Manual No.'18•SCM-T-251

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MITSUBISHI HEAVY INDUSTRIES

TECHNICAL MANUAL

INVERTER MULTI-SPLIT SYSTEM RESIDENTIAL AIR-CONDITIONERS

(Split system, air to air heat pump type)

(OUTDOOR UNIT)

SCM50ZS-S1
60ZM-S1

(INDOOR UNIT)

Wall mounted type
SRK20ZSX-S,-W
25ZSX-S,-W
35ZSX-S,-W
50ZSX-S,-W
60ZSX-S,-W
SRK20ZS-S,-W
25ZS-S,-W
35ZS-S,-W
50ZS-S,-W

SKM20ZSP-S
25ZSP-S
35ZSP-S

Floor standing type
SRF25ZMX-S
35ZMX-S
50ZMX-S

Ceiling concealed type
SRR25ZM-S
35ZM-S
50ZM-S
60ZM-S

4-way ceiling cassette type
FDTC25VF
35VF
50VF
60VF

Ceiling suspended type
FDE50VG

Duct connected Low/Middle static pressure type
FDUM50VF

MITSUBISHI HEAVY INDUSTRIES THERMAL SYSTEMS, LTD.

CONTENTS

■ Table of models

Indoor unit		Outdoor unit to be combined	
Type	Model	SCM50ZS-S1	SCM60ZM-S1
Wall mounted type	SRK20ZSX-S,-W	○	○
	25ZSX-S,-W	○	○
	35ZSX-S,-W	○	○
	50ZSX-S,-W	○	○
	60ZSX-S,-W	—	○
	SRK20ZS-S,-W	○	○
	25ZS-S,-W	○	○
	35ZS-S,-W	○	○
	50ZS-S,-W	○	○
	SKM20ZSP-S	○	—
	25ZSP-S	○	—
	35ZSP-S	○	—
Floor standing type	SRF25ZMX-S	○	○
	35ZMX-S	○	○
	50ZMX-S	○	○
Ceiling concealed type	SRR25ZM-S	○	○
	35ZM-S	○	○
	50ZM-S	○	○
	60ZM-S	—	○
4-way ceiling cassette type	FDTC25VF	○	○
	35VF	○	○
	50VF	○	○
	60VF	—	○
Ceiling suspended type	FDE50VG	○	○
Duct connected Low/Middle static pressure type	FDUM50VF	○	○

■ How to read the model name

Outdoor unit

Example: SCM 50 Z S-S1

- S-S1 — Series code
- Z — Inverter type
- 50 — Product capacity
- SCM — Model name

Indoor unit

Example: SRK 20 Z SX-S

- SX-S — Series code
- Z — Inverter type
- 20 — Product capacity
- SRK — Model name

SRK,SKM	: Wall mounted type
SRF	: Floor standing type
SRR	: Ceiling concealed type
FDTC	: 4-way ceiling cassette type
FDE	: Ceiling suspended type
FDUM	: Duct connected Low/Middle static pressure type

1. OUTDOOR UNITS

1.1 Specifications

Item			Model	SCM50ZS-S1
Power source				1 Phase, 220 - 240V, 50Hz / 220V, 60Hz
Operation data (1)	Nominal cooling capacity (Range)		kW	5.0 (1.8 (Min.) - 7.1 (Max.))
	Nominal heating capacity (Range)		kW	6.0 (1.4(Min.) - 7.5 (Max.))
	Heating capacity (H2)		kW	–
	Power consumption	Cooling	kW	1.05 (0.60 - 2.15)
		Heating		1.21 (0.55 - 2.58)
		Heating (H2)		–
	Max power consumption			2.8
	Running current	Cooling	A	4.9 / 4.7 / 4.5 (220/ 230/ 240 V)
		Heating		5.6 / 5.4 / 5.1 (220/ 230/ 240 V)
	Inrush current, max current			5.0 Max. 14
	Power factor	Cooling	%	98
		Heating		98
	EER	Cooling		4.76
	COP	Heating		4.96
		Heating (H2)		–
	Sound power level	Cooling	dB(A)	61
		Heating		63
	Sound pressure level	Cooling		48
		Heating		50
	Silent mode sound pressure level			Cooling:43 / Heating:44
Exterior dimensions (Height x Width x Depth)			mm	640 x 850(+65) x 290
Exterior appearance (Equivalent color)				Stucco white Munsell : (4.2Y 7.5/1.1), near equivalent
Net weight			kg	49
Compressor type & Quantity				RMT5113MFE2 (Twin rotary type) x 1
Compressor motor (Starting method)			kW	1.4 (Line starting)
Refrigerant oil (Amount, type)			ℓ	0.45 (DIAMOND FREEZE MA68)
Refrigerant (Type, amount, pre-charge length)			kg	R410A 2.5 (Pre-charged up to the piping length of 40m)
Heat exchanger				M fins & inner grooved tubing
Refrigerant control				Capillary tubes + Electronic expansion valve
Device control				Microcomputer control
Fan type & Quantity				Propeller fan x 1
Fan motor (Starting method)			W	34 x1 (Direct drive)
Air flow		Cooling	m^3/min	41
		Heating		41
Shock & vibration absorber				Cushion rubber (for compressor)
Electric heater				Crank case heater (220V 20W)
Safety equipments				Compressor overheat protection, Overcurrent protection, Frost protection, Serial signal error protection, Outdoor fan motor error protection, Heating overload protection(High pressure control), Cooling overload protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") x 3 Gas line: ϕ9.52 (3/8") x 3
	Connecting method			Flare connection
	Insulation for piping			Necessary (Both sides), independent
	Refrigerant line (One way) length		m	Max. 25 (Length for one indoor unit) Max. 40 (Total length for all rooms)
	Vertical height diff. between O.U. and I.U.		m	Max. 15 (Outdoor unit is higher) Max. 15 (Outdoor unit is lower)
	Height difference of the indoor units		m	Max. 25
Recommended breaker size			A	25
L.R.A. (Locked rotor ampere)			A	5
Interconnecting wires		Size x Core number		1.5mm^2 x 4 cores (Including earth cable)
		Connecting method		Terminal block (Screw fixing type)
IP number				IPX4
Standard accessories				Union : (ϕ9.52 → ϕ12.7) × 1, Installation sheet, Elbow, Grommet
Indoor unit to be combined				SRK20,25,35,50ZSX-S,-W SRK20,25,35,50ZS-S,-W SKM20,25,35ZSP-S, SRF25,35,50ZMX-S, SRR25,35,50ZM-S FDTC25,35,50VF, FDE50VG, FDUM50VF
Number of connectable indoor units				Min. 2 – Max. 3
Total of indoor units			kW	Max. 8.5

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO5151-T1
Heating	20°C	—	7°C	6°C	ISO5151-H1
Heating (H2)	20°C	—	2°C	1°C	ISO5151-H2

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.
(4) Select the breaker size according to the own national standard.

RWC000Z314

Item			Model	SCM60ZM-S1
Power source				1 Phase, 220 - 240V, 50Hz / 220V, 60Hz
Operation data (1)	Nominal cooling capacity (Range)		kW	6.0 (1.8 (Min.) - 7.5 (Max.))
	Nominal heating capacity (Range)		kW	6.8 (1.5 (Min.) - 7.8 (Max.))
	Heating capacity (H2)		kW	–
	Power consumption	Cooling	kW	1.43 (0.50 - 2.39)
		Heating		1.45 (0.60 - 3.00)
		Heating (H2)		–
	Max power consumption			3.3
	Running current	Cooling	A	6.6 / 6.3 / 6.0 (220/ 230/ 240 V)
		Heating		6.7 / 6.4 / 6.1(220/ 230/ 240 V)
	Inrush current, max current			5.0 Max. 17
	Power factor	Cooling	%	99
		Heating		99
	EER	Cooling		4.20
	COP	Heating		4.69
		Heating (H2)		–
	Sound power level	Cooling	dB(A)	63
		Heating		65
	Sound pressure level	Cooling		50
		Heating		52
	Silent mode sound pressure level			Cooling:43 / Heating:44
Exterior dimensions (Height x Width x Depth)			mm	640 x 850(+65) x 290
Exterior appearance (Equivalent color)				Stucco white Munsell : (4.2Y 7.5/1.1), near equivalent
Net weight			kg	49.5
Compressor type & Quantity				RMT5118MDE2 (Twin rotary type) x 1
Compressor motor (Starting method)			kW	1.4 (Line starting)
Refrigerant oil (Amount, type)			ℓ	0.675 (DIAMOND FREEZE MA68)
Refrigerant (Type, amount, pre-charge length)			kg	R410A 2.5 (Pre-charged up to the piping length of 40m)
Heat exchanger				M fins & inner grooved tubing
Refrigerant control				Capillary tubes + Electronic expansion valve
Device control				Microcomputer control
Fan type & Quantity				Propeller fan x 1
Fan motor (Starting method)			W	34 x1 (Direct drive)
Air flow		Cooling	m^3/min	42
		Heating		42
Shock & vibration absorber				Cushion rubber (for compressor)
Electric heater				Crank case heater (220V 20W)
Safety equipments				Compressor overheat protection, Overcurrent protection, Frost protection, Serial signal error protection, Outdoor fan motor error protection, Heating overload protection(High pressure control), Cooling overload protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") x 3 Gas line: ϕ9.52 (3/8") x 3
	Connecting method			Flare connection
	Insulation for piping			Necessary (Both sides), independent
	Refrigerant line (One way) length		m	Max. 25 (Length for one indoor unit) Max. 40 (Total length for all rooms)
	Vertical height diff. between O.U. and I.U.		m	Max. 15 (Outdoor unit is higher) Max. 15 (Outdoor unit is lower)
	Height difference of the indoor units		m	Max. 25
Recommended breaker size			A	25
L.R.A. (Locked rotor ampere)			A	5
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable)
	Connecting method			Terminal block (Screw fixing type)
IP number				IPX4
Standard accessories				Union : (ϕ9.52→ϕ12.7) × 2, Installation sheet, Elbow, Grommet
Indoor unit to be combined				SRK20,25,35,50,60ZSX-S,-W SRK20,25,35,50ZS-S,-W SRF25,35,50ZMX-S, SRR25,35,50,60ZM-S FDTC25,35,50,60VF, FDE50VG, FDUM50VF
Number of connectable indoor units				Min. 2 – Max. 3
Total of indoor units			kW	Max. 11

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

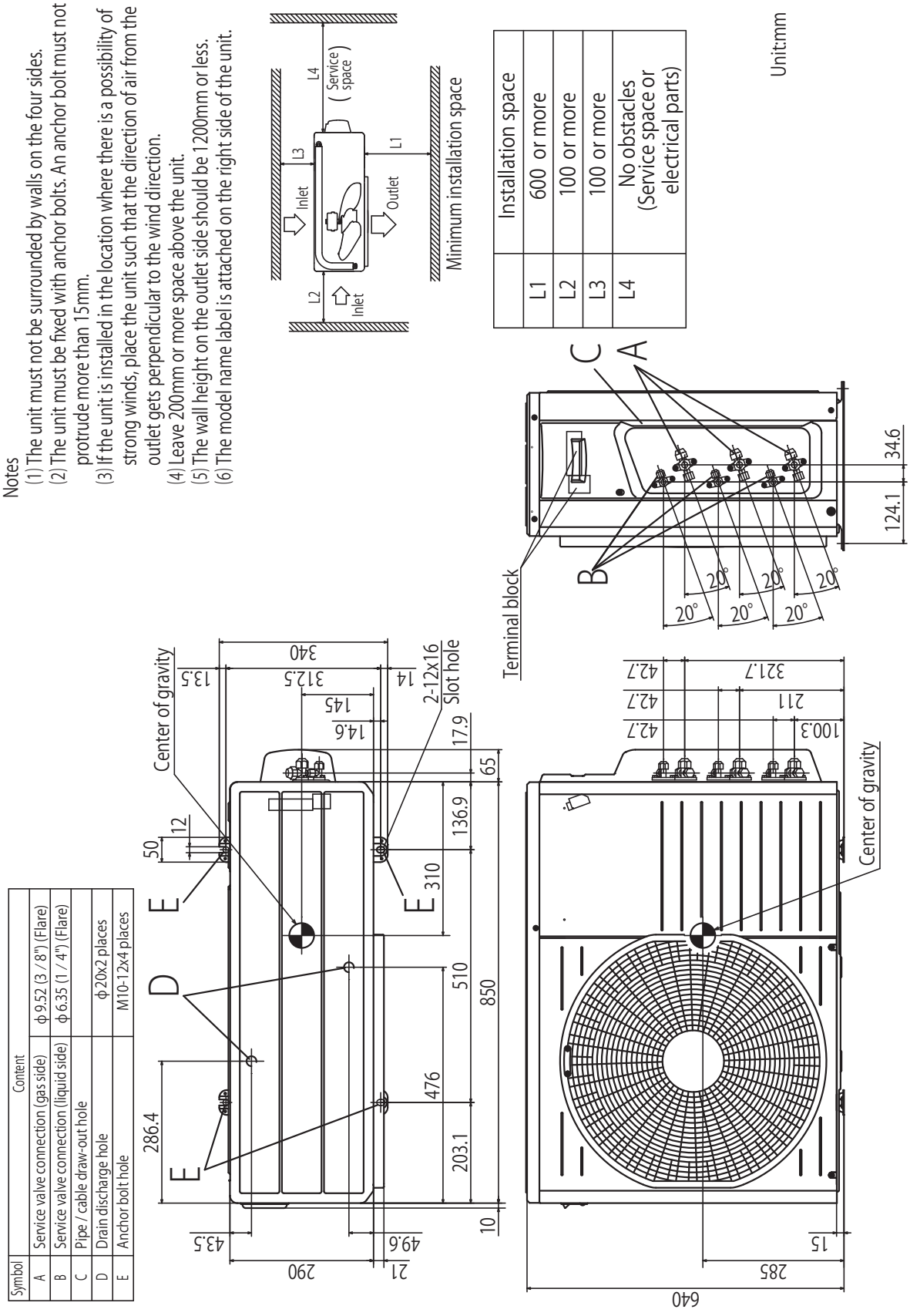
Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	ISO5151-H1
Heating (H2)	20˚C	—	2˚C	1˚C	ISO5151-H2

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.
(4) Select the breaker size according to the own national standard.

RWC000Z314

1.2 Exterior dimensions

Models SCM50ZS-S1, 60ZM-S1



RWC000Z318

1.3 Electrical wiring

Models SCM50ZS-S1, 60ZM-S1

Meaning of Marks

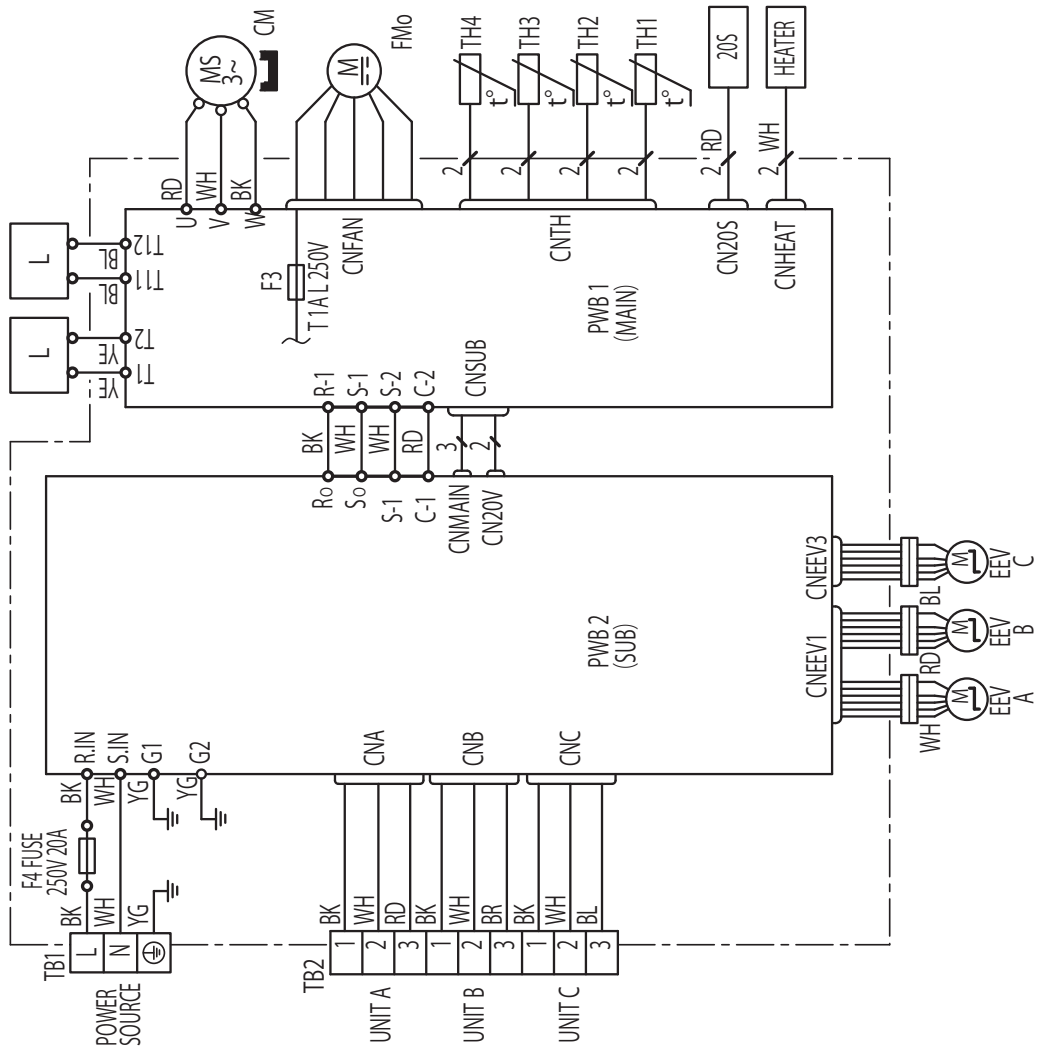
Item	Description
CN20S	Connector
CN20V	
CNA	
CNB	
CNC	
CNFAN	
CNEEV1	
CNEEV3	
CNHEAT	
CNMAIN	
CNTH	
CNSUB	

Item	Description
20S	4-way valve (coil)
CM	Compressor motor
EEV A,EEV B EEV C	Electric expansion valve (coil)
FMo	Fan motor
HEATER	Crank case heater
L	Reactor
TB1,2	Terminal block
TH1 (Tho-R)	Heat exchanger temp. sensor (outdoor unit)
TH2 (Tho-A)	Outdoor air temp. sensor
TH3 (Tho-D)	Discharge pipe temp. sensor
TH4 (Tho-S)	Suction pipe temp. sensor

Color Marks

Mark	Color
BK	Black
RD	Red
WH	White
BL	Blue

Mark	Color
YE	Yellow
YG	Yellow / Green
BR	Brown



RWC000Z319

1.4 Noise level

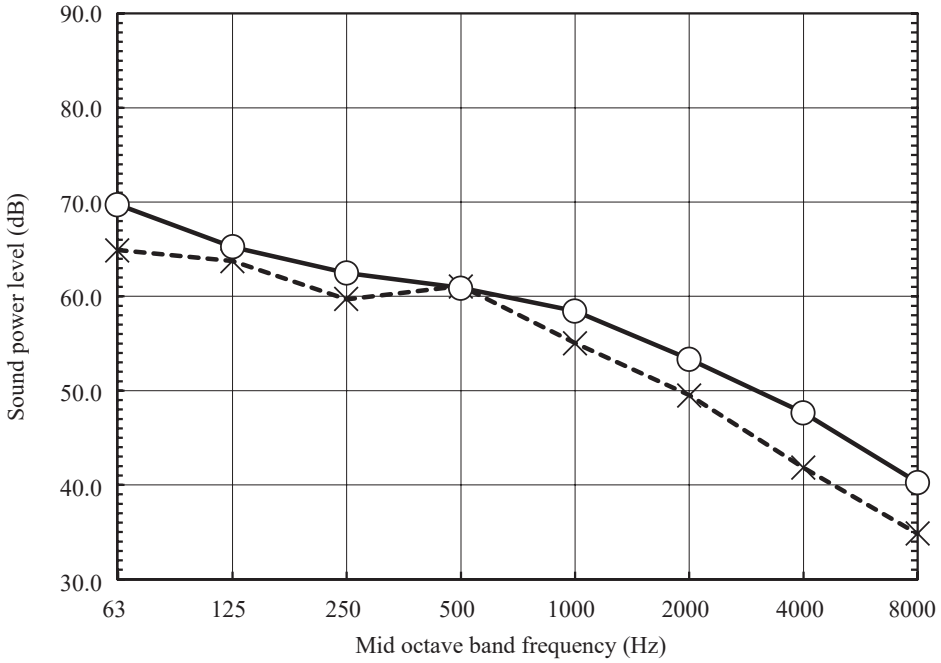
(1) Sound power level

Model SCM50ZS-S1

Noise Level	Cooling	61 dB(A)
	Heating	63 dB(A)

Condition	ISO5151 T1/H1
Mode	Rated capacity value

× ····· Cooling, ○ —— Heating

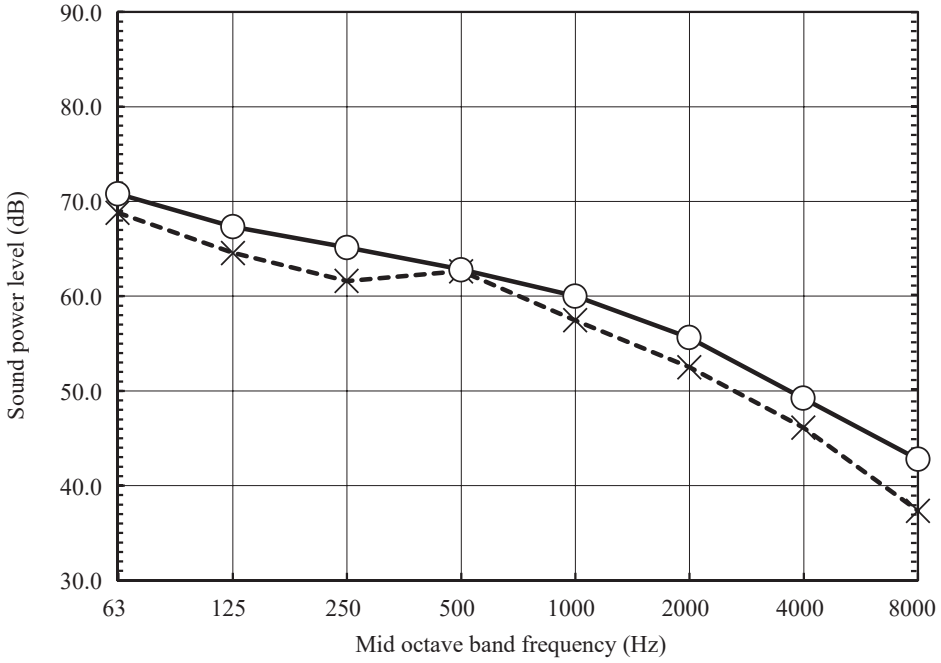


Model SCM60ZM-S1

Noise Level	Cooling	63 dB(A)
	Heating	65 dB(A)

Condition	ISO5151 T1/H1
Mode	Rated capacity value

× ····· Cooling, ○ —— Heating



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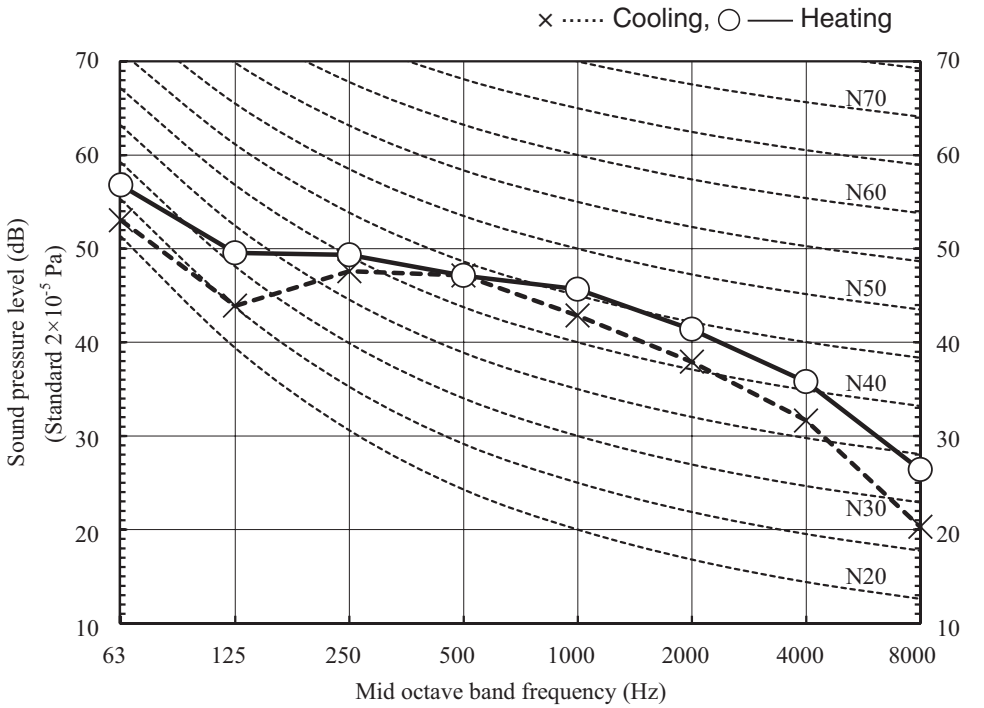
(2) Sound pressure level

(a) Rated capacity value

Model SCM50ZS-S1

Noise Level	Cooling	48 dB(A)
	Heating	50 dB(A)

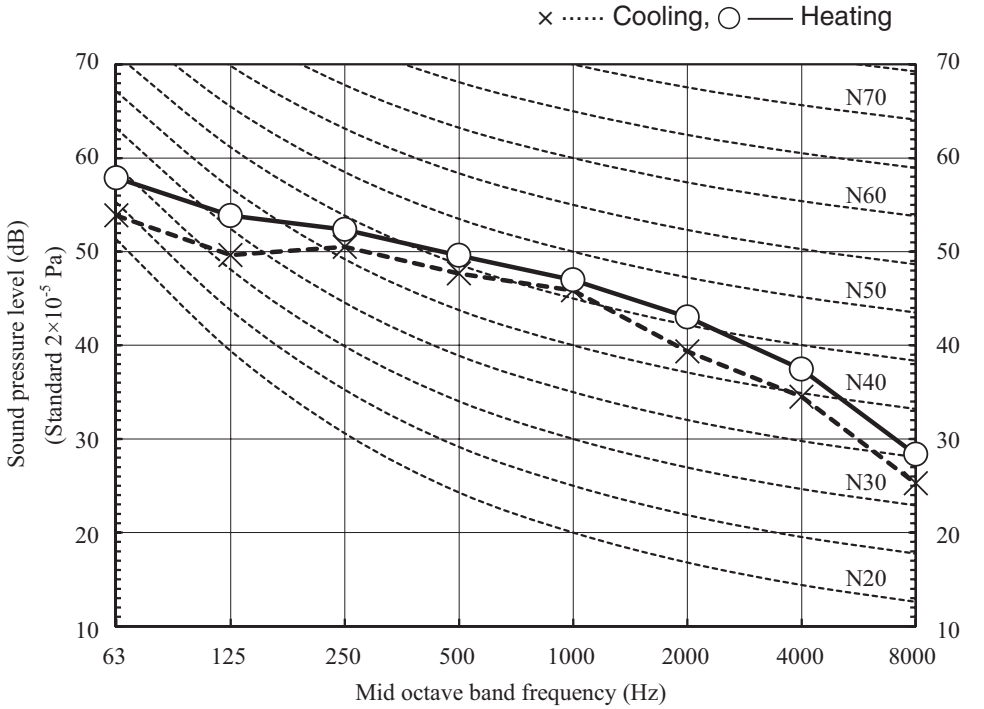
Condition	ISO5151 T1/H1
Mode	Rated capacity value



Model SCM60ZM-S1

Noise Level	Cooling	50 dB(A)
	Heating	52 dB(A)

Condition	ISO5151 T1/H1
Mode	Rated capacity value

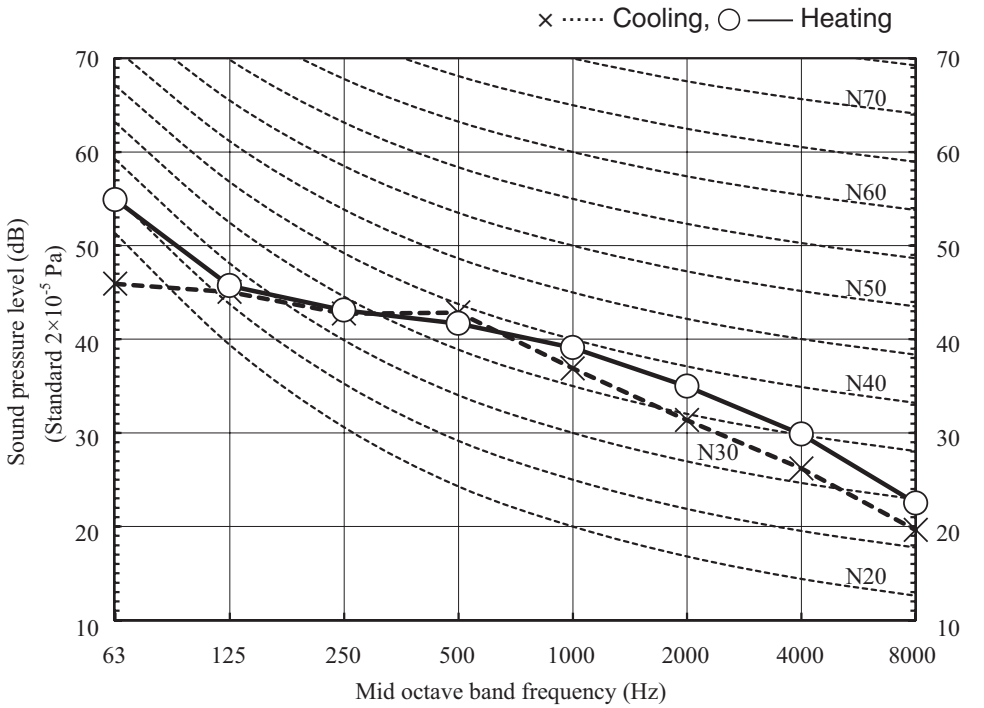


(b) Silent mode

Model SCM50ZS-S1

Noise Level	Cooling	43 dB(A)
	Heating	44 dB(A)

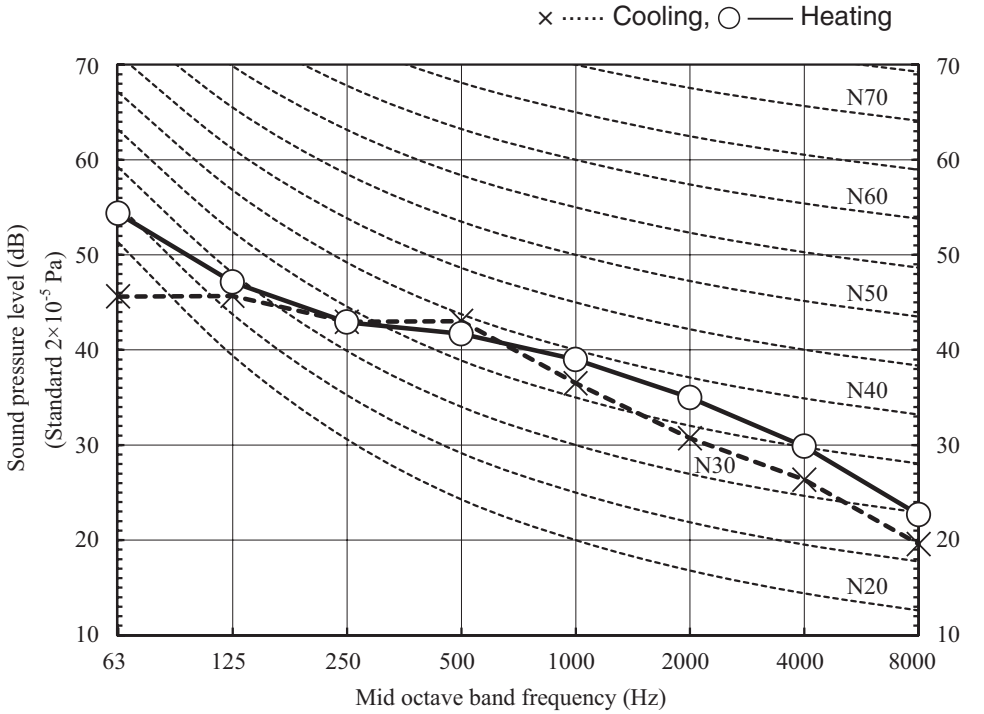
Condition	ISO5151 T1/H1
Mode	Silent



Model SCM60ZM-S1

Noise Level	Cooling	43 dB(A)
	Heating	44 dB(A)

Condition	ISO5151 T1/H1
Mode	Silent



1.5 Application data

Models SCM50ZS-S1, 60ZM-S1

RPC012A200A

Model SCM40,45,50,60
R410A REFRIGERANT USED

• This installation manual deals with an outdoor unit installation only. For an indoor unit installation, refer to page 82.

NOTE This model requires a minimum of 2 indoor units.

SAFETY PRECAUTIONS

- Before installation, read the "SAFETY PRECAUTIONS" carefully and strictly follow it during the installation work in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, ⚠ WARNING and ⚠ CAUTION .

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, can result in serious consequences such as death or severe injury.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, can result in personal injury or property damage.

Both mention the important items to protect your health and safety. Therefore, strictly follow them by any means.

- Be sure to confirm no operation problem on the equipment after completing the installation. If unusual noise can be heard during the test run, consult the dealer.
- Be sure to explain the operating methods as well as the maintenance methods of this equipment to the user according to the user's manual.
- Be sure to keep the installation manual together with user's manual at a place where it is easily accessible to the user any time. Moreover, ask the user to hand the manuals to a new user, whenever required.

⚠ WARNING

- **Be sure to use only for residential purpose.**
  If this unit is installed in inferior environment such as machine shop, vehicle (like ship), warehouse, etc., it can malfunction.
- **Installation must be carried out by the qualified installer completely in accordance with the installation manual.**
  Installation by non qualified person or incorrect installation can cause serious troubles such as water leak, electric shock, fire and personal injury.
- **Be sure to wear protective goggles and gloves while performing installation work.**
  Improper safety measures can result in personal injury.
- **Use the original accessories and the specified components for the installation.**
  Using parts other than those prescribed may cause water leak, electric shock, fire and personal injury.
- **Do not install the unit near the location where leakage of flammable gases can occur.**
  If leaked gases accumulate around the unit, it can cause fire resulting in property damage and personal injury.
- **When installing the unit in small rooms, make sure that refrigerant density does not exceed the limit (Reference: ISO5149) in the event of leakage.**
  If refrigerant density exceeds the limit, consult the dealer and install the ventilation system.
  Otherwise lack of oxygen can occur resulting in serious accident.
- **Install the unit in a location where unit will remain stable, horizontal and free of any vibration transmission.**
  Unsuitable installation location can cause the unit to fall resulting in material damage and personal injury.
- **Do not run the unit with removed panels or protections.**
  Touching rotating equipments, hot surfaces or high voltage parts can cause personal injury due to entrapment, burn or electric shock.
- **This unit is designed specifically for R410A.**
  Using any other refrigerant can cause unit failure and personal injury.
- **Do not vent R410A into atmosphere.**
  R410A is a fluorinated greenhouse gas with a Global Warning Potential(GWP)=2088.
- **Make sure that no air enters the refrigerant circuit when the unit is installed and removed.**
  If air enters the refrigerant circuit, the pressure in the refrigerant circuit will become too high, which can cause burst and personal injury.
- **Be sure to use the prescribed pipes, flare nuts and tools for R410A.**
  Using existing parts (for R22 or R407C) can cause refrigerant circuit burst resulting in unit failure and personal injury.
- **Be sure to connect both liquid and gas connecting pipes properly before operating the compressor.**
  Do not open the liquid and gas operation valves before completing piping work, and evacuation.
  If the compressor is operated when connecting pipes are not connected and operation valves are open, air can be sucked into the refrigerant circuit which can cause anomalous high pressure resulting in burst or personal injury.
- **Be sure to tighten the flare nuts to specified torque using the torque wrench.**
  Tightening flare nuts with excess torque can cause burst and refrigerant leakage after a long period.
- **During pump down work, be sure to stop the compressor before closing service valves and removing connecting pipes.**
  If the connecting pipes are removed when the compressor is in operation and service valves are open, air can be sucked into the refrigerant circuit which can cause anomalous high pressure resulting in burst or personal injury.
- **In the event of refrigerant leakage during installation, be sure to ventilate the working area properly.**
  If the refrigerant comes into contact with naked flames, poisonous gases will be produced.
- **Electrical work must be carried out by the qualified electrician, strictly in accordance with national or regional electricity regulations.**
  Incorrect installation can cause electric shock, fire or personal injury.
- **Make sure that earth leakage breaker and circuit breaker of appropriate capacities are installed.**
  Circuit breaker should be able to disconnect all poles under over current. Absence of appropriate breakers can cause electric shock, personal injury or property damage.
- **Be sure to switch off the power source in the event of installation, maintenance or service.**
  If the power source is not switched off, there is a risk of electric shock, unit failure or personal injury.
- **Be sure to tighten the cables securely in terminal block and relieve the cables properly to prevent overloading the terminal blocks.**
  Loose connections or cable mountings can cause anomalous heat production or fire.
- **Do not process, splice or modify the power cable, or share the socket with other power plugs.**
  Improper power cable or power plug can cause fire or electric shock due to poor connection, insufficient insulation or over-current.
- **Do not perform any change in protective device or its setup condition yourself.**
  Changing protective device specifications can cause electric shock, fire or burst.
- **Be sure to clamp the cables properly so that they do not touch any internal component of the unit.**
  If cables touch any internal component, it can cause overheating and fire.
- **Be sure to install service cover properly.**
  Improper installation can cause electric shock or fire due to intrusion of dust or water.
- **Be sure to use the prescribed power and connecting cables for electrical work.**
  Using improper cables can cause electric leak or fire.
- **This appliance must be connected to main power source by means of a circuit breaker or switch with a contact separation of at least 3mm.**
  Improper electrical work can cause unit failure or personal injury.
- **When plugging this unit, a plug conforming to the standard IEC60884-1 must be used.**
  Using improper plug can cause electric shock or fire.
- **Be sure to connect the power source cable with power source properly.**
  Improper connection can cause intrusion of dust or water resulting in electric shock or fire.

⚠ CAUTION

- **Take care when carrying the unit by hand.**
  If the unit weight is more than 20kg, it must be carried by two or more persons.
  Do not carry the unit by the plastic straps. Always use the carry handle.
- **Do not install the outdoor unit in a location where insects and small animals can inhabit.**
  Insects and small animals can enter the electrical parts and cause damage resulting in fire or personal injury. Instruct the user to keep the surroundings clean.
- **If the outdoor unit is installed at height, make sure that there is enough space for installation, maintenance and service.**
  Insufficient space can result in personal injury due to falling from the height.
- **Do not install the unit near the location where neighbours are bothered by noise or air generating from the unit.**
  It can affect surrounding environment and cause a claim.
- **Do not install in the locations where unit is directly exposed to corrosive gases (like sulphide gas, chloride gas), sea breeze or salty atmosphere.**
  It can cause corrosion of heat exchanger and damage to plastic parts.
- **Do not install the unit close to the equipments that generate electromagnetic waves and/or high-harmonic waves.**
  Equipment such as inverters, standby generators, medical high frequency equipments and telecommunication equipments can affect the system, and cause malfunctions and breakdowns.
  The system can also affect medical equipment and telecommunication equipment, and obstruct its function or cause jamming.
- **Do not install the unit in the locations where:**
  - There are heat sources nearby.
  - Unit is directly exposed to rain or sunlight.
  - There is any obstacle which can prevent smooth air circulation from inlet and outlet side of the unit.
  - Unit is directly exposed to oil mist and steam such as kitchen.
  - Chemical substances like ammonia (organic fertilizer), calcium chloride (snow melting agent) and acid (sulfurous acid etc.), which can harm the unit, will generate or accumulate.
  - Drain water can not be discharged properly.
  - TV set or radio receiver is placed within 1m.
  - Height above sea level is more than 1000m.

  It can cause performance degradation, corrosion and damage of components, unit malfunction and fire.
- **Dispose of all packing materials properly.**
  Packing materials contain nails and wood which can cause personal injury.
  Keep the polybag away from children to avoid the risk of suffocation.
- **Do not put anything on the outdoor unit.**
  Object may fall causing property damage or personal injury.
- **Do not touch the aluminum fin of the outdoor unit.**
  Aluminium fin temperature is high during heating operation. Touching fin can cause burn.
- **Do not touch any refrigerant pipe with your hands when the system is in operation.**
  During operation the refrigerant pipes become extremely hot or extremely cold depending on the operating condition. Touching pipes can cause personal injury like burn (hot/cold).
- **Install isolator or disconnect switch on the power source wiring in accordance with the local codes and regulations.**
  The isolator should be locked in OFF state in accordance with EN60204-1.

1. ACCESSORIES AND TOOLS

Standard accessories (Supplied with outdoor unit)			Q'ty
(1)	Drain grommet		1
(2)	Drain elbow		1
(3)	Variable diameter joint ø9.52→ø12.7	SCM50	1
		SCM60	2

Locally procured parts	
(a)	Anchor bolt(M10-M12)×4 pcs
(b)	Putty
(c)	Electrical tape
(d)	Connecting pipe
(e)	Connecting cable
(f)	Power cable
(g)	Clamp and screw (for finishing work)

Tools for installation work		
Plus headed driver	Spanner wrench	Vacuum pump*
Knife	Torque wrench [14.0-62.0N•m(1.4-6.2kgf•m)]	Gauge manifold *
Saw	Wrench key (Hexagon) [4mm]	Charge hose *
Tape measure	Flaring tool set *	Vacuum pump adapter* (Anti-reverse flow type)
Pipe cutter	Flare adjustment gauge	Gas leak detector *

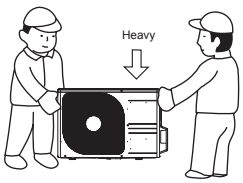
*Designed specifically for R410A

2. OUTDOOR UNIT INSTALLATION

NOTE Do not step on a top and the service cover of the unit.

1. Haulage

- Always carry or move the unit with two or more persons.
- The right hand side of the unit as viewed from the front (outlet side) is heavier.
  A person carrying the right hand side must take care of this fact. A person carrying the left hand side must hold the handle provided on the front panel of the unit with his right hand and the corner column section of the unit with his left hand.



⚠ CAUTION

When a unit is hauled, take care of its gravity center position which is shifted towards right hand side.
If the unit is not hauled properly, it can go off balance and fall resulting in serious injury.

2. Selecting the installation location

Select the suitable installation location where:

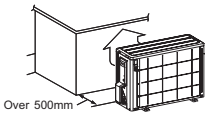
- Unit will be stable, horizontal and free of any vibration transmission.
- There is no obstacle which can prevent smooth air circulation from inlet and outlet side of the unit.
- There is enough space for service and maintenance of unit.
- Neighbours are not bothered by noise or air generating from the unit.
- Outlet air of the unit does not blow directly to animals or plants.
- Drain water can be discharged properly.
- There is no risk of flammable gas leakage.
- There are no other heat sources nearby.
- Unit is not directly exposed to rain or sunlight.
- Unit is not directly exposed to oil mist and steam.
- Chemical substances like ammonia (organic fertilizer), calcium chloride (snow melting agent) and acid (sulfurous acid etc.), which can harm the unit, will not generate or accumulate.
- Unit is not directly exposed to corrosive gases (like sulphide gas, chloride gas), sea breeze or salty atmosphere.
- No TV set or radio receiver is placed within 1m.
- Unit is not affected by electromagnetic waves and/or high-harmonic waves generated by other equipments.
- Strong wind does not blow against the unit outlet.
- Heavy snowfalls do not occur (If installed, provide proper protection to avoid snow accumulation).

NOTE

If the unit is installed in the area where there is a possibility of strong wind or snow accumulation, the following measures are required.

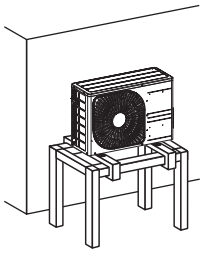
(1) Location of strong wind

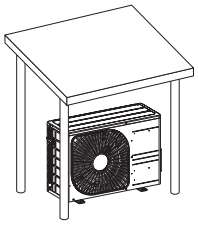
- Place the unit with its outlet side facing the wall.
- Place the unit such that the direction of air from the outlet gets perpendicular to the wind direction.



(2) Location of snow accumulation

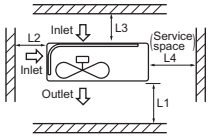
- Install the unit on the base so that the bottom is higher than snow cover surface.
- Install the unit under eaves or provide the roof on site.





3. Installation space

- There must be 1 meter or larger space between the unit and the wall in at least 1 of the 4 sides. Walls surrounding the unit from 4 sides is not acceptable. The wall height on the outlet side should be 1200 mm or less. Refer to the following figure and table for details.



	Installation space (mm)	
	Model SCM40/45	Model SCM50/60
L1	280 or more	600 or more
L2	100 or more	100 or more
L3	80 or more	100 or more
L4	250 or more	No obstacles (Service space or electrical parts)

NOTE

When more than one unit are installed side by side, provide a 250mm or wider interval between them as a service space.

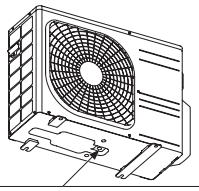
⚠ CAUTION

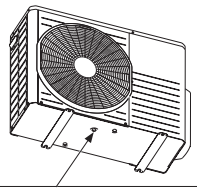
When more than one unit are installed in parallel directions, provide sufficient inlet space so that short-circuiting may not occur.

4. Drain piping work (If necessary)

Carry out drain piping work by using a drain elbow and a drain grommet supplied separately as accessories if condensed water needs to be drained out.
(1) Install drain elbow and drain grommet.
(2) Seal around the drain elbow and drain grommet with putty or adequate caulking material.

<SCM40/45> <SCM50/60>





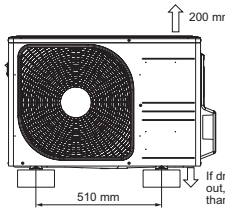
Do not put a grommet on this hole.
This is a supplementary drain hole to discharge drain water, when a large amount of it is gathered.

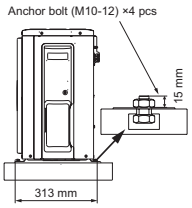
⚠ CAUTION

Do not use drain elbow and drain grommet if there is a possibility to have several consecutive days of sub zero temperature. (There is a risk of drain water freezing inside and blocking the drain.)

5. Installation

- Install the unit on a flat level base.
- While installing the unit, keep space and fix the unit's legs with 4 anchor bolts as shown in the figure below. The protrusion of an anchor bolt from the foundation surface must be kept within 15mm.





⚠ CAUTION

- Install the unit properly so that it does not fall over during earthquake, strong wind, etc.
- Make sure that unit is installed on a flat level base. Installing unit on uneven base may result in unit malfunction.

3. PREPARATION FOR WORK

1. Removing service cover

Remove the screw. Slide service cover downwards and remove it.

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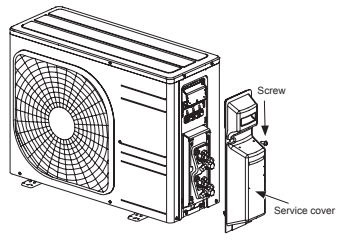

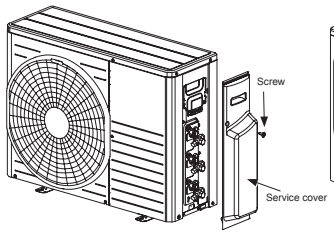

2. Removing terminal cover

Remove the screw and take out terminal cover.

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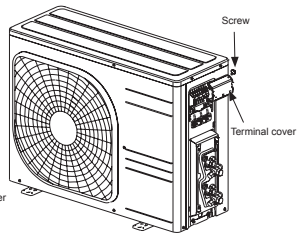
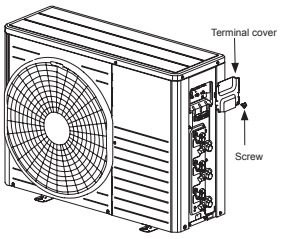
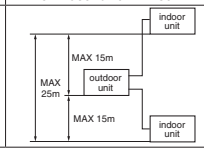
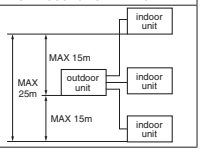




4. CONNECTING PIPING WORK

1. Restrictions on unit installation

Abide by the following restrictions on unit installation.
Improper installation can cause compressor failure or performance degradation.

	Model SCM40/45	Model SCM50/60
piping length	one indoor unit MAX 25m all indoor unit MAX 30m	one indoor unit MAX 25m all indoor unit MAX 40m
hight difference		

2. Preparation of connecting pipe

2.1. Selecting connecting pipe

Select connecting pipe according to the following table.

Indoor unit	Model 20/25/35	Model 50/60
Gas pipe	ø9.52	ø12.7
Liquid pipe	ø6.35	ø6.35

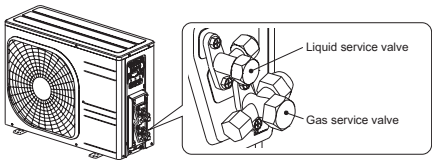
- Pipe wall thickness must be greater than or equal to 0.8 mm.
- Pipe material must be O-type (Phosphorus deoxidized seamless copper pipe ICS 23.040.15, ICS 77.150.30).

2.2. Cutting connecting pipe

(1) Cut the connecting pipe to the required length with pipe cutter.
(2) Hold the pipe downward and remove the burrs. Make sure that no foreign material enters the pipe.
(3) Cover the connecting pipe ends with the tape.

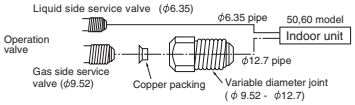
3. Piping work

Check that both liquid and gas service valves are fully closed.
Carry out the piping work with service valves fully closed.

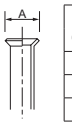


3.1. Flaring pipe

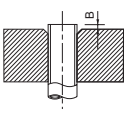
(1) <SCM40/45>
Take out flare nuts from the service valves of outdoor unit and engage them onto connecting pipes.
<SCM50/60>
Take out flare nuts from the service valves of outdoor unit.
If a 5.0, 6.0 kW class indoor unit (gas side pipe 12.7) is going to be connected to the service valves (9.52), variable joints available as accessories must be applied to the gas side service valves.
Securely fit the copper packing between the service valve and the variable diameter joint to prevent shifting.
Engage flare nuts onto connecting pipes.



(2) Flare the pipes according to table and figure shown below.
Flare dimensions for R410A are different from those for conventional refrigerant.
Although it is recommended to use the flaring tools designed specifically for R410A, conventional flaring tools can also be used by adjusting the dimension B with a flare adjustment gauge.



Copper pipe outer diameter	A
ø6.35	9.1
ø9.52	13.2
ø12.7	16.6

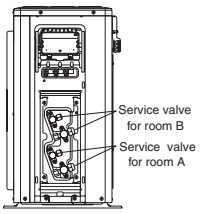


Copper pipe outer diameter	B [Rigid (clutch) type]	
	R410A	Conventional
ø6.35	0-0.5	1.0-1.5
ø9.52		
ø12.7		

3.2. Connecting pipes

(1) Connect pipes on both liquid and gas sides.

<SCM40/45>



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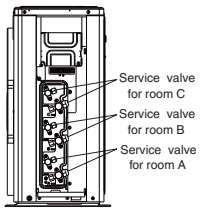
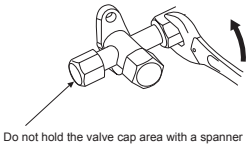


(2) Tighten nuts to specified torque shown in the table below.

Service valve size (mm)	Tightening torque (N·m)
ø6.35 (1/4")	14-18
ø9.52 (3/8")	34-42
ø12.7 (1/2")	49-61



⚠ CAUTION

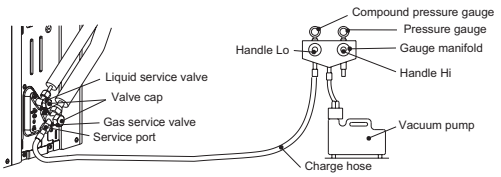
- Do not apply refrigerating machine oil to the flared surface. It can cause refrigerant leakage.
- Do not apply excess torque to the flared nuts. The flared nuts may crack resulting in refrigerant leakage.

4. Evacuation

(1) Connect vacuum pump to gauge manifold. Connect charge hose of gauge manifold to a service port of outdoor unit.
(2) Run the vacuum pump for at least one hour after the vacuum gauge shows -0.1MPa (–76cm Hg).
(3) Confirm that the vacuum gauge indicator does not rise even if the system is left for 15 minutes or more.
Vacuum gauge indicator will rise if the system has moisture left inside or has a leakage point. Check the system for the leakage point. If leakage point is found, repair it and return to (1) again.
(4) Close the Handle Lo and stop the vacuum pump.
Keep this state for a few minutes to make sure that the compound pressure gauge pointer does not swing back.
(5) Remove valve caps from liquid operation valve and gas service valve.
(6) Turn the liquid operation valve's rod 90 degree counterclockwise with a hexagonal wrench key to open valve.
Close it after 5 seconds, and check for gas leakage.
Using soapy water, check for gas leakage from indoor unit's flare and outdoor unit's flare and valve rods.
Wipe off all the water after completing the check.
(7) Disconnect charging hose from gas service valve's service port and fully open liquid and gas operation valves. (Do not attempt to turn valve rod beyond its stop.)
(8) Tighten service valve caps and service port cap to the specified torque shown in the table below.

Service valve size (mm)	Service valve cap tightening torque (N·m)	Service port cap tightening torque (N·m)
ø6.35 (1/4")	20-30	10-12
ø9.52 (3/8")		
ø12.7 (1/2")	25-35	

(9) Repeat the above steps (1) to (8) for all connected indoor units.



⚠ CAUTION

To prevent vacuum pump oil from entering into the refrigerant system, use a counterflow prevention adapter.

5. ELECTRICAL WIRING WORK

⚠ WARNING

- Make sure that all the electrical work is carried out in accordance with the national or regional electrical standards.
- Make sure that the earth leakage breaker and circuit breaker of appropriate capacities are installed (Refer to the table given below).
- Do not turn on the power until the electrical work is completed.
- Do not use a condensive capacitor for power factor improvement under any circumstances. (It does not improve power factor. Moreover, it can cause an abnormal overheat accident).

Breaker specifications

Model	Phase	Earth leakage breaker	Circuit breaker
SCM40/45/50/60	Single phase	Leakage current: 30mA, 0.1sec or less	Over current: 25A

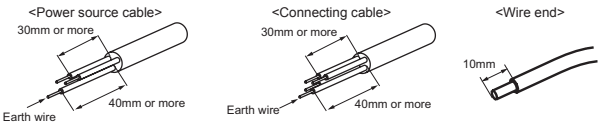
Main fuse specification

Model	Specification	Parts No.
SCM40/45	250V 15A	SSA564A136
SCM50/60	250V 20A	SSA564A136A

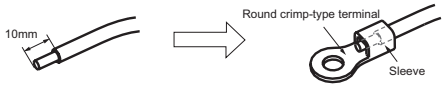
1.Preparing cable

(1) Selecting cable
Select the power source cable and connecting cable in accordance with the specifications mentioned below.
(a) Power source cable
3-core* 2.5mm^2 or more, conformed with 60245 IEC57
When selecting the power source cable length, make sure that voltage drop is less than 2%.
If the wire length gets longer, increase the wire diameter.
(b) Connecting cable
4-core* 1.5mm^2, conformed with 60245 IEC57
* 1 Earth wire is included (Yellow/Green).

(2) Arrange each wire length as shown below.
Make sure that each wire is stripped 10mm from the end.



(3) Attach round crimp-type terminal to each wire as shown in the below.
Select the size of round crimp-type terminal after considering the specifications of terminal block and wire diameter.



⚠ CAUTION

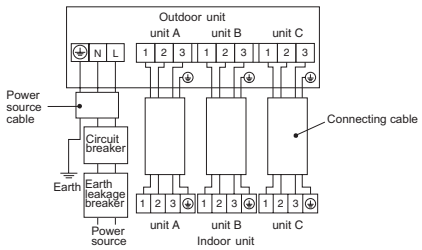
Power source cable and connecting cable must conform to the specifications mentioned in the manual.
Using cables with wrong specifications may result in unit malfunction.

5. ELECTRICAL WIRING WORK

2.Connecting cable

(1) Remove the service cover and the terminal cover.
(2) Connect the cables according to the instructions and figures given below.
  (a) Connect the earth wire of power source cable.
    An earth wire must be connected before connecting the other wires of power source cable.
    Keep the earth wire longer than the remaining two wires of power source cable.
  (b) Connect the remaining two wires (N and L) of power source cable.
  (c) Connect the wires of connecting cables. Make sure that for each wire, outdoor and indoor side terminal numbers match. Terminal number A of the outdoor unit is used for A indoor unit and terminal number B for B indoor unit respectively.
    Earth wire shall be Yellow/Green (Y/G) in color and longer than other wires for safety reason.
(3) Fasten the cables properly with cable clamps so that no external force may work on terminal connections.
  Moreover, make sure that cables do not touch the piping, etc. When cables are connected, make sure that all electrical components within the electrical component box are free of loose connector coupling or terminal connection.

<Circuit diagram>



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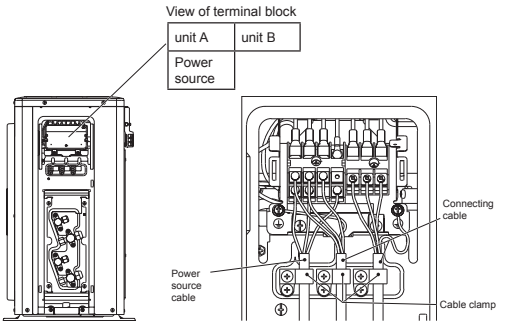

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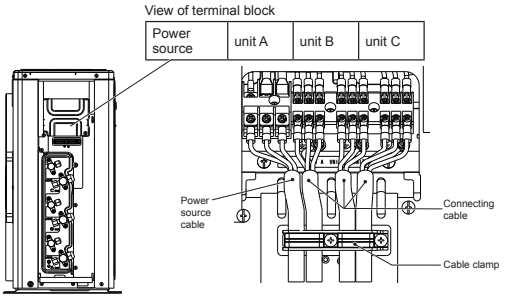
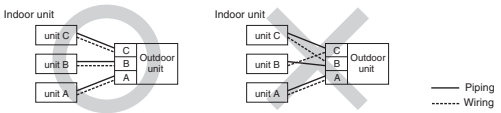


6. FINISHING WORK

NOTE

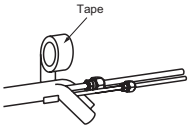
- Make sure to match the piping and wiring from each unit to the outdoor unit.
- Be careful because if connections are wrong, normal operation cannot be achieved and may damage the compressor.



