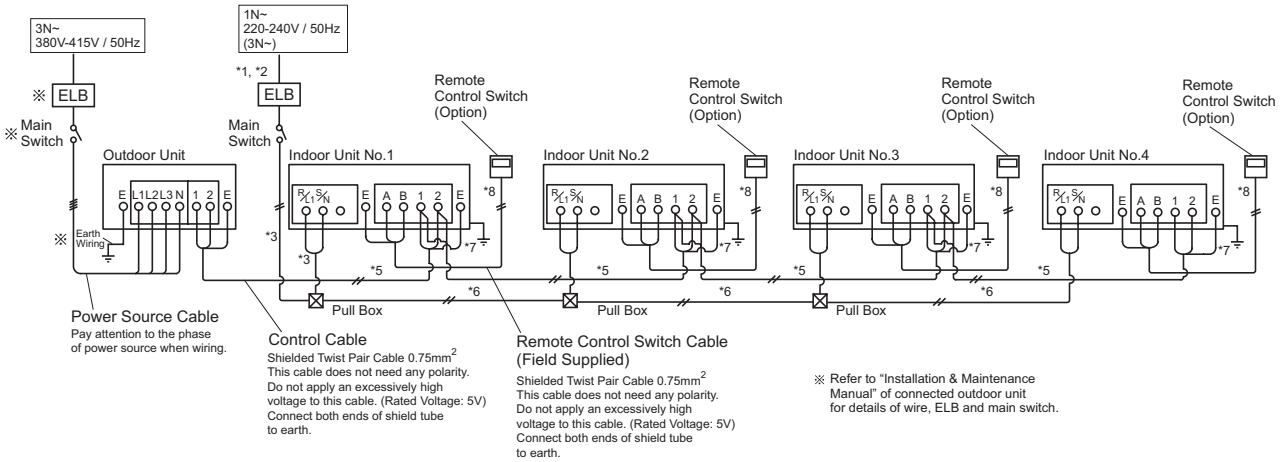
< 3ϕ 220V/60Hz >



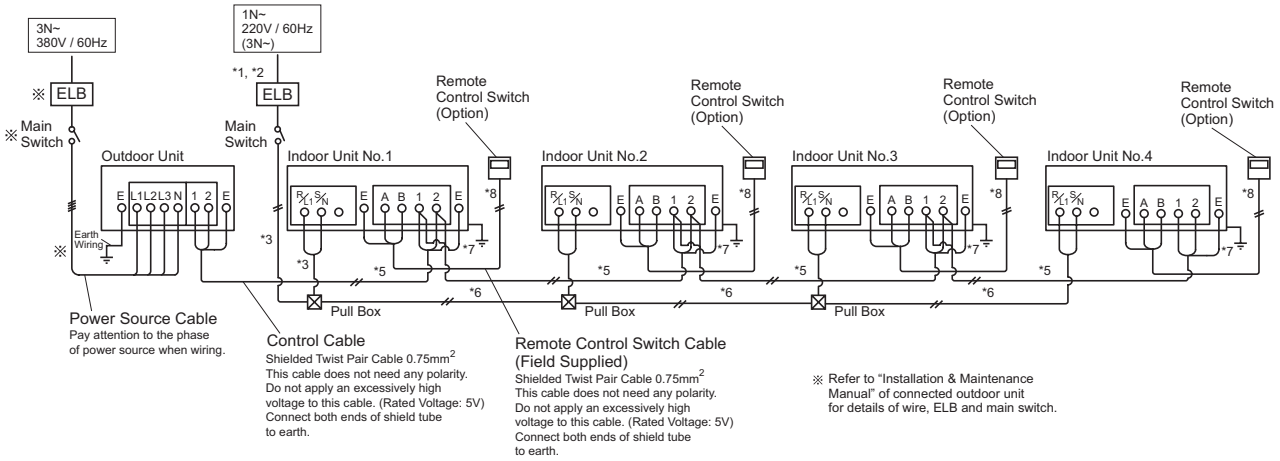
● Wiring Connection (Twin, Triple and Quad Combinations for Individual Operation)

Power Source Type: 3 Phase 4 Wires

< 3ϕ 380-415V/50Hz >



< 3ϕ 380V/60Hz >



Power Source Type: 3 Phase 3 Wires

< 3ϕ 220V/60Hz >

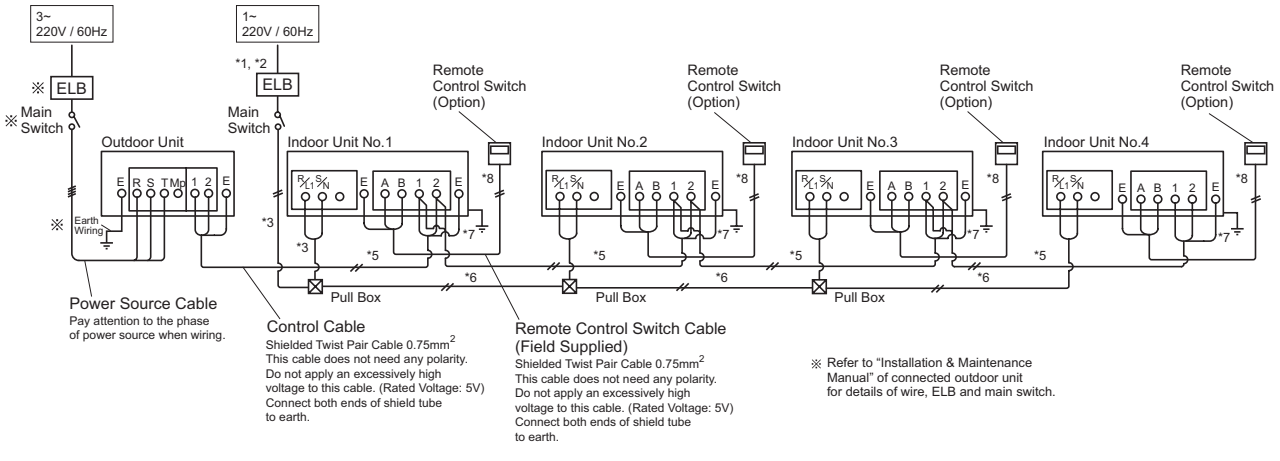


Table 7.1 Recommended Wiring Capacity and Size for UTOPIA Series

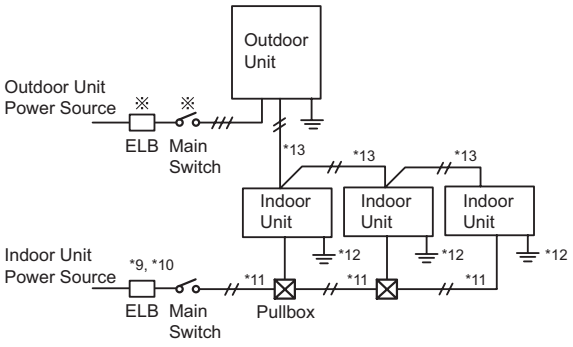
Model	ELB	Main Switch		Wiring Capacity (mm^2)					
Combination	Rated Current (A)	Rated Current (A)	Fuse Capacity (A)	Power Source Cable	Transition Wiring between O.U. and I.U.		Transition Wiring between Indoor Units	Earth Wiring	Remote Control Switch Cable
					Power Supply	Control Circuit			
	Indoor *1	Indoor *2	Indoor *2	Indoor *3	< 20m *4	*5	*6	*7	*8
Single Type	5	5	5	1.0	1.0	0.75	-	2.0	0.75
Twin, Triple, Quad							0.75	3.5	

ELB: Earth Leakage Breaker
I.U.: Indoor Unit
O.U.: Outdoor Unit

NOTE:
If the total wiring length is more than 20m, refer to “Installation & Maintenance Manual” of the outdoor unit.

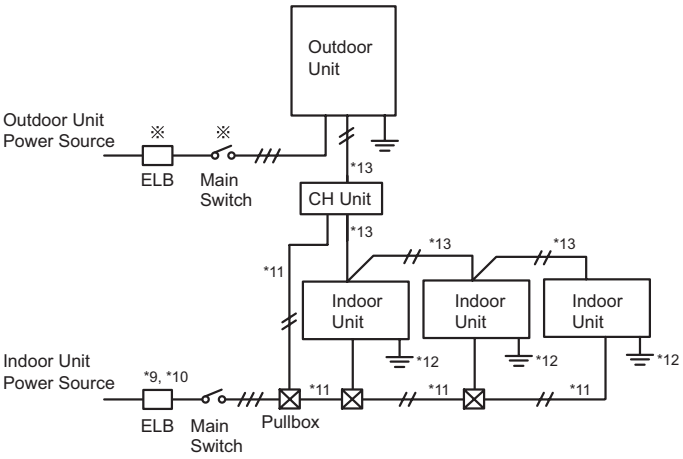
(2) For SET-FREE Series
Select wiring capacity according to the following table. Install the ELB and the main switch to each as shown in the figures below.

< Heat Pump System >



※ Refer to "Installation & Maintenance Manual" of connected outdoor unit for details of wire, ELB and main switch for outdoor unit.

< Heat Recovery System >



※ Refer to "Installation & Maintenance Manual" of connected outdoor unit for details of wire, ELB and main switch for outdoor unit.

Table 7.2 Recommended Wiring Capacity and Size for SET-FREE Series

Total Indoor Unit Capacity	Power Source					Earth Wire Size (mm^2)	Transition Wire Size for Control Circuit (mm^2)	Remote Control Switch Cable (mm^2)
	ELB	Main Switch		Minimum Wire Size (mm^2)	Wiring Line Length (m) *1)			
	Rated Current (A) *9	Switch Capacity (A) *10	Fuse Capacity (A) *10		*11	*12	*13	
≤ 7A	15	30	15	2.5	30	3.5	2 Core Cable 0.75 ~ 1.25	0.75
≤10A	20	30	20	4.0	34			
≤ 15A	30	30	30	6.0	34			

ELB: Earth Leakage Breaker

*1): The above wiring line length shows the case that the indoor units are connected in series. (The voltage drop is within 2%.) When the power source wiring is longer than the above value, select the minimum wiring size and make sure that the voltage drop is within 2%.

NOTICE

- Check the recommended size of ELB shown in the table.
  Select high-sensitive high speed ELB when the rated sensitive current is less than 30mA. (The motion time should be within 0.1 second.)
- Use 2-core cable (equivalent to following cables: VCTF, VCT, CVV, MVVS, VVR or VVF, size: 0.75mm^2 to 1.25mm^2 (manufactured by HITACHI Cable Co. Ltd.)) or 2-core twist pair cable (equivalent to following cables: KPEV or KPEV-S (manufactured by HITACHI Cable Co. Ltd.)) for the control cable between the outdoor unit and the indoor unit. The total cable length should be less than 1000m.
- Use 2-core twist pair cable (equivalent to following cables: KPEV or KPEV-S) for the remote control switch cable and the control cable between indoor units. The total cable length should be less than 500m. If the total length of the cable is less than 30m, other cables can be used (the cable size is 0.3mm^2).
- Select the wiring size, ELB (Earth Leakage Breaker) and isolating switch according to the regulation of each region and "Installation & Maintenance Manual", and the dedicated electrical circuit must be used.
- Outside the indoor unit, the power source cable, control cable and remote control cable shall be installed separately as possible.

7.3 Position of Electrical Wiring Connection

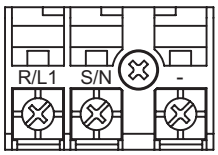
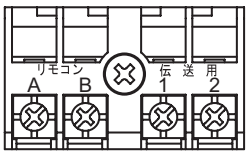
⚠WARNING

- **Tightly secure wirings to the terminal block according to the specified torque. If tightening the terminals is not completed, heat generation, an electric shock or a fire will occur at the terminal connection.**
- **Make sure that the wires are securely fixed in order not to apply an external force to the terminal connection of the wirings. If fixing is not completed, heat generation or a fire will occur.**
- **Fix the terminals that do not touch to the electrical box surface. If the terminals are closed to the surface, it may cause activation of ELB, heat generation at terminal connection, a fire or an electric shock.**

- The electrical wiring connection for the indoor unit is shown in the item 7.2.2. Refer to "Installation of Optional Air Panel" for details of the intermediate connection between the indoor unit and the air panel.
- The connection at the terminal block for the indoor unit is shown in the figure below. Check the outdoor unit for the combination before the wiring work. The screws at the terminal block should be performed according to the tightening torque as shown in the table below.

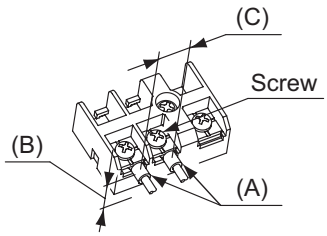
Tightening Torque for Terminals

Screw Size		Tightening Torque
TB1	M4	1.0 - 1.3 (N-m)
TB2	M3.5	1.2 (N-m)

Terminal Block for Power Source Cable TB1 (black)	Terminal Block for Control Cable TB2 (white)
	

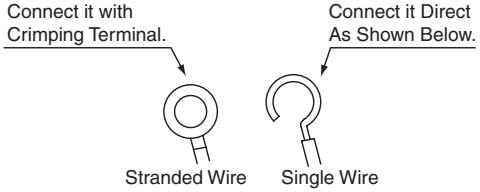
NOTICE

- Do not connect the main power source cables to the control line (Terminals A, B, 1 and 2 of TB2). If connected, the printed circuit board (PCB) will be broken.
- Pay attention to followings when wires are connected to terminal block.
  (A) Attach an insulation tape or a sleeve to each terminal.
  (B) Maintain the distance between the electrical box and the terminals to prevent a short circuit.
  (C) Maintain the distance between the terminals.

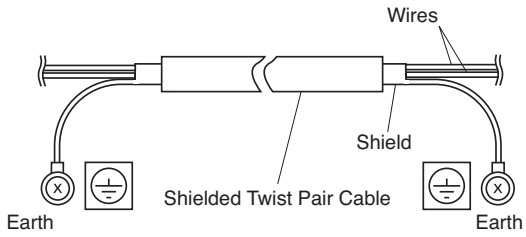


(1) Connect the cable for the optional remote control switch or the optional extension cable to the terminals inside the electrical box through the connecting hole in the cabinet.
(2) Connect the power supply and the earth wires to the terminals in the electrical box.
(3) Connect the wires between the indoor unit and the outdoor unit to the terminals in the electrical box.
(4) Connect cables correctly to match the terminal No. and the mark band.
(5) Connect the transition wires between indoor units connected to the same outdoor unit.
(6) Do not connect the main power source cables to the control line (Terminals A, B, 1 and 2 of TB2). If connected, the printed circuit board (PCB) will be broken.
(7) Tightly clamp the wires using the cord clamp inside the electrical box.

NOTE:
When the standard wire is used for field-wiring connection, M4 crimping terminal should be used. When the single wire is used, make it into the shape as shown in the figure below and connect it in order to tighten the washer uniformly. The screws at the terminal block should be performed according to the tightening torque as shown in the table below.



(8) When installing the unit in Australia, connect the both ends of shielded twist pair cable (remote control switch cable and control cable) to the earth as shown bellow.



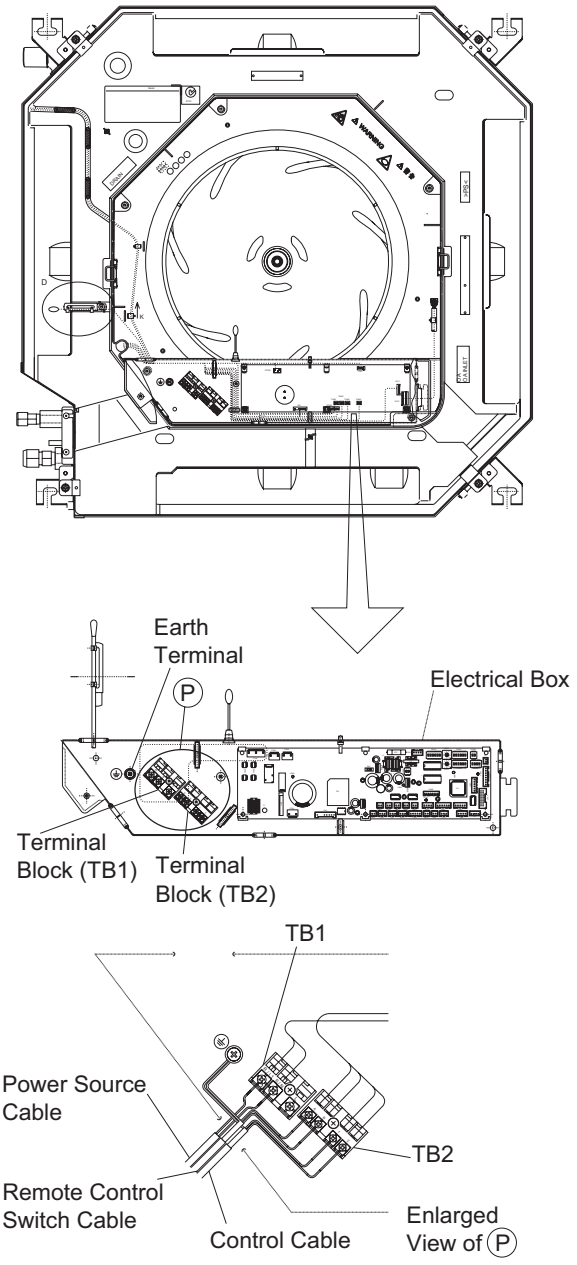


Fig. 7.1 Electrical Wiring Connection for Indoor Unit

(9) The wiring work for the indoor unit should be performed according to the electrical wiring diagram and “Installation & Maintenance Manual” of the outdoor unit.

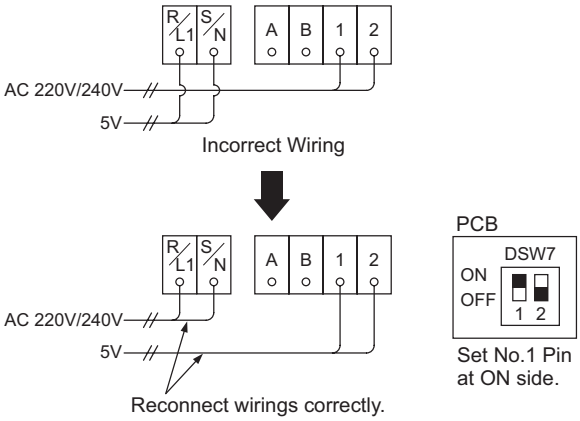
(10) In Case that Power Source (220V / 240V) Is Applied to Control Line

If 220V / 240V is applied to the control line (Terminal 1 and 2 of TB2) due to mistake, the fuse on the PCB for the control line will blow out. In this case, perform the recovery work as shown in the below.

(a) Reconnect the wirings correctly.

(b) Set No.1 pin of DSW7 (on PCB) at ON side.

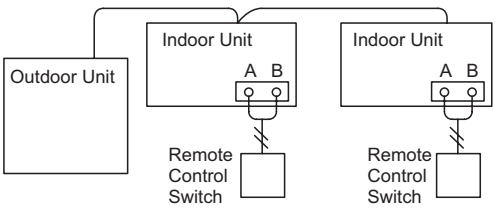
PCB is recovered from the fuse blowing out. However, if 220V / 240V is applied to the control line again, PCB will break and not be able to recover.



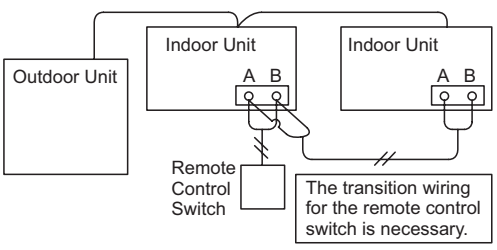
(11) Remote Control Switch Connection

● For UTOPIA Series

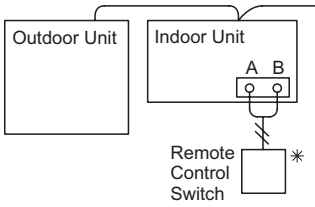
(a) Installing Remote Control Switch to each Unit with Individual Operation Setting



(b) Installing One Remote Control Switch with Individual Operation Setting



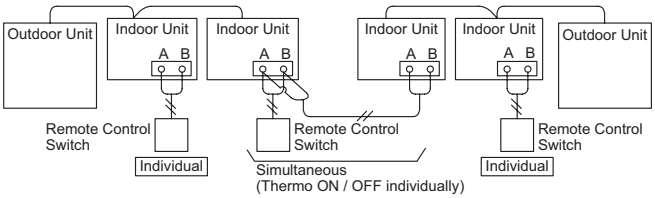
(c) Simultaneous Operation
(The indoor unit is H-LINK II model.)



● The simultaneous operation is available up to 4 indoor units. (This connection is not available for VRF (SET-FREE) System.)

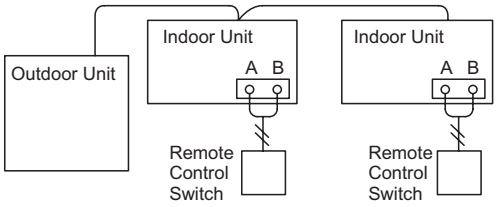
✳ This indoor unit adopts four (4) steps of fan speed (HIGH 2, HIGH, MED and LOW). When installing this indoor unit with three (3) steps of fan speed type, connect the remote control switch to four (4) steps of fan speed type. If not, "HIGH 2" will not be indicated and can not be selected.

(d) Connecting Remote Control Switch in Case of Connecting between Refrigerant Cycles

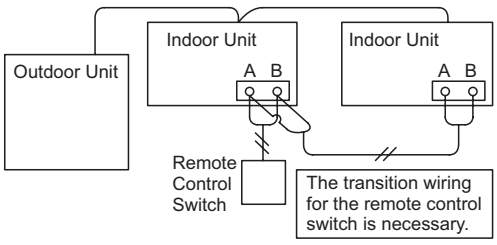


● For SET-FREE Series

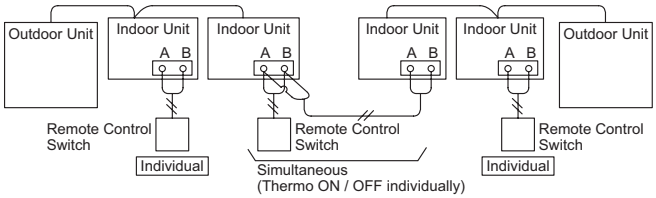
(a) Wired Remote Control Switches to each Unit for Individual Operation Setting



(b) One Remote Control Switch for Individual Operation Setting

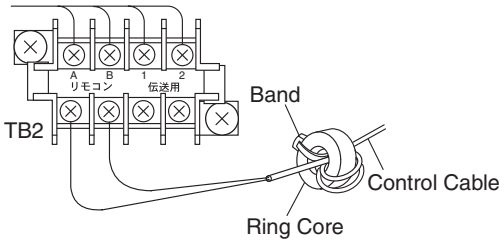


(c) Connecting Remote Control Switch in Case of Connecting between Refrigerant Cycles



(12) Attach the ring core (black) (accessory) when installing PC-ARF remote control switch.

[Procedure]
Insert the controller cable into the ring core 2 turns as shown in the below figure before connecting to the terminal block.
Fix the cable by using the band (accessory).



NOTICE

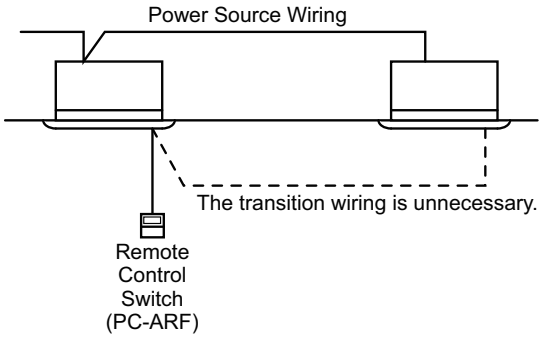
- The dip switche setting in the outdoor unit should be performed according to "Installation & Maintenance Manual" of the outdoor unit.
- Pay attention that the transition wiring for the remote control switch is required in the following cases.
  a) The following functions are set to the sub unit which is not installed the remote control switch.
     * "Remote ON/OFF function, 1, 2 and 3" (External Input / Output Function)
     * "Power supply ON/OFF function, 1 and 2" (Function Selection)
     * "Prohibiting remote control after manual stoppage" (External Input / Output Function)
     * "Group setting by the centralized controler"
  b) The combination of twin, triple or quad is controlled by one remote control switch.
  c) The address of the indoor unit is changed from the remote control switch.
  d) The multiple panels with the motion sensor are controlled by one remote control switch.

7.4 Transition Wiring for Remote Control Switch

In the twin, triple, and quad combination of indoor units, the transition wiring for the remote control switch is not required. However, when connecting indoor units without transition wiring for remote control switch, the followings are limited.

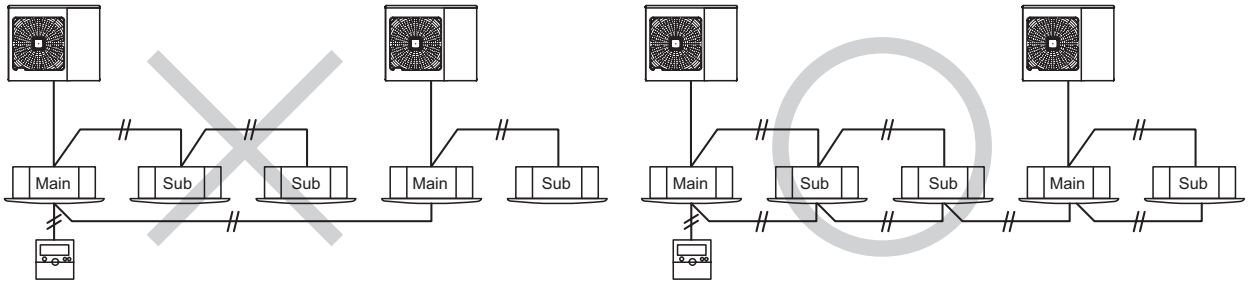
(1) The following functions are available to set only to the main unit with the remote control switch PC-ARF.

* “Remote ON/OFF function, 1 and 2"
* “Power supply ON/OFF function, 1 and 2"
* “Prohibiting operation by remote control switch”



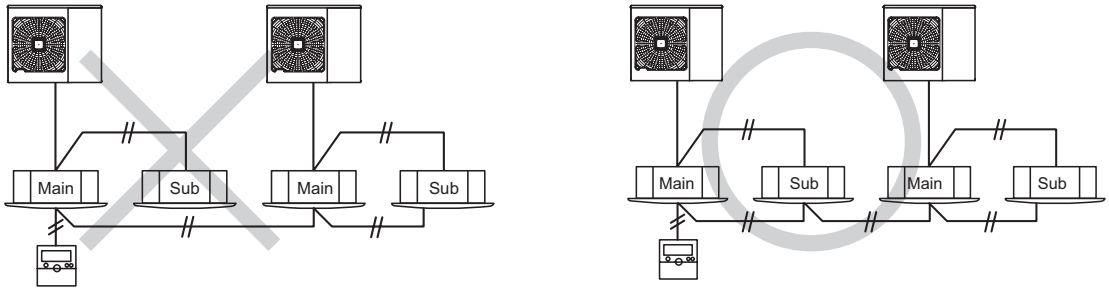
(2) The following connection are NOT available.

(a) Connection between Main Units without Transition Wiring
When the indoor units in multiple refrigerant cycles are controlled by one remote control switch, all the indoor units are required to be connected with the transition wirings.



Incorrect Correct

(b) Connection between Main Unit without Transition Wiring and Unit with Transition Wiring
When the indoor units in multiple refrigerant cycles are controlled by one remote control switch, all the indoor units are required to be connected with the transition wirings.

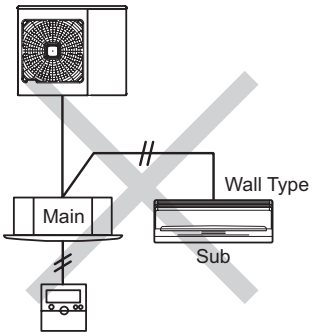


Incorrect Correct

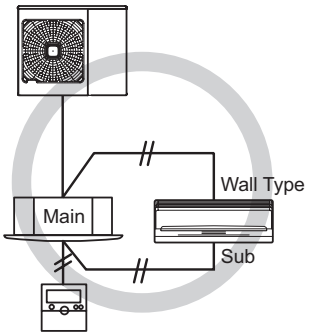
(c) Connecting Remote Control Switch to Sub unit without Transition Wiring
When the indoor units are controlled by 2 remote control switches, the sub remote control switch shall be connected to the main unit.

Incorrect Correct

(d) Connecting Remote Control Switch to Wall Type Indoor Unit with Receiver without Transition Wiring
The transition wiring is required when the wall type indoor unit (with receiver) is connected.



Incorrect



Correct

(3) The address of indoor unit cannot be changed from the remote control switch.

(4) This indoor unit adopts four (4) steps of fan speed (HIGH 2, HIGH, MED and LOW). When it is installed with the unit with three (3) steps of fan speed, connect the remote control switch to the unit with four (4) steps of fan speed. If not, “HIGH 2” will not be indicated and so cannot be selected. The remote control switch PC-ARF must be used.

(5) In the case of connecting the centralized controller, pay attention to the following restrictions. If they are utilized without the following restrictions, the operation does not run correctly.

Name	Model	Restrictions
Central Station	PSC-A64S PSC-5S	②
Centralized ON/OFF Controller	PSC-A16RS	①
Centralized Station (EZ)	PSC-A64GT	②
Centralized Station (DX)	PSC-A128WX	①
HARC70-P1	HARC70-P1	③ When the condition of the indoor unit which is not connected to the remote control switch is checked on the centralized station, the indication is always “Prohibiting Operation by Remote Control Switch” for all items.
HARC-BX	HARC-BX	

NOTES:
1. The centralized controllers cannot be used in combination.
2. “HIGH 2” cannot be set from the centralized controller.

① There is no restriction. However, for the indoor unit without remote control switch, when the condition is checked on the centralized controller, the indication is always “Prohibiting Operation by Remote Control Switch” (for all items).

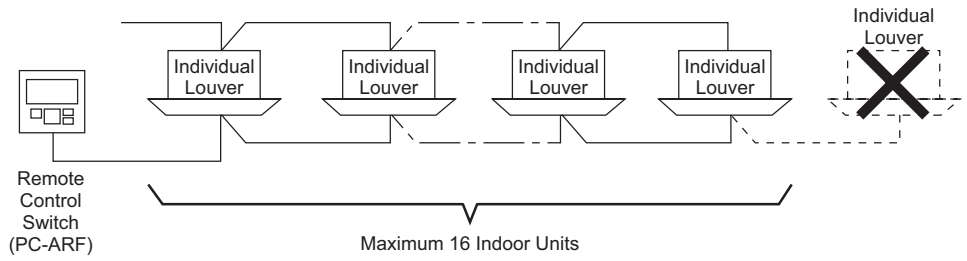
② The indoor unit with remote control switch is required to be set as the main unit in the group. If the setting is wrong, the centralized controller cannot control the indoor units in the group.

③ The transition wiring is required because the centralized controller cannot recognize the indoor units without the remote control switch.
If the indoor unit is not connected to the remote control switch by transition wiring, either of the followings will occur.

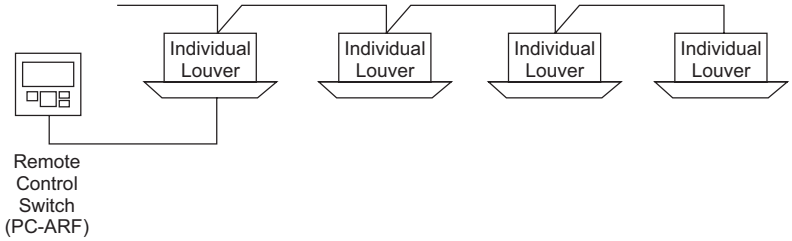
a. The centralized controller cannot recognize the indoor units not connected to the remote control switch.
b. The centralized controller cannot control the indoor unit group supposed to be remote-controlled by it.

7.4.1 Cautions for Individual Louver Setting

(1) The individual louver setting is available up to 16 indoor units by one remote control switch. The connection more than 17 indoor units are not available.

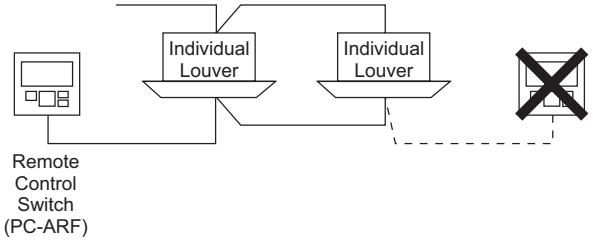


(2) The individual louver setting in the same refrigerant cycle are available up to 4 indoor units without the transition wiring for the remote control switch.



NOTE:
When the individual louver is set, the air panel shall be seen from the place of the remote control switch. In the case of connecting the multiple indoor units, pay attention to the positional relationship between remote control switch and air panel.

(3) This “Individual Louver Setting” is NOT available with 2 (two) remote control switches.



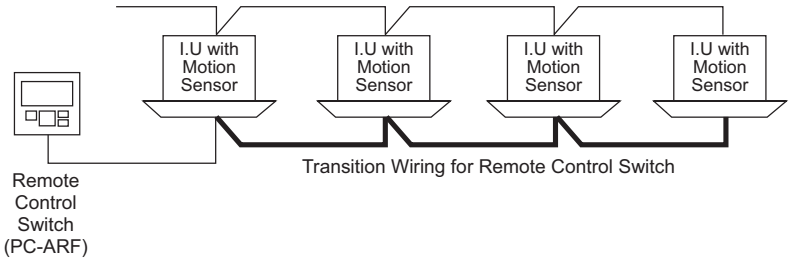
(4) The individual louver function is not for blocking the air outlet. If the air outlet is blocked, 3-Way Outlet Parts Set shall be used.

NOTE:
The air outlets can not be closed individually by the individual louver setting.

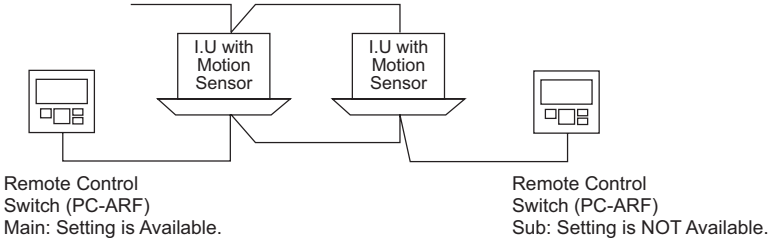
7.4.2 Cautions for Air Panel with Motion Sensor

(1) The air panel with motion sensor can be connected up to 16 indoor units by one remote control switch (PC-ARF). The air panel with motion sensor will be activated even if it is installed together with the air panel without motion sensor,

(2) When the multiple indoor units with motion sensor are controlled by one remote control switch (PC-ARF), the transition wiring for remote control switch is required to all the indoor units. If not, the indoor units with motion sensor will not be activated.



(3) In the case that 2 remote control switches are connected, the motion sensor can be set on only the main remote control switch. The sub remote control switch is for the indication only.



(4) The outdoor unit model compatible with control by motion sensor kit shall be as shown below.

< Applicable Outdoor Units for Motion Sensor Function >

Series	Models	Check of Models Supporting Motion Sensor Function
DC Inverter UTOPIA HVRNM2 Series	RAS-3HVRNM2, RAS-4HVRNM2, RAS-5HVRNM2, RAS-6HVRNM2	from the first production (March, 2012)
SET-FREE FSN2 Series	RAS-8FSN2, RAS-10FSN2, RAS-12FSN2, RAS-14FSN2, RAS-16FSN2, RAS-18FSN2, RAS-20FSN2, RAS-22FSN2, RAS-24FSN2, RAS-26FSN2, RAS-28FSN2, RAS-30FSN2, RAS-32FSN2, RAS-34FSN2, RAS-36FSN2, RAS-38FSN2, RAS-40FSN2, RAS-42FSN2, RAS-44FSN2, RAS-46FSN2, RAS-48FSN2	from ROM No. P3852 Check the ROM No. label on the outdoor unit PCB.
SET-FREE FSXN Series	RAS-8FSXN, RAS-10FSXN, RAS-12FSXN, RAS-14FSXN, RAS-16FSXN, RAS-18FSXN, RAS-20FSXN, RAS-22FSXN, RAS-24FSXN, RAS-26FSXN, RAS-28FSXN, RAS-30FSXN, RAS-32FSXN, RAS-34FSXN, RAS-36FSXN, RAS-38FSXN, RAS-40FSXN, RAS-42FSXN, RAS-44FSXN, RAS-46FSXN, RAS-48FSXN, RAS-50FSXN, RAS-52FSXN, RAS-54FSXN	from ROM No. P3817 Check the ROM No. label on the outdoor unit PCB.
SET-FREE FSXNH Series	RAS-5FSXNH, RAS-6FSXNH, RAS-8FSXNH, RAS-10FSXNH, RAS-12FSXNH, RAS-14FSXNH, RAS-16FSXNH, RAS-18FSXNH, RAS-20FSXNH, RAS-22FSXNH, RAS-24FSXNH, RAS-26FSXNH, RAS-28FSXNH, RAS-30FSXNH, RAS-32FSXNH, RAS-34FSXNH, RAS-36FSXNH	from the first production (December, 2012)
SET-FREE FSXN1 Series	RAS-8FSXN1, RAS-10FSXN1, RAS-12FSXN1, RAS-14FSXN1, RAS-16FSXN1, RAS-18FSXN1, RAS-20FSXN1, RAS-22FSXN1, RAS-24FSXN1, RAS-26FSXN1, RAS-28FSXN1, RAS-30FSXN1, RAS-32FSXN1, RAS-34FSXN1, RAS-36FSXN1, RAS-38FSXN1, RAS-40FSXN1, RAS-42FSXN1, RAS-44FSXN1, RAS-46FSXN1, RAS-48FSXN1, RAS-50FSXN1, RAS-52FSXN1, RAS-54FSXN1	from the first production

(5) The motion sensor part can not be mounted to the air panel P-AP160NA1 (without motion sensor type). (The air panel with motion sensor (P-AP160NAE) shall be used.)

(6) The remote control switch PC-ARF must be utilized. Others are not available to set the motion sensor. The remote control switch PC-AR and PC-LH3A (including the receiver kit PC-ALH) can not be used to this 4-Way Cassette type indoor units.

(7) The motion sensor function is NOT corresponding the indoor unit without remote control switch.

(8) The motion sensor can not be set from the centralized stations.

(9) The air panel with motion sensor can not be used when it is connected to the same remote control switch with an indoor unit in other refrigerant cycle which is set as the simultaneous operation.

(10) The room thermostat function is not available.

(11) In the case of RAS-HVRNM2 series or SET-FREE FSN2, FSXN outdoor unit series, the indoor unit without the motion sensor and the indoor unit with the motion sensor can be mixed.
When “If absent” is set as “Stop” on the remote control switch, both indoor units will stop.

< Use Conditions and Precaution Statements >

(1) The motion sensor detects the change of the infrared light. Therefore, it may detect the moving objects such as small animals which are difference in temperature against atmosphere. Additionally, it may detect as absence in the case of staying for long time with a bit motion or a rapid motion.
DO NOT install the air panel with motion sensor (P-AP160NAE) in the following places.
It may cause misdetection, undetectable of motion or the deterioration of the motion sensor.

* Places where ambient temperature changes drastically.
* Places where excessive force or vibration is applied to the motion sensor.
* Places where static electricity or electromagnetic waves may generate.
* Places where is interference for infrared light such as glasses or mist in a detecting area.
* Places where the lens for motion sensor is exposed in high temperature and humidity for a long time.
* Places where fluid and corrosive gas exist.
* Places where direct lights such as sunlight or headlight affect the motion sensor.
* Places where hot air from a heater, etc. affects directly the motion sensor.
* Places where the air flow returns to the motion sensor by hitting obstacles such as shelf, locker, etc.
* Places where the blower devices such as ceiling fan, ventilating fan, etc. affect the air flow from the indoor unit.
* Places where weather affects directly the surface of the motion sensor.
* Places where the lens surface may smudge or be damaged such as a dusty environment.
Pay attention that the detecting function will be decreased if the lens for motion sensor smudges.
In this case, wipe off smudges by a cotton swab soaked alcohol (Isopropyl alcohol is recommended.) or a soft cloth.
(When wiping off smudges on the lens for motion sensor, do not apply excessive force. If excessive force is applied, the resin lens may be damaged so that may cause malfunctions such as misdetection or undetectable of the motion.)

(2) Do not run the wiring for motion sensor and the power source wiring in parallel.

(3) The motion sensor detects the human activity. Therefore, if the human activity is small, the detecting area becomes smaller. Additionally, it may detect as absence even if some is in a room.

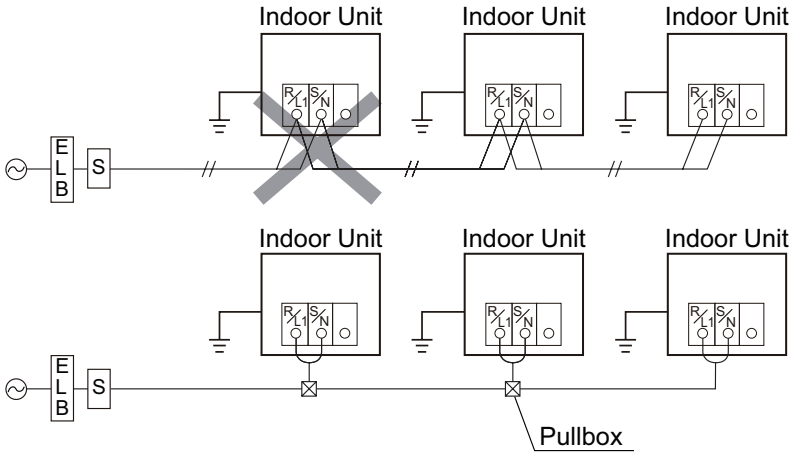
(4) The motion sensor may detect as human activity if the indoor unit with the motion sensor is installed near a moving object (ex. Swing operation of a heating appliance) which is difference in temperature against atmosphere.

(5) The motion sensor may detect as absence in the case that the indoor unit with the motion sensor is installed to a high ceiling (higher than 4m) even if someone is in a room.

(6) The motion sensor may detect when a person turns away from the motion sensor or the skin is not exposed much.

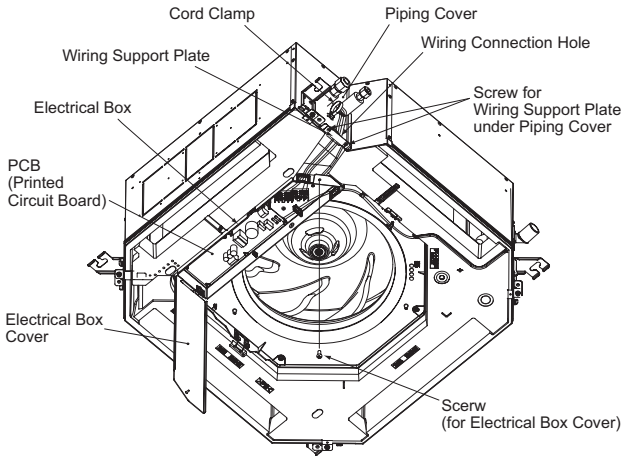
7.4.3 Caution for Electrical Wiring

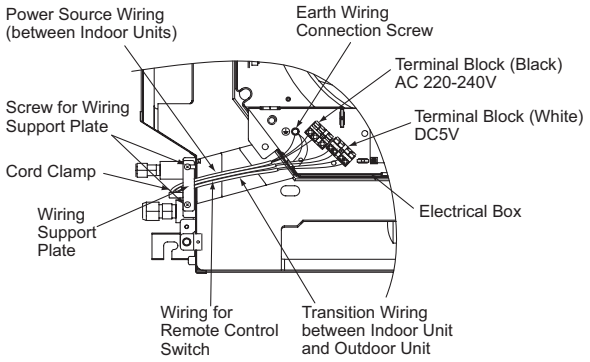
Do not fix the power source wire and the control wire to one terminal together.
The pullbox is required when the transition wiring is required.