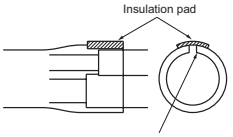
1. Heating and condensation prevention

(1) Dress the connecting pipes (both liquid and gas pipes) with insulation to prevent it from heating and dew condensation.
  Use the heat insulating material which can withstand 120°C or higher temperature. Make sure that insulation is wrapped tightly around the pipes and no gap is left between them.
(2) Wrap the refrigerant pipings of indoor unit with indoor unit heat insulation using tape.
(3) Cover the flare-connected joints (indoor side) with the indoor unit heat insulation and wrap it with an insulation pad (standard accessory provided with indoor unit).
(4) Wrap the connecting pipes, connecting cable and drain hose with the tape.

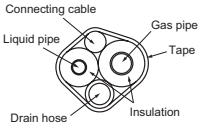
(2)



(3)



(4)



NOTE

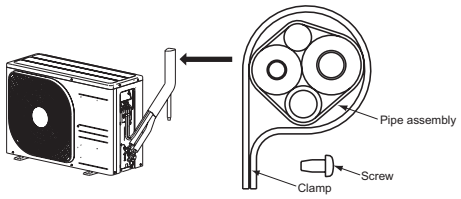
Locations where relative humidity exceeds 70%, both liquid and gas pipes need to be dressed with 20mm or thicker heat insulation materials.

⚠ CAUTION

- Improper insulation can cause condensate(water) formation during cooling operation. Condensate can leak or drip causing damage to household property.
- Poor heat insulating capacity can cause pipe outer surface to reach high temperature during heating operation. It can cause cable deterioration and personal injury.

2.Finishing work

(1) Make sure that the exterior portion of connecting pipes, connecting cable and drain hose is wrapped properly with tape. Shape the connecting pipes to match with the contours of the pipe assembly route.
(2) Fix the pipe assembly with the wall using clamps and screws. Pipe assembly should be anchored every 1.5m or less to isolate the vibration.
(3) Install the terminal cover and the service cover securely. Water may enter the unit if service cover is not installed properly, resulting in unit malfunction and failure.

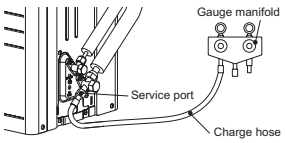


⚠ CAUTION

Make sure that the connecting pipes do not touch the components within the unit. If pipes touch the internal components, it may generate abnormal sounds and/or vibrations.

7. PUMP DOWN

(1) Connect charge hose of gauge manifold to a service port of outdoor unit.
(2) Close the liquid operation valves for all connected indoor units with hexagonal wrench key.
(3) Fully open the gas operation valves with hexagonal wrench key.
(4) Carry out forced cooling operation for all connected indoor units (For forced cooling operation procedure, refer to indoor unit installation manual).
(5) When the low pressure gauge becomes 0.01MPa, close the gas service valves and stop forced cooling operation.



8. INSTALLATION TEST CHECK POINTS

After finishing the installation work, check the following points again before turning on the power.
Conduct test run (Refer to indoor unit installation manual) and ensure that the unit operates properly.

Power source voltage complies with the rated voltage of air-conditioner.	
Earth leakage breaker and circuit breaker are installed.	
Power cable and connecting cable are securely fixed to the terminal block.	
Both liquid and gas service valves are fully open.	

No gas leaks from the joints of the service valves.	
Indoor and outdoor side pipe joints have been insulated.	
Drain hose (if installed) is fixed properly.	
Screw of the service cover is tightened properly.	

2. INDOOR UNITS

2.1 Specifications

(1) Wall mounted type (SRK)

(a) Models SRK20, 25, 35, 50, 60ZSX-S
SRK20, 25, 35, 50, 60ZSX-W

Adapted to **RoHS** directive

Item \ Model				SRK20ZSX-S, SRK20ZSX-W
Power source				1 Phase, 220−240 V, 50Hz/220V, 60Hz
Operation data	Nominal cooling capacity (range)		kW	2.0
	Nominal heating capacity (range)		kW	3.0
	Sound power level	Cooling	dB(A)	53
		Heating		53
	Sound pressure level	Cooling		Hi: 38 Me: 31 Lo: 24 ULo: 19
		Heating		Hi: 38 Me: 32 Lo: 25 ULo: 19
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	305 x 920 x 220
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	13
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Tangential fan x 1
Fan motor (Starting method)			W	42 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 11.3 Me: 9.1 Lo: 6.0 ULo: 5.0
		Heating		Hi: 12.2 Me: 10.3 Lo: 7.2 ULo: 5.4
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable) x 2
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow, ECO: Blue
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ9.52 (3/8")
	Connecting method			Flare connection
	Attached length of piping		m	Liquid line : 0.55 / Gas line : 0.48
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Clean filter (Allergen clear filter x 1, Photocatalytic washable deodorizing filter x 1)
Option parts				Interface kit (SC-BIKN2-E)

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWA000Z269 B

Adapted to **RoHS** directive

Item \ Model				SRK25ZSX-S, SRK25ZSX-W
Power source				1 Phase, 220−240 V, 50Hz/220V, 60Hz
Operation data	Nominal cooling capacity (range)		kW	2.5
	Nominal heating capacity (range)		kW	3.4
	Sound power level	Cooling	dB(A)	55
		Heating		56
	Sound pressure level	Cooling		Hi: 39 Me: 33 Lo: 25 ULo: 19
		Heating		Hi: 40 Me: 34 Lo: 27 ULo: 19
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	305 x 920 x 220
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	13
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Tangential fan x 1
Fan motor (Starting method)			W	42 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 12.2 Me: 10.0 Lo: 6.7 ULo: 5.0
		Heating		Hi: 12.8 Me: 11.0 Lo: 7.8 ULo: 5.4
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable) x 2
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow, ECO: Blue
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ9.52 (3/8")
	Connecting method			Flare connection
	Attached length of piping		m	Liquid line : 0.55 / Gas line : 0.48
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Clean filter (Allergen clear filter x 1, Photocatalytic washable deodorizing filter x 1)
Option parts				Interface kit (SC-BIKN2-E)

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWA000Z269 B

Adapted to **RoHS** directive

Item \ Model				SRK35ZSX-S, SRK35ZSX-W
Power source				1 Phase, 220−240 V, 50Hz/220V, 60Hz
Operation data	Nominal cooling capacity (range)		kW	3.5
	Nominal heating capacity (range)		kW	4.5
	Sound power level	Cooling	dB(A)	58
		Heating		58
	Sound pressure level	Cooling		Hi: 43 Me: 35 Lo: 26 ULo: 19
		Heating		Hi: 41 Me: 35 Lo: 28 ULo: 19
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	305 x 920 x 220
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	13
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Tangential fan x 1
Fan motor (Starting method)			W	42 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 13.1 Me: 10.8 Lo: 7.3 ULo: 5.0
		Heating		Hi: 13.9 Me: 11.8 Lo: 8.6 ULo: 5.4
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable) x 2
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow, ECO: Blue
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ9.52 (3/8")
	Connecting method			Flare connection
	Attached length of piping		m	Liquid line : 0.55 / Gas line : 0.48
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Clean filter (Allergen clear filter x 1, Photocatalytic washable deodorizing filter x 1)
Option parts				Interface kit (SC-BIKN2-E)

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWA000Z269 B

Adapted to **RoHS** directive

Item \ Model				SRK50ZSX-S, SRK50ZSX-W
Power source				1 Phase, 220−240 V, 50Hz/220V, 60Hz
Operation data	Nominal cooling capacity (range)		kW	5.0
	Nominal heating capacity (range)		kW	5.8
	Sound power level	Cooling	dB(A)	59
		Heating		62
	Sound pressure level	Cooling		Hi: 44 Me: 39 Lo: 31 ULo: 22
		Heating		Hi: 46 Me: 41 Lo: 33 ULo: 23
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	305 x 920 x 220
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	13
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Tangential fan x 1
Fan motor (Starting method)			W	42 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 14.3 Me: 12.4 Lo: 7.8 ULo: 5.4
		Heating		Hi: 17.3 Me: 14.3 Lo: 9.8 ULo: 6.2
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable) x 2
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow, ECO: Blue
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ12.7 (1/2")
	Connecting method			Flare connection
	Attached length of piping		m	Liquid line : 0.55 / Gas line : 0.48
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Clean filter (Allergen clear filter x 1, Photocatalytic washable deodorizing filter x 1)
Option parts				Interface kit (SC-BIKN2-E)

Notes (1) The data are measured at the following conditions. The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWA000Z269 B

Adapted to **RoHS** directive

Item \ Model				SRK60ZSX-S, SRK60ZSX-W
Power source				1 Phase, 220−240 V, 50Hz/220V, 60Hz
Operation data	Nominal cooling capacity (range)		kW	6.0
	Nominal heating capacity (range)		kW	6.8
	Sound power level	Cooling	dB(A)	62
		Heating		63
	Sound pressure level	Cooling		Hi: 46 Me: 41 Lo: 33 ULo: 22
		Heating		Hi: 46 Me: 42 Lo: 34 ULo: 23
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	305 x 920 x 220
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	13
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Tangential fan x 1
Fan motor (Starting method)			W	42 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 16.3 Me: 13.4 Lo: 8.9 ULo: 5.4
		Heating		Hi: 17.8 Me: 13.7 Lo: 10.9 ULo: 6.2
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable) x 2
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow, ECO: Blue
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ12.7 (1/2")
	Connecting method			Flare connection
	Attached length of piping		m	Liquid line : 0.55 / Gas line : 0.48
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Clean filter (Allergen clear filter x 1, Photocatalytic washable deodorizing filter x 1)
Option parts				Interface kit (SC-BIKN2-E)

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWA000Z269B

(b) Models SRK20, 25, 35, 50ZS-S
SRK20, 25, 35, 50ZS-W

Adapted to **RoHS** directive

Item			Model	SRK20ZS-S, SRK20ZS-W
Power source				1 Phase, 220−240 V, 50Hz/220V, 60Hz
Operation data	Nominal cooling capacity (range)		kW	2.0
	Nominal heating capacity (range)		kW	3.0
	Sound power level	Cooling	dB(A)	50
		Heating		52
	Sound pressure level	Cooling		Hi: 34 Me: 25 Lo: 22 ULo: 19
		Heating		Hi: 36 Me: 29 Lo: 23 ULo: 19
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	290 x 870 x 230
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	9.5
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Tangential fan x 1
Fan motor (Starting method)			W	30 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 9.3 Me: 7.0 Lo: 5.9 ULo: 5.0
		Heating		Hi: 10.0 Me: 8.5 Lo: 6.5 ULo: 5.9
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable) x 2
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ9.52 (3/8")
	Connecting method			Flare connection
	Attached length of piping		m	Liquid line : 0.54 / Gas line : 0.47
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Clean filter (Allergen clear filter x 1, Photocatalytic washable deodorizing filter x 1)
Option parts				Interface kit (SC-BIKN2-E)

Notes (1) The data are measured at the following conditions. The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWA000Z266D

RWA000Z274

Adapted to **RoHS** directive

Item \ Model				SRK25ZS-S, SRK25ZS-W
Power source				1 Phase, 220−240 V, 50Hz / 220 V, 60Hz
Operation data	Nominal cooling capacity (range)		kW	2.5
	Nominal heating capacity (range)		kW	3.4
	Sound power level	Cooling	dB(A)	52
		Heating		55
	Sound pressure level	Cooling		Hi: 36 Me: 28 Lo: 23 ULo: 19
		Heating		Hi: 39 Me: 30 Lo: 24 ULo: 19
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	290 x 870 x 230
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	9.5
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Tangential fan x 1
Fan motor (Starting method)			W	30 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 9.9 Me: 8.0 Lo: 5.9 ULo: 5.0
		Heating		Hi: 11.3 Me: 8.7 Lo: 6.7 ULo: 5.9
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable) x 2
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ9.52 (3/8")
	Connecting method			Flare connection
	Attached length of piping		m	Liquid line : 0.54 / Gas line : 0.47
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Clean filter (Allergen clear filter x 1, Photocatalytic washable deodorizing filter x 1)
Option parts				Interface kit (SC-BIKN2-E)

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWA000Z266 D

RWA000Z274

Adapted to **RoHS** directive

Item \ Model				SRK35ZS-S, SRK35ZS-W
Power source				1 Phase, 220−240 V, 50Hz / 220 V, 60Hz
Operation data	Nominal cooling capacity (range)		kW	3.5
	Nominal heating capacity (range)		kW	4.5
	Sound power level	Cooling	dB(A)	56
		Heating		58
	Sound pressure level	Cooling		Hi: 40 Me: 30 Lo: 26 ULo: 19
		Heating		Hi: 41 Me: 36 Lo: 25 ULo: 19
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	290 x 870 x 230
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	9.5
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Tangential fan x 1
Fan motor (Starting method)			W	30 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 11.3 Me: 8.7 Lo: 7.0 ULo: 5.0
		Heating		Hi: 12.3 Me: 11.0 Lo: 7.0 ULo: 5.6
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable) x 2
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ9.52 (3/8")
	Connecting method			Flare connection
	Attached length of piping		m	Liquid line : 0.54 / Gas line : 0.47
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Clean filter (Allergen clear filter x 1, Photocatalytic washable deodorizing filter x 1)
Option parts				Interface kit (SC-BIKN2-E)

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWA000Z266 D

RWA000Z274

Adapted to **RoHS** directive

Item \ Model				SRK50ZS-S, SRK50ZS-W
Power source				1 Phase, 220−240 V, 50Hz / 220 V, 60Hz
Operation data	Nominal cooling capacity (range)		kW	5.0
	Nominal heating capacity (range)		kW	5.8
	Sound power level	Cooling	dB(A)	58
		Heating		59
	Sound pressure level	Cooling		Hi: 45 Me: 36 Lo: 28 ULo: 22
		Heating		Hi: 45 Me: 37 Lo: 31 ULo: 24
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	290 x 870 x 230
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	10
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Tangential fan x 1
Fan motor (Starting method)			W	30 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 12.1 Me: 9.9 Lo: 7.4 ULo: 5.9
		Heating		Hi: 13.9 Me: 11.2 Lo: 9.1 ULo: 7.4
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable) x 2
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ12.7 (1/2")
	Connecting method			Flare connection
	Attached length of piping		m	Liquid line : 0.54 / Gas line : 0.47
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Clean filter (Allergen clear filter x 1, Photocatalytic washable deodorizing filter x 1)
Option parts				Interface kit (SC-BIKN2-E)

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWA000Z266 D

RWA000Z274

(c) Models SKM20, 25, 35ZSP-S

Adapted to **RoHS** directive

Item			Model	SKM20ZSP-S
Power source				1 Phase, 220−240V, 50Hz
Operation data	Nominal cooling capacity (range)		kW	2.0
	Nominal heating capacity (range)		kW	3.0
	Sound power level	Cooling	dB(A)	58
		Heating		56
	Sound pressure level	Cooling		Hi: 42 Me: 35 Lo: 24
		Heating		Hi: 41 Me: 35 Lo: 27
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	262 x 769 x 210
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	7.6
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Tangential fan x 1
Fan motor (Starting method)			W	30 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 8.5 Me: 7.0 Lo: 5.0
		Heating		Hi: 8.0 Me: 7.0 Lo: 5.5
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable)
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ9.52 (3/8")
	Connecting method			Flare connection
	Attached length of piping		m	Liquid line : 0.39 / Gas line : 0.32
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit
Option parts				—

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWC000Z291 B

Adapted to **RoHS** directive

Item \ Model				SKM25ZSP-S
Power source				1 Phase, 220−240V, 50Hz
Operation data	Nominal cooling capacity (range)		kW	2.5
	Nominal heating capacity (range)		kW	3.4
	Sound power level	Cooling	dB(A)	58
		Heating		57
	Sound pressure level	Cooling		Hi: 43 Me: 35 Lo: 24
		Heating		Hi: 41 Me: 35 Lo: 27
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	262 x 769 x 210
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	7.6
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Tangential fan x 1
Fan motor (Starting method)			W	30 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 8.5 Me: 7.0 Lo: 5.0
		Heating		Hi: 8.0 Me: 7.0 Lo: 5.5
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable)
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ9.52 (3/8")
	Connecting method			Flare connection
	Attached length of piping		m	Liquid line : 0.39 / Gas line : 0.32
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit
Option parts				—

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWC000Z291 B

Adapted to **RoHS** directive

Item			Model	SKM35ZSP-S
Power source				1 Phase, 220−240V, 50Hz
Operation data	Nominal cooling capacity (range)		kW	3.5
	Nominal heating capacity (range)		kW	4.5
	Sound power level	Cooling	dB(A)	59
		Heating		59
	Sound pressure level	Cooling		Hi: 44 Me: 37 Lo: 24
		Heating		Hi: 42 Me: 37 Lo: 29
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	262 x 769 x 210
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	7.6
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Tangential fan x 1
Fan motor (Starting method)			W	30 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 9.0 Me: 7.5 Lo: 5.0
		Heating		Hi: 8.5 Me: 7.0 Lo: 6.0
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable)
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ9.52 (3/8")
	Connecting method			Flare connection
	Attached length of piping		m	Liquid line : 0.39 / Gas line : 0.32
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit
Option parts				—

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	—	7℃	6℃	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWC000Z291 B

(2) Floor standing type (SRF)

Adapted to **RoHS** directive

Item \ Model				SRF25ZMX-S
Power source				1 Phase, 220–240 V, 50Hz
Operation data	Nominal cooling capacity (range)		kW	2.5
	Nominal heating capacity (range)		kW	3.4
	Sound power level	Cooling	dB(A)	51
		Heating		51
	Sound pressure level	Cooling		Hi: 40 Me: 32 Lo: 29 ULo: 26
		Heating		Hi: 40 Me: 35 Lo: 33 ULo: 28
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	600 x 860 x 238
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	18
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Turbo fan x 1
Fan motor (Starting method)			W	40 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 9.0 Me: 7.6 Lo: 6.7 ULo: 5.8
		Heating		Hi: 10.5 Me: 8.2 Lo: 7.7 ULo: 6.6
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable) x 1
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow, HI POWER: Green, Air outlet selection: Green, ECONO: Green
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ9.52 (3/8")
	Connecting method			Flare connection
	Attached length of piping		m	—
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Clean filter (Natural enzyme filter x 1, Photocatalytic washable deodorizing filter x 1)
Option parts				Interface kit (SC-BIKN2-E)

Notes (1) The data are measured at the following conditions.

The pipe length is 7.5m.

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWB000Z056A

Adapted to **RoHS** directive

Item \ Model				SRF35ZMX-S
Power source				1 Phase, 220–240 V, 50Hz
Operation data	Nominal cooling capacity (range)		kW	3.5
	Nominal heating capacity (range)		kW	4.5
	Sound power level	Cooling	dB(A)	52
		Heating		52
	Sound pressure level	Cooling		Hi: 41 Me: 34 Lo: 32 ULo: 28
		Heating		Hi: 41 Me: 36 Lo: 35 ULo: 31
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	600 x 860 x 238
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	19
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Turbo fan x 1
Fan motor (Starting method)			W	40 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 9.2 Me: 7.8 Lo: 7.3 ULo: 6.4
		Heating		Hi: 10.7 Me: 8.3 Lo: 8.1 ULo: 7.4
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable) x 1
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow, HI POWER: Green, Air outlet selection: Green, ECONO: Green
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ9.52 (3/8")
	Connecting method			Flare connection
	Attached length of piping		m	—
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Clean filter (Allergen clear filter x 1, Photocatalytic washable deodorizing filter x 1)
Option parts				Interface kit (SC-BIKN2-E)

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWB000Z056A

Adapted to **RoHS** directive

Item \ Model				SRF50ZMX-S
Power source				1 Phase, 220–240 V, 50Hz
Operation data	Nominal cooling capacity (range)		kW	5.0
	Nominal heating capacity (range)		kW	5.8
	Sound power level	Cooling	dB(A)	58
		Heating		58
	Sound pressure level	Cooling		Hi: 46 Me: 42 Lo: 35 ULo: 32
		Heating		Hi: 47 Me: 41 Lo: 39 ULo: 33
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	600 x 860 x 238
Exterior appearance (Munsell color)				Fine snow (8.0Y 9.3/0.1) near equivalent
Net weight			kg	19
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Turbo fan x 1
Fan motor (Starting method)			W	40 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 11.5 Me: 9.6 Lo: 7.4 ULo: 6.6
		Heating		Hi: 12.0 Me: 10.0 Lo: 9.4 ULo: 7.6
Available external static pressure			Pa	0
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net (washable) x 1
Shock & vibration absorber				Rubber sleeve (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow, HI POWER: Green, Air outlet selection: Green, ECONO: Green
Safety equipments				Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ12.7 (1/2")
	Connecting method			Flare connection
	Attached length of piping		m	—
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP16)
Drain pump, max lift height			mm	—
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Clean filter (Allergen clear filter x 1, Photocatalytic washable deodorizing filter x 1)
Option parts				Interface kit (SC-BIKN2-E)

Notes (1) The data are measured at the following conditions.

The pipe length is 7.5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	—	7˚C	6˚C	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.

RWB000Z056A

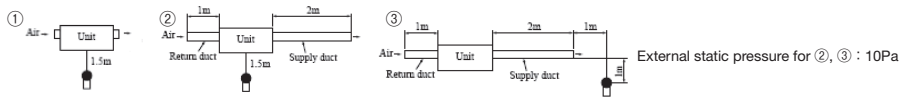
(3) Ceiling concealed type (SRR)

Item			Model	SRR25ZM-S
Power source				1 Phase, 220−240 V, 50Hz
Operation data	Nominal cooling capacity (range)		kW	2.5
	Nominal heating capacity (range)		kW	3.4
	Sound power level	Cooling	dB(A)	56
		Heating		59
	Sound pressure level ①	Cooling		Hi: 37 Me: 33 Lo: 30 ULo: 24
		Heating		Hi: 40 Me: 37 Lo: 34 ULo: 28
	Sound pressure level ②	Cooling		Hi: 31 Me: 28 Lo: 26 ULo: 21
		Heating		Hi: 33 Me: 30 Lo: 28 ULo: 23
	Sound pressure level ③	Cooling		Hi: 39 Me: 35 Lo: 32 ULo: 25
		Heating		Hi: 44 Me: 41 Lo: 38 ULo: 31
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	200 x 750 x 500
Exterior appearance (Munsell color)				—
Net weight			kg	20.5
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Centrifugal fan x 2
Fan motor (Starting method)			W	51 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 9.5 Me: 8.0 Lo: 6.5 ULo: 4.5
		Heating		Hi: 10.0 Me: 9.0 Lo: 8.0 ULo: 6.0
Available external static pressure			Pa	35 (Initial static pressure with air filter:5Pa)
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net x 1
Shock & vibration absorber				Cushion rubber (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow, HI POWER: Green, ECONO: Green
Safety equipments				Drain error protection, Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ9.52 (3/8")
	Connecting method			Flare connection
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP25)
Drain pump, max lift height			mm	Built-in, MAX600
Interconnecting wires	Size x Core number			$1.5mm^2$ x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Joint for drain piping
Option parts				Wired remote control, Interface kit (SC-BIKN2-E), Bottom air inlet kit

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards	Note
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1	Non-duct (with air fillter)
Heating	20˚C	—	7˚C	6˚C		

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.
(4) Mike positions of measureing sound pressure level of indoor unit is shown below.



External static pressure for ②, ③ : 10Pa

RWA000Z263A

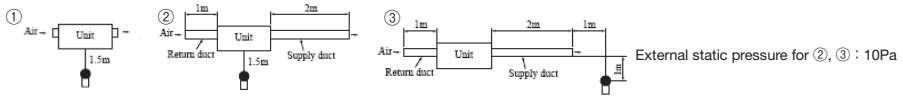
Item \ Model				SRR35ZM-S
Power source				1 Phase, 220−240 V, 50Hz
Operation data	Nominal cooling capacity (range)		kW	3.5
	Nominal heating capacity (range)		kW	4.5
	Sound power level	Cooling	dB(A)	57
		Heating		60
	Sound pressure level ①	Cooling		Hi: 38 Me: 34 Lo: 31 ULo: 25
		Heating		Hi: 42 Me: 38 Lo: 35 ULo: 29
	Sound pressure level ②	Cooling		Hi: 33 Me: 30 Lo: 27 ULo: 22
		Heating		Hi: 34 Me: 32 Lo: 29 ULo: 24
	Sound pressure level ③	Cooling		Hi: 40 Me: 37 Lo: 33 ULo: 27
		Heating		Hi: 45 Me: 42 Lo: 39 ULo: 33
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	200 x 750 x 500
Exterior appearance (Munsell color)				—
Net weight			kg	20.5
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Centrifugal fan x 2
Fan motor (Starting method)			W	51 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 10.0 Me: 8.5 Lo: 7.0 ULo: 5.0
		Heating		Hi: 10.5 Me: 9.5 Lo: 8.5 ULo: 6.5
Available external static pressure			Pa	35 (Initial static pressure with air filter:5Pa)
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net x 1
Shock & vibration absorber				Cushion rubber (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow, HI POWER: Green, ECONO: Green
Safety equipments				Drain error protection, Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ9.52 (3/8")
	Connecting method			Flare connection
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP25)
Drain pump, max lift height			mm	Built-in, MAX600
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Joint for drain piping
Option parts				Wired remote control, Interface kit (SC-BIKN2-E), Bottom air inlet kit

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards	Note
	DB	WB	DB	WB		
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1	Non-duct (with air fillter)
Heating	20℃	—	7℃	6℃		

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.
(4) Mike positions of measureing sound pressure level of indoor unit is shown below.



External static pressure for ②, ③ : 10Pa

RWA000Z263A

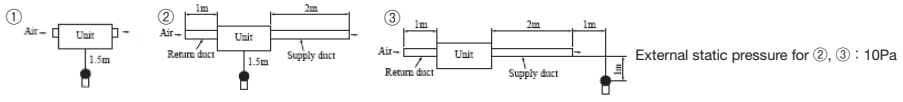
Item			Model	SRR50ZM-S
Power source				1 Phase, 220−240 V, 50Hz
Operation data	Nominal cooling capacity (range)		kW	5
	Nominal heating capacity (range)		kW	5.8
	Sound power level	Cooling	dB(A)	59
		Heating		61
	Sound pressure level ①	Cooling		Hi: 41 Me: 37 Lo: 34 ULo: 29
		Heating		Hi: 43 Me: 39 Lo: 37 ULo: 32
	Sound pressure level ②	Cooling		Hi: 35 Me: 33 Lo: 30 ULo: 25
		Heating		Hi: 38 Me: 36 Lo: 33 ULo: 28
	Sound pressure level ③	Cooling		Hi: 41 Me: 37 Lo: 34 ULo: 29
		Heating		Hi: 46 Me: 43 Lo: 40 ULo: 34
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	200 x 950 x 500
Exterior appearance (Munsell color)				—
Net weight			kg	24
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Centrifugal fan x 3
Fan motor (Starting method)			W	85 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 13.5 Me: 11.0 Lo: 10.0 ULo: 7.5
		Heating		Hi: 14.0 Me: 12.5 Lo: 11.0 ULo: 8.5
Available external static pressure			Pa	50 (Initial static pressure with air filter:5Pa)
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net x 1
Shock & vibration absorber				Cushion rubber (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow, HI POWER: Green, ECONO: Green
Safety equipments				Drain error protection, Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ12.7 (1/2")
	Connecting method			Flare connection
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP25)
Drain pump, max lift height			mm	Built-in, MAX600
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Joint for drain piping
Option parts				Wired remote control, Interface kit (SC-BIKN2-E), Bottom air inlet kit

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards	Note
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1	Non-duct (with air fillter)
Heating	20℃	—	7℃	6℃		

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.
(4) Mike positions of measureing sound pressure level of indoor unit is shown below.



External static pressure for ②, ③ : 10Pa

RWA000Z263 A

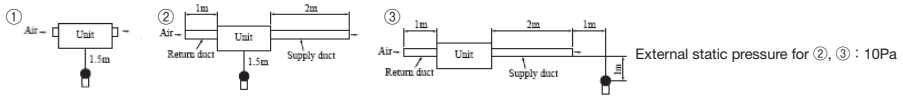
Item \ Model				SRR60ZM-S
Power source				1 Phase, 220−240 V, 50Hz
Operation data	Nominal cooling capacity (range)		kW	6.0
	Nominal heating capacity (range)		kW	6.8
	Sound power level	Cooling	dB(A)	60
		Heating		63
	Sound pressure level ①	Cooling		Hi: 44 Me: 38 Lo: 35 ULo: 30
		Heating		Hi: 45 Me: 41 Lo: 38 ULo: 33
	Sound pressure level ②	Cooling		Hi: 37 Me: 34 Lo: 32 ULo: 27
		Heating		Hi: 39 Me: 37 Lo: 34 ULo: 29
	Sound pressure level ③	Cooling		Hi: 42 Me: 39 Lo: 36 ULo: 30
		Heating		Hi: 47 Me: 44 Lo: 41 ULo: 35
	Silent mode sound pressure level			—
Exterior dimensions (Height x Width x Depth)			mm	200 x 950 x 500
Exterior appearance (Munsell color)				—
Net weight			kg	24
Heat exchanger				Louver fins & inner grooved tubing
Fan type & Q'ty				Centrifugal fan x 3
Fan motor (Starting method)			W	85 x1 (Direct drive)
Air flow		Cooling	m^3/min	Hi: 14.5 Me: 11.5 Lo: 10.5 ULo: 8.0
		Heating		Hi: 15.0 Me: 13.0 Lo: 11.5 ULo: 9.0
Available external static pressure			Pa	50 (Initial static pressure with air filter:5Pa)
Outside air intake				Not possible
Air filter, Quality / Quantity				Polypropylene net x 1
Shock & vibration absorber				Cushion rubber (for fan motor)
Operation control	Remote control			Wireless remote control
	Room temperature control			Microcomputer thermostat
	Operation display			RUN: Green, TIMER: Yellow, HI POWER: Green, ECONO: Green
Safety equipments				Drain error protection, Frost protection, Serial signal error protection, Indoor fan motor error protection
Installation data	Refrigerant piping size (O.D)		mm	Liquid line: ϕ6.35 (1/4") Gas line: ϕ12.7 (1/2")
	Connecting method			Flare connection
	Insulation for piping			Necessary (Both sides), independent
	Drain hose			Hose connectable (VP25)
Drain pump, max lift height			mm	Built-in, MAX600
Interconnecting wires	Size x Core number			1.5mm^2 x 4 cores (Including earth cable) / Terminal block (Screw fixing type)
IP number				IPX0
Standard accessories				Mounting kit, Joint for drain piping
Option parts				Wired remote control, Interface kit (SC-BIKN2-E), Bottom air inlet kit

Notes (1) The data are measured at the following conditions.

The pipe length is 5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards	Note
	DB	WB	DB	WB		
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1	Non-duct (with air fillter)
Heating	20℃	—	7℃	6℃		

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient conditions.
(4) Mike positions of measureing sound pressure level of indoor unit is shown below.



External static pressure for ②, ③ : 10Pa

RWA000Z263 A

(4) 4-way ceiling cassette type (FDTC)

Adapted to **RoHS** directive

Item \ Model		FDTC25VF	
		Panel **TC-PSA-25W-E**	
Power source		1 Phase, 220−240V, 50Hz	
Operation data		Cooling	Heating
Nominal capacity (1)	kW	2.5	3.4
Sound power level	dB(A)	Cooling : 56 Heating : 56	
Sound pressure level	dB(A)	Cooling P-Hi : 38 Hi : 36 Me : 32 Lo : 29 Heating P-Hi : 39 Hi : 38 Me : 33 Lo : 29.5	
Exterior dimensions Height x Width x Depth	mm	Unit 248 × 570 × 570 Panel 35 × 700 × 700	
Exterior appearance (Munsell color)		Plaster white (6.8Y8.9/0.2) near equivalent	
Net weight	kg	UNIT 15 PANEL 3.5	
Heat exchanger		Louver fin & inner grooved tubing	
Air handling equipment Fan type & Q'ty		Turbo fan × 1	
Motor <Starting method>	W	33 < Direct line start >	
Air flow (Standard)	m^3/min	Cooling P-Hi : 10 Hi : 9 Me : 8 Lo : 6.5 Heating P-Hi : 10.5 Hi : 9.5 Me : 8.5 Lo : 7	
Available external static pressure	Pa	0	
Outdoor air intake		Not possible	
Air filter, Q'ty		Pocket plastic net × 1 (Washable)	
Shock & vibration absorber		Rubber sleeve (for fan motor)	
Insulation (Noise & heat)		Polyurethane form	
Remote control		Wired : RC-EX3, RC-E5, RCH-E3 (option) Wireless : RCN-TC-24W-E2 (option)	
Room temperature control		Thermostat by electronics	
Safety equipment		Overload protection for fan motor Frost protection thermostat	
Installation data Refrigerant piping size	mm	Liquid line : ϕ6.35 (1/4")	
		Gas line : ϕ9.52 (3/8")	
Connecting method		Flare piping	
Drain pump		Built-in Drain pump	
Drain		Hose connectable with VP20	
Insulation for piping		Necessary (both Liquid & Gas lines)	
IP number		IPX0	
Standard accessories		Mounting kit, Drain hose	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item \ Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	–	7℃	6℃	

(2) This packaged air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound pressure level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient temperature.
(4) The operation data indicate when the air-conditioner is operated at 230V 50Hz.
(5) When wireless remote control is used, fan is 3 speed setting(Hi-Me-Lo) only.

RWA000Z234△D

Adapted to **RoHS** directive

Item \ Model		FDTC35VF	
		Panel **TC-PSA-25W-E**	
Power source		1 Phase, 220−240V, 50Hz	
Operation data		Cooling	Heating
Nominal capacity (1)	kW	3.5	4.5
Sound power level	dB(A)	Cooling : 58 Heating : 58	
Sound pressure level	dB(A)	Cooling P-Hi : 41 Hi : 40 Me : 36 Lo : 30 Heating P-Hi : 43 Hi : 42 Me : 35 Lo : 32	
Exterior dimensions Height x Width x Depth	mm	Unit 248 × 570 × 570 Panel 35 × 700 × 700	
Exterior appearance (Munsell color)		Plaster white (6.8Y8.9/0.2) near equivalent	
Net weight	kg	UNIT 15 PANEL 3.5	
Heat exchanger		Louver fin & inner grooved tubing	
Air handling equipment Fan type & Q'ty		Turbo fan × 1	
Motor <Starting method>	W	33 < Direct line start >	
Air flow (Standard)	m^3/min	Cooling P-Hi : 11 Hi : 9.5 Me : 9 Lo : 7 Heating P-Hi : 11.5 Hi : 10.0 Me : 9 Lo : 8	
Available external static pressure	Pa	0	
Outdoor air intake		Not possible	
Air filter, Q'ty		Pocket plastic net × 1 (Washable)	
Shock & vibration absorber		Rubber sleeve (for fan motor)	
Insulation (Noise & heat)		Polyurethane form	
Remote control		Wired : RC-EX3, RC-E5, RCH-E3 (option) Wireless : RCN-TC-24W-E2 (option)	
Room temperature control		Thermostat by electronics	
Safety equipment		Overload protection for fan motor Frost protection thermostat	
Installation data Refrigerant piping size	mm	Liquid line : ϕ6.35 (1/4")	
		Gas line : ϕ9.52 (3/8")	
Connecting method		Flare piping	
Drain pump		Built-in Drain pump	
Drain		Hose connectable with VP20	
Insulation for piping		Necessary (both Liquid & Gas lines)	
IP number		IPX0	
Standard accessories		Mounting kit, Drain hose	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item \ Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	–	7˚C	6˚C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound pressure level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient temperature.
(4) The operation data indicate when the air-conditioner is operated at 230V 50Hz.
(5) When wireless remote control is used, fan is 3 speed setting(Hi-Me-Lo) only.

RWA000Z234Ⓓ

Adapted to **RoHS** directive

Item \ Model		FDTC50VF	
		Panel **TC-PSA-25W-E**	
Power source		1 Phase, 220−240V, 50Hz	
Operation data		Cooling	Heating
Nominal capacity (1)	kW	5.0	5.8
Sound power level	dB(A)	Cooling : 60 Heating : 60	
Sound pressure level		Cooling P-Hi : 47 Hi : 42 Me : 36 Lo : 30 Heating P-Hi : 47 Hi : 42 Me : 36 Lo : 32	
Exterior dimensions Height x Width x Depth	mm	Unit 248 × 570 × 570 Panel 35 × 700 × 700	
Exterior appearance (Munsell color)		Plaster white (6.8Y8.9/0.2) near equivalent	
Net weight	kg	UNIT 15 PANEL 3.5	
Heat exchanger		Louver fin & inner grooved tubing	
Air handling equipment Fan type & Q'ty		Turbo fan × 1	
Motor <Starting method>	W	33 < Direct line start >	
Air flow (Standard)	m^3/min	Cooling P-Hi : 13.5 Hi : 11.5 Me : 9 Lo : 7 Heating P-Hi : 13.5 Hi : 11.5 Me : 9 Lo : 8	
Available external static pressure	Pa	0	
Outdoor air intake		Not possible	
Air filter, Q'ty		Pocket plastic net × 1 (Washable)	
Shock & vibration absorber		Rubber sleeve (for fan motor)	
Insulation (Noise & heat)		Polyurethane form	
Remote control		Wired : RC-EX3, RC-E5, RCH-E3 (option) Wireless : RCN-TC-24W-E2 (option)	
Room temperature control		Thermostat by electronics	
Safety equipment		Overload protection for fan motor Frost protection thermostat	
Installation data Refrigerant piping size	mm	Liquid line : ϕ6.35 (1/4")	
		Gas line : ϕ12.7 (1/2")	
Connecting method		Flare piping	
Drain pump		Built-in Drain pump	
Drain		Hose connectable with VP20	
Insulation for piping		Necessary (both Liquid & Gas lines)	
IP number		IPX0	
Standard accessories		Mounting kit, Drain hose	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	–	7˚C	6˚C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound pressure level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient temperature.
(4) The operation data indicate when the air-conditioner is operated at 230V 50Hz.
(5) When wireless remote control is used, fan is 3 speed setting(Hi-Me-Lo) only.

PJA003Z401 K

Adapted to **RoHS** directive

Item \ Model		FDTC60VF	
		Panel **TC-PSA-25W-E**	
Power source		1 Phase, 220−240V, 50Hz	
Operation data		Cooling	Heating
Nominal capacity (1)	kW	6.0	6.8
Sound power level	dB(A)	Cooling : 60 Heating : 60	
Sound Pressure Level		Cooling P-Hi : 47 Hi : 46 Me : 39 Lo : 30 Heating P-Hi : 47 Hi : 46 Me : 39 Lo : 32	
Exterior dimensions Height x Width x Depth	mm	Unit 248 × 570 × 570 Panel 35 × 700 × 700	
Exterior appearance (Munsell color)		Plaster white (6.8Y8.9/0.2) near equivalent	
Net weight	kg	UNIT 15 PANEL 3.5	
Heat exchanger		Louver fin & inner grooved tubing	
Air handling equipment Fan type & Q'ty		Turbo fan × 1	
Motor <Starting method>	W	33 < Direct line start >	
Air flow (Standard)	m^3/min	Cooling P-Hi : 13.5 Hi : 13.5 Me : 10 Lo : 7 Heating P-Hi : 13.5 Hi : 13.5 Me : 10 Lo : 8	
Available external static pressure	Pa	0	
Outdoor air intake		Not possible	
Air filter, Q'ty		Pocket plastic net × 1 (Washable)	
Shock & vibration absorber		Rubber sleeve (for fan motor)	
Insulation (Noise & heat)		Polyurethane form	
Remote control		Wired : RC-EX3,RC-E5, RCH-E3 (option) Wireless : RCN-TC-24W-E2 (option)	
Room temperature control		Thermostat by electronics	
Safety equipment		Overload protection for fan motor Frost protection thermostat	
Installation data Refrigerant piping size	mm	Liquid line : ϕ6.35 (1/4")	
		Gas line : ϕ12.7 (1/2")	
Connecting method		Flare piping	
Drain pump		Built-in Drain pump	
Drain		Hose connectable with VP20	
Insulation for piping		Necessary (both Liquid & Gas lines)	
IP number		IPX0	
Standard accessories		Mounting kit, Drain hose	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item \ Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO5151-T1
Heating	20˚C	–	7˚C	6˚C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound pressure level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient temperature.
(4) The operation data indicate when the air-conditioner is operated at 230V 50Hz.
(5) When wireless remote control is used, fan is 3 speed setting(Hi-Me-Lo) only.

PJA003Z401 K

(5) Ceiling suspended type (FDE)

Adapted to **RoHS** directive

Item \ Model		FDE50VG	
Power source		1 Phase, 220−240V, 50Hz/220V, 60Hz	
Operation data		Cooling	Heating
Nominal capacity (1)	kW	5.0	5.8
Sound power level	dB(A)	60	
Sound pressure level		P-Hi : 46 Hi : 38 Me : 36 Lo : 31	
Exterior dimensions Height x Width x Depth	mm	210 × 1,070 × 690	
Exterior appearance (Munsell color)		Plaster white (6.8Y8.9/0.2) near equivalent	
Net weight	kg	28	
Heat exchanger		Louver fin & inner grooved tubing	
Air handling equipment Fan type & Q'ty		Centrifugal fan × 2	
Motor <Starting method>	W	30 < Direct line start >	
Air flow (Standard)	m^3/min	P-Hi : 13 Hi : 10 Me : 9 Lo : 7	
Available external static pressure	Pa	0	
Outdoor air intake		Not possible	
Air filter, Q'ty		Pocket plastic net × 2 (Washable)	
Shock & vibration absorber		Rubber sleeve(for fan motor)	
Insulation (Noise & heat)		Polyurethane form	
Remote control		wired : RC-EX3, RC-E5, RCH-E3 (option) wireless : RCN-E-E2 (option)	
Room temperature control		Thermostat by electronics	
Safety equipment		Internal thermostat for fan motor Frost protection thermostat	
Installation data Refrigerant piping size	mm	Liquid line: ϕ6.35 (1/4")	
		Gas line: ϕ12.7 (1/2")	
Connecting method		Flare piping	
Drain pump		—	
Drain		Hose connectable with VP20	
Insulation for piping		Necessary (both Liquid & Gas lines)	
IP number		IPX0	
Standard accessories		Mounting kit, Drain hose	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	–	7℃	6℃	

(2) This packaged air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound pressure level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient temperature.
(4) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

PFA004Z024

(6) Duct connected Low/Middle static pressure type (FDUM)

Adapted to **RoHS** directive

Item \ Model		FDUM50VF	
Power source		1 Phase, 220−240V, 50Hz/220V, 60Hz	
Operation data		Cooling	Heating
Nominal capacity (1)	kW	5.0	5.8
Sound power level	dB(A)	60	
Sound pressure level		P-Hi : 37 Hi : 32 Me : 29 Lo : 26	
Exterior dimensions Height x Width x Depth	mm	280 × 750 × 635	
Exterior appearance (Munsell color)		—	
Net weight	kg	29	
Heat exchanger		Louver fin & inner grooved tubing	
Air handling equipment Fan type & Q'ty		Centrifugal fan × 1	
Motor <Starting method>	W	100 < Direct line start >	
Air flow (Standard)	m^3/min	P-Hi : 13 Hi : 10 Me : 9 Lo : 8	
Available external static pressure	Pa	Standard:35 Max:100	
Outside air intake		Possible	
Air filter, Q'ty		Procure locally	
Shock & vibration absorber		Rubber sleeve(for fan motor)	
Insulation (Noise & heat)		Polyurethane form	
Remote control		Wired : RC-EX3, RC-E5, RCH-E3 (option) Wireless : RCN-KIT4-E2 (option)	
Room temperature control		Thermostat by electronics	
Safety equipment		Overload protection for fan motor Frost protection thermostat	
Installation data Refrigerant piping size	mm	Liquid line: I/U ϕ6.35 (1/4")	
		Gas line: ϕ12.7 (1/2")	
Connecting method		Flare piping	
Drain pump		Built-in Drain pump	
Drain		Hose connectable with VP25	
Insulation for piping		Necessary (both Liquid & Gas lines)	
IP number		IPX0	
Standard accessories		Mounting kit, Drain hose	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item \ Operation	Indoor air temperature		Outdoor air temperature		External static pressure of indoor unit	Standards
	DB	WB	DB	WB		
Cooling	27℃	19℃	35℃	24℃	35Pa	ISO5151-T1
Heating	20℃	–	7℃	6℃		

(2) This packaged air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound pressure level indicates the value in an anechoic chamber.
During operation these values are somewhat higher due to ambient temperature.
(4) The operation data indicate when the air-conditioner is operated at 230V 50Hz.
(5) Static pressure of option air filter "UM-FL1EF" is 5Pa initially.
(6) If wireless remote control is used, only 3-speed fan setting (Hi-Me-Lo) is availabe.

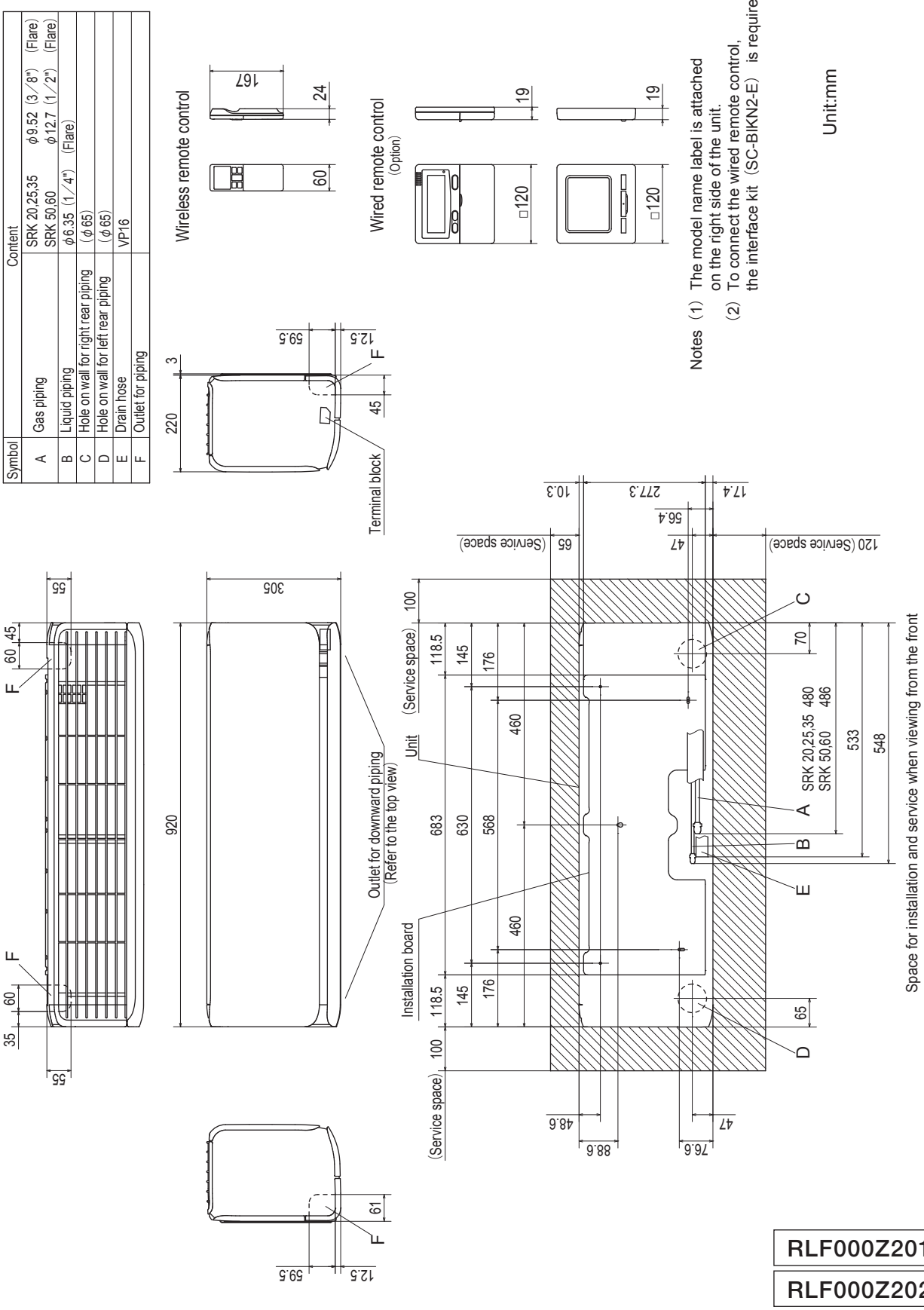
PJG000Z159 R

2.2 Exterior dimensions

(1) Wall mounted type (SRK)

Models SRK20ZSX-S, 25ZSX-S, 35ZSX-S, 50ZSX-S, 60ZSX-S
SRK20ZSX-W, 25ZSX-W, 35ZSX-W, 50ZSX-W, 60ZSX-W

Symbol	Content	
A	Gas piping	SRK 20,25,35 ϕ9.52 (3/8") (Flare) SRK 50,60 ϕ12.7 (1/2") (Flare)
B	Liquid piping	ϕ6.35 (1/4") (Flare)
C	Hole on wall for right rear piping	(ϕ65)
D	Hole on wall for left rear piping	(ϕ65)
E	Drain hose	VP16
F	Outlet for piping	

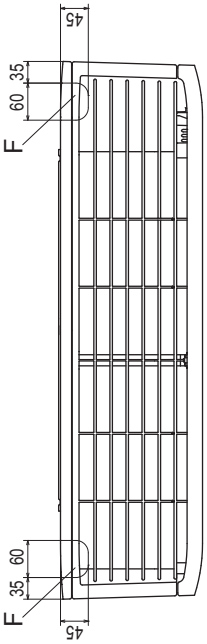


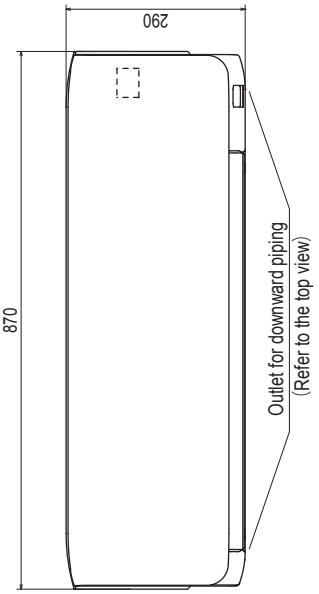
RLF000Z201

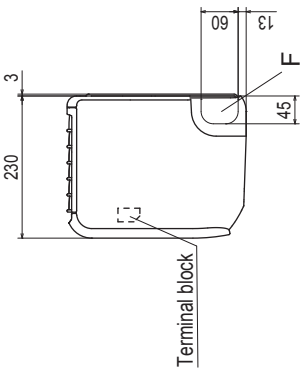
RLF000Z202

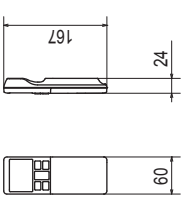
Models SRK20ZS-S, 25ZS-S, 35ZS-S, 50ZS-S
SRK20ZS-W, 25ZS-W, 35ZS-W, 50ZS-W

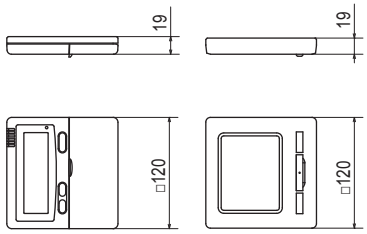
Symbol	Content	
A	Gas piping	SRK20, 25, 35 ϕ9.52 (3/8") (Flare) SRK50 ϕ12.7 (1/2") (Flare)
B	Liquid piping	ϕ6.35 (1/4") (Flare)
C	Hole on wall for right rear piping	(ϕ65)
D	Hole on wall for left rear piping	(ϕ65)
E	Drain hose	VP16
F	Outlet for piping (on both side)	





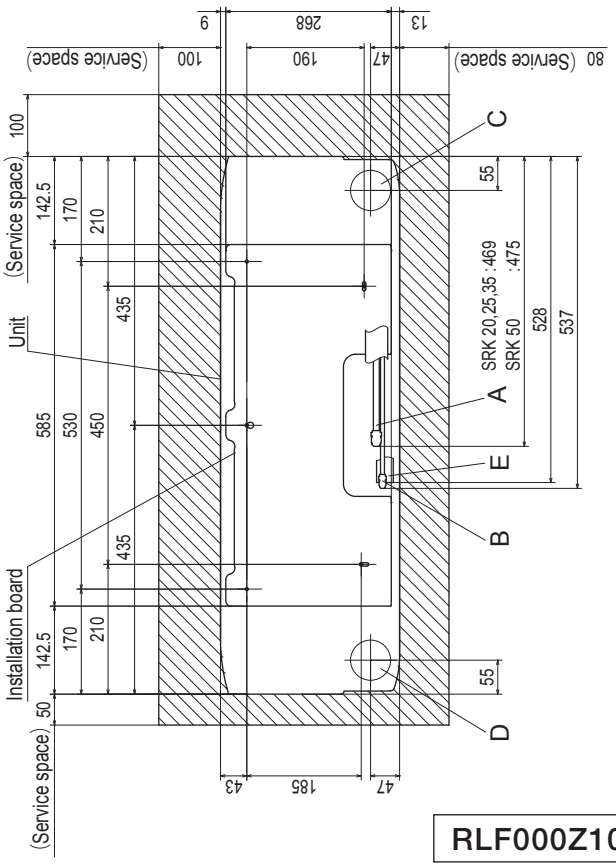






Notes (1) The model name label is attached on the right side of the unit.
(2) To connect the wired remote control, the interface kit (SC-BIKN2-E) is required.