7.5 Wiring Connection

The wiring connection for the indoor unit is shown in the figure below.





(a) Remove the electrical box cover (1 screw).
(b) Loosen two (2) screws for the wiring support plate.
(c) Fix firmly wires by the wiring support plate after the wires are installed through the wiring connection to the electrical box.
(d) Fix wires by the cord clamp of the pipe cover in order not to scratch or touch wires to the edge of other parts.
(e) After the wiring is completed, pay attention not to bite wires when attaching the electrical box.
(f) Cover a gap by the insulation (5T x 50 x 200, factory-supplied) if there is a gap at the wiring connection.

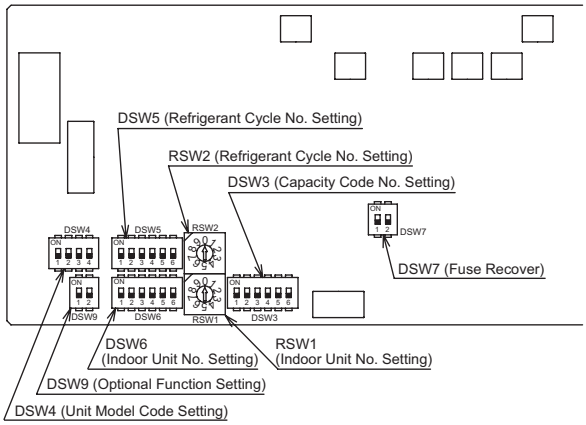
⚠WARNING

Tightly clamp wires by the cord clamp after the wiring is completed to the terminal block. If not completed, it may cause a fire by biting wires.

7.6 Dip Switches Setting

(1) Turn OFF all the power supply of the indoor unit and the outdoor unit before Dip Switch setting. If not, the setting is invalid.

(2) The positions of Dip Switches on PCB are shown in the figure below.



(3) Unit No. Setting

The indoor unit No. of all indoor units are not required. The indoor unit No. are set by the auto-address function. If the indoor unit No. setting is required, set the unit No. of all indoor units respectively and serially by following setting position. It is recommended to assign a number to each indoor unit from "1." Though Max. 64 indoor units per refrigerant cycle can be connected to H-LINK II System, available numbers range from 0 to 63. Therefore, the applicable number for the 64th indoor unit shall be "0."

For the centralized control, this setting is required.

Unit No. Setting

DSW6 (Tens Digit)	RSW1 (Units Digit)	Ex.) Set at No.16 Unit
ON / OFF 1 2 3 4 5 6	Setting Position; Set by inserting slotted screwdriver into the groove.	DSW6: ON / OFF 1 2 3 4 5 6; Set No.1 Pin at ON side; RSW1: Set at "6"
Before shipment, DSW6 and RSW1 are set at "0". (a) for Units Supporting H-LINK II The unit Nos. can be set for Max. 64 indoor units (No.0~63). (b) for Units Supporting H-LINK The unit Nos. can be set for Max. 16 indoor units (No.0~15).		

(4) Capacity Code Setting (DSW3)

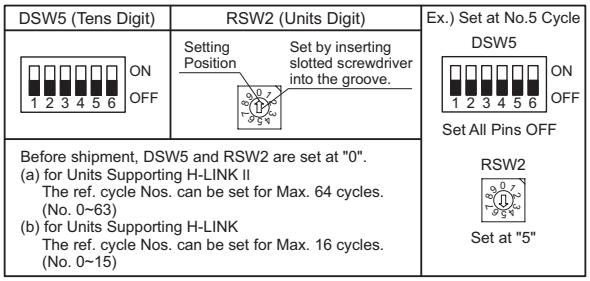
No setting is required, due to setting before shipment. This switch is utilized for setting the capacity code which corresponds to the Horse Power of the indoor unit.

Horsepower	1.0	1.5	2.0	2.5
Setting Position	ON / OFF 1 2 3 4 5 6	ON / OFF 1 2 3 4 5 6	ON / OFF 1 2 3 4 5 6	ON / OFF 1 2 3 4 5 6
Horsepower	3.0	4.0	5.0	6.0
Setting Position	ON / OFF 1 2 3 4 5 6	ON / OFF 1 2 3 4 5 6	ON / OFF 1 2 3 4 5 6	ON / OFF 1 2 3 4 5 6

(5) Unit Model Code Setting (DSW4)
No setting is required.
It is for setting the model code of the indoor unit.

(6) Refrigerant Cycle No. Setting (RSW2 & DSW5)
Setting is required. Setting positions before shipment are all OFF.

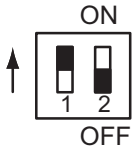
Refrigerant Cycle No. Setting



(7) Fuse Recover (DSW7)

* Factory Setting

* In the case of applying high voltage to the terminal 1 and 2 of TB2, the fuse (0.5A) on the PCB is cut.
In such a case, firstly reconnect the wirings correctly to TB2, and then turn on No.1 pin.



(8) Optional Function Setting (DSW9)
No setting is required.
Setting positions before shipment are all OFF.

NOTE

- The "■" mark indicates position of dip switches. Figures show setting before shipment.
- When the unit number and the refrigerant cycle are set, record the unit number and refrigerant cycle to facilitate maintenance and servicing activities thereafter.

NOTICE

Turn OFF all the power supply of the indoor unit and the outdoor unit before dip switch setting.
If not, the setting is invalid.

7.7 Function Selection by Remote Control Switch

Each function can be selected with the remote control switch (PC-ARF). Refer to "Installation & Maintenance Manual" and "Technical Catalog" of the remote control switch for details.

(1) High Speed Setting Function

This function is used to set the air flow volume higher than normal air flow volume. It is for high ceiling on site. Set High Speed 1 or 2 from the function selection menu depending on a ceiling height as shown in the table below.

* If the high speed 2 setting (02) is selected from the remote control switch, the air flow volume of "HIGH 2" and "HIGH" will be equaled because the air flow volumes "HIGH 2" and "HIGH" are used maximum fan speed.

Ceiling Height		High Speed Setting Function
1.0 to 3.0HP	4.0 to 6.0HP	
Less than 2.7m	Less than 3.2m	Standard
2.7 - 3.0m	3.2 - 3.6m	High Speed 1
3.0 - 3.5m	3.6 - 4.2m	High Speed 2

(2) Circulator Function at Heating Thermo-OFF

This function maintains the fan operation by the set air flow volume at the heating Termo-OFF. It is for improvement of temperature distribution at high height ceiling site.

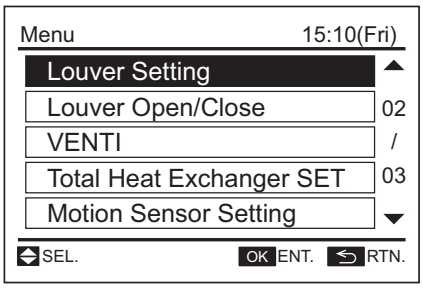
(3) Individual Louvers Setting (Number of Louver Outlet)

This setting is available only for the indoor unit adopting the individual louver. The number of individual louvers (louver outlet No.1 - 4) is changeable as shown in the following procedure. The number of individual louvers can be set when each of the louver outlet (louver outlet No.1 - 4) is set as the louver outlet No.1.

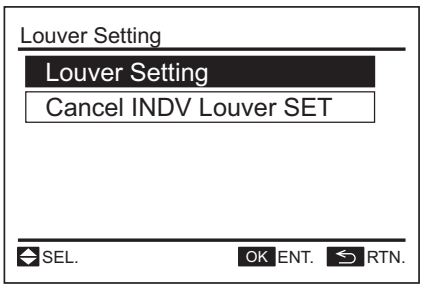
< Individual Louver Setting Procedure >

(1) Press and hold "☰" (menu) during the normal mode (when unit is operated).
The menu will be displayed.

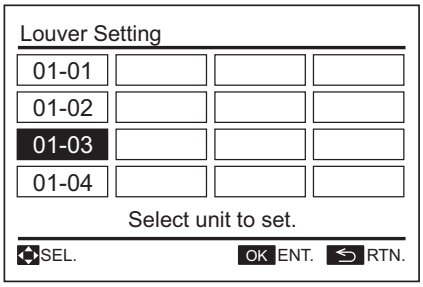
(2) Select "Louver Setting" from the menu and press "OK".
The louver setting will be displayed.



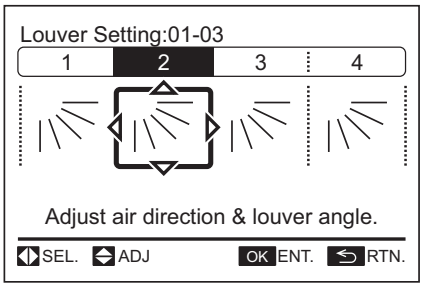
(3) Select "Louver Setting" from the louver setting and press "OK".



(4) Select the indoor unit to change the louver direction by pressing "△ ▽ ◁ ▷" and press "OK".
(This screen is NOT displayed when the number of indoor unit connected with the remote control switch is 1 (one). In the case, (5) will be displayed.)



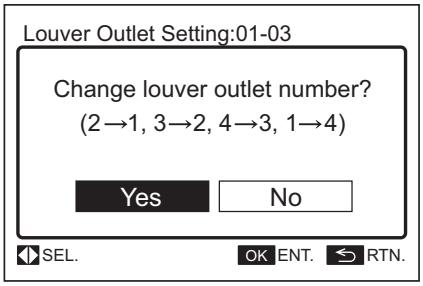
(5) Press "◁ ▷" and select the louver direction.
The selected louver is opened and the other louvers are closed.



(6) Press "☰" (menu) while "?" (help) is pressed.
The confirmation screen will be displayed.

(7) Select "Yes" and press "OK". (5) will be displayed after the setting change is confirmed.
If "No" is selected and "OK" is pressed, the screen will return to (5).

* Regarding "Louver Setting", the louver selected at (5) will be set as "No.1" and the other louver No. will be changed clockwise automatically as shown in the figure.



- This "Louver Setting" is NOT available when 2 (two) remote control switches are used in the same H-LINK. (including the combination with PC-ARF and PC-LH3A (wireless remote control switch))
- The individual louver setting is available up to 16 indoor units by one remote control switch.
- The individual louver setting with the same refrigerant cycle are available up to 4 indoor units without the transition wiring for the remote control switch.

8. Test Run

Test run should be performed according to this manual and “Installation & Maintenance Manual” of the outdoor unit.
Do not operate the system until all the check points have been cleared.

⚠WARNING

- **Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If it is less than 1 megohm, do not operate the system until the electrical leakage is found and repaired.**
- **Do not touch any of the parts at the discharge gas side by hand while the system is running, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.**

NOTICE

- Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.
- Check to ensure that the switch on the main power source has been ON for more than 12 hours, to warm the compressor oil by the crankcase heater.

8.1 Before Test Run

Recheck that there is not any problems to the installation, and do not perform the test run until all the following checking points have been cleared.

(1) Check to ensure that the refrigerant pipe and the transition wiring are connected to the same refrigerant cycle system. If they are connected incorrectly, it will cause an abnormal operation and breakage of instruments.

(2) Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminals of the electrical parts. If it is less than 1 megohm, do not operate the system until the electrical leakage is found and repaired. Do not apply the high voltage to the terminals for the transmission [TB2 (A, B, 1 and 2)].

(3) Check to ensure that each wire for main power supply is connected in correct phase. If it is incorrectly connected, the unit will not operate and the alarm code “05” will be indicated on the remote control switch. In this case, check the phase of the primary power source according to the caution label attached on the back side of the electrical box cover. Then, reconnect each wire correctly with the power supply turned OFF.

(4) Check to ensure that the main power source has been turned ON for more than 12 hours, to warm the compressor oil by the crankcase heater.

8.2 Test Run

After the installation work is completed, test run should be performed.

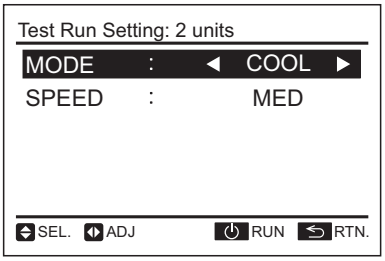
(1) Check to ensure that stop valves (for gas and liquid pipes) of the outdoor unit are fully opened.

(2) In the case that indoor units are connected to the VRF system, perform the test run of the indoor unit one by one sequentially and then check the accordance of the refrigerant piping system and the electrical wiring system. (If the multiple indoor units are operated simultaneously, the system accordance cannot be checked.)

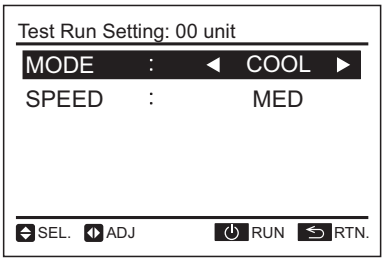
(3) Perform the test run according to the following procedure. Check to ensure that the unit operates without any problem.

(a) Press and hold “☰” (menu) and “⮌” (return) simultaneously for at least 3 seconds. The test run menu will be displayed.

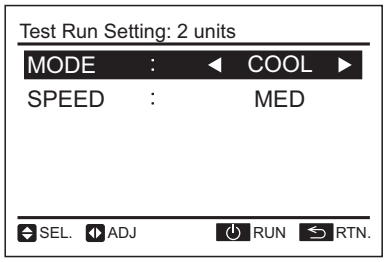
1) The test run menu will be displayed.
Test Run Screen



NOTE
If “00 unit” is indicated, the auto address function might have been enabled. Cancel “Test Run” mode and set it again.



2) The total number of connected indoor units is indicated on the LCD (Liquid crystal display). In the case of the twin combination (a set of two (2) indoor units), the total number of connected indoor units is indicated as “2 units”, and in the case of the triple combination (a set of three (3) indoor units), the total number of connected indoor units is indicated as “3 units”.

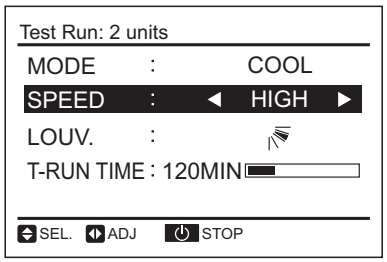


3) If the number of connected indoor units displayed on LCD is incorrect, the auto-address function is not performed correctly due to incorrect wiring, the electric noise, etc. Turn OFF the power supply, and correct the wiring after checking the following points; (Do not repeat turning ON and OFF within 10 seconds.)

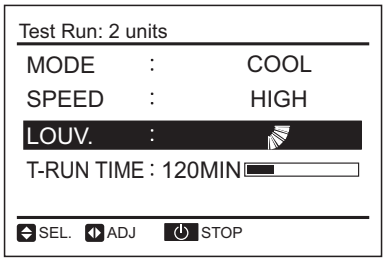
* Failure To Turn ON Power Supply For Indoor Unit
* Incorrect Wiring
* Loose Connection between Indoor Units or of Remote Control Switch
* Incorrect Setting of Indoor Unit Address (The indoor unit address is overlapped.)

4) Press “⏻” (run/stop) to start the test run.
5) Press “△ ▽ ◁ ▷” and set each item.

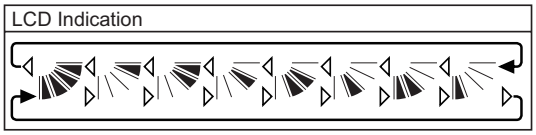
(b) Press “⏻” (run/stop).
As the air flow volume “HIGH” (default setting) is indicated and the RUN indicator turns ON and then the test run operation starts. 2-hour OFF timer will be set automatically.



(c) Press “△” or “▽”, select “LOUV.” and select “ ” (auto swing) by pressing “◁” or “▷”. Then the auto swing operation starts. Check the operating sound of the louvers. If an abnormal sound is generated from louvers, it may be caused by a deformation of the air panel due to incorrect installation. In this case, install the air panel again without a deformation If an abnormal sound is not generated, press “◁” or “▷” again to stop the auto swing operation.

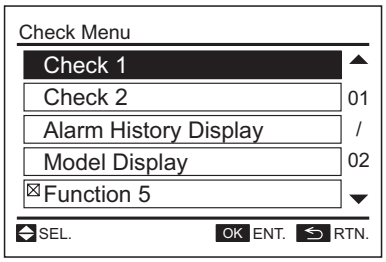


The louver indication will be changed as follows.



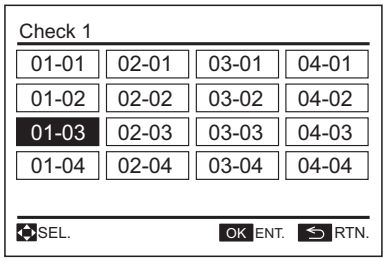
(d) Check to ensure that the motion sensor is operated correctly as following procedures (in the case of the air panel with the motion sensor).
1) Press and hold “☰” (menu) and “?” (help) simultaneously for at least 3 seconds during the test run mode. The check menu screen “A” is displayed.

“A”



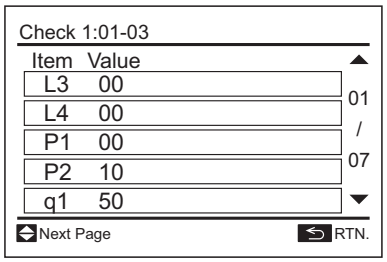
2) Select “Check 1” at the check menu and press “OK”. (screen “B” will be displayed.)
(This screen is NOT displayed when the number of indoor unit connected with the remote control switch is 1(one). In this case, screen “C” will be displayed.)

“B”



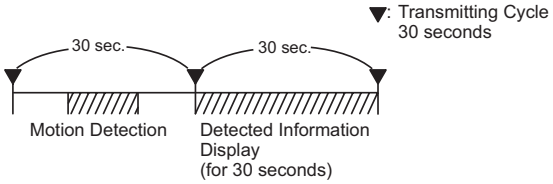
3) Select the indoor unit by pressing “△ ▽ ◁ ▷” and press “OK”. The check data screen “C” will be displayed.

“C”



4) Press “△ ▽” to change the screen until indicating the check screen “q1”.
5) Perform the motion detection (waving a hand, etc) under the motion sensor of the indoor unit selected with for approx. 10 to 15 seconds.
6) Check the value of “q1” after 30*1 seconds from starting the motion detection at item 5). The detecting information of the motion sensor against the motion detection is indicated with the range of 0% to 100%.

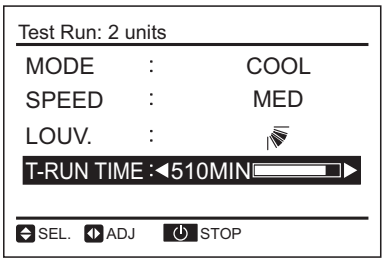
*1: The transmission between the indoor unit and the remote control switch is 30 seconds cycle. The timing of the motion detection and the detected information display is shown in the figure below.



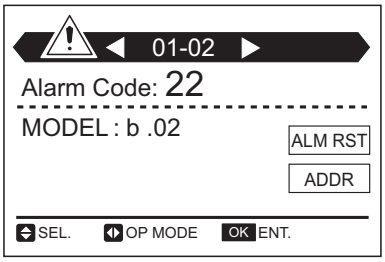
NOTE:
Refer to “Operation Manual” (P5414946) of indoor unit for the setting method of motion sensor. (“Motion Sensor Setting”, “If Absent” and “Check Interval” can be set.)

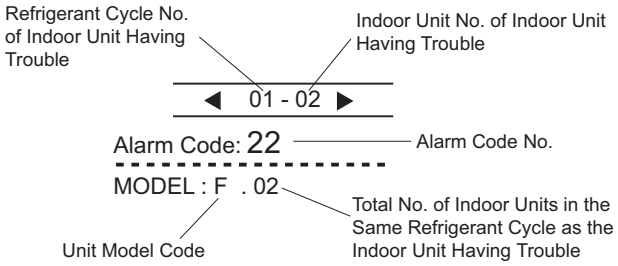
7) Check that the value of “q1” is neither 0% nor 100%.
If the value is indicated 0% or 100%, reperform the procedure from item 5). If the same value is indicated again, it may be a malfunction of the motion sensor.
8) Press “⮌” (return) and return to the display.

(e) Though the temperature detections by the thermistors are invalid, the protection devices are valid during the test run.
(f) SET-FREE Series:
According to the label “Checking of Outdoor Unit by 7-Segment Display on PCB1” attached to the back side of the front cover of the outdoor unit, check 7-segment displays for temperature, pressure and the operation frequency, and connected indoor unit numbers.
(g) To finish the test run, press “⏻” (run/stop) again or wait for the set test run time (default setting: 2 hours) to pass.
When changing the test run time, press “△” or “▽” to select “T-RUN TIME”. Then, set the test run time (30 to 600 minutes) by pressing “◁” or “▷”.



- The RUN indicator on the remote control switch flashes when some abnormalities such as activation of protection devices occur during the test run. Additionally, the alarm code, the unit model code and number of connected indoor units will be displayed on the LCD as shown in the figure below.
  If the RUN indicator on PC-ARF flashes (2 seconds ON/ 2 seconds OFF), it may be a failure in the transmission between the indoor unit and the remote control switch (loose connector, disconnected wiring or broken wire, etc.). In this case, Check the alarm (abnormality) code table shown in the next page and perform for troubleshooting. Consult to authorized service engineers if abnormality can not be recovered.





< Unit Model Code >
The relation between the unit model code and the unit model is shown in the table below.

Indication	Unit Model
F	Multi-Split (Heat Pump Operation/Heat Recovery)
b	DC Inverter UTOPIA
E	Except Above Models

Alarm (Abnormality) Code Table

Code No.	Category	Content of Abnormality	Leading Cause
01	Indoor Unit	Activation of Protection Device (Float Switch)	Activation of Float Switch (High Water Level in Drain Pan, Abnormality of Piping)
02	Outdoor Unit	Activation of Protection Device (except Alarm Code: 41, 42)	High Pressure Cut (R410A: 4.15MPa), Fan Motor Locking for Outdoor at Cooling Operation
03	Transmission	Transmission Failure between Indoor and Outdoor	Incorrect Wiring, Loose Terminals, Disconnected Wire, Blowout of Fuse
04-09	Abnormality of Outdoor Unit (Refer to "Installation & Maintenance Manual" of Outdoor Unit)		
11	Sensor on Indoor Unit	Inlet Air Thermister Failure	Loose Connector, Disconnected Wire, Wire Breaking
12		Outlet Air Thermister Failure	
13		Freeze Protection Thermister Failure	
14		Gas Pipe Thermister Failure	
19	Fan Motor	Abnormal Indoor Fan	Fan Motor Locking, Activation of Motor Protection Control for Indoor Fan
20-29	Abnormality of Outdoor Unit (Refer to "Installation & Maintenance Manual" of Outdoor Unit)		
31	System	Incorrect Capacity Setting of Outdoor Unit and Indoor Unit	Incorrect Capacity Code Setting of Combination Excessive or Insufficient Total Indoor Unit Capacity Code
32		Incorrect Setting of Other Indoor Unit Number	Abnormality of Other Indoor Unit in Same Refrigerant Cycle (Failure of Power Source, Abnormality of PCB)
35		Incorrect Setting of Indoor Unit No.	Duplication of Indoor Unit No. in Same Refrigerant Group
36		Incorrect Indoor Unit Combination	Indoor Unit is Designed for Other Refrigerant (R22 or R407C).
38-59	Abnormality of Outdoor Unit (Refer to "Installation & Maintenance Manual" of Outdoor Unit)		
b0	System	Incorrect Setting of Unit Model	No Setting of Unit Model, Incorrect Setting of Unit Model
b1		Incorrect Setting of Unit and Refrigerant Cycle No.	Unit No. or Refrigerant Cycle ≥ 64
EE	Compressor	Compressor Protection Alarm	This alarm code appears when the alarms such as damaged to the compressor occur three times within 6 hours.

- The indication of the alarm code “EE” means serious abnormality to burn out the compressor
- In the case of the incorrect transmission wiring between indoor units for the twin and the triple combination, the following failure will occur during the test run. Recheck the connection of the transmission between indoor units and reconnect wirings correctly.

  Failure: The transmission error is NOT indicated on the remote control switch. No.1 indoor unit will be operated. However, the other indoor units (No.2 and No.3) will NOT be operated.

Refer to “Installation & Maintenance Manual” of the outdoor unit connected to the indoor unit.

(4) for UTOPIA Series: In the case of the twin, triple and quad combination, check the air flow temperature of each indoor unit. If there is a large difference in the air flow temperature between the main unit and sub unit(s) (cooling: more than approx. 10deg., heating: more than approx. 20deg.), there may be a failure in refrigerant piping work. Thus, recheck the refrigerant piping.

NOTICE

Do NOT operate the air conditioning to check the electrical wiring, etc until the preparation of the test run is completed.

9. Safety and Control Device Setting

Indoor Unit

Model			RCI-1.0FSN3, RCI-1.5FSN3, RCI-2.0FSN3, RCI-2.5FSN3, RCI-3.0FSN3	RCI-4.0FSN3, RCI-5.0FSN3, RCI-6.0FSN3
For Evaporator Fan Motor				
Thermostat	Cut-Out	°C	100 $\pm^{4}$	100 $^{+15}_{-10}$
	Cut-In	°C	90 $\pm^{4}$	95 $^{+15}_{-10}$
For Control Circuit				
Fuse				
Capacity		A	5	
Freeze Protection				
Thermostat	Cut-Out	°C	0	
	Cut-In	°C	11	
Thermostat				
Differential		°C	2	

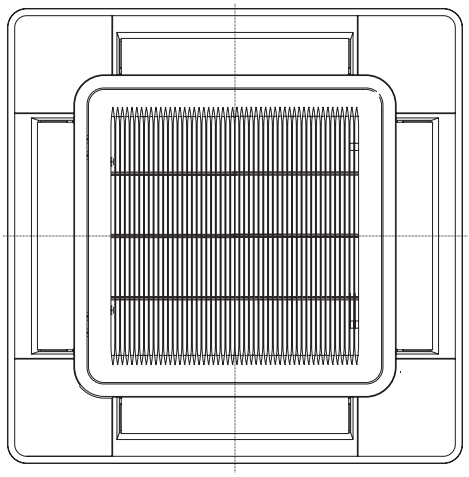
All the installation work of the air conditioning is completed.
Deliver and describe to keep this “Installation & Maintenance Manual” to a user.

HITACHI

Installation Manual

For Air Panel

Model: P-AP160NA1
P-AP160NAE



IMPORTANT:

READ AND UNDERSTAND THIS MANUAL BEFORE USING THIS AIR PANEL. KEEP THIS MANUAL FOR FUTURE REFERENCE.

17B47804A

IMPORTANT NOTICE

- The standard utilization of this air panel is explained in these instructions.
  Improper operation, or operation not made in accordance with these instructions, can result in unsatisfactory operation and/or dangerous conditions. In such cases, the warranty does not apply.
- HITACHI's liability shall not cover defects arising from any alteration performed by a customer.
- All information in this manual is based on the latest product information available at the time of approval for printing. HITACHI reserves the right to make changes at any time without notice and without incurring any obligation.
- No part of this manual may be reproduced without written permission.
- Perform the test run whether there is abnormality or not after the installation work is completed.
  The usage and the maintenance should be explained to a user according to "Installation & Maintenance Manual" of the indoor unit. Describe to keep this installation manual also.
- This product is designed for standard air conditioning only.
  DO NOT use this product for specific purposes, such as restoring foods, animals & plants, precision devices, art objects, etc.
- DO NOT install the unit in the following places. It causes failure to the unit in many cases.
  * Places where oil (including machinery oil) mist and steam drifts.
  * Places where a lots of sulfide gas drifts such as in hot spring.
  * Places where inflammable gas may generate or flow.
  * Places where air contains high salt contents as coast regions.
  * Places where with atmosphere of acidity or alkalinity.
- Pay attention to the following points when the unit is installed in a hospital or other facilities where electromagnetic wave generates from medical equipment.
  * Do not install the unit in the place where the electromagnetic wave is directly radiated to the electrical box, remote control switch cable or remote control switch.
  * Install the unit at least 3 meters away from electromagnetic wave such as a radio.
- DO NOT install the unit in the place where the air flow directly catches to animals or plants.
  It could be the cause of adverse affect to animals or plants.
- DO NOT install the air panel with motion sensor (P-AP160NAE) in the following places.
  It may cause misdetection, undetectable of motion or the deterioration of the motion sensor.
  * Places where ambient temperature changes drastically.
  * Places where excessive force or vibration is applied to the motion sensor.
  * Places where static electricity or electromagnetic waves may generate.
  * Places where is interference for infrared light such as glasses or mist in a detecting area.
  * Places where the lens for motion sensor is exposed in high temperature and humidity for a long time.
  * Places where fluid and corrosive gas exist.
  * Places where direct lights such as sunlight or headlight affect the motion sensor.
  * Places where hot air from a heater, etc. affects directly the motion sensor.
  * Places where the air flow returns to the motion sensor by hitting obstacles such as shelf, locker, etc.
  * Places where the blower devices such as ceiling fan, ventilating fan, etc. affect the air flow from the indoor unit.
  * Places where weather affects directly the surface of the motion sensor.
  * Places where the lens surface may smudge or be damaged such as a dusty environment.
    Pay attention that the detecting function will be decreased if the lens for motion sensor smudges.
    In this case, wipe off smudges by a cotton swab soaked alcohol (Isopropyl alcohol is recommended.) or a soft cloth.
    (When wiping off smudges on the lens for motion sensor, do not apply excessive force. If excessive force is applied, the resin lens may be damaged so that may cause malfunctions such as misdetection or undetectable of the motion.)

SAFETY SUMMARY

< Signal Words>

● The following signal words are used to identify levels of hazard seriousness.
Definitions for identifying hazard levels are provided below with their respective signal words.

⚠WARNING : WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION : CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE : NOTICE is used to address practices not related to personal injury.

NOTE : NOTE is useful information for operation and/or maintenance.

⚠WARNING

- Perform securely the installation work referring to this installation manual.
  If the installation is not completed, it may cause dew condensation by air leakage, electric shock, a fire or injury by falling down the air panel.
- DO NOT install the air panel where the flammable gases may generate or enter.
  It may cause a fire.
- DO NOT put any material on the products. DO NOT step on the products.
  It may cause injury due to falling down.
- Avoid touching a forming agent to the air panel if using the forming agent after installing the air panel.
  If the forming agent is touched to the air panel, it may cause a breakage and the falling down the air panel.
- Perform securely the electrical wiring work.
  If the electrical work is not completed, heat generation at the connection, a fire or an electric shock may occur.
- Make sure that the electrical wires are securely fixed in order not to apply an external force to the terminal connections of the wirings. If fixing is not completed, it may cause heat generation or a fire.

⚠CAUTION

- Pay attention to perform the installation work at high-place using a stepladder, etc.

NOTICE

- DO NOT move the louver by hand. If moved, the louver mechanism will be damaged.
  In addition, do not apply an excessive force to the air outlet part to prevent the breakage.
- DO NOT run the relay wiring for motion sensor at the corner pocket cover and 220-240V of the power source wires in parallel. It may cause malfunction of motion sensor by noise, etc. (for P-AP160NAE).

CHECKING PRODUCT RECEIVED

- Upon receiving this product, inspect it for any shipping damage.
  Claims for damage, either apparent or concealed, should be filed immediately with the shipping company.
- Check the model number and accessories to determine if they are correct.

1. Applicable Model

This air panel is applicable to the following indoor unit model.

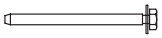
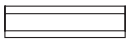
Air Panel	Indoor Unit Model
P-AP160NA1 (without Motion Sensor)	RCI-1.0FSN3 to 6.0FSN3
P-AP160NAE (with Motion Sensor)	

2. Transportation and Handling

1) Transport the air panel without unpacking as close to the installation location.
2) Mount the air panel as soon as possible after unpacking.
3) When the air panel is placed on the floor after unpacking, place it with the rear side downward (the surface to fit the indoor unit body) on an insulation material, etc. However, do not leave the air panel on the floor for long time. It may cause air leakage due to scratch the seal packing.
   In addition, if the air panel is placed with the surface downward, the louver mechanism may be damaged due to touch the louver to the floor, etc.
4) Do not move the louver by hand.
   If moved, the louver mechanism will be damaged.

3. Before Installation

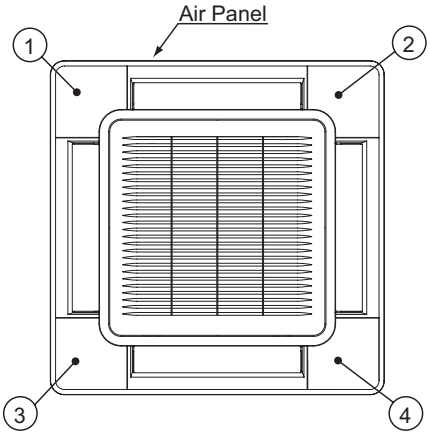
1) Check to ensure that the following accessories are packed with the air panel.

Name	Q'ty		Purpose
	P-AP160NA1	P-AP160NAE	
Long Screw (M6 Cross Screw) 	4	4	For Fixing Air Panel
Relay Wire  3Poles 5Poles	-	1	For Motion Sensor
Wiring Cover 	-	1	For Protection of Relay Connector
Plastic Band 	-	3	For Clamping Wiring Cover and Relay Connector

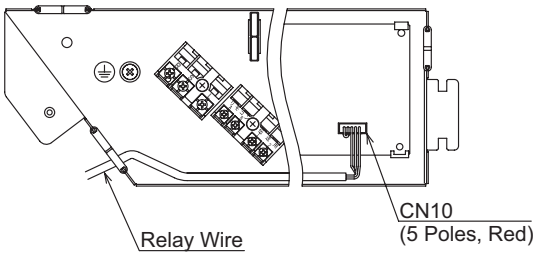
If any of these accessories are not packed in the packing, please contact your contractor.

2) Attachment for Corner Pocket Cover with Motion Sensor (For P-AP160NAE)

(a) The corner pocket cover with motion sensor can be attached to any of corners (4 directions, ①, ②, ③ and ④).
Determine the attaching place as user's request.

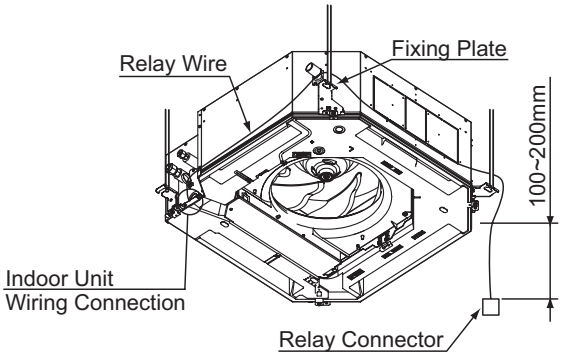


(b) Remove the electrical box and connect the relay wire (attached in the air panel) to CN10 in the electrical box as the following figure.



NOTE:
The wiring connections and the dip switch settings for other optional accessories should be referred "Installation and Maintenance Manual" of the optional accessories for the indoor unit.

(c) After connecting the relay wire to CN10, take it out to inside the ceiling.
Then, run it to the corner pocket cover with motion sensor. The wiring connection at the indoor unit should be referred “Installation and Maintenance Manual” of the indoor unit. When running the relay wire, run it to the corner pocket cover with motion sensor through the top of fixing plate for the indoor unit.
After running the relay wire, take the distance (from 100mm to 200mm) from the corner pocket cover to the relay connector as shown in the figure below.
After running the relay wire, clamp the extra length of the relay wire by the plastic band and store it at inside the ceiling.



4. Installation

⚠CAUTION

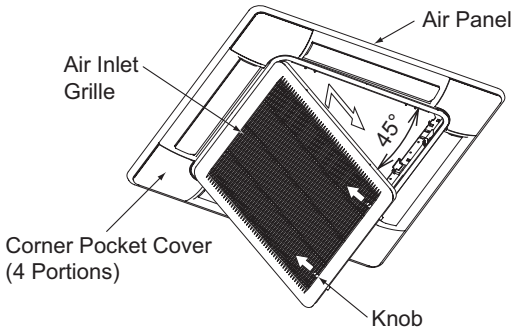
Pay attention to perform the installation work at high-place using a stepladder, etc.

NOTICE

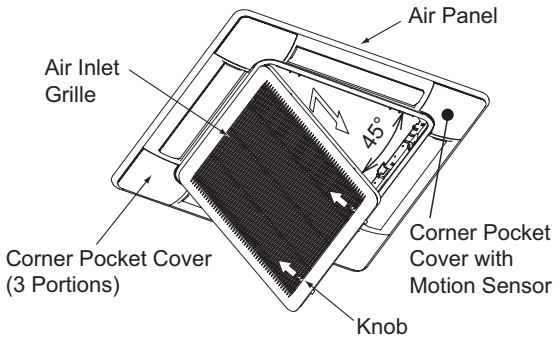
Do not move the louver by hand.
If moved, the louver mechanism will be damaged.
In addition, do not apply an excessive force to the air outlet part to prevent the breakage.

1) The suspension height of the indoor unit should be referred to “Installation & Maintenance Manual” of the indoor unit.
2) Do not touch the louver during the installation work.
3) Remove the air inlet grille from the air panel. While pushing both ends of knobs at the air inlet grille toward the arrow direction, open the air inlet grille until the angle of approximately 45° from the air panel surface. After lifting the air inlet grille keeping it inclined, draw the air inlet grille forward. (Remove the filament tape (4 portions) fixing the air filter.)

< P-AP160NA1 >



< P-AP160NAE >

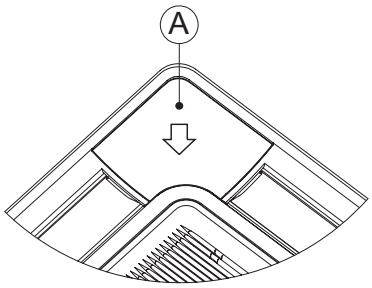


NOTE

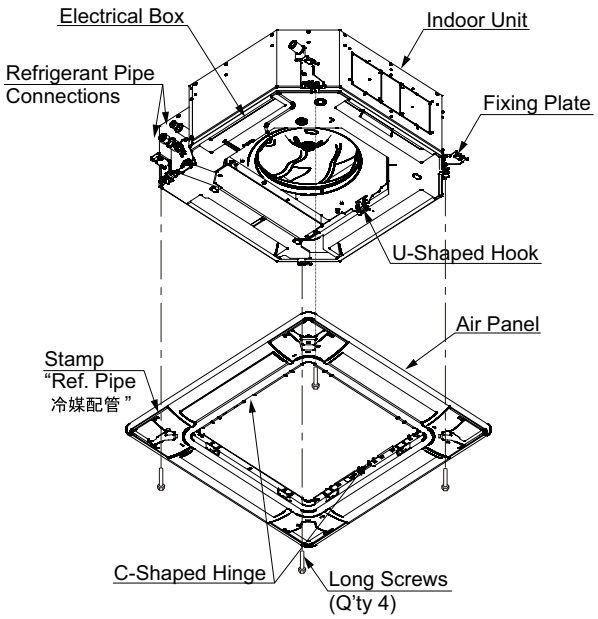
Although the air inlet grille can be opened until the angle of 90° from the air panel surface, it can not be removed from the air panel.

4) Remove the corner pocket covers.
< P-AP160NA1 >
The corner pocket covers can be removed pulling Ⓐ part toward the arrow direction in the figure below.

< P-AP160NAE >
Remove the corner pocket covers and the corner pocket cover with motion sensor. They can be removed pulling Ⓐ part toward the arrow direction in the figure below.



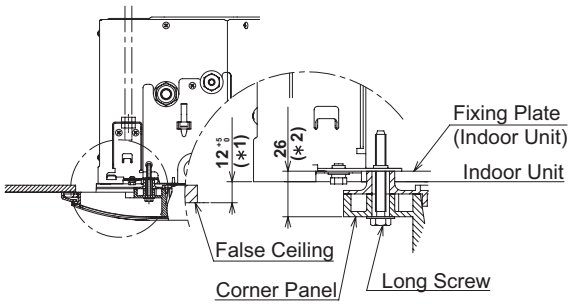
5) Pull down the U-shaped Hooks (2 portions) located at the indoor unit side.
6) Mount the air panel temporarily. Fit the corner position of the refrigerant pipe connection at the indoor unit and the position stamped as “Ref. Pipe 冷媒配管”. Then, catch the C-shaped hinges (2 portions) onto the U-shaped hooks (2 portions).
7) Fix the air panel to the fixing plate by factory-supplied long screws (M6 cross screws).



NOTE

- The fixing position of long screws for the air panel is inside the corner hole. Securely remove the corner pocket covers before mounting the air panel.
- Securely fit the corner position of the refrigerant pipe connection at the indoor unit and the position stamped as “Ref. Pipe 冷媒配管”. If not, it may cause air leakage.
- In the case of removing the corner pocket covers, if other part than Ⓐ is pulled, the fixing hook of the corner pocket cover may be damaged.

8) Check to ensure that the distance between the indoor unit undersurface and the false ceiling undersurface is 12 $^{+5}_{0}$mm (∗1) as shown in the figure below.
Tighten the long screws until touching the stopper to the fixing plate. Check to ensure that the distance between the fixing plate undersurface and the corner panel undersurface is 26mm (∗2) as shown in the figure below.
When tightening the long screws to prevent air leakage and to be no gap between the false ceiling surface and the indoor unit, the inner circumference of the air panel (the position to attach the air inlet grille) may be slightly deformed.
However, it is not abnormality.

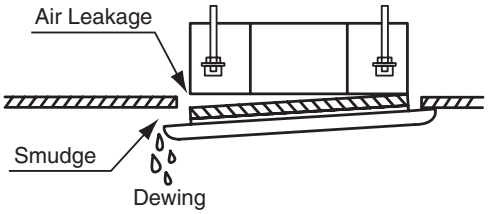


NOTE

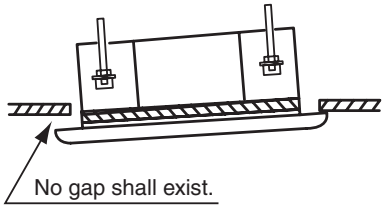
- The standard installation dimension between the indoor unit undersurface and the false ceiling surface is 12 $^{+5}_{0}$mm. If the position and the levelness of the indoor unit are not correct, the air panel can not be installed correctly.
- In the case that the air panel is mounted with the filter box (optional accessory), secure the installation distance between the indoor unit undersurface and the false ceiling surface according to “Installation & Maintenance Manual” of the filter box.

NOTICE

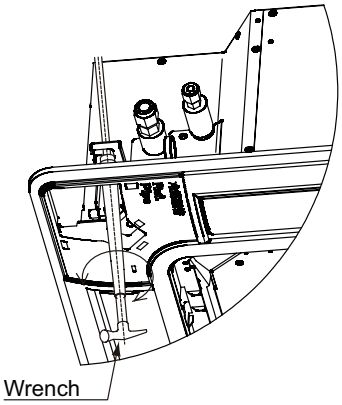
● Firmly tighten the long screws. If the long screws are tightened insufficiently, it may cause the following failures.



● When there is still the gap even after tightening firmly the long screws sufficiently, readjust the height of the indoor unit.