Unit:mm



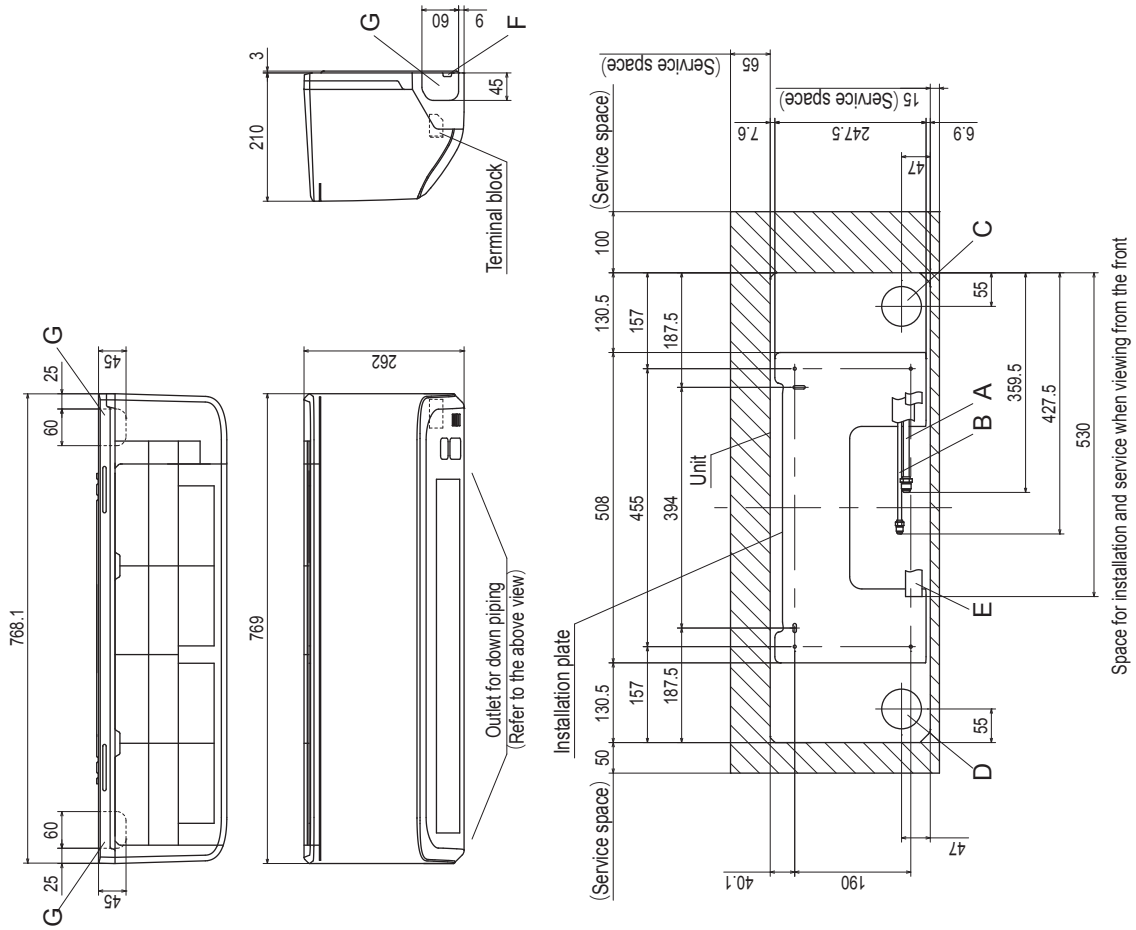
Space for installation and service when viewing from the front

RLF000Z101

RLF000Z103

Models SKM20ZSP-S, 25ZSP-S, 35ZSP-S

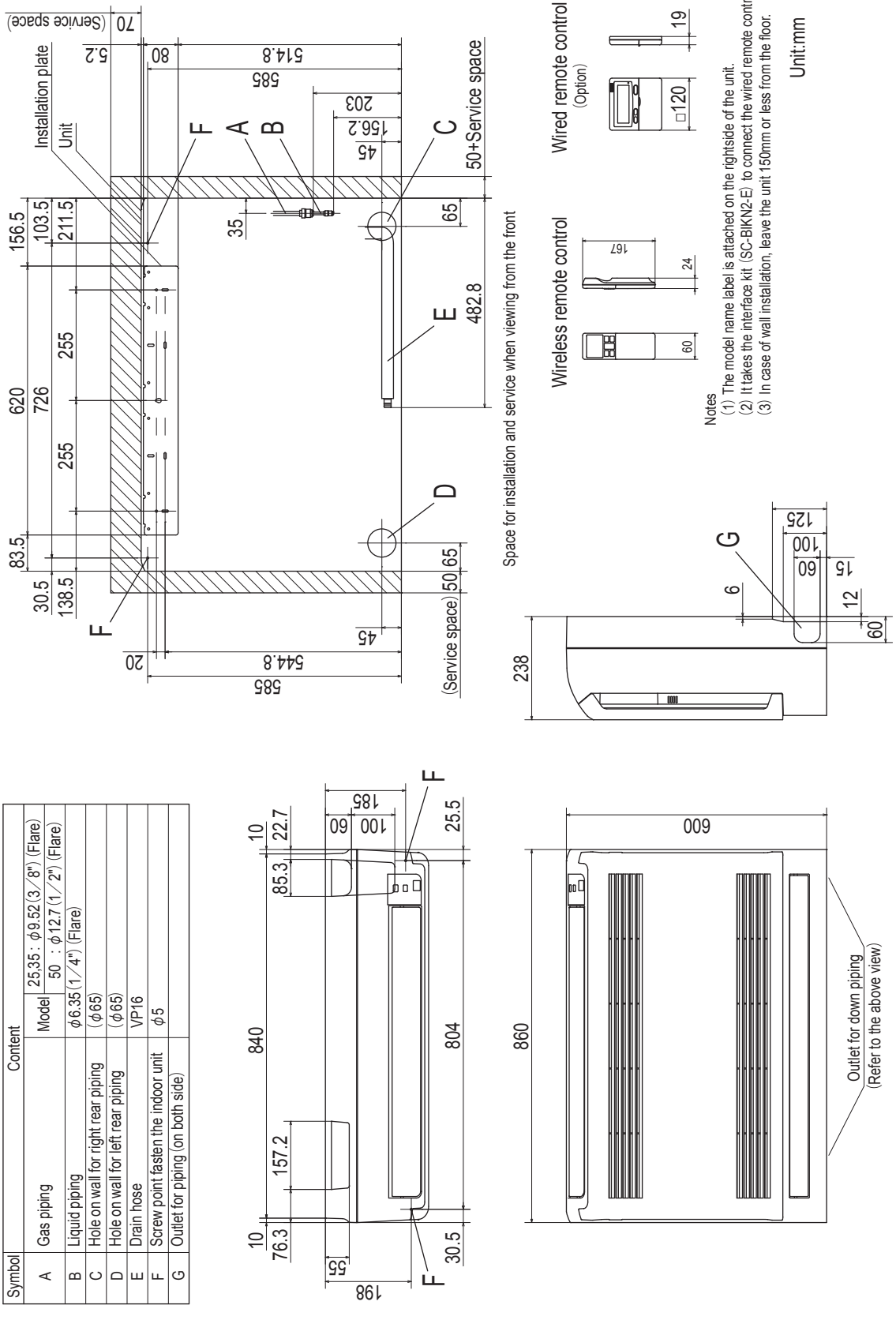
Symbol	Content	
A	Gas piping	ϕ9.52 (3/8") (Flare)
B	Liquid piping	ϕ6.35 (1/4") (Flare)
C	Hole on wall for right rear piping	(ϕ65)
D	Hole on wall for left rear piping	(ϕ65)
E	Drain hose	VP16
F	Outlet for wiring	
G	Outlet for piping (on both side)	



RLC000Z003B

(2) Floor standing type (SRF)

Models SRF25ZMX-S, 35ZMX-S, 50ZMX-S

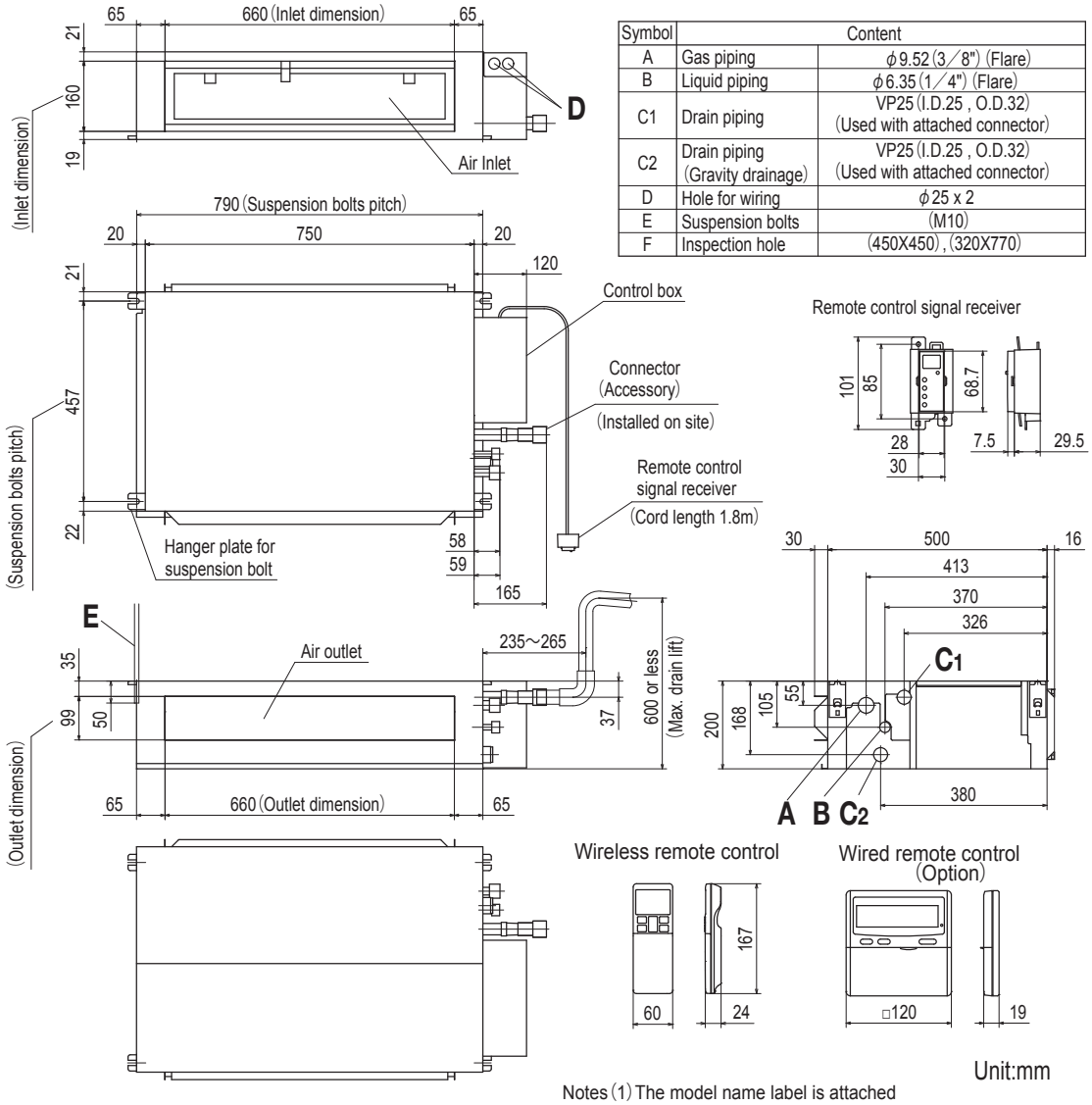


Symbol	Content		
A	Gas piping	Model	25,35 : φ9.52(3/8") (Flare) 50 : φ12.7(1/2") (Flare)
B	Liquid piping		φ6.35(1/4") (Flare)
C	Hole on wall for right rear piping		(φ65)
D	Hole on wall for left rear piping		(φ65)
E	Drain hose		VP16
F	Screw point fasten the indoor unit		φ5
G	Outlet for piping (on both side)		

RFB000Z006

(3) Ceiling concealed type (SRR)

Models SRR25ZM-S, 35ZM-S

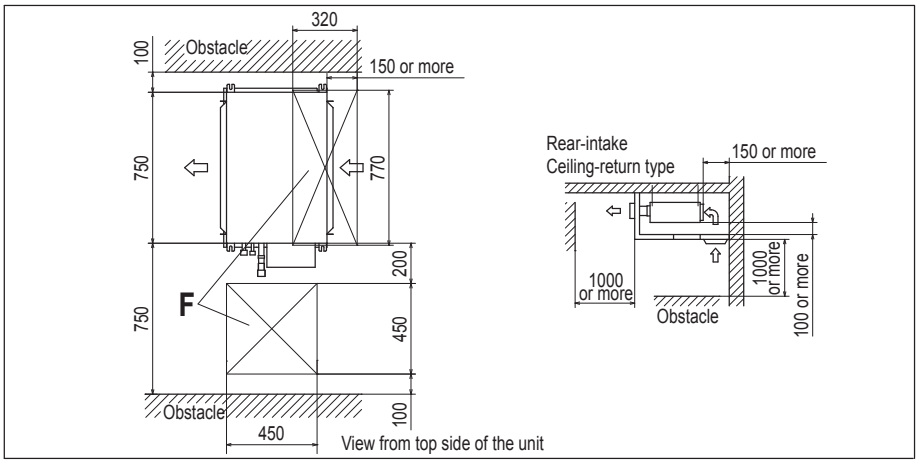


Symbol	Content	
A	Gas piping	ϕ9.52 (3/8") (Flare)
B	Liquid piping	ϕ6.35 (1/4") (Flare)
C1	Drain piping	VP25 (I.D.25 , O.D.32) (Used with attached connector)
C2	Drain piping (Gravity drainage)	VP25 (I.D.25 , O.D.32) (Used with attached connector)
D	Hole for wiring	ϕ25 x 2
E	Suspension bolts	(M10)
F	Inspection hole	(450X450) , (320X770)

Unit:mm

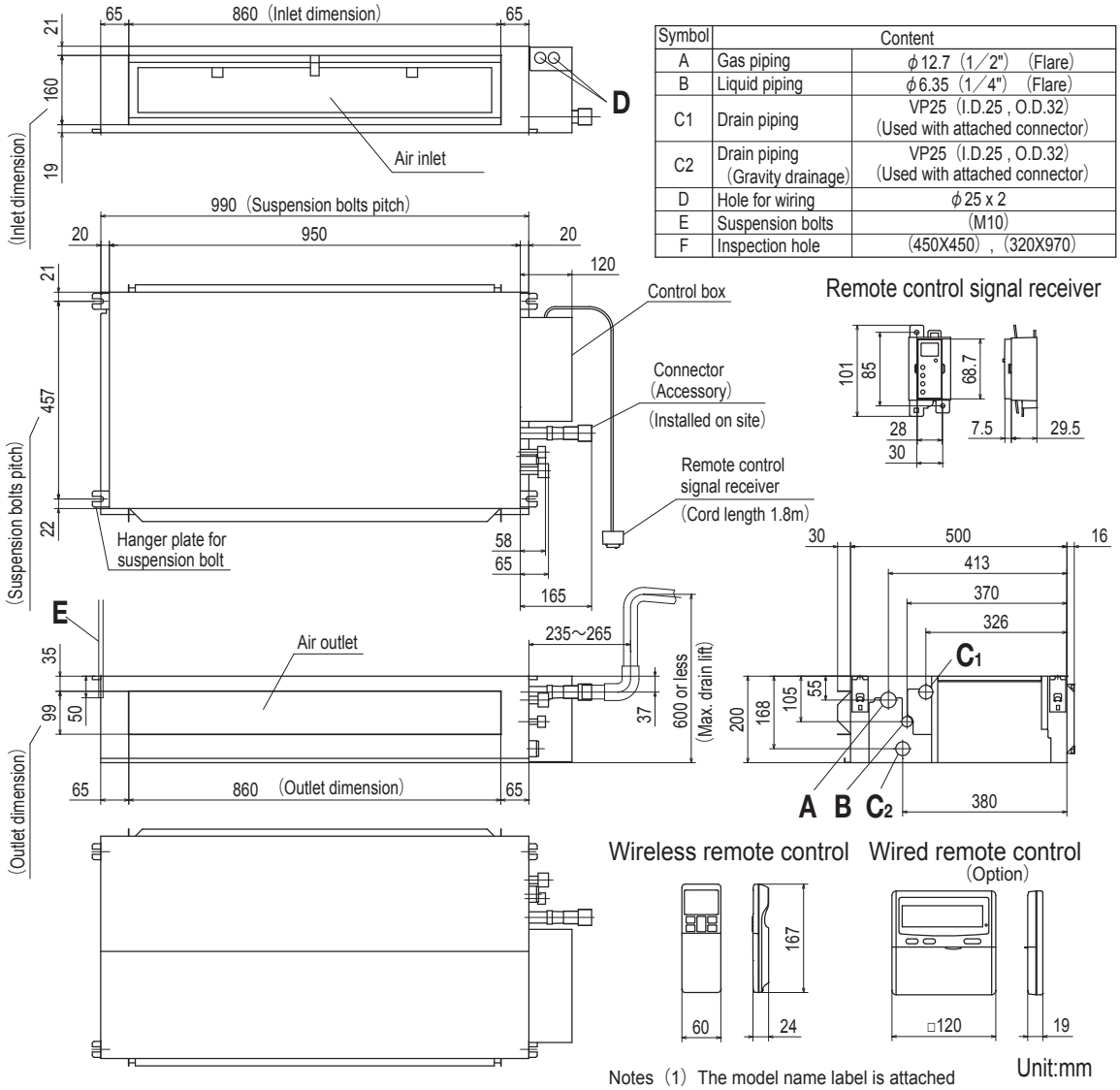
Notes (1) The model name label is attached on the lid of the control box.
(2) It takes the interface kit (SC-BIKN2-E) to connect the wired remote control.

Space for installation and service



RJJ000Z001

Models SRR50ZM-S, 60ZM-S

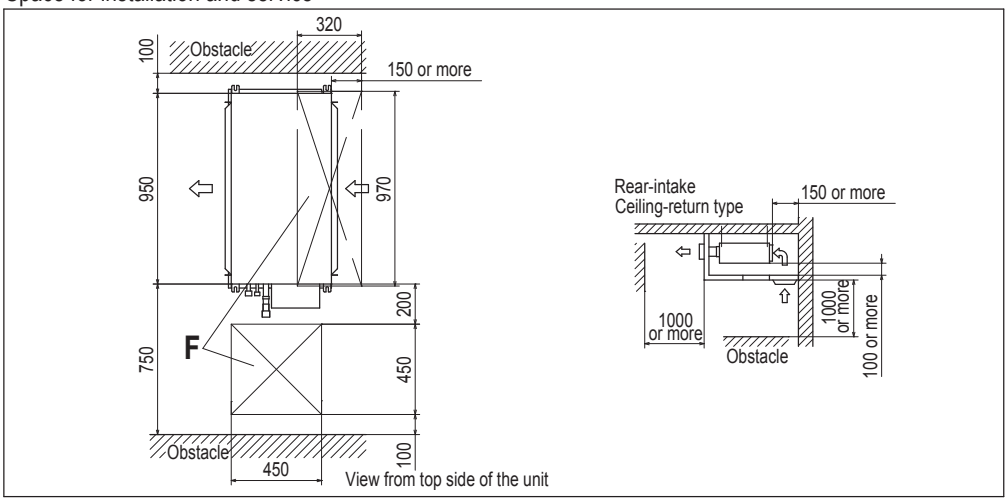


Unit:mm

Symbol	Content	
A	Gas piping	ϕ12.7 (1/2") (Flare)
B	Liquid piping	ϕ6.35 (1/4") (Flare)
C1	Drain piping	VP25 (I.D.25 , O.D.32) (Used with attached connector)
C2	Drain piping (Gravity drainage)	VP25 (I.D.25 , O.D.32) (Used with attached connector)
D	Hole for wiring	ϕ25 x 2
E	Suspension bolts	(M10)
F	Inspection hole	(450X450) , (320X970)

Notes (1) The model name label is attached on the lid of the control box.
(2) It takes the interface kit (SC-BIKN2-E) to connect the wired remote control.

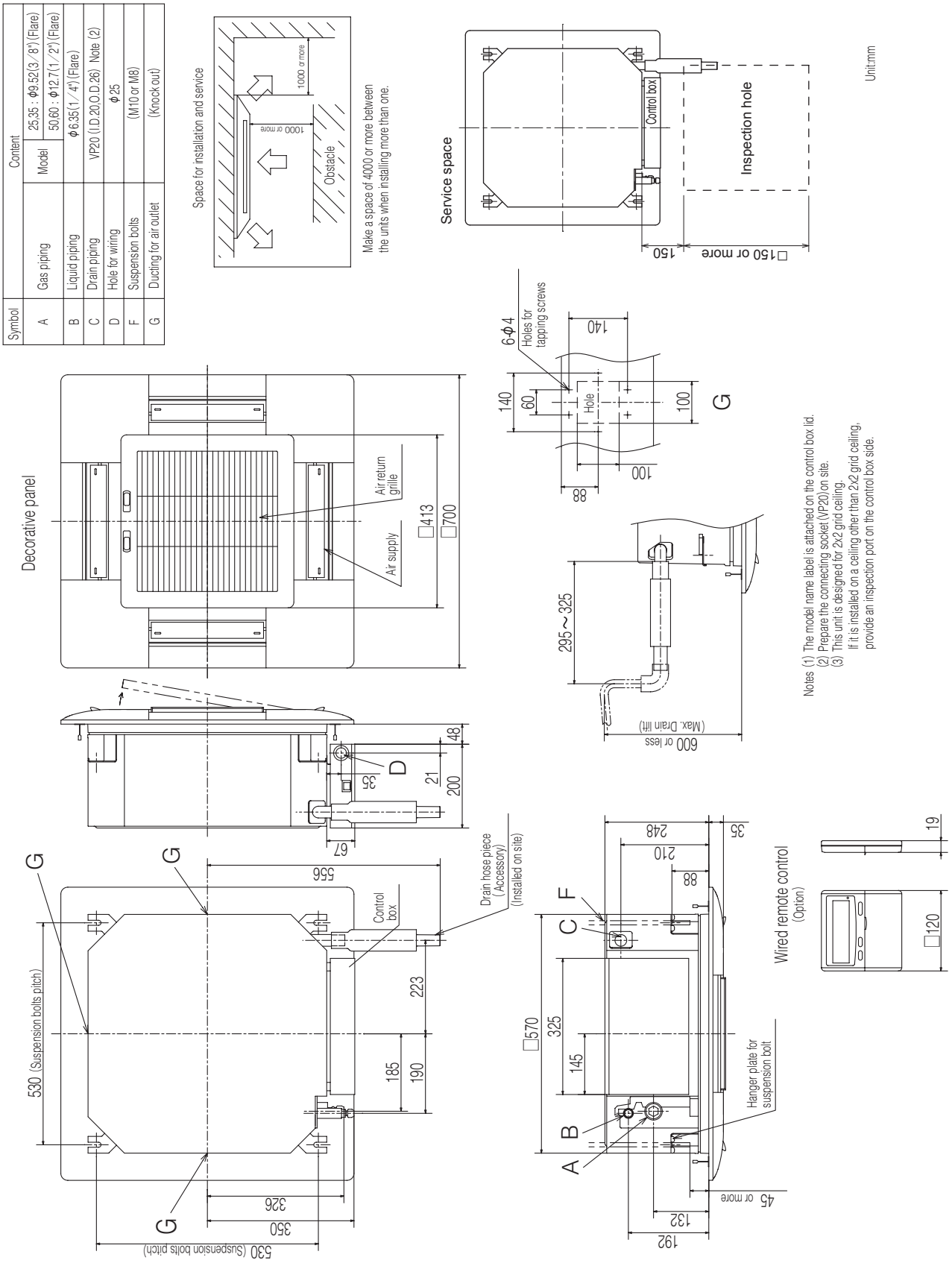
Space for installation and service



RJJ000Z002 A

(4) 4-way ceiling cassette type (FDTC)

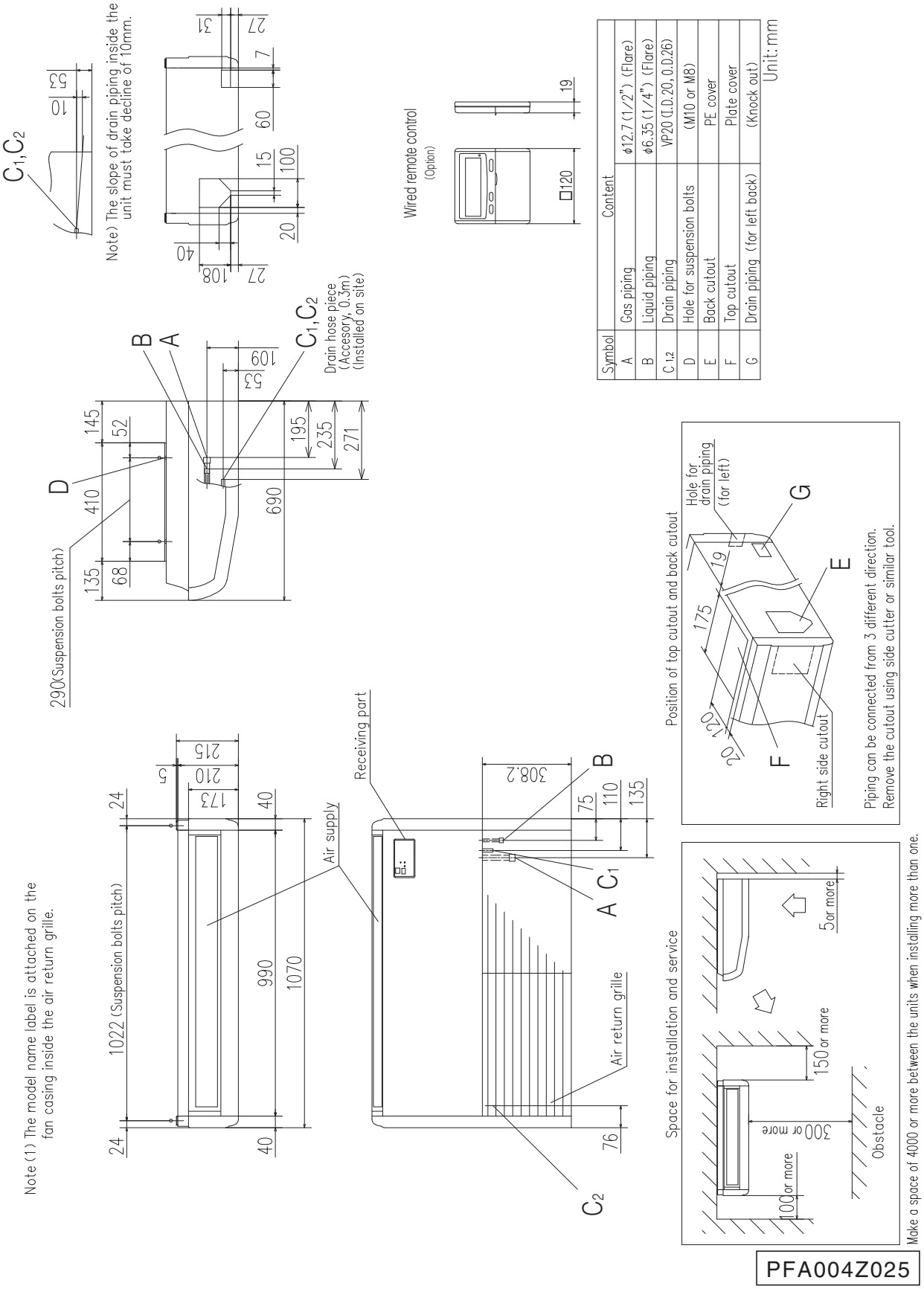
Models FDTC25VF, 35VF, 50VF, 60VF



PJA003Z338Ⓓ

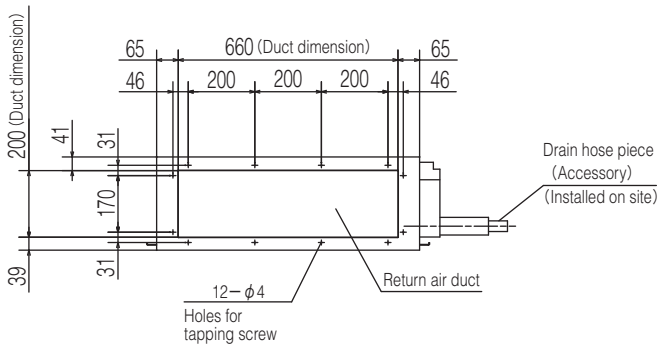
(5) Ceiling suspended type (FDE)

Model FDE50VG



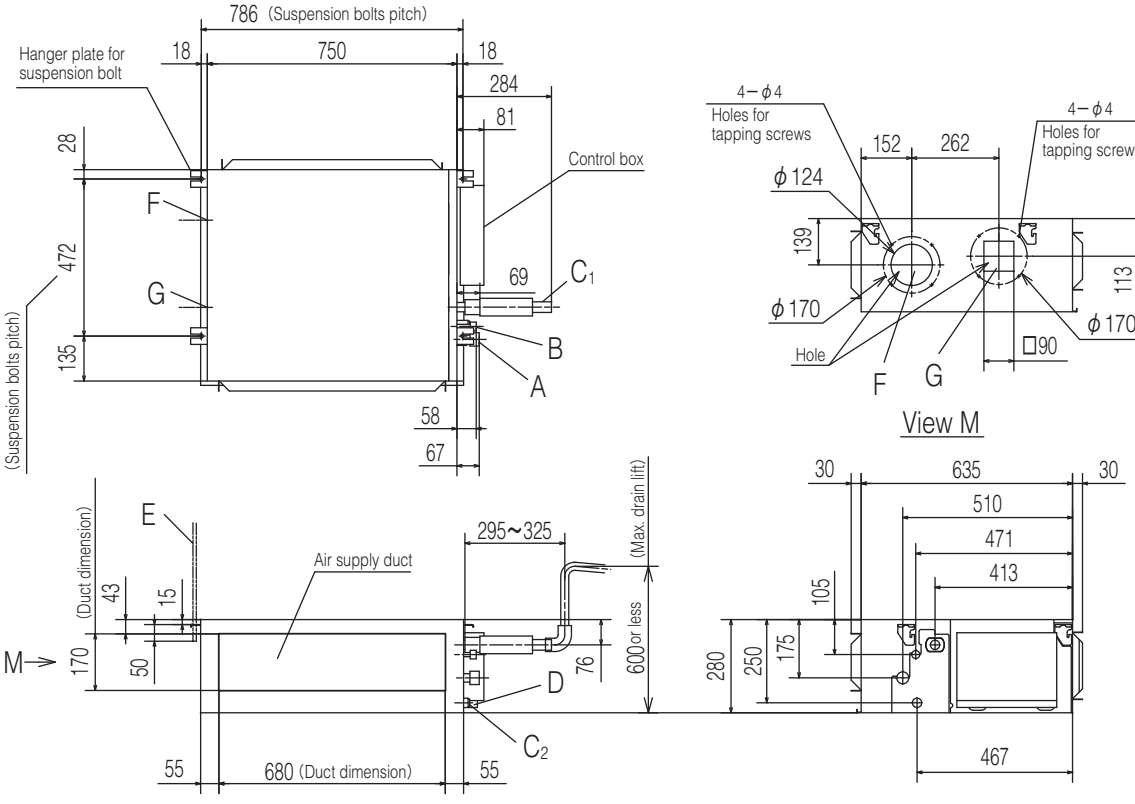
(6) Duct connected Low/Middle static pressurer type (FDUM)

Model FDUM50VF



Symbol	Content	
A	Gas piping	ϕ12.7 (1／2") (Flare)
B	Liquid piping	ϕ6.35 (1／4") (Flare)
C1	Drain piping	VP25(I.D.25,O.D.32)
C2	Drain piping (Gravity drainage)	VP20(I.D.20,O.D.26)
D	Hole for wiring	
E	Suspension bolts	(M10)
F	Outside air opening for ducting	(ϕ150) (Knock out)
G	Air outlet opening for ducting	(ϕ125) (Knock out)
H	Inspection hole	(450X450)

Note (1) The model name label is attached on the lid of the control box.

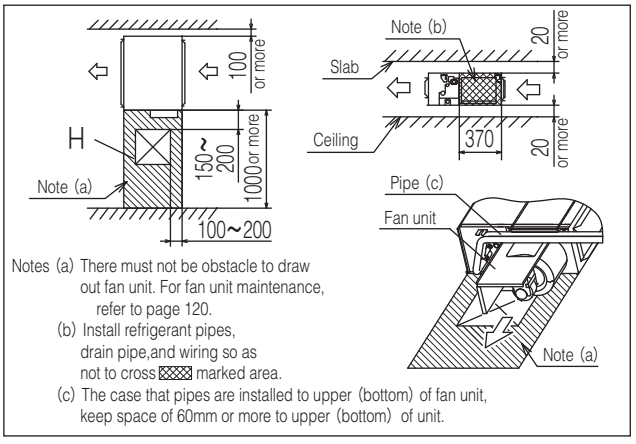


Unit:mm

Space for installation and service

Select either of two cases to keep space for installation and services.

(Case 1) From side of unit

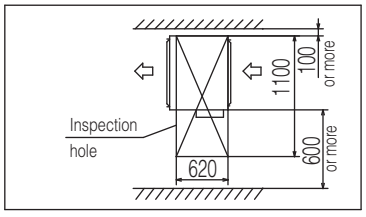


Notes (a) There must not be obstacle to draw out fan unit. For fan unit maintenance, refer to page 120.

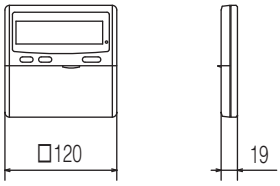
(b) Install refrigerant pipes, drain pipe,and wiring so as not to cross ▨ marked area.

(c) The case that pipes are installed to upper (bottom) of fan unit, keep space of 60mm or more to upper (bottom) of unit.

(Case 2) From bottom of unit



Wired remote control
(Option)



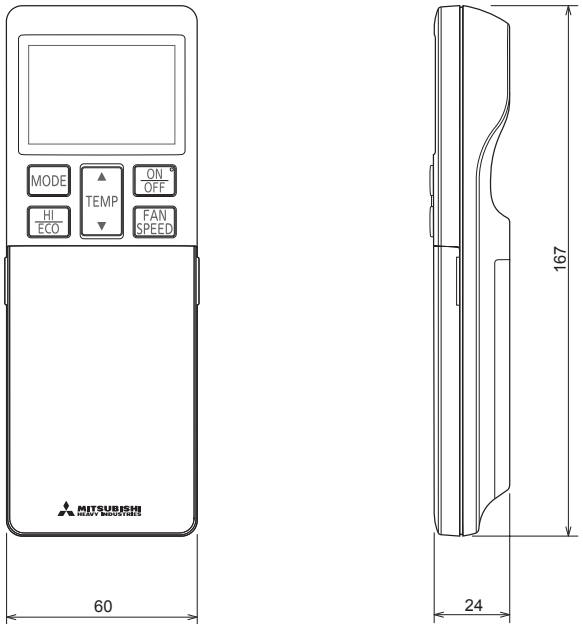
PJG000Z002 B

(7) Remote control

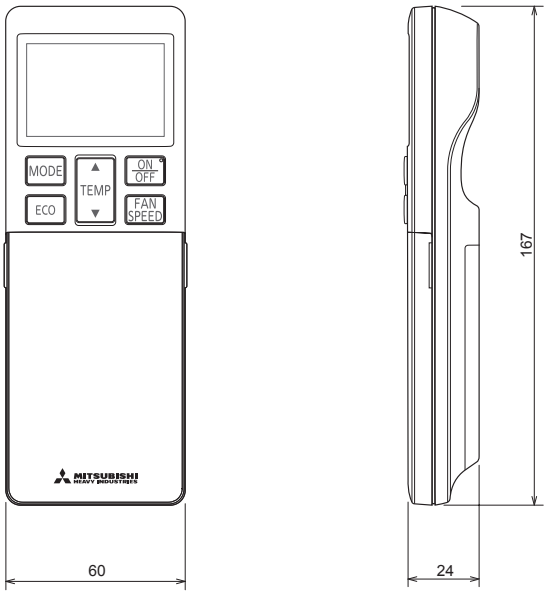
(a) Wireless remote control

Models SRK, SRF, SRR

(Typical example)



Models FDTC,FDE, FDUM (Option parts)

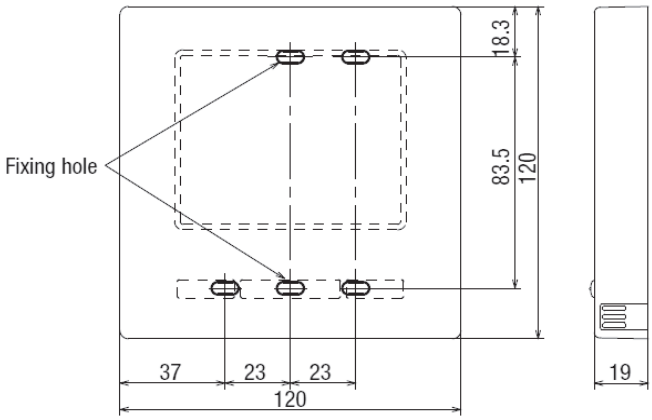


(b) Wired remote control (Option parts)

Interface kit (SC-BIKN2-E) is required to use the wired remote control. (Models SRK, SRF and SRR only)

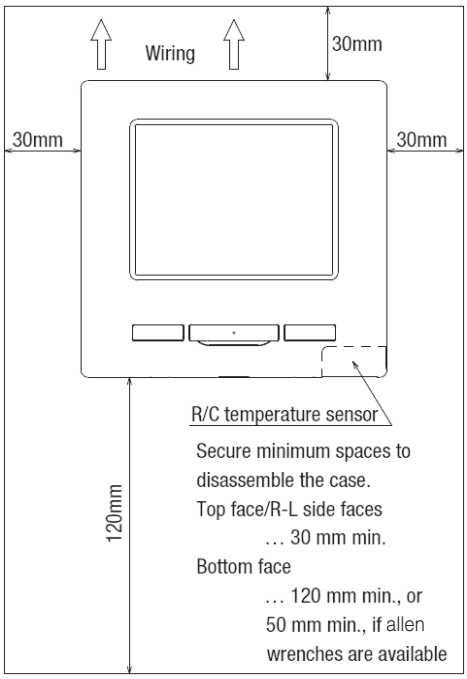
Model RC-EX3

Dimensions (Viewed from front)



Exterior appearance (Munsell color)	Pearl white (N8.5) near equivalent

Installation space



Cautions for selecting installation place

1) Installation surface must be flat and sufficiently strong. R/C case must not be deformed.
2) Where the R/C can detect room temperatures accurately
   This is a must when detecting room temperatures with the temperature sensor of R/C.
   · Install the R/C where it can detect the average temperature in the room.
   · Install the R/C sufficiently separated from a heat source.
   · Install the R/C where it will not be influenced by the turbulence of air when the door is opened or closed.
   Select a place where the R/C is not exposed to direct sunlight or blown by winds from the air conditioner or temperatures on the wall surface will not deviate largely from indoor air temperatures.
3) When using the panel provided with the automatic filter elevating function, select a place where the movement of grill can be seen easily.

R/C cable: 0.3mm² × 2 cores

When the cable length is longer than 100 m, the max size for wires used in the R/C case is 0.5 mm². Connect them to wires of larger size near the outside of R/C. When wires are connected, take measures to prevent water, etc. from entering inside.

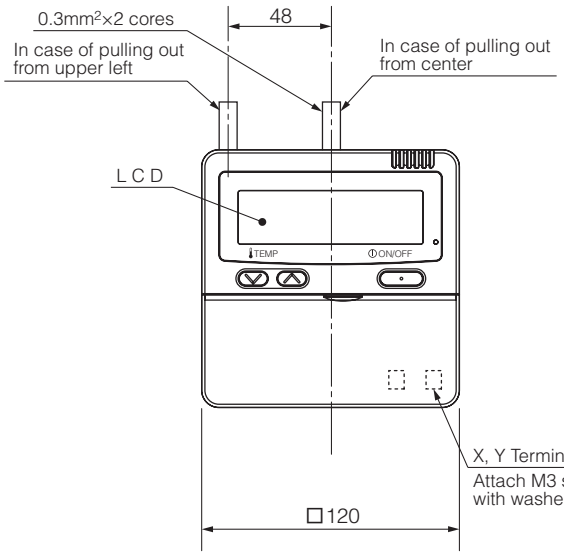
< 200 m	0.5 mm² x 2 cores
< 300 m	0.75 mm² x 2 cores
< 400 m	1.25 mm² x 2 cores
< 600 m	2.0 mm² x 2 cores

Adapted to RoHS directive

PJZ000Z321

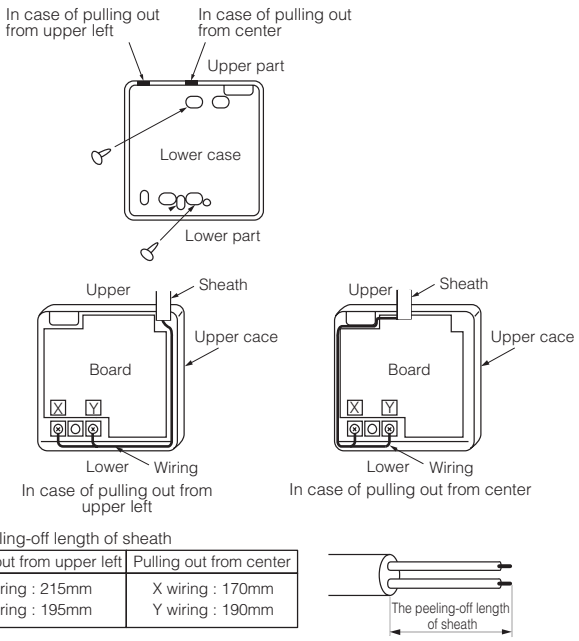
Model RC-E5

Exposed mounting



Exterior appearance (Munsell color)	Pearl White (N8.5) near equivalent

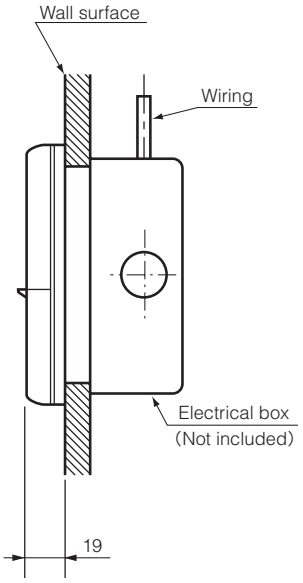
Wiring outlet
Cut off the upper thin part of remote control lower case with a nipper or knife, and grind burrs with a file etc.



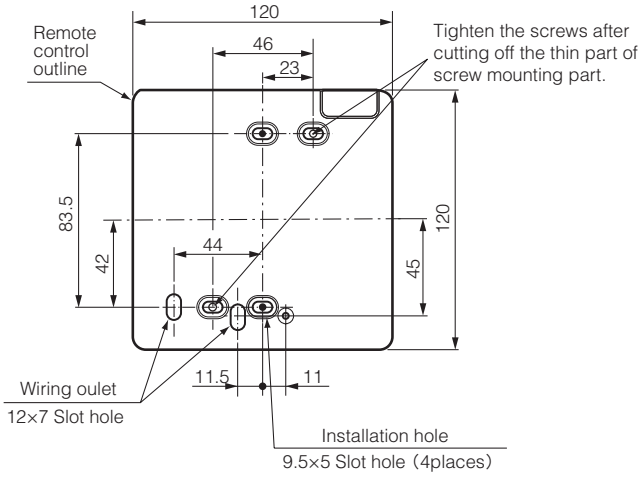
The peeling-off length of sheath

Pulling out from upper left	Pulling out from center
X wiring : 215mm Y wiring : 195mm	X wiring : 170mm Y wiring : 190mm

Embedded mounting



Remote control installation dimensions



1) Installation screw for remote control
M4 screw (2 pieces)

Unit:mm

Wiring specifications

1) If the prolongation is over 100m, change to the s ize below.
But, wiring in the remote control case should be under 0.5mm². Change the wire size outside of the case according to wire connecting. Waterproof treatment is necessary at the wire connecting section. Be careful about contact failure.

Length	Wiring thickness
100 to 200m	0.5mm²×2 cores
Under 300m	0.75mm²×2 cores
Under 400m	1.25mm²×2 cores
Under 600m	2.0mm²×2 cores

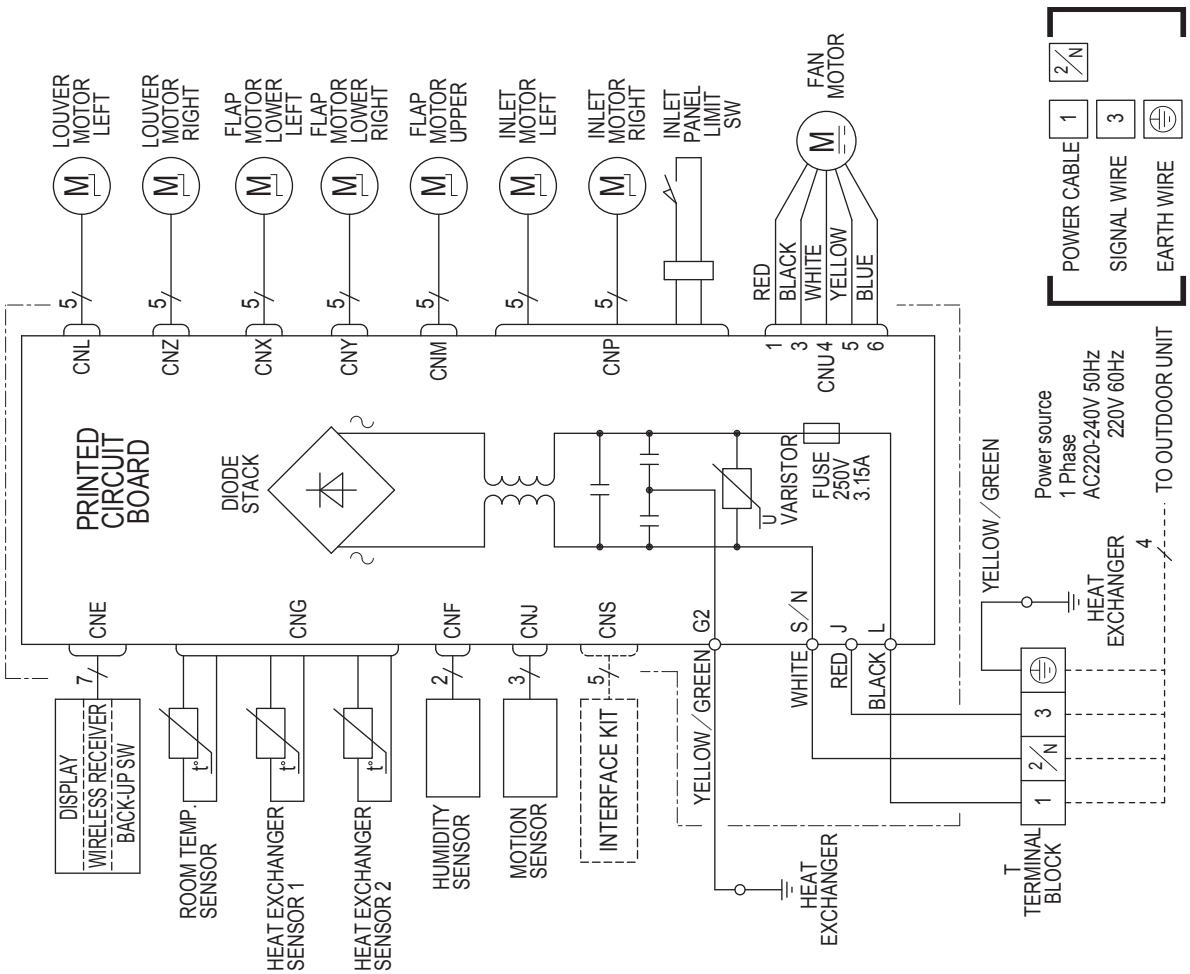
PJZ000Z295

2.3 Electrical wiring

(1) Wall mounted type (SRK)

Models SRK20ZSX-S, 25ZSX-S, 35ZSX-S, 50ZSX-S, 60ZSX-S
SRK20ZSX-W, 25ZSX-W, 35ZSX-W, 50ZSX-W, 60ZSX-W

Item	Description
CNE	Connector
CNF	
CNG	
CNJ	
CNL	
CNM	
CNP	
CNS	
CNU	
CNX	
CNY	
CNZ	



RWA000Z412

RWA000Z413

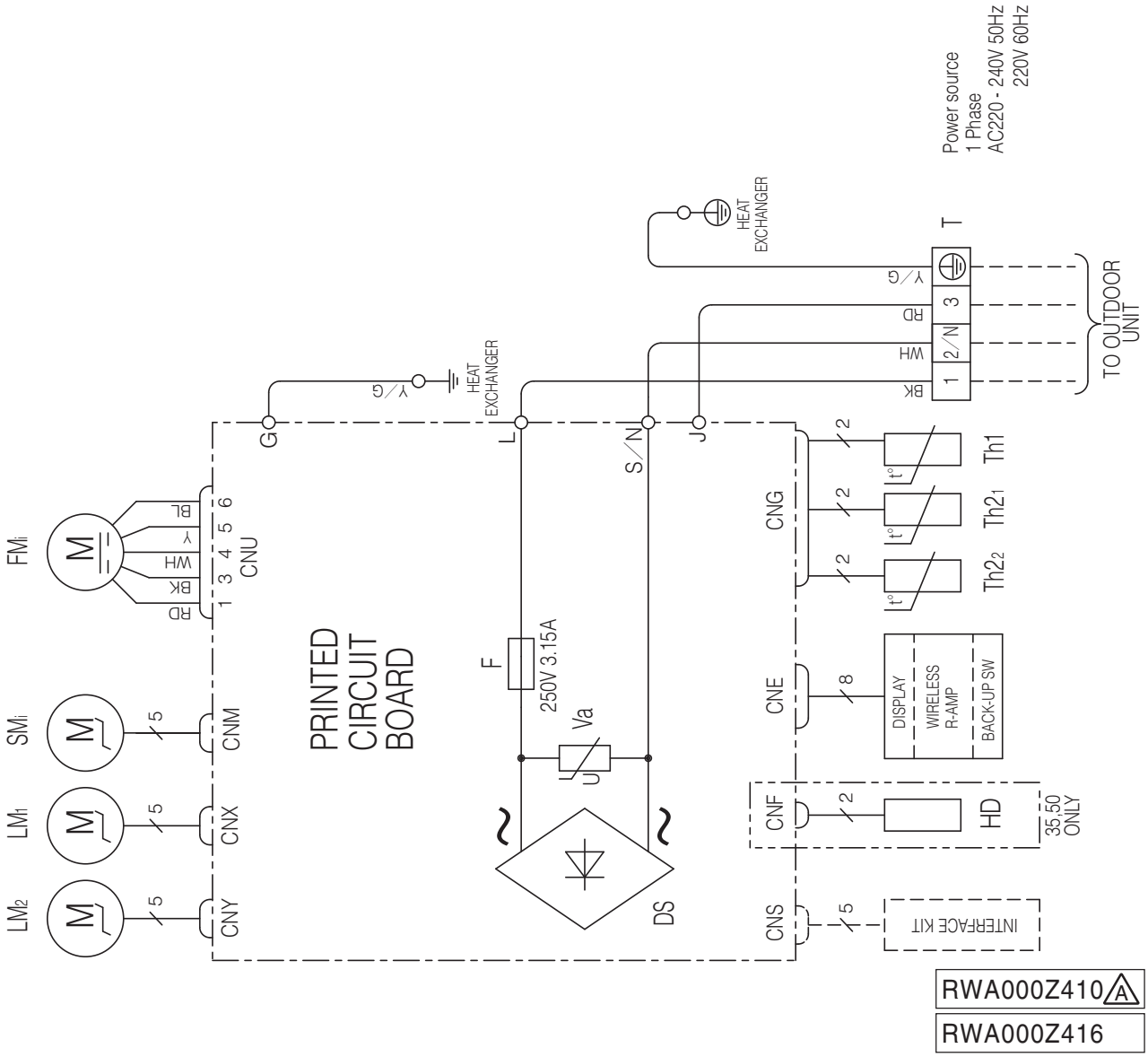
Models SRK20ZS-S, 25ZS-S, 35ZS-S, 50ZS-S
SRK20ZS-W, 25ZS-W, 35ZS-W, 50ZS-W

Meaning of marks

Item	Description
CNE-CNY	Connector
FMi	Fan motor
SMi	Flap motor
LMi.2	Louver motor
HD	Humidity sensor
Th1	Room temp. sensor
Th2i.2	Heat exch. sensor
DS	Diode stack
F	Fuse
T	Terminal block
Va	Varistor

Color marks

Mark	Color
BK	Black
BL	Blue
RD	Red
WH	White
Y	Yellow
Y/G	Yellow/Green



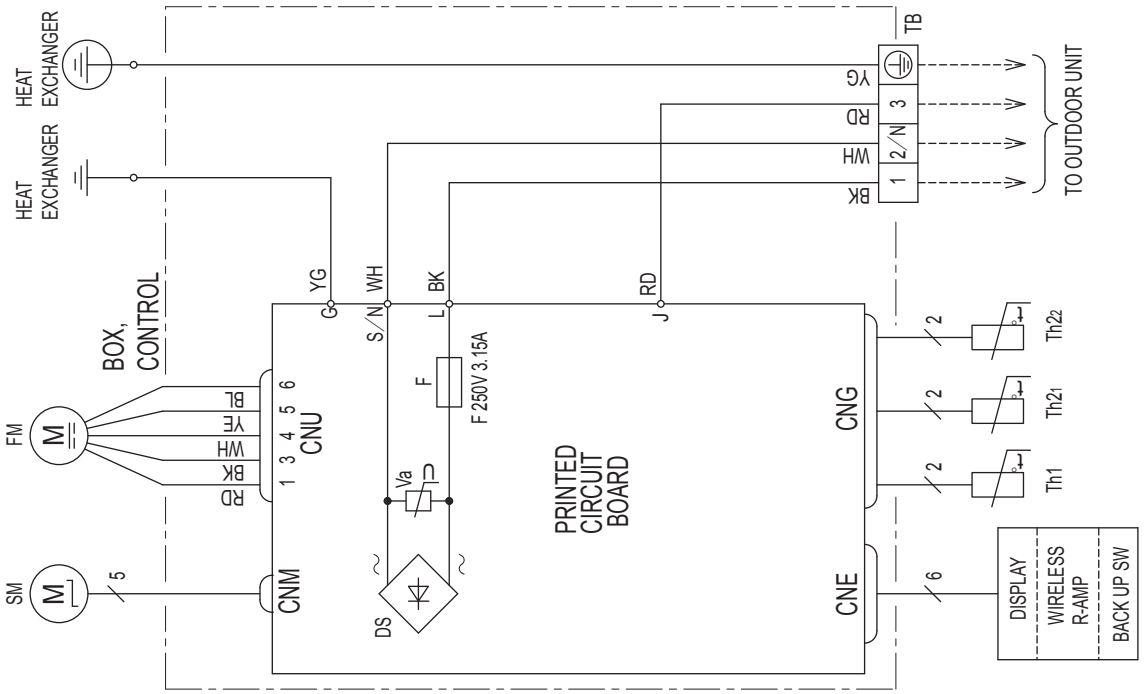
Models SKM20ZSP-S, 25ZSP-S, 35ZSP-S

Meaning of marks

Item	Description
CNE	Connector
CNG	
CNM	
CNU	
FM	Fan motor
SM	Flap motor
Th1	Room temp. sensor
$Th2_{1,2}$	Heat exchanger sensor
DS	Diode stack
F	Fuse
TB	Terminal block
Va	Varistor

Color marks

Mark	Color
BK	Black
BL	Blue
RD	Red
WH	White
YE	Yellow
YG	Yellow／Green



RWA000Z268

(2) Floor standing type (SRF)

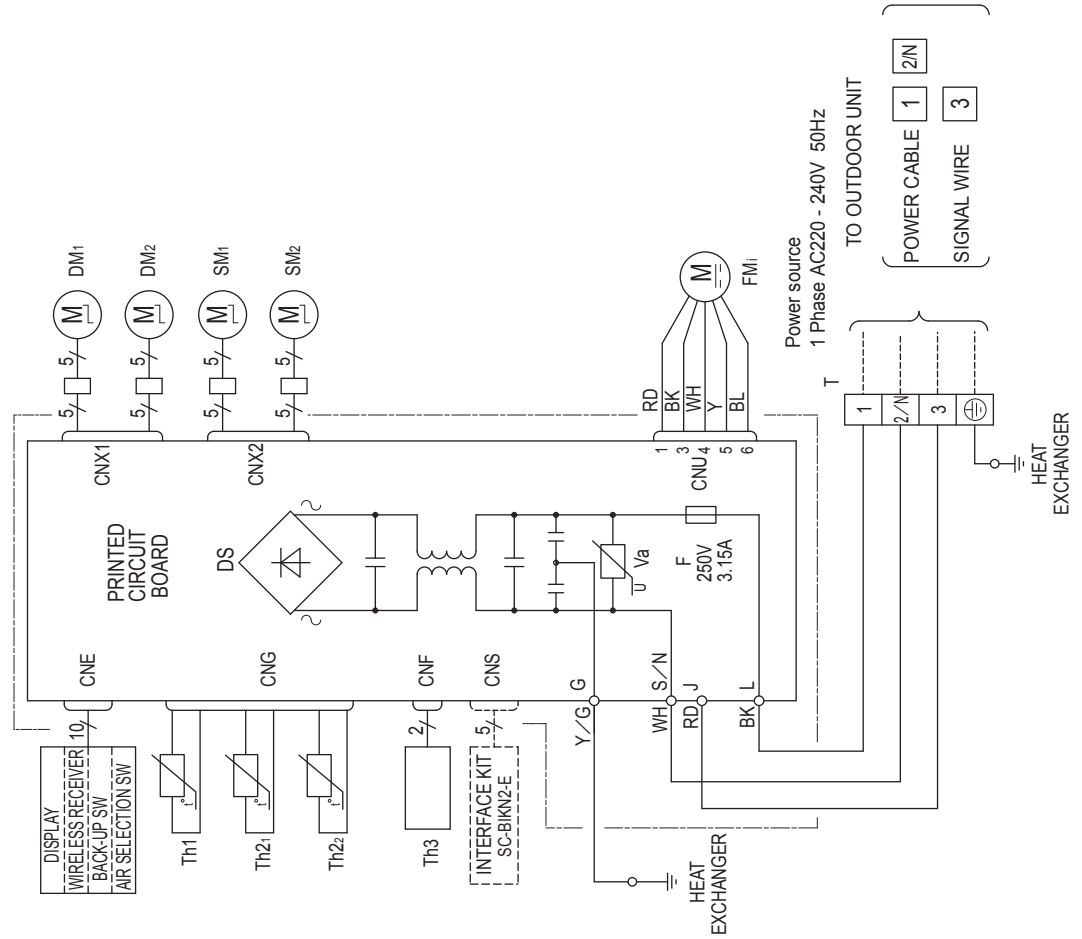
Models SRF25ZMX-S, 35ZMX-S, 50ZMX-S

Meaning of marks

Item	Description
CNE-CNX2	Connector
FM_i	Fan motor
$SM_{1,2}$	Flap motor
DM_1	Damper motor
DM_2	Damper arm motor
Th1	Room temp. sensor
$Th2_{1,2}$	Heat exchanger sensor
Th3	Humidity sensor
DS	Diode stack
F	Fuse
T	Terminal block
Va	Varistor

Color marks

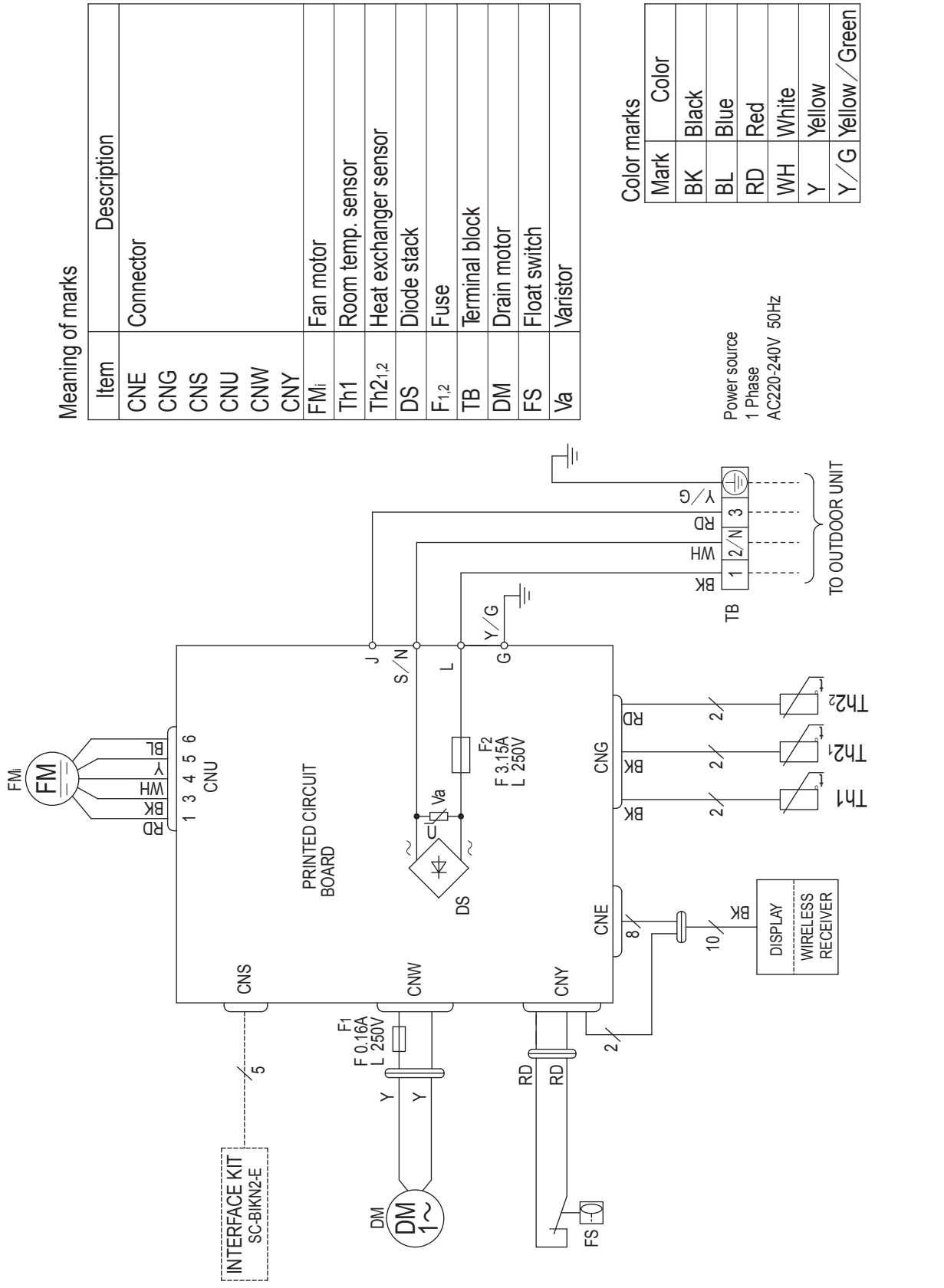
Mark	Color
BK	Black
BL	Blue
RD	Red
WH	White
Y	Yellow
Y/G	Yellow/Green



RWB000Z057

(3) Ceiling concealed type (SRR)

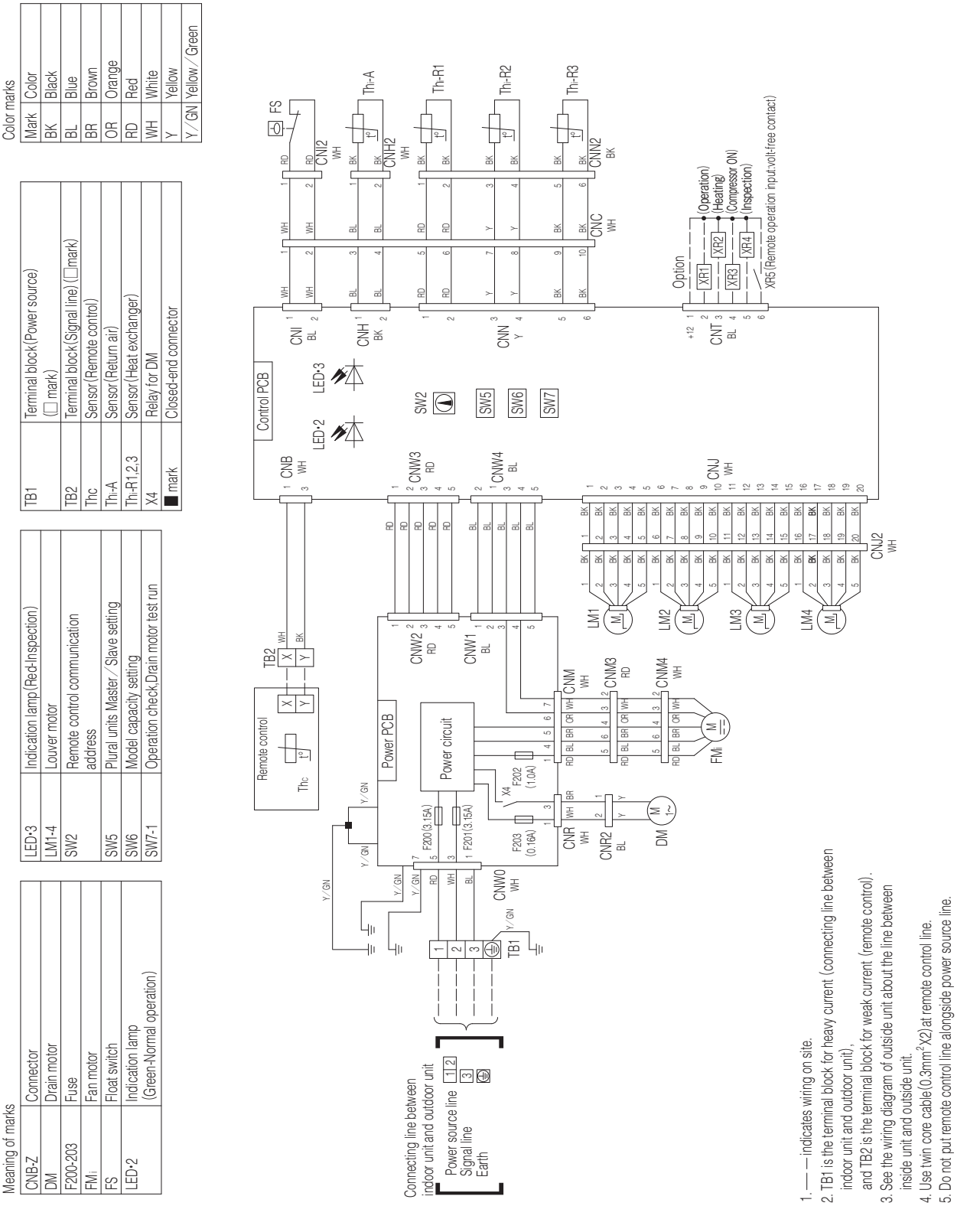
Models SRR25ZM-S, 35ZM-S, 50ZM-S, 60ZM-S



RJJ000Z003

(4) 4-way ceiling cassette type (FDTC)

Models FDTC25VF, 35VF, 50VF, 60VF

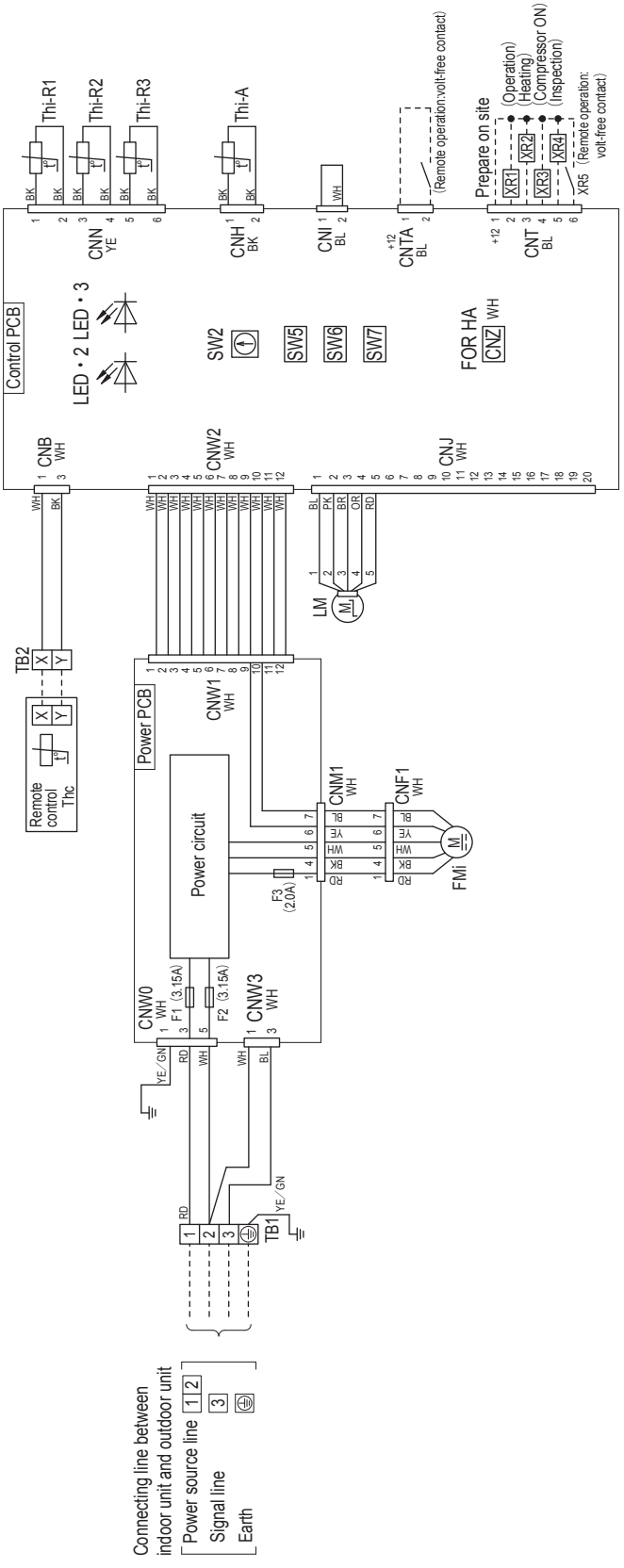


Notes 1. —— indicates wiring on site.
2. TB1 is the terminal block for heavy current (connecting line between indoor unit and outdoor unit), and TB2 is the terminal block for weak current (remote control).
3. See the wiring diagram of outside unit about the line between inside unit and outside unit.
4. Use twin core cable(0.3mm^{2}X2)at remote control line.
5. Do not put remote control line alongside power source line.

PJA003Z340 D

(5) Ceiling suspended type (FDE)

Model FDE50VG



Color marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
OR	Orange
PK	Pink
RD	Red
WH	White
YE	Yellow
YE/GN	Yellow/Green

Meaning of marks

Mark	Parts name
CNB-Z	Connector
F1-3	Fuse (Power PCB)
FMi	Fan motor
LED • 2	Indication lamp (Green-Normal operation)
LED • 3	Indication lamp (Red-Inspection)
LM	Louver motor
SW2	Remote control communication address
SW5	Plural units Master/Slave setting
SW6	Model capacity setting
SW7-1	Operation check,drain motor test run
SW7-3	Powerful mode Valid/Invalid
TB1	Terminal block (Power source)
TB2	Terminal block (Signal line)
Thc	Sensor (Remote control)
Thi-A	Sensor (Return air)
Thi-R1,2,3	Sensor (Heat exchanger)

Notes 1. - - - indicates wiring on site.
2. See the wiring diagram of outside unit about the line between indoor unit and outdoor unit.
3. Use twin core cable (0.3mm²X2) at remote control line. See spec sheet of remote control in case that the total length is more than 100m.
4. Do not put remote control line alongside power source line.

PFA004Z028

(6) Duct connected Low/Middle static pressure type (FDUM)

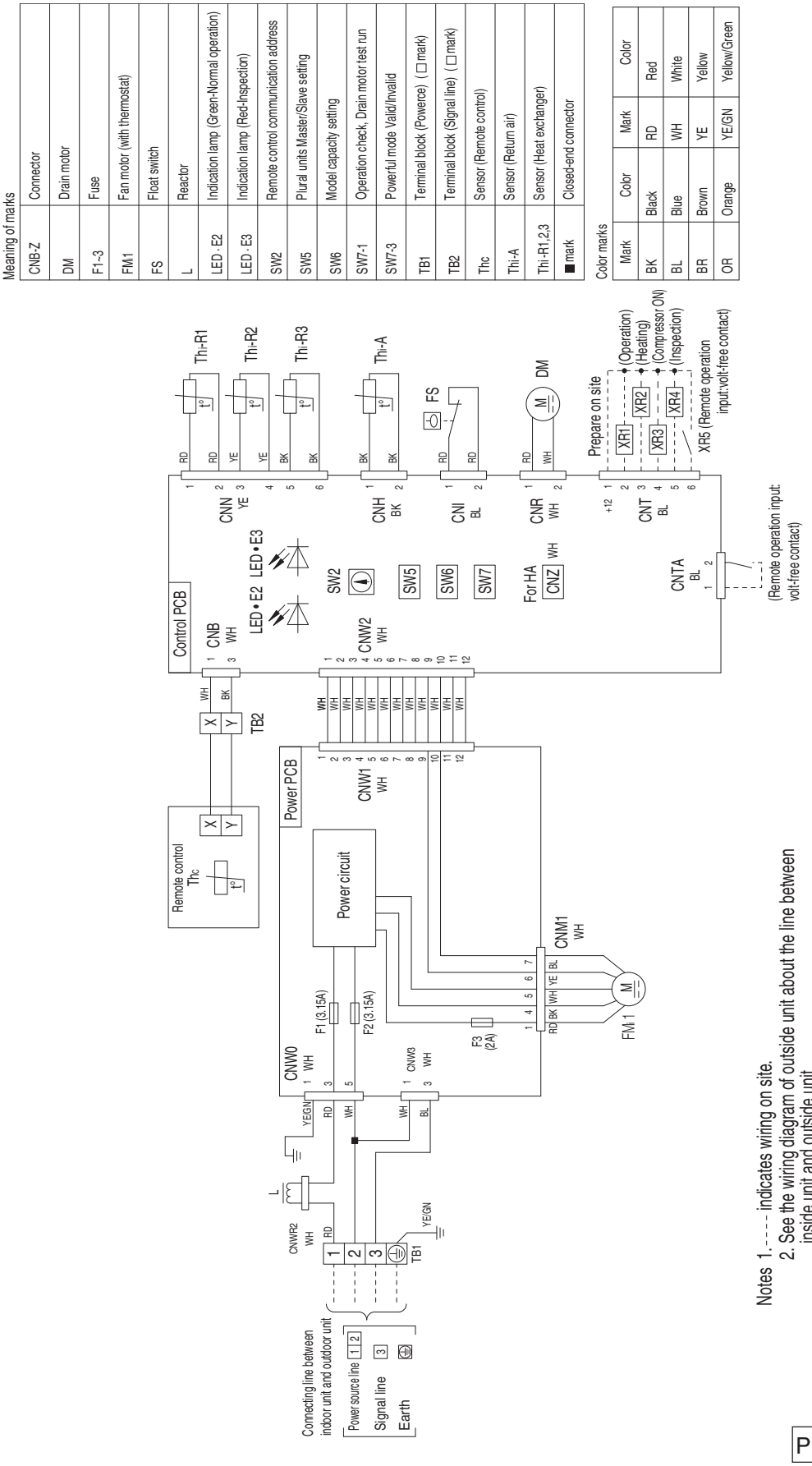
Model FDUM50VF

Meaning of marks

CNB-Z	Connector
DM	Drain motor
F1~3	Fuse
FM1	Fan motor (with thermostat)
FS	Float switch
L	Reactor
LED - E2	Indication lamp (Green-Normal operation)
LED - E3	Indication lamp (Red-Inspection)
SW2	Remote control communication address
SW5	Plural units Master/Slave setting
SW6	Model capacity setting
SW7-1	Operation check, Drain motor test run
SW7-3	Powerful mode Valid/Invalid
TB1	Terminal block (Powerce) (□ mark)
TB2	Terminal block (Signal line) (□ mark)
Thc	Sensor (Remote control)
Thi-A	Sensor (Return air)
Thi-R1,2,3	Sensor (Heat exchanger)
■ mark	Closed-end connector

Color marks

Mark	Color	Mark	Color
BK	Black	RD	Red
BL	Blue	WH	White
BR	Brown	YE	Yellow
OR	Orange	YE/GN	Yellow/Green



Notes 1. ---- indicates wiring on site.
2. See the wiring diagram of outside unit about the line between inside unit and outside unit.
3. Use twin core cable (0.3mm² x2) at remote control line.
4. Do not put remote control line alongside power source line.

PJG000Z005 D

2.4 Noise level

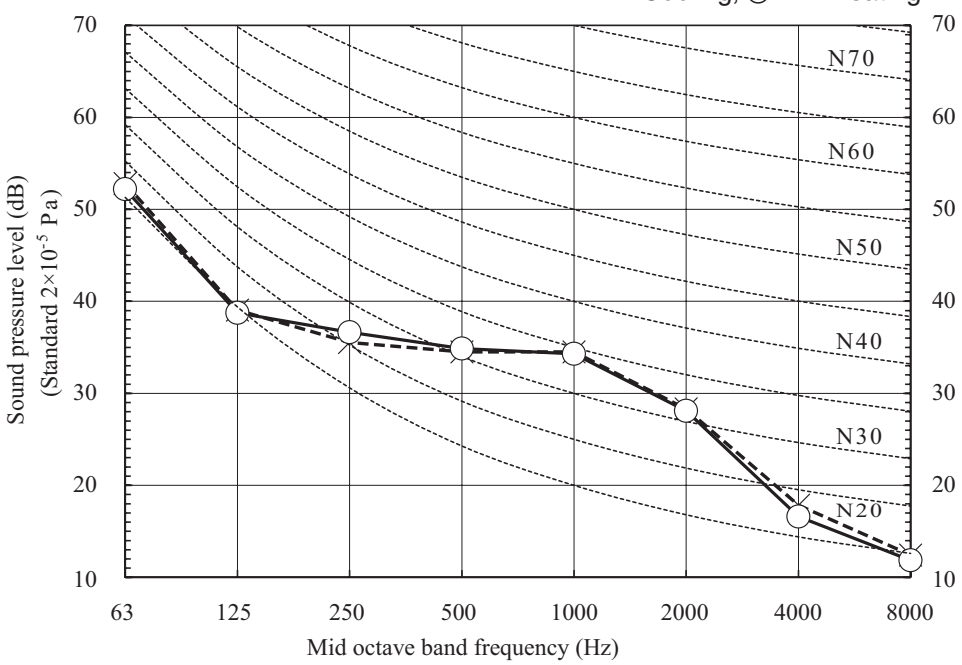
(1) Wall mounted type (SRK)

Models SRK20ZSX-S, SRK20ZSX-W

Noise Level	Cooling	38 dB(A)
	Heating	38 dB(A)

Condition	ISO5151 T1/H1

●Mike position

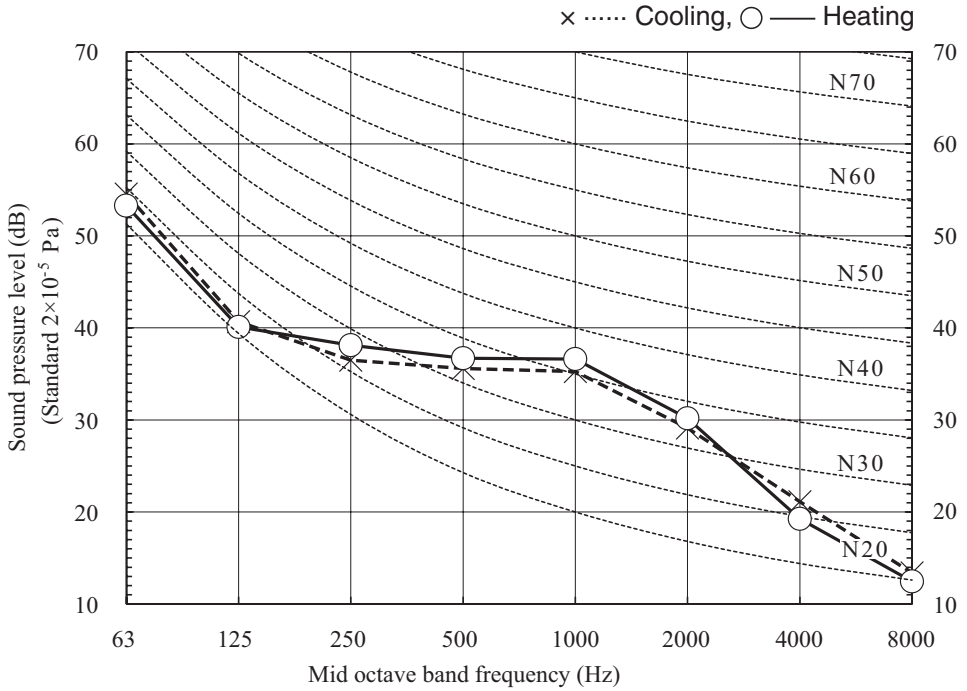


Models SRK25ZSX-S, SRK25ZSX-W

Noise Level	Cooling	39 dB(A)
	Heating	40 dB(A)

Condition	ISO5151 T1/H1

●Mike position

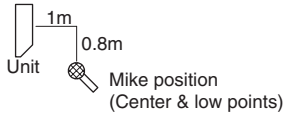


Models SRK35ZSX-S, SRK35ZSX-W

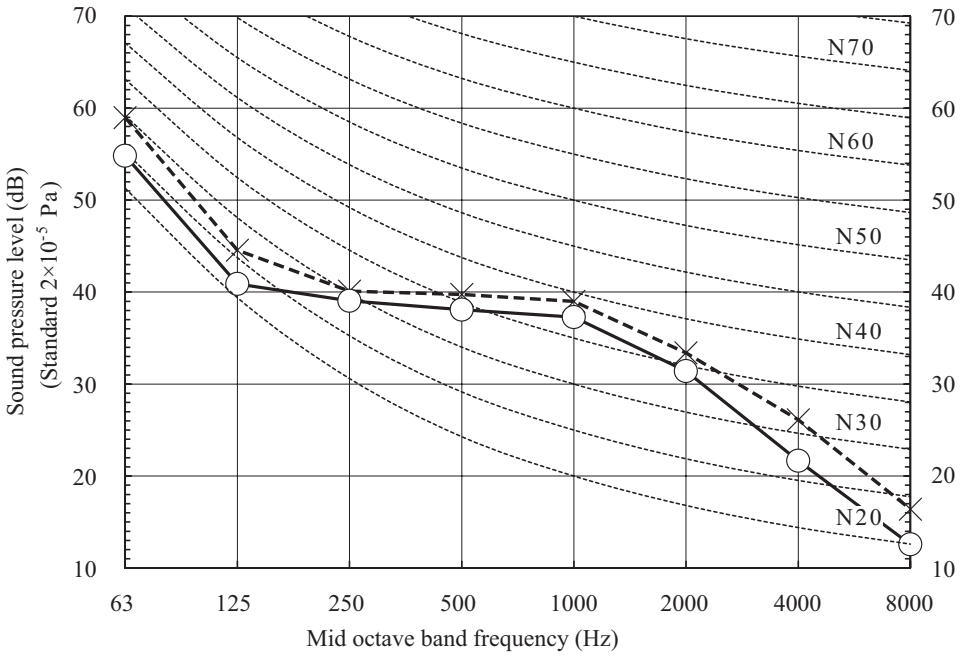
Noise Level	Cooling	43 dB(A)
	Heating	41 dB(A)

Condition	ISO5151 T1/H1

●Mike position



× ····· Cooling, ○ —— Heating



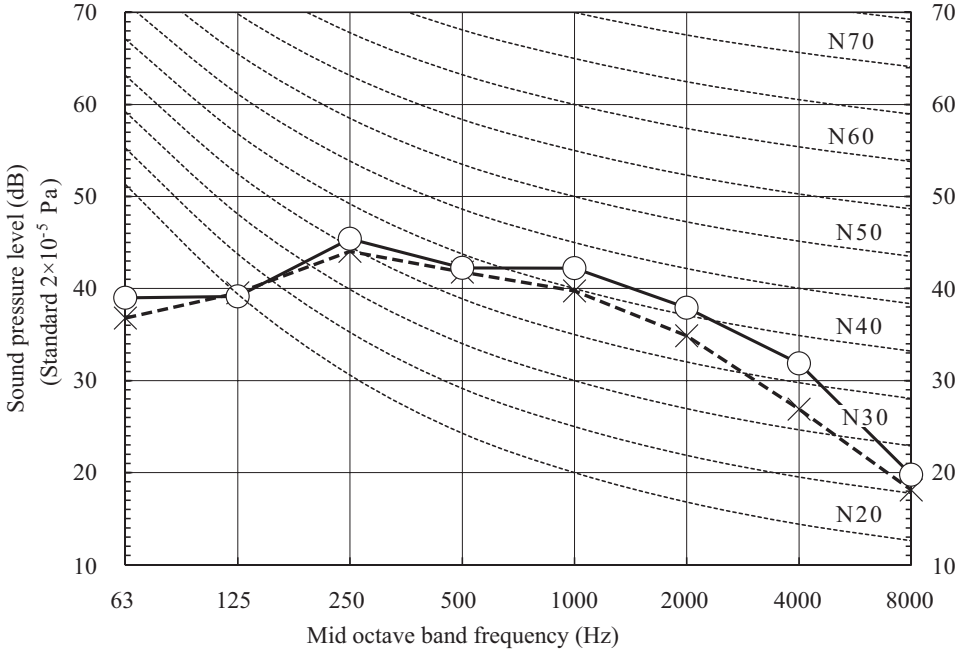
Models SRK50ZSX-S, SRK50ZSX-W

Noise Level	Cooling	44 dB(A)
	Heating	46 dB(A)

Condition	ISO5151 T1/H1

●Mike position

× ····· Cooling, ○ —— Heating

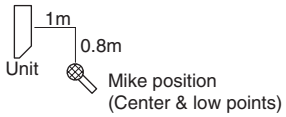


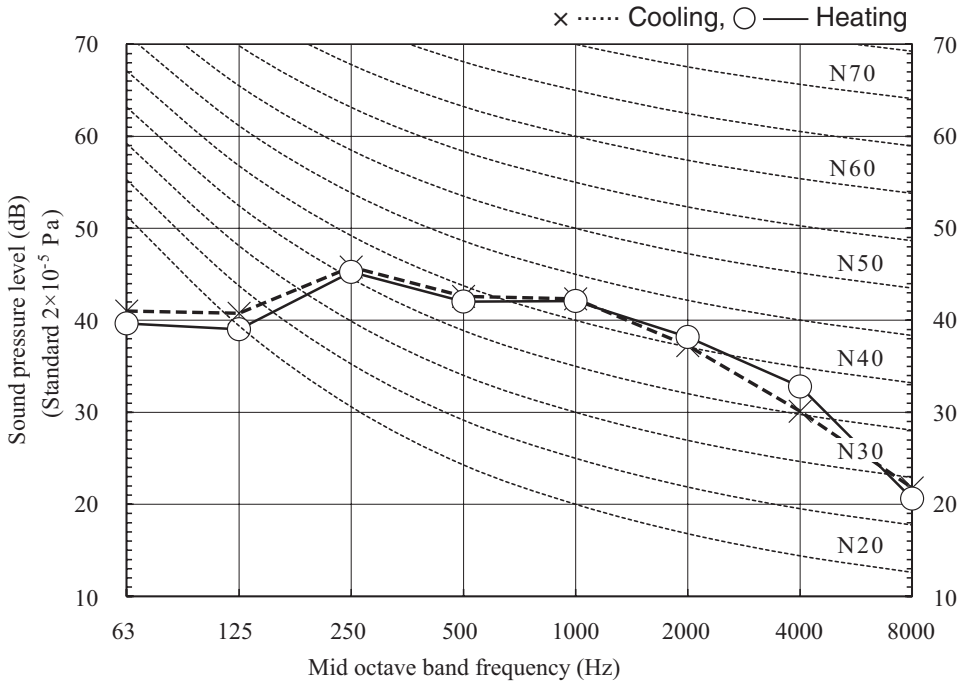
Models SRK60ZSX-S, SRK60ZSX-W

Noise Level	Cooling	46 dB(A)
	Heating	46 dB(A)

Condition	ISO5151 T1/H1

●Mike position



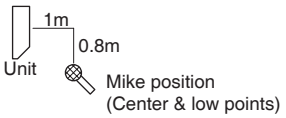


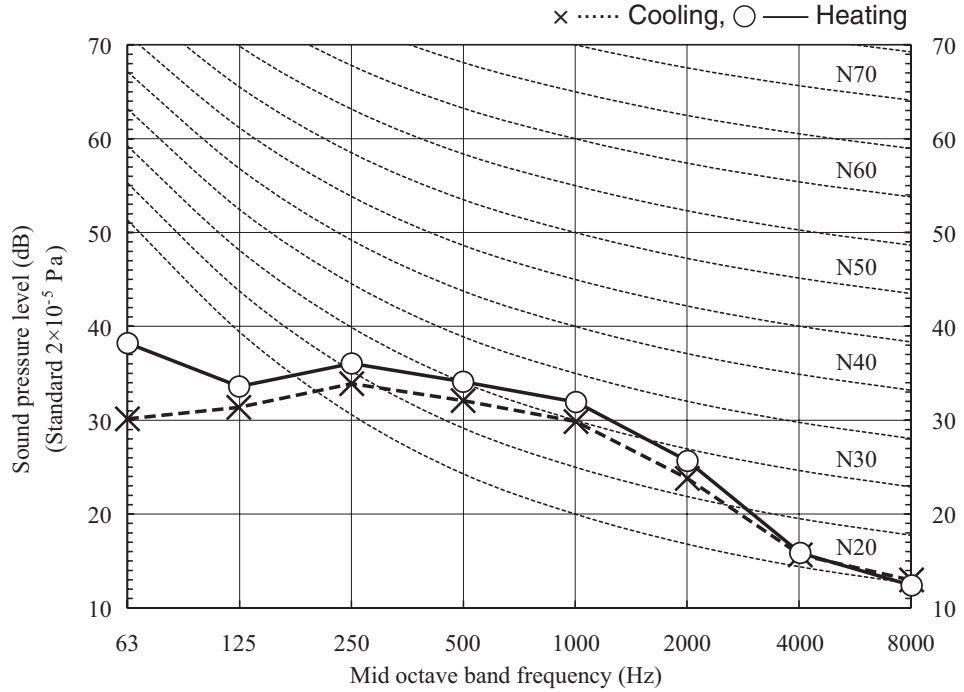
Models SRK20ZS-S, SRK20ZS-W

Noise Level	Cooling	34 dB(A)
	Heating	36 dB(A)

Condition	ISO5151 T1/H1

●Mike position



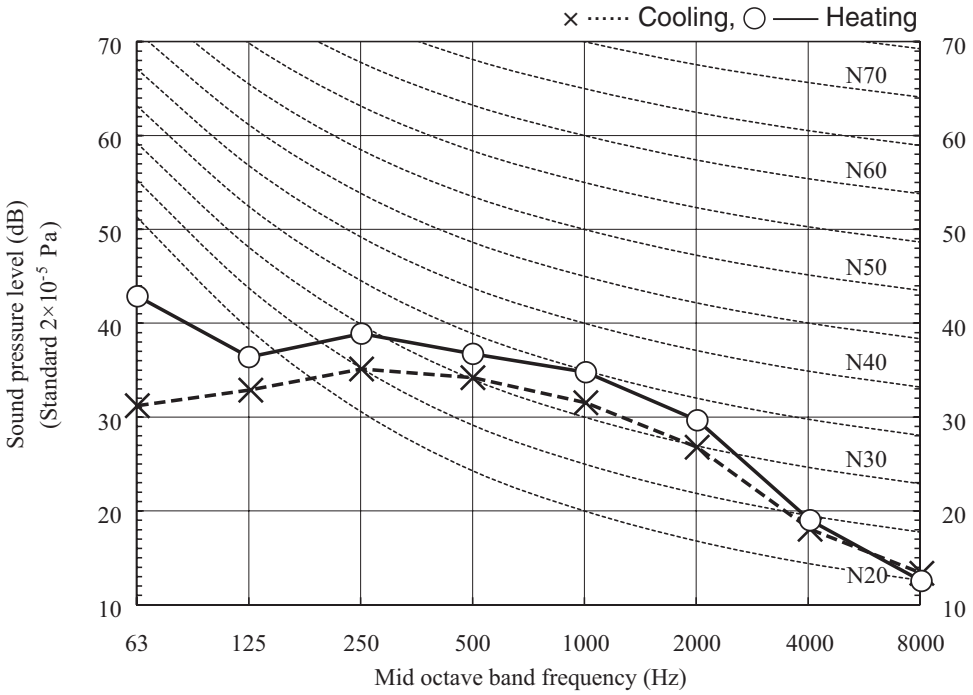


Models SRK25ZS-S, SRK25ZS-W

Noise Level	Cooling	36 dB(A)
	Heating	39 dB(A)

Condition	ISO5151 T1/H1

●Mike position

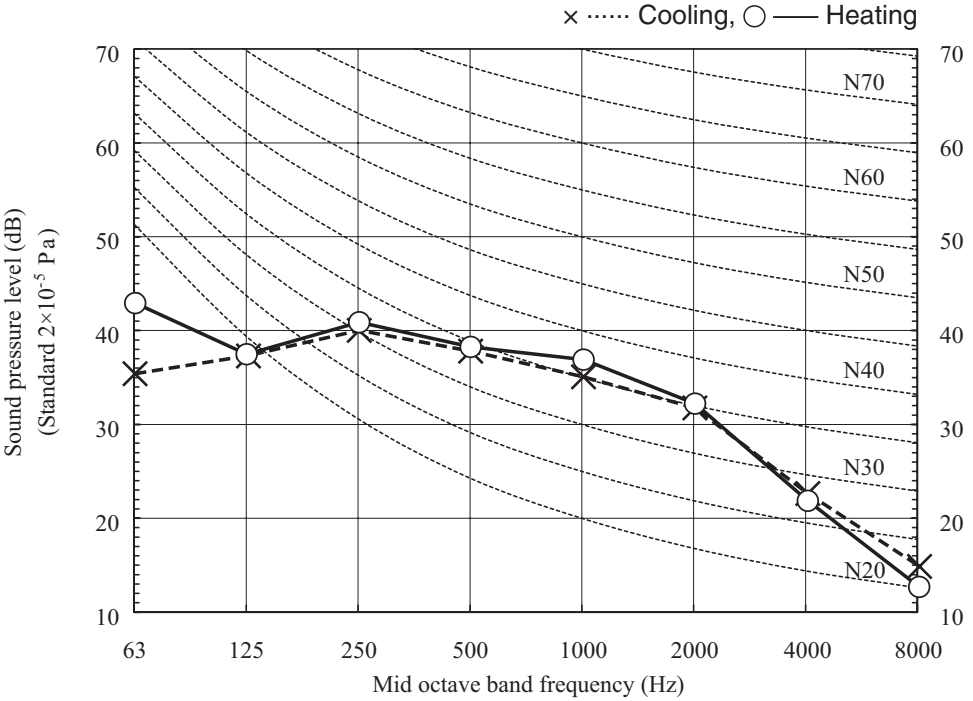


Models SRK35ZS-S, SRK35ZS-W

Noise Level	Cooling	40 dB(A)
	Heating	41 dB(A)

Condition	ISO5151 T1/H1

●Mike position

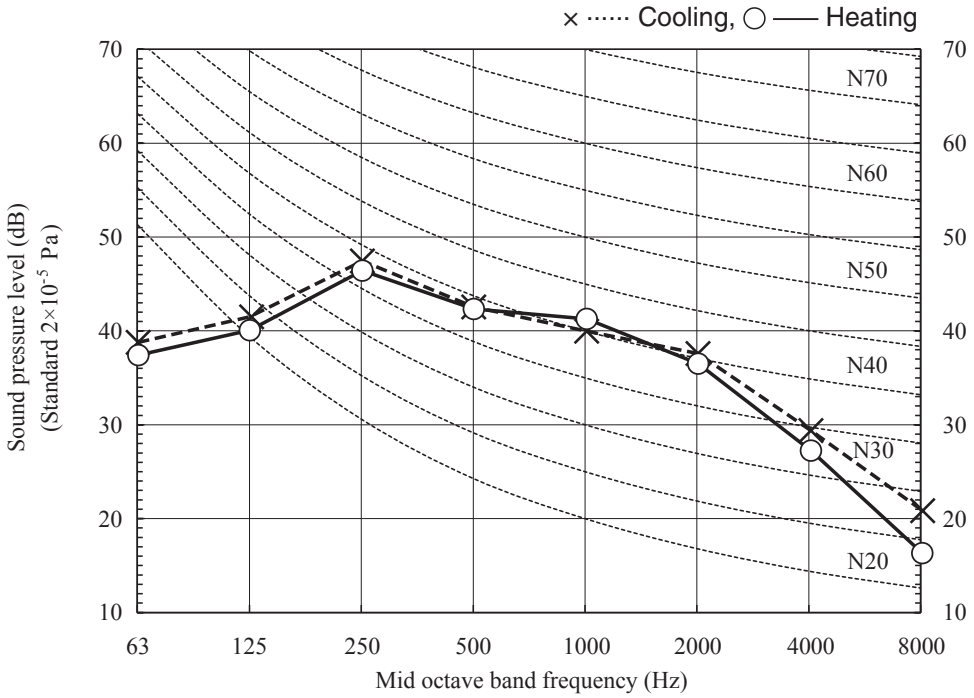


Models SRK50ZS-S, SRK50ZS-W

Noise Level	Cooling	45 dB(A)
	Heating	45 dB(A)

Condition	ISO5151 T1/H1

●Mike position

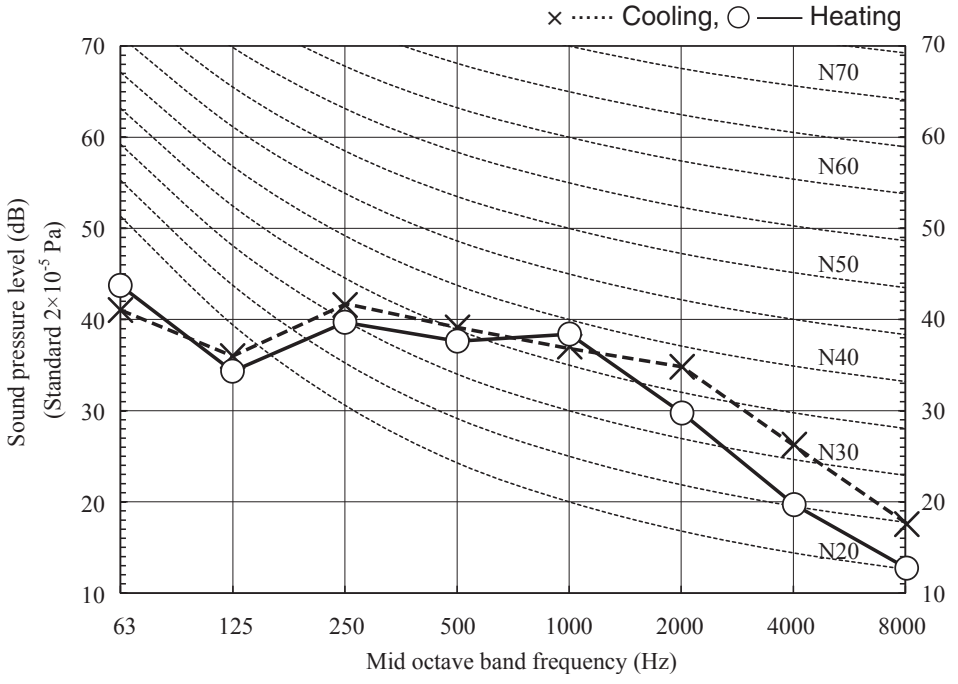


Model SKM20ZSP-S

Noise Level	Cooling	42 dB(A)
	Heating	41 dB(A)

Condition	ISO5151 T1/H1

●Mike position

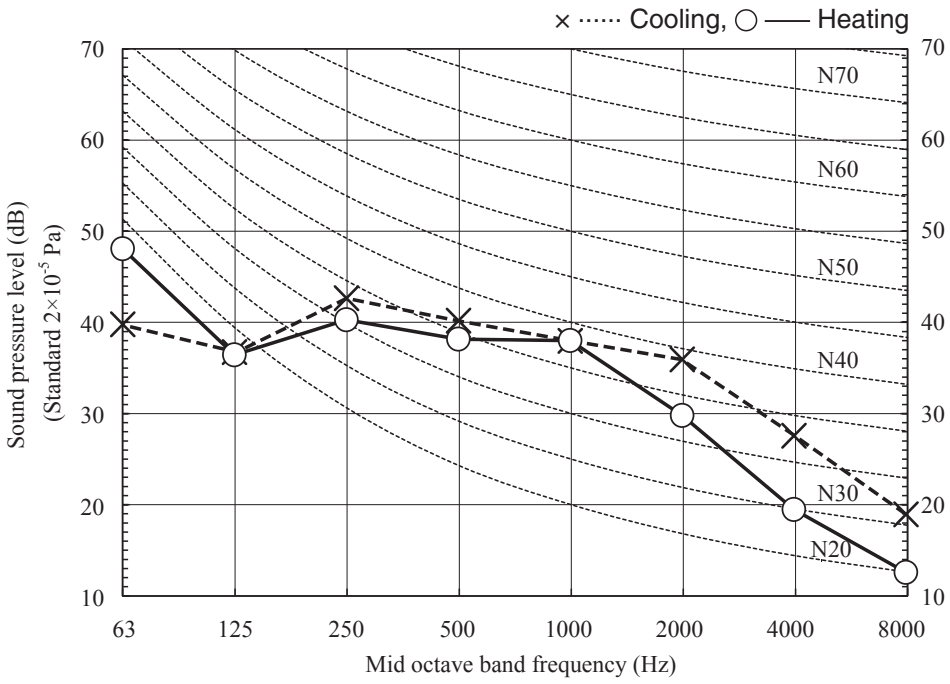


Model SKM25ZSP-S

Noise Level	Cooling	43 dB(A)
	Heating	41 dB(A)

Condition	ISO5151 T1/H1

●Mike position

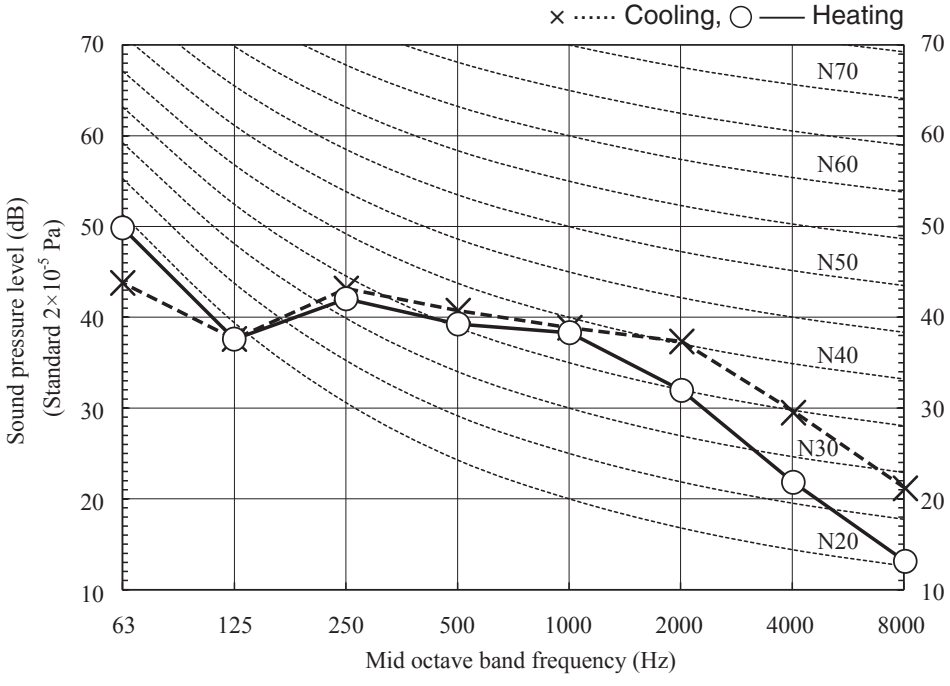


Model SKM35ZSP-S

Noise Level	Cooling	44 dB(A)
	Heating	42 dB(A)

Condition	ISO5151 T1/H1

●Mike position



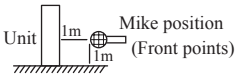
(2) Floor standing type (SRF)

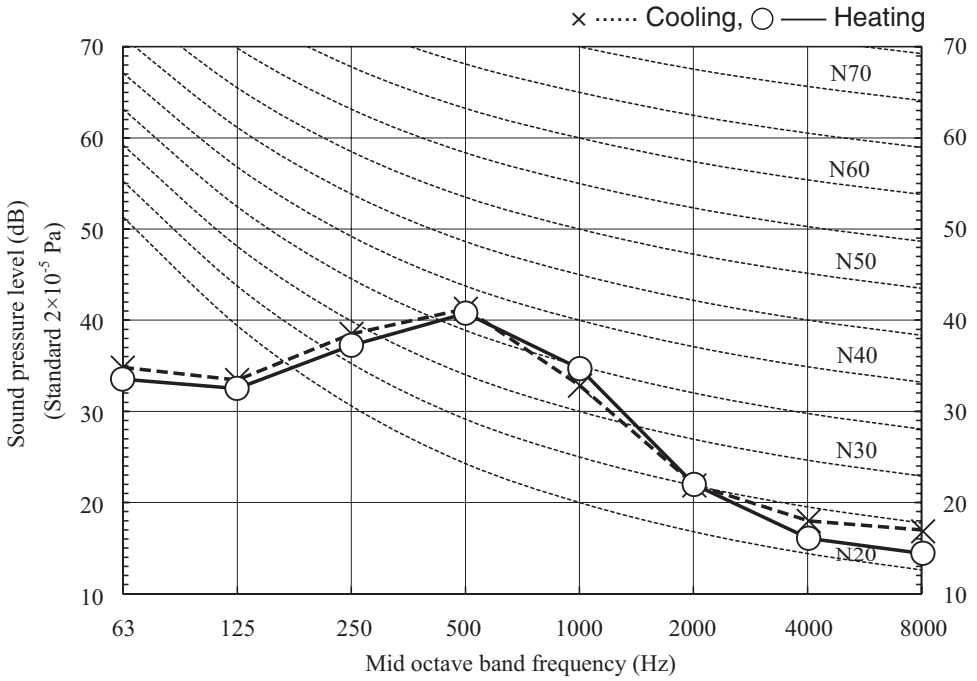
Model SRF25ZMX-S

Noise Level	Cooling	40 dB(A)
	Heating	40 dB(A)

Condition	ISO-T1, JIS C 9612

●Mike position



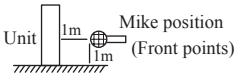


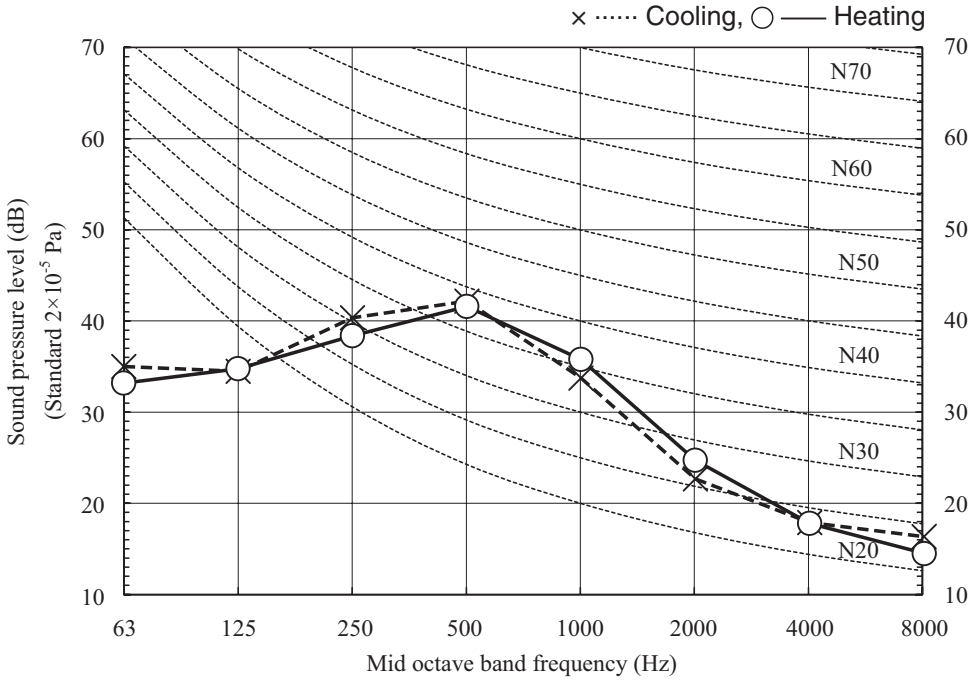
Model SRF35ZMX-S

Noise Level	Cooling	41 dB(A)
	Heating	41 dB(A)

Condition	ISO-T1, JIS C 9612

●Mike position



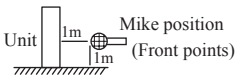


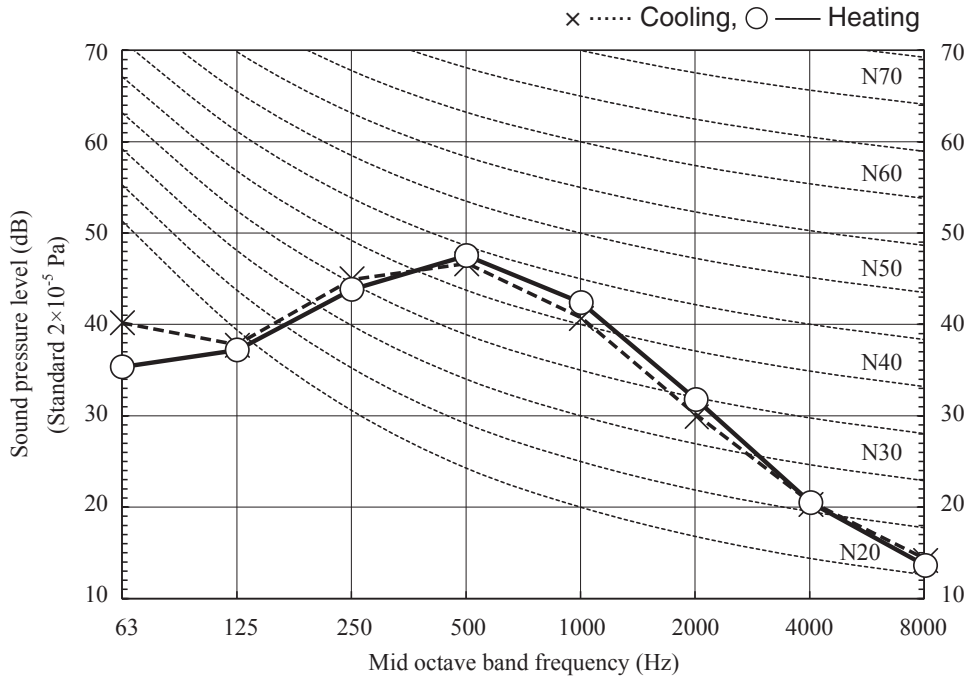
Model SRF50ZMX-S

Noise Level	Cooling	46 dB(A)
	Heating	47 dB(A)

Condition	ISO-T1, JIS C 9612

●Mike position





(3) Ceiling concealed type (SRR)

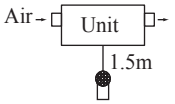
Model SRR25ZM-S

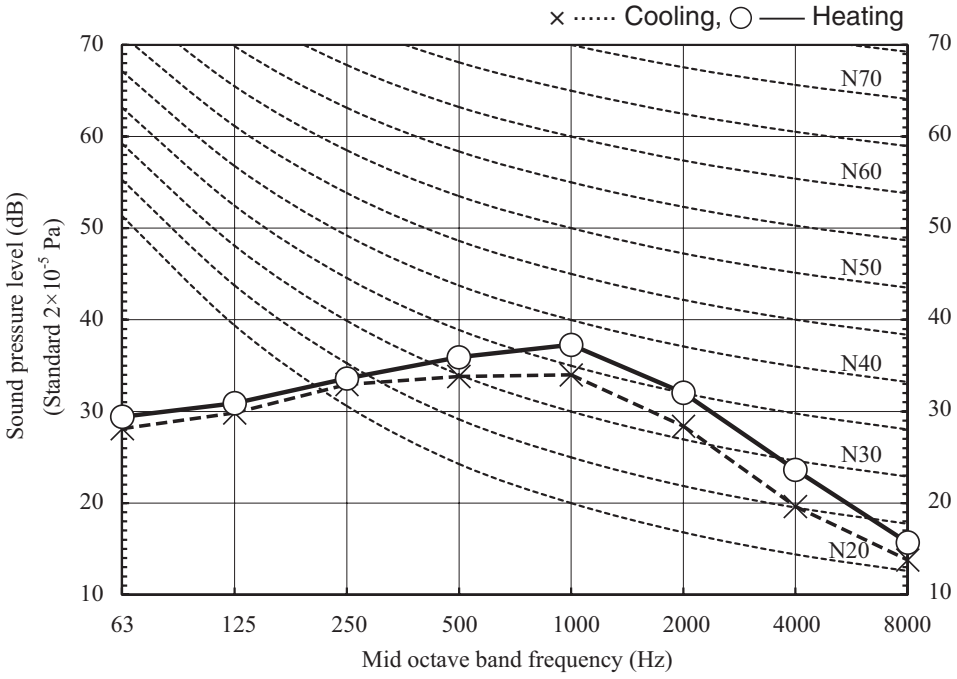
• Sound pressure level ①

Noise Level	Cooling	37 dB(A)
	Heating	40 dB(A)

Condition	ISO5151-1T1, JIS C 9612

●Mike position



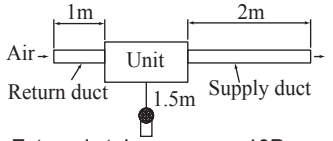


• **Sound pressure level ②**

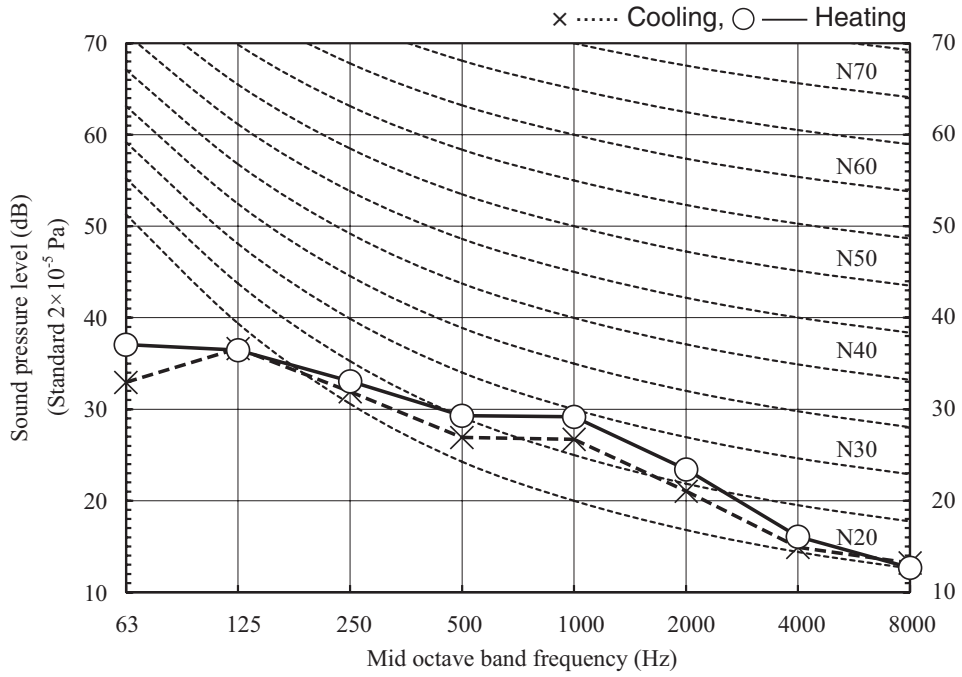
Noise Level	Cooling	31 dB(A)
	Heating	33 dB(A)

Condition	ISO5151-T1, JIS C 9612

●Mike position



External staic pressure : 10Pa

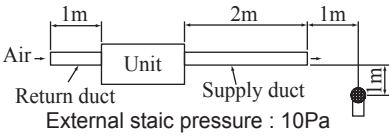


• **Sound pressure level ③**

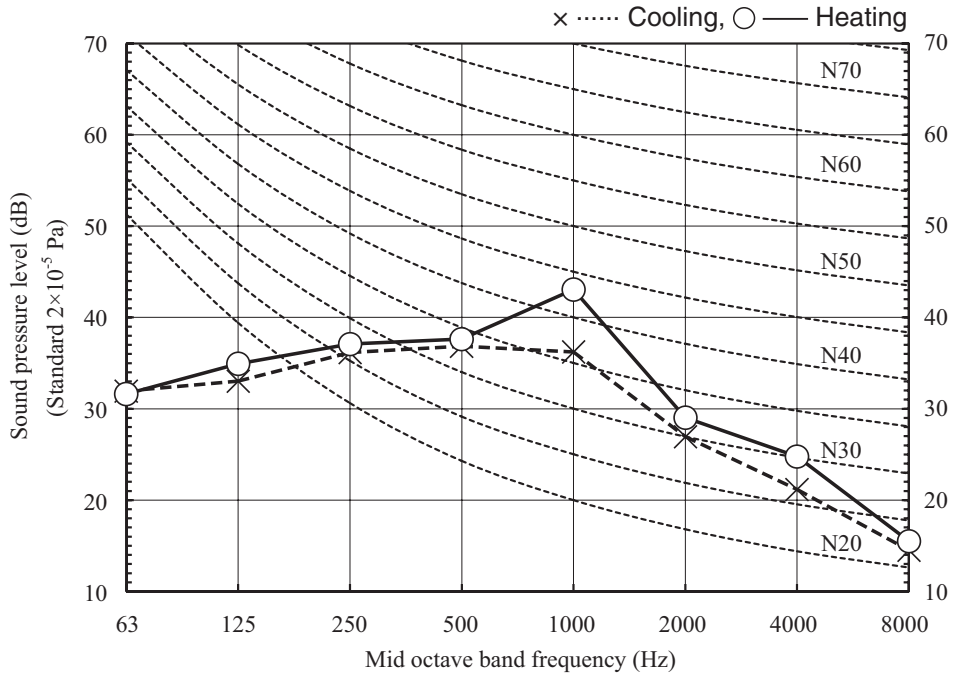
Noise Level	Cooling	39 dB(A)
	Heating	40 dB(A)

Condition	ISO5151-T1, JIS C 9612

●Mike position



External staic pressure : 10Pa



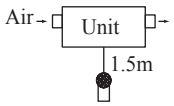
Model SRR35ZM-S

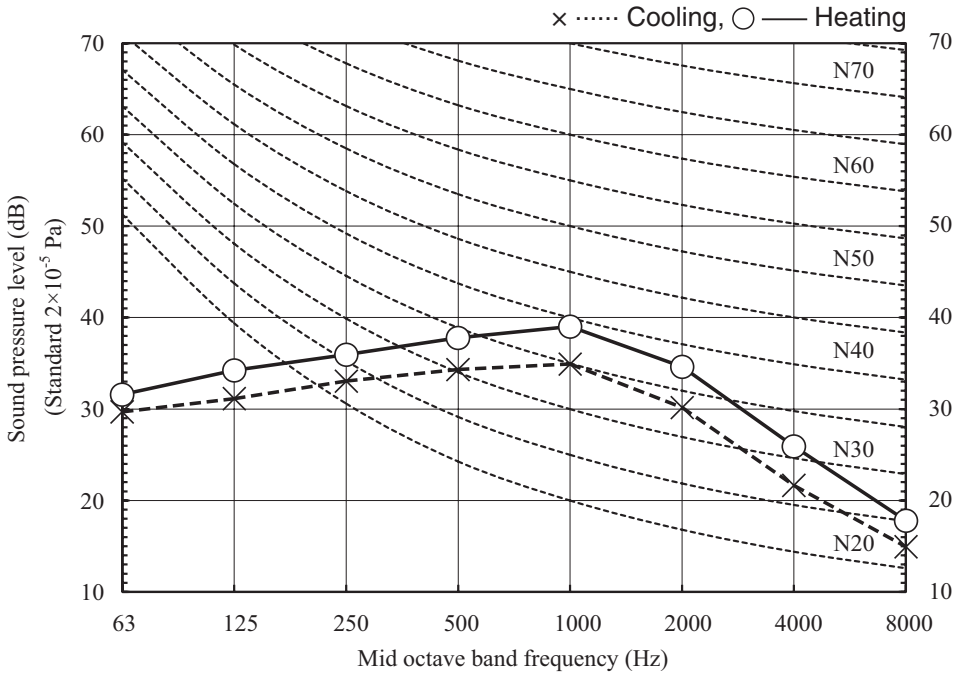
• Sound pressure level ①

Noise Level	Cooling	38 dB(A)
	Heating	42 dB(A)

Condition	ISO5151-T1, JIS C 9612

●Mike position



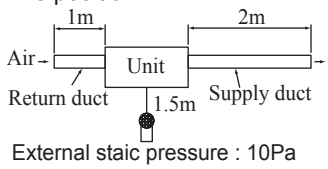


• Sound pressure level ②

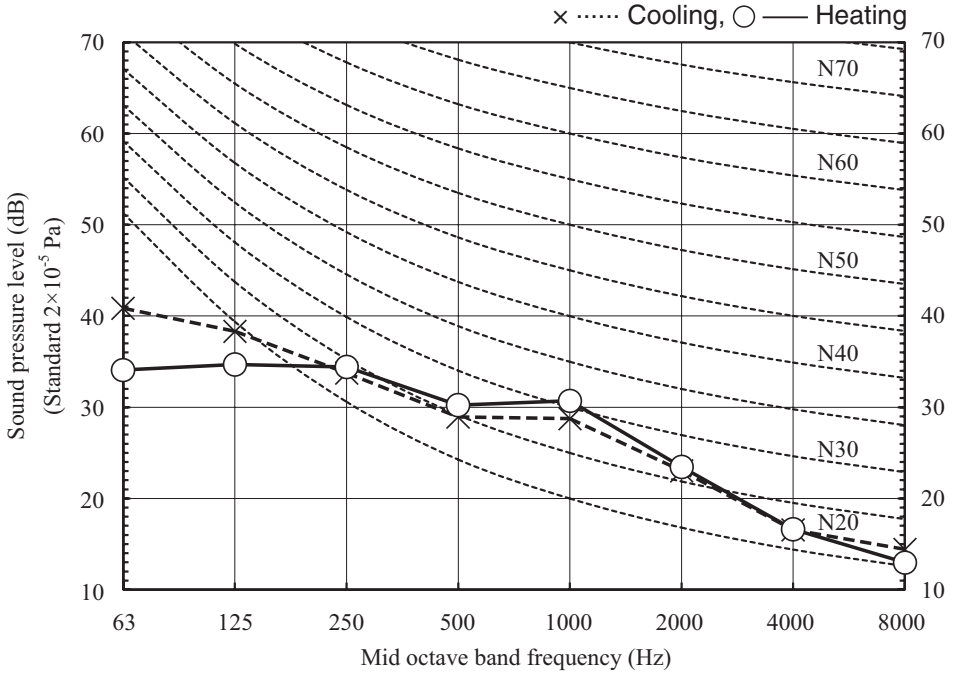
Noise Level	Cooling	33 dB(A)
	Heating	34 dB(A)