● The indoor unit height is adjustable from the corner hole if the levelness of the indoor unit, the drain piping, etc. are not affected by the adjustment.



NOTE:
The significant height adjustment will cause water leakage from the drain pan.

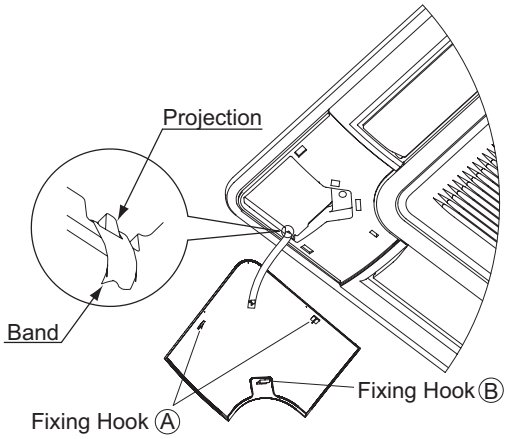
9) If using a forming agent after installing the air panel, avoid touching the forming agent to the air panel. If the forming agent is touched to the air panel, it may cause the breakage and the falling down the air panel. In this case, completely wipe off the touched forming agent.

10) Attachment of Corner Pocket Cover

< For P-AP160NA1 >

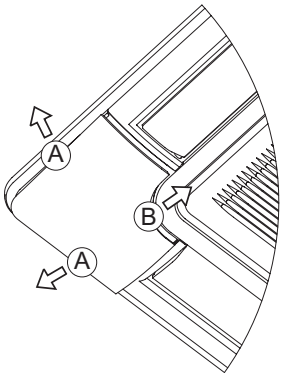
Attach the corner pocket covers (4 portions) after the air panel is mounted completely.

(a) Catch the band at the rear side of the corner pocket cover onto the projection at the air panel as shown in the figure below.



NOTE:
Catch securely the band onto the projection. If not, the comer pocket cover may fall down when removing it so that may cause injury.

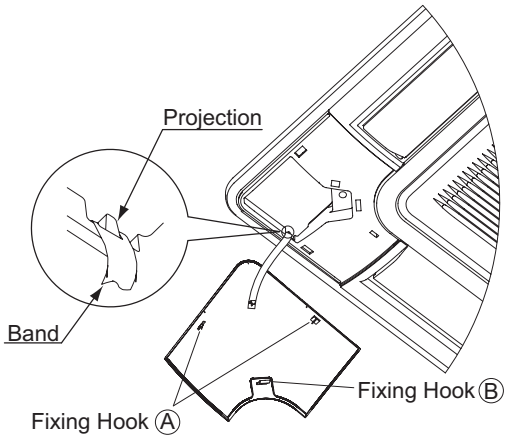
(b) Insert the fixing hooks (2 portions) at Ⓐ to the air panel and insert the fixing hook (1 portion) at Ⓑ to the air panel.



NOTE:
Catch securely the fixing hooks of the corner pocket cover to the air panel.

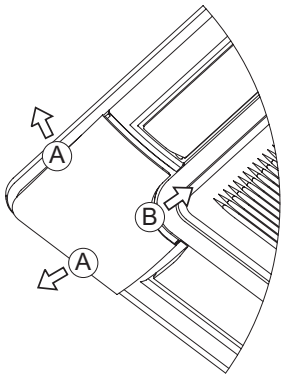
< For P-AP160NAE >
Attach the corner pocket covers (3 portions) and the corner pocket cover with motion sensor (1 portion) after the air panel is mounted completely.

(a) Catch the band at the rear side of the corner pocket cover onto the projection at the air panel as shown in the figure below (for 3 corners).



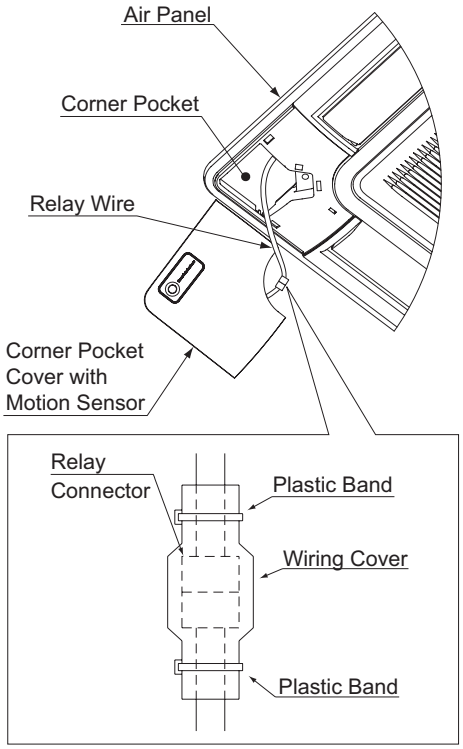
NOTE:
Catch securely the band onto the projection.
If not, the comer pocket cover may fall down when removing it so that may cause injury.

(b) Insert the fixing hooks (2 portions) at Ⓐ to the air panel and insert the fixing hook (1 portion) at Ⓑ to the air panel (for 3corners).

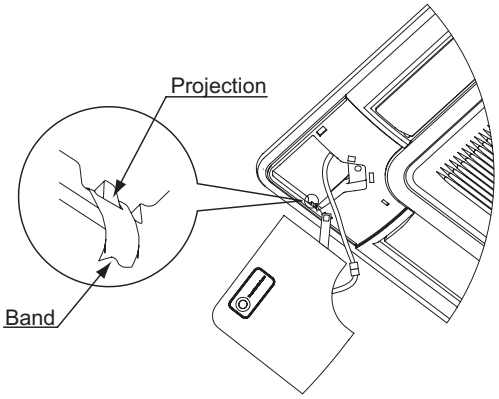


NOTE:
Catch securely the fixing hooks of the corner pocket cover to the air panel.
If not, the fixing hooks will be damaged.

(c) Draw out the relay wire from the corner pocket of the air panel. Connect the wiring for motion sensor at the corner pocket cover to the relay connector as the following figure.
After connecting, cover the relay connector connection by the wiring cover and fix the wiring cover by the plastic bands.

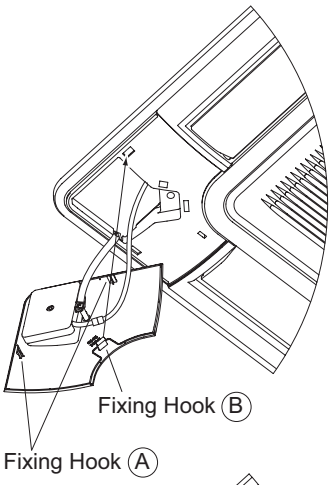


(d) Catch the band at the rear side of the corner pocket cover with motion sensor onto the projection at the air panel as shown in the figure below.



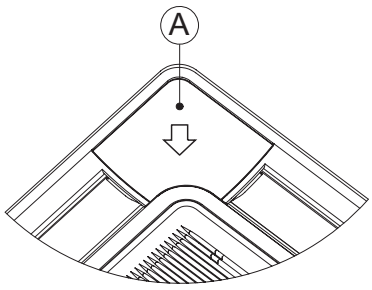
NOTE:
Catch securely the band onto the projection.
If not, the comer pocket cover may fall down when removing it so that may cause injury.

(e) While pushing the wiring into the corner pocket, insert the fixing hooks (2 portions) at Ⓐ to the square hole at the air panel, and push the corner pocket cover toward the arrow direction (Ⓐ). Then, insert the fixing hook (1 portion) at Ⓑ to the square hole at the air panel.



NOTE:
Catch securely the fixing hooks of the corner pocket cover to the air panel.
If not, the fixing hooks will be damaged.

11) In Case of Removing Corner Pocket Cover
Remove the corner pocket covers.
The corner pocket covers can be removed pulling Ⓐ part toward the arrow direction.

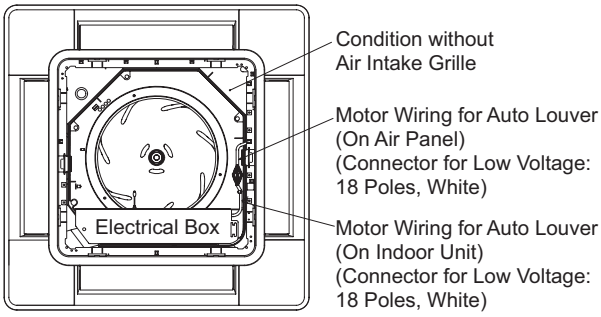


5. Electrical Wiring

⚠ WARNING

- **Perform securely the electrical wiring work. If the electrical work is not completed, heat generation at the connection, a fire or an electric shock may occur.**
- **Make sure that the wires are securely fixed in order not to apply an external force to the terminal connections of the wirings. If fixing is not completed, heat generation or a fire will occur.**

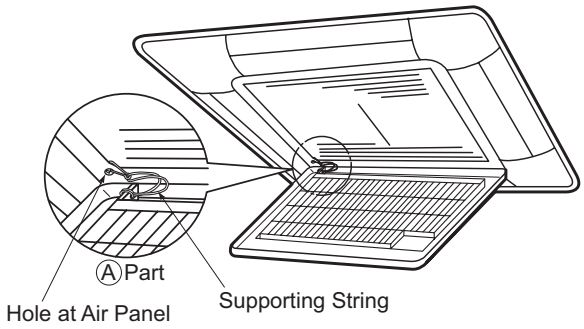
1) The following connectors are used in the air panel. Remove the tape fixing the wiring connectors on the air panel and pull out them as shown in the figure below. Connect them with the wiring connectors on the indoor unit.



NOTICE

Before the electrical wiring work, turn OFF the power source. If the connectors are connected without turning OFF the power source, the auto swing louver can not activate.

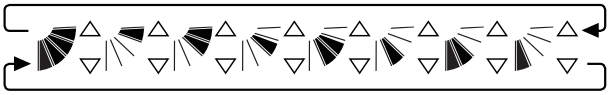
2) After completing the wiring connection of the air panel, attach the air inlet grille. Perform the attaching work in the reverse procedure of removing. (Refer to item 3) of “Installation”.) Hook the swivel of the supporting string at Ⓐ to the hole at the air panel. The air inlet grille can be attached from any 4 directions by rotating it. When multiple indoor units are installed or requested from a user, the air intake grille direction can be selected freely.



6. Test Run

1) After completing the installation of the air panel, the test run should be performed according to "Installation & Maintenance Manual" of the indoor unit.
2) Perform the checking work for the louver during the test run (For PC-ARF). Do not move the louver by hand. If moved, the auto-swing mechanism will be damaged.
   (a) Press "⏻" (run / stop), and the operation is started. Select the air flow direction by "◁" or "▷".
   (b) The louver angle is changed by pressing "△" or "▽".

LCD Indication



The auto swing operation will be started to select "" (auto swing). At this time, LCD indication displays the swing repeatedly.

7. Adjusting Louvers

Procedures for Adjusting Louvers and Air Flow Direction

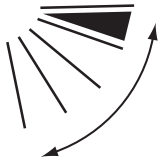
Step 1
Switch ON the main power source.

Step 2
Start the fan operation by pressing "⏻" (run / stop) on the remote control switch.

Step 3
Press "△" or "▽" and select "" (auto swing). The auto swing operation is started, and is stopped by pressing this switch again.

Step 4
LCD indication shows the position of the swing louvers.

< Auto Swing Operation >



The mark "" moves continuously.

< Fixed Louver Angle >

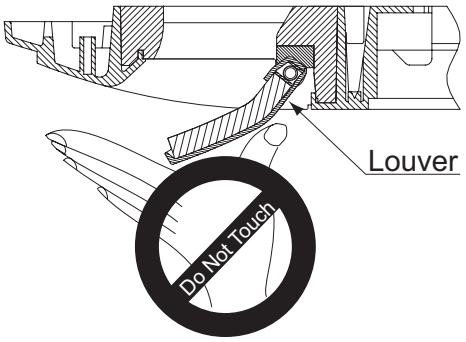
The mark "" indicates the position of louvers.

NOTICE

- The adequate air flow direction may differ depending on the conditions (air conditioner's installation position, room structure or furniture layout, etc.) If the cooling or the heating is not well, adjust the air flow direction.
- The position of the louvers may not coincide with the louver position indicator on LCD during the auto swing operation. When fixing the louver angle, set it according to the louver position on LCD.
- Even if "△" or "▽" is pressed to stop the auto swing, the louver may not be stopped soon.
- If the cooling operation is performed under the condition with over 80% humidity, dew condensation may occur at the air panel or the louver.

⚠CAUTION

Do not move the louver by hand. If moved, the louver mechanism will be damaged. In addition, do not apply an excessive force to the air outlet part to prevent the breakage.



Installation & Maintenance Manual
Wired Remote Control Switch (Model: PC-ARF)

HITACHI

IMPORTANT:
READ AND UNDERSTAND THIS MANUAL BEFORE USING THIS WIRED REMOTE CONTROL SWITCH.
KEEP THIS MANUAL FOR FUTURE REFERENCE.

IMPORTANT NOTICE:
- No part of this manual may be reproduced without written permission.
- Signal words are used to identify levels of hazard seriousness. Definitions for identifying hazard levels are provided below with their respective signal words.

⚠ DANGER : DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING : WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION : CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE : NOTICE is used to address practices not related to personal injury.

NOTE : NOTE is useful information for operation and/or maintenance.

1. Safety Summary

This product has been designed for the air conditioning system.

- **DO NOT install the indoor unit, outdoor unit, remote control switch and cable in the following places;**
  1. **where oil vapor or oil is dispersed (It may cause a fire, deformation, corrosion or failure.)**
  2. **where the hot springs are near (in a sulfuric environment)**
  3. **where the sea is near (in the salty environment) (It may cause corrosion.)**
  4. **an acid or alkaline environment**
  5. **where children can touch**
  6. **where discharge air from the unit directly blows**
  7. **a place with humid atmosphere**
  8. **a place possibility of water wetting**
  9. **a place of poorly ventilated**
- **In order to protect the unit from malfunction, pay attention to the following points when the unit is installed in a hospital or other facilities where electromagnetic wave is generated from medical equipment.**
  1. **DO NOT install the indoor unit, outdoor unit, remote control switch and cable within approximately 3 meters from strong electromagnetic wave radiators such as a radio.**
  2. **In case that the remote control switch is installed in a place where electromagnetic wave radiation is generated, shield the remote control switch and cables by covering with the steel box and running the cable through the metal conduit tube.**
  3. **In case that electric noise is applied at the power source for the indoor unit, provide a noise filter.**
- **When the function selection of "Thermistor of Remote Control Switch" is used, do NOT install the unit in the following places;**
  1. **where the average room temperature cannot be detected**
  2. **where it is exposed to the direct sunshine**
  3. **where it is close to the heat source**
  4. **where the outside air blows when door is opened/closed**

⚠ DANGER

- **DO NOT pour water into the remote control switch (hereafter called "controller". This product is equipped with electrical parts. If poured, it will cause a serious electrical shock.**
- **Prior to the installation work, ensure that foundation is flat, level and sufficiently strong and then fix the unit securely. If the foundation is not strong enough, it may lead to injuries caused by falling of the product, electrical shock or fire.**
- **DO NOT install the unit in a place where generation, flowing, staying or leaking of flammable gas is detected.**
- **DO NOT perform installation work and electrical wiring connection by yourself. Contact your distributor or dealer of HITACHI and ask them for installation work and electrical wiring by service person.**
- **Perform electrical work according to the Installation Manual and all relevant regulation and standards. If the instructions are not followed, an electrical shock and fire may occur due to insufficient capacity and inadequate performance.**
- **Use specified cables to connect between indoor unit and controller. Selecting incorrect cables may lead to fire or electrical shock.**
- **As for the electrical wiring work and check, turn OFF the main power supply before opening/closing the service cover of indoor unit. If service cover is opened with main power supply left on, it may result in an electrical shock.**

317B43921

The box ☐ is for checking work. Check the box after checking.

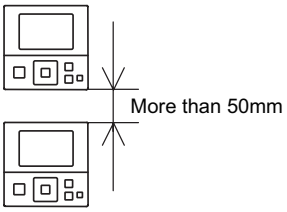
2. Installation Work

[2.1 Selection of Installation Place]

☐ 1) Select a suitable place for handling and determine the installation place of the controller with the customer's acceptance. Do not install the controller at such places as;
● where children can touch ● where the air from the air conditioner is directly discharged

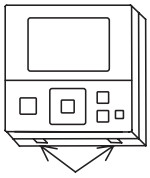
[2.2 Before Installation]

☐ This packing contains the following parts.
[A] Remote Control Switch (Q'ty: 1, For Operation Control)
[B] Screw <M4x16L> (Q'ty: 2, For Fixing the Holding Bracket onto the Wall)
[C] Ring Core (Q'ty: 1)
[D] Band (Q'ty: 1, For Fixing Cable to Ring Core)
[E] Operation Manual (Q'ty: 1)



[2.3 Installation Procedures]

☐ 1) Insert the edge of the slotted screwdriver into the groove at the bottom of the holding bracket, push and turn the slotted screwdriver and then remove the controller from the holding bracket.



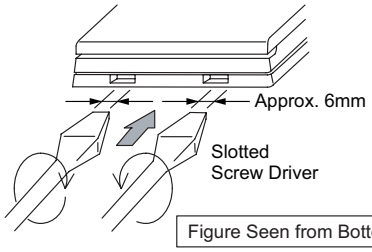
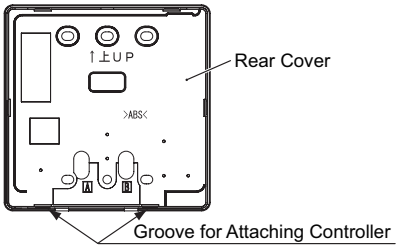
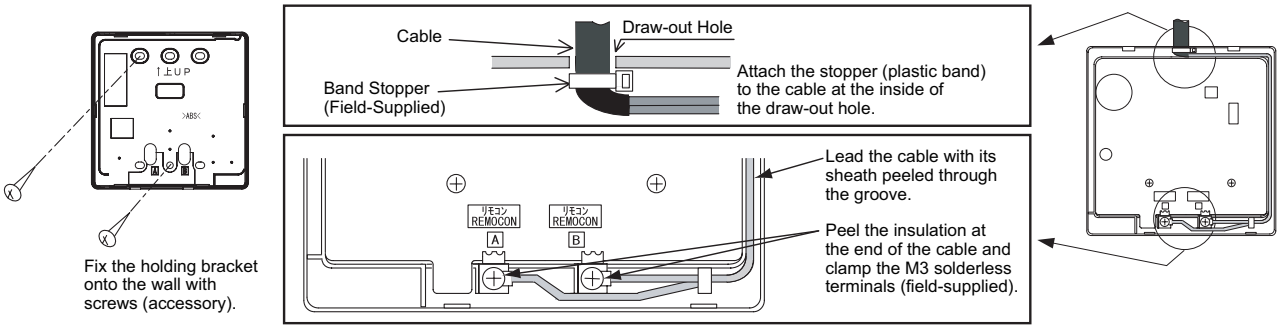


Figure Seen from Bottom Side



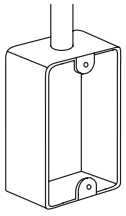
☐ 2) Attach the controller to the holding bracket and connect the cable as follows.

A. In Case of Exposing Remote Control Cable



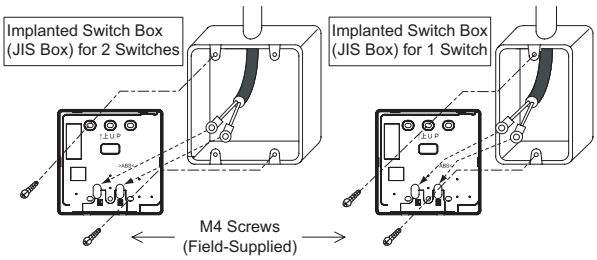
B. When Using Switch Box

1. Prepare field-supplied Implanted Switch Box (JIS Box). (JIS C 8340)

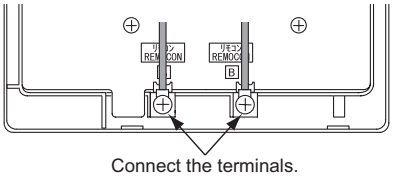


The following 5 types are available.
1. Switch Box for 1 Switch (Without Cover)
2. Switch Box for 2 Switches (Without Cover)
3. Switch Box for 1 Switch (With Cover)
4. Switch Box for 2 Switches (With Cover)
5. Outlet Box (With Cover)

2. Lead the cable through the conduit tube in the wall.

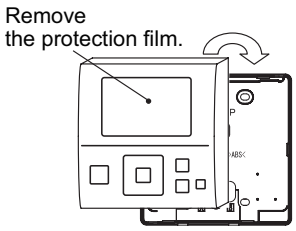


3. Peel the insulation at the end of the cable and clamp the M3 solderless terminals (field-supplied).



☐ 3) Attach the controller to the holding bracket. Be careful not to pinch the cable when attaching it.

☐ 4) Remove the protection film from the liquid crystal display.

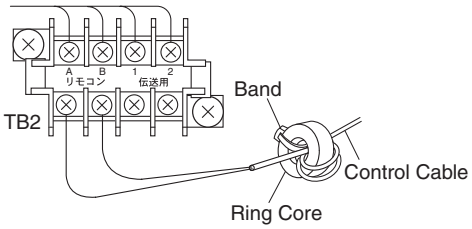


3. Electrical Wiring

[3.1 Standard Wiring]

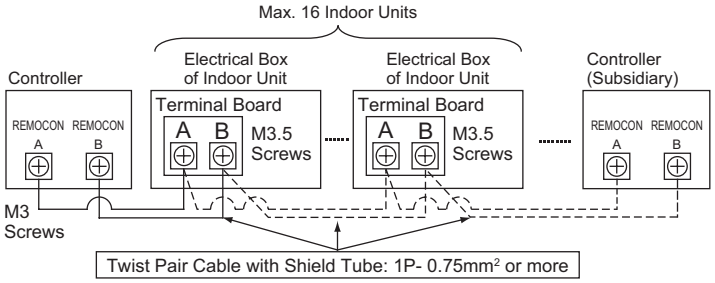
☐ 1) Attach the ring core (color: black, accessory) when installing the indoor unit as follows.

[Procedures]
Insert the control cable into the hole of ring core and wind it at two turns as shown in the right figure before connecting it to the terminal block. Fix the control cable with the band (accessory).

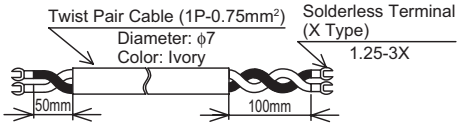


[3.2 Electrical Wiring for Multiple Units]

ATTENTION:
Always make sure to turn off the power of the indoor unit when performing electrical wiring work. Performing electrical wiring work with the power on can damage the circuit boards of the indoor unit and the controller.



● Remote Control Cable <Option>
Model: PRC- ☐ K



The number of ☐ indicates the length (m) of the cable
(☐ = 2, 3, 5, 8, 10, 15, 20, 30, 50, 75, 100).
The cable of 30m and over is available by ordering.
(Contact the closest branch of HITACHI Appliances, Inc.)

NOTICE

A. Use a 0.3 to 0.75mm² cable for connecting. The maximum total cable length is 30m. If the total cable length exceeds 30m, use a twist pair cable with shield tube (1P - 0.75mm²). In that case, the maximum total cable length is 500m. If using in combination with the control timer, the allowable total cable length is up to 100m. The use of a cable other than that specified above can cause of malfunction due to an effects of noise.

B. Keep a distance more than 30cm between the transmission line (remote control cable and transmission wires) and power source of the indoor units.
If not, the air-conditioner may not operate properly or malfunction may occur due to effect of power source noise.

C. In case of simultaneously controlling multiple indoor units, set the refrigerant cycle numbers and addresses of the indoor units without overlapping.

D. Refer to the Technical Catalog provided with each indoor unit when performing electrical wiring work between the controller and indoor units for setting the refrigerant cycle number and the indoor unit address.

E. No gap shall exist between the remote control cable and hole of the controller case. If there is a gap, cover the gap with vinyl tape.
If not, malfunction may occur due to entrance of water droplets or insects.

F. In case of operating with two controllers (Main and Sub), set the main and sub controllers by selecting the appropriate function with the controllers according to the section 5. After setting it, turn off the power supply of all the indoor unit connected to the controllers.

G. The control timer cannot be used together with this controller.

4. Checking Procedures

☐ 1) Turn ON the power supply for all the indoor units.

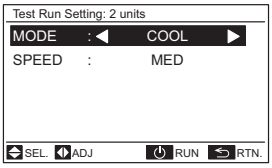
☐ 2) For the models with the auto-address function, wait for 3 minutes approximately. The addressing is automatically performed.
(There is a case that 5 minutes is required according to the setting condition.)
After that, select using language from “Menu”.
Refer to the operation manual for details.

☐ 3) Press and hold “☰” (menu)
and “⮌” (return) simultaneously for at least 3 seconds. The test run menu will be displayed.

☐ 4) Select “Test Run” by pressing “△ ▽” and press “OK”. The test run screen will be displayed.

☐ 5) Test Run

● The test run screen is displayed.



NOTE

When "00" is indicated, the auto-address function may be performing.
Cancel "Test Run" mode and set it again.

* The total number of the indoor units connected is indicated on the LCD (liquid crystal display).
* If the indicated number is not equal to the actual connected number of indoor unit, the auto-address function is not performed correctly due to incorrect wiring, the electric noise or etc.
Turn OFF the power supply and correct the wiring after checking the following points; (Do not repeat turning ON and OFF within 10 seconds.)
  1. Power Supply for Indoor Unit is Not Turned ON or Incorrect Wiring.
  2. Incorrect Connection of Connecting Cable between Indoor Units or Incorrect Connection of Controller Cable
  3. Incorrect Setting of Rotary Switch and Dip Switch (The setting is overlapped.) on the Indoor Units PCB

● Press “⏻” (run/stop) to start the test run.
● Press “△ ▽ ◁ ▷” and set each item.

☐ 6) Canceling “Test Run” Mode

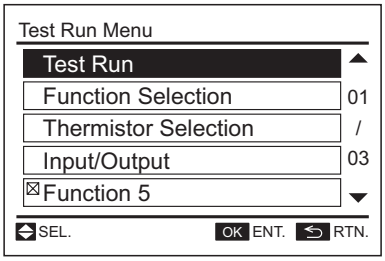
(1) When the unit is not operated, press “⮌” (return).
(2) When the unit is operated, press “⏻” (run/stop).

5. Function Selection and Input/Output Setting from Controller

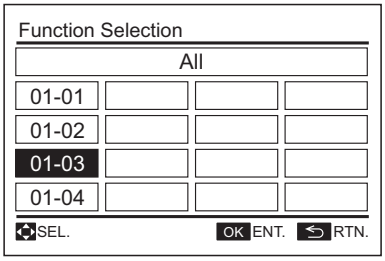
• Setting from Test Run Menu

(1) Press and hold "☰" (menu) and "⮌" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu will be displayed.

(2) Select "Function Selection" or "Input/Output" from the test run menu and press "OK".

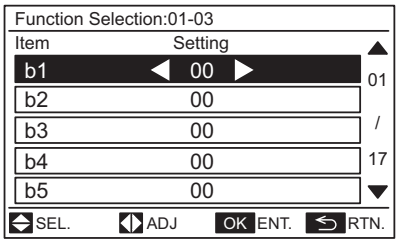


(3) Select the indoor unit by pressing "△ ▽ ◁ ▷" and press "OK".
(This screen is NOT displayed when the number of indoor unit connected with the controller is 1 (one). In this case, (4) will be displayed.)

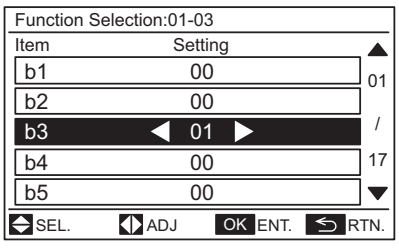


Function Selection

(4) Press "△ ▽" and select the item.

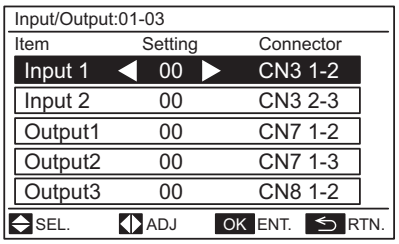


(5) Press "◁ ▷" and change the setting.

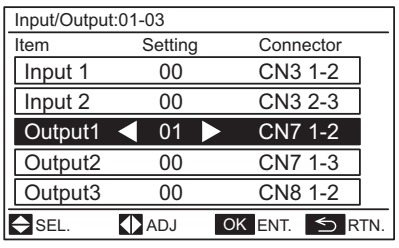


Input/Output Setting

(4) Press "△ ▽" and select the item.



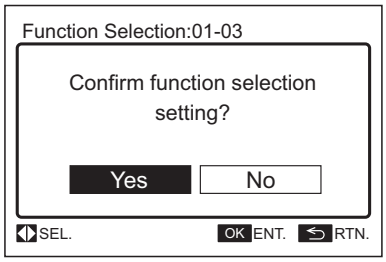
(5) Press "◁ ▷" and change the setting.



(6) Press "OK" so that the confirmation screen will be displayed.

(7) Select "Yes" and press "OK".
The test run menu will be displayed after the setting is confirmed.
If "No" is pressed, the screen will return to (4).

(8) Press "⮌" (return) on the test run menu to return to the normal mode.



(Figure for Function Selection)

To set other units, press "⮌" (return) at (4)(5) so that the screen will return to (3).
(If the number of indoor unit connected with the controller is 1 (one), the screen will return to (1).)

● Table A Optional Setting Items for Function Selection

No.	Items	Optional Function	Individual Setting	Setting Condition	Contents
1	b1	Cancellation of Heating Temperature Compensation due to Uneven Heat Load	○	00 01 02	Standard Removal Set Temp. +2°C (*1)
2	b2	Circulator Function at Heating Thermo-OFF	○	00 01	Not Available Available
3	b3	Enforced 3 Minutes Minimum Operation Time of Compressor	○	00 01	Not Available Available
4	b4	Change of Filter Cleaning Time	○	00 01 02 03 04	Standard 100 hrs 1,200 hrs 2,500 hrs No Indication
5	b5	Fixing of Operation Mode	×	00 01	Standard Fixed
6	b6	Fixing of Setting Temperature	×	00 01	Standard Fixed
7	b7	Fixing of Operation as Exclusive Cooling Unit	×	00 01	Standard Fixed
8	b8	Automatic COOL/HEAT Operation	×	00 01	Not Available Available
9	b9	Fixing of Fan Speed	×	00 01	Standard Fixed
10	bA	Not Prepared	-	-	Not Used
11	bb	Cooling Temperature Compensation due to Uneven Heat Load	×	00 01 02	Standard (No Compensation) Set Temp. –1°C Set Temp. –2°C
12	bC	Not Prepared	-	-	Not Used (Use as 00 conditions)
13	bd	Not Prepared	-	-	Not Used (Use as 00 conditions)
14	bE	Not Prepared	-	-	Not Used (Use as 00 conditions)
15	C1	Not Prepared	-	-	Not Used (Use as 00 conditions)
16	C2	Not Prepared	-	-	Not Used
17	C3	Not Prepared	-	-	Not Used
18	C4	Not Prepared	-	-	Not Used
19	C5	Hi Speed (Except for Hi Speed at Heating Thermo-OFF)	○	00 01 02	Not Available Hi Speed 1 (*2) Hi Speed 2
20	C6	Hi Speed at Heating Thermo-OFF	○	00 01	Not Available Available
21	C7	Canceling of Enforced 3 Minutes Minimum Operation Time of Compressor	○	00 01	Standard Cancelation
22	C8	Thermistor of Remote Control Switch	○	00 01 02	Not Available Control by Thermistor of Remote Control Switch Control by Average Value of Indoor Suction Thermistor and Thermistor of Remote Control Switch
23	C9	Not Prepared	-	-	Not Used
24	CA	Not Prepared	-	-	Not Used
25	Cb	Selection of Forced Stoppage Logic	×	00 01	Forced Stoppage Input: A Contact Forced Stoppage Input: B Contact
26	CC	Not Prepared	-	-	Not Used (Use as 00 conditions)
27	Cd	Not Prepared	-	-	Not Used (Use as 00 conditions)
28 (*10)	CE	Fan Stop at Heating Thermo-OFF	○	00 01	Air Flow Volume: LOW C8 Setting 00: SLOW C8 Setting 01 or 02: Fan Operation Stop
29	CF	Change of Louver Swing Angle	○	00 01 02	Standard (7-Step Operation) Cold Draft Prevention (5 Steps: lower 2 steps cut off) High Ceiling (5 Steps: upper 2 steps cut off)

No.	Items	Optional Function	Individual Setting	Setting Condition	Contents
30	d1	Power Supply ON/OFF 1	○	00 01	Not Available Available
31	d2	Not Prepared	-	-	Not Used
32	d3	Power Supply ON/OFF 2	○	00 01	Not Available Available
33	d4	Prevention for Cooling Discharge Air Temp. Decrease	○	00 01	Not Available Available
34	d5	Prevention for Heating Discharge Air Temp. Decrease	○	00 01	Not Available Available
35	d6	Room Temp. Control for Energy Saving	○	00 01	Not Available Available
36	d7	Fall Distance of Elevating Panel	○	00 01 02 03 04 05 06 07	200 cm (Standard) 100 cm 150 cm 200 cm 250 cm 300 cm 350 cm 400 cm
37	E1	Ventilation Mode (*3)	○	00 01 02	Automatic Ventilation Ventilation by Total Heat Exchanger Bypass Ventilation (No Total Heat Exchanging)
38	E2	Increasing Supply Air Volume (*3)	○	00 01	Not Available Available
39	E3	Not Prepared	-	-	Not Used (Use as 00 conditions)
40	E4	Precooling / Preheating Period (*3)	○	00 01 02	None 30 min. 60 min.
41	E5	Not Prepared	-	-	Not Used (Use as 00 conditions)
42	E6	Indoor Fan Operation Time After Cooling Operation Stoppage	○	00 01 02	Not Available 60 min. 120 min.
43	E7	Not Prepared	-	-	Not Used (Use as 00 conditions)
44	E8	Fan Operation Control at Heating Thermo-OFF	○	00 01	Not Available SLOW
45	E9	Not Prepared	-	-	Not Used (Use as 00 conditions)
46	EA	Not Prepared	-	-	Not Used (Use as 00 conditions)
47	Eb	Fan Operation Control at Cooling Thermo-OFF	○	00 01 02	Not Available LOW SLOW
48	EC	Forced Thermo-ON Stoppage at Cooling	○	00 01	Not Available Available
49	Ed	Not Prepared	-	-	Not Used (Use as 00 conditions)
50	EE	Automatic Fan Speed Control	○	00 01	Not Available Available
51	F0	Not Prepared	-	-	Not Used
52	F1	Automatic OFF Timer Setting * Do not set the functions “0C”~“0F” when 2 (two) remote control switches are used in the same remote control group.	×	00 01 02 • • 23 24 0A 0B 0C 0D 0E 0F	No Function OFF Timer by 1 hr OFF Timer by 2 hrs • • OFF Timer by 23 hrs OFF Timer by 24 hrs OFF Timer by 30 min. OFF Timer by 90 min. OFF Timer by 40 min. OFF Timer by 45 min. OFF Timer by 50 min. OFF Timer by 55 min.

No.	Items	Optional Function	Individual Setting	Setting Condition	Contents
53	F2	Remote Control Main-Sub Setting	×	00 01	Main Sub
54	F3	Automatic Reset of Setting Temperature (*4)	×	00 01	Not Available Available
55	F4	Automatic Reset Time	×	00 01 02 03	30 min. 15 min. 60 min. 90 min.
56	F5	Automatic Reset Temperature for Cooling (*5)	×	19 20 • • 25 • • 29 30	19°C 20°C • • 25°C (Factory-Setting) • • 29°C 30°C
57	F6	Automatic Reset Temperature for Heating (*6)	×	17 18 • • 21 • • 29 30	17°C 18°C • • 21°C (Factory-Setting) • • 29°C 30°C
58	F7	Operation Stoppage Prevention by Remote Control Switch Operational Error (*7)	×	00 01	Not Available Available
59	F8	Lock Function for Operation Mode Selection	×	00 01	Not Available Available (Factory-Setting)
60	F9	Lock Function for Temperature Setting	×	00 01	Not Available Available (Factory-Setting)
61	FA	Lock Function for Fan Speed Selection	×	00 01	Not Available Available (Factory-Setting)
62	Fb	Lock Function for Swing Louver Operation	×	00 01	Not Available Available (Factory-Setting)
63	FC	Cooling Lower Limit for Setting Temperature (*5)	×	00 01 02 • • 09 10	Standard Lower Limit +1°C Lower Limit +2°C • • Lower Limit +9°C Lower Limit +10°C
64	Fd	Heating Upper Limit for Setting Temperature (*6)	×	00 01 02 • • 11 12	Standard Upper Limit –1°C Upper Limit –2°C • • Upper Limit –11°C Upper Limit –12°C
65	FE	Not Prepared	-	-	Not Used (Use as 00 conditions)
66	FF	Not Prepared	-	-	Not Used (Use as 00 conditions)
67	H1	Not Prepared	-	-	Not Used (Use as 00 conditions)
68	H2	Indication of Hot Start	×	00 01	Indication No Indication
69	H3	Not Prepared	-	-	Not Used (Use as 00 conditions)
70	H4	Not Prepared	-	-	Not Used (Use as 00 conditions)

No.	Items	Optional Function	Individual Setting	Setting Condition	Contents
71	H5	Not Prepared	-	-	Not Used (Use as 00 conditions)
72	J1	Temperature Indication (*8)	×	00 01	Not Available Available
73	J2	Not Prepared	-	-	Not Used
74	J3	Run Indicator Color	×	00 01	Green Red
75	J4	Not Prepared	-	-	Not Used (Use as 00 conditions)
76	J5	Not Prepared	-	-	Not Used (Use as 00 conditions)
77	J6	Not Prepared	-	-	Not Used (Use as 00 conditions)
78	J7	Not Prepared	-	-	Not Used (Use as 00 conditions)
79	J8	Eco-operation (*9)	×	00 01	Not Available Available
80	J9	Not Prepared	-	-	Not Used (Use as 00 conditions)
81	JA	Not Prepared	-	-	Not Used (Use as 00 conditions)
82	Jb	Not Prepared	-	-	Not Used (Use as 00 conditions)
83	K1	Not Prepared	-	-	Not Used (Use as 00 conditions)
84	K2	Not Prepared	-	-	Not Used (Use as 00 conditions)
85	K3	Not Prepared	-	-	Not Used (Use as 00 conditions)
86	K4	Not Prepared	-	-	Not Used (Use as 00 conditions)
87	K5	Motion Sensor Detection Level	×	00 01 02	Standard High Low

*1: The “02” setting may not be available according to the type of indoor unit.

*2: In case of RPI models, 00: Increasing fan speed 1 (standard), 01: Increasing fan speed 2 (high static pressure), 02: Standard (low static pressure)

*3: E1 to E4: Setting for the total heat exchanger

*4: In case that the set temperature is changed and kept within the set time at “F4”, the temperature is automatically changed to “F5” and “F6”. (In case that the set temperature is out of range at “F5” and “F6”, it is applied within upper and lower limit for the set temperature.)

*5: Applicable to fan, cooling and dry operation modes.

*6: Applicable to heating operation mode.

*7: Operation is stopped by pressing the “⏻” (run/stop) switch for 3 seconds.

*8: The sensor value at “C8” will be indicated. When the thermistor for controller is used, the average value of the thermistor for controller and the thermistor for indoor inlet will be indicated.

*9: When the unit is restarted by the controller, the temperature automatically changes to the setting temperature of “F5” or “F6”.

*10: The fan operation speed during the heating thermo-OFF will be changed depending on the thermistor of the controller “C8” setting of Optional Setting Item as shown below.

CE Setting	C8 Setting	Fan Operation Speed at Heating Thermo-OFF
00	-	Low
01	00	Slow
	01	Fan Operation Stop
	02	

NOTES:

1. After at least 3 minutes from the power ON, change the optional setting.
2. When changing “CF” setting (change of louver swing angle), restore the power supply or allow the louver to make one complete swing fully in the auto swing mode to apply the optional setting.
3. The optional settings are different according to the indoor and outdoor unit models. Check to ensure that the unit has the optional setting or not.
4. Record the setting conditions for each optional setting in the "Setting" column of the table.
5. The above optional functions with “X” mark at the individual setting can change the condition only when “All Rooms” is set.

● Table B Input and Output Number Display and Connectors

Input Number Display	Port	Factory Setting		Setting
Input/Output Indication		Setting Item	Indication	
Input 1	CN3 1-2	Remote ON/OFF 1 (Level)	03	
Input 2	CN3 2-3	Prohibiting Remote Control after Manual Stoppage	06	
Output 1	CN7 1-2	Operation	01	
Output 2	CN7 1-3	Alarm	02	
Output 3	CN8 1-2	Thermo-ON for Heating	06	

● Table C Input and Output Settings and Display Codes

Indication	Input	Output
00	Not set	Not set
01	Room Thermostat (for Cooling)	Operation
02	Room Thermostat (for Heating)	Alarm
03	Remote ON/OFF 1 (Level)	Cooling
04	Remote ON/OFF 2 (Operation)	Thermo-ON for Cooling
05	Remote ON/OFF 2 (Stoppage)	Heating
06	Forbidding Remote Control after Manual Stoppage	Thermo-ON for Heating
07	Remote Cooling / Heating Change	Total Heat Exchanger
08	Elevating Grille Input	Elevating Grille Output

NOTES:

* After at least 3 minutes from the power ON, change the optional setting.
* The elevating grille input can be set to “Input 2” only.
  The elevating grille cannot be set to “Input 1”.
* The elevating grille output can be set to “Output 1” or “Output 2” only.
  The elevating grille output cannot be set to “Output 3”.
* Do not set the elevating grille for the total heat exchanger.
* Record the setting conditions for each input and output in the “Setting” column of the table.

6. Elevating Grille Setting/Cancellation

This function is available to set the elevating grille setting/cancellation for the all connected indoor units with the elevating grille function. It is set to the external input 2, external output 1 and 2 as following procedure.

• Elevating Grille Setting/Cancellation Procedure

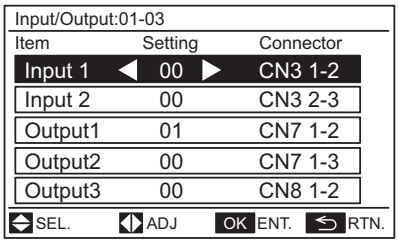
(1) Press and hold "☰" (menu) and "⮌" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu will be displayed.

(2) Select "Input/Output" from the test run menu and press "OK".

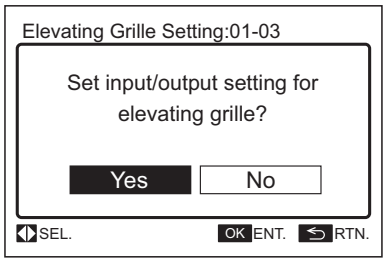
(3) Select the indoor unit by pressing "△ ▽ ◁ ▷" and press "OK". (This screen is NOT displayed when the number of indoor unit connected with the controller is 1 (one). In this case, (4) will be displayed.)

Elevating Grille Setting

(4) Select "Input 1" at "Input/Output" screen, press and hold "△" for a moment (approx. 3 sec.). The confirmation screen for "Elevating Grille Setting" will be displayed.