Condition	ISO5151-T1, JIS C 9612

●Mike position



External staic pressure : 10Pa

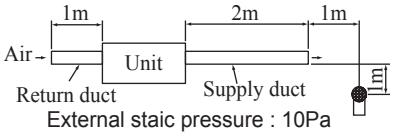


• Sound pressure level ③

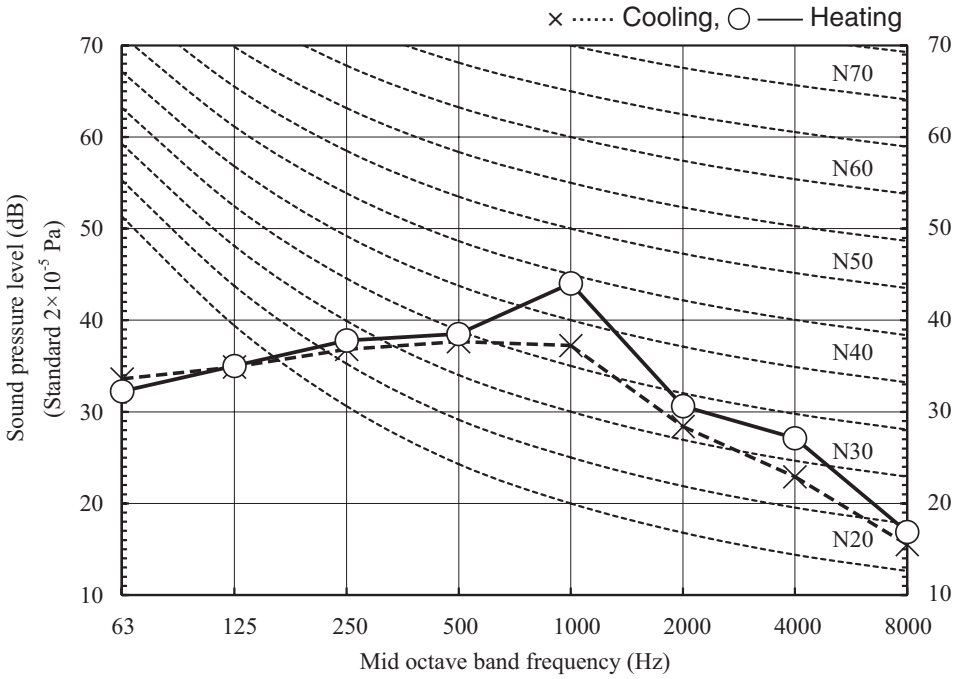
Noise Level	Cooling	40 dB(A)
	Heating	45 dB(A)

Condition	ISO5151-T1, JIS C 9612

●Mike position



External staic pressure : 10Pa



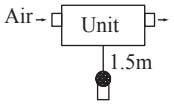
Model SRR50ZM-S

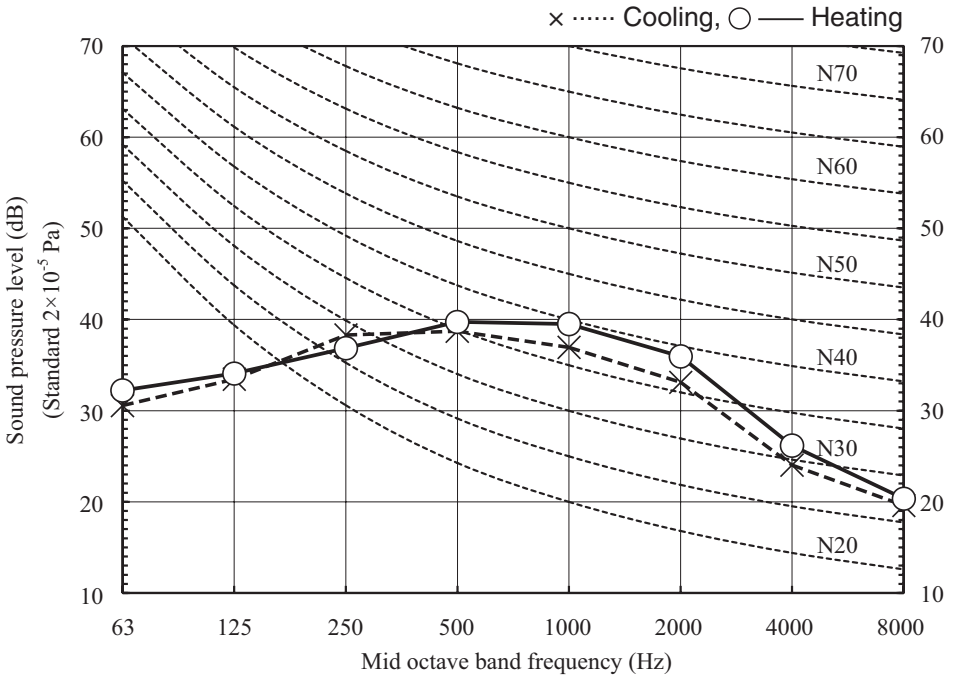
• Sound pressure level ①

Noise Level	Cooling	41 dB(A)
	Heating	43 dB(A)

Condition	ISO5151-T1, JIS C 9612

●Mike position



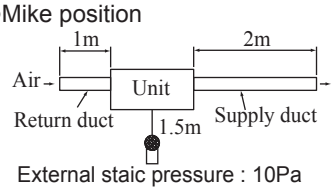


• **Sound pressure level ②**

Noise Level	Cooling	35 dB(A)
	Heating	38 dB(A)

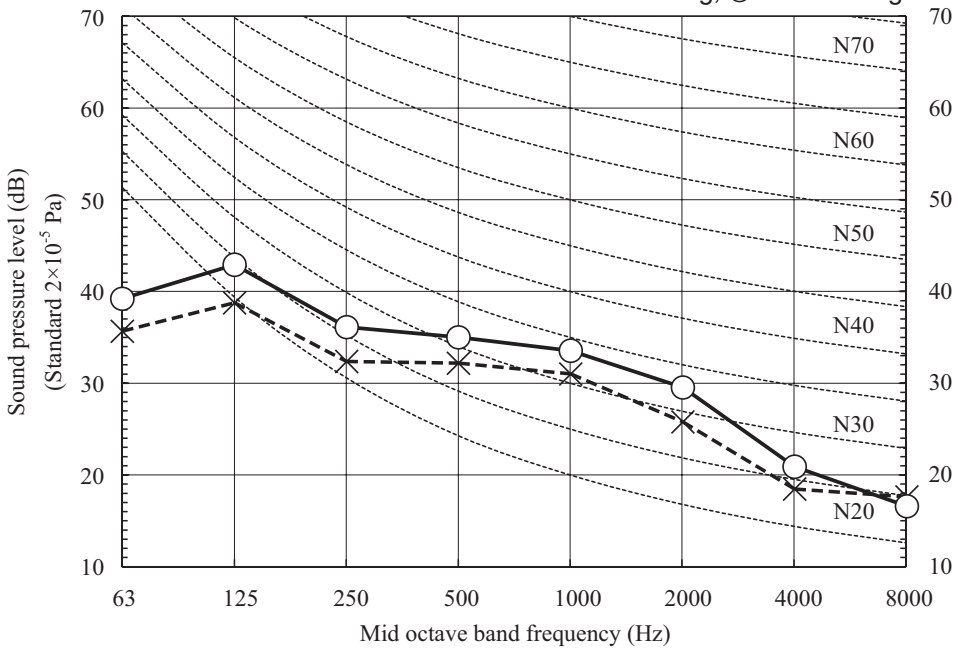
Condition	ISO5151-T1, JIS C 9612

●Mike position



External staic pressure : 10Pa

× ····· Cooling, ○ —— Heating

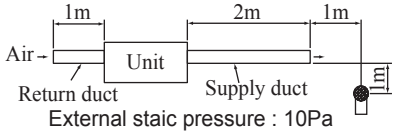


• **Sound pressure level ③**

Noise Level	Cooling	41 dB(A)
	Heating	46 dB(A)

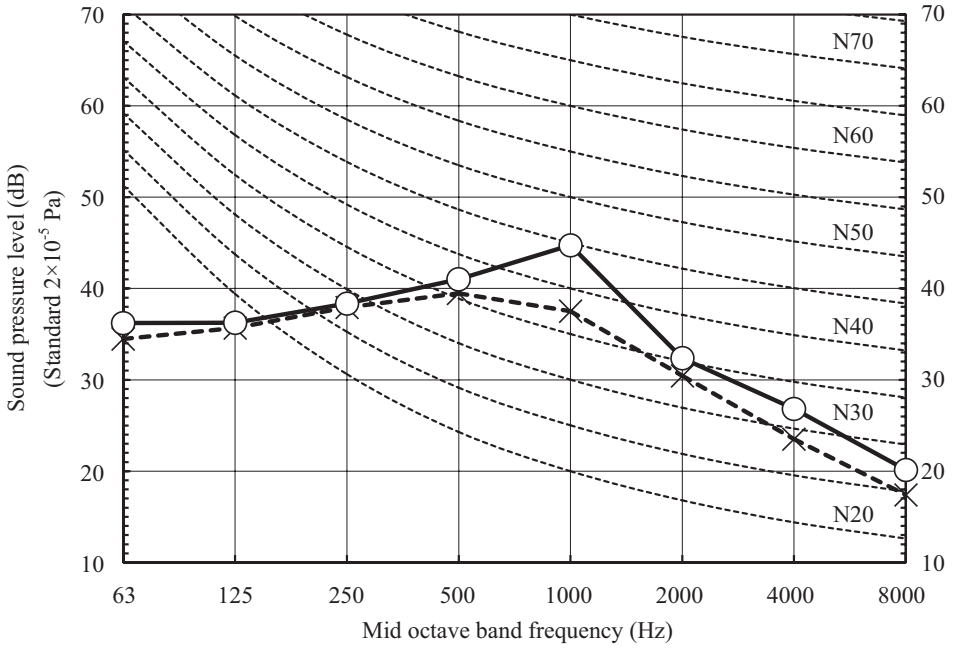
Condition	ISO5151-T1, JIS C 9612

●Mike position



External staic pressure : 10Pa

× ····· Cooling, ○ —— Heating



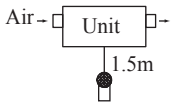
Model SRR60ZM-S

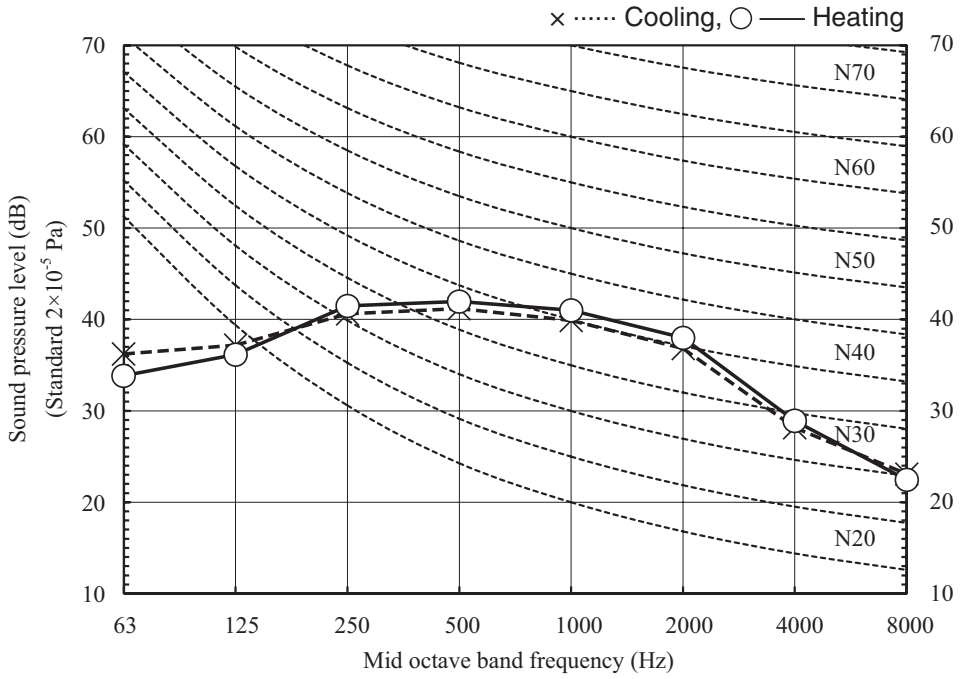
• Sound pressure level ①

Noise Level	Cooling	44 dB(A)
	Heating	45 dB(A)

Condition	ISO5151-T1, JIS C 9612

●Mike position



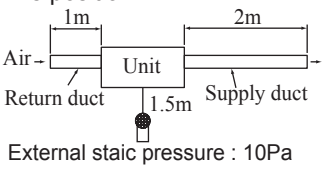


• Sound pressure level ②

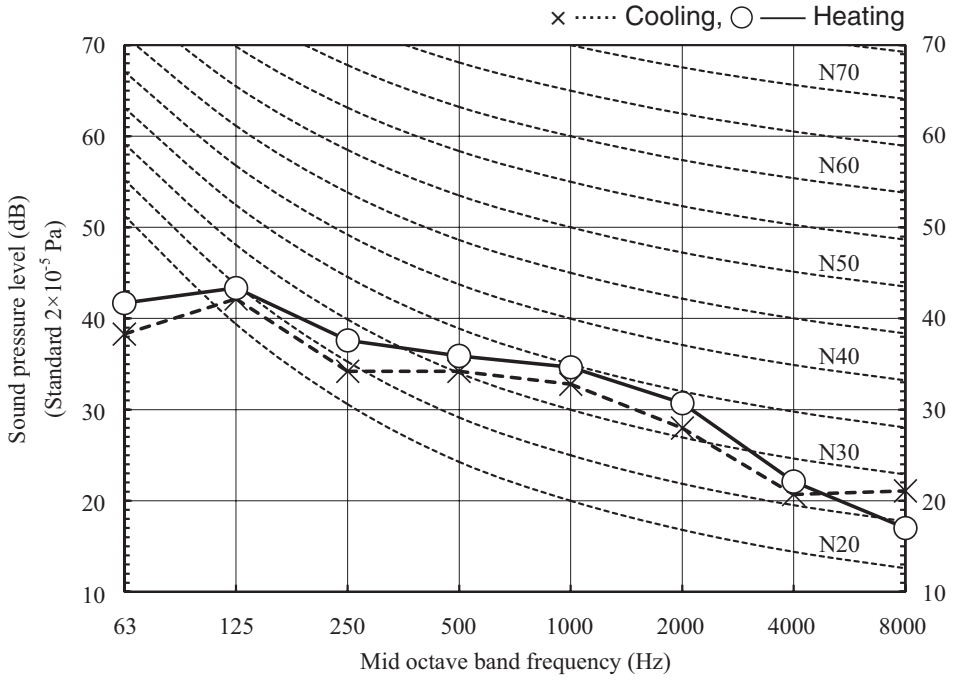
Noise Level	Cooling	37 dB(A)
	Heating	39 dB(A)

Condition	ISO5151-T1, JIS C 9612

●Mike position



External staic pressure : 10Pa

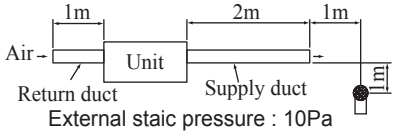


• **Sound pressure level** ③

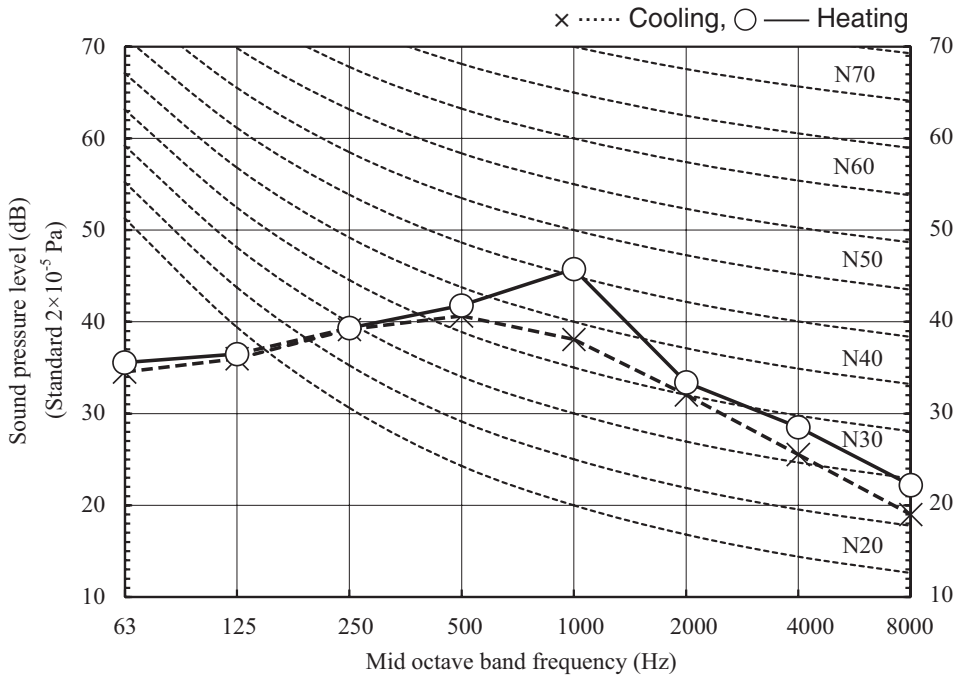
Noise Level	Cooling	42 dB(A)
	Heating	47 dB(A)

Condition	ISO5151-T1, JIS C 9612

●Mike position



External staic pressure : 10Pa

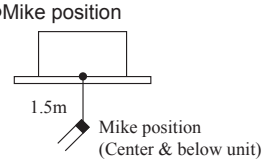


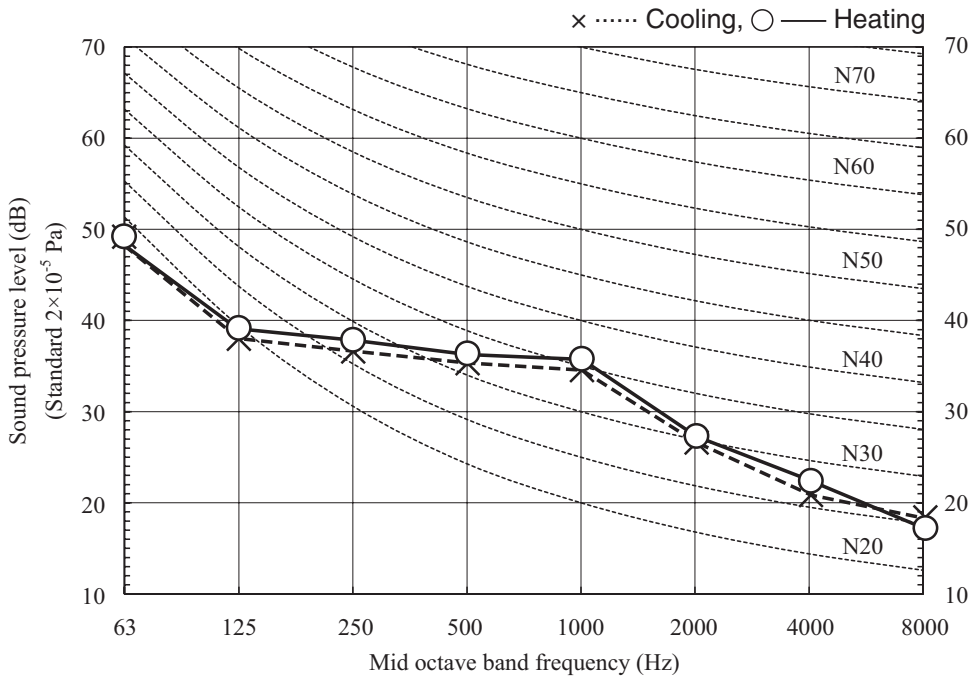
(4) 4-way ceiling cassette type (FDTC)
Model FDTC25VF

Noise Level	Cooling	38 dB(A)
	Heating	39 dB(A)

Condition	ISO-T1, JIS C 9612

●Mike position

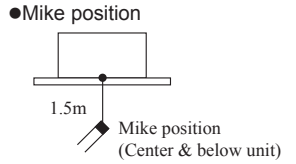


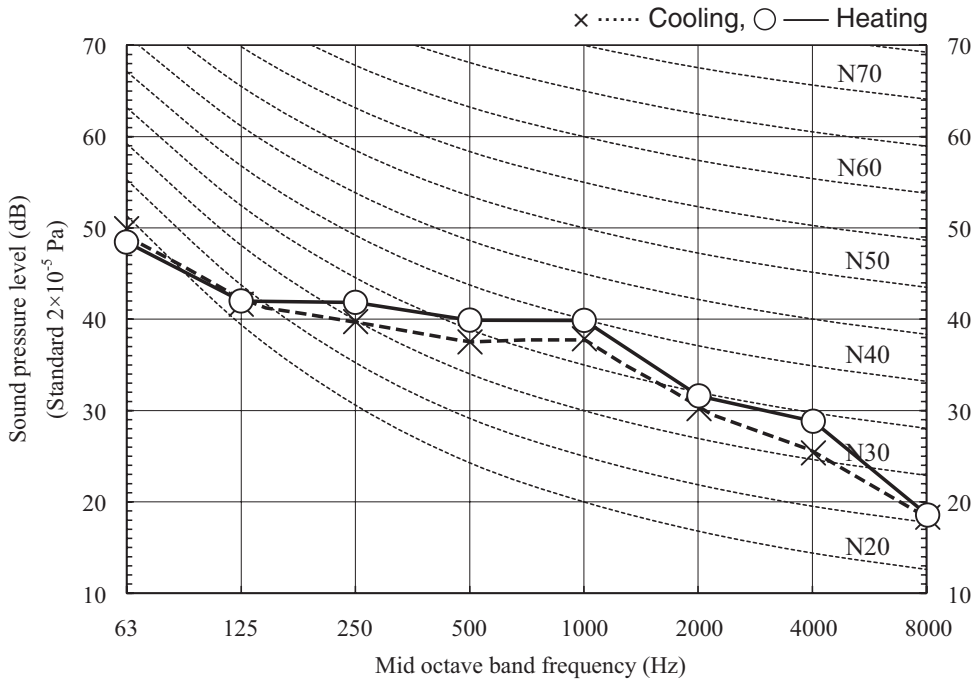


Model FDTC35VF

Noise Level	Cooling	41 dB(A)
	Heating	43 dB(A)

Condition	ISO-T1, JIS C 9612

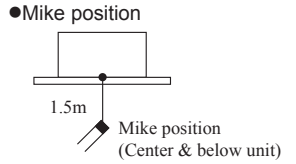


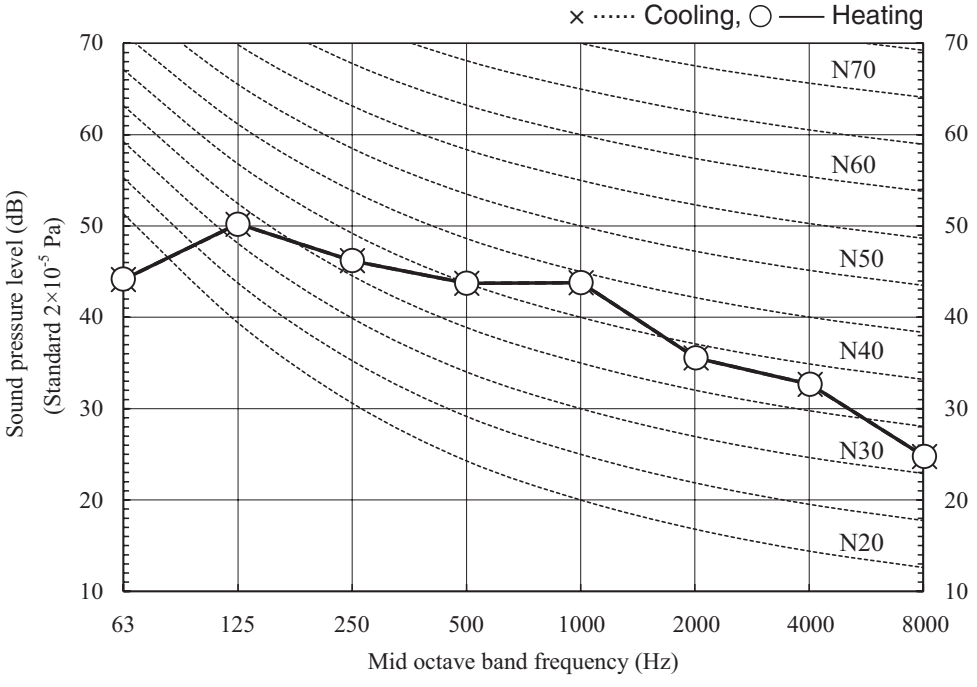


Model FDTC50VF

Noise Level	Cooling	47 dB(A)
	Heating	47 dB(A)

Condition	ISO-T1, JIS B 8616

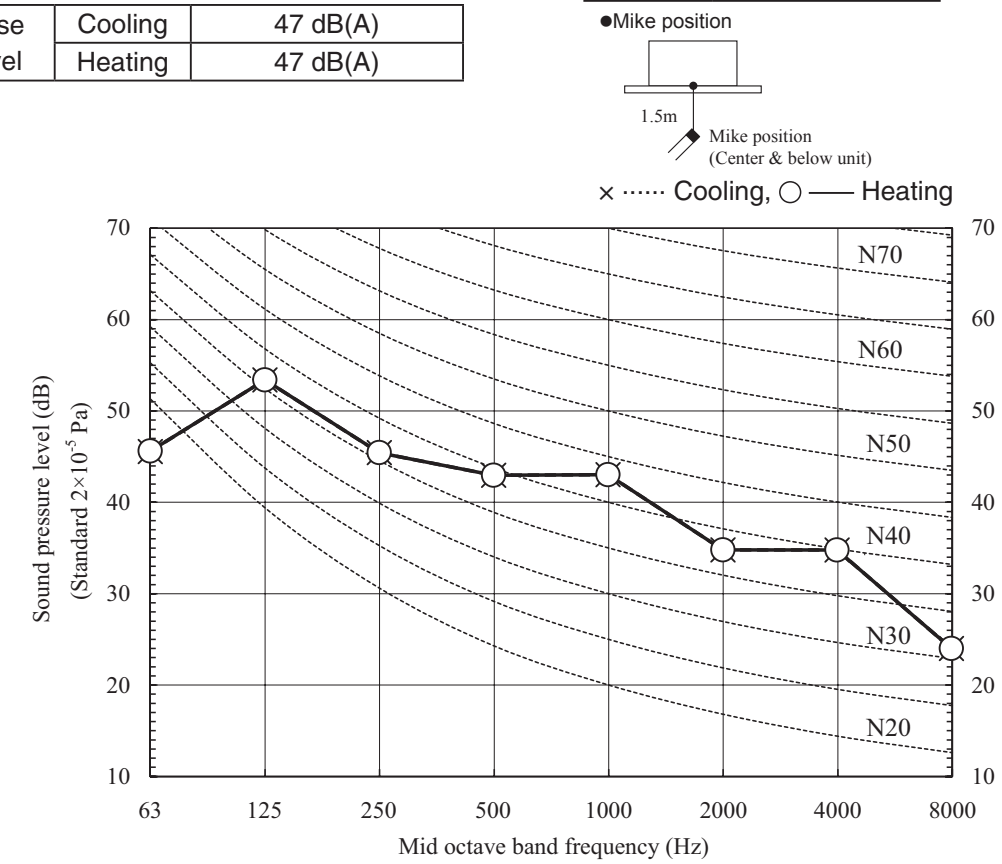




Model FDTC60VF

Noise Level	Cooling	47 dB(A)
	Heating	47 dB(A)

Condition	ISO-T1, JIS B 8616

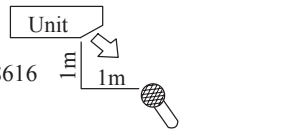


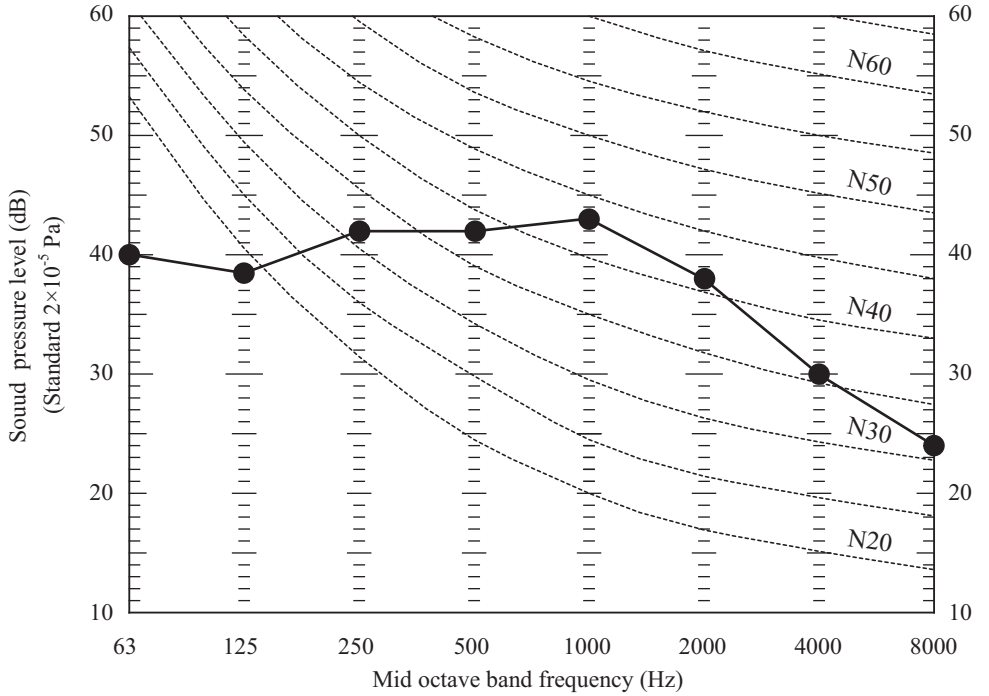
(5) Ceiling suspended type (FDE)

Model FDE50VG

Noise level 46 dB (A) at P-HIGH
38 dB (A) at HIGH
36 dB (A) at MEDIUM
31 dB (A) at LOW

Measured based on JIS B 8616
Mike position



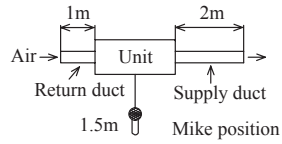


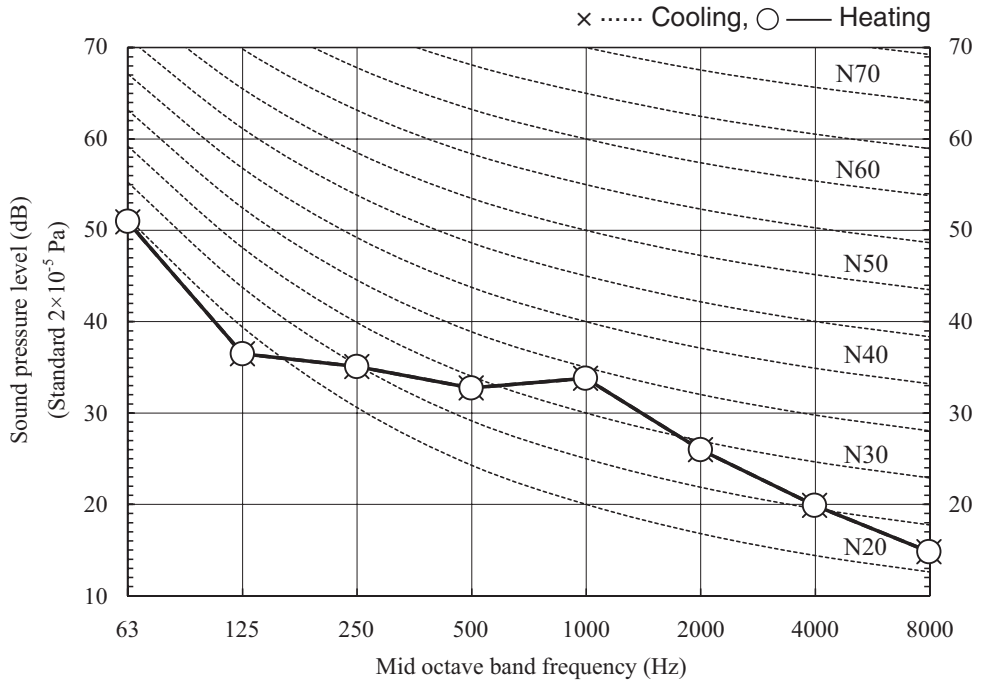
(6) Duct connected Low/Middle static pressure type (FDUM)
Model FDUM50VF

Noise Level	Cooling	37 dB(A)
	Heating	37 dB(A)

Condition	ISO-T1, JIS B 8616

●Mike position



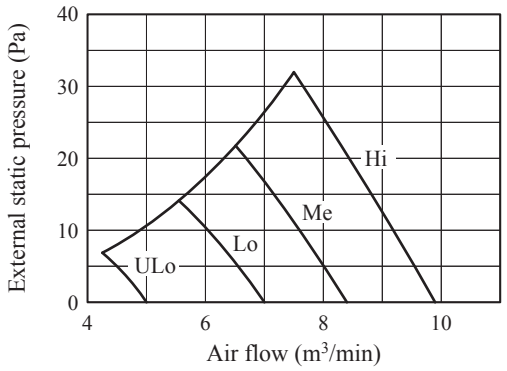


2.5 Characteristics of fan

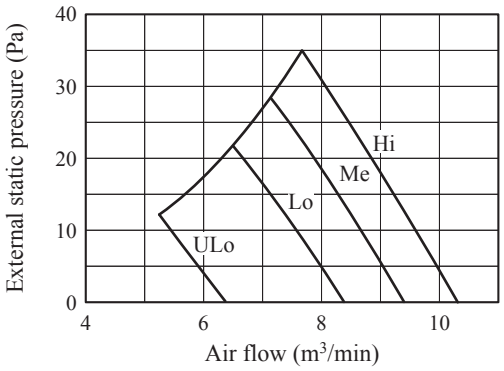
(1) Ceiling concealed type (SRR)

Model SRR25ZM-S

Cooling

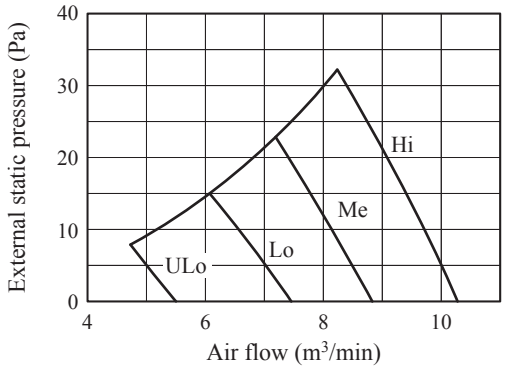


Heating

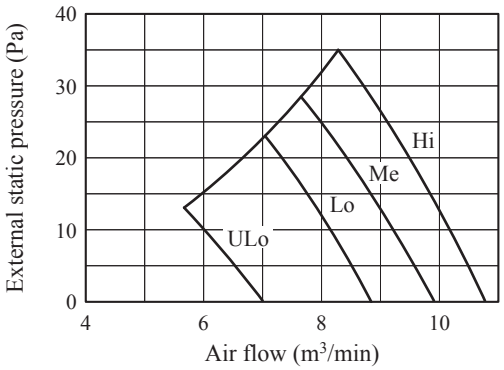


Model SRR35ZM-S

Cooling

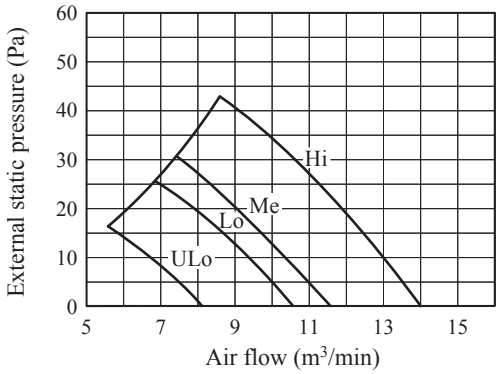


Heating

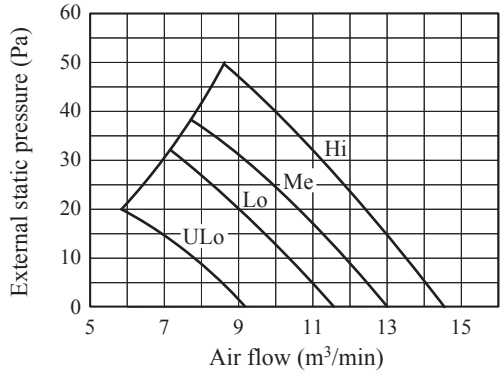


Model SRR50ZM-S

Cooling

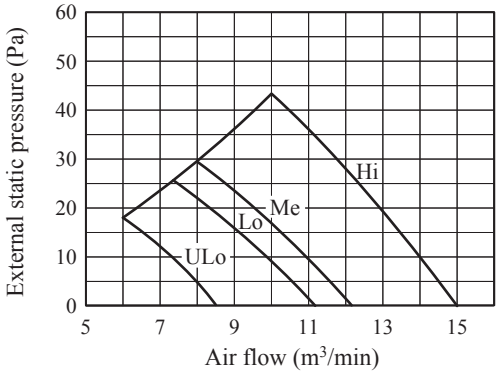


Heating

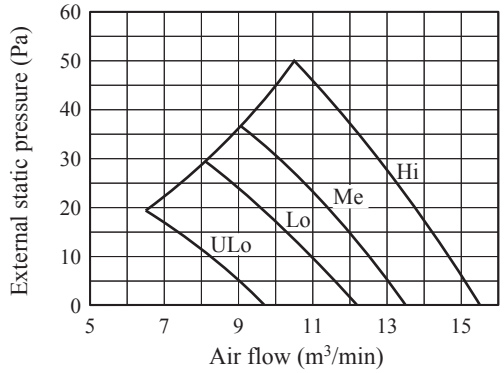


Model SRR60ZM-S

Cooling



Heating

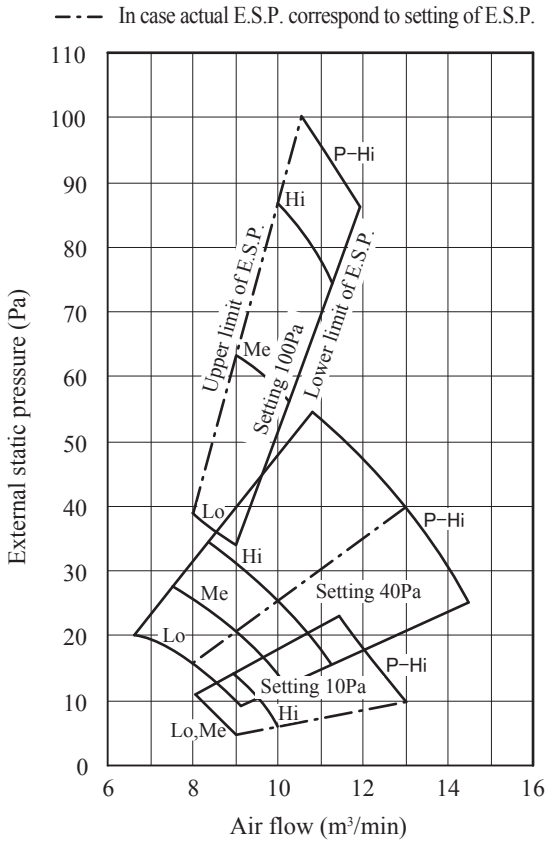


(2) Duct connected Low/Middle static pressure type (FDUM)

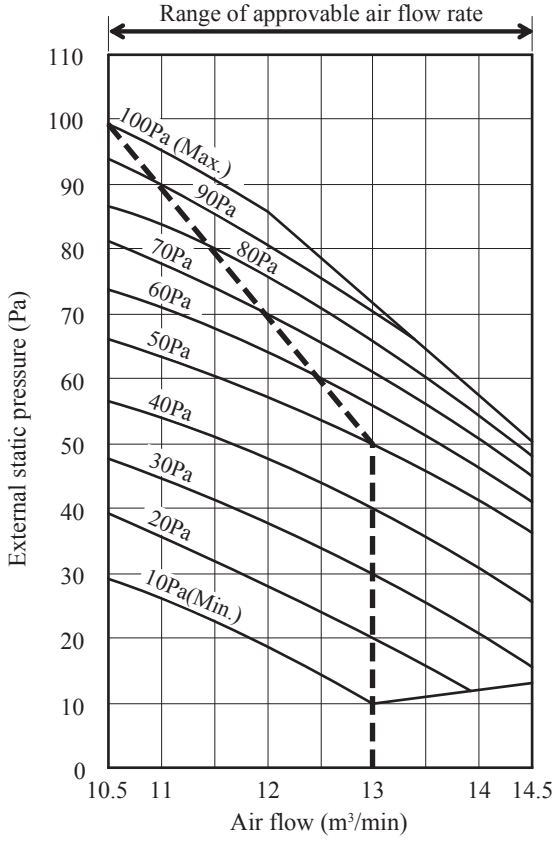
- Characteristic FAN (1) shows air flow vs. External Static Pressure (E.S.P.) range where settings of E.S.P. are maximum E.S.P. (100Pa) , rated E.S.P., and minimum E.S.P. (10Pa).
- Characteristic FAN (2) shows air flow vs. E.S.P. curve when set fan tap is set P-Hi with each setting of E.S.P. by wired remote control.
- External Static Pressure (E.S.P.) can be set by wired remote control.
- You can set required E.S.P. by wired remote control which calculate it with the set air flow rate and pressure loss of the duct connected.

Model FDUM50VF

Characteristic FAN(1)



Characteristic FAN(2)



2.6 Application data

RLF012A202B△C

Model SRK20,25,35,50,60ZSX
R32/R410A REFRIGERANT USED

(1) Wall mounted type (SRK)

(a) Models SRK20ZSX, 25ZSX, 35ZSX, 50ZSX, 60ZSX

• This installation manual deals with an indoor unit installation only. For an outdoor unit installation, refer to page 14.
• This unit is designed for R32 or R410A. See a label on the outdoor unit to check refrigerant information.

SAFETY PRECAUTIONS

• Before installation, read the "SAFETY PRECAUTIONS" carefully and strictly follow it during the installation work in order to protect yourself.
• The precautionary items mentioned below are distinguished into two levels, ⚠ WARNING and ⚠ CAUTION .

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, can result in serious consequences such as death or severe injury.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, can result in personal injury or property damage.

Both mention the important items to protect your health and safety. Therefore, strictly follow them by any means.

• Be sure to confirm no operation problem on the equipment after completing the installation. If unusual noise can be heard during the test run, consult the dealer.
• Be sure to explain the operating methods as well as the maintenance methods of this equipment to the user according to the user's manual.
• Be sure to keep the installation manual together with user's manual at a place where it is easily accessible to the user any time. Moreover, ask the user to hand the manuals to a new user, whenever required.

⚠ WARNING

- **Be sure to use only for residential purpose.**
  If this unit is installed in inferior environment such as machine shop, vehicle (like ship), warehouse, etc., it can malfunction.
- **Installation must be carried out by the qualified installer completely in accordance with the installation manual.**
  Installation by non qualified person or incorrect installation can cause serious troubles such as water leak, electric shock, fire and personal injury.
- **Be sure to wear protective goggles and gloves while performing installation work.**
  Improper safety measures can result in personal injury.
- **Use the original accessories and the specified components for the installation.**
  Using parts other than those prescribed may cause water leak, electric shock, fire and personal injury.
- **Do not install the unit near the location where leakage of flammable gases can occur.**
  If leaked gases accumulate around the unit, it can cause fire resulting in property damage and personal injury.
- **When installing the unit in small rooms, make sure that refrigerant density does not exceed the limit (Reference: ISO5149) in the event of leakage.**
  If refrigerant density exceeds the limit, consult the dealer and install the ventilation system.
  Otherwise lack of oxygen can occur resulting in serious accident.
- **Install the unit in a location where unit will remain stable, horizontal and free of any vibration transmission.**
  Unsuitable installation location can cause the unit to fall resulting in material damage and personal injury.
- **Do not run the unit with removed panels or protections.**
  Touching rotating equipments, hot surfaces or high voltage parts can cause personal injury due to entrapment, burn or electric shock.
- **This unit is designed specifically for R32 or R410A.**
  Using any other refrigerant can cause unit failure and personal injury.
- **Do not vent R32 or R410A into atmosphere.**
  R32 is a fluorinated greenhouse gas with a Global Warming Potential(GWP)=675.
  R410A is a fluorinated greenhouse gas with a Global Warming Potential(GWP)=2088.
- **Make sure that no air enters the refrigerant circuit when the unit is installed and removed.**
  If air enters the refrigerant circuit, the pressure in the refrigerant circuit will become too high, which can cause burst and personal injury.
- **Be sure to use the prescribed pipes, flare nuts and tools for R32 or R410A.**
  Using existing parts (for R22 or R407C) can cause refrigerant circuit burst resulting in unit failure and personal injury.
- **Be sure to connect both liquid and gas connecting pipes properly before operating the compressor.**
  Do not open the liquid and gas service valves before completing piping work, and evacuation.
  If the compressor is operated when connecting pipes are not connected and service valves are open, air can be sucked into the refrigerant circuit which can cause anomalous high pressure resulting in burst or personal injury.
- **Be sure to tighten the flare nuts to specified torque using the torque wrench.**
  Tightening flare nuts with excess torque can cause burst and refrigerant leakage after a long period.
- **During pump down work, be sure to stop the compressor before closing service valves and removing connecting pipes.**
  If the connecting pipes are removed when the compressor is in operation and service valves are open, air can be sucked into the refrigerant circuit which can cause anomalous high pressure resulting in burst or personal injury.
- **In the event of refrigerant leakage during installation, be sure to ventilate the working area properly.**
  If the refrigerant comes into contact with naked flames, poisonous gases will be produced.
- **Electrical work must be carried out by the qualified electrician, strictly in accordance with national or regional electricity regulations.**
  Incorrect installation can cause electric shock, fire or personal injury.
- **Make sure that earth leakage breaker and circuit breaker of appropriate capacities are installed.**
  Circuit breaker should be able to disconnect all poles under over current. Absence of appropriate breakers can cause electric shock, personal injury or property damage.
- **Be sure to switch off the power source in the event of installation, maintenance or service.**
  If the power source is not switched off, there is a risk of electric shock, unit failure or personal injury.
- **Be sure to tighten the cables securely in terminal block and relieve the cables properly to prevent overloading the terminal blocks.**
  Loose connections or cable mountings can cause anomalous heat production or fire.
- **Do not process, splice or modify the power cable, or share the socket with other power plugs.**
  Improper power cable or power plug can cause fire or electric shock due to poor connection, insufficient insulation or over-current.
- **Do not perform any change in protective device or its setup condition yourself.**
  Changing protective device specifications can cause electric shock, fire or burst.
- **Be sure to clamp the cables properly so that they do not touch any internal component of the unit.**
  If cables touch any internal component, it can cause overheating and fire.
- **Be sure to install service cover properly.**
  Improper installation can cause electric shock or fire due to intrusion of dust or water.
- **Be sure to use the prescribed power and connecting cables for electrical work.**
  Using improper cables can cause electric leak or fire.
- **This appliance must be connected to main power source by means of a circuit breaker or switch with a contact separation of at least 3mm.**
  Improper electrical work can cause unit failure or personal injury.
- **When plugging this unit, a plug conforming to the standard IEC60884-1 must be used.**
  Using improper plug can cause electric shock or fire.
- **Be sure to connect the power source cable with power source properly.**
  Improper connection can cause intrusion of dust or water resulting in electric shock or fire.

⚠ CAUTION

- **Take care when carrying the unit by hand.**
  If the unit weight is more than 20kg, it must be carried by two or more persons.
  Do not carry the unit by the plastic straps. Always use the carry handle.
- **Do not install the outdoor unit in a location where insects and small animals can inhabit.**
  Insects and small animals can enter the electrical parts and cause damage resulting in fire or personal injury. Instruct the user to keep the surroundings clean.
- **If the outdoor unit is installed at height, make sure that there is enough space for installation, maintenance and service.**
  Insufficient space can result in personal injury due to falling from the height.
- **Do not install the unit near the location where neighbours are bothered by noise or air generating from the unit.**
  It can affect surrounding environment and cause a claim.
- **Do not install in the locations where unit is directly exposed to corrosive gases (like sulphide gas, chloride gas), sea breeze or salty atmosphere.**
  It can cause corrosion of heat exchanger and damage to plastic parts.
- **Do not install the unit close to the equipments that generate electromagnetic waves and/or high-harmonic waves.**
  Equipment such as inverters, standby generators, medical high frequency equipments and telecommunication equipments can affect the system, and cause malfunctions and breakdowns.
  The system can also affect medical equipment and telecommunication equipment, and obstruct its function or cause jamming.
- **Do not install the unit in the locations where:**
  • There are heat sources nearby.
  • Unit is directly exposed to rain or sunlight.
  • There is any obstacle which can prevent smooth air circulation from inlet and outlet side of the unit.
  • Unit is directly exposed to oil mist and steam such as kitchen.
  • Chemical substances like ammonia (organic fertilizer), calcium chloride (snow melting agent) and acid (sulfurous acid etc.), which can harm the unit, will generate or accumulate.
  • Drain water can not be discharged properly.
  • TV set or radio receiver is placed within 1m.
  • Height above sea level is more than 1000m.
  It can cause performance degradation, corrosion and damage of components, unit malfunction and fire.
- **Dispose of all packing materials properly.**
  Packing materials contain nails and wood which can cause personal injury.
  Keep the polybag away from children to avoid the risk of suffocation.
- **Do not put anything on the outdoor unit.**
  Object may fall causing property damage or personal injury.
- **Do not touch the aluminum fin of the outdoor unit.**
  Aluminium fin temperature is high during heating operation. Touching fin can cause burn.
- **Do not touch any refrigerant pipe with your hands when the system is in operation.**
  During operation the refrigerant pipes become extremely hot or extremely cold depending on the operating condition. Touching pipes can cause personal injury like burn (hot/cold).
- **Install isolator or disconnect switch on the power source wiring in accordance with the local codes and regulations.**
  The isolator should be locked in OFF state in accordance with EN60204-1.

1. ACCESSORIES AND TOOLS

Standard accessories (Supplied with indoor unit)

(1)	Installation board	1pc	(5)	Wood screws (for remote control holder ø3.5 X 16mm)		2pcs
(2)	Wireless remote control	1pc	(6)	Batteries [R03 (AAA, Micro) 1.5V]		2pcs
(3)	Remote control holder	1pc	(7)	Air-cleaning filters		2pcs
(4)	Tapping screws (for installation board ø4 X 25mm)	5pcs	(8)	Insulation (#486 50 X 100 t3)		1pc

Locally procured parts

(a)	Sleeve (1pc)
(b)	Sealing plate (1pc)
(c)	Inclination plate (1pc)
(d)	Putty
(e)	Connecting cable
(f)	Drain hose (extension hose)
(g)	Piping cover (for insulation of connection piping)
(h)	Clamp and screw (for finishing work)
(i)	Electrical tape

Tools for installation work

Plus headed driver	Pipe cutter
Knife	Hole core drill (65mm in diameter)
Saw	Wrench key (Hexagon) [4mm]
Tape measure	Flaring tool set*
Torque wrench (14.0-62.0N·m (1.4-6.2kgf·m))	Gas leak detector*
	Pipe bender
Plier	Flare adjustment gauge

* Designed specifically for R32 or R410A

2. SELECTING INSTALLATION LOCATION

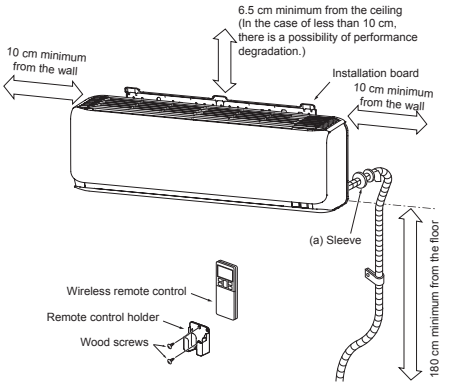
After getting customer's approval, select installation location according to following guidelines.

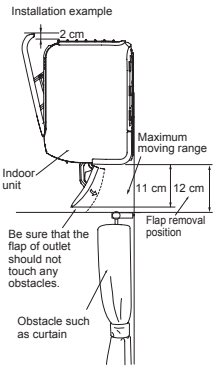
1. Indoor unit

- Where there is no obstruction to the airflow and where the cooled and heated air can be evenly distributed.
- A solid place where the unit or the wall will not vibrate.
- A place where there will be enough space for servicing. (Where space mentioned on the right side can be secured.)
- Where it is easy to conduct wiring and piping work.
- A place where unit is not directly exposed to sunlight or street light.
- A place where it can be easily drained.
- A place separated at least 1m away from the television or the radio. (To prevent interference to images and sounds.)
- A place where this unit is not affected by the high frequency equipment or electric equipment.
- Avoid installing this unit in place where there is much oil mist.
- A place where there is no electric equipment or household.
- Install the indoor unit on the wall where the height from the floor to the bottom of the unit is more than 180 cm.

2. Wireless remote control

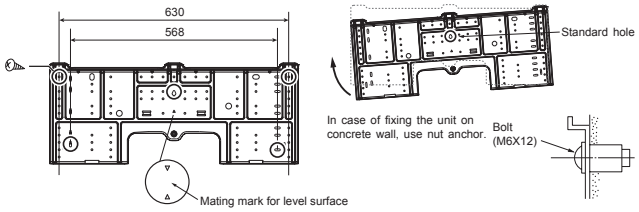
- A place where the air-conditioner can receive the signal surely during operating the wireless remote control.
- A place where it is not affected by the TV, radio etc.
- Do not place where it is exposed to direct sunlight or near heat devices such as a stove.





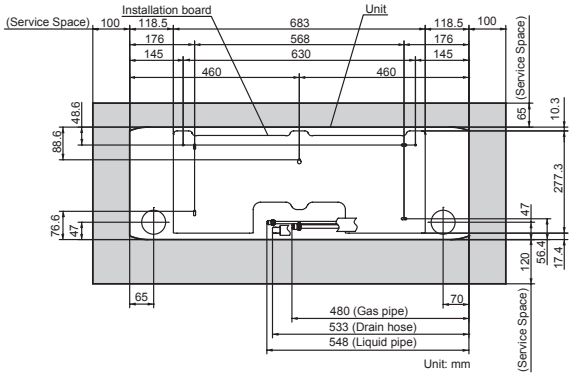
3. INSTALLING INSTALLATION BOARD

- Installation board should be installed on the wall which can support the weight of the indoor unit.
- Adjustment of the installation board in the horizontal direction is to be conducted with 5 screws in a temporary tightened state.
- With the standard hole as a center, adjust the board and level it.



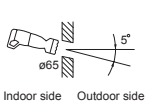
⚠ CAUTION

Improper adjustment of the installation board can cause water leakage.

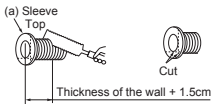


4. DRILLING HOLE AND FIXTURE OF SLEEVE

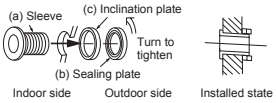
When drilling the wall that contains a metal lath, wire lath or metal plate, be sure to use sealing plate, sleeve and inclination plate (Locally procured parts).



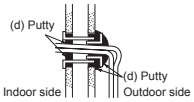
(1) Drill a hole with hole core drill.



(2) Cut sleeve to adjust to wall thickness. In case of rear piping draw out, cut off the lower and the right side portions of the sleeve collar.



(3) Fix sealing plate, sleeve and inclination plate.



(4) After piping work, seal the hole in the wall with putty.

⚠ WARNING

Completely seal the hole in the wall with putty. If not sealed properly, dust, insects, small animals, and highly humid air may enter the room from outside, which could result in fire or other hazards.

⚠ CAUTION

Completely seal the hole in the wall with putty. If not sealed properly, furniture and other fixtures may be damaged by water leakage or condensation.

5. ELECTRICAL WIRING WORK

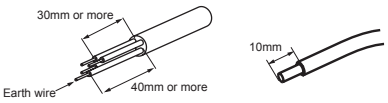
- Before installation, make sure that the power source complies with the air-conditioner's power specification.
- Carry out electrical wiring work according to following guidelines.

1. Preparing cable

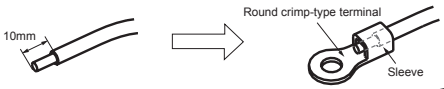
(1) Selecting cable
Select the connecting cable in accordance with the specifications mentioned below.
4-core* 1.5mm² conformed with 60245 IEC57
* 1 Earth wire is included (Yellow/Green).

(2) Arrange each wire length as shown below.
Make sure that each wire is stripped 10mm from the end.

<Connecting cable> <Wire end>



(3) Attach round crimp-type terminal to each wire as shown in the below.
Select the size of round crimp-type terminal after considering the specifications of terminal block and wire diameter.

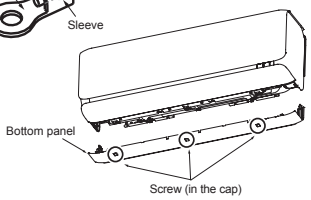


2. Remove bottom panel

(1) Remove the 3 screws (in the cap).
(2) Remove the hooks of left and right side and then bottom panel can be removed.

NOTE

- Open the cap using a fine-tipped tool.
- When opening the cap, exercise care not to damage the design surface.

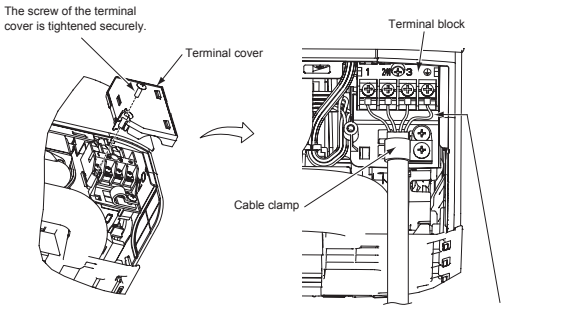


3. Connecting cable

(1) Remove the terminal cover.
(2) Remove the cable clamp.
(3) Connect the connecting wires to the terminal block.
(4) Fix the connecting cable by cable clamp.
(5) Fix the terminal cover.

NOTE

Take care not to confuse the terminal numbers for indoor and outdoor connections.



⚠ WARNING

Incorrect wiring connection can cause malfunction or fire.

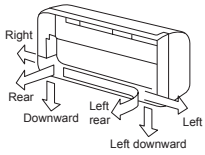
6. FORMING PIPING AND DRAIN HOSE

1. Forming piping

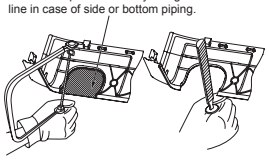
Piping is possible in the right, rear, downward, left, left rear or left downward direction.

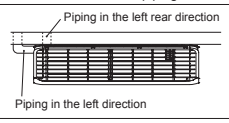
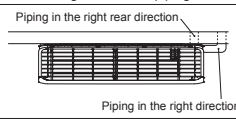
NOTE

Sufficient care must be taken not to damage the panels when connecting pipes.

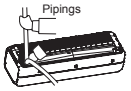


Cut out the panel smoothly along the line in case of side or bottom piping.



Left hand side piping	Right hand side piping
	

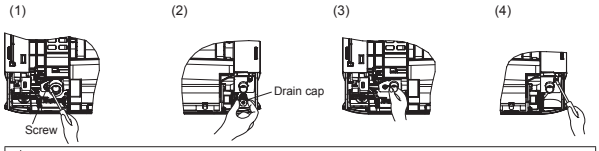
Forming of pipings
- Hold the bottom of the piping and fix direction before stretching it and shaping it.



Taping of the exterior
- Tape only the portion that goes through the wall.
- Always tape the wiring with the piping.

2. Drain change procedures

(1) Remove the screw and drain hose.
(2) Remove the drain cap by hand or pliers.
(3) Insert the drain cap which was removed at procedure (2) securely using a hexagonal wrench etc.
(4) Install the drain hose and screw securely.



⚠ CAUTION

Incorrect installation of drain hose and cap can cause water leakage.

7. DRAINAGE WORK

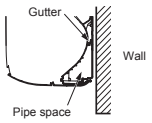
- Arrange the drain hose in a downward angle.
- Avoid the following drain piping.

- Pour water to the drain pan located under the heat exchanger, and ensure that the water is discharged outdoor.
- When extended drain hose is present inside the room, insulate it securely with heat insulator available in the market.

Since this air-conditioner is designed to collect dew drops on the rear surface to the drain pan, do not install the connecting wire above the gutter.

⚠ CAUTION

Incorrect drainage work can cause water leakage.



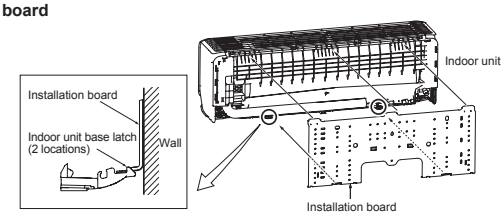
8. INSTALLING INDOOR UNIT

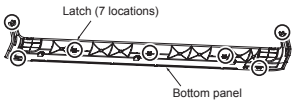
Installing the indoor unit to installation board

(1) Pass the pipe through the hole in the wall, and hook the upper part of the indoor unit to the installation board.

(2) Gently push the lower part to fix the indoor unit base lower latch to installation board.

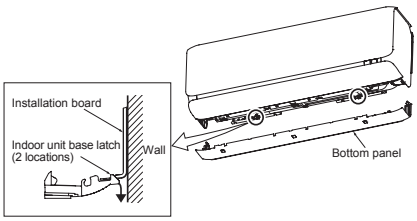
(3) Install the latches of the bottom panel (7 locations).
Secure the bottom panel with the 3 screws (in the cap).





Removing the indoor unit from installation board

(1) Remove the bottom panel. (Refer to 5.2)
(2) Pull the indoor unit base latch downward. (both right and left hand sides). (The indoor unit base latch can be removed from the installation board.)
(3) Push up the indoor unit upward so that it can be removed from installation board.



9. CONNECTING PIPING WORK

1. Preparation of connecting pipe

1.1. Selecting connecting pipe

Select connecting pipe according to the following table.

	Model SRK20/25/35	Model SRK50/60
Gas pipe	ø9.52	ø12.7
Liquid pipe	ø6.35	ø6.35

- Pipe wall thickness must be greater than or equal to 0.8 mm.
- Pipe material must be O-type (Phosphorus deoxidized seamless copper pipe ICS 23.040.15, ICS 77.150.30).

1.2. Cutting connecting pipe

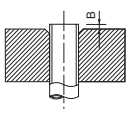
(1) Cut the connecting pipe to the required length with pipe cutter.
(2) Hold the pipe downward and remove the burrs. Make sure that no foreign material enters the pipe.
(3) Cover the connecting pipe ends with the tape.

2. Piping work

2.1. Flaring pipe

(1) Take out flare nuts from the service valves of indoor unit and engage them onto connecting pipes.
(2) Flare the pipes according to table and figure shown below.
Flare dimensions for R32 are different from those for conventional refrigerant.
Although it is recommended to use the flaring tools designed specifically for R32 or R410A, conventional flaring tools can also be used by adjusting the measurement of protrusion B with a flare adjustment gauge.

Copper pipe outer diameter	$A^{0}_{-0.4}$
ø6.35	9.1
ø9.52	13.2
ø12.7	16.6

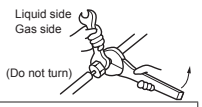


Copper pipe outer diameter	Rigid (clutch) type	
	R32 or R410A	Conventional
ø6.35	0-0.5	1.0-1.5
ø9.52		
ø12.7		

2.2 Connecting pipes

(1) Connect pipes on both liquid and gas sides.
(2) Tighten nuts to specified torque shown in the table below.

Service valve size (mm)	Tightening torque (N·m)
ø6.35 (1/4")	14-18
ø9.52 (3/8")	34-42
ø12.7 (1/2")	49-61

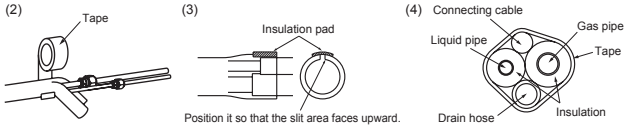


⚠ CAUTION

- Do not apply refrigerating machine oil to the flared surface. It can cause refrigerant leakage.
- Do not apply excess torque to the flared nuts. The flared nuts may crack resulting in refrigerant leakage.

3. Heating and condensation prevention

(1) Dress the connecting pipes (both liquid and gas pipes) with insulation to prevent it from heating and dew condensation.
Use the heat insulating material which can withstand 120°C or higher temperature. Make sure that insulation is wrapped tightly around the pipes and no gap is left between them.
(2) Wrap the refrigerant pipings of indoor unit with indoor unit heat insulation using tape.
(3) Cover the flare-connected joints (indoor side) with the indoor unit heat insulation and wrap it with an insulation pad (standard accessory provided with indoor unit).
(4) Wrap the connecting pipes, connecting cable and drain hose with the tape.



NOTE

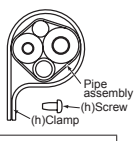
Locations where relative humidity exceeds 70%, both liquid and gas pipes need to be dressed with 20mm or thicker heat insulation materials.

⚠ CAUTION

- Improper insulation can cause condensate(water) formation during cooling operation. Condensate can leak or drip causing damage to household property.
- Poor heat insulating capacity can cause pipe outer surface to reach high temperature during heating operation. It can cause cable deterioration and personal injury.

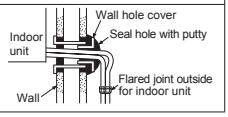
4. Finishing work

(1) Make sure that the exterior portion of connecting pipes, connecting cable and drain hose is wrapped properly with tape. Shape the connecting pipes to match with the contours of the pipe assembly route.
(2) Fix the pipe assembly with the wall using clamps and screws. Pipe assembly should be anchored every 1.5m or less to isolate the vibration.
(3) Install the service cover securely. Water may enter the unit if service cover is not installed properly, resulting in unit malfunction and failure.



⚠ WARNING (only for R32)

- To avoid the risk of fire or explosion, the flared connection must/shall be installed outdoors.
- Reusable mechanical connectors and flared joints are not allowed indoors.



⚠ CAUTION

Make sure that the connecting pipes do not touch the components within the unit. If pipes touch the internal components, it may generate abnormal sounds and/or vibrations.

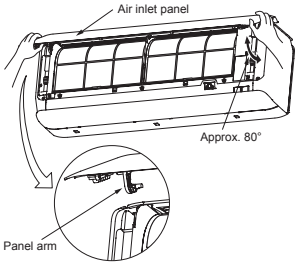
10. HOW TO OPEN, CLOSE, REMOVE AND INSTALL THE AIR INLET PANEL

1. Open
Pull the air inlet panel at both ends of lower part and release latches, then pull up the panel until you feel resistance.
(The panel stops at approx. 60° open position)

2. Close
Hold the panel at both ends of lower part, lower it downward slowly, then push it slightly until the latch works.

3. Removing
Open the panel by 80° (as shown in the right illustration) and then pull it forward.

4. Installing
Insert the panel arm into the slot on the front panel from the position shown in right illustration, hold the panel at both ends of lower part, lower it downward slowly, then push it slightly until the latch works.



NOTE
- When carrying out maintenance, handle the air inlet panel with care.

11. HOW TO REMOVE AND INSTALL THE SIDE AND FRONT PANEL

1. Side panel (R/L)

1.1. Removing
(1) Remove the 2 screws.
(2) Remove the 3 latches and then side panel can be removed.

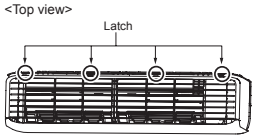
1.2. Installing
(1) Cover the unit with the side panel and fix 3 latches.
(2) Secure the side panel with the 2 screws.

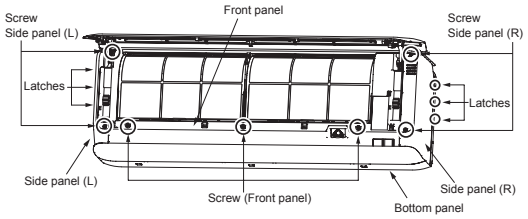
2. Front panel

2.1. Removing
(1) Remove the side panel (R/L), the air inlet panel, the air filters and the bottom panel.
(2) Remove the 3 screws.
(3) Remove the 4 upper latches and then front panel can be removed.

2.2. Installing
(1) Cover the unit with the front panel and fix 4 upper latches.
(2) Secure the front panel with the 3 screws.
(3) Install the bottom panel, the side panel (R/L), the air inlet panel and the air filters.

<Top view>

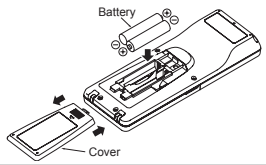




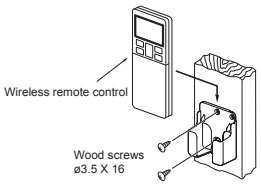
12. INSTALLING WIRELESS REMOTE CONTROL

Mount the batteries
(1) Slide and take out the cover of backside.
(2) Mount the batteries [R03 (AAA, Micro), ×2 pieces] in the body properly.
(Fit he poles with the indication marks + & −)
(3) Set the cover again.

NOTE
- Do not use new and old batteries together.
- In case the unit is not operated for a long time, take out the batteries



Installing remote control holder
(1) Select the place where the unit can receive signals.
(2) Fix the holder to pillar or wall with wood screws.

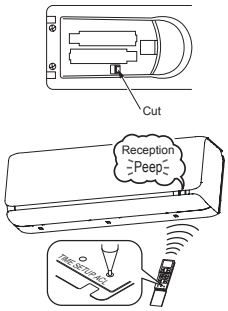


13. INSTALLING TWO AIR-CONDITIONERS IN THE SAME ROOM

In case two air-conditioners are installed in the same room, apply this setting so that one unit can be operated with only one wireless remote control.

Setting one wireless remote control
(1) Slide and take out the cover and batteries.
(2) Cut the switching line next to the battery with wire cutters.
(3) Set the batteries and cover again.

Setting one indoor unit
(1) Turn off the power source and turn it on after 1 minute.
(2) Send the signal by pressing the ACL switch on the wireless remote control that was set according to the procedure described on the above side.
(3) Check that the reception buzzer sound “Peep” is emitted from the indoor unit. Since the signal is sent about 6 seconds after the ACL switch is pressed, point the wireless remote control to the indoor unit for a while.



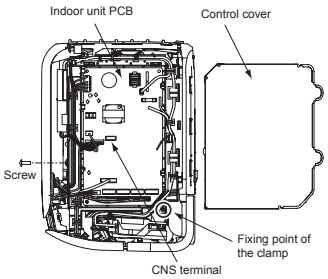
NOTE
If no reception buzzer is emitted, restart the setting from the beginning.

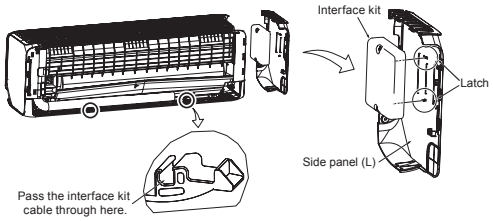
14. TERMINAL CONNECTION FOR AN INTERFACE

To install wired remote control, superlink etc., interface kit is needed.

(1) Remove the air inlet panel, bottom panel and side panel (R).
(2) Remove the control cover. (Remove the screw.)
(3) There is a terminal (respectively marked with CNS) for the indoor control board. While connecting an interface, connect to the respective terminal securely with the connection harness supplied with an option “Interface kit SC-BIKN-E and SC-BIKN2-E” and fasten the connection harness onto the indoor control box with the clamp and screw supplied with the kit.
(4) Hook to fix the interface kit to the 2 latches on side panel (L).
For more details, refer to the user’s manual of “Interface kit SC-BIKN-E and SC-BIKN2-E”.

<Right side>



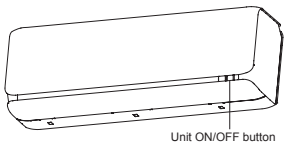


15. PUMP DOWN WORK

For the environmental protection, be sure to pump down when relocating or disposing of the unit. Pump down is the method of recovering refrigerant from the indoor unit to the outdoor unit before the connecting pipes are removed from the unit. When pump down is carried out, forced cooling operation is needed.

Forced cooling operation
(1) Turn off the power source and turn it on again after 1 minute. The air inlet panel and flap open and close.
(2) After the air inlet panel closes, press the ON/OFF button continuously for at least 5 seconds. Then operation will start.

For the detail of pump down, refer to the installation manual of outdoor unit.



16. INSTALLATION CHECK AND TEST RUN

After finishing the installation work, check the following points again before turning on the power. Conduct a test run and ensure that the unit operates properly.
At the same time, explain to the customer how to use the unit and how to take care of the unit following the user’s manual.

Before test run
Before test run, check following points.

Power source voltage complies with the rated voltage of air-conditioner.	
Earth leakage breaker and circuit breaker are installed.	
Power cable and connecting cable are securely fixed to the terminal block.	
Both liquid and gas service valves are fully open.	
No gas leaks from the joints of the service valves.	
Indoor and outdoor side pipe joints have been insulated.	
Hole on the wall is completely sealed with putty.	
Drain hose and cap are installed properly.	
Screw of the terminal cover is tightened securely.	

Test run
Check following points during test run.

Indoor unit receives signal of wireless remote control.	
Air-conditioning operation is normal.	
There is no abnormal noise.	
Water drains out smoothly.	
Display of wireless remote control is normal.	

After test run

Explain the operating and maintenance methods to the user according to the user’s manual.	
Keep this installation manual together with user’s manual.	

NOTE
During restart or change in operation mode, the unit will not start operating for approximately 3 minutes. This is to protect the unit and it is not malfunction.

(b) Models SRK20ZS, 25ZS, 35ZS, 50ZS, 60ZS

RLF012A105

Model SRK20,25,35,50ZS
R32/R410A REFRIGERANT USED

• This installation manual deals with an indoor unit installation only. For an outdoor unit installation, refer to page 14.
• This unit is designed for R32 or R410A. See a label on the outdoor unit to check refrigerant information.

SAFETY PRECAUTIONS

• Before installation, read the "SAFETY PRECAUTIONS" carefully and strictly follow it during the installation work in order to protect yourself.
• The precautionary items mentioned below are distinguished into two levels, ⚠ WARNING and ⚠ CAUTION .

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, can result in serious consequences such as death or severe injury.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, can result in personal injury or property damage.

Both mention the important items to protect your health and safety. Therefore, strictly follow them by any means.

• Be sure to confirm no operation problem on the equipment after completing the installation. If unusual noise can be heard during the test run, consult the dealer.
• Be sure to explain the operating methods as well as the maintenance methods of this equipment to the user according to the user's manual.
• Be sure to keep the installation manual together with user's manual at a place where it is easily accessible to the user any time. Moreover, ask the user to hand the manuals to a new user, whenever required.

⚠ WARNING

• **Be sure to use only for residential purpose.**
If this unit is installed in inferior environment such as machine shop, vehicle (like ship), warehouse, etc., it can malfunction.
• **Installation must be carried out by the qualified installer completely in accordance with the installation manual.**
Installation by non qualified person or incorrect installation can cause serious troubles such as water leak, electric shock, fire and personal injury.
• **Be sure to wear protective goggles and gloves while performing installation work.**
Improper safety measures can result in personal injury.
• **Use the original accessories and the specified components for the installation.**
Using parts other than those prescribed may cause water leak, electric shock, fire and personal injury.
• **Do not install the unit near the location where leakage of flammable gases can occur.**
If leaked gases accumulate around the unit, it can cause fire resulting in property damage and personal injury.
• **When installing the unit in small rooms, make sure that refrigerant density does not exceed the limit (Reference: ISO5149) in the event of leakage.**
If refrigerant density exceeds the limit, consult the dealer and install the ventilation system.
Otherwise lack of oxygen can occur resulting in serious accident.
• **Install the unit in a location where unit will remain stable, horizontal and free of any vibration transmission.**
Unsuitable installation location can cause the unit to fall resulting in material damage and personal injury.
• **Do not run the unit with removed panels or protections.**
Touching rotating equipments, hot surfaces or high voltage parts can cause personal injury due to entrapment, burn or electric shock.
• **This unit is designed specifically for R32 or R410A.**
Using any other refrigerant can cause unit failure and personal injury.
• **Do not vent R32 or R410A into atmosphere.**
R32 is a fluorinated greenhouse gas with a Global Warming Potential(GWP)=675.
R410A is a fluorinated greenhouse gas with a Global Warming Potential(GWP)=2088.
• **Make sure that no air enters the refrigerant circuit when the unit is installed and removed.**
If air enters the refrigerant circuit, the pressure in the refrigerant circuit will become too high, which can cause burst and personal injury.
• **Be sure to use the prescribed pipes, flare nuts and tools for R32 or R410A.**
Using existing parts (for R22 or R407C) can cause refrigerant circuit burst resulting in unit failure and personal injury.
• **Be sure to connect both liquid and gas connecting pipes properly before operating the compressor.**
Do not open the liquid and gas operation valves before completing piping work, and evacuation.
If the compressor is operated when connecting pipes are not connected and operation valves are open, air can be sucked into the refrigerant circuit which can cause anomalous high pressure resulting in burst or personal injury.
• **Be sure to tighten the flare nuts to specified torque using the torque wrench.**
Tightening flare nuts with excess torque can cause burst and refrigerant leakage after a long period.
• **During pump down work, be sure to stop the compressor before closing operation valves and removing connecting pipes.**
If the connecting pipes are removed when the compressor is in operation and operation valves are open, air can be sucked into the refrigerant circuit which can cause anomalous high pressure resulting in burst or personal injury.
• **In the event of refrigerant leakage during installation, be sure to ventilate the working area properly.**
If the refrigerant comes into contact with naked flames, poisonous gases will be produced.
• **Electrical work must be carried out by the qualified electrician, strictly in accordance with national or regional electricity regulations.**
Incorrect installation can cause electric shock, fire or personal injury.
• **Make sure that earth leakage breaker and circuit breaker of appropriate capacities are installed.**
Circuit breaker should be able to disconnect all poles under over current. Absence of appropriate breakers can cause electric shock, personal injury or property damage.
• **Be sure to switch off the power source in the event of installation, maintenance or service.**
If the power source is not switched off, there is a risk of electric shock, unit failure or personal injury.
• **Be sure to tighten the cables securely in terminal block and relieve the cables properly to prevent overloading the terminal blocks.**
Loose connections or cable mountings can cause anomalous heat production or fire.
• **Do not process, splice or modify the power cable, or share the socket with other power plugs.**
Improper power cable or power plug can cause fire or electric shock due to poor connection, insufficient insulation or over-current.
• **Do not perform any change in protective device or its setup condition yourself.**
Changing protective device specifications can cause electric shock, fire or burst.
• **Be sure to clamp the cables properly so that they do not touch any internal component of the unit.**
If cables touch any internal component, it can cause overheating and fire.
• **Be sure to install service cover properly.**
Improper installation can cause electric shock or fire due to intrusion of dust or water.
• **Be sure to use the prescribed power and connecting cables for electrical work.**
Using improper cables can cause electric leak or fire.
• **This appliance must be connected to main power source by means of a circuit breaker or switch with a contact separation of at least 3mm.**
Improper electrical work can cause unit failure or personal injury.
• **When plugging this unit, a plug conforming to the standard IEC60884-1 must be used.**
Using improper plug can cause electric shock or fire.
• **Be sure to connect the power source cable with power source properly.**
Improper connection can cause intrusion of dust or water resulting in electric shock or fire.

⚠ CAUTION

• **Take care when carrying the unit by hand.**
If the unit weight is more than 20kg, it must be carried by two or more persons.
Do not carry the unit by the plastic straps. Always use the carry handle.
• **Do not install the outdoor unit in a location where insects and small animals can inhabit.**
Insects and small animals can enter the electrical parts and cause damage resulting in fire or personal injury. Instruct the user to keep the surroundings clean.
• **If the outdoor unit is installed at height, make sure that there is enough space for installation, maintenance and service.**
Insufficient space can result in personal injury due to falling from the height.
• **Do not install the unit near the location where neighbours are bothered by noise or air generating from the unit.**
It can affect surrounding environment and cause a claim.
• **Do not install in the locations where unit is directly exposed to corrosive gases (like sulphide gas, chloride gas), sea breeze or salty atmosphere.**
It can cause corrosion of heat exchanger and damage to plastic parts.
• **Do not install the unit close to the equipments that generate electromagnetic waves and/or high-harmonic waves.**
Equipment such as inverters, standby generators, medical high frequency equipments and telecommunication equipments can affect the system, and cause malfunctions and breakdowns.
The system can also affect medical equipment and telecommunication equipment, and obstruct its function or cause jamming.
• **Do not install the unit in the locations where:**
• There are heat sources nearby.
• Unit is directly exposed to rain or sunlight.
• There is any obstacle which can prevent smooth air circulation from inlet and outlet side of the unit.
• Unit is directly exposed to oil mist and steam such as kitchen.
• Chemical substances like ammonia (organic fertilizer), calcium chloride (snow melting agent) and acid (sulfurous acid etc.), which can harm the unit, will generate or accumulate.
• Drain water can not be discharged properly.
• TV set or radio receiver is placed within 1m.
• Height above sea level is more than 1000m.
It can cause performance degradation, corrosion and damage of components, unit malfunction and fire.
• **Dispose of all packing materials properly.**
Packing materials contain nails and wood which can cause personal injury.
Keep the polybag away from children to avoid the risk of suffocation.
• **Do not put anything on the outdoor unit.**
Object may fall causing property damage or personal injury.
• **Do not touch the aluminum fin of the outdoor unit.**
Aluminium fin temperature is high during heating operation. Touching fin can cause burn.
• **Do not touch any refrigerant pipe with your hands when the system is in operation.**
During operation the refrigerant pipes become extremely hot or extremely cold depending on the operating condition. Touching pipes can cause personal injury like burn (hot/cold).
• **Install isolator or disconnect switch on the power source wiring in accordance with the local codes and regulations.**
The isolator should be locked in OFF state in accordance with EN60204-1.

1. ACCESSORIES AND TOOLS

Standard accessories (supplied with indoor unit)

(1)	Installation board	1pc	(6)	Batteries [R03 (AAA, Micro) 1.5V]	2pcs
(2)	Remote control	1pc	(7)	Air-cleaning filters	2pcs
(3)	Remote control holder	1pc	(8)	Filter holders	2pcs
(4)	Tapping screws (for installation board ø4 X 25mm)	5pcs	(9)	Insulation (#486 50 X 100 t3)	1pc
(5)	Wood screws (for remote control holder ø3.5 X 16mm)	2pcs			

Locally procured parts

(a)	Sleeve (1pc)
(b)	Sealing plate (1pc)
(c)	Inclination plate (1pc)
(d)	Putty
(e)	Connecting cable
(f)	Drain hose (extension hose)
(g)	Piping cover (for insulation of connection piping)
(h)	Clamp and screw (for finishing work)
(i)	Electrical tape

Tools for installation Work

Plus headed driver	Hole core drill (65mm in diameter)
Knife	Wrench key (Hexagon) [4mm]
Saw	Flaring tool set*
Tape measure	Gas leak detector*
Torque wrench (14.0-62.0N·m (1.4-6.2kgf·m))	Pipe bender
Plier	Gauge for projection adjustment (Used when flare is made by using conventional flare tool)
Pipe cutter	

* Designed specifically for R32 or R410A

2. SELECTING INSTALLATION LOCATION

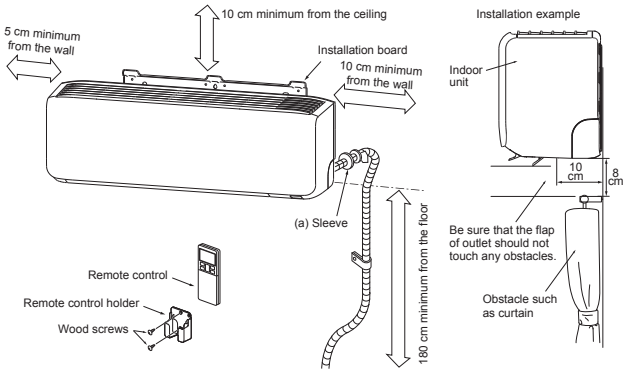
After getting customer's approval, select installation location according to following guidelines.

1. Indoor unit

- Where there is no obstruction to the airflow and where the cooled and heated air can be evenly distributed.
- A solid place where the unit or the wall will not vibrate.
- A place where there will be enough space for servicing. (Where space mentioned on the right side can be secured.)
- Where it is easy to conduct wiring and piping work.
- A place where unit is not directly exposed to sunlight or street light.
- A place where it can be easily drained.
- A place separated at least 1m away from the television or the radio. (To prevent interference to images and sounds.)
- A place where this unit is not affected by the high frequency equipment or electric equipment.
- Avoid installing this unit in place where there is much oil mist.
- A place where there is no electric equipment or household.
- Install the indoor unit on the wall where the height from the floor to the bottom of the unit is more than 180 cm.

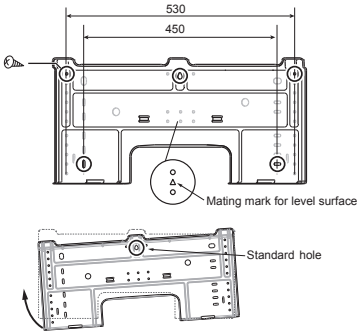
2. Remote control

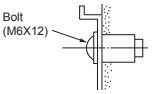
- A place where the air-conditioner can receive the signal surely during operating the remote control.
- A place where it is not affected by the TV, radio etc.
- Do not place where it is exposed to direct sunlight or near heat devices such as a stove.



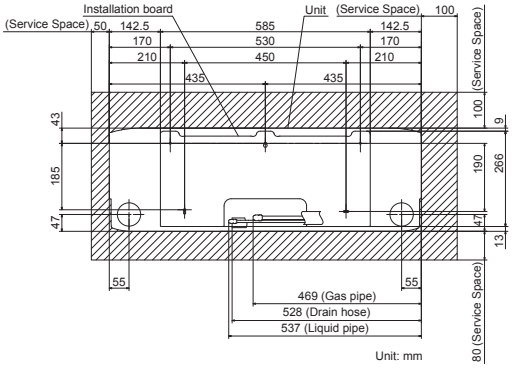
3. INSTALLING INSTALLATION BOARD

- Installation board should be installed on the wall which can support the weight of the indoor unit.
- Adjustment of the installation board in the horizontal direction is to be conducted with five screws in a temporary tightened state.
- With the standard hole as a center, adjust the board and level it.





In case of fixing the unit on concrete wall, use nut anchor.

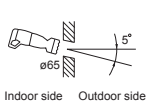


⚠ CAUTION

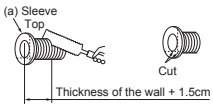
Improper adjustment of the installation board can cause water leakage.

4. DRILLING HOLE AND FIXTURE OF SLEEVE

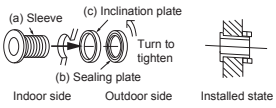
When drilling the wall that contains a metal lath, wire lath or metal plate, be sure to use sealing plate, sleeve and inclination plate (Locally procured parts).



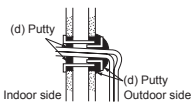
(1) Drill a hole with hole core drill.



(2) Cut sleeve to adjust to wall thickness. In case of rear piping draw out, cut off the lower and the right side portions of the sleeve collar.



(3) Fix sealing plate, sleeve and inclination plate.



(4) After piping work, seal the hole in the wall with putty.

⚠ WARNING

Completely seal the hole in the wall with putty.
If not sealed properly, dust, insects, small animals, and highly humid air may enter the room from outside, which could result in fire or other hazards.

⚠ CAUTION

Completely seal the hole in the wall with putty.
If not sealed properly, furniture and other fixtures may be damaged by water leakage or condensation.

5. ELECTRICAL WIRING WORK

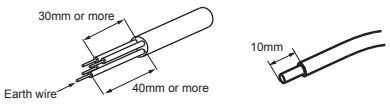
- Before installation, make sure that the power source complies with the air-conditioner's power specification.
- Carry out electrical wiring work according to following guidelines.

1. Preparing cable

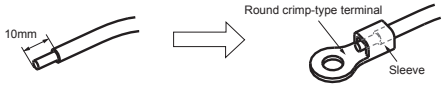
(1) Selecting cable
Select the connecting cable in accordance with the specifications mentioned below.
4-core* 1.5mm² conformed with 60245 IEC57
* 1 Earth wire is included (Yellow/Green).

(2) Arrange each wire length as shown below.
Make sure that each wire is stripped 10mm from the end.

<Connecting cable> <Wire end>



(3) Attach round crimp-type terminal to each wire as shown in the below.
Select the size of round crimp-type terminal after considering the specifications of terminal block and wire diameter.

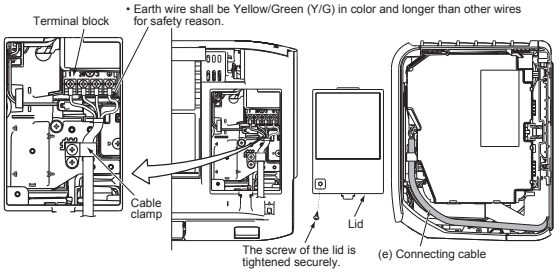


2. Connecting cable

(1) Open the air inlet panel.
(2) Remove the lid.
(3) Remove the cable clamp.
(4) Connect the connecting wires to the terminal block.
(5) Fix the connecting cable by cable clamp.
(6) Fix the lid.
(7) Close the air inlet panel.

NOTE

Take care not to confuse the terminal numbers for indoor and outdoor connections.



⚠ WARNING

Incorrect wiring connection can cause malfunction or fire.

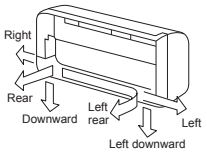
6. FORMING PIPING AND DRAIN HOSE

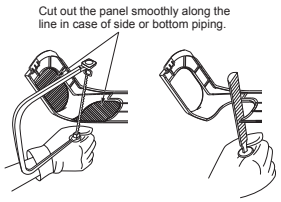
1. Forming piping

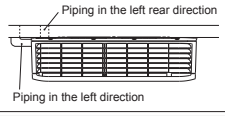
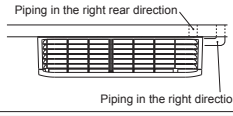
Piping is possible in the right, rear, downward, left, left rear or left downward direction.

NOTE

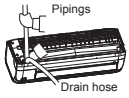
Sufficient care must be taken not to damage the panels when connecting pipes.





Left hand side piping	Right hand side piping
	

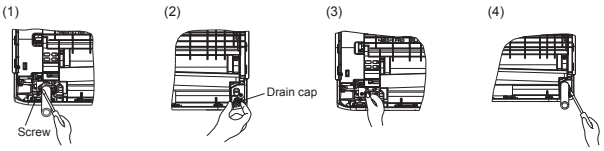
Forming of pipings.
- Hold the bottom of the piping and fix direction before stretching it and shaping it.



Taping of the exterior
- Tape only the portion that goes through the wall.
- Always tape the wiring with the piping.

2. Drain change procedures

(1) Remove the screw and drain hose.
(2) Remove the drain cap by hand or pliers.
(3) Insert the drain cap which was removed at procedure (2) securely using a hexagonal wrench etc.
(4) Install the drain hose and screw securely.



⚠ CAUTION

Incorrect installation of drain hose and cap can cause water leakage.

7. DRAINAGE WORK

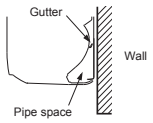
- Arrange the drain hose in a downward angle.
- Avoid the following drain piping.

- Pour water to the drain pan located under the heat exchanger, and ensure that the water is discharged outdoor.
- When extended drain hose is present inside the room, insulate it securely with heat insulator available in the market.

Since this air-conditioner is designed to collect dew drops on the rear surface to the drain pan, do not install the connecting wire above the gutter.

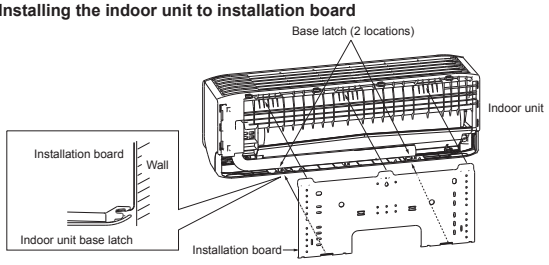
⚠ CAUTION

Incorrect drainage work can cause water leakage.



8. INSTALLING INDOOR UNIT

Installing the indoor unit to installation board

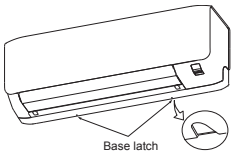


(1) Pass the pipe through the hole in the wall, and hook the upper part of the indoor unit to the installation board.

(2) Gently push the lower part to fix the indoor unit base lower latch to installation board.

Removing the indoor unit from installation board

(1) Push up at the marked portion of the indoor unit base latch, and slightly pull it toward you (both right and left hand sides). (The indoor unit base latch can be removed from the installation board.)
(2) Push up the indoor unit upward so that it can be removed from installation board.



9. CONNECTING PIPING WORK

1. Preparation of connecting pipe

1.1. Selecting connecting pipe

Select connecting pipe according to the following table.

	Model SRK20/25/35	Model SRK50
Gas pipe	ø9.52	ø12.7
Liquid pipe	ø6.35	ø6.35

- Pipe wall thickness must be greater than or equal to 0.8 mm.
- Pipe material must be O-type (Phosphorus deoxidized seamless copper pipe ICS 23.040.15, ICS 77.150.30).

1.2. Cutting connecting pipe

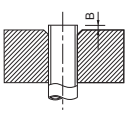
(1) Cut the connecting pipe to the required length with pipe cutter.
(2) Hold the pipe downward and remove the burrs. Make sure that no foreign material enters the pipe.
(3) Cover the connecting pipe ends with the tape.

2. Piping work

2.1. Flaring pipe

(1) Take out flare nuts from the service valves of indoor unit and engage them onto connecting pipes.
(2) Flare the pipes according to table and figure shown below.
Flare dimensions for R32 are different from those for conventional refrigerant.
Although it is recommended to use the flaring tools designed specifically for R32 or R410A, conventional flaring tools can also be used by adjusting the dimension B with a flare adjustment gauge.

Copper pipe outer diameter	A
ø6.35	9.1
ø9.52	13.2
ø12.7	16.6

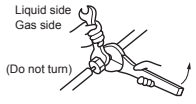


Copper pipe outer diameter	B [Rigid (clutch) type]	
	R32 or R410A	Conventional
ø6.35	0-0.5	1.0-1.5
ø9.52		
ø12.7		

2.2 Connecting pipes

(1) Connect pipes on both liquid and gas sides.
(2) Tighten nuts to specified torque shown in the table below.

Service valve size (mm)	Tightening torque (N·m)
ø6.35 (1/4")	14-18
ø9.52 (3/8")	34-42
ø12.7 (1/2")	49-61

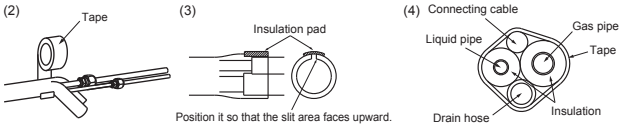


⚠ CAUTION

- Do not apply refrigerating machine oil to the flared surface. It can cause refrigerant leakage.
- Do not apply excess torque to the flared nuts. The flared nuts may crack resulting in refrigerant leakage.

3. Heating and condensation prevention

(1) Dress the connecting pipes (both liquid and gas pipes) with insulation to prevent it from heating and dew condensation.
Use the heat insulating material which can withstand 120°C or higher temperature. Make sure that insulation is wrapped tightly around the pipes and no gap is left between them.
(2) Wrap the refrigerant pipings of indoor unit with indoor unit heat insulation using tape.
(3) Cover the flare-connected joints (indoor side) with the indoor unit heat insulation and wrap it with an insulation pad (standard accessory provided with indoor unit).
(4) Wrap the connecting pipes, connecting cable and drain hose with the tape.



NOTE

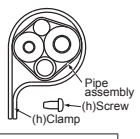
Locations where relative humidity exceeds 70%, both liquid and gas pipes need to be dressed with 20mm or thicker heat insulation materials.

⚠ CAUTION

- Improper insulation can cause condensate(water) formation during cooling operation. Condensate can leak or drip causing damage to household property.
- Poor heat insulating capacity can cause pipe outer surface to reach high temperature during heating operation. It can cause cable deterioration and personal injury.

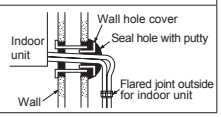
4. Finishing work

(1) Make sure that the exterior portion of connecting pipes, connecting cable and drain hose is wrapped properly with tape. Shape the connecting pipes to match with the contours of the pipe assembly route.
(2) Fix the pipe assembly with the wall using clamps and screws. Pipe assembly should be anchored every 1.5m or less to isolate the vibration.
(3) Install the service cover securely. Water may enter the unit if service cover is not installed properly, resulting in unit malfunction and failure.



⚠ WARNING (only for R32)

- To avoid the risk of fire or explosion, the flared connection must/shall be installed outdoors.
- Reusable mechanical connectors and flared joints are not allowed indoors.



⚠ CAUTION

Make sure that the connecting pipes do not touch the components within the unit. If pipes touch the internal components, it may generate abnormal sounds and/or vibrations.

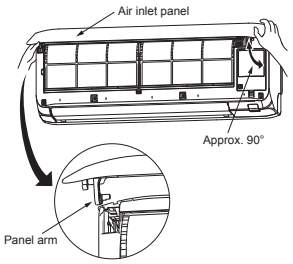
10. HOW TO OPEN, CLOSE, REMOVE AND INSTALL THE AIR INLET PANEL

1. Open
Pull the air inlet panel at both ends of lower part and release latches, then pull up the panel until you feel resistance.
(The panel stops at approx. 70° open position)

2. Close
Hold the panel at both ends of lower part, lower it downward slowly, then push it slightly until the latch works.

3. Removing
Open the panel by 90° (as shown in the right illustration) and then pull it forward.

4. Installing
Insert the panel arm into the slot on the front panel from the position shown in right illustration, hold the panel at both ends of lower part, lower it downward slowly, then push it slightly until the latch works.



11. HOW TO REMOVE AND INSTALL THE BOTTOM AND FRONT PANEL

1. Bottom panel

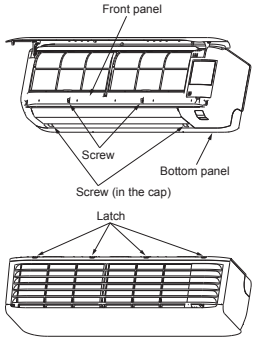
1.1. Removing
(1) Remove the 2 screws (in the cap).
(2) Remove the 2 hooks of left and right side and then bottom panel can be removed.

1.2. Installing
(1) Install the 2 hooks of left and right side.
(2) Secure the bottom panel with the 2 screws (in the cap).

2. Front panel

2.1. Removing
(1) Remove the air inlet panel, the air filters and the bottom panel.
(2) Remove the 2 screws.
(3) Remove the 4 upper latches and then front panel can be removed.

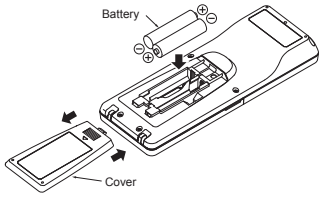
2.2. Installing
(1) Cover the unit with the front panel and fix 4 upper latches.
(2) Secure the front panel with the 2 screws.
(3) Install the bottom panel, the air inlet panel and the air filters.



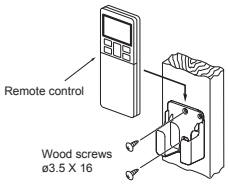
12. INSTALLING REMOTE CONTROL

Mount the batteries
(1) Slide and take out the cover of backside.
(2) Mount the batteries [R03 (AAA, Micro), ×2 pieces] in the body properly.
(Fit he poles with the indication marks + & −)
(3) Set the cover again.

NOTE
• Do not use new and old batteries together.
• In case the unit is not operated for a long time, take out the batteries



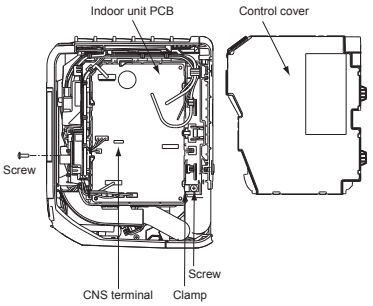
Installing remote control holder
(1) Select the place where the unit can receive signals.
(2) Fix the holder to pillar or wall with wood screws.



13. TERMINAL CONNECTION FOR AN INTERFACE

To install wired remote control, superlink etc., interface kit is needed.

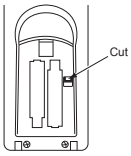
(1) Remove the air inlet panel, bottom panel and front panel.
(2) Remove the control cover. (Remove the screw.)
(3) There is a terminal (respectively marked with CNS) for the indoor control board. While connecting an interface, connect to the respective terminal securely with the connection harness supplied with an optional "Interface connection kit SC-BIKN-E and SC-BIKN2-E" and fasten the connection harness onto the indoor control box with the clamp and screw supplied with the kit.
For more details, refer to the user's manual of "Interface connection kit SC-BIKN-E and SC-BIKN2-E".



14. INSTALLING TWO AIR-CONDITIONERS IN THE SAME ROOM

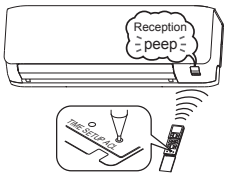
In case two air-conditioners are installed in the same room, apply this setting so that one unit can be operated with only one remote control.

Setting one remote control
(1) Slide and take out the cover and batteries.
(2) Cut the switching line next to the battery with wire cutters.
(3) Set the batteries and cover again.



Setting one indoor unit
(1) Turn off the power source and turn it on after 1 minute.
(2) Send the signal by pressing the ACL switch on the remote control that was set according to the procedure described on the left side.
(3) Check that the reception buzzer sound "peep" is emitted from the indoor unit. Since the signal is sent about 6 seconds after the ACL switch is pressed, point the remote control to the indoor unit for a while.

NOTE
If no reception buzzer is emitted, restart the setting from the beginning.

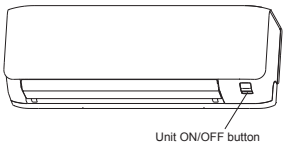


15. PUMP DOWN WORK

For the environmental protection, be sure to pump down when relocating or disposing of the unit. Pump down is the method of recovering refrigerant from the indoor unit to the outdoor unit before the connecting pipes are removed from the unit. When pump down is carried out, forced cooling operation is needed.

Forced cooling operation
(1) Turn off the power source and turn it on again after 1 miniute.
(2) Press the ON/OFF button continuously for at least 5 seconds. Then operation will start.

For the detail of pump down, refer to the installation manual of outdoor unit.



16. INSTALLATION CHECK AND TEST RUN

After finishing the installation work, check the following points again before turning on the power. Conduct a test run and ensure that the unit operates properly.
At the same time, explain to the customer how to use the unit and how to take care of the unit following the user's manual.

Before test run
Before test run, check following points.

Power source voltage complies with the rated voltage of air-conditioner.	
Earth leakage breaker and circuit breaker are installed.	
Power cable and connecting cable are securely fixed to the terminal block.	
Both liquid and gas service valves are fully open.	
No gas leaks from the joints of the service valves.	
Indoor and outdoor side pipe joints have been insulated.	
Hole on the wall is completely sealed with putty.	
Drain hose and cap are installed properly.	
Screw of the lid is tightened securely.	

Test run
Check following points during test run.

Indoor unit receives signal of remote control.	
Air-conditioning operation is normal.	
There is no abnormal noise.	
Water drains out smoothly.	
Display of remote control is normal.	

After test run

Explain the operating and maintenance methods to the user according to the user's manual.	
Keep this installation manual together with user's manual.	

NOTE
During restart or change in operation mode, the unit will not start operating for approximately 3 minutes. This is to protect the unit and it is not malfunction.

(c) Models SKM20ZSP-S, 25ZSP-S, 35ZSP-S

RLC012Z013A△

Model SKM20,25,35
R410A REFRIGERANT USED

• This installation manual deals with an indoor unit installation only. For an outdoor unit installation, refer to page 14.

SAFETY PRECAUTIONS

• Before installation, read the "SAFETY PRECAUTIONS" carefully and strictly follow it during the installation work in order to protect yourself.
• The precautionary items mentioned below are distinguished into two levels, ⚠WARNING and ⚠CAUTION .

⚠WARNING Indicates a potentially hazardous situation which, if not avoided, can result in serious consequences such as death or severe injury.
⚠CAUTION Indicates a potentially hazardous situation which, if not avoided, can result in personal injury or property damage.

Both mention the important items to protect your health and safety. Therefore, strictly follow them by any means.

• Be sure to confirm no operation problem on the equipment after completing the installation. If unusual noise can be heard during the test run, consult the dealer.
• Be sure to explain the operating methods as well as the maintenance methods of this equipment to the user according to the user's manual.
• Be sure to keep the installation manual together with user's manual at a place where it is easily accessible to the user any time. Moreover, ask the user to hand the manuals to a new user, whenever required.

⚠ WARNING

- **Be sure to use only for residential purpose.**
  If this unit is installed in inferior environment such as machine shop, vehicle (like ship), warehouse, etc., it can malfunction.
- **Installation must be carried out by the qualified installer completely in accordance with the installation manual.**
  Installation by non qualified person or incorrect installation can cause serious troubles such as water leak, electric shock, fire and personal injury.
- **Be sure to wear protective goggles and gloves while performing installation work.**
  Improper safety measures can result in personal injury.
- **Use the original accessories and the specified components for the installation.**
  Using parts other than those prescribed may cause water leak, electric shock, fire and personal injury.
- **Do not install the unit near the location where leakage of flammable gases can occur.**
  If leaked gases accumulate around the unit, it can cause fire resulting in property damage and personal injury.
- **When installing the unit in small rooms, make sure that refrigerant density does not exceed the limit (Reference: ISO5149) in the event of leakage.**
  If refrigerant density exceeds the limit, consult the dealer and install the ventilation system.
  Otherwise lack of oxygen can occur resulting in serious accident.
- **Install the unit in a location where unit will remain stable, horizontal and free of any vibration transmission.**
  Unsuitable installation location can cause the unit to fall resulting in material damage and personal injury.
- **Do not run the unit with removed panels or protections.**
  Touching rotating equipments, hot surfaces or high voltage parts can cause personal injury due to entrapment, burn or electric shock.
- **This unit is designed specifically for R410A.**
  Using any other refrigerant can cause unit failure and personal injury.
- **Do not vent R410A into atmosphere.**
  R410A is a fluorinated greenhouse gas with a Global Warming Potential(GWP)=2088.
- **Make sure that no air enters the refrigerant circuit when the unit is installed and removed.**
  If air enters the refrigerant circuit, the pressure in the refrigerant circuit will become too high, which can cause burst and personal injury.
- **Be sure to use the prescribed pipes, flare nuts and tools for R410A.**
  Using existing parts (for R22 or R407C) can cause refrigerant circuit burst resulting in unit failure and personal injury.
- **Be sure to connect both liquid and gas connecting pipes properly before operating the compressor.**
  Do not open the liquid and gas operation valves before completing piping work, and evacuation.
  If the compressor is operated when connecting pipes are not connected and operation valves are open, air can be sucked into the refrigerant circuit which can cause anomalous high pressure resulting in burst or personal injury.
- **Be sure to tighten the flare nuts to specified torque using the torque wrench.**
  Tightening flare nuts with excess torque can cause burst and refrigerant leakage after a long period.
- **During pump down work, be sure to stop the compressor before closing operation valves and removing connecting pipes.**
  If the connecting pipes are removed when the compressor is in operation and operation valves are open, air can be sucked into the refrigerant circuit which can cause anomalous high pressure resulting in burst or personal injury.
- **In the event of refrigerant leakage during installation, be sure to ventilate the working area properly.**
  If the refrigerant comes into contact with naked flames, poisonous gases will be produced.
- **Electrical work must be carried out by the qualified electrician, strictly in accordance with national or regional electricity regulations.**
  Incorrect installation can cause electric shock, fire or personal injury.
- **Make sure that earth leakage breaker and circuit breaker of appropriate capacities are installed.**
  Circuit breaker should be able to disconnect all poles under over current. Absence of appropriate breakers can cause electric shock, personal injury or property damage.
- **Be sure to switch off the power source in the event of installation, maintenance or service.**
  If the power source is not switched off, there is a risk of electric shock, unit failure or personal injury.
- **Be sure to tighten the cables securely in terminal block and relieve the cables properly to prevent overloading the terminal blocks.**
  Loose connections or cable mountings can cause anomalous heat production or fire.
- **Do not process, splice or modify the power cable, or share the socket with other power plugs.**
  Improper power cable or power plug can cause fire or electric shock due to poor connection, insufficient insulation or over-current.
- **Do not perform any change in protective device or its setup condition yourself.**
  Changing protective device specifications can cause electric shock, fire or burst.
- **Be sure to clamp the cables properly so that they do not touch any internal component of the unit.**
  If cables touch any internal component, it can cause overheating and fire.
- **Be sure to install service cover properly.**
  Improper installation can cause electric shock or fire due to intrusion of dust or water.
- **Be sure to use the prescribed power and connecting cables for electrical work.**
  Using improper cables can cause electric leak or fire.
- **This appliance must be connected to main power source by means of a circuit breaker or switch with a contact separation of at least 3mm.**
  Improper electrical work can cause unit failure or personal injury.
- **When plugging this unit, a plug conforming to the standard IEC60884-1 must be used.**
  Using improper plug can cause electric shock or fire.
- **Be sure to connect the power source cable with power source properly.**
  Improper connection can cause intrusion of dust or water resulting in electric shock or fire.

⚠ CAUTION

- **Take care when carrying the unit by hand.**
  If the unit weight is more than 20kg, it must be carried by two or more persons.
  Do not carry the unit by the plastic straps. Always use the carry handle.
- **Do not install the outdoor unit in a location where insects and small animals can inhabit.**
  Insects and small animals can enter the electrical parts and cause damage resulting in fire or personal injury. Instruct the user to keep the surroundings clean.
- **If the outdoor unit is installed at height, make sure that there is enough space for installation, maintenance and service.**
  Insufficient space can result in personal injury due to falling from the height.
- **Do not install the unit near the location where neighbours are bothered by noise or air generating from the unit.**
  It can affect surrounding environment and cause a claim.
- **Do not install in the locations where unit is directly exposed to corrosive gases (like sulphide gas, chloride gas), sea breeze or salty atmosphere.**
  It can cause corrosion of heat exchanger and damage to plastic parts.
- **Do not install the unit close to the equipments that generate electromagnetic waves and/or high-harmonic waves.**
  Equipment such as inverters, standby generators, medical high frequency equipments and telecommunication equipments can affect the system, and cause malfunctions and breakdowns.
  The system can also affect medical equipment and telecommunication equipment, and obstruct its function or cause jamming.
- **Do not install the unit in the locations where:**
  • There are heat sources nearby.
  • Unit is directly exposed to rain or sunlight.
  • There is any obstacle which can prevent smooth air circulation from inlet and outlet side of the unit.
  • Unit is directly exposed to oil mist and steam such as kitchen.
  • Chemical substances like ammonia (organic fertilizer), calcium chloride (snow melting agent) and acid (sulfurous acid etc.), which can harm the unit, will generate or accumulate.
  • Drain water can not be discharged properly.
  • TV set or radio receiver is placed within 1m.
  • Height above sea level is more than 1000m.
  It can cause performance degradation, corrosion and damage of components, unit malfunction and fire.
- **Dispose of all packing materials properly.**
  Packing materials contain nails and wood which can cause personal injury.
  Keep the polybag away from children to avoid the risk of suffocation.
- **Do not put anything on the outdoor unit.**
  Object may fall causing property damage or personal injury.
- **Do not touch the aluminum fin of the outdoor unit.**
  Aluminium fin temperature is high during heating operation. Touching fin can cause burn.
- **Do not touch any refrigerant pipe with your hands when the system is in operation.**
  During operation the refrigerant pipes become extremely hot or extremely cold depending on the operating condition. Touching pipes can cause personal injury like burn (hot/cold).
- **Install isolator or disconnect switch on the power source wiring in accordance with the local codes and regulations.**
  The isolator should be locked in OFF state in accordance with EN60204-1.

1. ACCESSORIES AND TOOLS

Standard accessories (supplied with indoor unit)

(1)	Installation board	1pc	(4)	Tapping screws (for installation board ø4 X 25mm)		5pcs
(2)	Remote control	1pc	(5)	Wood screws (for remote control holder ø3.5 X 16mm)		2pcs
(3)	Remote control holder	1pc	(6)	Batteries [R03 (AAA, Micro) 1.5V]		2pcs

Locally procured parts

(a)	Sleeve (1pc)
(b)	Sealing plate (1pc)
(c)	Inclination plate (1pc)
(d)	Putty
(e)	Connecting cable
(f)	Drain hose (extension hose)
(g)	Piping cover (for insulation of connection piping)
(h)	Clamp and screw (for finishing work)
(i)	Electrical tape

Tools for installation Work

Plus headed driver	Pipe cutter
Knife	Hole core drill (65mm in diameter)
Saw	Wrench key (Hexagon) [4m/m]
Tape measure	Flaring tool set*
Torque wrench (14.0-42.0N·m (1.4-4.2kgf·m))	Gas leak detector*
	Pipe bender
Plier	Flare adjustment gauge

* Designed specifically for R410A

2. SELECTING INSTALLATION LOCATION

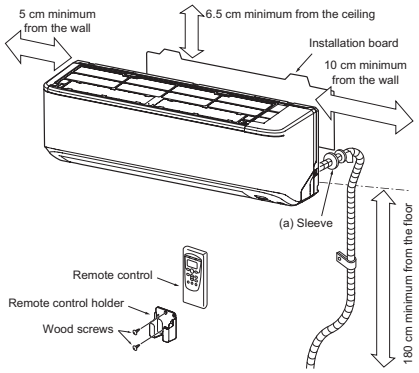
After getting customer's approval, select installation location according to following guidelines.

1. Indoor unit

- Where there is no obstruction to the airflow and where the cooled and heated air can be evenly distributed.
- A solid place where the unit or the wall will not vibrate.
- A place where there will be enough space for servicing. (Where space mentioned on the right side can be secured.)
- Where it is easy to conduct wiring and piping work.
- A place where unit is not directly exposed to sunlight or street light.
- A place where it can be easily drained.
- A place separated at least 1m away from the television or the radio. (To prevent interference to images and sounds.)
- A place where this unit is not affected by the high frequency equipment or electric equipment.
- Avoid installing this unit in place where there is much oil mist.
- A place where there is no electric equipment or household.
- Install the indoor unit on the wall where the height from the floor to the bottom of the unit is more than 180 cm.

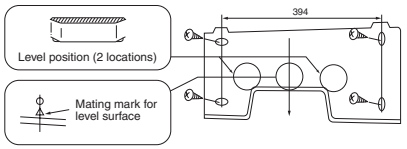
2. Remote control

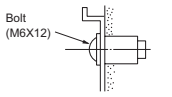
- A place where the air-conditioner can receive the signal surely during operating the remote control.
- A place where it is not affected by the TV, radio etc.
- Do not place where it is exposed to direct sunlight or near heat devices such as a stove.

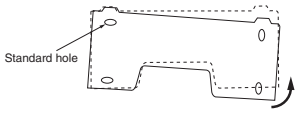


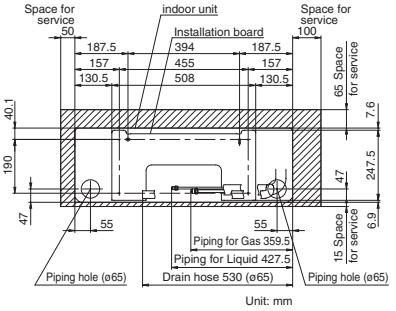
3. INSTALLING INSTALLATION BOARD

- Installation board should be installed on the wall which can support the weight of the indoor unit.
- Adjustment of the installation board in the horizontal direction is to be conducted with five screws in a temporary tightened state.
- With the standard hole as a center, adjust the board and level it.







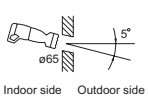


⚠ CAUTION

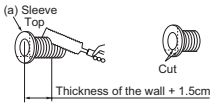
Improper adjustment of the installation board can cause water leakage.

4. DRILLING HOLE AND FIXTURE OF SLEEVE

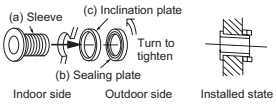
When drilling the wall that contains a metal lath, wire lath or metal plate, be sure to use sealing plate, sleeve and inclination plate (Locally procured parts).



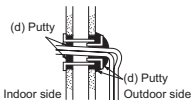
(1) Drill a hole with hole core drill.



(2) Cut sleeve to adjust to wall thickness. In case of rear piping draw out, cut off the lower and the right side portions of the sleeve collar.



(3) Fix sealing plate, sleeve and inclination plate.



(4) After piping work, seal the hole in the wall with putty.

⚠ WARNING

Completely seal the hole in the wall with putty. If not sealed properly, dust, insects, small animals, and highly humid air may enter the room from outside, which could result in fire or other hazards.

⚠ CAUTION

Completely seal the hole in the wall with putty. If not sealed properly, furniture and other fixtures may be damaged by water leakage or condensation.

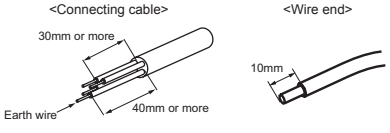
5. ELECTRICAL WIRING WORK

- Before installation, make sure that the power source complies with the air-conditioner's power specification.
- Carry out electrical wiring work according to following guidelines.