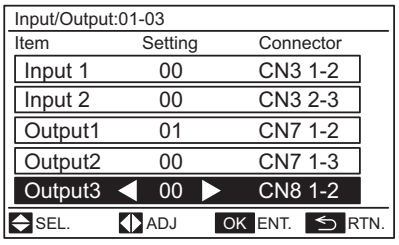


(5) Select "Yes" and press "OK" to confirm the setting. If "No" is pressed, the screen will return to (4).

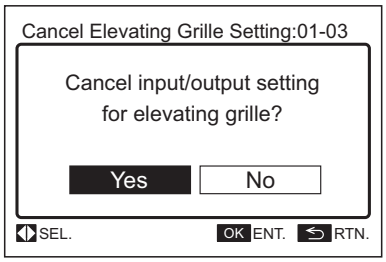


Elevating Grille Cancellation

(4) Select "Output 3" at "Input/Output" screen, press and hold "▽" for a moment (approx. 3 sec.). The confirmation screen for "Cancel Elevating Grille Setting" will be displayed.



(5) Select "Yes" and press "OK" to confirm the cancellation. If "No" is pressed, the screen will return to (4).



(6) Press "⮌" (return) on the test run menu to return to the normal mode.

NOTES:

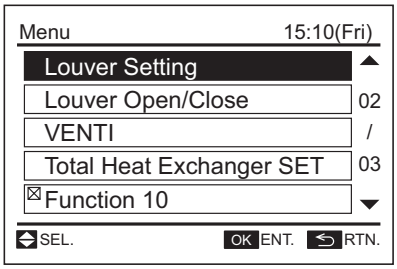
* In case of using by two controllers (Main and Sub), the settings shall be operated by the main controller.
* If "All" is selected at (3), this setting is set to all the indoor unit connected to the controller regardless of the actual elevating grille.
* Please note that when functions other than the elevating grille have been set for input 2 and output 1 and 2, those settings are cleared (Namely, the elevating grille function will be overwritten.).

7. Louver Setting

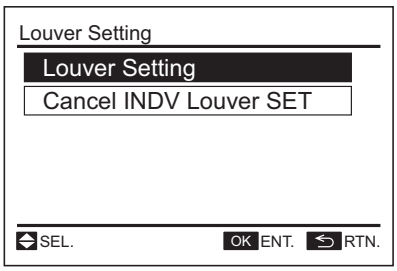
This setting is available only for the indoor unit adopting the individual louver.
The each louver angle can be set individually as following procedure.

(1) Press and hold "☰" (menu) during the normal mode (when unit is operated).
The menu will be displayed.

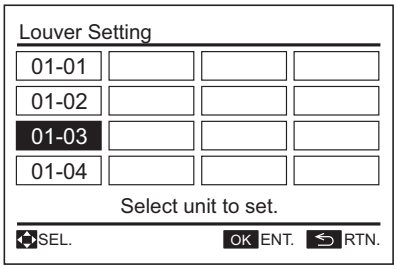
(2) Select "Louver Setting" from the menu and press "OK".
The louver setting will be displayed.



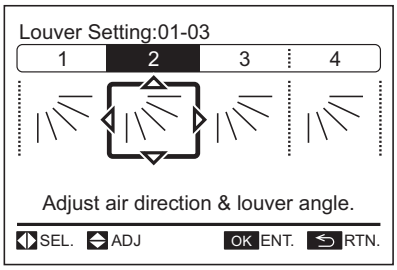
(3) Select "Louver Setting" from the louver setting and press "OK".



(4) Select the indoor unit to change the louver direction by pressing "△ ▽ ◁ ▷" and press "OK".
(This screen is NOT displayed when the number of indoor unit connected with the controller is 1 (one).
In the case, (5) will be displayed.)



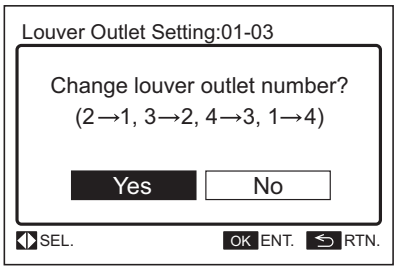
(5) Press "◁ ▷" and select the louver direction.
The selected louver is opened and the other louvers are closed.



(6) Press "☰" (menu) while "?" (help) is pressed.
The confirmation screen will be displayed.

(7) Select "Yes" and press "OK". (5) will be displayed after the setting change is confirmed.
If "No" is selected and "OK" is pressed, the screen will return to (5).

* Regarding "Louver Setting", the louver selected at (5) will be set as "No.1" and the other louver No. will be changed clockwise automatically as shown in the figure.



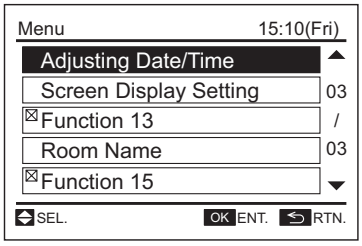
NOTE:
This "Louver Setting" is NOT available when the 2 (two) controllers are used in the same H-LINK.
(including combination with PC-ARF + PC-LH3A (Wireless Remote Control Switch))

8. Adjusting Date/Time

The date and time can be set from “Adjusting Date/Time”.

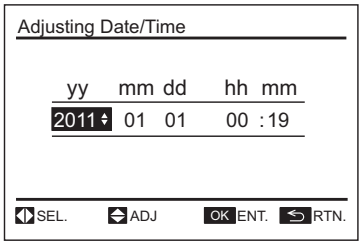
(1) Press “☰” (menu) during the normal mode.
The menu will be displayed.

(2) Select “Adjusting Date/Time” from the menu and press “OK”.



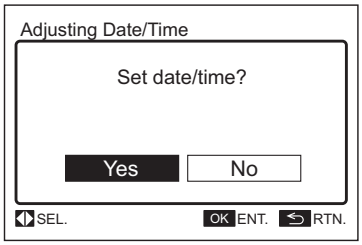
(3) Press “◁ ▷” and select “yy/mm/dd/hh/mm”.

(4) Press “△ ▽” and set the date and time.
(Press or keep pressing “△ ▽” to adjust numbers.)



(5) After the setting is completed, press “OK” so that the confirmation screen will be displayed.

(6) Select “Yes” and press “OK”. The screen will return to the normal mode after the setting is confirmed.
If “No” is pressed, the screen will return to (3).

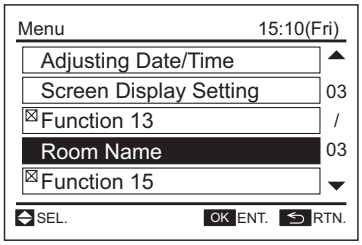


9. Room Name Registration

A name of the room (installation location of controller) can be registered from “Room Name”.

(1) Press “☰” (menu) during the normal mode.
The menu will be displayed.

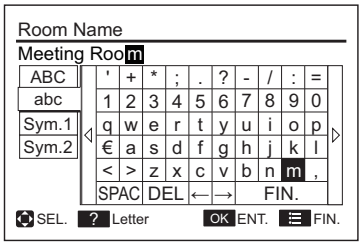
(2) Select “Room Name” from the menu and press “OK”.



(3) Press “?” (help) to change letter type.

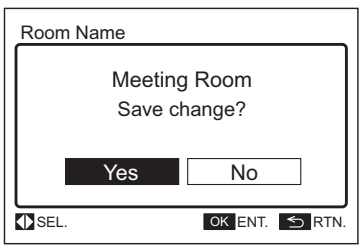
(4) Press “△ ▽ ◁ ▷” to select letter.

(5) Press “OK” to confirm the letter. (Max.: 12 letters)



(6) Select “FIN.” and press “OK”, the confirmation screen will be displayed. (Also, press “☰” (menu) and the confirmation screen will be displayed.)

(7) Select “Yes” and press “OK”. The screen will return to the normal mode after the setting is confirmed.
If “No” is pressed, the screen will return to (3).



10. Contact Information Registration

Contact information can be registered from “Contact Information”.

(1) Press and hold “☰” (menu) and “⮌” (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu will be displayed.

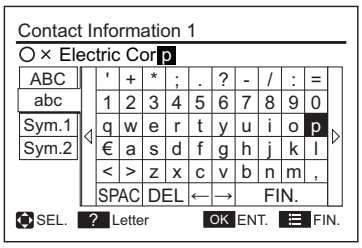
(2) Select “Contact Information” from the test run menu and press “OK”.
The contact information 1 will be displayed.

(3) Press “?” (help) to change font type.

(4) Press “△ ▽ ◁ ▷” to select letter.

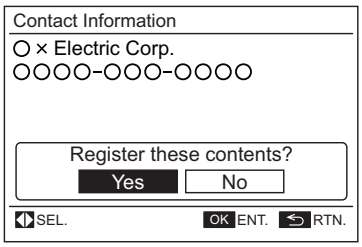
(5) Press “OK” to confirm the letter. (Max.: 28 letters)

(6) Select “FIN.” and press “OK” (or simply press “☰” (menu)), (7) will be displayed.



(7) Repeat (3)~(5) to register contact information 2.
Select “FIN.” and press “OK”, the confirmation screen will be displayed. (Also, press “☰” (menu) and the confirmation screen will be displayed.)

(8) Select “Yes” and press “OK”. The test run menu will be displayed after the setting is confirmed.
If “No” is pressed, the screen will return to (3).

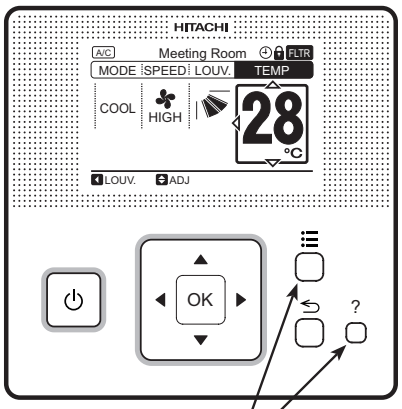


11. Check Menu

Each “Check Menu” item and its function are explained in the following table.

Check Menu Item	Function
Check 1	Sensor condition of air conditioner will be monitored and indicated.
Check 2	Sensor data of air conditioner prior to alarm occurrence will be indicated.
Alarm History Display *	Previous alarm record (date, time, alarm code) will be indicated.
Model Display	Model name and manufacturing number will be indicated.
I.U./O.U. PCB Check	The result of PCB check will indicated.
Self Checking	Checking of controller will be carried out.

* : To Erase Alarm History
Press “OK” when the abnormality record is indicated.
After that, the confirmation screen will be displayed.
Select “Yes” and press “OK” so that the alarm record will be deleted.



Press and hold “☰” (menu) and “?” (help) simultaneously for 3 seconds during the normal mode.

HITACHI

Installation Manual for Receiver Kit (for 4-Way Cassette Type)

Model	PC-ALH3
Applicable Indoor Unit Model	1.0 to 6.0HP (From RCI-FSN3 Series)
Applicable Wireless Remote Control Switch	PC-LH3B

IMPORTANT NOTICE:

- HITACHI pursues a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- HITACHI cannot anticipate every possible circumstance that might involve a potential hazard.
- This kit is designed for combination of HITACHI Air Conditioners. Do not use this kit itself or combination of other companies Air Conditioners.
- This product is designed for standard air conditioning only. DO NOT use this product for specific purposes, such as restoring foods, animals & plants, precision devices, art objects, etc.
- No part of this manual may be reproduced without written permission.
- Signal words are used to identify levels of hazard seriousness. Definitions for identifying hazard levels are provided below with their respective signal words.

⚠DANGER	:	DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠WARNING	:	WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠CAUTION	:	CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	:	NOTICE is used to address practices not related to personal injury.
NOTE	:	NOTE is useful information for operation and/or maintenance.

- Perform the test run whether there is abnormality or not after the installation work is completed. The usage and the maintenance should be explained to a user according to “Installation & Maintenance Manual” of the indoor unit. Describe to keep this installation manual also.
- It is assumed that this kit will be installed and serviced by English speaking people. If this is not the case, the customer should add safety, caution and operating signs in the native language.
- If you have any questions, contact your distributor or dealer of HITACHI.
- This manual gives a common description and information for this wireless receiver kit which you operate as well as for other models.
- DO NOT install the unit in the following places. It causes failure to the unit in many cases.
  * Places where oil (including machinery oil) mist and steam drifts.
  * Places where a lots of sulfide gas drifts such as in hot spring.
  * Places where inflammable gas may generate or flow.
  * Places where air contains high salt contents as coast regions.
  * Places where with atmosphere of acidity or alkalinity.
- Pay attention to the following points when the unit is installed in a hospital or other facilities where electromagnetic wave generates from medical equipment.
  * Do not install the unit in the place where the electromagnetic wave is directly radiated to the electrical box, remote control switch cable or remote control switch.
  * Install the unit at least 3 meters away from electromagnetic wave such as a radio.
- DO NOT install the unit in the place where the air flow directly catches to animals or plants. It could be the cause of adverse affect to animals or plants.

⚠WARNING

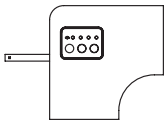
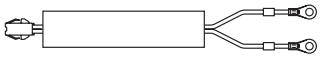
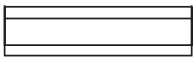
- Turn OFF the power source completely before performing the dip switch setting, installation work and electrical wiring work for receiver kit.
  If not, it may cause an electric shock.
- Perform securely the installation work referring to this installation manual.
  If the installation is not completed, it may cause injury by falling down the receiver kit.
- Do not install the receiver kit where the flammable gases may generate or enter.
  It may cause heat generation or a fire.
- Perform securely the electrical wiring work.
  If the electrical work is not completed, heat generation at the connection, a fire or an electric shock may occur.
- Make sure that the electrical wires are securely fixed in order not to apply an external force to the terminal connections of the wirings. If fixing is not completed, it may cause heat generation or a fire.
- Do not turn ON the power source, unless the preparation for test running is completed.

NOTICE

- Read this manual carefully before installation work for correct performance.
- Read this manual together with the “Installation & Maintenance Manual” for the indoor unit and the wireless remote control switch.
- PC-ALH3 is only available for the combination of the wireless remote control switch PC-LH3B and the indoor unit RCI-FSN3 series.

1. Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the receiver kit.

No.	Accessory	Q’ty	Remarks
①	Receiver Kit PC-ALH3 	1	with Connecting Cable
②	Connecting Cable 	1	-
③	Wiring Cover 	1	for Protection of Connecting Cable
④	Plastic Band 	3	for Fixing Wiring Cover and Connecting Cable
⑤	Installation Manual	1	-
⑥	Operation Manual	1	-

2. Installation

⚠WARNING

- Turn OFF the power source completely before performing the dip switch setting, installation work and electrical wiring work for receiver kit.
  If not, it may cause an electric shock.
- Perform securely the installation work referring to this installation manual.
  If the installation is not completed, it may cause injury by falling down the receiver kit.
- Do not install the receiver kit where the flammable gases may generate or enter.
  It may cause heat generation or a fire.
- Perform securely the electrical wiring work.
  If the electrical work is not completed, heat generation at the connection, a fire or an electric shock may occur.
- Make sure that the electrical wires are securely fixed in order not to apply an external force to the terminal connections of the wirings. If fixing is not completed, it may cause heat generation or a fire.

NOTICE

- When the receiver kit is attached near lighting which generates the ambient light, it may not receive the signal from the wireless remote control. Pay attention to the installation position of receiver kit.
- Do not run the connecting cable for receiver kit and the power source cable (220-240V) in parallel. It may cause malfunction of receiver kit by noise.

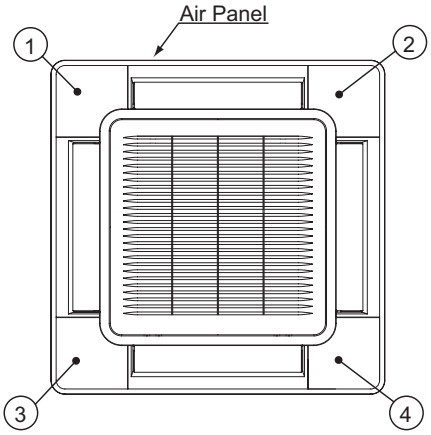
1 Perform the installation work for receiver kit while the optional air panel is being attached to the indoor unit.

2 In the case that the receiver kit is attached after the air panel is attached to the indoor unit, turn OFF the power source of indoor unit, and remove the air panel. The removing air panel should be performed according to the installation manual of the air panel or the service manual.

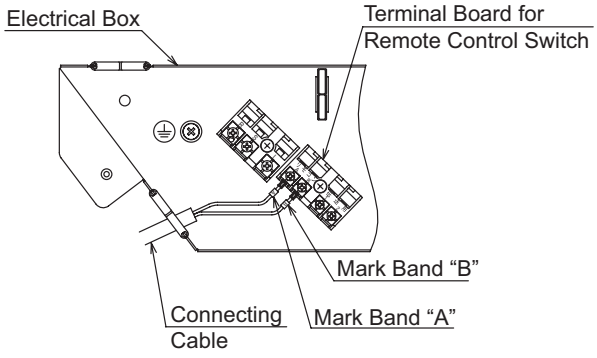
3 This receiver kit can be attached to any of corners (4 directions, ①, ②, ③ and ④).
Determine the attaching place as user's request.

NOTE:

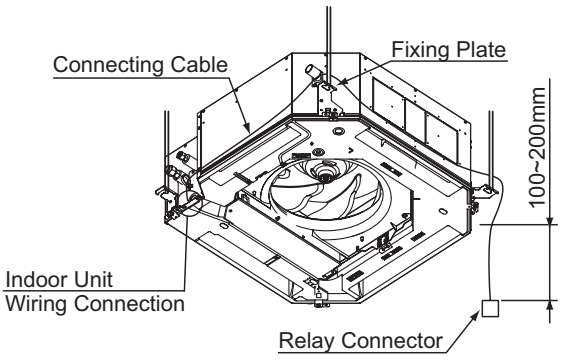
The dip switch setting for receiver kit is available to select each function. If the optional function selection is required, it shall be performed according to the item 3 "Optional Functions" before the receiver kit is attached to the air panel.



4 Connect the accessory connecting cable to the terminal board.
Open the electrical box cover at the indoor unit. Connect the connecting cable terminals to the terminal A and B in the electrical box. (No polarity with terminals A and B)



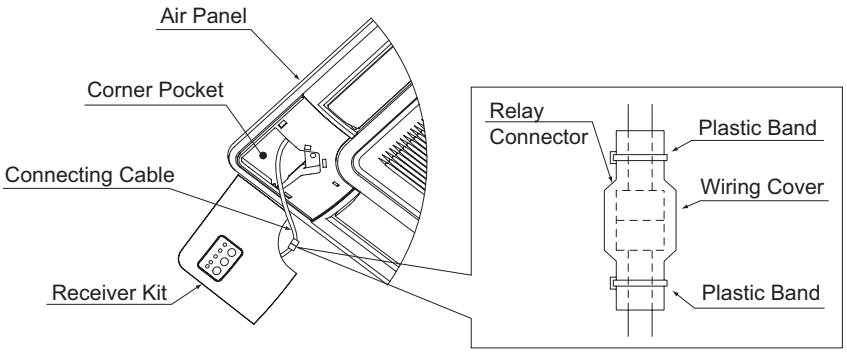
5 After connecting the connecting cable to each terminal, take it out to inside the false ceiling or outside of the unit.
Then, run it to the installation position of receiver kit. The wiring connection at the indoor unit should be referred "Installation and Maintenance Manual" of the indoor unit. When running the connecting cable, run it to the installation position of receiver kit through the top of fixing plate for the indoor unit. After running the connecting cable, take the distance (from 100mm to 200mm) from the indoor unit undersurface to the connecting cable as shown in the right figure.
After running the connecting cable, clamp the extra length of the connecting cable by the plastic band and store it at inside the ceiling.



6 Attach the air panel.
The installation of air panel should be referred to the installation manual of itself.

7 After the installation work for air panel is completed, attach the receiver kit.

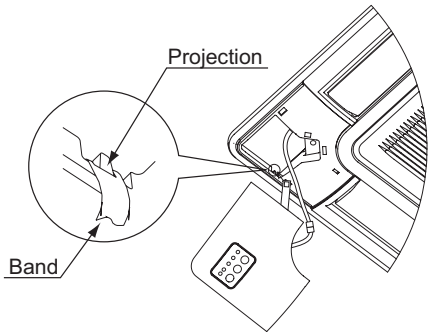
(1) Take the connecting cable out from the corner pocket of the air panel. Connect the wiring for receiver kit to the relay connector as the following figure.
After connecting, cover the relay connector connection by the wiring cover, and fix the wiring cover by the plastic bands.



(2) Catch the band at the rear side of the receiver kit onto the projection at the air panel as shown in the figure below.

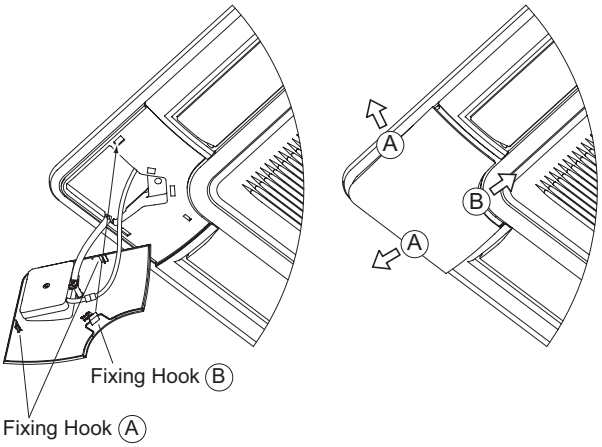
NOTE:

Catch securely the band onto the projection to prevent falling down the receiver kit.

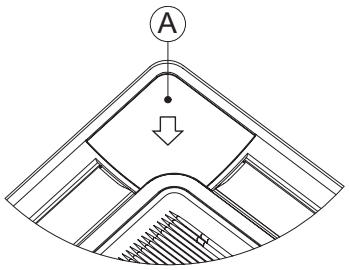


(3) While pushing the wiring into the corner pocket, insert the fixing hooks (2 portions) at Ⓐ to the square hole of the air panel, and push the receiver kit toward the arrow direction (Ⓐ). Then, insert the fixing hook (1 portion) at Ⓑ to the square hole of the air panel.

NOTE:
Catch securely the fixing hooks of the receiver kit to the air panel.
If not, the fixing hooks will be damaged.



(4) Removing Corner Pocket Cover Method
Remove the corner pocket covers.
The corner pocket covers can be removed pulling Ⓐ part toward the arrow direction.



8 After the installation work for receiver kit is completed, attach the corner pocket covers (3 portions).
The detail should be referred to the installation manual of the air panel.

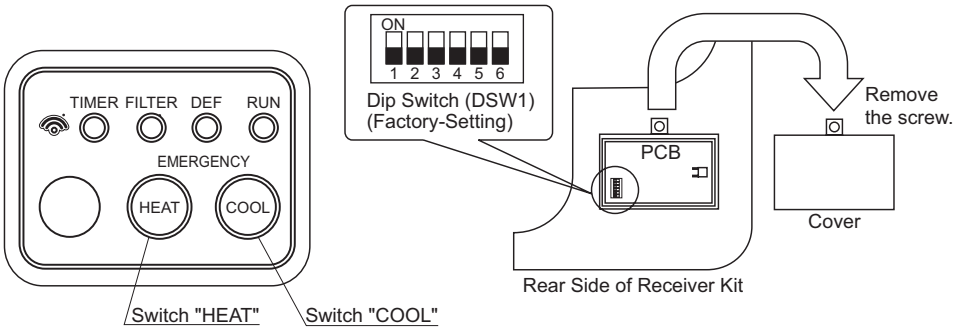
NOTE:
After the receiver kit is attached to the air panel, the one corner pocket cover (It was attached with air panel.) becomes unnecessary.

3. Optional Functions

⚠WARNING

Turn OFF the power source completely before performing the dip switch setting for receiver kit.
If not, it may cause an electric shock.

1 The following switches are on the receiver kit.



2 Emergency Operation Setting

"COOL" and "HEAT" switches are used for emergency operation when the batteries for wireless remote control switch are shortage.

(1) Switch "COOL": Press "COOL" so that the cooling operation is started.
Press "COOL" again so that the cooling operation is stopped.

(2) Switch "HEAT": Press "HEAT" so that the heating operation is started.
Press "HEAT" again so that the heating operation is stopped.

NOTE:
During the emergency operation, "((•))" lamp (yellow) flashes (0.5 second ON / 0.5 second OFF).
The setting temperature and the fan speed for cooling/heating operation are the same as before starting emergency operation.

3 The dip switch (DSW1) is for the optional function selection. If the optional function selection is required, set the dip switch as follows.

Optional Function	Dip Switch Setting (DSW1)						Details
	1	2	3	4	5	6	
Main/Sub Setting	O	X	X	X	X	X	Change main (OFF setting)/ sub (ON setting) remote control switches for 2 remote control system.
Identifying of Indoor Unit	X	O	X	X	X	X	It functions as B Mode (identifying of indoor unit) of wireless remote control switch when it sets to "ON".
Invalidity of Emergency Operation	X	X	X	O	X	X	The switches for emergency operation are invalid.

O: ON
X: OFF

NOTICE

Pay attention to the following settings when the function for receiver kit is selected from the remote control switch or the centralized controller.

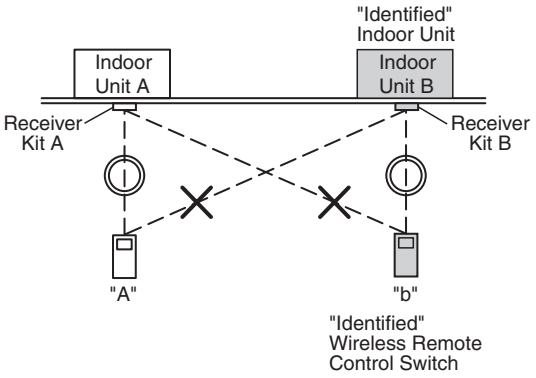
- The cooling lower limit for setting temperature and the heating upper limit for setting temperature are not available. The setting is available beyond the upper and lower limit for setting temperature from the wireless remote control switch.
- The optional function setting "Fixing of Setting Temperature" is not available. When the operation mode is changed from the wireless remote control switch, the indicated temperature on the remote control switch becomes set temperature.

4. Identifying Indoor Units Installed Side by Side Operation

⚠WARNING

Turn OFF the power source completely before performing the dip switch setting for receiver kit.
If not, it ma cause an electric shock.

In the case that two indoor units are installed side by side, the commands from the wireless remote control switch may be received by both indoor units. The function, “Identifying of Indoor Units Installed Side by Side” enables to operate the individual unit correctly without interfering other unit’s operation. As shown in the right figure, the indoor units of A and B are set side by side. In this case, the unit B is set as “Identifying Indoor Units Installed Side by Side”.



< Setting of Identifying of Indoor Units Installed Side by Side >

1 Receiver Kit Setting
Set No.2 pin of the receiver kit dip switch (DSW1) at the indoor unit B (“Identified” Unit) “ON” side.

2 Wireless Remote Control Switch
Set the wireless remote control switch according to the attached Installation & Maintenance Manual.

< Cancellation of Identifying of Indoor Units Installed Side by Side >

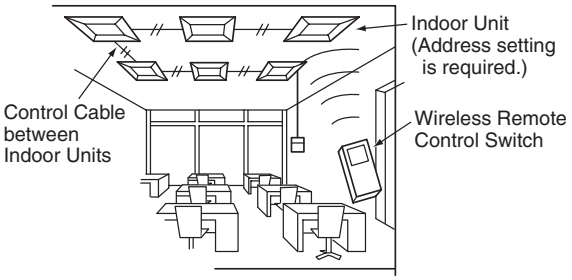
1 Receiver Kit Setting
Set No.2 pin of the receiver kit dip switch (DSW1) “OFF” side for cancellation.

2 Wireless Remote Control Switch
Cancel the wireless remote control switch setting according to the attached Installation & Maintenance Manual.

5. Simultaneous Operation

Up to 16 indoor units can be simultaneously controlled using one wireless remote control switch. When multiple indoor units are installed in a large room, all the indoor units can be controlled to start/stop with only one remote control switch.

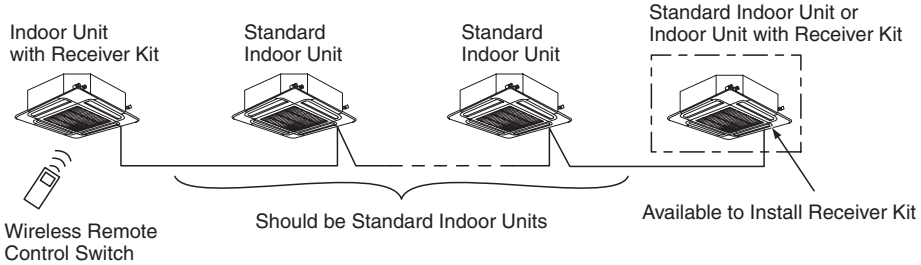
NOTE:
Do not apply the simultaneous operation for the indoor units installed separately in the different rooms.
Some units may be left without turning OFF the power source.



Control Example of Simultaneous Operation of Multiple Units

< Installation of Receiver Kit >

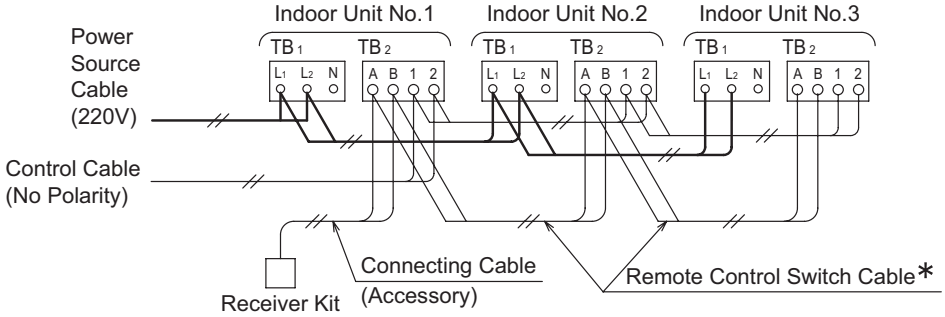
In case of simultaneous operation of multiple (up to 16) indoor units by the wireless remote control switch, install the receiver kit only to the unit to be operated. Other units should be the standard units without the receiver kit. If multiple receiver kits are required to install, 2 receiver kits are available at a maximum.



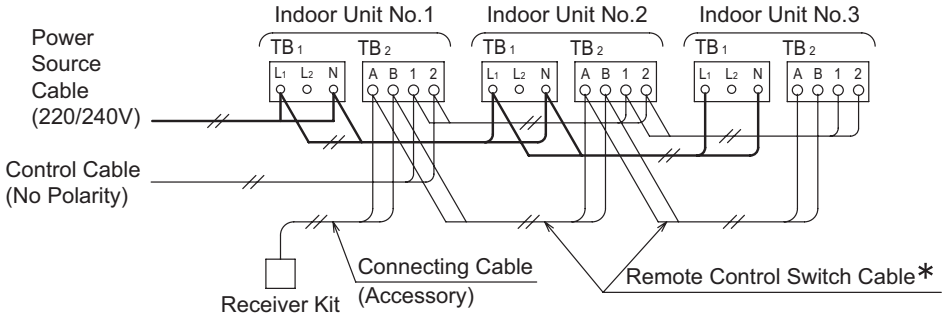
< Electrical Wiring Connecting and Setting >

1 Connection between Indoor Units
Perform the connection work as following figure.

< Power Source Cable 220V >



< Power Source Cable 220/240V >



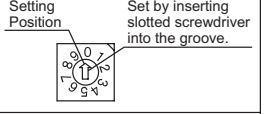
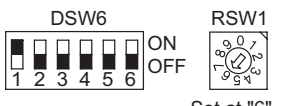
* For twin, triple or quad combination, the transition wire for remote control switch is not required.

Use the field-supplied twist pair cable (0.75mm^2) for remote control switch cable. The total length should be within 500m. If the total length is less than 30m, other cables can be used (the cable size is 0.3mm^2).

2 Do not run the connected remote control cable and the power source cable (220-240V) in parallel in the indoor units.
Fix the cable by plastic bands. As well as the wiring outside the indoor units, the control cables should not run with the power source cable (220-240V). Keep the distance more than 30cm each other, or run the cable through a metal tube and earth the tube end.

3 Unit No. Setting
The indoor unit Nos. are set by the auto-address function. Therefore, the indoor unit No. setting is not required. If the indoor unit No. is fixed, set the unit No. of all indoor units respectively and serially. It is recommended that the unit number setting start from “1”. The setting is performed not to overlap the unit number.

Unit No. Setting

DSW6 (Tens Digit)	RSW1 (Units Digit)	Ex.: Set at No. 16 Unit
		
Before shipment, DSW6 and RSW1 were set to "0". Max. 63 units are available to set.		

6. Test Run by Wireless Remote Control Switch (PC-LH3B)

After all installations are completed, the test run shall be performed.

(1) Perform the test run according to the installation manual of the wireless remote control switch.

(2) The test run from wireless remote control switch will be completed in 2 hours. If the TIMER indicator (green) is flashing (0.5 second ON / 0.5 second OFF) after passing 2 hours, the alarm may occur. Operate the indoor unit ,and check the condition of abnormality.

7. Alarm Indication

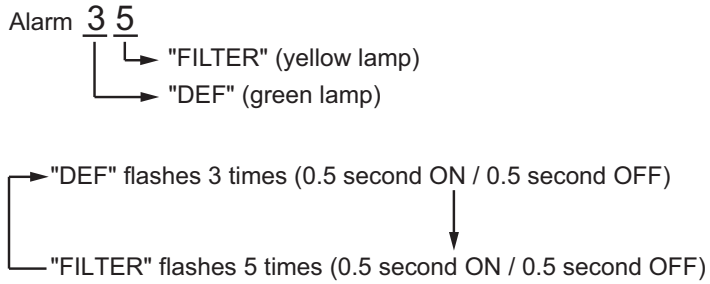
NOTICE

- When some troubles occur such as safety device actuation, etc. during the test run or the normal operation, “RUN” (red lamp) flashes (0.5 second ON / 0.5 second OFF).
- The alarm codes are indicated by the flashing times of “DEF” (green lamp) and “FILTER” (yellow lamp).

  “DEF” (green lamp): The number of flashing is shown at the tens digit of Alarm Code

  “FILTER” (yellow lamp): The number of flashing is shown at the units digit of Alarm Code

  < Example >



These indications are repeated until the alarm is reset.

- ”RUN” (red lamp) flashing (1 second ON / 1 second OFF) indicates the abnormal transmitting (connector loose, connector disconnection, wire breaking or incorrect wiring, etc.) between the indoor unit and the receiver kit.
- When the receiver kit is connected to the multiple indoor units, the alarm code is indicated for each indoor unit in order.

< Alarm Code Table >

The detail for alarm code should be referred to “Installation & Maintenance Manual” of the indoor unit.

Hitachi-Johnson Controls Air Conditioning, Inc.

17A26179A, 2015 Printed in Japan

Operation

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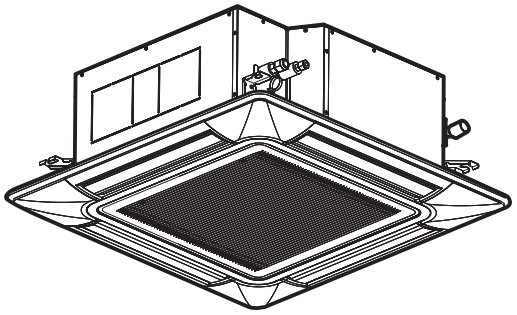
HITACHI

Operation Manual



INVERTER-DRIVEN
MULTI-SPLIT SYSTEM
HEAT PUMP
AIR CONDITIONERS

Type	Model
4-Way Cassette	RCI-1.0FSN3 RCI-1.5FSN3 RCI-2.0FSN3 RCI-2.5FSN3 RCI-3.0FSN3 RCI-4.0FSN3 RCI-5.0FSN3 RCI-6.0FSN3

IMPORTANT:

READ AND UNDERSTAND THIS MANUAL BEFORE USING THIS HEAT-PUMP AIR CONDITIONERS. KEEP THIS MANUAL FOR FUTURE REFERENCE.

P5416534

IMPORTANT NOTICE

- HITACHI pursues a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- HITACHI cannot anticipate every possible circumstance that might involve a potential hazard.
- This heat pump air conditioner is designed for standard air conditioning only. Do not use this heat pump air conditioner for other purposes such as drying clothes or refrigerating foods, or for any other cooling or heating process.
- Do NOT install the unit in the following places. It may cause a fire, deformation, corrosion or failure.
  * places where no open flames, oil, steam or dust might directly be drawn into the unit, such as right above a kitchen, etc.
  * places where much oil (including machinery oil) may be splattered around.
  * places where there is a lot of sulfide gas generated, such as in a hot spring.
  * places where flammable gas can be generated or flow.
  * places where strong salty wind blows, such as in coast regions.
  * In an atmosphere of acidity or alkalinity.
  * Where gas from festering trash, etc. can be generated.
- Do not install the unit where silicon gas is present. If the silicon gas comes into contact with the surface of the heat exchanger, the fin surface repels water. As a result, drain water splashes outside of the drain pan, resulting in water leakage. If water splashes on the electrical box, electrical device failure might occur.
- Pay attention to the following points when installing the unit in a hospital or other facilities where electromagnetic waves are generated from medical equipment.
  * Do not install the unit to the place where electromagnetic waves are directly radiated to the electrical box, remote control cable or remote control switch.
  * Install the unit at least 3 meters away from devices generating electromagnetic waves, such as a radio.
- Do not install the unit in the place where animals and plants catch the direct outlet air. It could adversely affect animals and plants.
- The installer and system specialist shall secure safety against the refrigerant leakage according to local regulations or standards. The following standards may be applicable, if local regulations are not available. International Organization for Standardization, ISO5149 or European Standard, EN378 or Japan Standard, KHKS0010.
- No part of this manual may be reproduced without written permission.
- It is assumed that this heat pump air conditioner will be operated and serviced by English speaking people. If this is not the case, the customer should be provided with safety, caution and operating signs in the native language.
- If you have any questions, contact your distributor or dealer of HITACHI.
- This manual provides common descriptions and information covering other models as well as the one you are using.
- This product is designed for standard air conditioning only.
  DO NOT use this product for specific purposes, such as restoring foods, animals & plants, precision devices, art objects, etc.

- DO NOT install the air panel with motion sensor (P-AP160NAE) in the following places.
  It may cause misdetection, undetectable of motion or the deterioration of the motion sensor.
  * Places where ambient temperature changes drastically.
  * Places where excessive force or vibration is applied to the motion sensor.
  * Places where static electricity or electromagnetic waves may generate.
  * Places where is interference for infrared light such as glasses or mist in a detecting area.
  * Places where the lens for motion sensor is exposed in high temperature and humidity for a long time.
  * Places where fluid and corrosive gas exist.
  * Places where direct lights such as sunlight or headlight affect the motion sensor.
  * Places where hot air from a heater, etc. affects directly the motion sensor.
  * Places where weather affects directly the surface of the motion sensor.
  * Places where the lens surface may smudge or be damaged such as a dusty environment.
    Pay attention that the detecting function will be decreased if the lens for motion sensor smudges.
    In this case, wipe off smudges by a cotton swab soaked alcohol (Isopropyl alcohol is recommended.) or a soft cloth.
    (When wiping off smudges on the lens for motion sensor, do not apply excessive force.
    If excessive force is applied, the resin lens may be damaged so that may cause malfunctions such as misdetection or undetectable of the motion.)
- This heat pump air conditioner has been designed for the following temperatures. Operate the heat pump air conditioner within this range.

Temperature (°C)

		Maximum	Minimum
Cooling Operation	Indoor	30 DB	21.5 DB
	Outdoor	43 DB *	-5 DB *
Heating Operation	Indoor	25 DB	17 DB
	Outdoor	15 WB *	-20 WB *

DB: Dry Bulb, WB: Wet Bulb

* The temperature may change depending on the outdoor unit.

This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

CHECKING PRODUCT RECEIVED

- Upon receiving this product, inspect it for any shipping damage.
  Claims for damage, either apparent or concealed, should be filed immediately with the shipping company.
- Check the model number, electrical characteristics (power supply, voltage and frequency) and accessories to determine if they are correct.

The standard utilization of the unit shall be explained in these instructions.
Therefore, the utilization of the unit other than those indicated in these instructions is not recommended.
Please contact your local agent, as the occasion arises.
HITACHI's liability shall not cover defects arising from the alteration performed by a customer without HITACHI's consent in a written form.

TABLE OF CONTENTS

1. Safety Summary

< Signal Words >

● Signal words are used to identify levels of hazard seriousness.
Definitions for identifying hazard levels are provided below with their respective signal words.

⚠ DANGER : DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠WARNING : WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION : CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE : NOTICE is used to address practices not related to personal injury.

NOTE : NOTE is useful information for operation and/or maintenance.

⚠ DANGER

- Do not perform installation work, refrigerant piping work, drain pumping, drain piping and electrical wiring connecting work without referring to our installation manual. If the instructions are not followed, it may result in a water leakage, an electric shock, a fire and an injury.
- Do not perform installation work, refrigerant piping work, drain pumping, drain piping and electrical wiring connecting work without tuning OFF the main power source. It may cause an electric shock or injury.
- Use the specified non-flammable refrigerant (R410A) to the outdoor unit in the refrigerant cycle. Do not charge the unit with materials other than R410A, such as hydrocarbon refrigerants (propane, etc.), oxygen, flammable gases (acetylene, etc.) or poisonous gases when installing, maintaining and moving the unit. Contamination of these are extremely dangerous and may cause an explosion, a fire, and an injury.
- Turn OFF the main power source immediately if the protection device is frequently activated or the main power source switch does not work.
  If not, it may cause an electric shock, a fire or explosion because there are possibilities of the electrical leakage or overcurrent, etc. Contact your distributor or contractor.
- If abnormality (burnt odor, etc.) occurs, stop the operation and turn OFF the main power source immediately. If not, it may cause breakage of the product, an electric shock or a fire.
  Contact your distributor or contractor.
- Do not open the service cover or access panel for the indoor and outdoor unit without turning OFF the main power supply.
- Do not install the outdoor unit where there is high level of oil mist, flammable gases, salty air or harmful gases such as sulfur.
- Protect securely the electrical parts and connectors to keep water away from them. It not, It may cause an electric shock or a fire by electrical short circuit.
- Prior to installation work, make sure to conduct refrigerant leakage test. The refrigerant (Fluorocarbon) for this unit is non-flammable, non-toxic and odorless. However, if it should leak and contact with fire, toxic gas will be generated. Also because the fluorocarbon is heavier than air, it settles close to the floor, which could cause suffocation.
- Refrigerant leakage may lead to insufficient air and cause difficulty with breathing. Turn OFF the main switch, extinguish all naked flames and contact your service contractor, if refrigerant leakage should occur.
- The installer and system specialist shall secure safety against refrigerant leakage according to the local regulations or standards.
- For installation in a small room, make sure to take strong measures to prevent the refrigerant from exceeding the maximum permissible concentration in case a refrigerant gas leakage should occur. Otherwise, leaked refrigerant gas will cause suffocation in the event of a leakage. Consult with your distributor for countermeasures (ventilation system, etc).
- Use an ELB (Earth Leakage Breaker).
  If it is not used, an electric shock or a fire can be caused in the event of a fault.
- When installing the unit, make sure to connect the refrigerant pipes before the compressor starts operating. When maintaining, relocating and disposing the unit, remove the refrigerant pipe after the compressor stops. If the refrigerant pipes are not connected and the compressor are operated with the stop valve opened, the refrigerant cycle will be subjected to extremely high pressure, which may cause an explosion, a fire and an injury.
- Do not modify protection devices such as a pressure switch. Modification to protection devices (short circuit, etc.) might cause a fire and an explosion.
- When the indoor unit is operated with heating appliances, ventilate a room sufficiently.
  If not, it may cause suffocation.
- Do not install the indoor unit in a place where the air flow blows directly to heating appliances.
  It may cause incomplete combustion of the heating appliances.
- When the air conditioner is to be repaired or relocated, contact your distributor or contractor. If the repair and the installation are not completed, it may cause an electric shock or a fire.
- The inside of the piping charged with refrigerant is subject to high pressure. Perform securely the refrigerant piping work by the authorized installer. If not, it may cause a serious accident.