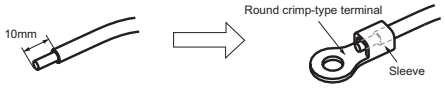
1. Preparing cable

(1) Selecting cable
Select the connecting cable in accordance with the specifications mentioned below.
4-core* 1.5mm² conformed with 60245 IEC57
* 1 Earth wire is included (Yellow/Green).

(2) Arrange each wire length as shown below.
Make sure that each wire is stripped 10mm from the end.



(3) Attach round crimp-type terminal to each wire as shown in the below.
Select the size of round crimp-type terminal after considering the specifications of terminal block and wire diameter.

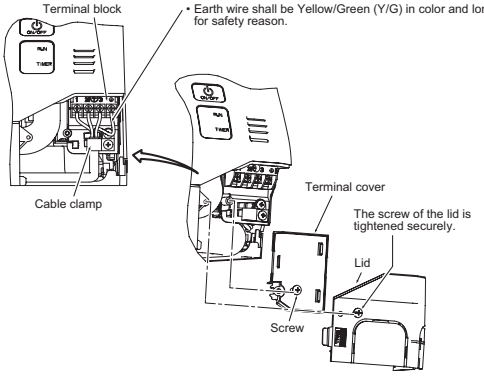


2. Connecting cable

(1) Remove the lid.
(2) Remove the terminal cover.
(3) Remove the cable clamp.
(4) Connect the connecting wires to the terminal block.
(5) Fix the connecting cable by cable clamp.
(6) Fix the terminal cover.
(7) Fix the lid.

NOTE

Take care not to confuse the terminal numbers for indoor and outdoor connections.



⚠ WARNING

Incorrect wiring connection can cause malfunction or fire.

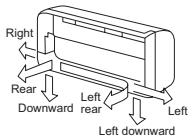
6. FORMING PIPING AND DRAIN HOSE

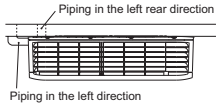
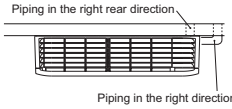
1. Forming piping

Piping is possible in the right, rear, downward, left, left rear or left downward direction.

NOTE

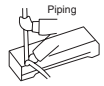
Sufficient care must be taken not to damage the panels when connecting pipes.



Left hand side piping	Right hand side piping
	

Forming of pipings

- Hold the bottom of the piping and fix direction before stretching it and shaping it.

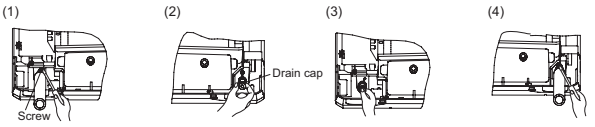


Taping of the exterior

- Tape only the portion that goes through the wall.
- Always tape the wiring with the piping.

2. Drain change procedures

(1) Remove the screw and drain hose.
(2) Remove the drain cap by hand or pliers.
(3) Insert the drain cap which was removed at procedure (2) securely using a hexagonal wrench etc.
(4) Install the drain hose and screw securely.

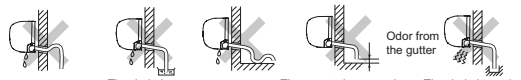


⚠ CAUTION

Incorrect installation of drain hose and cap can cause water leakage.

7. DRAINAGE WORK

- Arrange the drain hose in a downward angle.
- Avoid the following drain piping.

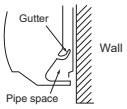


- Pour water to the drain pan located under the heat exchanger, and ensure that the water is discharged outdoor.
- When extended drain hose is present inside the room, insulate it securely with heat insulator available in the market.

Since this air-conditioner is designed to collect dew drops on the rear surface to the drain pan, do not install the connecting wire above the gutter.

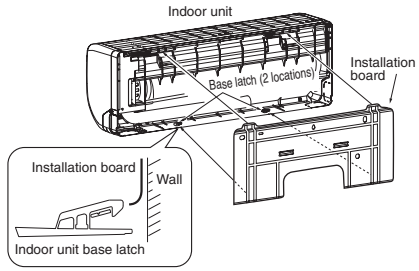
⚠ CAUTION

Incorrect drainage work can cause water leakage.



8. INSTALLING INDOOR UNIT

Installing the indoor unit to installation board

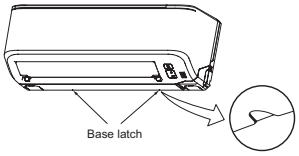


(1) Pass the pipe through the hole in the wall, and hook the upper part of the indoor unit to the installation board.

(2) Gently push the lower part to fix the indoor unit base lower latch to installation board.

Removing the indoor unit from installation board

(1) Push up at the marked portion of the indoor unit base latch, and slightly pull it toward you (both right and left hand sides). (The indoor unit base latch can be removed from the installation board.)
(2) Push up the indoor unit upward so that it can be removed from installation board.



9. CONNECTING PIPING WORK

1. Preparation of connecting pipe

1.1. Selecting connecting pipe

Select connecting pipe according to the following table.

Gas pipe	ø9.52
Liquid pipe	ø6.35

- Pipe wall thickness must be greater than or equal to 0.8 mm.
- Pipe material must be O-type (Phosphorus deoxidized seamless copper pipe ICS 23.040.15, ICS 77.150.30).

1.2. Cutting connecting pipe

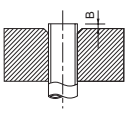
(1) Cut the connecting pipe to the required length with pipe cutter.
(2) Hold the pipe downward and remove the burrs. Make sure that no foreign material enters the pipe.
(3) Cover the connecting pipe ends with the tape.

2. Piping work

2.1. Flaring pipe

(1) Take out flare nuts from the service valves of indoor unit and engage them onto connecting pipes.
(2) Flare the pipes according to table and figure shown below.
Flare dimensions for R410A are different from those for conventional refrigerant.
Although it is recommended to use the flaring tools designed specifically for R410A, conventional flaring tools can also be used by adjusting the measurement of protrusion B with a flare adjustment gauge.

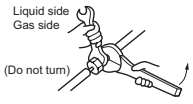
Copper pipe outer diameter	A 0 −0.4
ø6.35	9.1
ø9.52	13.2



Copper pipe outer diameter	Rigid (clutch) type	
	R410A	Conventional
ø6.35	0-0.5	1.0-1.5
ø9.52		

2.2 Connecting pipes

(1) Connect pipes on both liquid and gas sides.
(2) Tighten nuts to specified torque shown in the table below.



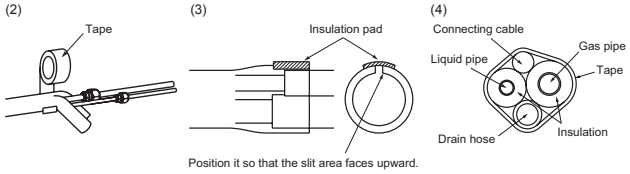
Service valve size (mm)	Tightening torque (N·m)
ø6.35 (1/4")	14-18
ø9.52 (3/8")	34-42

⚠ CAUTION

- Do not apply refrigerating machine oil to the flared surface. It can cause refrigerant leakage.
- Do not apply excess torque to the flared nuts. The flared nuts may crack resulting in refrigerant leakage.

3. Heating and condensation prevention

(1) Dress the connecting pipes (both liquid and gas pipes) with insulation to prevent it from heating and dew condensation.
Use the heat insulating material which can withstand 120°C or higher temperature. Make sure that insulation is wrapped tightly around the pipes and no gap is left between them.
(2) Wrap the refrigerant pipings of indoor unit with indoor unit heat insulation using tape.
(3) Cover the flare-connected joints (indoor side) with the indoor unit heat insulation and wrap it with an insulation pad (standard accessory provided with indoor unit).
(4) Wrap the connecting pipes, connecting cable and drain hose with the tape.



NOTE

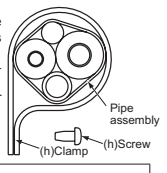
Locations where relative humidity exceeds 70%, both liquid and gas pipes need to be dressed with 20mm or thicker heat insulation materials.

⚠ CAUTION

- Improper insulation can cause condensate(water) formation during cooling operation.
Condensate can leak or drip causing damage to household property.
- Poor heat insulating capacity can cause pipe outer surface to reach high temperature during heating operation. It can cause cable deterioration and personal injury.

4. Finishing work

(1) Make sure that the exterior portion of connecting pipes, connecting cable and drain hose is wrapped properly with tape. Shape the connecting pipes to match with the contours of the pipe assembly route.
(2) Fix the pipe assembly with the wall using clamps and screws. Pipe assembly should be anchored every 1.5m or less to isolate the vibration.
(3) Install the service cover securely. Water may enter the unit if service cover is not installed properly, resulting in unit malfunction and failure.



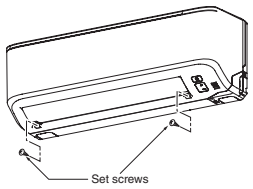
⚠ CAUTION

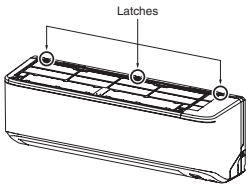
Make sure that the connecting pipes do not touch the components within the unit. If pipes touch the internal components, it may generate abnormal sounds and/or vibrations.

10. HOW TO REMOVE AND INSTALL FRONT PANEL

Removing
(1) Remove the 2 screws.
(2) Remove the 3 upper latches and then front panel can be removed.

Installing
(1) Cover the unit with the front panel and fix 3 upper latches.
(2) Secure the front panel with the 2 screws.



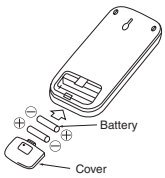


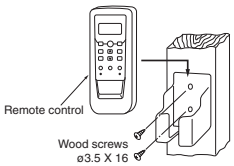
11. INSTALLING REMOTE CONTROL

Mount the batteries
(1) Slide and take out the cover of backside.
(2) Mount the batteries [R03 (AAA, Micro), ×2 pieces] in the body properly. (Fit he poles with the indication marks + & −)
(3) Set the cover again.

NOTE
- Do not use new and old batteries together.
- In case the unit is not operated for a long time, take out the batteries

Installing remote control holder
(1) Select the place where the unit can receive signals.
(2) Fix the holder to pillar or wall with wood screws.

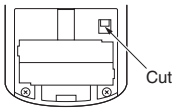




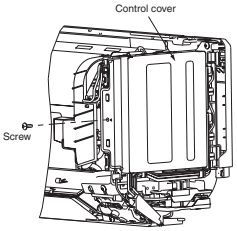
12. INSTALLING TWO AIR-CONDITIONERS IN THE SAME ROOM

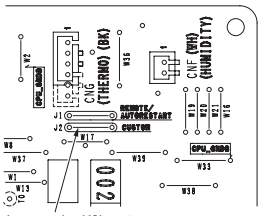
In case two air-conditioners are installed in the same room, apply this setting so that one unit can be operated with only one remote control.

Setting one remote control
(1) Slide and take out the cover and batteries.
(2) Cut the switching line next to the battery with wire cutters.
(3) Set the batteries and cover again.



Setting one indoor unit
(1) Remove the front panel.
(2) Remove the control cover. (Remove the screw.)
(3) Cut jumper wire J2 (marked CUSTOM on the PCB) on the indoor control board. Do not allow the cut wires to contact any other wiring.
(4) Install the control box and front panel.





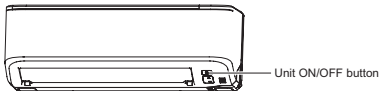
Jumper wire (J2) custom

13. PUMP DOWN WORK

For the environmental protection, be sure to pump down when relocating or disposing of the unit.
Pump down is the method of recovering refrigerant from the indoor unit to the outdoor unit before the connecting pipes are removed from the unit.
When pump down is carried out, forced cooling operation is needed.

Forced cooling operation
(1) Turn off the power source and turn it on again after 1 miniute.
(2) Press the ON/OFF button continuously for at least 5 seconds. Then operation will start.

For the detail of pump down, refer to the installation manual of outdoor unit.



14. INSTALLATION CHECK AND TEST RUN

After finishing the installation work, check the following points again before turning on the power. Conduct a test run and ensure that the unit operates properly.
At the same time, explain to the customer how to use the unit and how to take care of the unit following the user's manual.

Before test run
Before test run, check following points.

Power source voltage complies with the rated voltage of air-conditioner.	
Earth leakage breaker and circuit breaker are installed.	
Power cable and connecting cable are securely fixed to the terminal block.	
Both liquid and gas service valves are fully open.	
No gas leaks from the joints of the service valves.	
Indoor and outdoor side pipe joints have been insulated.	
Hole on the wall is completely sealed with putty.	
Drain hose and cap are installed properly.	
Screw of the lid is tightened securely.	

Test run
Check following points during test run.

Indoor unit receives signal of remote control.	
Air-conditioning operation is normal.	
There is no abnormal noise.	
Water drains out smoothly.	
Display of remote control is normal.	

After test run

Explain the operating and maintenance methods to the user according to the user's manual.	
Keep this installation manual together with user's manual.	

NOTE
During restart or change in operation mode, the unit will not start operating for approximately 3 minutes. This is to protect the unit and it is not malfunction.

(2) Floor standing type (SRF)

(a) Models SRF25ZMX-S, 35ZMX-S, 50ZMX-S

RFB012A008A A

FLOOR TYPE AIR CONDITIONER
R410A REFRIGERANT USED

- **This installation manual illustrates the method of installing an indoor unit.**
- **For electrical wiring work, please see instructions set out on the backside.**
- **For outdoor unit installation and refrigerant piping, please refer to page 14.**
- **A wired remote control unit is supplied separately as an option part.**
- **When install the unit, be sure to check whether the selection of installation place, power source specifications, usage limitation (piping length, height differences between indoor and outdoor units, power source voltage and etc.) and installation spaces.**

SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and strictly follow it during the installation work in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, ⚠WARNING and ⚠CAUTION.
  ⚠WARNING : Wrong installation would cause serious consequences such as injuries or death.
  ⚠CAUTION : Wrong installation might cause serious consequences depending on circumstances.
  Both mentions the important items to protect your health and safety so strictly follow them by any means.
- Be sure to confirm no anomaly on the equipment by commissioning after completed installation and explain the operating methods as well as the maintenance methods of this equipment to the user according to the owner's manual.
- Keep the installation manual together with owner's manual at a place where any user can read at any time. Moreover if necessary, ask to hand them to a new user.
- For installing qualified personnel, take precautions in respect to themselves by using suitable protective clothing, groves, etc., and then perform the installation works.
- Please pay attention not to fall down the tools, etc. when installing the unit at the high position.
- If unusual noise can be heard during operation, consult the dealer.
- The meanings of "Marks" used here are shown as follows:

⃠	Never do it under any circumstances.	❗ ⏚	Always do it according to the instruction.

⚠ WARNING

- **Installation must be carried out by the qualified installer.**
  If you install the system by yourself, it may cause serious trouble such as water leaks, electric shocks, fire and personal injury, as a result of a system malfunction. Do not carry out the installation and maintenance work except the by qualified installer.
- **Install the system in full accordance with the installation manual.**
  Incorrect installation may cause bursts, personal injury, water leaks, electric shocks and fire.
- **Be sure to use only for household and residence.**
  If this appliance is installed in inferior environment such as machine shop and etc., it can cause malfunction.
- **Use the original accessories and the specified components for installation.**
  If parts other than those prescribed by us are used, It may cause water leaks, electric shocks, fire and personal injury.
- **Install the unit in a location with good support.**
  Unsuitable installation locations can cause the unit to fall and cause material damage and personal injury.
- **Ventilate the working area well in the event of refrigerant leakage during installation.**
  If the refrigerant comes into contact with naked flames, poisonous gas is produced.
- **When installing in small rooms, take prevention measures not to exceed the density limit of refrigerant in the event of leakage, referred by the formula (accordance with ISO5149).**
  If the density of refrigerant exceeds the limit, please consult the dealer and install the ventilation system, otherwise lack of oxygen can occur, which can cause serious accident.
- **After completed installation, check that no refrigerant leaks from the system.**
  If refrigerant leaks into the room and comes into contact with an oven or other hot surface, poisonous gas is produced.
- **Use the prescribed pipes, flare nuts and tools for R410A.**
  Using existing parts (for R22 or R407C) can cause the unit failure and serious accidents due to burst of the refrigerant circuit.
- **Tighten the flare nut by torque wrench with specified method.**
  If the flare nut were tightened with excess torque, this may cause burst and refrigerant leakage after a long period.
- **The electrical installation must be carried out by the qualified electrician in accordance with "the norm for electrical work" and "national wiring regulation", and the system must be connected to the dedicated circuit.**
  Power supply with insufficient capacity and incorrect function done by improper work can cause electric shocks and fire.
- **Be sure to shut off the power before starting electrical work.**
  Failure to shut off the power can cause electric shocks, unit failure or incorrect function of equipment.
- **Be sure to use the cables conformed to safety standard and cable ampacity for power distribution work.**
  Unconformable cables can cause electric leak, anomalous heat production or fire.
- **This appliance must be connected to main power supply by means of a circuit breaker or switch (fuse:16A) with a contact separation of at least 3mm.**
- **When plugging this appliance, a plug conforming to the norm IEC60884-1 must be used.**
- **Use the prescribed cables for electrical connection, tighten the cables securely in terminal block and relieve the cables correctly to prevent overloading the terminal blocks.**
  Loose connections or cable mountings can cause anomalous heat production or fire.
- **Arrange the wiring in the control box so that it cannot be pushed up further into the box. Install the service panel correctly.**
  Incorrect installation may result in overheating and fire.
- **Be sure to switch off the power supply in the event of installation, inspection or servicing.**
  If the power supply is not shut off, there is a risk of electric shocks, unit failure or personal injury due to the unexpected start of fan.
- **Be sure to wear protective goggles and gloves while at work.**
- **Earth leakage breaker must be installed.**
  If the earth leakage breaker is not installed, it can cause electric shocks.

- **Do not put the drainage pipe directly into drainage channels where poisonous gases such as sulphide gas can occur.**
  Poisonous gases will flow into the room through drainage pipe and seriously affect the user's health and safety. This can also cause the corrosion of the indoor unit and a resultant unit failure or refrigerant leak.
- **Ensure that no air enters in the refrigerant circuit when the unit is installed and removed.**
  If air enters in the refrigerant circuit, the pressure in the refrigerant circuit becomes too high, which can cause burst and personal injury.
- **Do not processing, splice the power cord, or share a socket with other power plugs.**
  This may cause fire or electric shock due to defecting contact, defecting insulation and over-current etc.
- **Do not bundling, winding or processing for the power cord. Or, do not deforming the power plug due to tread it.**
  This may cause fire or heating.

⚠ WARNING

- **Do not vent R410A into the atmosphere : R410A is a fluorinated greenhouse gas, covered by the Kyoto Protocol with Groval Warming Potential (GWP)=1975.**
- **Do not run the unit with removed panels or protections.**
  Touching rotating equipments, hot surfaces or high voltage parts can cause personal injury due to entrapment, burn or electric shocks.
- **Do not perform any change of protective device itself or its setup condition.**
  The forced operation by short-circuiting protective device of pressure switch and temperature controller or the use of non specified component can cause fire or burst.

⚠ CAUTION

- **Carry out the electrical work for ground lead with care.**
  Do not connect the ground lead to the gas line, water line, lightning conductor or telephone line's ground lead. Incorrect grounding can cause unit faults such as electric shocks due to short-circuiting.

- **Use the circuit breaker of correct capacity. Circuit breaker should be the one that disconnect all poles under over current.**
  Using the incorrect one could cause the system failure and fire.
- **Install isolator or disconnect switch on the power supply wiring in accordance with the local codes and regulations.**
  The isolator should be locked in OFF state in accordance with EN60204-1.
- **Be sure to install indoor unit properly according to the installation manual in order to run off the drainage smoothly.**
  Improper installation of indoor unit can cause dropping water into the room and damaging personal property.
- **Install the drainage pipe to run off drainage securely according to the installation manual.**
  Incorrect installation of the drainage pipe can cause dropping water into the room and damaging personal property.
- **Be sure to install the drainage pipe with descending slope of 1/100 or more, and not to make traps and air-bleedings.**
  Check if the drainage runs off securely during commissioning and ensure the space for inspection and maintenance.
- **Secure a space for installation, inspection and maintenance specified in the manual.**
  Insufficient space can result in accident such as personal injury due to falling from the installation place.
- **For installation work, be careful not to get injured with the heat exchanger, piping flare portion or screws etc.**
- **Be sure to insulate the refrigerant pipes so as not to condense the ambient air moisture on them.**
  Insufficient insulation can cause condensation, which can lead to moisture damage on the ceiling, floor, furniture and any other valuables.
- **When perform the air conditioner operation (cooling or drying operation) in which ventilator is installed in the room. In this case, using the air conditioner in parallel with the ventilator, there is the possibility that drain water may backflow in accordance with the room lapse into the negative pressure status. Therefore, set up the opening port such as incorporate the air into the room that may appropriate to ventilation (For example; Open the door a little). In addition, just as above, so set up the opening port if the room lapse into negative pressure status due to register of the wind for the high rise apartment etc.**
- **Be sure to perform air tightness test by pressurizing with nitrogen gas after completed refrigerant piping work.**
  If the density of refrigerant exceeds the limit in the event of refrigerant leakage in the small room, lack of oxygen can occur, which can cause serious accidents.

- **Do not install the unit in the locations listed below.**
  - Locations where carbon fiber, metal powder or any powder is floating.
  - Locations where any substances that can affect the unit such as sulphide gas, chloride gas, acid and alkaline can occur.
  - Vehicles and ships.
  - Locations where cosmetic or special sprays are often used.
  - Locations with direct exposure of oil mist and steam such as kitchen and machine plant.
  - Locations where any machines which generate high frequency harmonics are used.
  - Locations with salty atmospheres such as coastlines.
  - Locations with heavy snow (If installed, be sure to provide base flame and snow hood mentioned in the manual).
  - Locations where the unit is exposed to chimney smoke.
  - Locations at high altitude (more than 1000m high).
  - Locations with ammonic atmospheres.
  - Locations where heat radiation from other heat source can affect the unit.
  - Locations without good air circulation.
  - Locations with any obstacles which can prevent inlet and outlet air of the unit.
  - Locations where short circuit of air can occur (in case of multiple units installation).
  - Locations where strong air blows against the air outlet of outdoor unit.
  - Locations where something located above the unit could fall.

  It can cause remarkable decrease in performance, corrosion and damage of components, malfunction and fire.
- **Do not install the indoor unit in the locations listed below (Be sure to install the indoor unit according to the installation manual for each model because each indoor unit has each limitation).**
  - Locations with any obstacles which can prevent inlet and outlet air of the unit.
  - Locations where vibration can be amplified due to insufficient strength of structure.
  - Locations where the infrared receiver is exposed to the direct sunlight or the strong light beam (in case of the infrared specification unit).
  - Locations where an equipment affected by high harmonics is placed (TV set or radio receiver is placed within 1m).
  - Locations where drainage cannot run off safely.

  It can affect performance or function and etc.
- **Do not install the unit near the location where leakage of combustible gases can occur.**
  If leaked gases accumulate around the unit, it can cause fire.
- **Do not install the unit where corrosive gas (such as sulfurous acid gas etc.) or combustible gas (such as thinner and petroleum gases) can accumulate or collect, or where volatile combustible substances are handled.**
  Corrosive gas can cause corrosion of heat exchanger, breakage of plastic parts and etc. And combustible gas can cause fire.
- **Do not use the indoor unit at the place where water splashes may occur such as in laundries.**
  Since the indoor unit is not waterproof, it can cause electric shocks and fire.
- **Do not install nor use the system close to the equipment that generates electromagnetic fields or high frequency harmonics.**
  Equipment such as inverters, standby generators, medical high frequency equipments and telecommunication equipments can affect the system, and cause malfunctions and breakdowns. The system can also affect medical equipment and telecommunication equipment, and obstruct its function or cause jamming.
- **Do not place any variables which will be damaged by getting wet under the indoor unit.**
  When the relative humidity is higher than 80% or drainage pipe is clogged, condensation or drainage water can drop and it can cause the damage of valuables.
- **Do not install the remote control at the direct sunlight.**
  It can cause malfunction or deformation of the remote control.
- **Do not use the unit for special purposes such as storing foods, cooling precision instruments and preservation of animals, plants or art.**
  It can cause the damage of the items.
- **Do not use any materials other than a fuse with the correct rating in the location where fuses are to be used.**
  Connecting the circuit with copper wire or other metal thread can cause unit failure and fire.
- **Do not touch any buttons with wet hands.**
  It can cause electric shocks.
- **Do not touch any refrigerant pipes with your hands when the system is in operation.**
  During operation the refrigerant pipes become extremely hot or extremely cold depending the operating condition, and it can cause burn injury or frost injury.

BEFORE INSTALLATION

○Before installation check that the power source matches the air-conditioner.

Standard accessories (Installation kit) Accessories for indoor unit		Q'ty
①	Installation board (Attached to the rear of the indoor unit)	1
②	Wireless remote control	1
③	Remote control holder	1
④	Tapping screws (for installation board ø4 X 25mm)	9
⑤	Wood screws (for remote control switch holder ø3.5 X 16mm)	2
⑥	Battery [R03 (AAA, Micro) 1.5V]	2
⑦	Air-cleaning filters	2
⑧	Filter holders (Attached to the front panel of indoor unit)	2
⑨	Pipe cover (200mm)	1
⑩	Band	2

Option parts		Q'ty
ⓐ	Sealing plate	1
ⓑ	Sleeve	1
ⓒ	Inclination plate	1
ⓓ	Putty	1
ⓔ	Drain hose (extension hose)	1
ⓕ	Piping cover (for insulation of connection piping)	1

Necessary tools for the installation work	
1	Plus headed driver
2	Knife
3	Saw
4	Tape measure
5	Hammer
6	Spanner wrench
7	Torque wrench (14.0 ~ 61.0N·m / (1.4 ~ 6.1kgf·m))
8	Hole core drill (65mm in diameter)
9	Wrench key (Hexagon) [4m/m]
10	Flaring tool set (Designed specifically for R410A)
11	Gas leak detector (Designed specifically for R410A)
12	Gauge for projection adjustment (Used when flare is made by using conventional flare tool)
13	Pipe bender

SELECTION OF INSTALLATION LOCATION

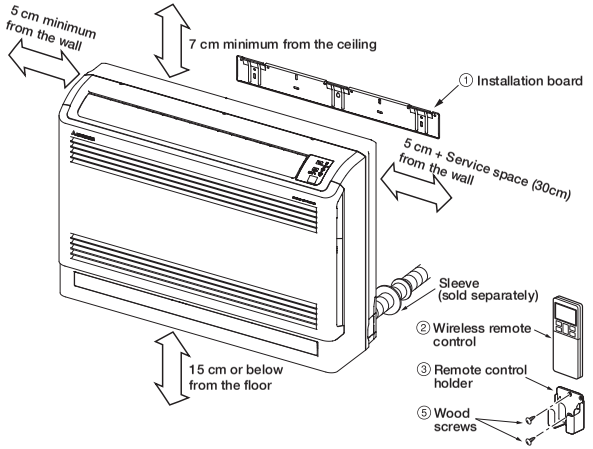
(Install at location that meets the following conditions, after getting approval from the customer)

Indoor unit

○ Where there is no obstructions to the air flow and where the cooled and heated air can be evenly distributed.
○ A solid place where the unit or the wall will not vibrate.
○ A place where there will be enough space for servicing. (Where space mentioned below can be secured)
○ Where wiring and the piping work will be easy to conduct.
○ The place where receiving part is not exposed to the direct rays of the sun or the strong rays of the street lighting.
○ A place where it can be easily drained.
○ A place separated at least 1m away from the television or the radio. (To prevent interference to images and sounds.)
○ Places where this unit is not affected by the high frequency equipment or electric equipment.
○ Avoid installing this unit in place where there is much oil mist.
○ Places where there is no electric equipment or household under the installing unit.
○ Install the indoor unit on flat wall.

Wireless remote control

○ A place where the air-conditioner can be received the signal surely during operating the wireless remote control.
○ Places where there is no affected by the TV and radio etc.
○ Do not place where exposed to direct sunlight or near heat devices such as a stove.

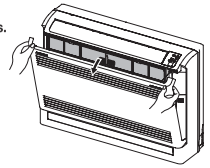


INSTALLATION OF INDOOR UNIT

Open and detachment of the air inlet panel

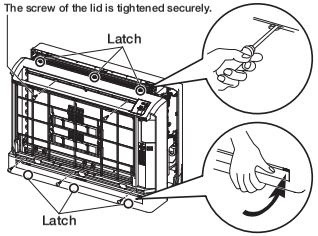
○ To open, pull the panel at both ends of upper part and release latches, and undo the strings. Then remove the panel.

⚠CAUTION
When removing the air-inlet panel, be careful not to drop it on your feet.



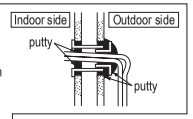
How to remove the front panel

① Remove the air inlet panel.
② Remove the 5 set screws.
③ Remove the 3 latches in the upper section.
If the latches are difficult to remove, push the latch portion out using a screw driver, for example.
④ Move the lower part of the panel forward and remove the 6 latches in the under section.



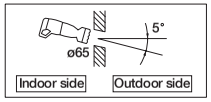
⚠WARNING
Completely seal the hole in the wall with putty. If not sealed properly, dust, insects, small animals, and highly humid air may enter the room from outside, which could result in fire or other hazards.

⚠CAUTION
Completely seal the hole in the wall with putty. If not sealed properly, furniture and other fixtures may be damaged by water leakage or condensation.

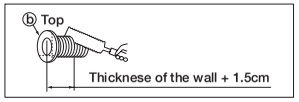


Drilling of holes and fixture of sleeve (Option parts)

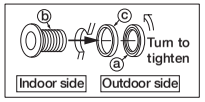
When drilling the wall that contains a metal lath, wire lath or metal plate, be sure to use pipe hole sleeve sold separately.

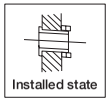


○ Drill a hole with whole core drill.



○ In case of rear piping draw out, cut off the lower and the right side portions of the sleeve collar.

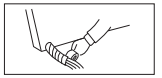




Installing the support of piping

In case of piping in the right rear direction

Taping of the exterior

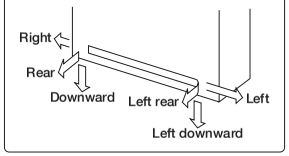


○ Tape only the portion that goes through the wall.
○ Always tape the wiring with the piping.

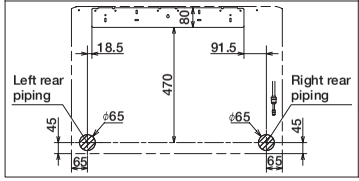
Sufficient care must be taken not to damage the panel when connecting pipes.

Indoor unit piping direction

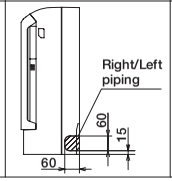
Piping is possible in the rear, left, left rear, left downward, right or downward direction.



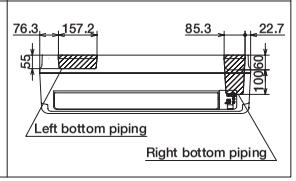
For Right or Left rear piping



For Right or Left piping



For Right or Left bottom piping



⚠CAUTION
Be careful not to stress the connecting refrigerant pipe. (Do not pull with a force of larger than 5 kgf.) If improperly installed, it may cause abnormal noise and vibration.

Drainage

○ Arrange the drain hose in a downward angle.
○ Avoid the following drain piping.

⚠CAUTION Go through all installation steps and check if the dralnage is all right. Otherwise water leak may occur.

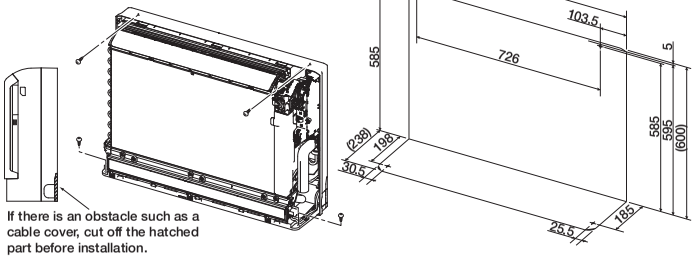
○ Pour water to the drain pan located under the heat exchanger, and ensure that the water is discharged outdoor.
○ When the extended drain hose is indoor, securely insulate it with a heat insulator available in the market.

Fixing of indoor unit

⚠CAUTION • During the installation, do not lean on the control box or the display, as they may be damaged.
• Install the indoor unit on flat wall. If improperly installed, it may cause abnormal noise and vibration. (Distortion on the wall shall be no larger than 3 mm.)

Floor installation

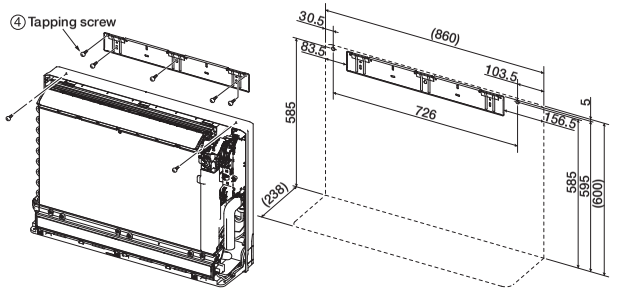
Secure using upper 2 screws for floor installations.
If possible, also attach two lower screws.



If there is an obstacle such as a cable cover, cut off the hatched part before installation.

Wall installation

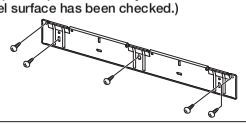
At first secure the installation board using 5 screws and the indoor unit using 2 screws.



○When practicing the half-console, make sure to fix the unit securely. Otherwise, it could fall.

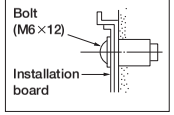
Installation of Installation board

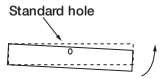
Look for the inside wall structures (Intersediats support or pillar and finally install the unit after level surface has been checked.)



○Adjustment of the installation board in the horizontal direction is to be conducted with five screws in a temporary tightened state.
○Adjust so the board will be level by turning the board with the standard hole as the center.

Fixing on concrete wall
Use of nut anchor



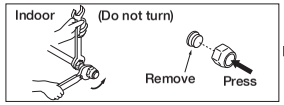


CONNECTION OF REFRIGERANT PIPINGS

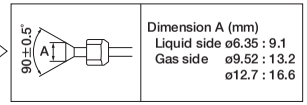
⚠CAUTION Be careful not to stress the connecting refrigerant pipes. (Do not pull with a force of larger than 5 kgf.)

Preparation

Keep the openings of the pipes covered with tapes etc. to prevent dust, sand, etc. from entering them.



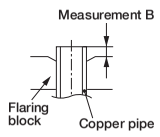
○Remove the flared nuts. (on both liquid and gas sides)



○Install the removed flared nuts to the pipes to be connected, then flared the pipes.

⚠CAUTION
Do not apply refrigerating machine oil to the flared surface.

• Flaring work

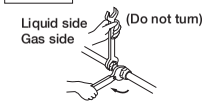


Copper pipe diameter	Measurement B (mm)		
	Clutch type flare tool for R410A	Conventional (R22) flare tool	
		Clutch type	Wing nut type
ø6.35	0.0 - 0.5	1.0 - 1.5	1.5 - 2.0
ø9.52	0.0 - 0.5	1.0 - 1.5	1.5 - 2.0
ø12.7	0.0 - 0.5	1.0 - 1.5	2.0 - 2.5

Use a flare tool designed for R410A or a conventional flare tool. Please note that measurement B (protrusion from the flaring block) will vary depending on the type of a flare tool in use.
If a conventional flare tool is used, please use a copper pipe gauge or a similar instrument to check protrusion so that you can keep measurement B to a correct value.

Connection

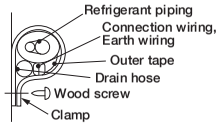
Indoor



○Connect the pipes on both liquid and gas sides.
○Tighten the nuts to the following torque.
Liquid side (ø6.35) : 14.0 - 18.0 N·m (1.4 - 1.8 kgf·m)
Gas side (ø9.52) : 34.0 - 42.0 N·m (3.4 - 4.2 kgf·m)
(ø12.7) : 49.0 - 61.0 N·m (4.9 - 6.1 kgf·m)

⚠CAUTION Do not apply excess torque to the flared nuts. Otherwise, the flared nuts may check depending.

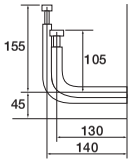
Finishing work and fixing



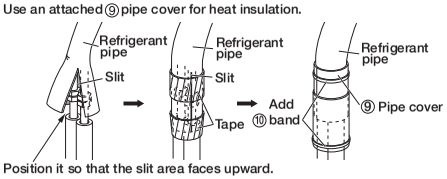
Cover the exterior portion with outer tape and shape the piping so it will match the contours of the route that the piping to take. Also fix the wiring and pipings to the wall with clamps.

Insulation of the connection portion

Pass the refrigerant pipe through the piping hole to indoor side.
Arrange the pipes according to the direction of piping.



Cover the coupling with insulator and then cover it with tapes.
Use an attached ⑨ pipe cover for heat insulation.



⚠CAUTION
If heat insulation is insufficient, water leakage may occur. In addition, the room temperature sensor may give a false alert due to heat radiation from the pipes.

• Cover the indoor unit's flare-connected joints, after they are checked for a gas leak, with an indoor unit heat insulating material and then wrap them with a tape with an attached ⑨ pipe cover placed over the heat insulating material's slit area.

ELECTRICAL WIRING WORK

Preparation of indoor unit

Mounting of connecting wires

① Remove the fixing screw of clamp.
② Connect the connecting wire securely to the terminal block.
1) Connect the connection wire securely to the terminal block. If the wire is not affixed completely, contact will be poor, and it is dangerous as the terminal block may heat up and catch fire.
2) Take care not to confuse the terminal numbers for indoor and outdoor connections.
③ Fix the connecting wire by wiring clamp.
④ Pass the connecting wire through the wiring holder.

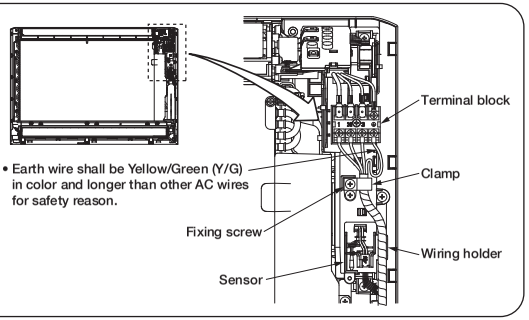
⚠CAUTION
In case of faulty wiring connection, the indoor unit stops, and then the run lamp turns on and the timer lamp blinks.

Use cables for interconnection wiring to avoid loosening of the wires.
CENELEC code for cables Required field cables.

H05RNR4G1.5 (example) or 245IEC57

H	Harmonized cable type
05	300/500 volts
R	Natural-and/or synth, rubber wire insulation
N	Polychloroprene rubber conductors insulation
R	Stranded core
4 or 5	Number of conductors
G	One conductor of the cable is the earth conductor (yellow/green)
1.5	Section of copper wire (mm^2)

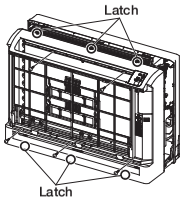
⚠CAUTION
• During installation, do not lean on the control box or the display, as they may be damaged.
• Pass the connecting wire securely through the wiring holder. If it passeson the sensor, it may not detect suction temperature and/or humidity.



• Earth wire shall be Yellow/Green (Y/G) in color and longer than other AC wires for safety reason.

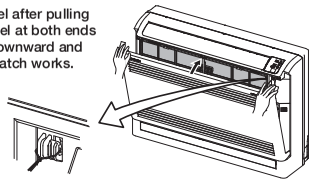
How to fit the front panel

○Fitting
① Do remove the air filter.
② Cover the body with the front panel.
③ Fit the 6 latches in the lower section, then 3 latches in the upper section.
④ Tighten the 5 set screws.
⑤ Fit the air filter.
⑥ Fit the air inlet panel.



Close and attachment of the air inlet panel

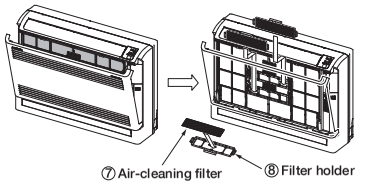
○To close, attach the panel after pulling the strings, hold the panel at both ends of upper part to lower downward and push it slightly until the latch works.



Installing the air-cleaning filters

1. Open the air inlet panel and remove the air filters.
2. Install the air-cleaning filter in the filter holders, and then install the filter holders in the air-conditioner.
   • Each air-cleaning filter can be installed in the upper or lower filter holder.
3. Install the air filters and close the inlet panel.

⚠CAUTION
When installing an air-cleaning filter in the indoor unit, be careful not to injure your hand with the heat exchanger.

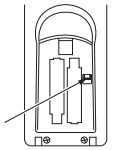


INSTALLING TWO AIR-CONDITIONERS IN THE SAME ROOM

When two air-conditioners are installed in the same room, use this setting when the two air conditioners are not operated with one wireless remote control. Set the wireless remote control and indoor unit.

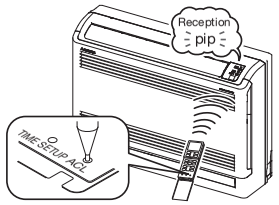
Setting the wireless remote control

① Pull out the cover and take out batteries.
② Disconnect the switching line next to the battery with wire cutters.
③ Insert batteries. Close the cover.



Setting an indoor unit

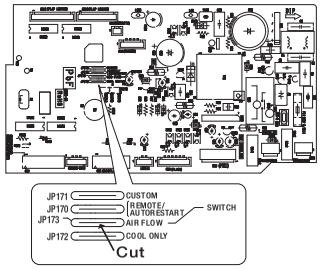
① Turn off the power source, and turn it on after 1 minute.
② Point the wireless remote control that was set according to the procedure described on the left side at the indoor unit and send a signal by pressing the ACL switch on the wireless remote control. Since the signal is sent in about 6 seconds after the ACL switch is pressed, point the wireless remote control at the indoor unit for some time.
③ Check that the reception buzzer sound “pip” is emitted from the indoor unit.
At completion of the setting, the indoor unit emits a buzzer sound “pip”. (If no reception tone is emitted, start the setting from the beginning again.)

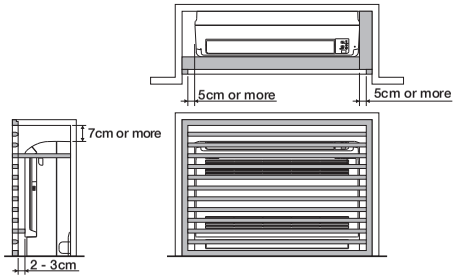


Concealed installation

Install the indoor unit according to the following instructions.
① Secure the upper, right, and left spaces according to the right figure.
② Do not let the horizontal bar obstruct wind from blowing out upward/ downward or reception from the wireless remote control.
③ The lattice size should be 70 % or greater of the open rate.
④ Cut the jumper cable (JP173) on the indoor circuit board to control the blow-out angle.

⚠CAUTION
Incorrect installation may cause problems such as non-cooling, non-warming, and condensation water leaking into the room.





CONCERNING TERMINAL CONNECTION FOR AN INTERFACE

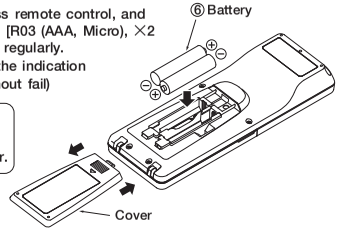
① Remove the front panel and lid of control.
② There is a terminal (respectively marked with CNS) for the indoor control board.
In connecting an interface, connect to the respective terminal securely with the connection harness supplied with an option “Interface connection kit SC-BIKN-E and SC-BIKN2-E” and fasten the connection harness onto the indoor control box with the clamp supplied with the kit.
For more details, please refer to the user’s manual of your “Interface connection kit SC-BIKN-E and SC-BIKN2-E”.

INSTALLATION OF WIRELESS REMOTE CONTROL

Mounting method of battery

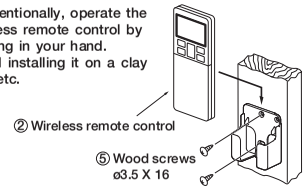
○Uncover the wireless remote control, and mount the batteries [R03 (AAA, Micro), ×2 pieces] in the body regularly.
(Fit the poles with the indication marks, ⊕ & ⊖ without fail)

⚠ CAUTION
Do not use new and old batteries together.



Fixing to pillar or wall

○Conventionally, operate the wireless remote control by holding in your hand.
○Avoid installing it on a clay wall etc.

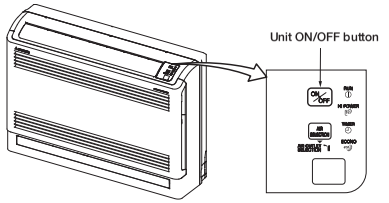


HOW TO RELOCATE OR DISPOSE OF THE UNIT

○In order to protect the environment, be sure to pump down (recovery of refrigerant).
○Pump down is the method of recovering refrigerant from the indoor unit to the outdoor unit when the pipes are removed from the unit.

<How to pump down>
① Connect charge hose to service port of outdoor unit.
② Liquid side : Close the liquid valve with hexagon wrench key.
Gas side : Fully open the gas valve
Carry out cooling operation. (If indoor temperature is low, operate forced cooling operation.)
③ After low pressure gauge become 0.01MPa, stop cooling operation and close the gas valve.

• Forced cooling operation
Turn on a power source again after a while after turn off a power source.
Then press continually the ON/OFF button 5 seconds or more.



INSTALLATION TEST CHECK POINTS

Check the following points again after completion of the installation, and before turning on the power. Conduct a test run again and ensure that the unit operates properly.
At the same time, explain to the customer how to use the unit and how to take care of the unit following the user's manual.

After installation

- ☐ The power source voltage is correct as the rating.
- ☐ No gas leaks from the joints of the service valve.
- ☐ Power cables and crossover wires are securely fixed to the terminal board.
- ☐ The screw of the lid is tightened securely.
- ☐ Service valve is fully open.
- ☐ The pipe joints for indoor and outdoor pipes have been insulated.

Test run

- ☐ Air-conditioning operation is normal.
- ☐ No abnormal noise.
- ☐ Water drains smoothly.
- ☐ Protective functions are not working.
- ☐ The wireless remote control is normal.
- ☐ Operation of the unit has been explained to the customer. (Three-minutes restart preventive timer)
  When the air-conditioner is restarted or when changing the operation, the unit will not start operating for approximately 3 minutes. This is to protect the unit and it is not a malfunction.

(3) Celling concealed type (SRR)

RJJ012A003C C

Models SRR25ZM-S, 35ZM-S, 50ZM-S, 60ZM-S

FOR MODEL SRR SERIES
R410A REFRIGERANT USED

- This installation manual illustrates the method of installing an indoor unit.
- For electrical wiring work, see instructions set out on the backside.
- For outdoor unit installation and refrigerant piping, refer to page 14.
- A wired remote control unit is supplied separately as an option part.
- While installing the unit, be sure to check the selection of installation place, power source specifications, usage limitation (piping length, height differences between indoor and outdoor units, power source voltage etc.) and installation spaces.

SAFETY PRECAUTIONS

- Before installation, read the "SAFETY PRECAUTIONS" carefully and strictly follow it during the installation work in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, ⚠WARNING and ⚠CAUTION.
  ⚠WARNING : Wrong installation would cause serious consequences such as injuries or death.
  ⚠CAUTION : Wrong installation might cause serious consequences depending on circumstances.
  Both mention the important items to protect your health and safety so strictly follow them by any means.
- Be sure to confirm no anomaly on the equipment by commissioning after completed installation and explain the operating methods as well as the maintenance methods of this equipment to the user according to the owner's manual.
- Keep the installation manual together with owner's manual at a place where any user can read at any time. Moreover if necessary, ask to hand them to a new user.
- Before starting the installation work, proper precautions (using suitable protective clothing, groves etc.) should be taken by qualified installer.
- Pay attention not to fall down the tools, etc. when installing the unit at the high position.
- If unusual noise can be heard during operation, consult the dealer.
- The meanings of "Marks" used here are shown as follows:

⃠	Never do it under any circumstances.	❗ ⏚	Always do it according to the instruction.

⚠ WARNING

- **Installation must be carried out by the qualified installer.**
  If you install the system by yourself, it may cause serious trouble such as water leaks, electric shocks, fire and personal injury, as a result of a system malfunction. Do not carry out the installation and maintenance work except the by qualified installer.
- **Install the system in full accordance with the installation manual.**
  Incorrect installation may cause bursts, personal injury, water leaks, electric shocks and fire.
- **Be sure to use only for household and residence.**
  If this appliance is installed in inferior environment such as machine shop and etc., it can cause malfunction.
- **Use the original accessories and the specified components for installation.**
  If parts other than those prescribed by us are used, It may cause water leaks, electric shocks, fire and personal injury.
- **Install the unit in a location with good support.**
  Unsuitable installation locations can cause the unit to fall resulting in material damage and personal injury.
- **Ventilate the working area well in the event of refrigerant leakage during installation.**
  If the refrigerant comes into contact with naked flames, poisonous gas is produced.
- **When installing in small rooms, take prevention measures not to exceed the density limit of refrigerant in the event of leakage, referred by the formula (accordance with ISO5149).**
  If the density of refrigerant exceeds the limit, consult the dealer and install the ventilation system, otherwise lack of oxygen can occur, which can cause serious accident.
- **After completing installation, check that no refrigerant leaks from the system.**
  If refrigerant leaks into the room and comes into contact with an oven or other hot surface, poisonous gas is produced.
- **Use the prescribed pipes, flare nuts and tools for R410A.**
  Using existing parts (for R22 or R407C) can cause the unit failure and serious accidents due to burst of the refrigerant circuit.
- **Tighten the flare nut by torque wrench with specified method.**
  If the flare nuts were tightened with excess torque, this may cause burst and refrigerant leakage after a long period.
- **The electrical installation must be carried out by the qualified electrician in accordance with "the norm for electrical work" and "national wiring regulation", and the system must be connected to the dedicated circuit.**
  Power source with insufficient capacity and incorrect function done by improper work can cause electric shocks and fire.
- **Be sure to shut off the power before starting electrical work.**
  Failure to shut off the power can cause electric shocks, unit failure or incorrect function of equipment.
- **Be sure to use the cables conformed to safety standard and cable ampacity for power distribution work.**
  Unconformable cables can cause electric leak, anomalous heat production or fire.
- **This appliance must be connected to main power source by means of a circuit breaker or switch (fuse:16A) with a contact separation of at least 3mm.**
- **When plugging this appliance, a plug conforming to the norm IEC60884-1 must be used.**
- **Use the prescribed cables for electrical connection, tighten the cables securely in terminal block and relieve the cables correctly to prevent overloading the terminal blocks.**
  Loose connections or cable mountings can cause anomalous heat production or fire.
- **Arrange the wiring in the control box so that it cannot be pushed up further into the box. Install the service panel correctly.**
  Incorrect installation may result in overheating and fire.
- **Be sure to switch off the power source in the event of installation, inspection or servicing.**
  If the power source is not shut off, there is a risk of electric shocks, unit failure or personal injury due to the unexpected start of fan.
- **Be sure to wear protective goggles and gloves while at work.**
- **Earth leakage breaker must be installed.**
  If the earth leakage breaker is not installed, it can cause electric shocks.

- **Do not put the drainage pipe directly into drainage channels where poisonous gases such as sulphide gas can occur.**
  Poisonous gases will flow into the room through drainage pipe and seriously affect the user's health and safety. This can also cause the corrosion of the indoor unit and a resultant unit failure or refrigerant leak.
- **Ensure that no air enters in the refrigerant circuit when the unit is installed and removed.**
  If air enters in the refrigerant circuit, the pressure in the refrigerant circuit becomes too high, which can cause burst and personal injury.
- **Do not process or splice the power cord, or share the socket with other power plugs.**
  This may cause fire or electric shock due to defecting contact, defecting insulation and over-current etc.
- **Do not bundle or wind or process the power cord. Do not deform the power cord by treading it.**
  This may cause fire or heating.
- **Do not vent R410A into the atmosphere : R410A is a fluorinated greenhouse gas, covered by the Kyoto Protocol with Groval Warming Potential (GWP)=1975.**
- **Do not run the unit with removed panels or protections.**
  Touching rotating equipments, hot surfaces or high voltage parts can cause personal injury due to entrapment, burn or electric shocks.
- **Do not perform any change of protective device itself or its setup condition.**
  The forced operation by short-circuiting protective device of pressure switch and temperature controller or the use of non specified component can cause fire or burst.

⚠ CAUTION

- **Carry out the electrical work for ground lead with care.**
  Do not connect the ground lead to the gas line, water line, lightning conductor or telephone line's ground lead. Incorrect grounding can cause unit faults such as electric shocks due to short-circuiting.

- **Use the circuit breaker of correct capacity. Circuit breaker should be able to disconnect all poles under over current.**
  Using the incorrect one could cause the system failure and fire.
- **Install isolator or disconnect switch on the power source wiring in accordance with the local codes and regulations.**
  The isolator should be locked in OFF state in accordance with EN60204-1.
- **Be sure to install indoor unit properly according to instruction manual so that drainage can run off smoothly.**
  Improper installation of indoor unit can cause dropping water into the room and damaging personal property.
- **Install the drainage pipe to run off drainage securely according to the installation manual.**
  Incorrect installation of the drainage pipe can cause dropping water into the room and damaging personal property.
- **Be sure to install the drainage pipe with descending slope of 1/100 or more, and not to make traps and air-bleedings.**
  Check if the drainage runs off securely during commissioning and ensure the space for inspection and maintenance.
- **After maintenance, all wiring, wiring ties and the like, should be returned to their original state and wiring route, and the necessary clearance from all metal parts should be secured.**
- **Secure a space for installation, inspection and maintenance specified in the manual.**
  Insufficient space can result in accident such as personal injury due to falling from the installation place.
- **Take care when carrying the unit by hand.**
  If the unit weights more than 20kg, it must be carried by two or more persons. Do not carry by the plastic straps, always use the carry handle when carrying the unit by hand. Use gloves to minimize the risk of cuts by the aluminum fins.
- **Dispose of any packing materials correctly.**
  Any remaining packing materials can cause personal injury as it contains nails and wood. And to avoid danger of suffocation, be sure to keep the plastic wrapper away from children and to dispose after tear it up.
- **For installation work, be careful not to get injured with the heat exchanger, piping flare portion or screws etc.**
- **Be sure to insulate the refrigerant pipes so as not to condense the ambient air moisture on them.**
  Insufficient insulation can cause condensation, which can lead to moisture damage on the ceiling, floor, furniture and any other valuables.
- **When perform the air-conditioner operation (cooling or drying operation) in which ventilator is installed in the room. In this case, using the air-conditioner in parallel with the ventilator, there is the possibility that drain water may backflow in accordance with the room lapse into the negative pressure status. Therefore, set up the opening port such as incorporate the air into the room that may appropriate to ventilation (For example; Open the door a little). In addition, just as above, so set up the opening port if the room lapse into negative pressure status due to register of the wind for the high rise apartment etc.**
- **Be sure to perform air tightness test by pressurizing with nitrogen gas after completed refrigerant piping work.**
  If the density of refrigerant exceeds the limit in the event of refrigerant leakage in the small room, lack of oxygen can occur, which can cause serious accidents.

- **Do not install the unit in the locations listed below.**
  - Locations where carbon fiber, metal powder or any powder is floating.
  - Locations where any substances that can affect the unit such as sulphide gas, chloride gas, acid and alkaline can occur.
  - Vehicles and ships.
  - Locations where cosmetic or special sprays are often used.
  - Locations with direct exposure of oil mist and steam such as kitchen and machine plant.
  - Locations where any machines which generate high frequency harmonics are used.
  - Locations with salty atmospheres such as coastlines.
  - Locations with heavy snow (If installed, be sure to provide base flame and snow hood mentioned in the manual).
  - Locations where the unit is exposed to chimney smoke.
  - Locations at high altitude (more than 1000m high).
  - Locations with ammonic atmospheres (e.g. organic fertilizer).
  - Locations with calcium chloride (e.g. snow melting agent).
  - Locations where heat radiation from other heat source can affect the unit.
  - Locations without good air circulation.
  - Locations with any obstacles which can prevent inlet and outlet air of the unit.
  - Locations where short circuit of air can occur (in case of multiple units installation).
  - Locations where strong air blows against the air outlet of outdoor unit.
  - Locations where something located above the unit could fall.

  It can cause remarkable decrease in performance, corrosion and damage of components, malfunction and fire.
- **Do not install the indoor unit in the locations listed below (Be sure to install the indoor unit according to the installation manual for each model because each indoor unit has each limitation).**
  - Locations with any obstacles which can prevent inlet and outlet air of the unit.
  - Locations where vibration can be amplified due to insufficient strength of structure.
  - Locations where the infrared receiver is exposed to the direct sunlight or the strong light beam (in case of the infrared specification unit).
  - Locations where an equipment affected by high harmonics is placed (TV set or radio receiver is placed within 1m).
  - Locations where drainage cannot run off safely.

  It can affect performance or function and etc.
- **Do not install the unit near the location where leakage of combustible gases can occur.**
  If leaked gases accumulate around the unit, it can cause fire.
- **Do not install the unit where corrosive gas (such as sulfurous acid gas etc.) or combustible gas (such as thinner and petroleum gases) can accumulate or collect, or where volatile combustible substances are handled.**
  Corrosive gas can cause corrosion of heat exchanger, breakage of plastic parts and etc. And combustible gas can cause fire.
- **Do not use the indoor unit at the place where water splashes may occur such as in laundries.**
  Since the indoor unit is not waterproof, it can cause electric shocks and fire.
- **Do not install nor use the system close to the equipment that generates electromagnetic fields or high frequency harmonics.**
  Equipment such as inverters, standby generators, medical high frequency equipments and telecommunication equipments can affect the system, and cause malfunctions and breakdowns. The system can also affect medical equipment and telecommunication equipment, and obstruct its function or cause jamming.
- **Do not place any variables which will be damaged by getting wet under the indoor unit.**
  When the relative humidity is higher than 80% or drainage pipe is clogged, condensation or drainage water can drop and it can cause the damage of valuables.
- **Do not install the remote control at the direct sunlight.**
  It can cause malfunction or deformation of the remote control.
- **Do not use the unit for special purposes such as storing foods, cooling precision instruments and preservation of animals, plants or art.**
  It can cause the damage of the items.
- **Do not use any materials other than a fuse with the correct rating in the location where fuses are to be used.**
  Connecting the circuit with copper wire or other metal thread can cause unit failure and fire.
- **Do not touch any buttons with wet hands.**
  It can cause electric shocks.
- **Do not touch any refrigerant pipes with your hands when the system is in operation.**
  During operation the refrigerant pipes become extremely hot or extremely cold depending the operating condition, and it can cause burn injury or frost injury.
- **Do not wash the inside of the air-conditioner.**
  Water leakage and permanent damage may result.
  Electrical hazard exists.