⚠WARNING

- Perform electrical work according to this Installation Manual and all the relevant regulations and standards. Failing to follow these instructions can cause capacity shortage and performance degradation, resulting in an electric shock and a fire.
- Do not use any sprays such as an insecticide, lacquer or hair spray, or other flammable gases within approximately one (1) meter from the system.
- Do not control the remote control switch by wet hand.
  It may cause failure of the remote control switch or an electric shock.
- Check that the ground wire is securely connected. If the unit is not correctly grounded, it will lead to an electric shock. Do not connect the ground wiring to a gas piping, water piping, lighting conductor or ground wiring for telephone.
- Connect a fuse of specified capacity.
- Select a sufficiently strong installation location. If not, the unit may fall down and it may lead to injuries.
- When handling the refrigerant, be sure to wear leather gloves to prevent cold injuries.
- Do not install the unit where oil, vapor, organic solvent and corrosive gas (ammonia, sulfur compound and acid, etc.) may be present in quantities. Operation under such conditions may lead to refrigerant leakage due to corrosion, an electric shock, performance degradation and a failure.
- Do not put the drain pipe for the indoor unit into the drainage trench where corrosive gases occur. Otherwise, poisonous gases flow into the room, which may cause poisoning.
- Electrical wiring work must be performed by authorized installers. Incorrect installation by a non-authorized installer may cause an electric shock or a fire.
- Use specified cables between units. Selecting incorrect cables may cause an electric shock or a fire.
- Ensure that the wiring terminals are tightened securely with the specified torques. Loose terminals may cause heart generation at the terminal connection part, a fire or an electric shock.
- Make sure to tie the wires together with cord clamps after connecting the wiring to the terminal board and pass the wires through the wiring hole. If not, the wires will be pinched, causing a fire.
- Make sure to turn OFF the power supply before handling the service connector.
- Fix the cables securely to make sure that the terminals are not subjected to an external force. External forces on the terminals could lead to heat generation and a fire.
- When controlling the switch on PCB, do not touch other electrical parts. Otherwise, it may cause an electric shock.
- Protect the wires, electrical parts, etc. from rats or other small animals. If not, rats may gnaw at unprotected parts, which may lead to a fire.
- Take care not to pinch electrical wirings when attaching the service cover. It might cause an electric shock or a fire.
- Turn OFF the main power supply of all the units before electrical wiring work or a periodical check of electrical parts and check that there is no residual voltage, to avoid an electric shock being caused by residual voltage.
- Do not spray water or detergent to the indoor unit when performing the maintenance work. It may cause an electric shock or a fire by electrical short circuit.
- Before performing any brazing work, check to ensure that there is no flammable material around.

⚠CAUTION

- Do not step on the product nor put any material on it.
- Do not put any foreign material on the unit or inside the unit.
- Do not insert a finger or stick into the air outlet and the air inlet.
  It could cause injury due to touch the rotating fan or electrical devices.
- Hold the air filter and the air inlet grille securely by hand when attaching or removing it.
  If not, it may cause the product falling, resulting in an injury.
- Avoid being exposed to the direct air from the air conditioner for a long time. Otherwise, it may cause adverse effects on human health.

NOTICE

- Do not install the indoor unit, outdoor unit, remote control switch and cable within approximately 3 meters from strong electromagnetic wave radiators such as medical equipment.
- Supply electrical power to the system to energize the crankcase heater for 12 hours before startup after a long shutdown.
- Make sure that the outdoor unit is not covered with snow or ice, before operation.
- The packaged air conditioner may not be operated normally under the following cases.

  * In case that electrical power for the packaged air conditioner is supplied from the same power transformer as the device with high electricity consumption*.

  * In case that the power source wires for the device* and for the packaged air conditioner are located close to each other.

  Device*: (Ex) Lift, container crane, rectifier for electric railway, inverter power device, arc furnace, electric furnace, large-sized induction motor and large-sized switch.

  Regarding the cases mentioned above, surge voltage may be inducted in the power supply wiring for the packaged air conditioner due to a rapid change in power consumption of the device and an activation of switch.
  Therefore, check the field regulations and standards before performing electrical work in order to protect the power supply for the packaged air conditioner.
- Do not install the unit in the place where the breeze directly catches animals and plants. It could adversely affect animals and plants.
- Do not turn OFF the main power source of the indoor unit during the season of heating and cooling. Otherwise, drain water cannot be discharged forcibly and so overflows from the drain pan. As the result, the floor and the ceiling surface are smudged.

NOTE

- It is recommended that the room be ventilated every 3 to 4 hours.
- The heating capacity of the heat pump unit is decreased according to the outdoor air temperature. Therefore, it is recommended that auxiliary heating equipment be used in the field when the units is installed in a low temperature region.

2. Before Operation

⚠CAUTION

Supply electrical power to the system for approximately 12 hours before start-up after long shutdown. Do not start the system immediately after power supply. It may cause a compressor failure, because the compressor is not heated well. Make sure that the outdoor unit is not covered with snow or ice. If it is covered with snow, remove it by using hot water (approximately 50°C). If the water temperature is higher than 50°C, it will cause damage to plastic parts.

- When the system is started after a shutdown longer than approximately 3 months, it is recommended that the system be checked by your service contractor.
- Turn OFF the main switch when the system is stopped for a long period of time. If the main switch is not turned OFF, electricity is consumed, because the oil heater is always energized during compressor shutdown.

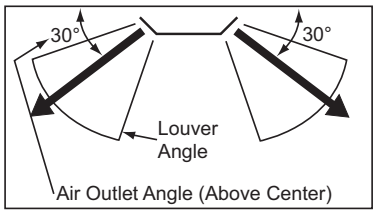
2.1 Efficient Use of Indoor Unit

- **Do not leave a window or a door open.**
  The operating efficiency will be decreased, which may cause dew condensation of the indoor unit. Also ventilate a room sufficiently.
- **Hang a curtain or a blind on a window.**
  Direct sunlight is prevented and the cooling efficiency will be increased.
- **Do not use heating appliances during cooling operation as much as possible.**
  The cooling efficiency will be decreased, which may cause dew condensation and dew drop.
- **Use a circulator if warm air stays around the ceiling.**
  The comfort will be increased. Contact your distributor for details.
- **Change the air flow direction downward if the ceiling surface gets dirty.**
  It is recommended to change the air flow direction by approx. 30° downward from the levelness.
- **Turn OFF the main power supply if the indoor unit is not used for a long time.**
  If not, the standby electricity charges will have to be paid even if the indoor unit is unused.

2.2 Efficient Use of Cooling and Heating

COOLING

(1) Air Flow Direction
The appropriate air outlet angle is approx. 30°.
If cooling is not sufficient, change the air flow direction.
The louver angle can be changed each approx. 5° per step by the remote control switch.



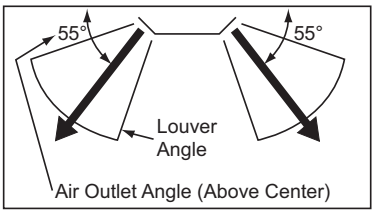
(Refer to the item 4.3 on the operation manual of PC-ARF.)

(2) Air Flow Volume
"MED" should be usually used. If the air flow volume is set as "HIGH", the air flow will be spread wider than "MED".

(3) Temperature
The recommended set temperature is 27 to 29°C.
If the cooling is not sufficient, set the lower temperature.

HEATING

(1) Air Flow Direction
The appropriate air outlet angle is approx. 55°.
If heating is not sufficient, change the air flow direction.
The louver angle can be changed each approx. 5° per step by the remote control switch.



(Refer to the item 4.3 on the operation manual of PC-ARF.)

(2) Air Flow Volume
"MED" should be usually used. If the air flow volume is set as "HIGH", the air flow will be spread wider than "MED".

(3) Temperature
The recommended set temperature is 18 to 20°C.
If the heating is not sufficient, set the higher temperature.

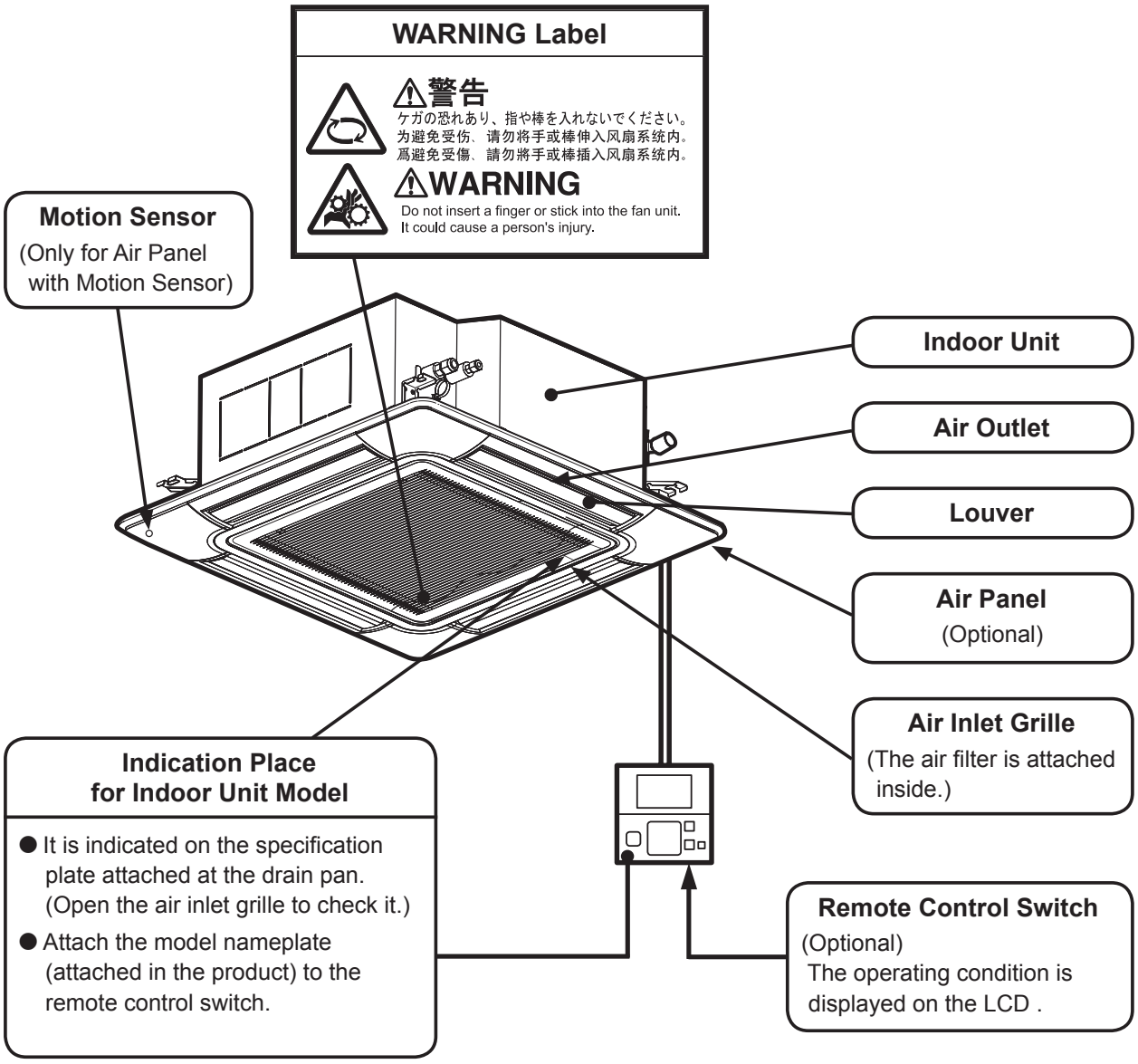
NOTE

< For Multi-Split System >
When the number of the indoor units in operation or the operating mode is changed, the change in air outlet temperature can cause the indoor temperature to change. In this case, change the settings as follows.
- During Cooling: Lower the temperature setting slightly.
- During Heating: Raise the temperature setting slightly.

3. Name of Parts and Indication of Safety Consideration

The safety considerations are indicated on the indoor unit in order to ensure the safe use.
Read and understand this manual before using the indoor unit.

3.1 Indoor Unit

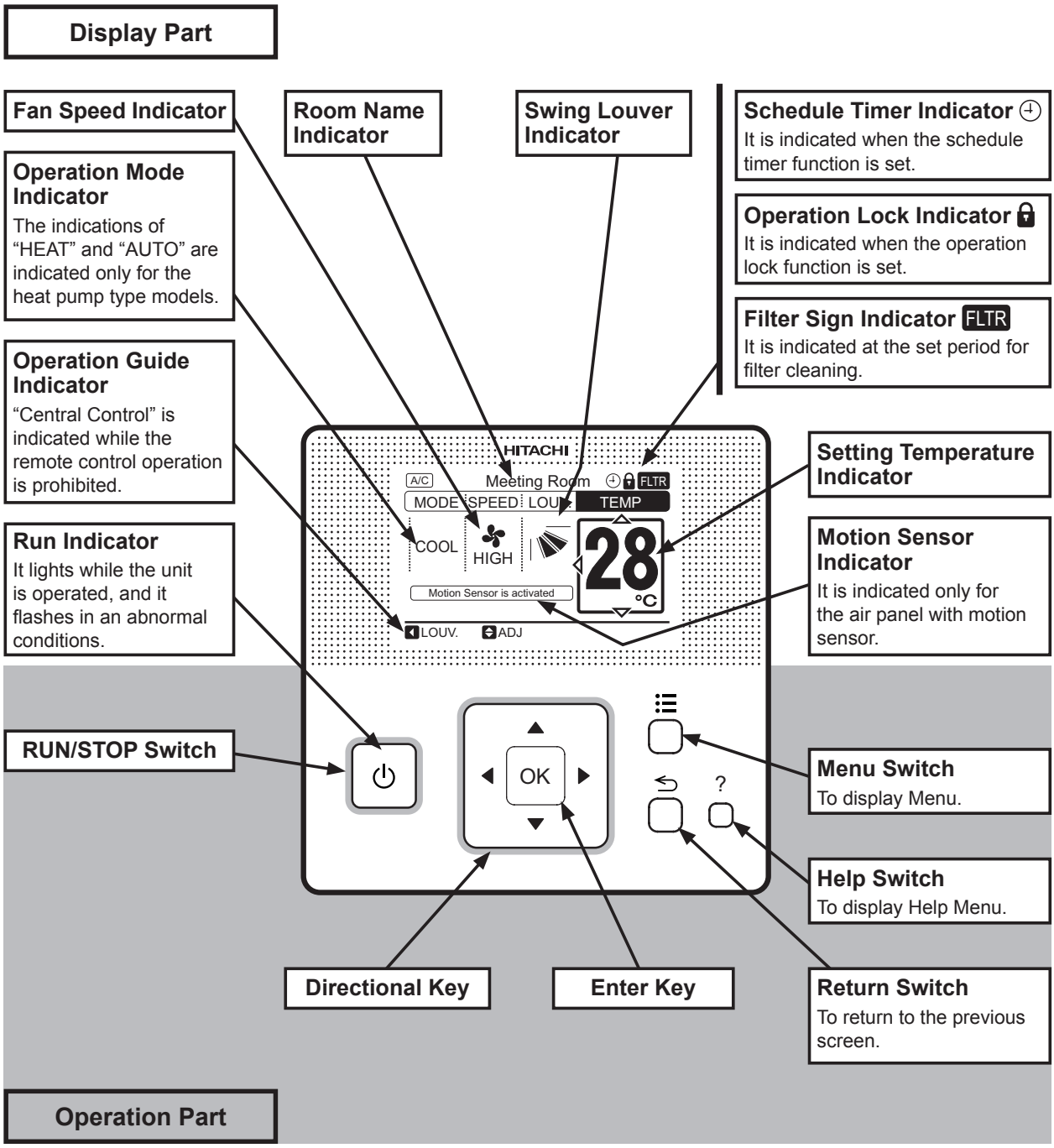


NOTE

- Press the switches lightly to control the remote control switch. Do not press them with sharp objects such as a pen. Otherwise, it may cause breakage of operating part.
- The optional wireless remote control switch and receiver kit shall be controlled according to each installation manual attached to them.

3.2 Remote Control Switch

Model: PC-ARF (Optional)



NOTE

- Press the switches lightly to control the remote control switch. Do not press them with sharp objects such as a pen. Otherwise, it may cause breakage of operating part.
- The optional remote control switch shall be controlled according to the installation manual attached to it.

4. Operation Method

Refer the manual for PC-ARF.

5. Motion Sensor

This setting is available only for the air panel with motion sensor.

5.1 Function

- The motion sensor detects a human activity by the change of the infrared light.
  This function saves the air conditioning capacity (adjusting the set temperature, the air flow volume and the air flow direction) automatically depending on a situation.
- The operation after the motion sensor detects as absence can be selected from “Running”, “Stand-by” or “Stop” on the remote control switch with the capacity saving.

NOTICE

- Do not use the motion sensor function when a baby or a handicapped person stays by oneself. The motion sensor may detect as absence and the operation may be stopped in the case of staying for long time with a bit motion.
- The motion sensor detects the human activity. However, if someone is in a room with a bit motion, the motion sensor may detect as absence.
- The motion sensor may detect as human activity if the indoor unit with the motion sensor is installed near a moving object (ex. swing operation of a heating appliance) which is difference in temperature against atmosphere.
- In the case that the indoor units are operated by 2 remote control switches, the motion sensor setting is available only from the main remote control switch.
- The indoor unit operation can be stopped by the motion sensor control.

  NOTE:
  The indoor unit without the motion sensor and the indoor unit with the motion sensor can be mixed to install.
  In this case, when the operation is stopped by the motion sensor control, the indoor unit without the motion sensor will also stop the operation.
- While the air conditioning capacity is saved or the operation is stopped by the motion sensor control, “Motion sensor is activated” is displayed on LCD.
- If the function “Prohibiting operation by remote control switch” is used from the centralized controller, select the command “Running” or “Stand-by” in “If absent” at the motion sensor control setting.

  If “Stop” is selected, the motion sensor control can not be performed correctly as follows.
  * In the case that “Stop” is selected in the motion sensor control setting and “Prohibiting operation by remote control switch” (for all items) is set by the centralized controller, the operation will not be stopped even if the motion sensor control function changes to the stoppage condition.
  * In the case that “Stop” is selected in the motion sensor control setting and “Prohibiting operation by remote control switch” (for part of items) is set by the centralized controller, the indoor unit operation can not be restarted from the centralized controller although the operation can be stopped under the stoppage condition by the motion sensor control function.

5.2 Details for Motion Sensor Control

The motion sensor control adjusts automatically the following items depending on a situation.

* Setting Temperature:
  The temperature is adjusted 1°C or 2°C for saving capacity.
* Air Flow Volume:
  The air flow volume is adjusted to lower one volume or to “Slo” (except during the dry operation).
* Air Flow Direction:
  The air flow direction is adjusted to horizontal.

5.3 Descriptions for Setting Items

● Motion Sensor Setting

* ON: The operating control function by the motion sensor is activated.
* OFF: The operating control function by the motion sensor is not activated.

(The default setting is “ON”.)

● If absent

“If absent” is set for the indoor unit operation after the motion sensor detects as absence for set time in “Check interval”. The operation can be selected from “Running”, “Stand-by” or “Stop” on the remote control switch.
(The default setting is “Running”.)

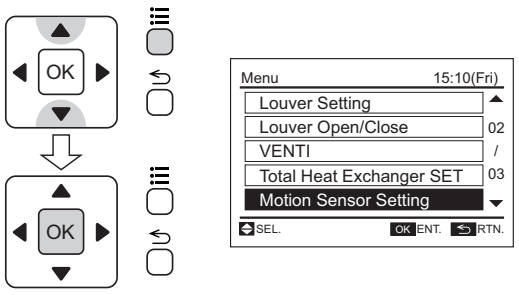
* Running:
  The operation is continued with saving the capacity after detected as an absence.
  If the human activity is detected for a period of time, the normal operation will be performed again.
* Stand-by:
  The operation mode is the fan operation at “Slo” speed. If the human activity is detected for a period of time, the normal operation will be performed again.
* Stop:
  The operation is stopped by the remote control switch when all the indoor units with motion sensor detect absence which are connected with same remote control switch.
  If the human activity is detected for a period of time by the stoppage, the normal operation is performed again.

● Check Interval

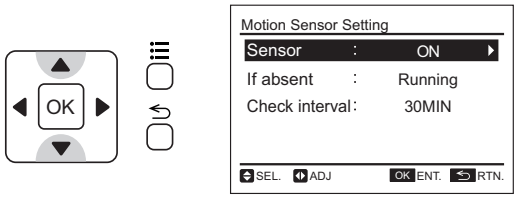
When the motion sensor detects an absence at selected check interval time, the function “If absent” will be executed. The interval can be selected from 30, 60, 90 120 or 180 minutes.
(The default setting is 30 minutes.)

5.4 Setting of Motion Sensor

(1) Press “☰” (menu).
Select “Motion Sensor Setting” from the menu by pressing “△” or “▽” and press “OK”.

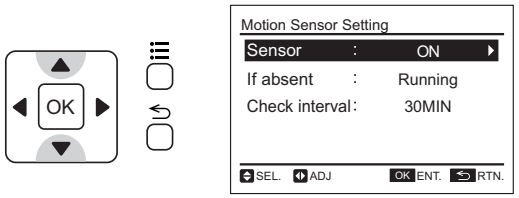


(2) “Motion Sensor Setting” is displayed.
The highlighted item is shifted to “Sensor”, “If absent” and “Check interval” by pressing “△” or “▽”.



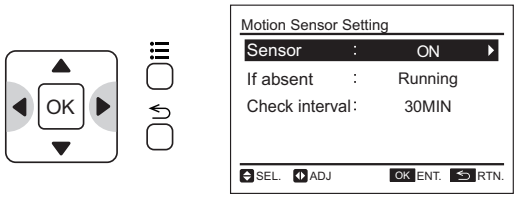
- To set “Sensor”, move to procedure (3).
- To set “If absent”, move to procedure (5).
- To set “Check interval”, move to procedure (7).

(3) Press “△” or “▽” and select “Sensor”.

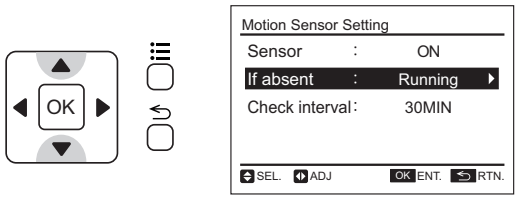


(4) The display is switched “ON” and “OFF” in order by pressing “◁” or “▷” and change the setting.

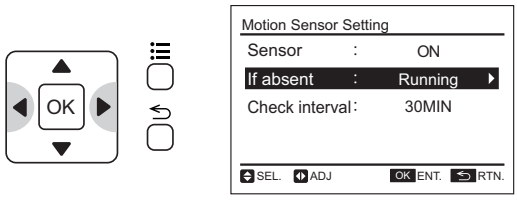
If other settings are not required, move to procedure (9).



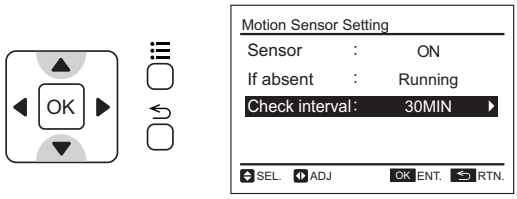
(5) Press “△” or “▽” and select “If absent”.



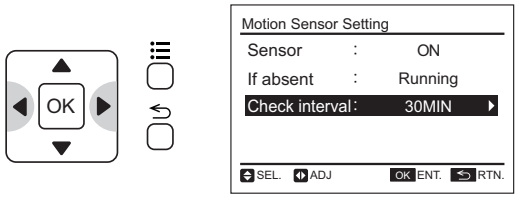
(6) The display is switched “Running”, “Stand-by” and “Stop” in order by pressing “◁” or “▷” and change the setting.
If other settings are not required, move to procedure (9).



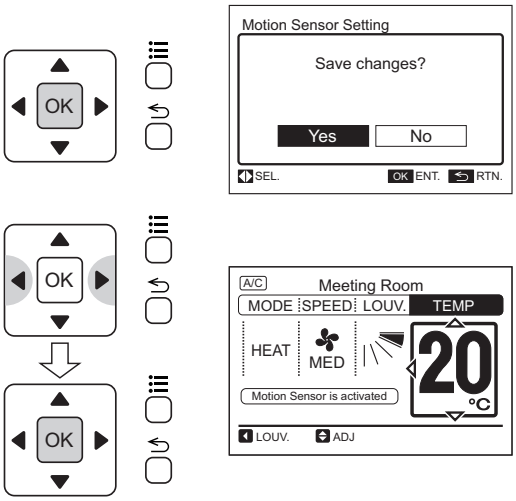
(7) Press “△” or “▽” and select “Check interval”.



(8) The display is switched “30MIN”, “60MIN”, “90MIN”, “120MIN” and “180MIN” in order by pressing “◁” or “▷” and change the setting.
If other settings are not required, move to procedure (9).



(9) Press “OK” after the setting is completed. The confirmation screen will be displayed. Select “Yes” by pressing “◁” or “▷” and press “OK”. The motion sensor setting will be confirmed and the screen will return to the normal mode (operation mode indication).

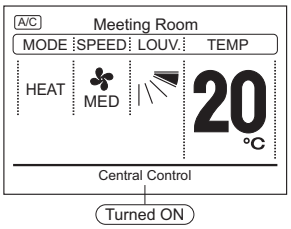


6. Other Indications

6.1 In Normal Condition

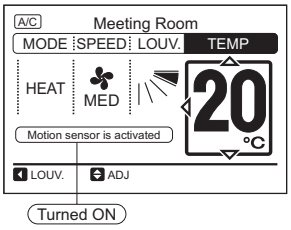
6.1.1 Central Control

"Central Control" is turned ON.
In case that the prohibiting operation by remote control switch is set from the central controller, operation, temperature setting, fan speed and direction setting are not available from the remote control switch.



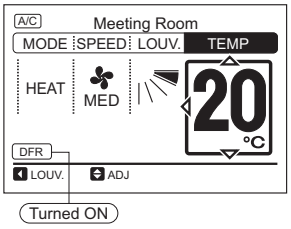
6.1.2 Motion Sensor Control

"Motion sensor is activated" is turned ON during the motion sensor control.
In this case, the operation is performed with saving the capacity or stopped by the motion sensor control.



6.1.3 Defrost

"DFR" is turned ON and the indoor fan stops during defrosting operation. The louver is fixed in a horizontal position.



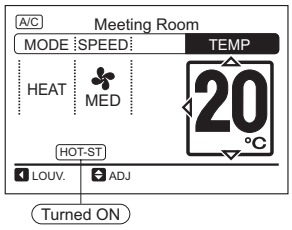
• Operation Stoppage during Defrosting Operation

If the unit operation is stopped during defrosting operation, the operation continues with the RUN indicator (Green) turned OFF. The operation stops after defrosting operation.

6.1.4 Operation Control

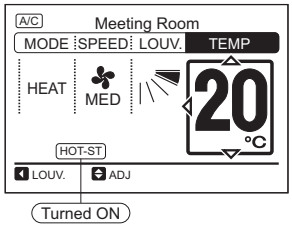
• Supplying Main Electrical Power

"HOT-ST" is turned ON at power-on.
In this case, the compressor is under preheating. Do not turn OFF the power supply of the outdoor unit during the high season for Cooling/Heating operation. Otherwise, the operation might not be available for Max. 4 hours.



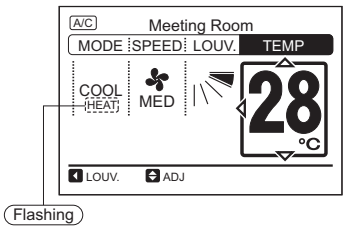
• During Hot Start (for Heating Operation Only)

"HOT-ST" is turned ON.



• Different Operation Mode

When the operation mode set by the remote control switch is different from the outdoor unit operation mode, the actual operation mode flashes on the LCD.
(except for the heat recovery system models)



The above display shows the case that the cooling mode is set from the remote control switch while actual operation mode of the outdoor unit is heating.

6.2 In Abnormal Condition

6.2.1 Abnormality

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the number of the connected indoor units are displayed on the LCD.
- In case that the plural indoor units are connected to one remote control switch, select the object indoor unit on the LCD to display the information.

6.2.2 Power Failure

- All the indications are OFF.
- Once the unit stops due to power failure, the operation will not restart even after the power recovers. Perform the starting procedures again.
- In case of the instantaneous power failure for 2 seconds or less, the standard unit restarts the operation automatically.

6.2.3 Electric Noise

There could be a case that all the indications are OFF and the unit is stopped. This is due to the activation of the micro computer for the unit protection from the electric noise.
Perform the starting procedures again.

7. Automatic Control

The system is equipped with the following functions.

NOTE

Except in the case of a long period of shutdown, keep the main power switch ON. The drain discharge mechanism is operated if the drain level is higher than the setting.

- **Three Minute Guard** (Enforced Stoppage)
  This function is utilized to protect the compressor. When the function is valid, the compressor does not operate the unit for at least 3 minutes after it stops operating, with the RUN indicator turned ON. The operation restarts automatically after 3 minutes.
- **Three Minute Guard** (Enforced Operation)
  This function is utilized to protect the compressor. When the function is valid, the compressor does not stop operating for at least 3 minutes after it starts operating.
  However, if all indoor units in the system are stopped by the remote control switch, the compressor will stop operating.
- **Oil Return Operation**
  This function is utilized to prevent oil accumulation in the heat exchanger of out-of-service indoor unit at cooling operation.
  If the indoor unit is stopped continuously for more than 2 hours, this function is operated for a few minutes.
- **Frost Prevention During Cooling Operation**
  This function is utilized to prevent frost formation on the indoor unit heat exchanger. When the indoor unit is operated at low discharge air temperature, the cooling operation switches to fan operation automatically.
- **Self-Cleaning of Expansion Valve**
  This function is utilized to clean the expansion valve automatically when the operation stops during cooling operation. The sound of the refrigerant flowing may be heard from the indoor unit during self cleaning operation. However, it is not abnormal.
- **Hot Start During Heating Operation**
  This function is utilized to prevent cold discharged air at start-up of heating operation, after defrosting operation, etc. The fan speed automatically switches from Slow to Low and then to the set fan speed. The fan operation might be stopped for up to 2 minutes. At this time the louver is fixed horizontally.

- **Defrosting Operation**
  The indoor fan stops during defrosting operation to prevent cold air from being discharged. At this time the louver is fixed horizontally.
- **Cooling of Indoor Unit**
  When the heating operation is stopped, the indoor fan operation (fan speed: Low) might continue for up to 2 minutes to lower the temperature of the inside of the unit.
- **Automatic Defrosting Cycle**
  When the heating operation is stopped by pressing RUN/STOP switch, frosting on the outdoor unit is checked and the defrosting operation may be performed for the maximum of 10 minutes.
- **Prevention of Overload Operation**
  When the outdoor temperature is high (approx. 21C°) during heating operation, heating operation is stopped due to activation of the outdoor thermistor until the temperature becomes low.

NOTE

- If the system is stopped due to a power failure, it will not automatically start again even after power is restored.
  Repeat the start-up procedure from Step 1 to start the system. In case of the power failure for 2 seconds or less, the standard unit memorize all the operation modes and restarts the operation automatically after approximately 3 minutes.
- This air conditioner adopts hot air circulation system for the heating operation.
  If the air conditioning room is large or the room temperature is excessively low, it takes time to warm the whole room. “HOT-ST” will be turned OFF after heating the room.
- “HOT-ST” may be displayed during or right after defrosting operation. It is activated to prevent the cold draft. It is NOT abnormal.

8. Simultaneous Operation

The multiple indoor units can simultaneously be controlled by one remote control switch (Single: max. 16 units, Twin: max. 8 sets, Triple: max. 5 sets, Quad: max. 4 sets).
Contact a distributor or a contractor for detail.

9. Maintenance

⚠WARNING

- **Turn OFF the power source before the maintenance work. If not, it may cause a fire or an electric shock.**
- **Perform the maintenance work with stable footing. If not, it may cause falling or injury.**

⚠CAUTION

- **When opening, closing, attaching or removing the air inlet grille, perform the work according to this operation manual. If not, it may cause the product falling, resulting in an injury.**

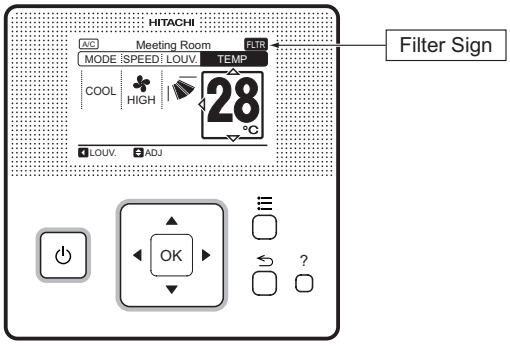
NOTICE

- Do not operate the system without the air filter, to prevent the indoor unit heat exchanger from being clogged.

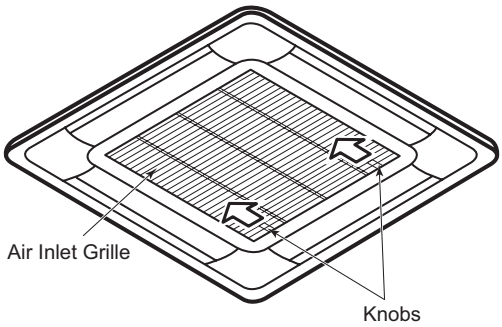
9.1 Daily Maintenance

9.1.1 Cleaning Air Filter

Clean the air filter when the filter sign is turned ON.

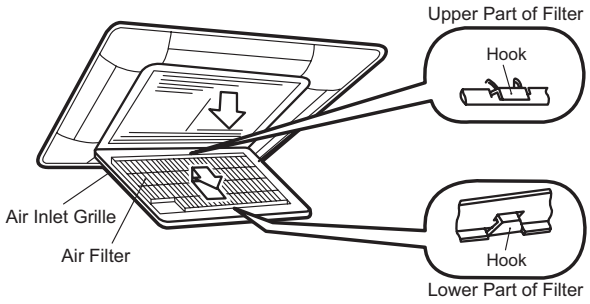


(1) Open the air inlet grille.
While sliding the knobs on both side of the air inlet grille in the arrow direction, open the air inlet grille.



(2) Remove the air filter.

Hold the lower side of the air inlet grille keeping it inclined. Remove the hooks of air filter from the air inlet grille and remove the air filter.



(3) Clean the air filter.

- Vacuum dust with a cleaner, or wash the air filter with water or neutral detergent.
- Dry the air filter in the shade.

NOTE

- Do not use hot water more than 50°C. The air filter may be deformed by heat.
- Do not dry the air filter with open fire, a dryer or a heater. The air filter may be deformed.

(4) Attach the air filter.

After the air filter is dried, attach it correctly to the air inlet grille.

(5) Close the air inlet grille.

NOTE

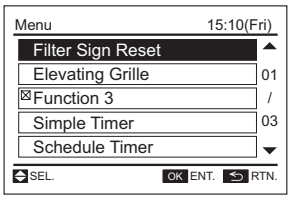
- Be sure to attach the air filter. If the indoor unit is operated without the air filter, it may cause malfunction of the indoor unit.
- Make sure that the air inlet grille is securely locked with the knobs. If it is not properly locked, it might open suddenly, resulting in the grille falling.

(6) Reset the filter sign.

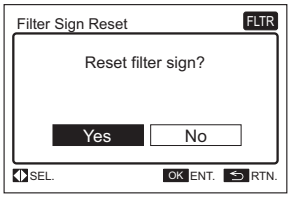
NOTE

If the accumulated operation time is shorter than the filter sigh setting, the indication "☒" is turned ON and "Setting Disabled" will be displayed.

- Press "☰" (menu). Select "Filter Sign Reset" from the menu and press "OK". The confirmation screen will be displayed.



- Select "Yes" by pressing "◁" or "▷" and press "OK". The indication of "FLTR" will be turned OFF and the screen will return to the normal mode.



9.1.2 Removing, Attaching and Cleaning Air Inlet Grille

Wipe the air panel by a soft cloth which is soaked in lukewarm water and squeezed.

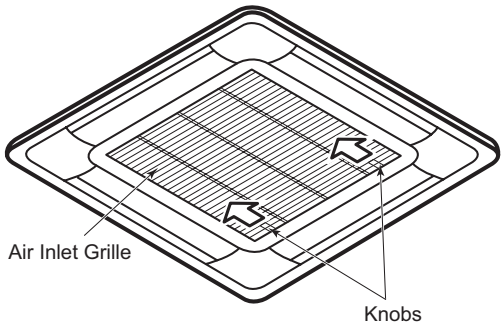
NOTICE

- Wipe the air inlet grille with a soft cloth soaked in lukewarm water and squeezed.
- Use a soft cloth to clean the air inlet grille and the air panel. If bengine, thinner or detergent (with surfactant) is used to cleaning, the resin part may get discolored or deformed. In addition, note that the parts around the air outlet (louver, guide, etc.) may be damaged if an excessive force is applied.

The air inlet grille can be removed and cleaned.

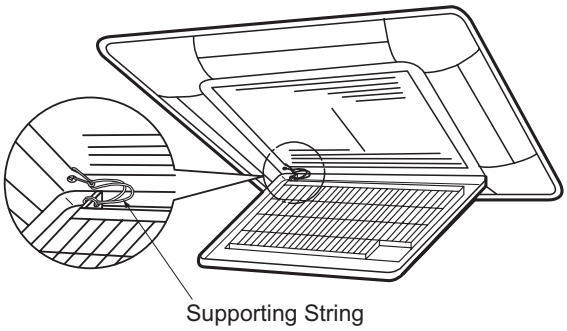
(1) Open the air inlet grille.

While sliding the knobs on both side of the air inlet grille in the arrow direction, open the air inlet grille.



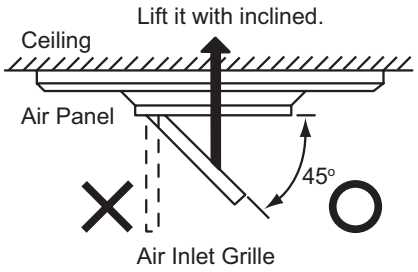
(2) Remove the air inlet grille.

- Remove the supporting string from the air panel.



- Open the air inlet grille at an approximately 45° angle from the air panel surface.
- Tilting the air inlet grille, lift it up to remove it.

NOTE:
Although the air inlet grille can be opened up to 90°, it cannot be removed from the air panel at the angle. Tilt it at a 45° angle when removing it.



(3) Clean the air inlet grille.

(4) Attach the air inlet grille.

Attach the air inlet grille in the reverse procedure to removing.

9.2 Maintenance Beginning and Ending of Use

< At Beginning of Use >

- Remove obstacles around the air inlet grilles and the air outlet of the indoor unit and outdoor unit.
- Check that the air filter is not clogged with dust and dirt.

< At End of Use >

- Clean the air filter, the air inlet grille and the air panel.

10. Troubleshooting

10.1 This is Not Abnormal

Phenomenon		Cause and Action
Operation Stopped	All indication lamps on the remote control switch are turned OFF.	The micro-computer is activated to protect the device from electromagnetic waves. Restart the operation.
	"Motion Sensor is activated" is turned ON on the remote control switch.	The operation is stopped automatically because the motion sensor is set as "If absent: Stop" and it detects as absence for a period of time. (All the indoor units connected to the same remote control switch are stopped.)
	After Power Failure	Restart the operation. If the instantaneous power failure is within 2 seconds, the operation restarts automatically.
White Steam from Indoor Unit	During Heating Operation	This might occur during the defrosting operation in the heating operation.
White Smoke from Indoor Unit	At Beginning of Heating Operation Season	This might occur when dust attached to the heat exchanger has been dried.
Mist from Indoor Unit	In Restaurant or Kitchen	This might occur when oil attached to the fins might decrease the heat exchange efficiency.
	During Dry Operation	This might occur when the air outlet temperature becomes lower. Change the operation mode.
	During Cooling Operation in Humid Environment	This might occur when the air outlet temperature becomes lower. Raise the set temperature and the air flow volume.
Odor from Indoor Unit	Odor Discharged Air from Indoor Unit	This might occur when the smell of cigarette smoke or room stuck to the inside of the indoor unit. Ventilate the unit well in the fan mode and clean the air filter, the air outlet and the air inlet grille.
Sound from Indoor Unit	Grate is heard when starting or stopping the operation.	This is the sound made when the components are rubbing against each other due to the extension and contraction of the resin parts caused by the temperature change.
	Sound of water flowing or burbling is heard during the operation.	This is the sound made when the refrigerant flows or the drain-up mechanism drains water. The sound may be heard especially when starting the operation or stopping the compressor (for approx. 3 minutes).
	Growling sound may be heard temporarily right after the air flow volume is changed.	It is generated because the fan motor makes temporary sound by change of fan speed.
Dew Condensation on Air Panel	Dew condensation on Air Panel or Cabinet or Dew Drops	This might occur when the operation is performed in humid place (relative humidity is approx. 80%) for a long time.
Temperature Irregularity	The air flow volume and temperature of each air outlet are irregular.	This might occur for structural reasons, such as the size of air outlet and the location of heat exchanger.
"HOT-ST" on LCD Turned ON		This might occur according to the operation mode or operation conditions.
Operation Mode on LCD Flashing		

10.2 Before Contact

Check the items before contacting a contractor.

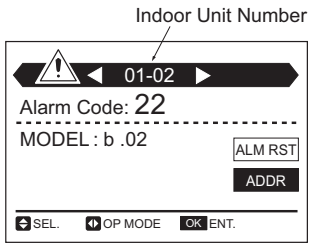
Trouble		Checking Point	Action
Operation Unavailable		Check that the main power source is turned ON.	Turn ON the main power source for the air conditioner.
		Check that the fuse is not blown out or the circuit breaker of main power source is not tripped.	Replace the fuse or reset the circuit breaker. If the trouble recurs, contact your contractor or distributor.
Immediate shutdown after start-up	Cooling	Check that the air inlet and outlet of the outdoor unit are not covered with a paper, a vinyl or other objects.	Remove objects covering the air inlet and outlet.
	Heating	Check that there are any obstacles preventing the air flow near the air inlet and outlet of the outdoor unit.	Remove the obstacles preventing the air flow.
		Check that the outlet air is not short-circuited to the air inlet.	
Insufficient Cooling or Heating		Check that the operation mode is appropriate.	If the fan mode is selected, switch the operation mode to cooling (heating).
		Check that the set temperature is appropriate.	If not, change the set temperature by pressing "△" or "▽" by the remote control switch.
		Check that the air flow direction is appropriate.	If not, change the air flow direction. In the case that the footing is not heated well during the heating operation, change the louver downward.
		Check that the air filter is not clogged.	Clean the air filter.
		Check that a window and a door are not opened.	Close the window and the door.
		Check that there are any obstacles preventing the air flow near the air inlet and outlet of the indoor and outdoor units.	Remove the obstacles.

10.3 Contact Distributor

If the problem is not resolved even after checking the previous items or if other troubles not mentioned in the previous pages occur, stop using the product and contact your distributor or contractor.

⚠WARNING

If abnormality (burnt odor, etc.) occurs, stop the operation and turn OFF the main power source immediately. If not, it may cause breakage of the product, an electric shock or a fire. Contact your distributor or contractor.

Trouble	Action before Contact
The protection devices (fuse, breaker, ELB, etc) are frequently activated or the main power source switch does not work.	Turn OFF the power source.
Water Leakage from Indoor Unit.	Stop the operation.
● The RUN indicator (Red) is flashing. ● The indoor unit number, the alarm code, the unit model code and the number of the connected indoor units are displayed on LCD. ● In case that the plural indoor units are connected to one remote control switch, the indoor unit information is indicated on LCD in number order. So select the object indoor unit on LCD to display the information. Check the details on LCD and contact your distributor. 	Refer to the alarm code table. Contact your distributor about the indication on the remote control switch in detail.

Provide the following information when contacting your distributor.

1) Unit Model
2) Content of Trouble
3) Alarm Code No. on LCD

10.4 Alarm Code

Code	Category	Content of Abnormality
01	Indoor Unit	Activation of Protection Device (Float Switch)
02	Outdoor Unit	Activation of Protection Device (High Pressure Cut)
03	Transmission	Transmission Failure between Indoor and Outdoor
04		Transmission Failure between Inverter PCB and Outdoor PCB
05	Supply Phase	Abnormality of Power Source Phases
06	Voltage	Abnormality of Voltage Drop in Outdoor Unit
07	Cycle	Decrease in Discharge Gas Superheat
08		Excessively High Discharge Gas Temperature at Top of Compressor Chamber
09	Outdoor Unit	Activation of Protection Device for Outdoor Fan
11	Sensor on Indoor Unit	Inlet Air Thermistor Failure
12		Outlet Air Thermistor Failure
13		Freeze Protection Thermistor Failure
14		Gas Piping Thermistor Failure
19	Fan Motor	Activation of Protection Device for Indoor Fan
20	Sensor on Outdoor Unit	Compressor Thermistor Failure
21		High Pressure Sensor Failure
22		Outdoor Air Thermistor Failure
23		Discharge Gas Thermistor Failure
24		Evaporating Thermistor Failure
29		Low Pressure Sensor Failure
31	System	Incorrect Capacity Setting of Outdoor Unit and Indoor Unit
32		Incorrect Setting of Other Indoor Unit Number

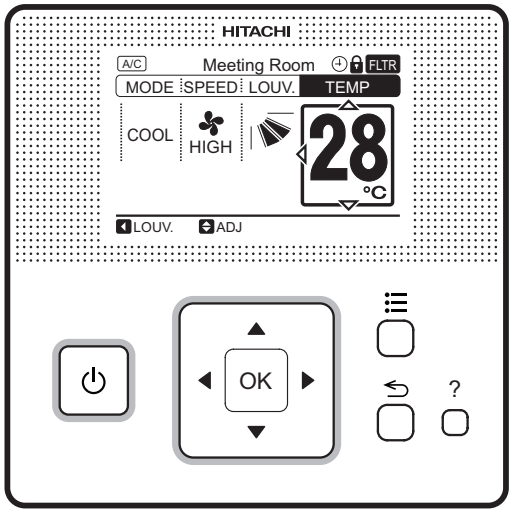
Code	Category	Content of Abnormality
35	System	Incorrect Setting of Indoor Unit No.
36		Incorrect Indoor Unit Combination
38		Abnormality of Picking up Circuit for Protection in Outdoor Unit
39	Compressor	Abnormality Running Current at Constant Speed Compressor
41	Pressure	Overload Cooling
42		Overload Heating
43	Protection Device	Activation of Pressure Ratio Decrease Protection Device
44		Activation of Low Pressure Decrease Protection Device
45		Activation of Low Pressure Increase Protection Device
46		Activation of High Pressure Increase Protection Device
47		Activation of High Pressure Decrease Protection Device
48		Activation of Overcurrent Protection Device
51	Inverter	Abnormal Inverter Current Sensor
52		Activation of Inverter Overcurrent Protection
53		Activation of Transistor Module Protection
54		Abnormality of Inverter Fin Temperature
56	Outdoor Fan	Abnormality of Detection for Fan Motor Position
57		Activation of Fan Controller Protection
58		Abnormality of Fan Controller
b0	System	Incorrect Setting of Unit Model
b1		Incorrect Setting of Unit and Refrigerant Cycle No.
EE	Compressor	Compressor Protection Alarm

The End

HITACHI

Operation Manual

- PC-ARF -



IMPORTANT:

READ AND UNDERSTAND THIS MANUAL BEFORE USING THIS WIRED REMOTE CONTROL SWITCH.
KEEP THIS MANUAL FOR FUTURE REFERENCE.

P5414986

IMPORTANT NOTICE

- HITACHI pursues a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- HITACHI cannot anticipate every possible circumstance that might involve a potential hazard.
- This heat pump air conditioner is designed for standard air conditioning only. Do not use this heat pump air conditioner for other purpose such as drying clothes, refrigerating foods or for any other cooling or heating process.
- Do not install the unit in the following places. It may cause a fire, deformation, corrosion or failure.
  * where oil vapor or oil is dispersed (including machinery oil).
  * where a lot of sulfide gas drifts such as at hot spring.
  * where inflammable gas may be generated or flowed.
  * where strong salty wind blows such as coast regions.
  * with an atmosphere of acidity or alkalinity.
- Do not install the unit in the place where silicon gas drifts. If the silicon gas attaches to the surface of heat exchanger, the fin surface repels water. Drain water splashes outside of the drain pan and splashed water runs inside of electrical box. It may cause water leakage or electrical devices failure.
- Pay attention to the following points when the unit is installed in a hospital or other facilities where electromagnetic wave is generated by a medical equipment.
  * Do not install the unit in the place where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
  * Install the unit at least 3 meters away from electromagnetic wave radiators such as a radio.
- Do not install the unit in the place where animals and plants are exposed to the direct blowing air from the unit. It could adversely affect the animals and plants.
- The installer and system specialist shall comply with local regulations or standards for the safety. The following standards may be applicable, if local regulations are not available. International Organization for Standardization, ISO5149 or European Standard, EN378 or Japan Standard, KHKS0010.
- No part of this manual may be reproduced without written permission.
- It is assumed that this heat pump air conditioner will be operated and serviced by English speaking people. If this is not the case, the customer should add safety such as caution and operating signs in the native language for non English speakers.
- If you have any questions, contact your distributor or dealer of HITACHI.
- This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

SAFETY SUMMARY

< Signal Words >

● Signal words are used to identify levels of hazard seriousness.
Definitions for identifying hazard levels are provided below with their respective signal words.

⚠ DANGER : DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠WARNING : WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION : CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE : NOTICE is used to address practices not related to personal injury.

NOTE : NOTE is useful information for operation and/or maintenance.

TABLE OF CONTENTS

1. Safety Summary

⚠ DANGER

- **Do not pour water into the remote control switch (hereafter called "controller"). This product is equipped with electrical parts. If poured, it will cause a serious electrical shock.**
- **Do not operate switches with wet hand. It may cause an electrical shock.**
- **In case that the protective devices often function or the operation switches do not function well, turn OFF the main power supply and contact your distributor or dealer of HITACHI.**
- **In case that other abnormalities are found, stop the system, turn OFF the main power supply and contact your distributor or dealer of HITACHI.**

⚠ WARNING

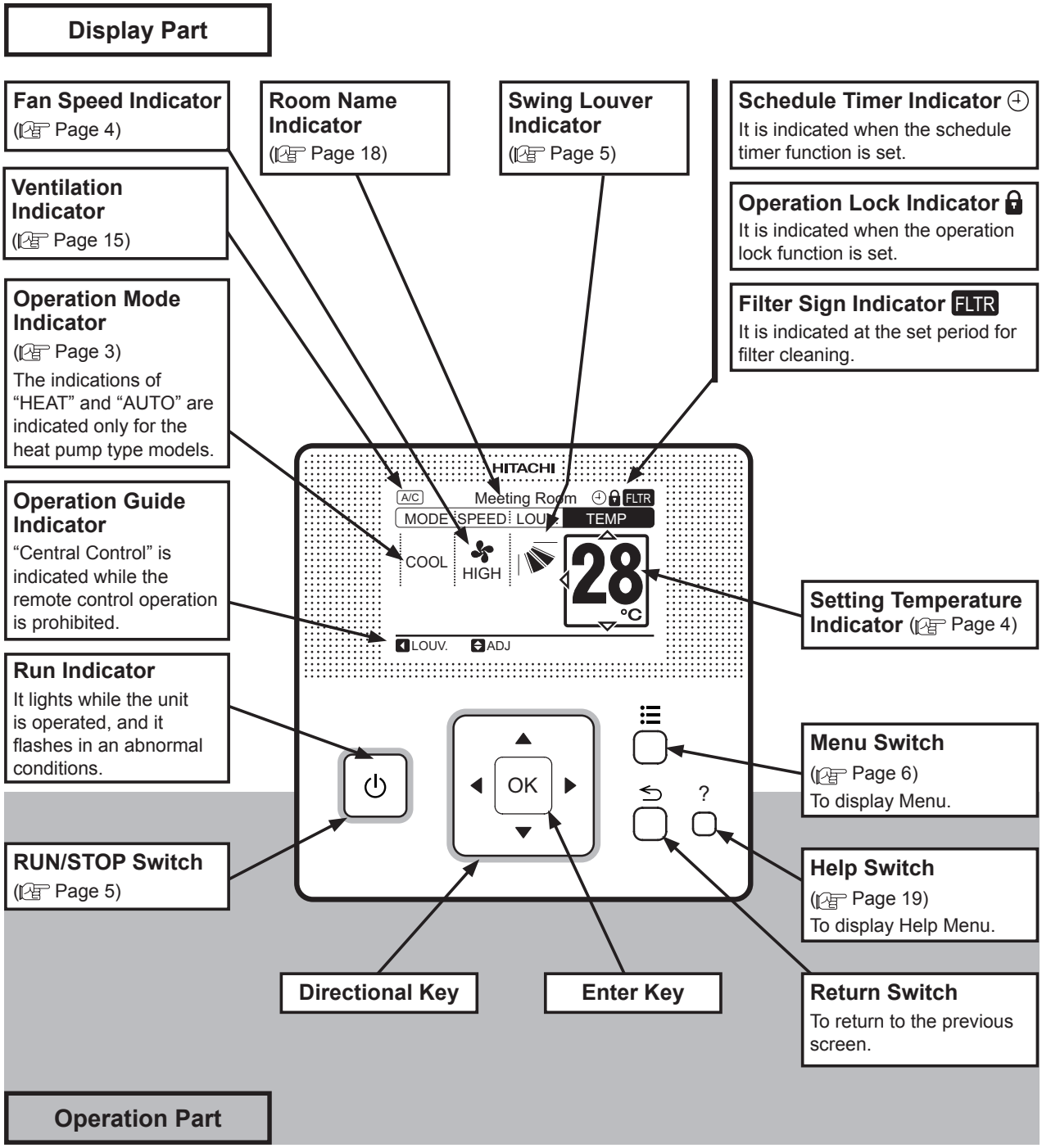
- **Do not perform installation work and electrical wiring connection by yourself. Contact your distributor or dealer of HITACHI and ask them for installation work and electrical wiring by service person.**
- **Do not modify the electrical wiring. It may cause serious accident.**

⚠ CAUTION

- **Do not install the indoor unit, outdoor unit, controller and cable at such places as;**
  - **(1) where oil vapor or oil is dispersed**
  - **(2) where the hot springs are near (in a sulfuric environment)**
  - **(3) where generation, flowing, staying or leaking of flammable gas is detected**
  - **(4) where the sea is near (in the salty environment)**
  - **(5) an acid or alkaline environment**
- **Do not install the indoor unit, outdoor unit, controller and cable within approximately 3 meters from strong electromagnetic wave radiators such as medical equipment. In case that the controller is installed in a place where there is electromagnetic wave radiation, shield the controller and cables by covering with the steel box and running the cable through the metal conduit tube.**
- **In case that electric noise is applied at the power source for the indoor unit, provide a noise filter.**

2. Switch Names and Functions

The figure below shows all the indications for reference. The actual display during operation is different.



Backlight

Backlight is turned ON by pressing any switches. In case of using two remote control switches, only the first operated remote control switch turns ON backlight, the other one does not turn ON backlight.

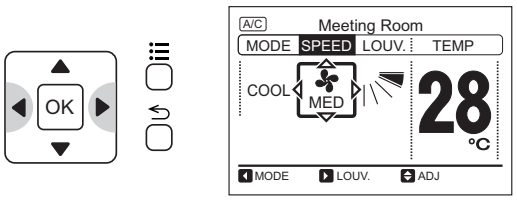
NOTE:
Do NOT press the switches hard or press with sharply pointed material such as a ball point pen.
The operation part of the remote control switch may be damaged.
Make sure that the switches are pressed softly with fingers.

3. Operation Method

3.1 Basic Operation

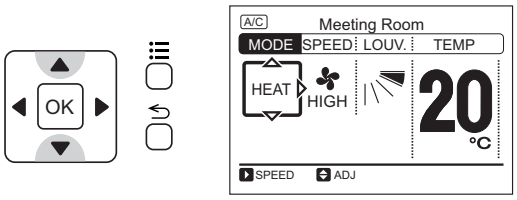
(1) Item Selection

By pressing "◁"or "▷", the icon "⬚" will move to the next item in order of the indications "MODE", "SPEED", "LOUV." and "TEMP".



(2) Change of Settings

With the item ("MODE", "SPEED", "LOUV." or "TEMP") selected, press "△" or "▽". The setting will be changed.



3.2 Operation Mode (Cooling, Heating, Dry, Cooling/Heating Automatic and Air Flow Operation)

<Function>

* Cooling Operation (COOL):
  To decrease the room temperature.
* Heating Operation (HEAT):
  To increase the room temperature.
* Dry Operation (DRY):
  To decrease the humidity in the room.
* Cooling/Heating Automatic Operation (AUTO):
  To cooling and heating automatic changeover.
* Air Flow Operation (FAN):
  To circulate the air in the room.

ATTENTION

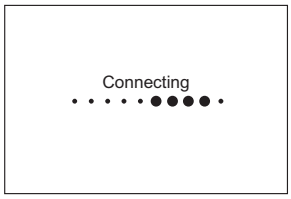
The recommendable set temperature is as follows;
*** Cooling Operation: 27 to 29°C**
*** Heating Operation: 18 to 20°C**
*** Dry Operation: 23 to 25°C**

<Before Operation>

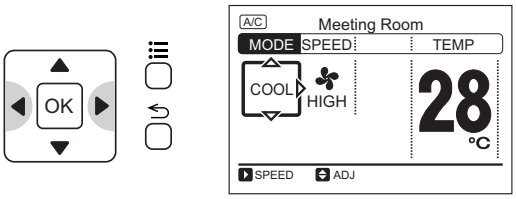
⚠CAUTION

Supply the electrical power to the system for approximately 12 hours before start-up after long shutdown. Do not start the system immediately after the power supply, it may cause a compressor failure, because the compressor is not heated well.
Do NOT turn OFF the power supply during the seasons.
Make sure that the outdoor unit is not covered with snow or ice. If covered, remove it by using hot water (less than 50°C).
If the water temperature is higher than 50°C, it will cause damage to plastic parts.

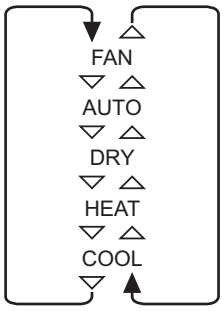
(1) Turn ON the power supply.

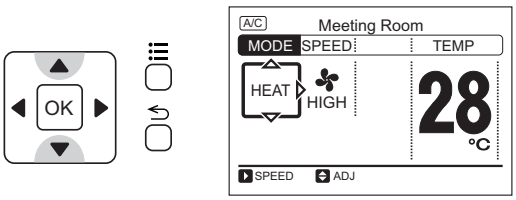


(2) Press "◁" or "▷" and select "MODE".



(3) By pressing "△" or "▽", the operation mode will be changed as follows.



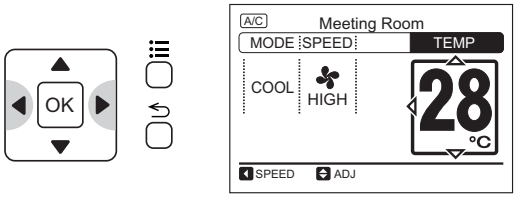


NOTE:
The advanced setting is required for the "AUTO" operation. Contact your distributor or dealer of HITACHI for detailed information.

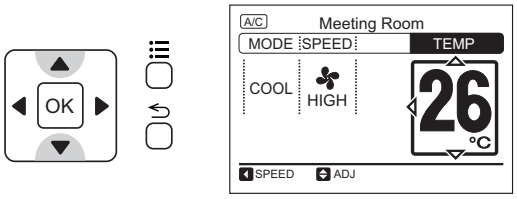
4. Setting Method

4.1 Temperature Setting

(1) Press "◁" or "▷" and select "TEMP".



(2) By pressing "△", the temperature is increased by 1°C. (Max. 30°C)
By pressing "▽", the temperature is decreased by 1°C.
(Cooling, Dry, Air Flow operation: Min. 19°C)
(Heating operation: Min. 17°C)

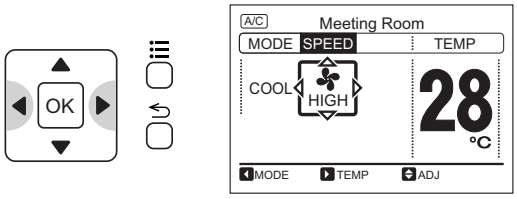


NOTES:

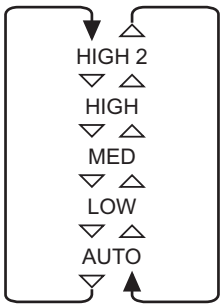
- The max./min. temperature is available to change by setting the cooling lower limit for setting temperature (or heating upper limit for setting temperature) from the function selection.
- When "Automatic Reset of Setting Temperature" function is selected, the temperature is automatically returned to the preset temperature in a certain period of time after the setting temperature change.
- Contact your distributor or dealer of HITACHI for detailed information about "Automatic Reset of Setting Temperature" and "Cooling Lower Limit Value and Heating Upper Limit Value for Setting Temperature" function.

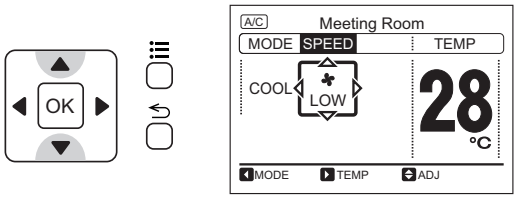
4.2 Fan Speed

(1) Press "◁" or "▷" and select "SPEED".



(2) By pressing "△" or "▽",
the fan speed will be changed as follows.



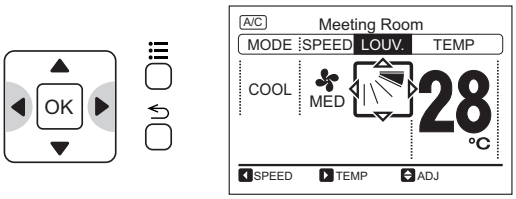


NOTES:

- During the dry operation, the fan speed is automatically changed to "LOW" and cannot be changed to other fan speed. ("LOW" will NOT be displayed on LCD (liquid crystal display) at this time. The present setting condition will be displayed on LCD.)
- The fan speed settings "HIGH 2" and (or) "AUTO" may not be available depending on the indoor unit type.

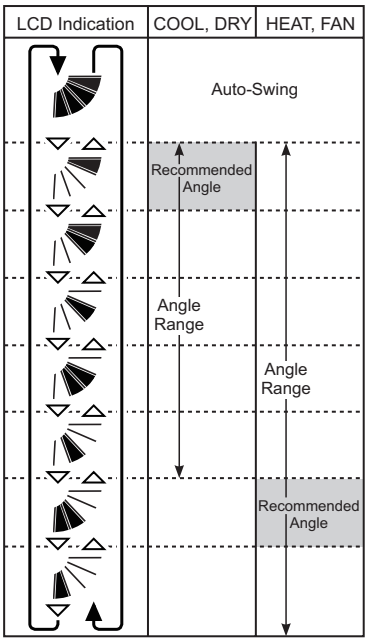
4.3 Swing Louver Direction

(1) Press "⏻" (run/stop).
Make sure that the operation is started.
Press "◁" or "▷" and select "LOUV.".

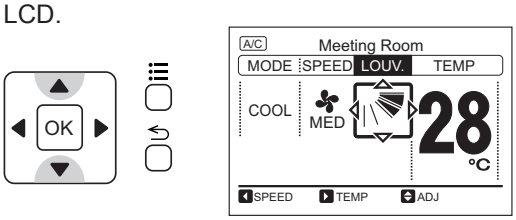


NOTE:
For the indoor unit without the auto louver mechanism, the indication of "LOUV." will NOT be displayed on LCD.

(2) By pressing "△" or "▽", the louver direction will be changed as follows.



: Auto swing operation will be started. At this time, the louver will swing repeatedly on LCD.

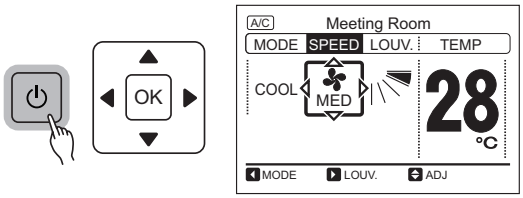


NOTES:
- The air flow angle is different for each indoor unit type. Check Installation & Maintenance Manual for Indoor Unit to be used for the detailed information.
- Louver position on LCD and the actual louver position may not match during the auto swing operation.
  To fix the louver positions, set the angle after checking the position on LCD.
- The louver may NOT stop immediately right after the switch is pressed.

5. Operation

5.1 Operation Start

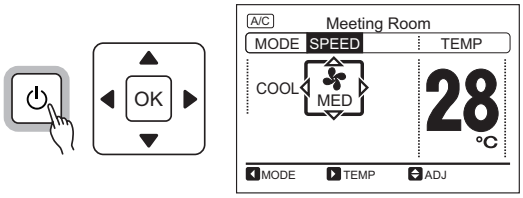
Press "⏻" (run/stop).
The run indicator will be turned on and the operation will be started.



NOTE:
< Temperature/Air Flow Setting >
The setting condition will be memorized once after the setting is confirmed, therefore the daily setting is not required. In case that the setting change is required, refer to the item 3.1 to 4.3.

5.2 Operation Stop

Press "⏻" (run/stop) again.
The run indicator will be turned off and the operation will be stopped.



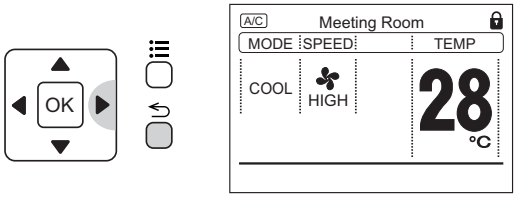
NOTE:
After the heating operation is stopped, the air flow operation may be activated for approximately 2 minutes.

6. Operation Lock

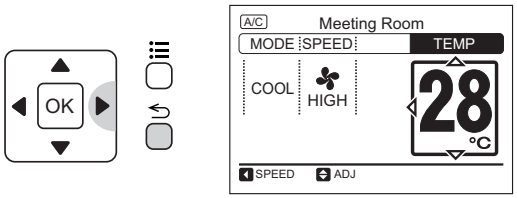
- This function is used to lock the setting from the remote control switch.
- The following functions are applicable.
  (a) Operation Mode (MODE)
  (b) Temperature Setting (TEMP)
  (c) Fan Speed (SPEED)
  (d) Swing Louver Direction (LOUV.)

NOTE:
When “Lock function for operation mode selection” function is selected, operation lock can be available by performing the following procedure.

(1) Setting of the operation lock, press “▷” and “⮌” (return) simultaneously for 3 seconds. The icon of “🔒” will be turned ON. Even when “◁” or “▷” is pressed, locked setting items will be skipped.



(2) Cancellation of the operation lock, press “▷” and “⮌” (return) simultaneously for 3 seconds. “🔒” will be turned OFF, and operation lock will be canceled.



NOTES:
- Every time pressing “▷” and “⮌” (return) simultaneously for 3 seconds, the operation lock state will be switched alternately to locked/unlocked.
- Select the functions to lock at the function selection setting.
  Contact your distributor or dealer of HITACHI for detailed information.

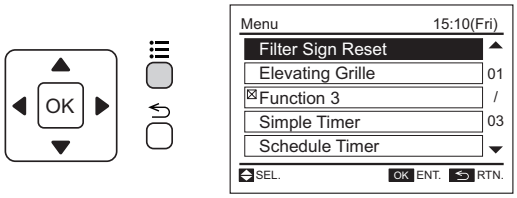
7. Menu Operation

7.1 Menu

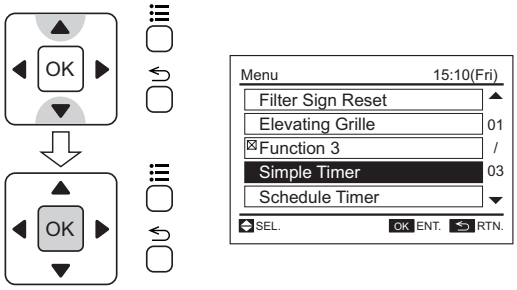
- Every setting function is displayed in the menu.
- Refer to the item 7.2 to 7.13 for each function.

NOTE:
☒: Unable to set
If the function with “☒” is selected from the menu, “No Function” or “Setting Disabled” will be displayed on the lower screen.

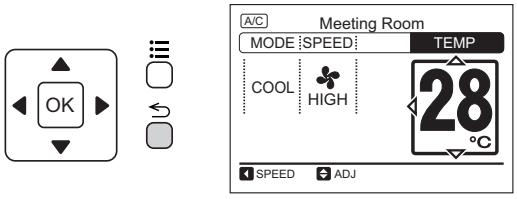
(1) Press “☰” (menu).
The menu will be displayed.



(2) Select the function by pressing “△” or “▽” and press “OK”.
(“☒” will be displayed if the function is not available.)



(3) Press “⮌” (return) to return to the normal mode (Operation Mode Indication).



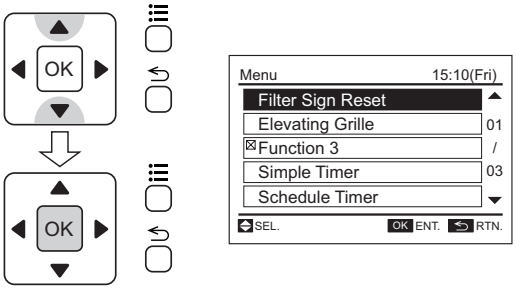
NOTE:
If the menu screen remains unchanged for approximately 10 minutes, the screen will automatically return to the normal mode.

7.2 Filter Sign Reset

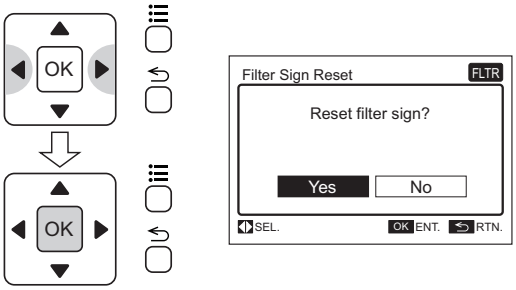
This function is used to turn off the filter sign indication.

NOTE:
If the function with the indication of "☒" is selected from the menu, "Setting Disabled" will be displayed because the setting accumulated time is insufficient.

(1) Select "Filter Sign Reset" from the menu and press "OK".
The confirmation screen will be displayed.



(2) Select "Yes" by pressing "◁" or "▷" and press "OK".
The indication of "FLTR" will be turned OFF and the screen will return to the normal mode.



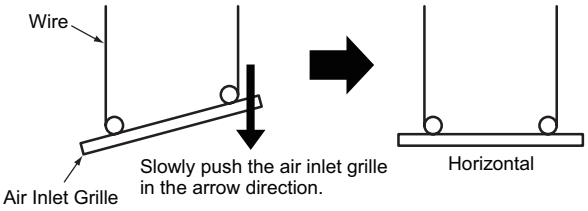
7.3 Elevating Grille

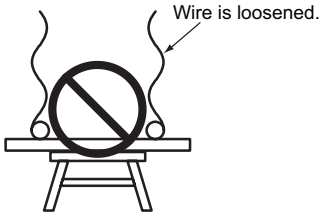
This function is available only when the elevating grille is equipped with the air panel.

⚠CAUTION

< Caution of Setting Elevating Grille into Air Panel After Cleaning >

When the air inlet grille is set inside the air panel, ensure that the air inlet grille is horizontal and the wire is suspended tightly without loosening. After the above is ensured, set the air inlet grille.
If the air inlet grille is inclined and the wire is loosened, they may be caught in the pulley. It may lead to a failure of the pulley or pulley block. If the worst happens, it may cause personal injury due to falling the air panel.

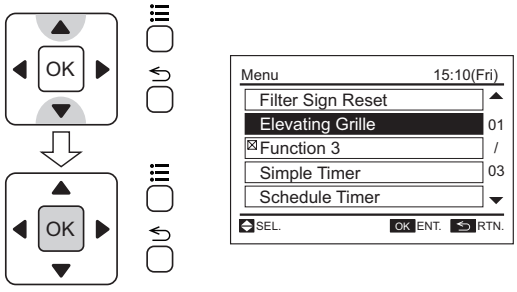




This function is for the air inlet grille automatically moves upward or downward from the air panel when cleaning the air filter and air inlet grille.

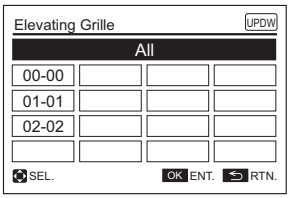
NOTES:
- This function is available only when the elevating grille is equipped with the indoor unit.
- Make sure that the unit operation is stopped before using the elevating grille.
- The elevating grille function is not available when the unit is operated.

(1) Press "☰" (menu) and select "Elevating Grille" from the menu. Press "OK".



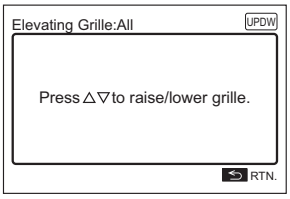
NOTE:
If the number of indoor unit connected with the remote control switch is 1 (one), (3) will be displayed after the procedure (1).

(2) Select the indoor unit by pressing "△", "▽", "◁" or "▷". Press "OK".

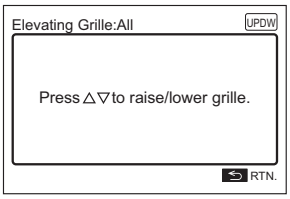


(3) Press "▽".
The elevating grille starts lowering.

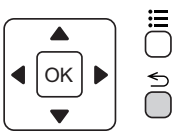
- Once "▽" is pressed, the elevating grille lowers to the specified height.
- If "▽" is pressed once again, the elevating grille lowers by 50cm from the present height. (When "▽" is pressed each time, the elevating grille lowers respectively by 50cm.)
- To stop the elevating grille, press "△".

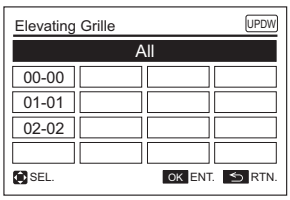


(4) When the cleaning is finished, press "△".
The elevating grille starts rising. The grille will be set inside the air panel and stopped moving after 3 seconds.
(If the air inlet grille is inclined at this time, press "△" again. An inclination may be corrected.)



(5) Press "⮌" (return).
The screen will return to (2).
(If necessary, set the elevating grille for other indoor units.)
To finish the setting, press "⮌" (return) again. The screen will return to the menu.
If "⮌" (return) is pressed once again, the screen will return to the normal mode.



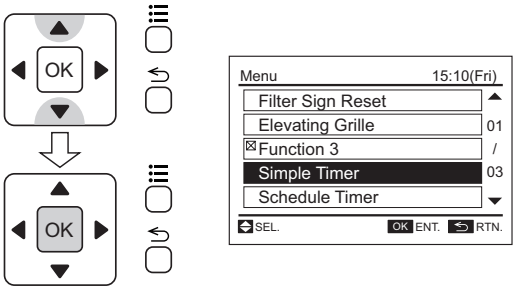


NOTE:
If the number of indoor unit connected with the remote control switch is 1 (one), the screen will return to the normal mode after "⮌" (return) is pressed.

7.4 Simple Timer Operation

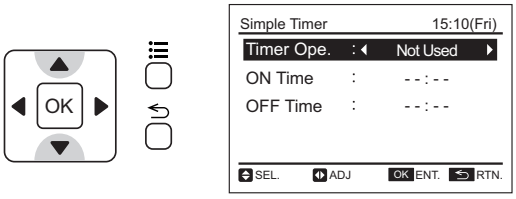
- This function is used to start or stop the unit operation at the setting time.
- The timer operation contents can be set from "Once" or "Everyday".

(1) Select "Simple Timer" from the menu and press "OK".
The simple timer setting will be displayed.

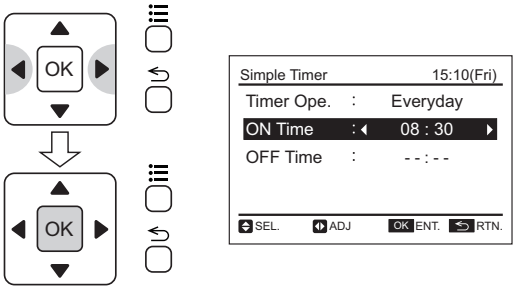


NOTE:
If the present time has not been set yet, automatically "Set Date/Time" will be displayed. Refer to the item 7.10 "Adjusting Date/Time".

(2) Press "△" or "▽" to select the setting items.
The setting items are displayed "Timer Ope.", "ON Time" and "OFF Time".



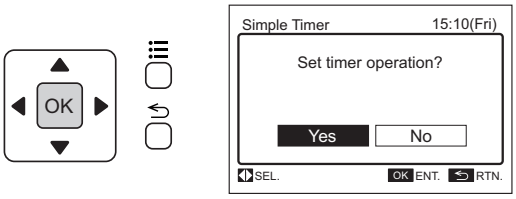
(3) Press "◁" or "▷" to set each setting content for the selected item.
When "Timer Ope." is selected, the setting contents are switched in order of "Not Used" ⟷ "Once" ⟷ "Everyday" by repeatedly pressing "◁" or "▷".
When "ON Time" or "OFF Time" is selected, the setting time can be set every 30 minutes by pressing "◁" or "▷". Press and hold "◁" or "▷", the setting time can be continuously indicated.



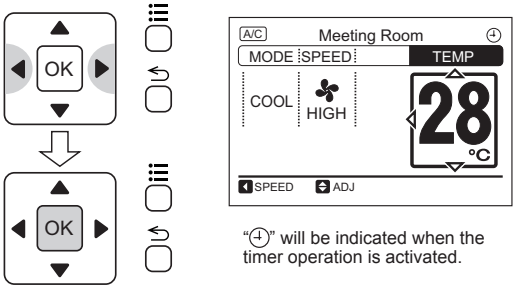
NOTES:

- If "Once" of the timer operation setting is selected, the setting content will be automatically changed to "Not Used" after "Once" timer operation.
- Do not set the same hour for both ON/OFF timers.

(4) Press “OK” to finish the simple timer setting. The confirmation screen will be displayed.



(5) Select “Yes” by pressing “◁” or “▷” and press “OK”. The setting will be confirmed and the screen will return to the normal mode.



“⊕” will be indicated when the timer operation is activated.

NOTE:
In the case of the following condition, the simple timer operation is NOT available;

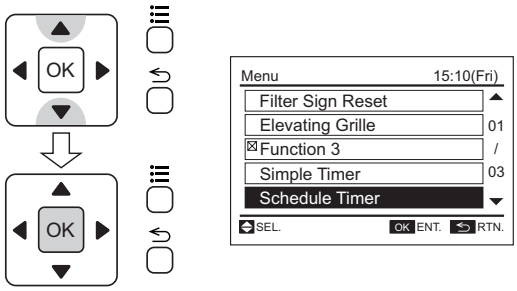
* When the prohibiting operation by remote control switch is set from the central controller.
* When “⊗” is indicated on LCD, the timer operation cannot perform. Set the date and time according to the item 7.10 “Adjusting Date/Time”.

7.5 Scheduled Operation

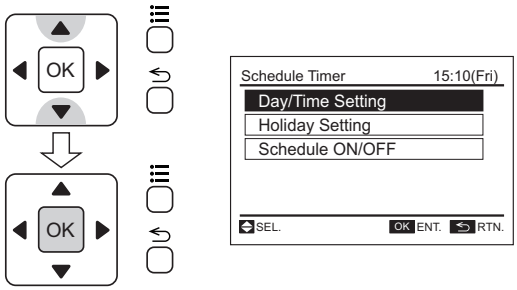
7.5.1 Schedule Setting

- This function is used to start or stop the unit operation at the setting time.
- Temperature can be also set with schedule timer operation.
- Five different schedule timers (max.) can be set for each day of the week.

(1) Select “Schedule Timer” from the menu and press “OK”.



(2) Select “Day/Time Setting” by pressing “△” or “▽” and press “OK”.

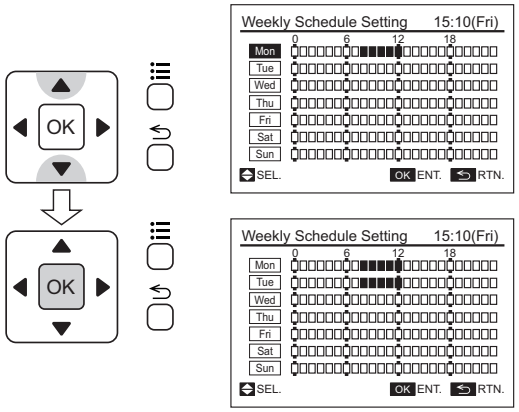


NOTE:
If the present time has not been set yet, automatically “Set Date/Time” will be displayed. Refer to the item 7.10 “Adjusting Date/Time”.

(3) Select the day of the week (from Mon. to Sun.) by pressing "△" or "▽".
Press "OK".

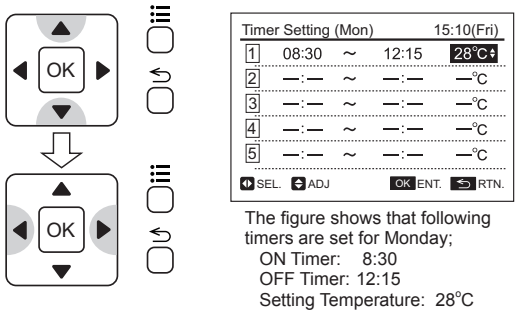
- "▮" (run) and "▯" (stop) will be displayed on LCD.
- To copy the setting contents of the previous day, press "◁" and "OK" simultaneously.

< Example >
The setting contents of Monday is copied in Tuesday.
(a) Select "Tue".
(b) Press "◁" and "OK" simultaneously.
(c) The setting contents of Monday are copied in Tuesday.



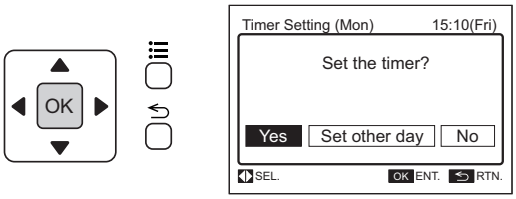
(4) Select the schedule No. (from 1 to 5) by pressing "△" or "▽".
Select "ON Time", "OFF Time" or "Setting Temperature" by pressing "◁" or "▷".
Set the ON/OFF timer and temperature by pressing "△" or "▽".

- Press or keep pressing "△" or "▽" to adjust numbers.
- Five different schedule timers (max.) can be set for each day of the week.
- When setting other days of the week, press "☰ (menu)". The schedule setting screen of next day will be indicated.

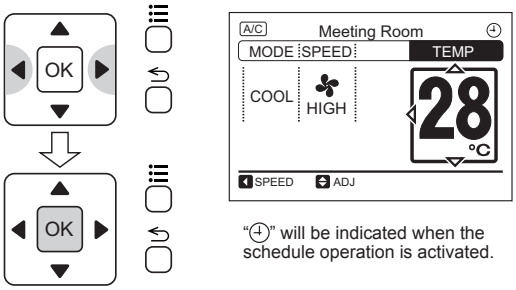


The figure shows that following timers are set for Monday;
ON Timer: 8:30
OFF Timer: 12:15
Setting Temperature: 28°C

(5) Press "OK".
The confirmation screen will be displayed.



(6) Select "Yes" by pressing "◁" or "▷" and press "OK". The setting will be confirmed and the screen will return to the normal mode.
To set other days of the week, select "Set other day" and press "OK".



"⊕" will be indicated when the schedule operation is activated.

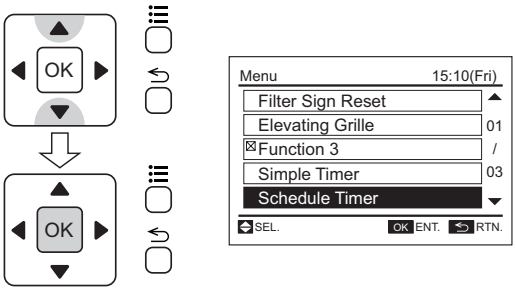
NOTE:
In the case of the following condition, the schedule operation is NOT available;

* When the prohibiting operation by remote control switch is set from the central controller.
* When "⊗" is indicated on LCD, the schedule operation cannot perform. Set the date and time according to the item 7.10 "Adjusting Date/Time".

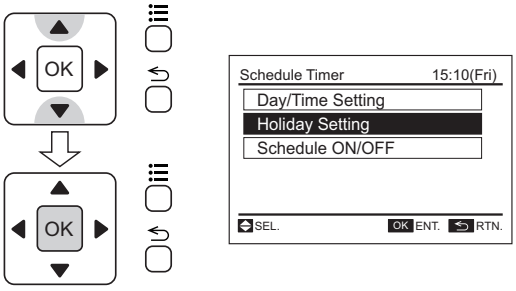
7.5.2 Holiday Setting

- This function is used to deactivate the schedule operation temporarily.
- This function is used to deactivate the schedule operation just for one day. After that, the schedule operation will recover automatically.
- This function is used to set irregular schedules such as national holidays.

(1) Select “Schedule Timer” from the menu and press “OK”.
The schedule timer setting will be displayed.

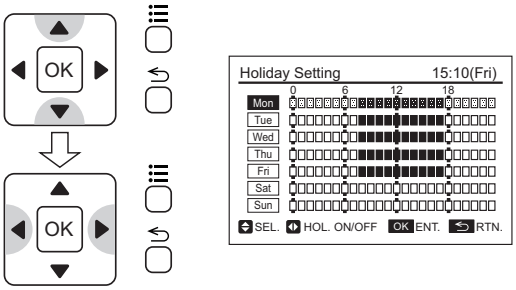


(2) Select “Holiday Setting” by pressing “△” or “▽” and press “OK”.

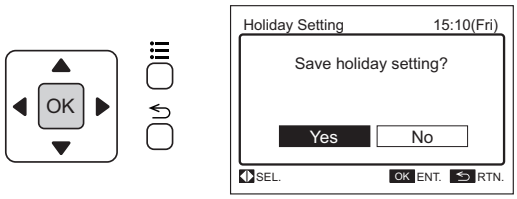


(3) Select the day of the week to stop the operation by pressing “△” or “▽”.
Select “HOL. ON/OFF” by pressing “◁” or “▷”.

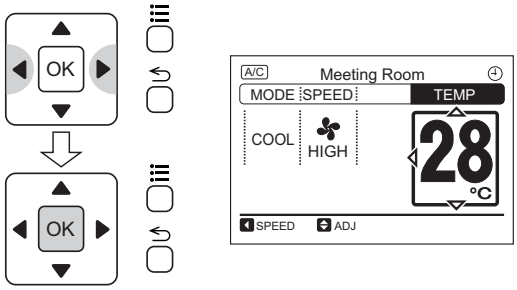
- “■” and “□” will be changed to “▪” and “▫” on LCD.



(4) Press “OK” after the setting is completed.
The confirmation screen will be displayed.



(5) Select “Yes” by pressing “◁” or “▷” and press “OK”. The holiday setting will be confirmed and the screen will return to the normal mode.

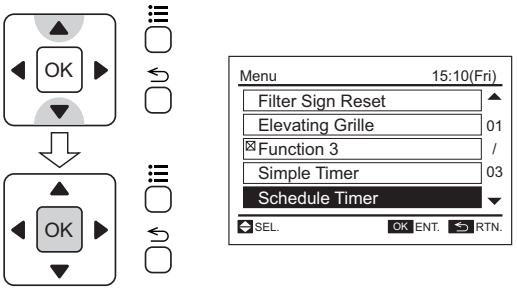


NOTE:
“⏲” will be turned off when the holiday setting is activated.

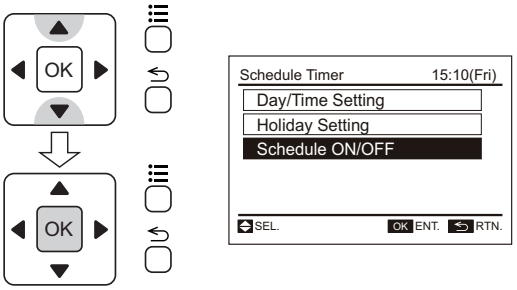
7.5.3 Schedule ON/OFF Setting

- This function is used to deactivate the schedule operation temporarily.
- The schedule operation will not be carried out when “OFF” is set in this function.
- This function is used to apply for long period of holidays.

(1) Select “Schedule Timer” from the menu and press “OK”.

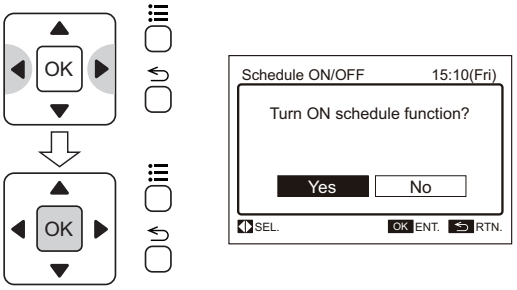


(2) Select “Schedule ON/OFF” by pressing “△” or “▽” and press “OK”.
The confirmation screen will be displayed.



(3) Select “Yes” by pressing “◁” or “▷” and press “OK”. The schedule ON/OFF setting will be confirmed and the screen will return to the normal mode.

- “⊕” will be turned on when the setting of schedule operation is ON.
- “⊕” will be turned off when the setting of schedule operation is OFF.



NOTE:
When the setting of schedule operation is OFF, the schedule operation will not be activated.

7.6 Individual Louver Setting

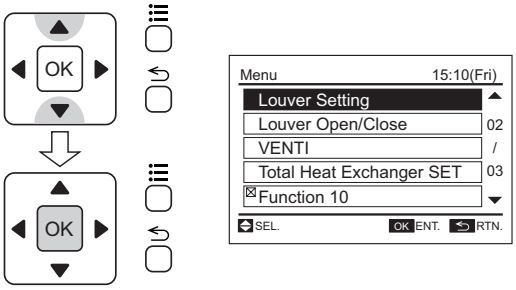
7.6.1 Setting

This setting is available only for the indoor unit adopting the individual louver. The each louver angle can be set individually.

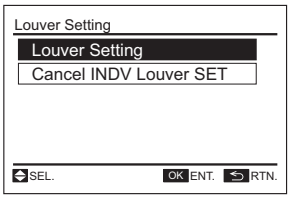
NOTES:

- This function is available only when the indoor unit corresponds to the individual louver.
- This function cannot be set when the unit is stopped.
- The fan speed will be changed to “LOW” while this function is being set. (After the setting is completed, the unit operation will be back to normal.)
- As for “Start-up of Heating Operation”, “During Defrost Operation” and “Activation of Thermo-Controller”, all the louver angles will be fixed at horizontal position automatically even when this function is activated.
- This function will not be available if 2 (two) remote control switches (including multifunctional remote control switch + wireless remote control switch) are used.

(1) Select “Louver Setting” from the menu and press “OK”.
The individual louver setting menu will be displayed.

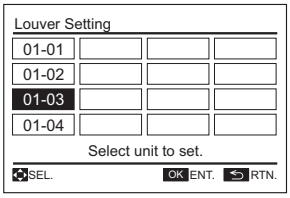


(2) Select “Louver Setting” from the individual louver setting menu and press “OK”.



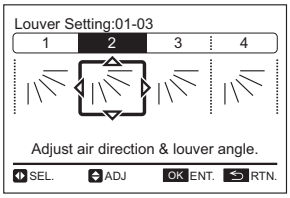
NOTE:
If the number of indoor unit connected with the remote control switch is 1 (one), (4) will be displayed after the procedure (2).

(3) Select the indoor unit to change the louver direction by pressing "△", "▽", "◁" or "▷". Press "OK".

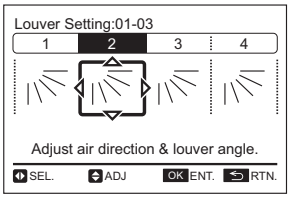


NOTE:
The indoor unit displayed on the screen flashes if the individual louver is set.

(4) Press "◁" or "▷" and select the louver from 1 to 4. The selected louver is opened and the other louvers are closed.



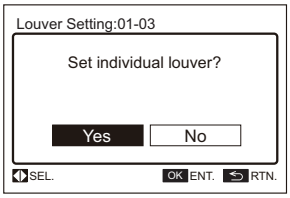
(5) Select the louver angle by pressing "△" or "▽" and press "OK". The confirmation screen will be displayed.



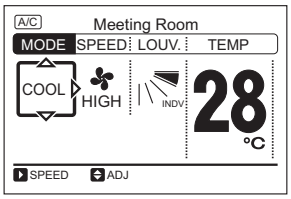
The louver angle will be changed as follows.

NOTE:
The louver direction without "INDV" will comply with the setting of the normal mode.

(6) Select "Yes" by pressing "◁" or "▷" and press "OK". The setting is confirmed and the screen will return to the normal mode.

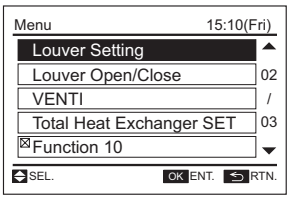


(7) Ensure that "INDV" is turned on at the air flow section on the normal mode.

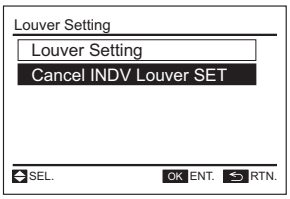


7.6.2 Cancellation of Louver Setting

(1) Select “Louver Setting” from the menu and press “OK”.

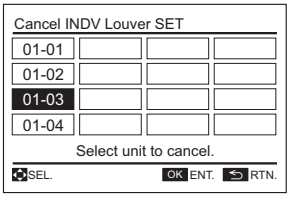


(2) Select “Cancel INDV Louver SET” from the individual louver set and press “OK”.



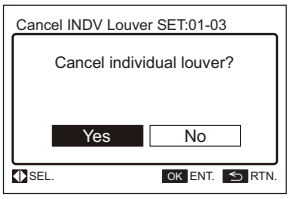
NOTE:
If the number of indoor unit connected with the remote control switch is 1 (one), (4) will be displayed after the procedure (2).

(3) Select the indoor unit to cancel by pressing “△”, “▽”, “◁” or “▷”. Press “OK”.
The confirmation screen will be displayed.



NOTE:
The indoor unit displayed on the screen flashes if the individual louver is set.

(4) Select “Yes” by pressing “◁” or “▷” and press “OK”. The individual louver setting will be cancelled and the screen will return to the normal mode.

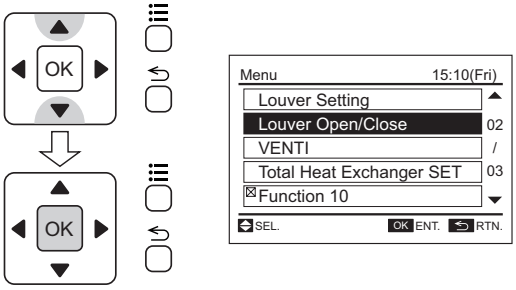


NOTE:
All the individual louver setting will be cancelled.

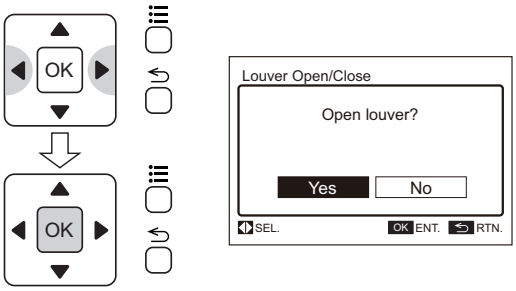
7.7 Louver Open/Close

- This function is used to fully open louver for adjusting the vertical deflector for air flow direction (manually).
- This function cannot be set when the unit is operated.
- This function is invalid depending on the indoor unit type. Refer to Installation & Maintenance Manual for detailed information.

(1) Select “Louver Open/Close” from the menu and press “OK”.



(2) Select “Yes” by pressing “◁” or “▷” and press “OK”. The louver will be open (closed) and the screen will return to the normal mode.



NOTE:
Refer to Installation & Maintenance Manual for Indoor Units regarding the adjustment of air flow direction.

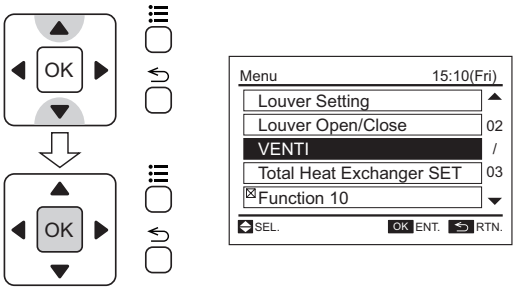
7.8 Ventilation

<Function>

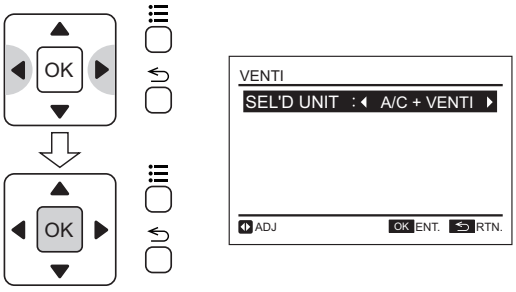
* A/C (Air Conditioning):
  To operate the air conditioner individually.
* VENTI (Ventilation):
  To operate the total heat exchanger individually.
* A/C+VENTI:
  To operate the air conditioner and the total heat exchanger together.

NOTE:
This function is available only when the total heat exchanger is connected.

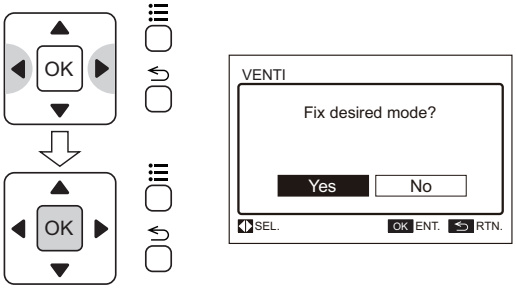
(1) Select “VENTI” from the menu and press “OK”.



(2) By repeatedly pressing “◁” or “▷”, the indication is changed in order of “A/C”, “VENTI” and “A/C + VENTI”.
Select the operation target and press “OK”. The confirmation screen will be displayed.



(3) Select “Yes” by pressing “◁” or “▷” and press “OK”. The setting will be confirmed and the screen will return to the normal mode.

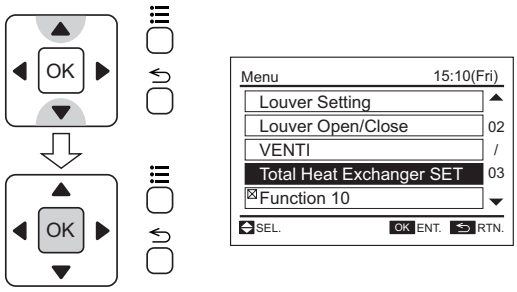


7.9 Setting of Total Heat Exchanger

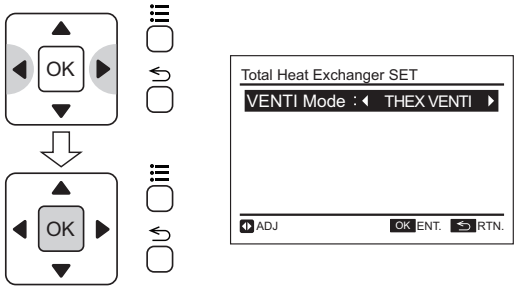
This function is used to change the ventilation mode of the total heat exchanger.

NOTE:
This function is available only when the total heat exchanger is connected. This function cannot be set when the unit is operated.

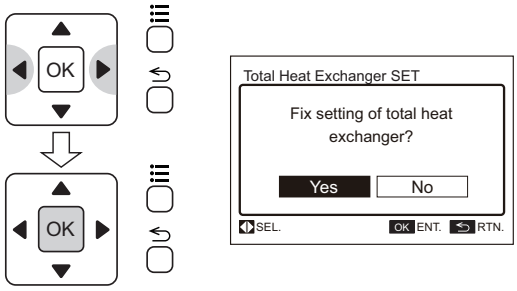
(1) Select “Total Heat Exchanger SET” from the menu and press “OK”. The total heat exchanger set will be displayed.



(2) By repeatedly pressing “◁” or “▷”, the indication is changed in order of AUTO VENTI ⟷ THEX VENTI ⟷ Normal VENTI. Select the operation target and press “OK”. The confirmation screen will be displayed.



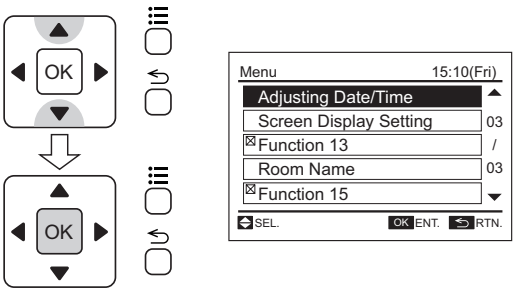
(3) Select “Yes” by pressing “◁” or “▷” and press “OK”. The setting will be confirmed and the screen will return to the normal mode.



7.10 Adjusting Date/Time

- This function is used to adjust the date and time.
- Periodic time setting is recommended.
  (Clock accuracy: difference within ±70 seconds by month)
- As for this remote control switch, the clock can work up to 72 hours by embedded electric battery when power failure occurs. Reset the date and time if the remote control switch remains without power supply for longer than 72 hours or main power supply is OFF for long time.

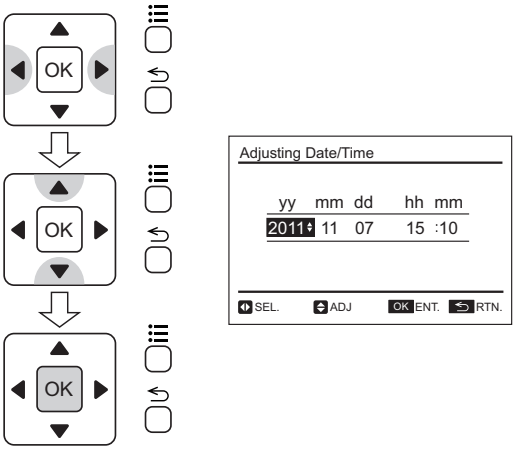
(1) Select “Adjusting Date/Time” from the menu and press “OK”.



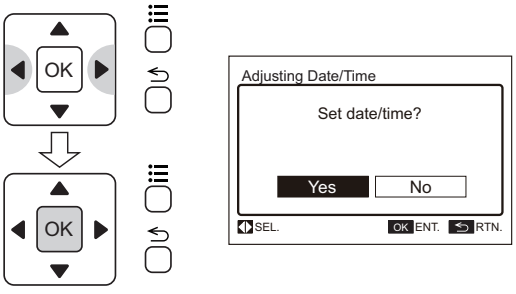
(2) Press “◁” or “▷” and select “yy/mm/dd/hh/mm”.

(3) Press “△” or “▽” to change the setting. Press or keep pressing “△” or “▽” to adjust numbers.

(4) After the setting is completed, press “OK” and the confirmation screen will be displayed.



(5) Select “Yes” by pressing “◁” or “▷” and press “OK”. The setting will be confirmed and the screen will return to the normal mode.



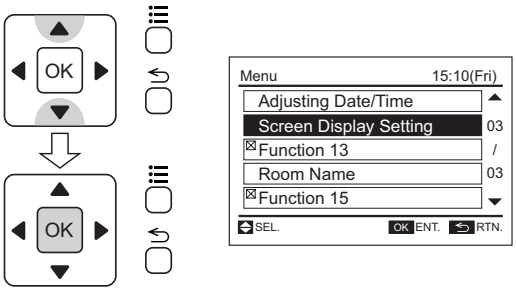
7.11 Screen Display Setting

7.11.1 Display Adjustment

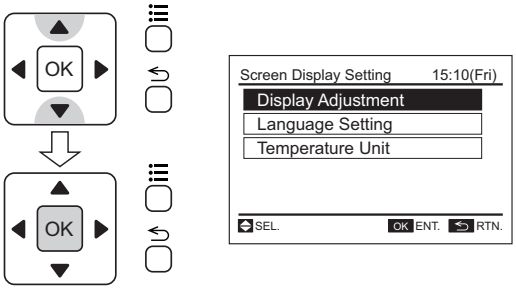
<Function>

* Time Format:
  To change the time form to 12 hour or 24 hour.
* Brightness:
  To adjust the brightness of backlight.
* Back light:
  To change the time (5, 15 or 30 seconds) between ON and OFF of backlight.
* Contrast:
  To adjust the degree of difference between light and dark parts of LCD.
* On/Off lamp:
  To adjust the brightness of run indicator.

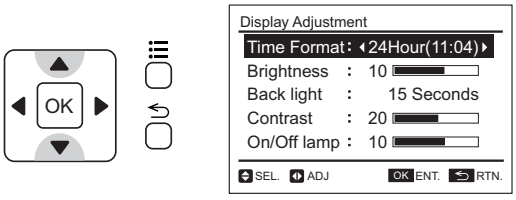
(1) Select “Screen Display Setting” from the menu and press “OK”.



(2) Select “Display Adjustment” by pressing “△” or “▽” and press “OK”.

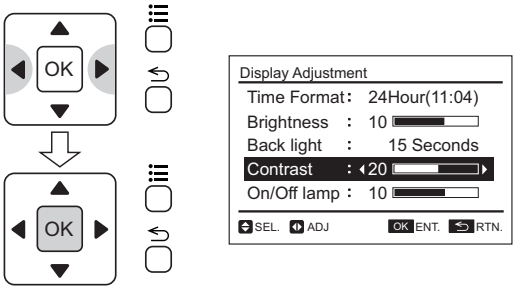


(3) Select the setting item by pressing “△” or “▽”. The indication is changed in order of “Time Format”, “Brightness”, “Back light”, “Contrast” and “On/Off lamp”.



(4) Press "◁" or "▷" and set the display.

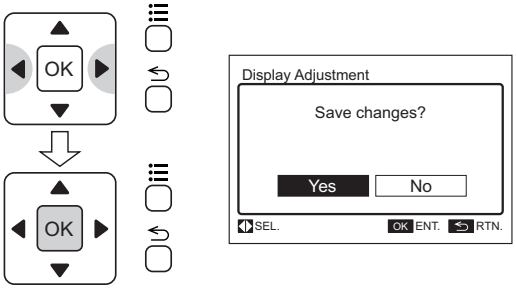
* Time Format:
  The time form is changed as follows;
  12 Hour ⟷ 24 Hour
* Brightness:
  Press "◁" or "▷" and the brightness of backlight is changed.
* Back light:
  The display backlight is OFF after the specified time interval of inactivity (no input from touch screen). The backlight off time interval can be selected as follows;
  5 Seconds ⟷ 15 Seconds ⟷ 30 Seconds
* Contrast:
  Press "◁" or "▷" and the degree of difference between light and dark parts of LCD is changed.
* On/Off lamp:
  Press "◁" or "▷" and the brightness of run indicator is changed.



By setting "0" to the brightness of the operation indicator, the control screen is displayed as shown in the below screen at the time of stoppage.

After the setting is completed, press "OK". The confirmation screen will be displayed.

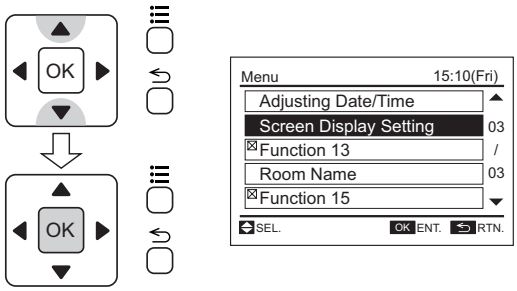
(5) Select "Yes" by pressing "◁" or "▷" and press "OK". The setting will be confirmed and the screen will return to the normal mode.



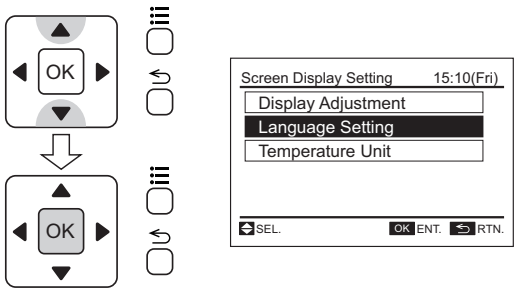
7.11.2 Language Setting

This function is used to change the displayed language.

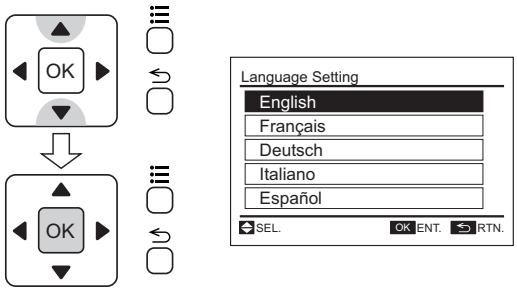
(1) Select "Screen Display Setting" from the menu and press "OK".



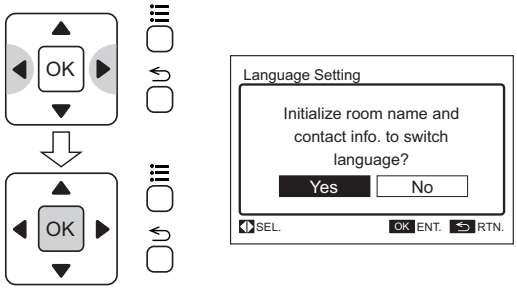
(2) Select "Language Setting" by pressing "△" or "▽" and press "OK".
The language setting will be displayed.



(3) Press "△" or "▽" to select the language and press "OK".
The confirmation screen will be displayed.



(4) Select "Yes" by pressing "◁" or "▷" and press "OK". The setting will be confirmed and the screen will return to the normal mode.

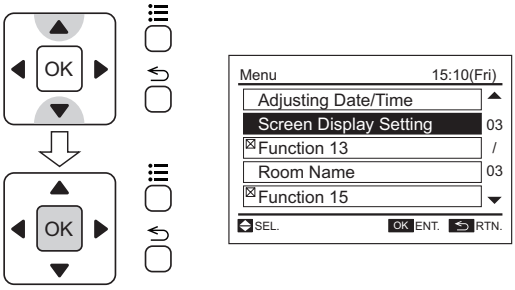


NOTE:
If displayed language is changed, the registered room name and contact information will be deleted.

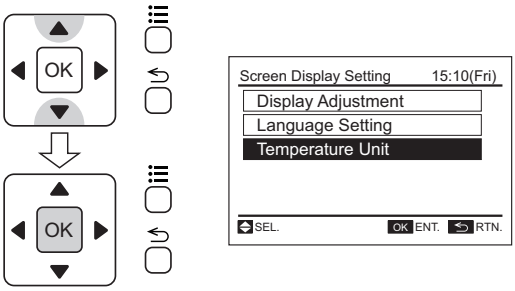
7.11.3 Temperature Unit

This function is used to change the temperature unit.

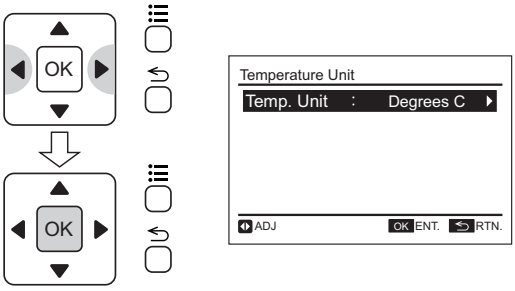
(1) Select “Screen Display Setting” from the menu and press “OK”.



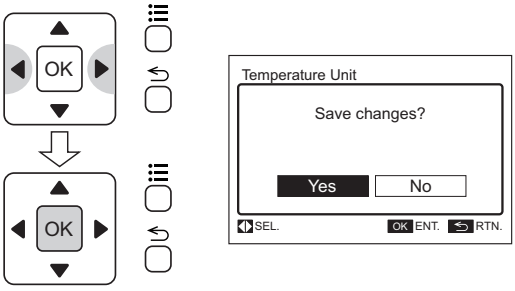
(2) Select “Temperature Unit” by pressing “△” or “▽” and press “OK”.



(3) By repeatedly pressing “◁” or “▷”, the indication is changed in order of “Degrees C” and “Degrees F”.
Select the operation target and press “OK”.
The confirmation screen will be displayed.



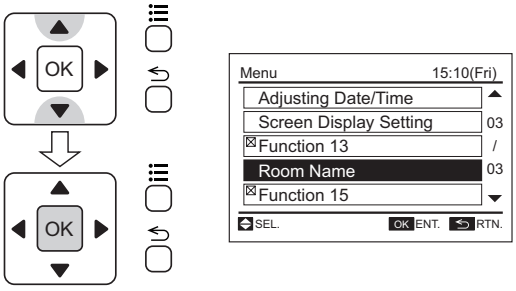
(4) Select “Yes” by pressing “◁” or “▷” and press “OK”. The setting will be confirmed and the screen will return to the normal mode.



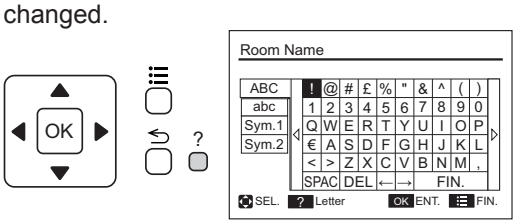
7.12 Room Name Registration

This function is used to register the name of the room (installation location of remote control switch).

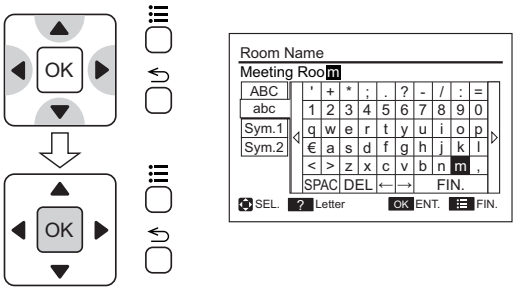
(1) Select “Room Name” from the menu and press “OK”.
The room name will be displayed.



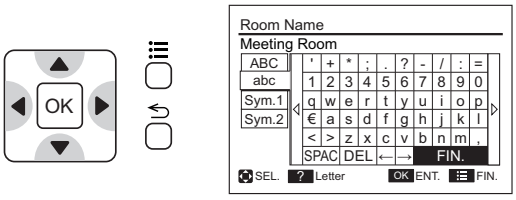
(2) By pressing “?” (help), the letter type is changed.



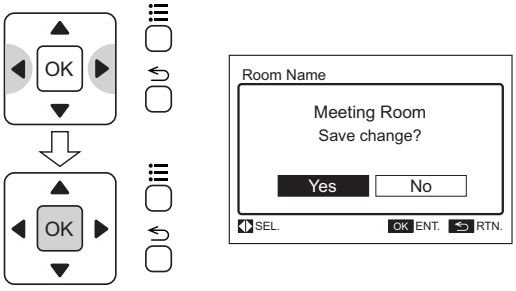
(3) Press “△”, “▽”, “◁” or “▷” and select the letter. Press “OK” to confirm the selected letter. (Max. 12 letters.)



(4) Select “FIN.” by pressing “△”, “▽”, “◁” or “▷” and press “OK”. (or simply press “☰” (menu))
The confirmation screen will be displayed.



(5) Select “Yes” by pressing “◁” or “▷” and press “OK”. The setting will be confirmed and the screen will return to the normal mode.

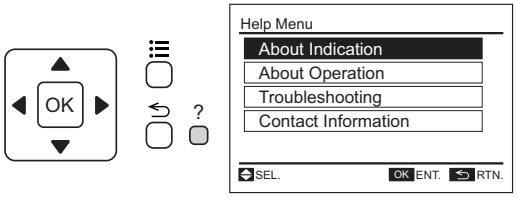


8. Help Menu

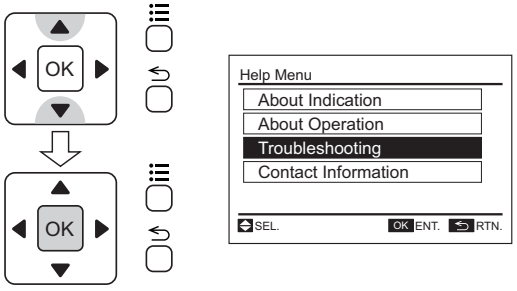
8.1 Help Menu

- The explanation of indicators on LCD and operations can be found in the help menu. The purpose of this function is to support manual operation.
- Refer to the item 8.2 to 8.5 for more details.

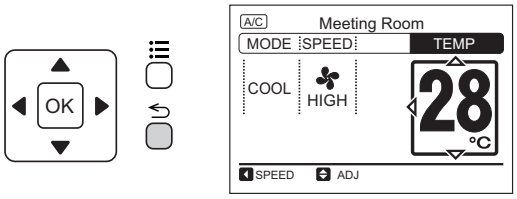
(1) Press “?” (help).
The help menu will be displayed.



(2) Select the item from the help menu by pressing “∆” or “∇” and press “OK”.



(3) To return to the normal mode, press “⮌” (return).

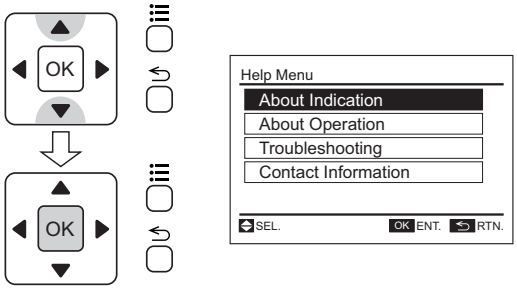


NOTE:
If the menu screen remains unchanged for approximately 10 minutes, the screen will automatically return to the normal mode.

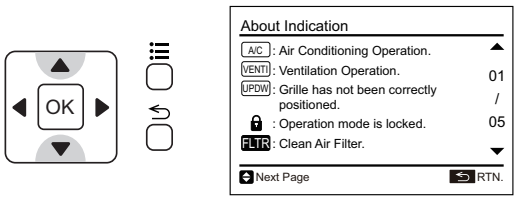
8.2 Indicators on LCD

This function is used when the explanation of each icon on LCD is required.

(1) Select “About Indication” from the help menu and press “OK”. The explanation of indicators on LCD will be displayed.

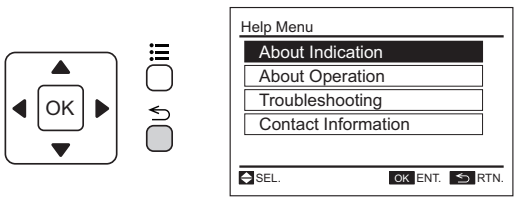


(2) Press “∆” or “∇” to scroll the text up and down.



(3) Press “⮌” (return).
The screen will return to the help menu.

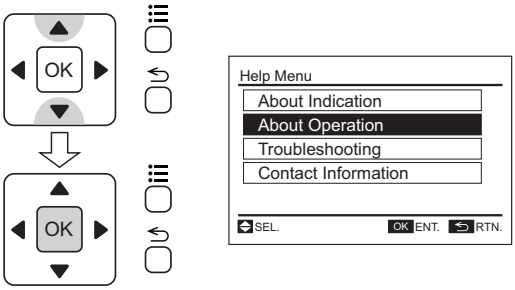
- To return to the normal mode, press “⮌” (return) again.



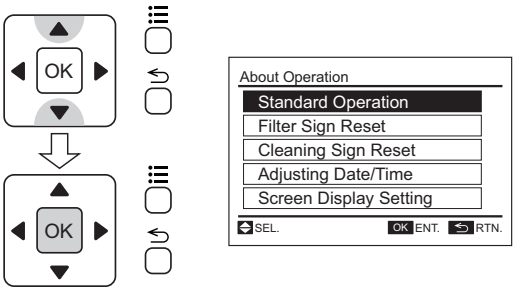
8.3 About Operation

This function is used when the explanation of operations and operation methods is required.

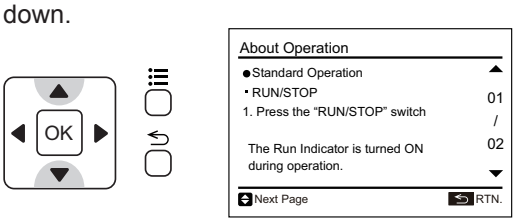
(1) Select “About Operation” from the help menu and press “OK”. The explanation of operation list will be displayed.



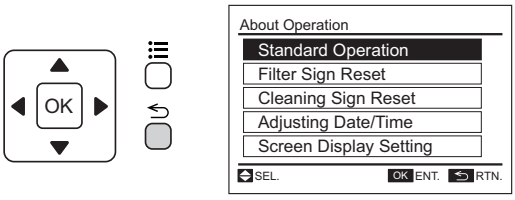
(2) Select the operation from the list by pressing “△” or “▽” and press “OK”. The explanation of the selected operation will be displayed.



(3) Press “△” or “▽” to scroll the text up and down.

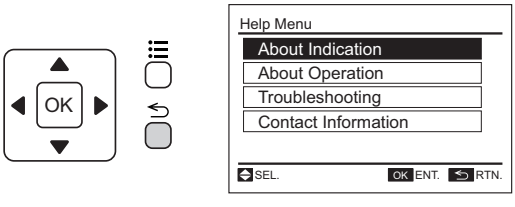


(4) Press “⮌” (return).
The screen will return to the operation item.



(5) Press “⮌” (return).
The screen will return to the help menu.

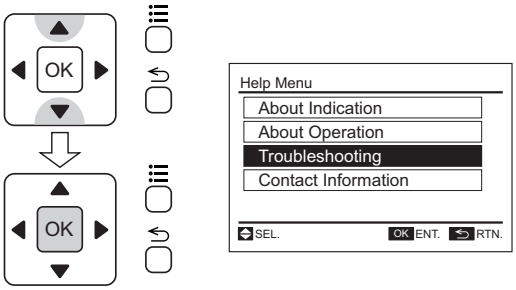
- To return to the normal mode, press “⮌” (return) again.



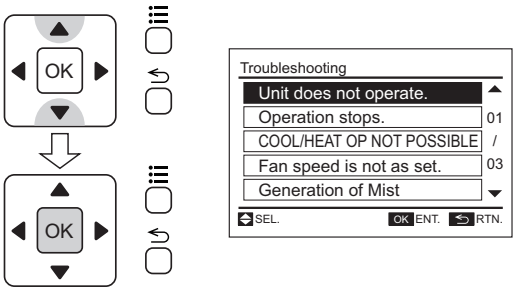
8.4 Troubleshooting

- This function is used to troubleshoot.
- Make sure that the troubleshooting is read carefully before requesting for repairs.

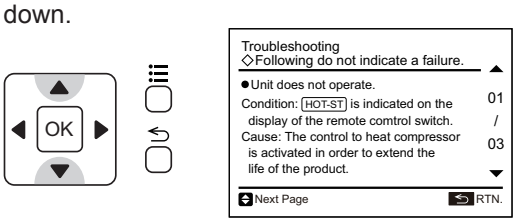
(1) Select “Troubleshooting” from the help menu and press “OK”. The list of troubleshooting will be displayed.



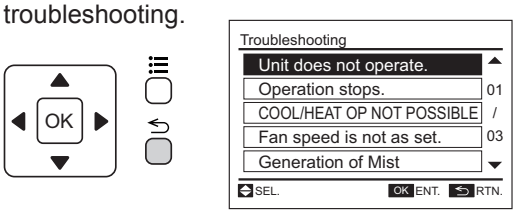
(2) Select a problem from the list by pressing “△” or “▽” and press “OK”. The details of the selected problem will be displayed.



(3) Press “△” or “▽” to scroll the text up and down.

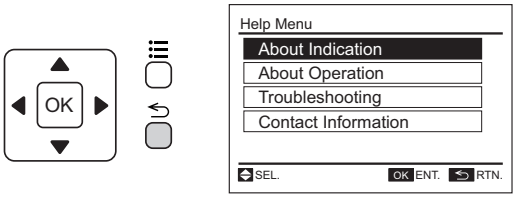


(4) Press “⮌” (return).
The screen will return to the list of troubleshooting.



(5) Press “⮌” (return).
The screen will return to the help menu.

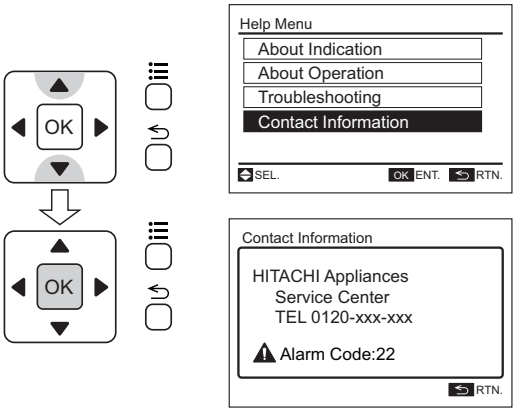
- To return to the normal mode, press “⮌” (return) again.



8.5 Contact Information

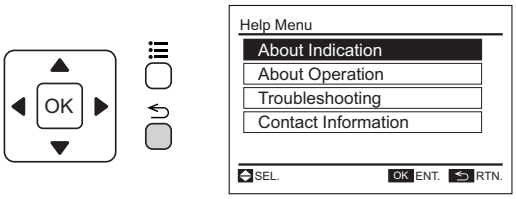
The screen will display contact information and the latest alarm code.

(1) Select “Contact Information” from the help menu and press “OK”. The contact information and the latest alarm code will be displayed.



(2) Press “⮌” (return).
The screen will return to the help menu.

- To return to the normal mode, press “⮌” (return) again.

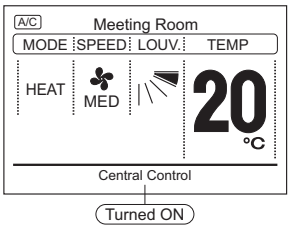


9. Other Indications

9.1 In Normal Condition

9.1.1 Central Control

"Central Control" is turned ON.
In case that the prohibiting operation by remote control switch is set from the central controller, operation, temperature setting, fan speed and direction setting are not available from the remote control switch.



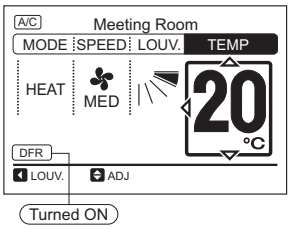
9.1.2 Thermo-controller

The fan speed is changed to "LOW" at the thermo-controller actuation. However, the indication is not changed. (Only in the heating operation mode)

9.1.3 Defrost

• Defrost Operation

"DFR" is turned ON during the defrosting.
The indoor fan is stopped though the indication is not changed.
The louver is fixed at the horizontal position. However, the louver indication of LCD continues to activate.



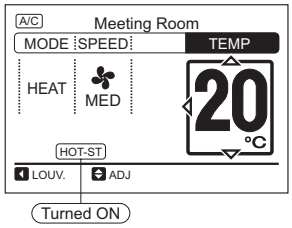
• Operation Stoppage during Defrosting Operation

The RUN indicator (Green) is turned OFF when the operation is stopped during the defrosting. However, the operation continues with "DFR" indication, and the unit is stopped after the defrost operation is finished.

9.1.4 Operation Control

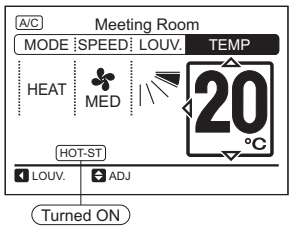
• Supplying Electrical Power

"HOT-ST" is turned ON when the electrical power is turned ON.
In this case, the compressor is under preheating. The operation may not be available for Max. 4 hours. Do not turn off the outdoor unit electrical power during the high season for Cooling/Heating operation.



• During Hot Start (Heating Operation Only)

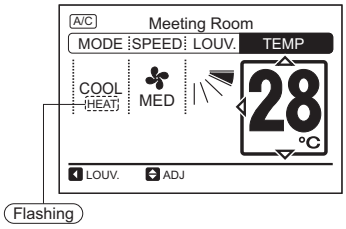
"HOT-ST" is turned ON.



• Different Operation Mode

The operation mode set by the remote control switch is different with the outdoor unit operation mode.
(Except for the heat recovery system models.)

The indication of the actual operation mode flashes.



Indication when "COOL" operation is set by the remote control switch at the outdoor unit "HEAT" operation.

9.2 In Abnormal Condition

9.2.1 Abnormality

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the model code and the connected number of indoor units are displayed on LCD.
- In case that the plural indoor units are connected, the above items for each indoor unit are displayed one by one.

9.2.2 Power Failure

- All the indications are OFF.
- Once the unit is stopped by the power failure, the unit will not be started again although the power recovers. Perform the starting procedures again.
- In case of instantaneous power failure within 2 seconds, the unit will be started again automatically.

9.2.3 Electric Noise

There could be a case that all the indications are OFF and the unit is stopped. This is occurred by the activation of the micro computer for the unit protection from the electric noise.
Perform the starting procedures again.

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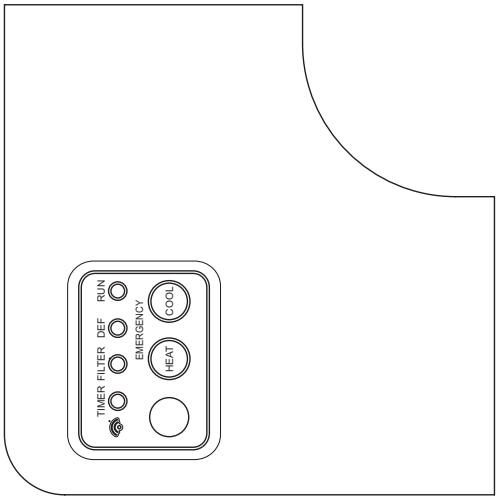


IMPORTANT:

READ AND UNDERSTAND THIS MANUAL BEFORE USING THIS RECEIVER KIT. KEEP THIS MANUAL FOR FUTURE REFERENCE.

P5416536

IMPORTANT NOTICE

- HITACHI pursues a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- The standard utilization of this product is explained in these instructions. Improper operation, or operation not made in accordance with these instructions, can result in unsatisfactory operation and/or dangerous conditions. In such cases, the warranty does not apply.
- HITACHI's liability shall not cover defects arising from any alteration performed by a customer.
- All information in this manual is based on the latest product information available at the time of approval for printing. HITACHI reserves the right to make changes at any time without notice and without incurring any obligation.
- No part of this manual may be reproduced without written permission.
- Perform the test run whether there is abnormality or not after the installation work is completed. The usage and the maintenance should be explained to a user according to "Installation & Maintenance Manual" of the indoor unit. Describe to keep this installation manual also.
- This product is designed for standard air conditioning only. DO NOT use this product for specific purposes, such as restoring foods, animals & plants, precision devices, art objects, etc.
- DO NOT install the unit in the following places. It causes failure to the unit in many cases.
  * Places where oil (including machinery oil) mist and steam drifts.
  * Places where a lots of sulfide gas drifts such as in hot spring.
  * Places where inflammable gas may generate or flow.
  * Places where air contains high salt contents as coast regions.
  * Places where with atmosphere of acidity or alkalinity.
- Pay attention to the following points when the unit is installed in a hospital or other facilities where electromagnetic wave generates from medical equipment.
  * Do not install the unit in the place where the electromagnetic wave is directly radiated to the electrical box, remote control switch cable or remote control switch.
  * Install the unit at least 3 meters away from electromagnetic wave such as a radio.
- DO NOT install the unit in the place where the air flow directly catches to animals or plants. It could be the cause of adverse affect to animals or plants.
- The installer and system specialist shall comply with local regulations or standards for the safety. The following standards may be applicable, if local regulations are not available. International Organization for Standardization, ISO5149 or European Standard, EN378 or Japan Standard, KHKS0010.
- It is assumed that this heat pump air conditioner will be operated and serviced by English speaking people. If this is not the case, the customer should add safety such as caution and operating signs in the native language for non English speakers.
- If you have any questions, contact your distributor or dealer of HITACHI.
- This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

SAFETY SUMMARY

< Signal Words >

● Signal words are used to identify levels of hazard seriousness.
Definitions for identifying hazard levels are provided below with their respective signal words.

⚠ DANGER : DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠WARNING : WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION : CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE : NOTICE is used to address practices not related to personal injury.

NOTE : NOTE is useful information for operation and/or maintenance.

TABLE OF CONTENTS

1. Safety Summary

⚠ DANGER

- **Do not perform the installation work, electrical wiring work, operation, maintenance etc. without referring to our installation and operation manual of connected indoor unit and outdoor unit.**
- **Do not pour water into the indoor unit. These products are equipped with electrical parts. If poured, it will cause a serious electrical shock.**
- **Do not alter the product and the electrical wiring. It will cause a serious accident.**

⚠ WARNING

- **Perform the installation work by your distributor or specialist installers. If the installation work is not completed, it may cause water leakage, an electric shock, fire or injury due to falling down receiver kit.**
- **The electrical wiring work must be performed by authorized installers. If the electrical work is not completed, it may cause an electric shock.**
- **Do not touch the wireless remote control switch by wet hand. It may cause failure of the wireless remote control switch or an electric shock.**
- **If abnormality (burnt odor, etc.) occurs, stop the operation and turn OFF the main power source immediately. If not, it may cause breakage of the product, an electric shock or a fire. Contact your distributor or contractor.**
- **When the receiver kit is necessary to be repaired or relocated, contact your distributor or contractor. If the repair and the installation are not completed, it may cause an electric shock or a fire.**
- **Perform the maintenance work with stable footing. If not, it may cause falling or injury.**
- **Do not spray water or detergent to the receiver kit when performing the maintenance work. It may cause an electric shock or a fire by electrical short-circuit.**
- **Protect securely the electrical parts and connectors not to splash water when performing the maintenance work. If not, It may cause an electric shock or a fire by electrical short-circuit.**

NOTICE

The wireless remote control switch shall be utilized under the following conditions.
If not, it may cause failure of wireless remote control switch.

Installation Place: Indoor

Ambient Temperature: 5 ~ 35°C

Ambient Humidity: 35 ~ 90%

2. Before Operation

Refer to the item 2 of operation manual of indoor unit (P5414964).

2.1 Efficient Use of Indoor Unit

Refer to the item 2.1 of operation manual of indoor unit (P5414964).

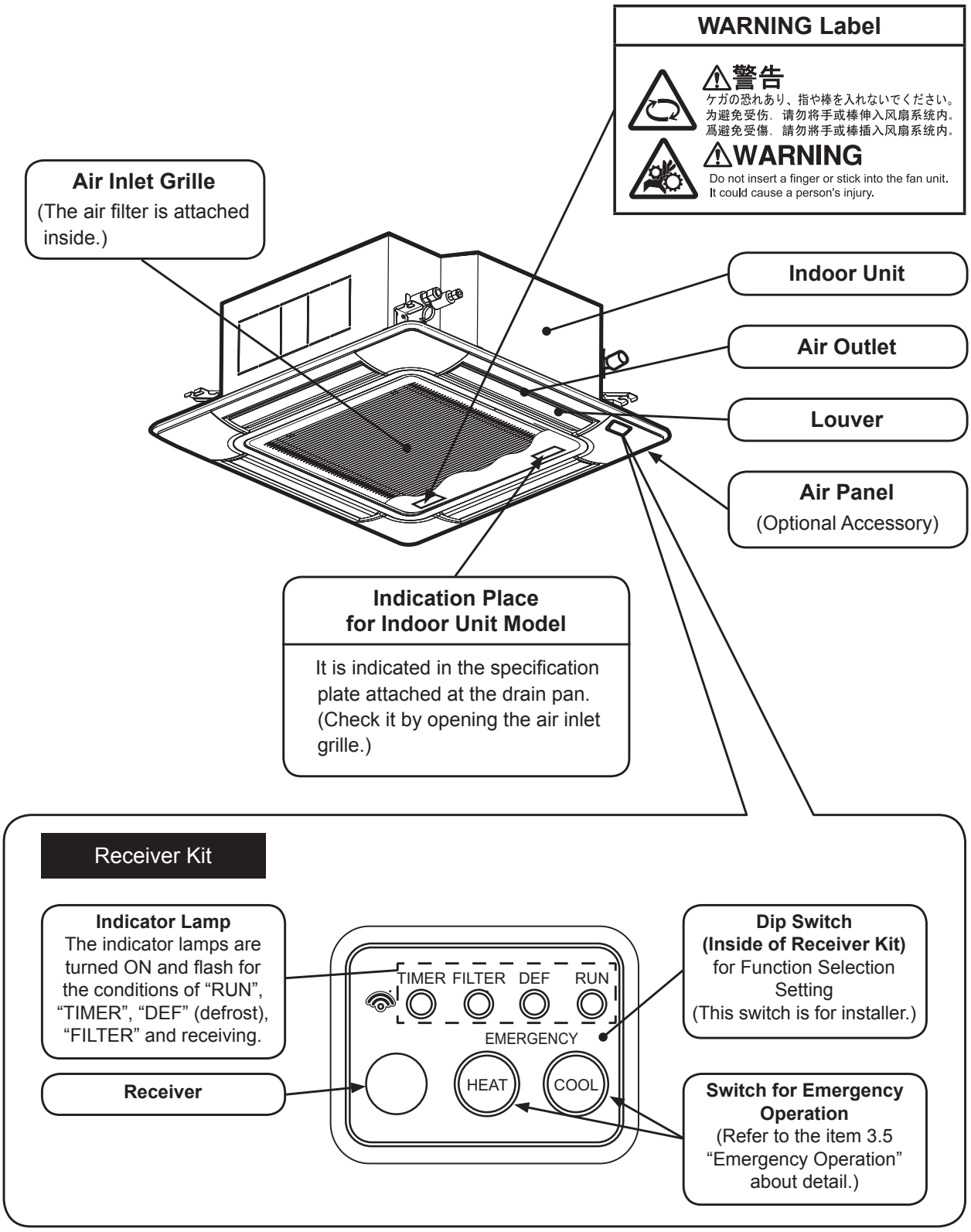
2.2 Efficient Use of Cooling and Heating

Refer to the item 2.2 of operation manual of indoor unit (P5414964).

2.3 Name of Parts and Indication of Safety Consideration

The receiver kit is attached to the position shown in the figure below.
The safety consideration is indicated on the indoor unit in order to be used safety.
Read and understand this manual before using the receiver kit.

2.3.1 Indoor Unit and Receiver Kit

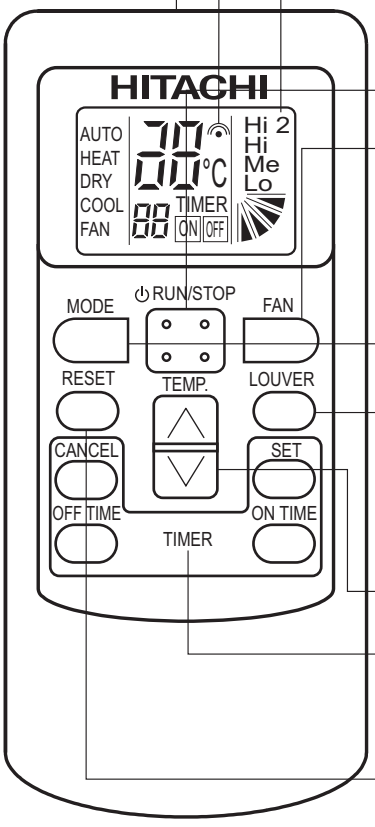


2.3.2 Wireless Remote Control Switch

Model: PC-LH3B

NOTE

- This wireless remote control switch is used to send commands about operation mode, timer setting, etc. to the indoor unit. Point the transmitter of the controller toward the receiver of the indoor unit and press the switch of required operation so that commands (by infrared rays) are sent to the indoor unit.
- The distance for transmitting is approximately 6 meters as a maximum. Refer to the item 2.4.2 " Horizontal Distance Limit for Receiver Kit" about detail. (The capable distance for transmitting will get shorter in case that the transmitting angle is not vertical to the receiver or an electronic type light is used in the room, etc.)
- PC-LH3B is only available for the combination of the receiver kit and the indoor unit which are supported HIGH2 mode.



● Transmitter
Point the transmitter towards the receiver of the indoor unit when sending commands. The transmitting indication on the liquid crystal display flashes when sending commands.

● Transmitting Indication

● Liquid Crystal Display
The set temperature, timer operation, position of air louver, operation mode, air flow mode, etc., are indicated. The diagram of the display shown on the left is for explanation purposes only.
The display will differ during actual operation.

● Run/Stop Switch
Operation of the unit can be started or stopped by pressing this switch.

● Fan Speed Switch
Press this switch to select the fan speed. By repeatedly pressing the button, the setting will change sequentially through HIGH2, HIGH, MED and LOW. (Fan speed is fixed at Low for dry operation.)

● Mode Selection Switch
By repeatedly pressing the mode switch, the unit cycles through the different operating modes in the order of HEAT, DRY, COOL and FAN.
To select auto operation, press the switch for more than 3 seconds.
If the switch is pressed again, it will return to FAN mode.

● Louver Angle Switch
The airflow angle and auto-louver operation can be set by this switch.
When pressing the switch, the angle is changed in the following order.
(In cool or dry operation modes, steps 1-5 and Auto swing are available.)

● Temp. Switch
The setting temperature can be adjusted using this switch.

● Timer Switches
Four switches control the timer operation.
The set time can be changed by pressing "ON TIME" or "OFF TIME" and is set by pressing the "SET" switch.
Timer operation can be cancelled using "CANCEL".

● Reset Switch
(1) Press RESET to turn off the filter indicator lamp after filter cleaning.
(2) If the unit is stopped abnormally due to protection devices etc., press the RESET switch to cancel the control stoppage after the cause of the abnormality has been removed.

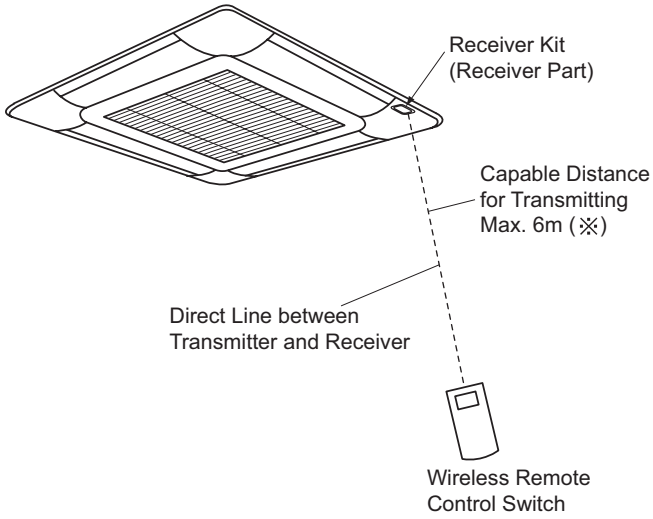
2.4 Handling Wireless Remote Control Switch

NOTE

- Do not put the wireless remote control switch in following high temperature places. It may not be operated correctly.
  * Places where direct lights such as sunlight affect.
  * Places where hot air from a heater, etc. affects.
- Handle the wireless remote control switch with care. If it is fallen or splashed by water, it may cause failure of remote control switch.

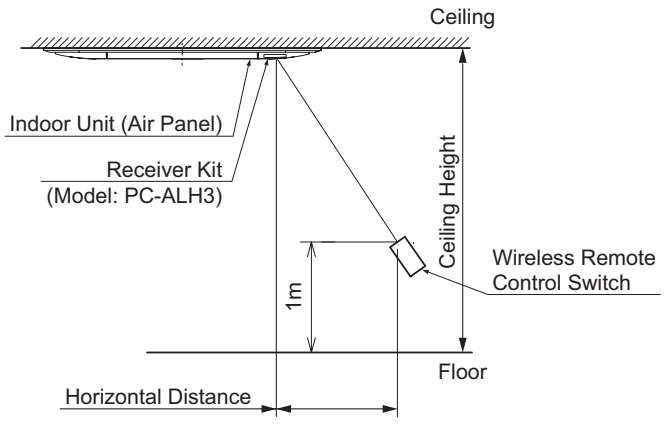
2.4.1 Sending Commands from Wireless Remote Control Switch

- The operation commands are sent by pressing the required operation switch by facing the transmitter of the wireless remote control switch toward the receiver of the indoor unit.
- When commands are sent from the wireless remote control switch, it should face vertically and be as close as possible to the receiver kit. The capable distance for transmitting will get shorter in case that the transmitting angle is not vertical to the receiver or an electronic type light is used in the room, etc.
- The wireless remote control switch has directivity against the receiver. The distance for transmitting depends on the ceiling height. Refer to the table below about the distance. The distance may differ depending on the building structure.
  Control the wireless remote control switch within the distance shown in the table below.
- The distance for transmitting will get shorter due to battery consumption. In this case, replace the battery.



※ The distance for transmitting differs depending on the ceiling height. Refer to the table below about the detail.

2.4.2 Horizontal Distance Limit for Receiver Kit



Horizontal Distance Limit for Receiver Kit
(in the case that height of wireless remote control from floor is 1 m):

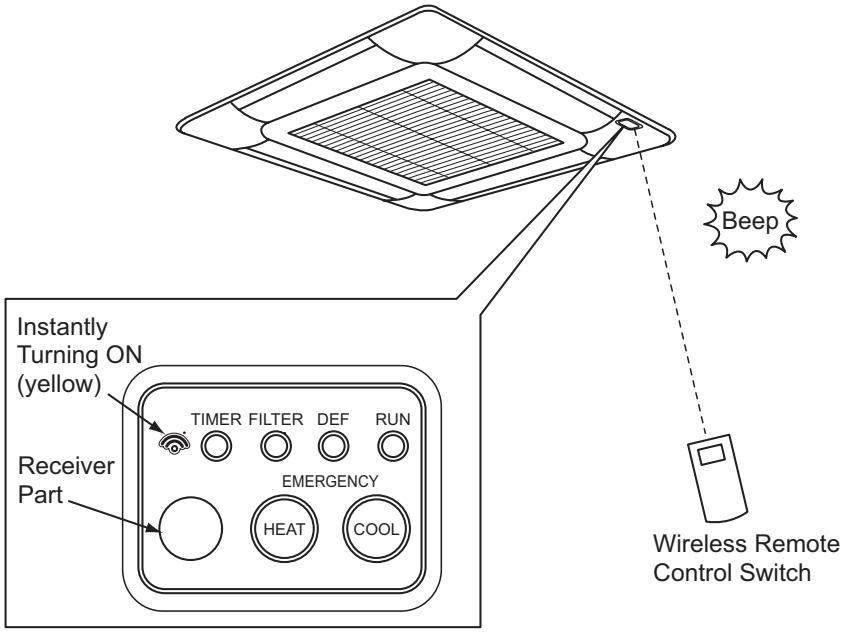
Height of Indoor Unit	2.7	3.0	3.5	4.0	4.5	5.0
Horizontal Distance	2.9	3.5	4.0	4.5	4.5	4.5

2.4.3 Receipt Confirmation of Receiver Kit

The " " lamp (yellow) on the receiver part of the indoor unit is turned ON for an instant when the receiver kit receives the commands from the wireless remote control switch. In the case that the " " lamp (yellow) is not turned ON, the controls may not have reached the receiver. Send the commands again.

NOTE

- The " " lamp (yellow) is turned ON with the beep sound for receipt confirmation.
- The beep sound may not be heard by surrounding noise.



3. Operation

NOTICE

Turn ON the power supply to the system for approximately 12 hours before start-up after long shutdown. Do not start the system immediately after the power supply. It may cause a compressor failure, because the compressor is not heated well. Do not turn OFF the power supply during the seasons.

NOTE

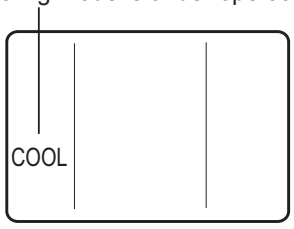
- The " " lamp (yellow) is turned ON with the beep sound for receipt confirmation.
- The beep sound may not be heard by surrounding noise.
- " " lamp (yellow) on the receiver of the indoor unit flashes (0.25 seconds ON 0.25 seconds OFF), and then turns OFF. While the " " lamp is flashing, the unit will not operate because it is initializing.

3.1 Basic Operation

< Start Operation >

(1) Press "MODE" switch. By repeatedly pressing "MODE" switch, the unit cycles through the different operating modes in the order of HEAT, DRY, COOL and FAN.

Cooling mode is under operating.

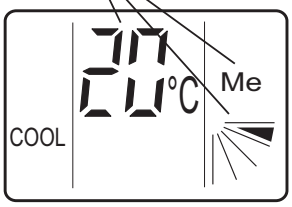


The indications of setting temperature, fan speed and air flow angle may be turned ON depending on the condition of control.

NOTE:
Refer about automatic cooling/heating operation mode to the item 3.4 "Automatic Cooling/Heating Operation".

(2) Point the transmitter towards the receiver kit and press "RUN/STOP" switch.
When the transmitting indication " " flashes on the LCD of wireless remote control switch, the " " lamp (yellow) on the receiver will be turned on briefly.
The RUN indicator (red) on receiver is turned ON when the operation is started.

The indications of setting temperature, fan speed and air flow angle are turned ON.



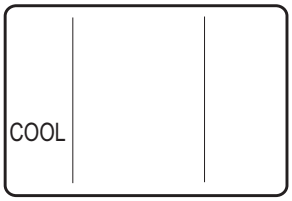
NOTE:
Do not press "RUN/STOP" switch repeatedly (less than 3 seconds). If the switch is pressed frequently, the controller may not work correctly.

< Temperature, Fan Speed and Air Flow Direction Setting >

Once the setting is confirmed, the setting condition will be stored. Therefore the daily setting is not required. In case that the setting change is required, refer to the item 3.3 "Setting Method".

< Stop Operation >

(3) Point the transmitter towards the receiver kit and press "RUN/STOP" switch again.
The RUN indicator (red) on receiver is turned OFF and the operation is stopped.



The indications of setting temperature, fan speed and air flow angle are turned OFF.

NOTE:
After the heating operation is stopped, the fan mode may be operated for approximately 2 minutes.

3.2 Operation Mode (Cooling, Heating, Dry, Automatic Cooling/Heating and Fan Operation)

<Function>

- Cooling Operation (COOL):
  To decrease the room temperature.
- Heating Operation (HEAT):
  To increase the room temperature.
- Dry Operation (DRY):
  To decrease the humidity in the room.
- Automatic Cooling/Heating Operation (AUTO):
  To cooling and heating automatic changeover.
- Fan Operation (FAN):
  To circulate the air in the room.

NOTE

The recommendable set temperature is as follows;

* Cooling Operation:	27 to 29°C
* Heating Operation:	18 to 20°C
* Dry Operation:	23 to 25°C

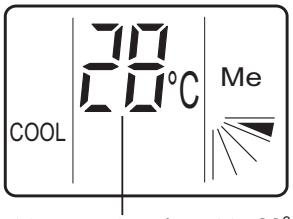
3.3 Setting Method

NOTE

- The " " lamp (yellow) is turned ON with the beep sound for receipt confirmation.
- The beep sound may not be heard by surrounding noise.
- To adjust the air flow angle, refer to the installation and operation manual of indoor unit.

3.3.1 Temperature Setting

Point the transmitter towards the receiver kit and press "TEMP." switch to set the temperature.
By pressing " ∧ ", the temperature is increased by 1°C.
By pressing " ∨ ", the temperature is decreased by 1°C.



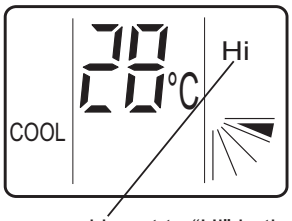
The set temperature is set to 28°C in the cooling operation.

NOTES:

- The temperature is not displayed during the stoppage. In the case that the temperature is set during the stoppage, the temperature indication is turned ON temporally. It is automatically turned OFF after setting.
- The temperature can be set for each operation mode.
- The setting temperature is available from 17°C to 30°C by the wireless remote control switch. However, for indoor unit which setting temperature range is 19 ~ 30°C, the temperature settings of 17°C and 18°C are not available.

3.3.2 Fan Speed

Point the transmitter towards the receiver kit and press “FAN” switch to set the fan speed.



The fan speed is set to “Hi” in the cooling operation.

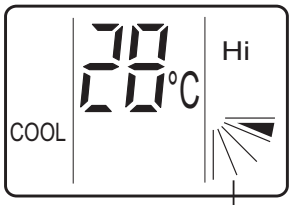
By repeatedly pressing the switch, the setting will change sequentially through HIGH 2, HIGH, MED and LOW.

NOTES:

- The fan speed is not displayed during the stoppage. In the case that the fan speed is set during the stoppage, the fan speed indication is turned ON temporally. It is automatically turned OFF after setting.
- The fan speed can be set for each operation mode. However, the fan speed will be fixed at “LOW” in dry operation.

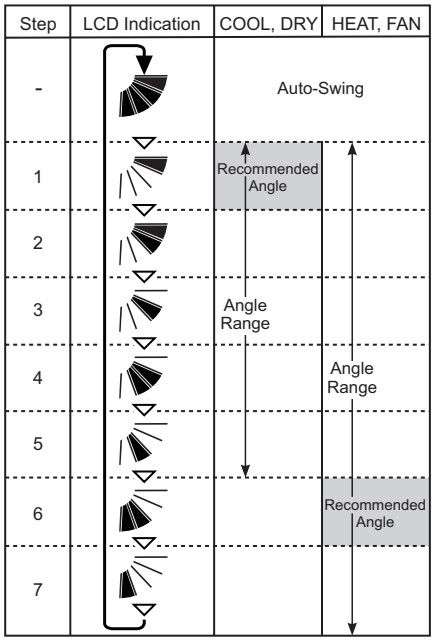
3.3.3 Air Flow Direction

(1) Point the transmitter towards the receiver kit and press “LOUVER” switch to set the louver angle.



The louver angle is set to 1 step at “Hi” in the cooling operation.

(2) By pressing “LOUVER” switch, the louver angle will be changed as follows.



: Auto swing operation will be started. At this time, the louver will swing repeatedly on LCD.

NOTES:

- The louver angle is not displayed during the stoppage.
- The louver setting are only available from 1 step through 5 step and auto swing at the cooling and dry operation modes.
- The louver angle may be changed automatically during the heating operation. (Refer to the installation and operation manual of indoor unit about detail.)
- The louver may NOT stop immediately right after the switch is pressed.
- The auto louver mechanism is not available for In-the-Ceiling type.
- To adjust the louver angle, refer to the installation and operation manual of indoor unit.

3.4 Automatic Cooling/Heating Operation

This function is only available for DC Inverter UTOPIA series (single combination) and SET-FREE series (heat recovery system).

NOTICE

Turn ON the power supply to the system for approximately 12 hours before start-up after long shutdown. Do not start the system immediately after the power supply. It may cause a compressor failure, because the compressor is not heated well. Do not turn OFF the power supply during the seasons.

NOTE

- The " " lamp (yellow) is turned ON with the beep sound for receipt confirmation.
- The beep sound may not be heard by surrounding noise.
- " " lamp (yellow) on the receiver of the indoor unit flashes (0.25 seconds ON 0.25 seconds OFF), and then turns OFF. While the " " lamp is flashing, the unit will not operate because it is initializing.

< Function >

Automatic Cooling/Heating Operation is automatically switched cooling and heating based on the set temperature as following inlet air temperature conditions.

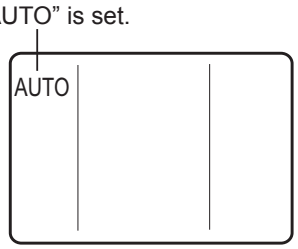
The cooling operation is performed when the inlet air temperature is approximately 3°C higher than set temperature.
The heating operation is performed when the inlet air temperature is approximately 3°C lower than set temperature.

NOTE

- If the fan speed is set to "LOW" during the heating operation, the operation tends to be stopped by activating the protection devices, etc. In this case, set to "MED", "HIGH" or "HIGH 2".
- The heating operation is not available when the ambient temperature is higher than approximately 21°C.
- The threshold of switching temperature against the setting temperature is ± 3°C in case of using this function. Therefore, this function should not be utilized in the room where the accurate temperature and humidity controls are required.

< Start Operation >

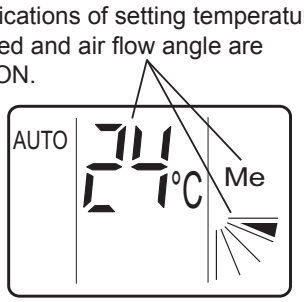
(1) Press and hold the "MODE" switch for more than 3 seconds. The indication "AUTO" (automatic cooling/heating operation) will appear.



The indications of setting temperature, fan speed and air flow angle are turned ON depending on the condition of control.

NOTES:
- The automatic cooling/heating operation is required other setting. Contact your distributor and contractor for details.
- When the "MODE" switch is pressed at "AUTO", the fan operation is started.

(2) Point the transmitter towards the receiver kit and press "RUN/STOP" switch.
When the transmitting indication " " flashes, the " " lamp (yellow) on the receiver will be turned on briefly.
The RUN indicator (red) on receiver is turned ON and the operation is started.



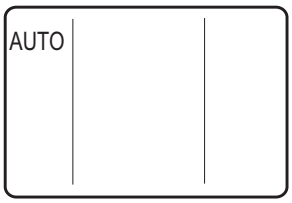
NOTE:
Do not press "RUN/STOP" switch repeatedly (less than 3 seconds). If the switch is pressed frequently, the wireless remote control switch may not work correctly.

< Temperature, Fan Speed and Air Flow Direction Setting >

To set the temperature, fan speed and air flow direction, refer to the item 3.3 "Setting Method".

< Stop Operation >

(3) Point the transmitter towards the receiver kit and press “RUN/STOP” switch again.
The RUN indicator (red) of receiver is turned OFF and the operation is stopped.



The indications of setting temperature, fan speed and air flow angle are turned OFF.

3.5 Timer Setting Method

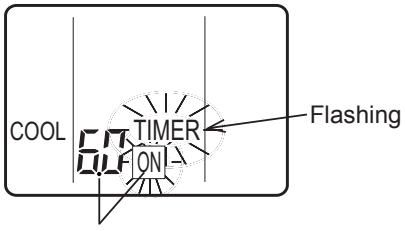
NOTE

- The “ ((•)) “ lamp (yellow) is turned ON with the beep sound for receipt confirmation.
- The beep sound may not be heard by surrounding noise.

< Function >

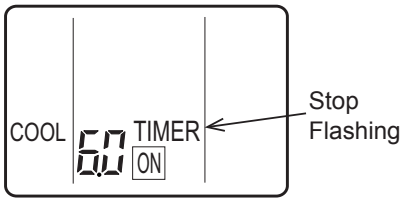
- This function is used to start or stop the unit operation at the setting time.
- The timer setting is available for “ON TIME” and “OFF TIME”.
  ON TIME:
  The operation is started after the set time is passed.
  OFF TIME:
  The operation is stopped after the set time is passed.

(1) Press “ON TIME” or “OFF TIME”.
By repeatedly pressing “ON TIME” or “OFF TIME”, the indication of setting time is changed.
The setting time is available at half hour intervals up to 10 hours and at one hour interval up to 23 hours after 10 hours.



The setting time for “ON TIMER” is set to 6 hours.

(2) Point the transmitter towards the receiver kit and press “SET” switch.
The TIMER indicator (green) on receiver is turned ON.



< Cancel Setting >

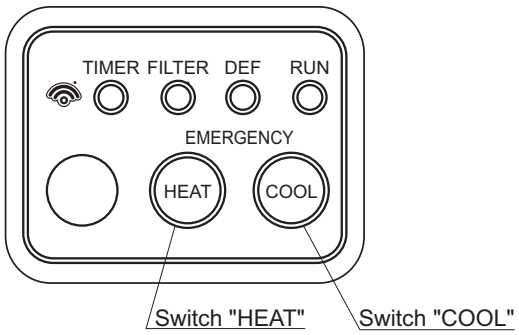
(3) To cancel the timer setting, point the transmitter towards the receiver kit and press “CANCEL” switch.
The TIMER indicator (green) on receiver is turned OFF.

3.6 Emergency Operation

NOTE

- The setting temperature and the fan speed for cooling/heating operation are the same as before starting emergency operation.
- During the emergency operation, “” lamp (yellow) flashes (0.5 second ON / 0.5 second OFF).

< Function >
“COOL” and “HEAT” switches are used for emergency operation when the batteries for wireless remote control switch are shortage.

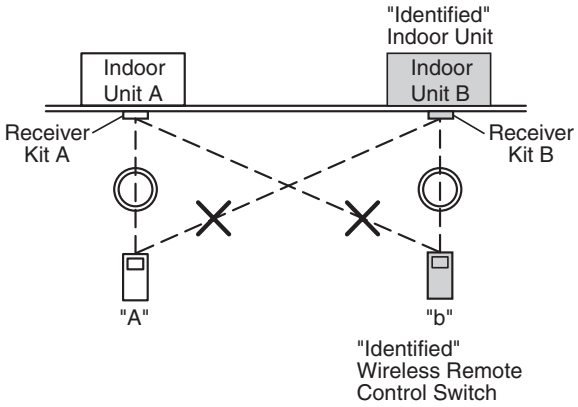


Switch “COOL”: Press “COOL” so that the cooling operation is started.
Press “COOL” again so that the cooling operation is stopped.

Switch “HEAT”: Press “HEAT” so that the heating operation is started.
Press “HEAT” again so that the heating operation is stopped.

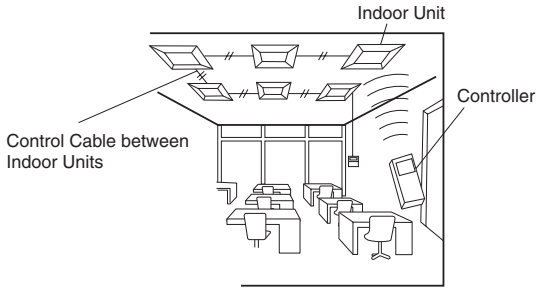
3.7 Identifying Indoor Units Installed Side by Side Operation

In the case that two indoor units are installed side by side, the commands from the wireless remote control switch may be received by both indoor units. The function, “Identifying of Indoor Units Installed Side by Side” enables to operate the individual unit correctly without interfering other unit’s operation. As shown in the figure below, the indoor units of A and B are set side by side. In this case, the unit B is set as “Identifying Indoor Units Installed Side by Side”.
Contact your distributor or contractor for the details.



3.8 Simultaneous Operation of Multiple Indoor Units

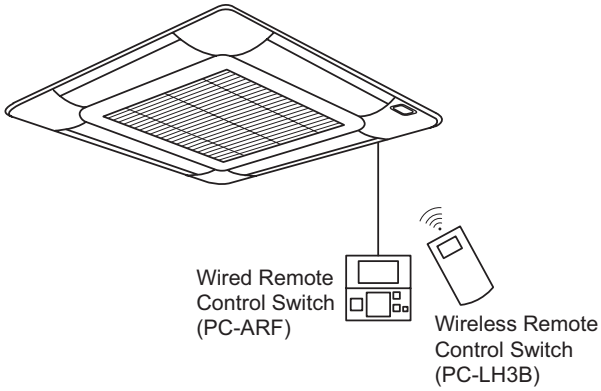
The multiple indoor units (Max. 16 units) can be started and stopped simultaneously by one wireless remote control switch. For the details, contact your distributor or contractor.



Control Example of Simultaneous Operation of Multiple Units

3.9 Operation with Wired Remote Control Switch

The indoor unit can be operated by both wired and wireless remote control switches.
Contact your distributor and contractor for detail.



3.10 Automatic Operation

Refer to the installation and operation manual of the indoor unit.

4. Maintenance

Refer to the installation and operation manual of the indoor unit together.

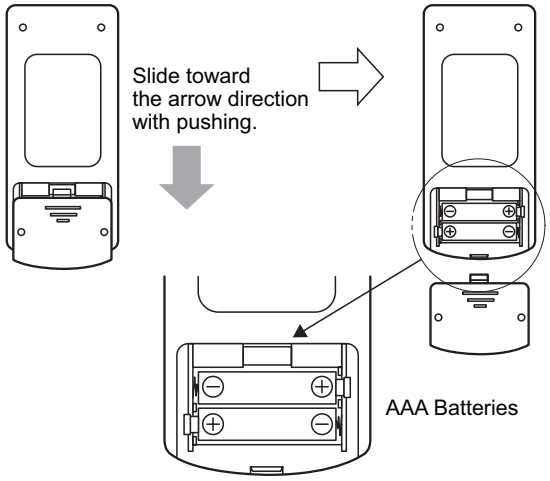
4.1 Cleaning Wireless Remote Control Switch

- Wipe it by soft, dry cloth.
- Do not use wet cloth to clean. It may cause failure of wireless remote control switch.
- Do not use benzine, thinner or detergent (Surfactant). If it is used, the wireless remote control switch may be deformed or changed color.

4.2 Replacing Batteries

Under the normal use, the battery life should be about 1 year (in case of alkaline batteries).
Replace the batteries if the following phenomenon is occurred:
The transmission distance between the remote control switch and the receiver kit gets shorter for operation or fan speed adjustment.

(1) Remove the battery cover by sliding toward the arrow direction by pushing the part of the cover as shown in the figure below.
(2) Set the batteries.
(Insert the batteries according to the marks of + and - on the case.)



NOTES:

- Pay attention to the followings to use the batteries correctly. If not, it may cause liquid spill or burst.
  1. Never use the new and the used batteries together.
  2. Never use the different types of batteries (for example manganese battery and alkaline battery) together.
  3. When the wireless remote control switch is not used for a long time (more than 2 or 3 months), take out the batteries from the wireless remote control switch.
- The batteries attached are for validation. Therefore, the battery life may get shorter.
- When the batteries are replaced, wait for more than 5 seconds to replace new.
- All settings are reset after the batteries are replaced. Therefore, when “Identifying of Indoor Units Installed Side by Side” is set, this setting is canceled once the batteries are replaced. After replacing the batteries, set the “Identifying of Indoor Units Installed Side by Side” again. (Press and hold “ON TIMER” and “OFF TIMER” simultaneously for 3 seconds. The indication “ b “ will appear. The details should be referred to the installation manual.)

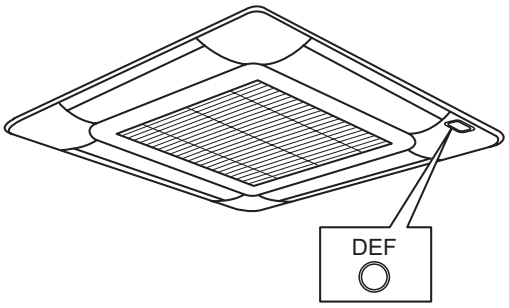
5. Indication of Receiver Kit

5.1 In Normal Condition

5.1.1 Defrost

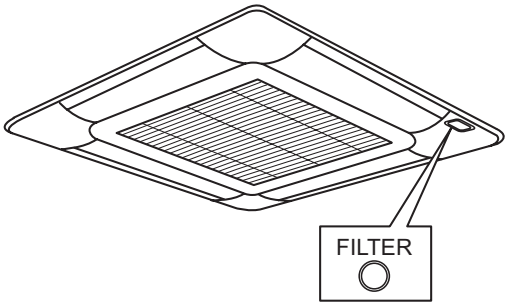
- Defrost Operation
  DEF indicator (green) is turned ON during the defrosting. The indoor fan is stopped.
  The louver is fixed at the horizontal position. However, the louver indication of LCD continues to activate.

- Operation Stoppage during Defrosting Operation
  The RUN indicator (red) is turned OFF when the operation is stopped during the defrosting. However, the operation continues with turning ON DEF indicator (green), and the unit is stopped after the defrost operation is finished.



5.1.2 Filter Sign

The cleaning period for air filter is notified by turning ON the FILTER indicator (yellow)
(The detail of cleaning method and filter cleaning time should be referred to the installation and operation manual of the indoor unit.)
After cleaning, point the transmitter towards the receiver kit and press “RESET” switch to turn OFF the FILTER indicator.



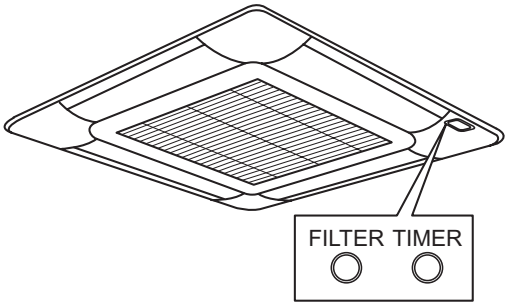
5.1.3 Central Control

When " " lamp (yellow) remains turning ON, the indoor unit is under the centralized control. In this case, "RESET" and "RUN/STOP" switches are only available to control from the wireless remote control switch.

5.1.4 Periodic Check
(Only for Gas Heat Pump Air Conditioner)

For the gas heat pump air conditioning, the periodic check is required because the engine is equipped.
If the indication lamp flashes in follows, the periodic check shall be performed.
Contact your distributor or contractor to request the maintenance.

- When the FILTER indicator (yellow) and the TIMER indicator (green) flash slowly (2 seconds ON/ 2 seconds OFF cycle), it is notified that the periodic check for outdoor unit is nearby.
- When the FILTER indicator (yellow) and the TIMER indicator (green) flash quickly (0.5 seconds ON/ 0.5 seconds OFF cycle), it is notified that the periodic check time for outdoor unit is passed.
  Contact beforehand your distributor or contractor to request the maintenance.

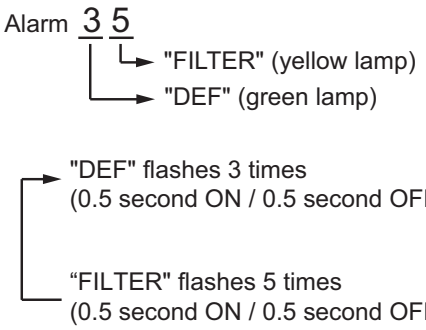


5.2 In Abnormal Condition

5.2.1 Abnormality

- When some troubles occur such as safety device actuation, etc. during the test run or the normal operation, "RUN" (red lamp) flashes (0.5 second ON / 0.5 second OFF).
- The alarm codes are indicated by the flashing times of "DEF" (green lamp) and "FILTER" (yellow lamp).
  "DEF" (green): The number of flashing is shown at the tens digit of Alarm Code.
  "FILTER" (yellow): The number of flashing is shown at the units digit of Alarm Code.

< Example >



These indications are repeated until the alarm is reset.

5.2.2 Power Failure

- All the indications are OFF.
- Once the unit is stopped by the power failure, the unit will not be started again although the power recovers. Perform the starting procedures again.
- In case of instantaneous power failure within 2 seconds, the unit will be started again automatically.

5.2.3 Electric Noise

There could be a case that all the indications are OFF and the unit is stopped. This is occurred by the activation of the micro computer for the unit protection from the electric noise.
Perform the starting procedures again.

6. Troubleshooting

6.1 This is Not Abnormal

Refer to the operation manual of the indoor unit together.

Phenomenon		Cause and Action
Stopped Operation	All indication lamps on the receiver kit are turned OFF.	The micro-computer is activated to protect the device from electromagnetic waves. The operation can be recovered if it is started from the beginning.
	Power failure occurs.	Start the operation from the beginning.

6.2 Before Contact

Check the items before contacting a contractor.
Refer to the operation manual of the indoor unit together.

Trouble	Checking Point	Action
Not Operated	Is the transmitter of wireless remote control switch pointed towards the receiver kit?	Point the transmitter towards the receiver kit.
	Check batteries of wireless remote control switch.	Replace batteries.
	Is the receiver surface covered by dust?	Wipe the receiver part by soft, dry cloth.
	Is the air conditioning controlled by centralized control?	When the air conditioning is under centralized control, “RESET” and “RUN/STOP” switches are only available to control from the wireless remote control switch.
Not Cooling or Heating Well	Check that the operation mode is appropriate.	If the fan mode is selected, switch the operation mode to cooling (heating).
	Check that the set temperature is appropriate.	If not, change the set temperature by pressing “ ∧ ” or “ ∨ ” by the wireless remote control switch.
	Check that the air flow direction is appropriate.	If not, change the air flow direction.

6.3 Contact Distributor

If the trouble still remains even after checking previous items or other troubles not mentioned in the previous occurs, stop using the product and contact your distributor or contractor.

⚠WARNING

If abnormality (burnt odor, etc.) occurs, stop the operation and turn OFF the main power source immediately. If not, it may cause breakage of the product, an electric shock or a fire. Contact your distributor or contractor.

Trouble	Action before Contact
The protection devices (fuse, breaker, ELB, etc) are frequently activated or the main power source switch does not work.	Turn OFF the power source.
Water Leakage from Indoor Unit.	Stop the operation.
● The RUN indicator (red) is flashing. ● The alarm codes are indicated by the flashing times of DEF indicator (green) and FILTER indicator (yellow). Check the details of flashing indicator and contact your distributor. (Refer to the item 5.2.1 “Abnormality”.)	Refer to the alarm code table on the installation manual of the indoor unit. Contact your distributor and inform the detail of flashing indicator of receiver kit.

Inform the following items to a distributor.

1) Model Name
2) Content of Trouble
3) Alarm Code No. or Detail of Flashing Indicator (Refer to the item 5.2.1 “Abnormality” for details.)

Specifications in this document are subject to change without notice, in order that Hitachi-Johnson Controls Air Conditioning, Inc. may bring the latest innovations to their customers.

Hitachi-Johnson Controls Air Conditioning, Inc.

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