Check before installation work

- Model name and power source
- Refrigerant piping length
- Piping, wiring and miscellaneous small parts

	Standard accessories (installation kit) Accessories for indoor unit	Q'ty
①	Wireless remote control	1
②	Remote control holder	1
③	Remote control signal receiver	1
④	Installation frame (for remote control signal receiver)	1
⑤	Wood screws (for remote control holder ø3.5 X 16mm)	2
⑥	Battery [R03 (AAA, Micro) 1.5V]	2
⑦	Joint (for drain hose)	1
⑧	Clamp (for drain hose) (big:1, small:1)	2
⑨	Washer (for suspension bolt M10)	8
⑩	Flat head machine screw (for remote control signal receiver M3.5x10)	2
⑪	Plate (display)	1
⑫	Pipe cover (big:1, small:1)	2
⑬	Band	4

	Locally procured parts	Q'ty
Ⓐ	Sealing plate	1
Ⓑ	Sleeve	1
Ⓒ	Inclination plate	1
Ⓓ	Putty	1
Ⓔ	Drain hose (VP25)	1
Ⓕ	Suspension bolts (M10)	4
Ⓖ	Nuts (M10)	8
Ⓗ	Spring lock washers (M10)	4

Option parts (Separately sold parts)	Q'ty
Bottom air inlet kit (25, 35 models : UT-BAT1EF / 50, 60 models : UT-BAT2EF)	1

	Necessary tools for the installation work
1	Plus headed driver
2	Knife
3	Saw
4	Tape measure
5	Hammer
6	Spanner wrench
7	Torque wrench [14.0~62.0N·m (1.4~6.2kgf·m)]
8	Hole core drill (65mm in diameter)
9	Wrench key (Hexagon) [4m/m]
10	Flaring tool set (Designed specifically for R410A)
11	Gas leak detector (Designed specifically for R410A)
12	Gauge for projection adjustment (Used when flare is made by using conventional flare tool)
13	Pipe bender

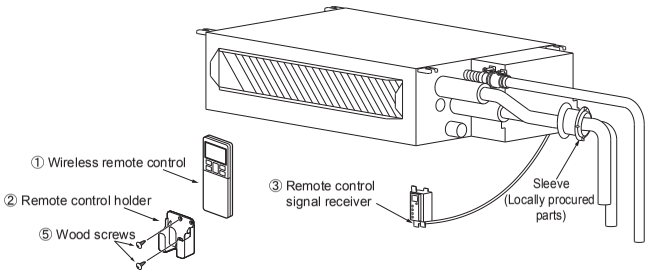
SELECTION OF INSTALLATION LOCATION

(Install at location that meets the following conditions, after getting approval from the customer)

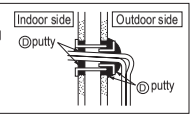
Indoor unit

- ○ Where there is no obstructions to the air flow and where the cooled and heated air can be evenly distributed.
- ○ A firm location that may sustain the weight of the unit, and do not cause the unit or the ceiling to vibrate.
- ○ A place where there will be enough space for servicing. (Where space mentioned below can be secured)
- ○ Where wiring and the piping work will be easy to conduct.
- ○ The place where receiving part is not exposed to the direct rays of the sun or the strong rays of the street lighting.
- ○ A place where it can be easily drained.
- ○ A place separated at least 1m away from the television or the radio. (To prevent interference to images and sounds.)
- ○ Places where this unit is not affected by the high frequency equipment or electric equipment.
- ○ Avoid installing this unit in place where there is much oil mist.
- ○ Places where there is no electric equipment or household under the installing unit.
- ○ Where the suction inlet of the unit is located far from the air inlet on the ceiling, the entire inside of ceiling acts as an air suction duct so that the capacity is reduced at the startup.
- ○ Areas where dew point is lower than around 28°C and relative humidity is lower than 80%.

This indoor unit is tested under the condition of JIS (Japan Industrial Standard) high humidity condition and confirmed there is no problem. However, there is some risk of condensation drop if the air-conditioner is operated under the severer condition than mentioned above.
If there is a possibility to use it under such a condition, attach additional insulation of 10 to 20mm thick for entire surface of indoor unit, refrigeration pipe and drain pipe.



⚠ CAUTION
Completely seal the hole in the wall with putty. If not sealed properly, furniture and other fixtures may be damaged by water leakage or condensation.

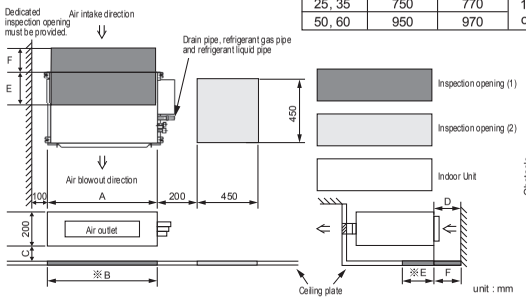


Wireless remote control

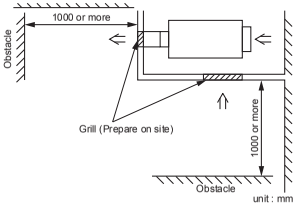
- ○ A place where the air-conditioner can be received the signal surely during operating the wireless remote control.
- ○ Places where there is no affected by the TV and radio etc.
- ○ Do not place where exposed to direct sunlight or near heat devices such as a stove.

Space for installation and service

Model	A	B	C	D	E	F
25, 35	750	770	100(80) or more	150(50) or more	270 or more	150(0) or more
50, 60	950	970				



The minimum dimensions when used Bottom air inlet kit (Option parts) are shown in parentheses.



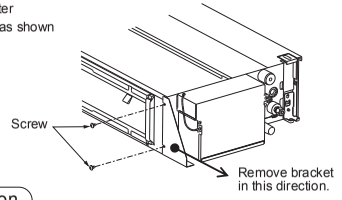
※Dimensions of the opening on the ceiling after removing inspection opening (1)

Inspection opening for services

Service	Inspection opening (1)	Inspection opening (2)
Clamping of the flare of required and gas refrigerant pipe	Not Use	Use
Drain pipe connection	Not Use	Use
Installation and removal of blower	Use	Not Use
Control box		
Connecting wire (between indoor and outdoor)	Not Use	Use
Unit display section (Remote control signal receiver)	Not Use	Use
Replace drain pump	Not Use	Use
Replace heat exch sensor	Not Use	Use
Replace air filter	Use	Not Use

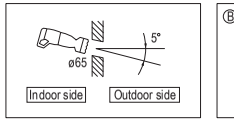
INSTALLATION OF INDOOR UNIT

- ○ Remove bracket from the unit after unpacking according to process as shown below.
  - (1) Loosen 2 screws.
  - (2) Remove bracket.
  - (3) Tighten the screws.

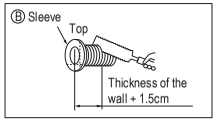


Drilling of hole and fixture of sleeve (Locally procured parts)

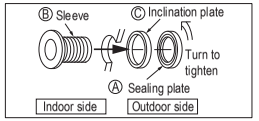
When drilling the wall that contains a metal lath, wire lath or metal plate, be sure to use pipe hole sleeve sold separately.

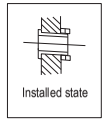


Drill a hole with whole core drill.



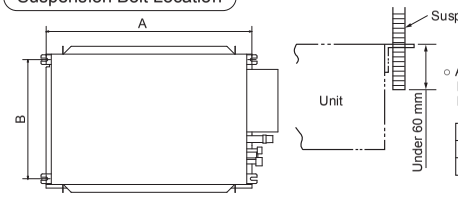
In case of rear piping draw out, cut off the lower and the right side portions of the sleeve collar.





* Sleeve is for use in refrigerant piping work. Please install another pipe separately for drain piping work.

Suspension Bolt Location

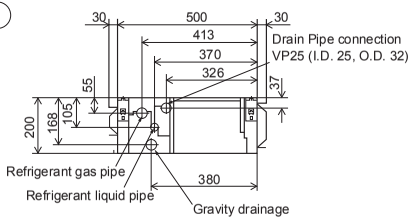


- ○ Adhere to the measurements given below for the length of the suspension bolts.

Model	A	B
25, 35	790	457
50, 60	990	457

Pipe locations

All models

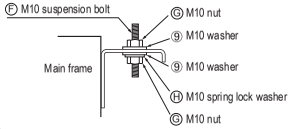


INSTALLATION OF INDOOR UNIT

Installing the main unit

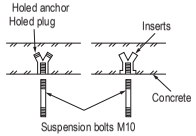
○ Attach the washers and nuts to the suspension bolts.

○ Attach the hanging tool to the above nuts, and tighten the nuts.

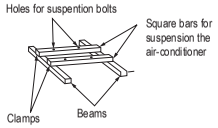


Securing the suspension bolts

If steel embedded ceiling



If wooden ceiling

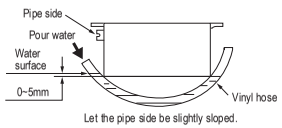


○ Secure the suspension bolts firmly following the illustrations and other instructions.

Adjustment for horizontality

○ Either use a level vial, or adjust the level according to the method below.

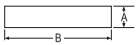
• Adjust so the bottom side of the unit will be leveled with the water surface as illustrated below.



○ If the unit is not leveled, it may cause malfunctions or inoperation of the float switch.

Air inlet and outlet size

○ Size of air inlet and outlet of the plate.



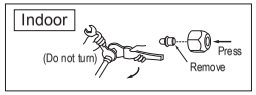
unit : mm

Model	A		B
	Inlet	Outlet	
25, 35	160	99	660
50, 60			860

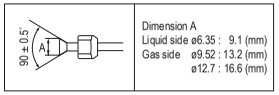
CONNECTION OF REFRIGERANT PIPINGS

Preparation

Keep the openings of the pipes covered with tapes etc. to prevent dust, sand, etc. from entering them.



○ Remove the flared nuts. (on both liquid and gas sides)



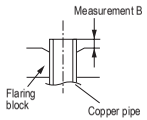
Dimension A
Liquid side ø6.35 : 9.1 (mm)
Gas side ø9.52 : 13.2 (mm)
ø12.7 : 16.6 (mm)

○ Install the removed flared nuts to the pipes to be connected, then flared the pipes.

⚠CAUTION

Do not apply refrigerating machine oil to the flared surface.

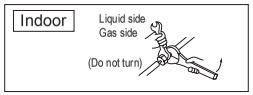
• Flaring work



Copper pipe diameter	Measurement B (mm)		
	Clutch type flare tool for R410A	Conventional (R22) flare tool	
		Clutch type	Wing nut type
ø6.35	0.0 - 0.5	1.0 - 1.5	1.5 - 2.0
ø9.52	0.0 - 0.5	1.0 - 1.5	1.5 - 2.0
ø12.7	0.0 - 0.5	1.0 - 1.5	2.0 - 2.5

Use a flare tool designed for R410A or a conventional flare tool.
Note that measurement B (protrusion from the flaring block) will vary depending on the type of a flare tool in use.
If a conventional flare tool is used, use a copper pipe gauge or a similar instrument to check protrusion so that you can keep measurement B to a correct value.

Connection



○ Connect the pipes on both liquid and gas sides.

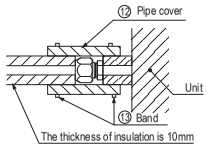
○ Tighten the nuts to the following torque.
Liquid side (ø6.35) : 14.0 - 18.0 N·m (1.4 - 1.8 kgf·m)
Gas side (ø9.52) : 34.0 - 42.0 N·m (3.4 - 4.2 kgf·m)
(ø12.7) : 49.0 - 61.0 N·m (4.9 - 6.1 kgf·m)

⚠CAUTION

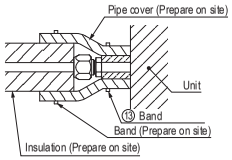
Do not apply excess torque to the flared nuts. Otherwise, the flared nuts may crack.

○ Cover the flare connection part of the indoor unit with attached insulation material after a gas leakage inspection, and tighten both ends with attached bands.
- Make sure to insulate both gas pipes and liquid pipes completely.
  ※Incomplete insulation may cause dew condensation or water dropping.
- Use heat-resistant (120 °C or more) insulations on the gas side pipes.
- In case of using at high humidity condition, reinforce insulation of refrigerant pipes. Surface of insulation may cause dew condition or water dropping, if insulations are not reinfoced.

<The case of using thickness of insulation is 10mm>



<The case of using reinfoced insulation>



DRAIN PIPE

○ Install the drain pipe according to the installation manual in order to drain properly.
Imperfection in draining may cause flood indoors and wetting the household goods, etc.

○ Do not put the drain pipe directly into the ditch where toxic gas such as sulfur, the other harmful and inflammable gas is generated. Toxic gas would flow into the room and it would cause serious damage to user's health and safety (some poisoning or deficiency of oxygen). In addition, it may cause corrosion of heat exchanger and bad smell.

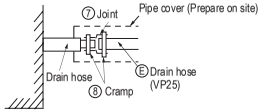
○ Connect the pipe securely to avoid water leakage from the joint.

○ Insulate the pipe properly to avoid condensation drop.

○ Check if the water can flow out properly from both the drain outlet on the indoor unit and the end of the drain pipe after installation.

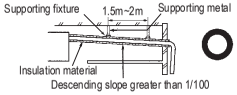
Work procedure

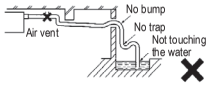
(1) Insert the joint to the drain hose on the indoor unit and fix it securely with the clamp (small).
- Do not apply adhesives on this end.

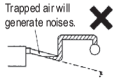


(2) Connect the drain pipe (VP25) to the joint and fix it seaurely with the clamp (big).

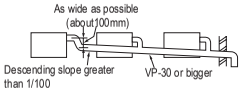
(3) Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway.
- Pay attention not to give stress on the pipe on the indoor unit side, and support and fix the pipe as close place to the unit as possible when connecting the drain pipe.
- Do not set up air vent.







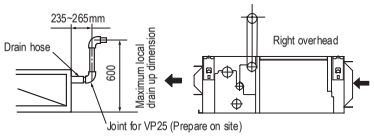
• When sharing a drain pipe for more than one unit, lay the main pipe 100mm below the drain outlet of the unit. In addition, select VP-30 or bigger size for main drain pipe.



(4) Insulate the drain pipe.
- Be sure to insulate the joint and the drain pipe installed indoor otherwise it may cause dew condensation and water leakage.

Drain up

• The position for drain pipe outlet can be raised up to 600mm above the ceiling. Use elbows for installation to avoid obstacles inside ceiling. If the horizontal drain pipe is too long before vertical pipe, the backflow of water will increase when the unit is stopped, and it may cause overflow of water from the drain pan on the indoor unit. In order to avoid overflow, keep the horizontal pipe length and offset of the pipe within the limit shown in the figure below.



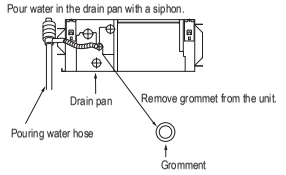
Drain test

○ Conduct a drainage test after completion of the electrical work and piping work.

○ During the trial, make sure that drain flows properly through the piping and that no water leaks from connections.

○ In case of a new building, conduct the test before it is furnished with the ceiling.

○ Be sure to conduct this test even when the unit is installed in the heating season.



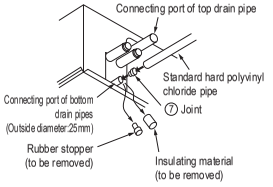
Procedures of drain test

(1) Supply about 1000 cc of water to the unit through the air outlet by using a feed water pump.

(2) Check the drain while cooling operation.

Outline of bottom drain piping work

• If the bottom drain piping can be done with a descending gradient (1/50-1/100), it is possible to connect the pipes as shown in the drawing below.



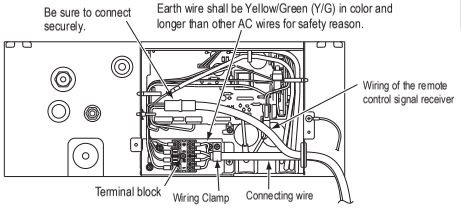
ELECTRICAL WIRING WORK

Preparation of indoor unit

○ In case of faulty wiring connection, indoor unit does not operate. Then, run lamp turns on and timer lamp blinks.

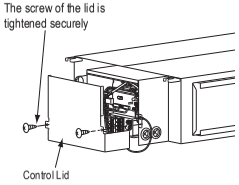
Mounting of connecting wires

(1) Remove the control lid.
(2) Remove the wiring clamp.
(3) Connect the connecting wire to the terminal block.
  1) Connect the connection wire securely. If the wire is not affixed completely, contact will be poor, and it is dangerous as the terminal block may heat up and catch fire.
  2) Take care not to confuse the terminal numbers for indoor and outdoor connections.
(4) Fix the connecting wire by wiring clamp.
(5) Connect the connector of the remote control singnal receiver to the relay wiring.
(6) Attach the control lid.

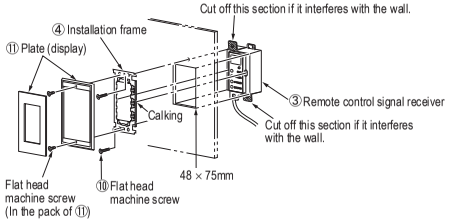


Use cables for interconnection wiring to avoid loosening of the wires.
CENELEC code for cables Required field cables.

H05RNR4G1.5 (example) or 245IEC57
H Harmonized cable type
05 300/500 volts
R Natural-and/or synth, rubber wire insulation
N Polychloroprene rubber conductors insulation
R Stranded core
4or5 Number of conductors
G One conductor of the cable is the earth conductor (yellow/green)
1.5 Section of copper wire (mm²)



Securing the remote control signal receiver

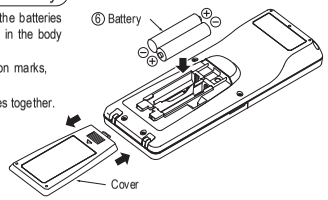


(1) Open a through-hole on the wall to install the reception face for the remote control signal receiver ③.
(2) Insert the remote control signal receiver ③ in the installation frame ④, and fix the calking section.
(3) Fix the installation frame ④ on the wall using the flat head machine screws ⑩.
(4) Fix the plate (display) ⑪ on the installation frame ④ using the flat head machine screws packed together with the plate (display) ⑪.

INSTALLATION OF WIRELESS REMOTE CONTROL

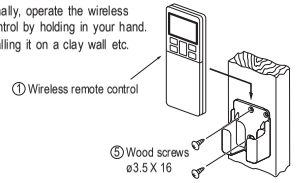
Mounting method of battery

○ Pull out the cover and mount the batteries [R03 (AAA, Micro), ×2 pieces] in the body regularly.
(Fit the poles with the indication marks, ⊕ & ⊖ without fail)
○ Do not use new and old batteries together.



Fixing to pillar or wall

○ Conventionally, operate the wireless remote control by holding in your hand.
○ Avoid installing it on a clay wall etc.

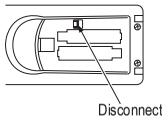


INSTALLING TWO AIR-CONDITIONERS IN THE SAME ROOM

When two air-conditioners are installed in the same room, use this setting when the two air-conditioners are not operated with one remote control. Set the remote control and indoor unit.

Setting the remote control

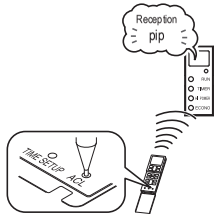
(1) Pull out the cover and take out batteries.
(2) Disconnect the switching line next to the battery with wire cutters.



(3) Insert batteries. Close the cover.

Setting an indoor unit

(1) Turn off the power source, and turn it on after 1 minute.
(2) Point the remote control that was set according to the procedure described on the left side at the unit display section and send a signal by pressing the ACL switch on the remote control.
Since the signal is sent in about 6 seconds after the ACL switch is pressed, point the remote control at the unit display section for some time.
(3) Check that the reception buzzer sound "pip" is emitted from the indoor unit.
At completion of the setting, the indoor unit emits a buzzer sound "pip". (If no reception tone is emitted, start the setting from the beginning again.)

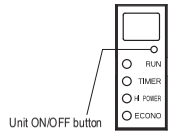


HOW TO RELOCATE OR DISPOSE OF THE UNIT

○ In order to protect the environment, be sure to pump down (recovery of refrigerant).
○ Pump down is the method of recovering refrigerant from the indoor unit to the outdoor unit when the pipes are removed from the unit.

<How to pump down>
(1) Connect charge hose to check joint of outdoor unit.
(2) Liquid side : Close the liquid valve with hexagon wrench key.
Gas side : Fully open the gas valve.
Carry out cooling operation. (If indoor temperature is low, operate forced cooling operation.)
(3) After low pressure gauge become 0.01MPa, stop cooling operation and close the gas valve.

• Forced cooling operation
Turn off power source. Turn on power source again after a while. Then, press the ON/OFF button continuously for at least 5 seconds. (The operation will start.)



TERMINAL CONNECTION FOR AN INTERFACE

(1) Remove the control lid. (Remove the screw.)
(2) There is a terminal (respectively marked with CNS) for the indoor control board.
In connecting an interface, connect to the respective terminal securely with the connection harness supplied with an option "Interface connection kit SC-BIKN-E and SC-BIKN2-E" and fasten the connection harness onto the indoor control box with the clamp supplied with the kit.
For more details, please refer to the user's manual of your "Interface connection kit SC-BIKN-E and SC-BIKN2-E".

INSTALLATION TEST CHECK POINTS

Check the following points again after completion of the installation, and before turning on the power. Conduct a test run again and ensure that the unit operates properly. Explain to the customer how to use the unit and how to take care of the unit following the installation manual.

After installation

☐ Power cables and connecting wires are securely fixed to the terminal block. (Both indoor and outdoor)
☐ The power source voltage is correct as the rating.
☐ The drain hose is fixed securely.
☐ Service valve is fully open.
☐ No gas leaks from the joints of the service valve.
☐ The pipe joints for indoor and outdoor pipes have been insulated.
☐ The screw of the control lid is tightened securely.

Test run

☐ Air-conditioning operation is normal.
☐ No abnormal noise.
☐ Water drains smoothly.
☐ Protective functions are not working.
☐ The wireless remote control is normal.
☐ Operation of the unit has been explained to the customer. (Three-minutes restart preventive timer)
When the air-conditioner is restarted or when changing the operation, the unit will not start operating for approximately 3 minutes. This is to protect the unit and it is not a malfunction.

(4) 4-way ceiling cassette type (FDTC)

PJA012D786B B

Models FDTC25VF, 35VF, 50VF, 60VF

This manual is for the installation of an indoor unit.
For wired remote control installation, refer to page 288. For wireless kit installation, refer to page 301. For electrical wiring work (Outdoor) and refrigerant pipe work installation for outdoor unit, refer to page 14.
This unit must always be used with the panel.

SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, ⚠WARNING and ⚠CAUTION .
  ⚠WARNING: Wrong installation would cause serious consequences such as injuries or death.
  ⚠CAUTION : Wrong installation might cause serious consequences depending on circumstances.
  Both mentions the important items to protect your health and safety so strictly follow them by any means.
- The meanings of "Marks" used here are as shown as follows:
  ⃠ Never do it under any circumstances. | ❗ Always do it according to the instruction.
- After completing the installation, do commissioning to confirm there are no abnormalities, and explain to the customers about "SAFETY PRECAUTIONS", correct operation method and maintenance method (air filter cleaning, operation method and temperature setting method) with user's manual of this unit.
  Ask your customers to keep this installation manual together with the user's manual. Also, ask them to hand over the user's manual to the new user when the owner is changed.

⚠WARNING

- **Installation should be performed by the specialist.**
  If you install the unit by yourself, it may lead to serious trouble such as water leakage, electric shock, fire, and injury due to overturn of the unit.
- **Install the system correctly according to these installation manuals.**
  Improper installation may cause explosion, injury, water leakage, electric shock, and fire.
- **When installing in small rooms, take prevention measures not to exceed the density limit of refrigerant in the event of leakage, referred by the formula (accordance with ISO5149).**
  If the density of refrigerant exceeds the limit, please consult the dealer and install the ventilation system, otherwise lack of oxygen can occur, which can cause serious accidents.
- **Use the genuine accessories and the specified parts for installation.**
  If parts unspecified by our company are used it could cause water leakage, electric shock, fire, and injury due to overturn of the unit.
- **Ventilate the working area well in case the refrigerant leaks during installation.**
  If the refrigerant contacts the fire, toxic gas is produced.
- **Install the unit in a location that can hold heavy weight.**
  Improper installation may cause the unit to fall leading to accidents.
- **Install the unit properly in order to be able to withstand strong winds such as typhoons, and earthquakes.**
  Improper installation may cause the unit to fall leading to accidents.
- **Do not mix air in to the cooling cycle on installation or removal of the air-conditioner.**
  If air is mixed in, the pressure in the cooling cycle will rise abnormally and may cause explosion and injuries.
- **Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.**
  Power source with insufficient capacity and improper work can cause electric shock and fire.
- **Use specified wire for electrical wiring, fasten the wiring to the terminal securely, and hold the cable securely in order not to apply unexpected stress on the terminal.**
  Loose connections or hold could result in abnormal heat generation or fire.
- **Arrange the electrical wires in the control box properly to prevent them from rising. Fit the lid of the services panel property.**
  Improper fitting may cause abnormal heat and fire.
- **Check for refrigerant gas leakage after installation is completed.**
  If the refrigerant gas leaks into the house and comes in contact with a fan heater, a stove, or an oven, toxic gas is produced.
- **Use the specified pipe, flare nut, and tools for R410A.**
  Using existing parts (R22) could cause the unit failure and serious accident due to explosion of the cooling cycle.
- **Tighten the flare nut according to the specified method by with torque wrench.**
  If the flare nut were tightened with excess torque, it could cause burst and refrigerant leakage after a long period.
- **Do not put the drainage pipe directly into drainage channels where poisonous gases such as sulfide gas can occur.**
  Poisonous gases will flow into the room through drainage pipe and seriously affect the user's health and safety. This can also cause the corrosion of the indoor unit and a resultant unit failure or refrigerant leak.
- **Connect the pipes for refrigeration circuit securely in installation work before compressor is operated.**
  If the compressor is operated when the service valve is open without connecting the pipe, it could cause explosion and injuries due to abnormal high pressure in the system.
- **Stop the compressor before removing the pipe after shutting the service valve on pump down work.**
  If the pipe is removed when the compressor is in operation with the service valve open, air would be mixed in the refrigeration circuit and it could cause explosion and injuries due to abnormal high pressure in the cooling cycle.
- **Only use prescribed option parts. The installation must be carried out by the qualified installer.**
  If you install the system by yourself, it can cause serious trouble such as water leaks, electric shocks, fire.
- **Do not repair by yourself. And consult with the dealer about repair.**
  Improper repair may cause water leakage, electric shock or fire.
- **Consult the dealer or a specialist about removal of the air-conditioner.**
  Improper installation may cause water leakage, electric shock or fire.
- **Turn off the power source during servicing or inspection work.**
  If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating fan.
- **Do not run the unit when the panel or protection guard are taken off.**
  Touching the rotating equipment, hot surface, or high voltage section could cause an injury to be caught in the machine, to get burned, or electric shock.
- **Shut off the power before electrical wiring work.**
  It could cause electric shock, unit failure and improper running.

⚠ CAUTION

- **Perform earth wiring surely.**
  Do not connect the earth wiring to the gas pipe, water pipe, lightning rod and telephone earth wiring. Improper earth could cause unit failure and electric shock due to a short circuit.
- **Earth leakage breaker must be installed.**
  If the earth leakage breaker is not installed, it can cause electric shocks.
- **Use the circuit breaker of correct capacity. Circuit breaker should be the one that disconnect all poles under over current.**
  Using the incorrect one could cause the system failure and fire.
- **Do not use any materials other than a fuse of correct capacity where a fuse should be used.**
  Connecting the circuit by wire or copper wire could cause unit failure and fire.
- **Do not install the indoor unit near the location where there is possibility of flammable gas leakages.**
  If the gas leaks and gathers around the unit, it could cause fire.
- **Do not install and use the unit where corrosive gas (such as sulfurous acid gas etc.) or flammable gas (such as thinner, petroleum etc.) may be generated or accumulated, or volatile flammable substances are handled.**
  It could cause the corrosion of heat exchanger, breakage of plastic parts etc. And inflammable gas could cause fire.
- **Secure a space for installation, inspection and maintenance specified in the manual.**
  Insufficient space can result in accident such as personal injury due to falling from the installation place.
- **Do not use the indoor unit at the place where water splashes such as laundry.**
  Indoor unit is not waterproof. It could cause electric shock and fire.
- **Do not use the indoor unit for a special purpose such as food storage, cooling for precision instrument, preservation of animals, plants, and a work of art.**
  It could cause the damage of the items.
- **Do not install nor use the system near equipments which generate electromagnetic wave or high harmonics.**
  Equipments like inverter equipment, private power generator, high-frequency medical equipment, or telecommunication equipment might influence the air-conditioner and cause a malfunction and breakdown. Or the air-conditioner might influence medical equipments or telecommunication equipments, and obstruct their medical activity or cause jamming.
- **Do not install the remote control at the direct sunlight.**
  It could cause breakdown or deformation of the remote control.
- **Do not install the indoor unit at the place listed below.**
  - Places where flammable gas could leak.
  - Places where carbon fiber, metal powder or any powder is floated.
  - Place where the substances which affect the air-conditioner are generated such as sulfide gas, chloride gas, acid, alkali or ammonic atmospheres.
  - Places exposed to oil mist or steam directly.
  - On vehicles and ships
  - Places where machinery which generates high harmonics is used.
  - Places where cosmetics or special sprays are frequently used.
  - Highly salted area such as beach.
  - Heavy snow area
  - Places where the system is affected by smoke from a chimney.
  - Altitude over 1000m
- **Do not install the indoor unit in the locations listed below (Be sure to install the indoor unit according to the installation manual for each model because each indoor unit has each limitation)**
  - Locations with any obstacles which can prevent inlet and outlet air of the unit
  - Locations where vibration can be amplified due to insufficient strength of structure.
  - Locations where the infrared receiver is exposed to the direct sunlight or the strong light beam. (in case of the infrared specification unit)
  - Locations where an equipment affected by high harmonics is placed. (TV set or radio receiver is placed within 5m)
  - Locations where drainage cannot run off safely.

  It can affect performance or function and etc..
- **Do not put any valuables which will break down by getting wet under the air-conditioner.**
  Condensation could drop when the relative humidity is higher than 80% or drain pipe is clogged, and it damages user's belongings.
- **Do not use the base frame for the outdoor unit which is corroded or damaged after a long period of use.**
  It could cause the unit falling down and injury.
- **Pay attention not to damage the drain pan by weld sputter when brazing work is done near the unit.**
  If sputter entered into the unit during brazing work, it could cause damage (pinhole) of drain pan and leakage of water. To avoid damaging, keep the indoor unit packed or cover the indoor unit.
- **Install the drain pipe to drain the water surely according to the installation manual.**
  Improper connection of the drain pipe may cause dropping water into room and damaging user's belongings.
- **Do not share the drain pipe for indoor unit and GHP (Gas Heat Pump system) outdoor unit.**
  Toxic exhaust gas would flow into room and it might cause serious damage (some poisoning or deficiency of oxygen) to user's health and safety.
- **Be sure to perform air tightness test by pressurizing with nitrogen gas after completed refrigerant piping work.**
  If the density of refrigerant exceeds the limit in the event of refrigerant leakage in the small room, lack of oxygen can occur, which can cause serious accidents.
- **For drain pipe installation, be sure to make descending slope of greater than 1/100, not to make traps, and not to make air-bleeding.**
  Check if the drainage is correctly done during commissioning and ensure the space for inspection and maintenance.
- **Ensure the insulation on the pipes for refrigeration circuit so as not to condense water.**
  Incomplete insulation could cause condensation and it would wet ceiling, floor, and any other valuables.
- **Do not install the outdoor unit where is likely to be a nest for insects and small animals.**
  Insects and small animals could come into the electronic components and cause breakdown and fire. Instruct the user to keep the surroundings clean.
- **Pay extra attention, carrying the unit by hand.**
  Carry the unit with 2 people if it is heavier than 20kg. Do not use the plastic straps but the grabbing place, moving the unit by hand. Use protective gloves in order to avoid injury by the aluminum fin.
- **Make sure to dispose of the packaging material.**
  Leaving the materials may cause injury as metals like nail and woods are used in the package.
- **Do not operate the system without the air filter.**
  It may cause the breakdown of the system due to clogging of the heat exchanger.
- **Do not touch any button with wet hands.**
  It could cause electric shock.
- **Do not touch the refrigerant piping with bare hands when in operation.**
  The pipe during operation would become very hot or cold according to the operating condition, and it could cause a burn or frostbite.
- **Do not clean up the air-conditioner with water.**
  It could cause electric shock.
- **Do not turn off the power source immediately after stopping the operation.**
  Be sure to wait for more than 5 minutes. Otherwise it could cause water leakage or breakdown.
- **Do not control the operation with the circuit breaker.**
  It could cause fire or water leakage. In addition, the fan may start operation unexpectedly and it may cause injury.

① Before installation

- Install correctly according to the installation manual.
- Confirm the following points:
  ○ Unit type/Power source specification ○ Pipes/Wires/Small parts ○ Accessory items

Accessory itme

For unit hanging		For refrigerant pipe			For draom pipe			
Flat washer (M10)	Level gauge (Insulation)	Pipe cover(big)	Pipe cover (small)	Strap	Pipe cover(big)	Pipe cover(small)	Drain hose	Hose clamp
								
8	4	1	1	4	1	1	1	1
For unit hanging	For adjustment in hoisting in the unit's main body	For heat insulation of gas pipe	For heat insulation of liquid tube	For pipe cover fixing	For heat insulation of drain socket	For heat insulation of drain socket	For drain pipe connecting	For drain hose mounting

② Selection of installation location for the indoor unit

① Select the suitable areas to install the unit under approval of the user.
- Areas where the indoor unit can deliver hot and cold wind sufficiently. Suggest to the user to use a circulator if the ceiling height is over 3m to avoid warm air being accumulated on the ceiling.
- Areas where there is enough space to install and service.
- Areas where it can be drained properly. Areas where drain pipe descending slope can be taken.
- Areas where there is no obstruction of airflow on both air return grille and air supply port.
- Areas where fire alarm will not be accidentally activated by the air-conditioner.
- Areas where the supply air does not short-circuit.
- Areas where it is not influenced by draft air.
- Areas not exposed to direct sunlight.
- Areas where dew point is lower than around 28°C and relative humidity is lower than 80%.
  This indoor unit is tested under the condition of JIS (Japan Industrial Standard) high humidity condition and confirmed there is no problem. However, there is some risk of condensation drop if the air-conditioner is operated under the severer condition than mentioned above.
  If there is a possibility to use it under such a condition, attach additional insulation of 10 to 20mm thick for entire surface of indoor unit, refrigeration pipe and drain pipe.
- Areas where TV and radio stays away more than 1m. (It could cause jamming and noise.)
- Areas where any items which will be damaged by getting wet are not placed such as food, table wares, server, or medical equipment under the unit.
- Areas where there is no influence by the heat which cookware generates.
- Areas where not exposed to oil mist, powder and/or steam directly such as above fryer.
- Areas where lighting device such as fluorescent light or incandescent light doesn't affect the operation.
  (A beam from lighting device sometimes affects the infrared receiver for the wireless remote control and the air-conditioner might not work properly.)

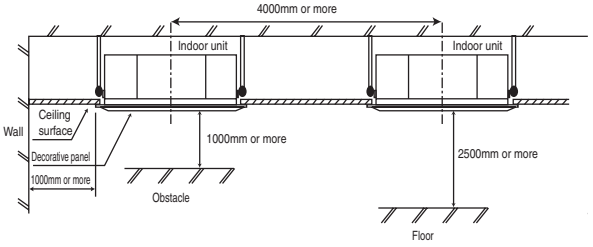
② Check if the place where the air-conditioner is installed can hold the weight of the unit. If it is not able to hold, reinforce the structure with boards and beams strong enough to hold it. If the strength is not enough, it could cause injury due to unit falling.

③ If there are 2 units of wireless type, keep them away for more than 5m to avoid malfunction due to cross communication.

④ When plural indoor units are installed nearby, keep them away for more than 4m.

Space for installation and service

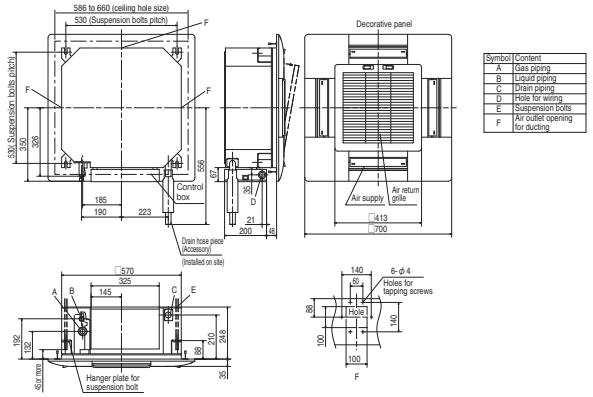
- When it is not possible to keep enough space between indoor unit and wall or between indoor units, close the air supply port where it is not possible to keep space and confirm there is no short circuit of airflow.
- Install the indoor unit at a height of more than 2.5m above the floor.



③ Preparation before installation

- If suspension bolt becomes longer, do reinforcement of earthquake resistant.
  ○ For grid ceiling
  When suspension bolt length is over 500mm, or the gap between the ceiling and roof is over 700mm, apply earthquake resistant brace to the bolt.
  ○ In case the unit is hanged directly from the slab and is installed on the ceiling plane which has enough strength.
  When suspension bolt length is over 1000mm, apply the earthquake resistant brace to the bolt.
- Prepare four (4) sets of suspension bolt, nut and spring washer (M10 or M8) on site.

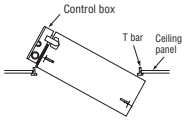
Ceiling opening, Suspension bolts pitch, Pipe position



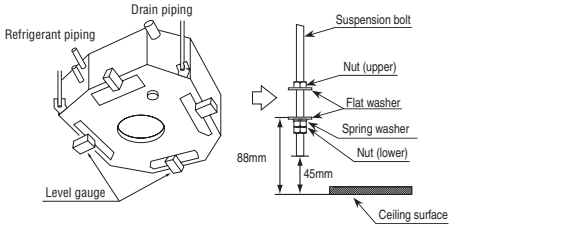
④ Installation of indoor unit

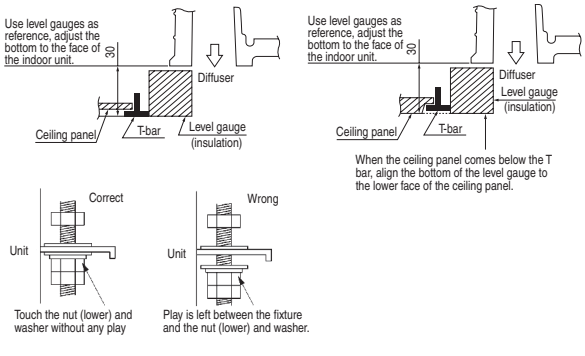
Work procedure

1. This units is designed for 2 x 2 grid ceiling.
   If necessary, please detach the T bar temporarily before you install it.
   If it is installed on a ceiling other than 2 x 2 grid ceiling, provide an inspection port on the control box side.
2. Arrange the suspension bolt at the right position (530mm×530mm).
3. Make sure to use four suspension bolts and fix them so as to be able to hold 500N load.
4. Ensure that the lower end of the suspension bolt should be 45mm above the ceiling plane.
   Temporarily put the four lower nuts 88mm above the ceiling plane and the upper nuts on distant place from the lower nuts in order not to obstruct hanging the indoor unit or adjust the indoor unit position, and then hang the indoor unit.



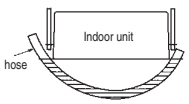
5. Adjust the indoor unit position after hanging it by inserting the level gauge attached on the package into the air supply port and checking if the gap between the ceiling plane and the indoor unit is appropriate. In order to adjust the indoor unit position, adjust the lower nuts while the upper nuts are put on distant place. Confirm there is no backlash between the hanger plate for suspension bolt and the lower nut and washer.





④ Installation of indoor unit (continued)

6. Make sure to install the indoor unit horizontally. Confirm the levelness of the indoor unit with a level gauge or transparent hose filled with water. Keep the height difference at both ends of the indoor unit within 3mm.
7. Tighten four upper nuts and fix the unit after height and levelness adjustment.



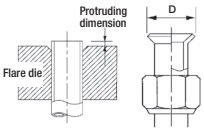
Caution

- Do not adjust the height by adjusting upper nuts. It will cause unexpected stress on the indoor unit and it will lead to deformation of the unit, failure of attaching a panel, and generating noise from the fan.
- Make sure to install the indoor unit horizontally and set the gap between the unit underside and the ceiling plane properly. Improper installation may cause air leakage, dew condensation, water leakage and noise.
- Even after decorative panel attached, still the unit height can be adjusted finely. Refer to the installation manual for decorative panel for details.
- Make sure there is no gap between decoration panel and ceiling surface, and between decoration panel and the indoor unit. The gap may cause air leakage, dew condensation and water leakage.
- In case decorative panel is not installed at the same time, or ceiling material is installed after the unit installed, put the cardboard template for installation attached on the package (packing material of cardboard box) on the bottom of the unit in order to avoid dust coming into the indoor unit.

⑤ Refrigerant pipe

Caution

- Be sure to use new pipes for the refrigerant pipes. Use the flare nut attached to the product or a nut compatible with JIS B 8607, Class 2.
  Regarding whether existing pipes can be reused or not, and the washing method, refer to the instruction manual of the outdoor unit, catalogue or technical data.
  1) In case of reuse: Do not use old flare nut, but use the one attached to the unit or compatible with JIS B 8607, Class 2.
  2) In case of reuse: Flare the end of pipe replaced partially for R410A.



Pipe dia. d mm	Min. pipe wall thickness mm	Protruding dimension for flare, mm		Flare O.D. D mm	Flare nut tightening torque N·m
		Rigid (Clutch type)			
		For R410A	Conventional tool		
6.35	0.8	0 ~ 0.5	0.7 ~ 1.3	8.9 ~ 9.1	14 ~ 18
9.52	0.8			12.8 ~ 13.2	34 ~ 42
12.7	0.8			16.2 ~ 16.6	49 ~ 61
15.88	1			19.3 ~ 19.7	68 ~ 82
19.05	1.2			23.6 ~ 24.0	100 ~ 120

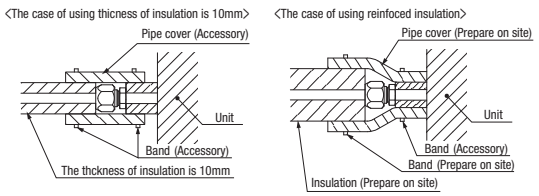
- Use phosphorus deoxidized copper alloy seamless pipe (C1220T specified in JIS H 3300) for refrigeration pipe installation.
  In addition, make sure there is no damage both inside and outside of the pipe, and no harmful substances such as sulfur, oxide, dust or a contaminant stuck on the pipes.
- Do not use any refrigerant other than R410A.
  Using other refrigerant except R410A (R22 etc.) may degrade inside refrigeration oil. And air getting into refrigeration circuit may cause over-pressure and resultant it may result in bursting, etc.
- Store the copper pipes indoors and seal the both end of them until they are brazed in order to avoid any dust, dirt or water getting into pipe. Otherwise it will cause degradation of refrigeration oil and compressor breakdown, etc.
- Use special tools for R410A refrigerant.

Work procedure

1. Remove the flare nut and blind flanges on the pipe of the indoor unit.
   ※ Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them.
   (Gas may come out at this time, but it is not abnormal.)
   ● Pay attention whether the flare nut pops out. (as the indoor unit is sometimes pressured.)
2. Make a flare on liquid pipe and gas pipe, and connect the refrigeration pipes on the indoor unit.
   ※Bend radius of pipe must be 4D or larger. Once a pipe is bent, do not readjust the bending. Do not twist a pipe or collapse to 2/3D or smaller.
   ※Do a flare connection as follows:
   ● Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them.
   ● When fastening the flare nut, align the refrigeration pipe with the center of flare nut, screw the nut for 3-4 times by hand and then tighten it by spanner with the specified torque mentioned in the table above. Make sure to hold the pipe on the indoor unit securely by a spanner when tightening the nut in order to avoid unexpected stress on the copper pipe.
3. Cover the flare connection part of the indoor unit with attached insulation material after a gas leakage inspection, and tighten both ends with attached straps.
   ● Make sure to insulate both gas pipes and liquid pipes completely.
   ※Incomplete insulation may cause dew condensation or water dropping.
   ● Use heat-resistant (120 °C or more) insulations on the gas side pipes.
   ● In case of using at high humidity condition, reinforce insulation of refrigerant pipes.
   Surface of insulation may cause dew condition or water dropping, if insulations are not reinforced.
4. Refrigerant is charged in the outdoor unit.
   As for the additional refrigerant charge for the indoor unit and piping, refer to the installation manual attached to the outdoor unit.

Caution:
Refrigerating machine oil should not be applied to the threads of union or external surface of flare. It is because, even if the same tightening torque is applied, the oil is likely to decrease the slide friction force on the threads and increase, in turn, the axial component force so that it could crack the flare by the stress corrosion.
Refrigerating machine oil may be applied to the internal surface of flare only.

⑤ Refrigerant pipe (continued)



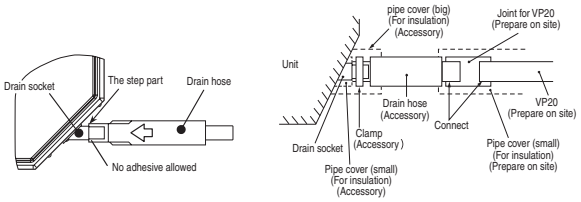
⑥ Drain pipe

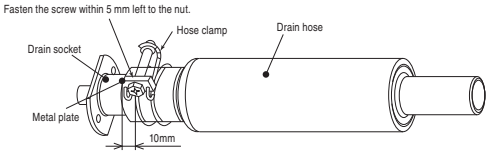
Caution

- Install the drain pipe according to the installation manual in order to drain properly.
  Imperfection in draining may cause flood indoors and wetting the household goods etc.
- Do not put the drain pipe directly into the ditch where toxic gas such as sulfur, the other harmful and inflammable gas is generated. Toxic gas would flow into the room and it would cause serious damage to user's health and safety (some poisoning or deficiency of oxygen). In addition, it may cause corrosion of heat exchanger and bad smell.
- Connect the pipe securely to avoid water leakage from the joint.
- Insulate the pipe properly to avoid condensation drop.
- Check if the water can flow out properly from both the drain outlet on the indoor unit and the end of the drain pipe after installation.
- Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway. In addition, do not put air vent on the drain pipe. Check if water is drained out properly from the pipe during commissioning. Also, keep sufficient space for inspection and maintenance.

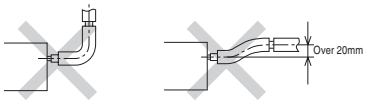
Work procedure

1. Make sure to insert the drain hose (the end mode of soft PVC) to the end of the step part of drain socket.
   Attach the hose clamp to the drain hose around 10mm from the end, and fasten the screw within 5mm left to the nut.
   - Do not apply adhesives on this end.

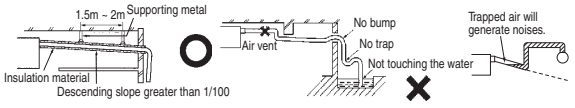




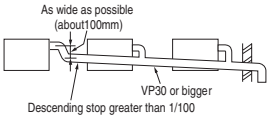
2. Prepare a joint for connecting VP20 pipe, adhere and connect the joint to the drain hose (the end made of rigid PVC), and adhere and connect VP20 pipe (prepare on site).
   ※ As for drain pipe, apply VP20 made of rigid PVC which is on the market.
   - Make sure that the adhesive will not get into the supplied drain hose.
     It may cause the flexible part broken after the adhesive is dried up and gets rigid.
   - Do not bend or make an excess offset on the drain hose as shown in the picture.
     Bend or excess offset will cause drain leakage.



3. Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway.
   - Pay attention not to give stress on the pipe on the indoor unit side, and support and fix the pipe as close place to the unit as possible when connecting the drain pipe.
   - Do not set up air vent.



- When sharing a drain pipe for more than one unit, lay the main pipe 100mm below the drain outlet of the unit. In addition, select VP30 or bigger size for main drain pipe.

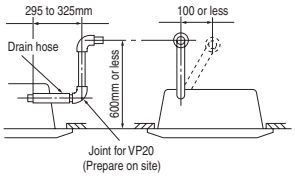


⑥ Drain pipe (continued)

4. Insulate the drain pipe.
   - Be sure to insulate the drain socket and rigid PVC pipe installed indoors otherwise it may cause dew condensation and water leakage.
     ※ After drainage test implementation, cover the drain socket part with pipe cover (small size), then use the pipe cover (big size) to cover the pipe cover (small size), clamps and part of the drain hose, and fix and wrap it with tapes to wrap and make joint part gapless.

Drain up

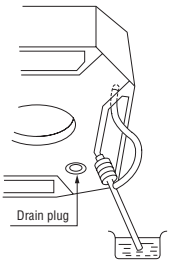
- The position for drain pipe outlet can be raised up to 600mm above the ceiling. Use elbows for installation to avoid obstacles inside ceiling. If the horizontal drain pipe is too long before vertical pipe, the backflow of water will increase when the unit is stopped, and it may cause overflow of water from the drain pan on the indoor unit. In order to avoid overflow, keep the horizontal pipe length and offset of the pipe within the limit shown in the figure below.



Drain test

- After installation of drain pipe, make sure that drain system work in good condition and no water leakage from joint and drain pan. Check if the motor sound of drain pump is normal or not.
- Do drain test even if installation of heating season.
- For new building cases, make sure to complete the test before hanging the ceiling.

1. Pour water of about 1000cc into the drain pan in the indoor unit by pump so as not to get the electrical component wet.
2. Make sure that water is drained out properly and there is no water leakage from any joints of the drain pipe at the test.
   Confirm that the water is properly drained out while the drain motor is operating. At the drain socket (transparent), it is possible to check if the water is drained out properly.
3. Unplug the drain plug on the indoor unit to remove remaining water on the drain pan after the test, and re-plug it. And insulate the drain pipe properly finally.



Drain pump operation

○ Drain pump can be operated by remote control (wired).
Drain pump can be operated by remote controller (wired).
For the operation method, refer to Operation for drain pump in the installation manual for wiring work.

○ In case electrical wiring work not finished
Drain pump will run continuously when the dip switch"SW7-1" on the indoor unit PCB is turned ON, the Connector CNB is disconnected, and then the power source (220-240VAC on the terminal block [① and ②] or [Ⓛ and Ⓝ]) is turned ON.
Make sure to turn OFF "SW7-1" and reconnect the Connector CNB after the test.

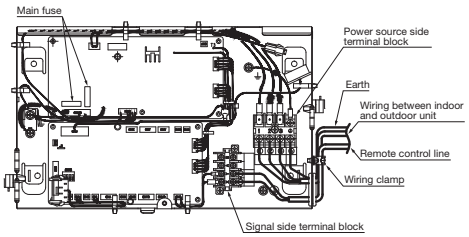
⑦ Wiring-out position and wiring connection

- Electrical installation work must be performed according to the installation manual by an electrical installation service provider qualified by a power provider of the country, and be executed according to the technical standards and other regulations applicable to electrical installation in the country. Be sure to use an exclusive circuit.
- Use specified cord, fasten the wiring to the terminal securely, and hold the cord securely in order not to apply unexpected stress on the terminal.
- Do not put both power source line and signal line on the same route. It may cause miscommunication and malfunction.
- Be sure to do D type earth work.
- For the details of electrical wiring work, see attached instruction manual for electrical wiring work.

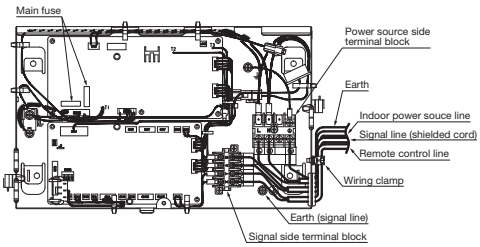
1. Remove a lid of the control box (1 screws).
2. Hold each wiring inside the unit and fasten them to terminal block securely.
3. Fix the wiring with clamp.
4. Install a lid of the control box back to original place.

⑦ Wiring-out position and wiring connection (continued)

Single spilit (PAC) series



VRF (KX) series



Main fuse specification

Specification	Part No.
T3.15A L250V	SSA564A149F

⑧ Panel installation

- After wiring work finished, install the panel on the indoor unit.
- Refer to attached panel installation manual for details.

Accessory items

1	Hook		1 piece	For fixing temporarily
2	Chain		2 pieces	
3	Bolt		4 pieces	For installing the panel
4	Screw		1 piece	For attaching a hook
5	Screw		2 pieces	For attaching a chain

- Attach the panel on the indoor unit after electrical wiring work.
- Refer to attached manual for panel installation for details.

⑨ Check list after installation

- Check the following items after all installation work completed.

Check if	Expected trouble	Check
The indoor and outdoor units are fixed securely?	Falling, vibration, noise	
Inspection for leakage is done?	Insufficient capacity	
Insulation work is properly done?	Water leakage	
Water is drained properly?	Water leakage	
Power source voltage is same as mentioned in the model name plate?	PCB burnt out, not working at all	
There is mis-wiring or mis-connection of piping?	PCB burnt out, not working at all	
Earth wiring is connected properly?	Electric shock	
Cable size comply with specified size?	PCB burnt out, not working at all	
Any obstacle blocks air flow on air inlet and outlet?	Insufficient capacity	

PANEL INSTALLATION MANUAL

PJA012D783

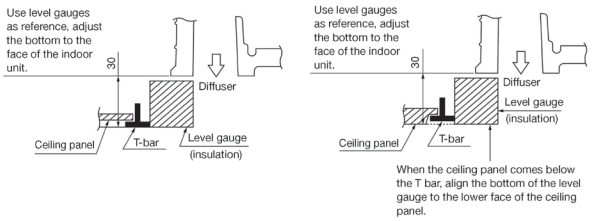
Please read this manual together with the indoor unit's installation manual.

⚠ WARNING

- **Fasten the wiring to the terminal securely and hold the cable securely so as not to apply unexpected stress on the terminal.**
  Loose connection or hold will cause abnormal heat generation or fire.
- **Make sure the power source is turned off when electric wiring work.**
  Otherwise, electric shock, malfunction and improper running may occur.

① Checking the indoor unit installation position

- Read this manual together with the air-conditioner installation manual carefully.
- Check if the gap between the ceiling plane and the indoor unit is correct by inserting the level gauge into the air outlet port of the indoor unit. (See below drawing)
- Adjust the installation elevation if necessary.
- Remove the level gauge before you attach the panel.

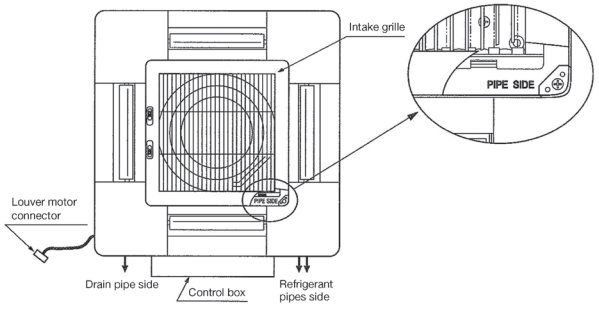


② Orientation of the panel and return air grille installation

1. Take note that there is an orientation to install the panel.
   - Attach the panel with the orientation shown on the below.
   - Align the "PIPE SIDE" mark (on the panel) with the refrigerant pipes on the indoor unit.
2. The intake grille can also be attached in a rotated position by 90 degrees.

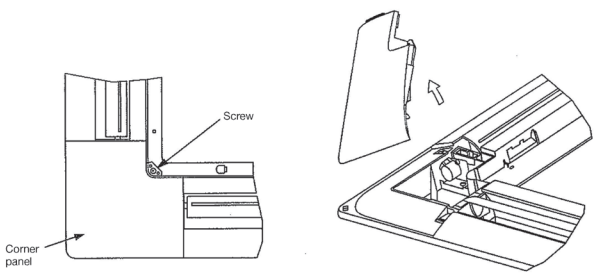
Caution

· In case the orientation of the panel is not correct, it will lead to air leakage and also it is not possible to connect the louver motor wiring.



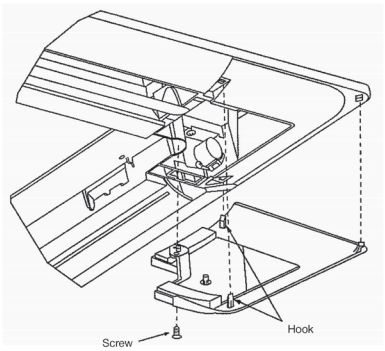
③ Removing a corner panel

- Unscrew the screw from the corner area, pull the corner panel toward the direction indicated by the arrow mark.



④ Attaching a corner panel

- First insert the part "a" of a corner panel into the part "A" of the cover panel, engage two hooks and tighten the screw.



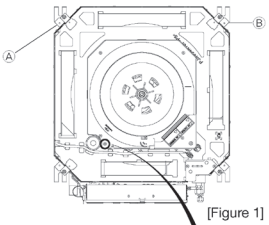
⑤ Panel installation

- Install the panel on the unit after completing the electrical wiring.

Accessories

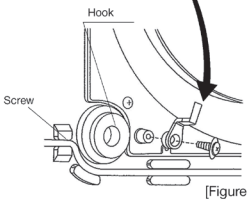
1	Hook		1 piece	For fixing temporarily
2	Chain		2 pieces	
3	Screw		4 pieces	For hoisting the panel
4	Screw		1 piece	For attaching a hook
5	Screw		2 pieces	For attaching a chain

1. Screw in two bolts out of the four supplied with the panel by about slightly less than 5mm. (● mark Ⓐ Ⓑ) [Figure 1]



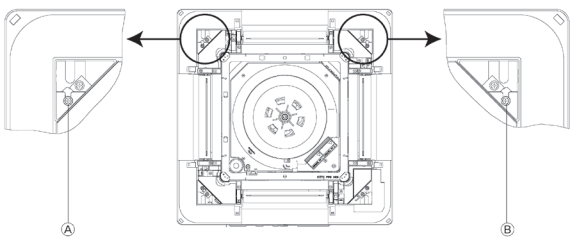
[Figure 1]

2. Attach the hook supplied with the panel to the main body with the hook fixing screw (1 screw). [Figure 2]
3. Open the intake grille.
4. Please remove the screw of a corner panel and remove a corner panel. (four places)



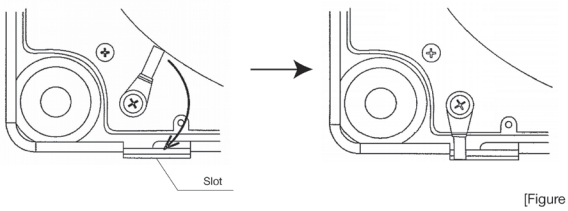
[Figure 2]

5. A panel is hooked on two bolts (● mark Ⓐ Ⓑ). [Figure 3]



[Figure 3]

6. Please rotate a hook, put in the slot on the panel, and carry out fixing the panel temporarily. [Figure 4]

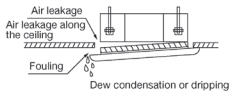


[Figure 4]

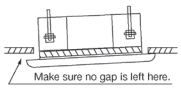
7. Tighten the two bolts used for fixing the panel temporarily and the other two.

Caution

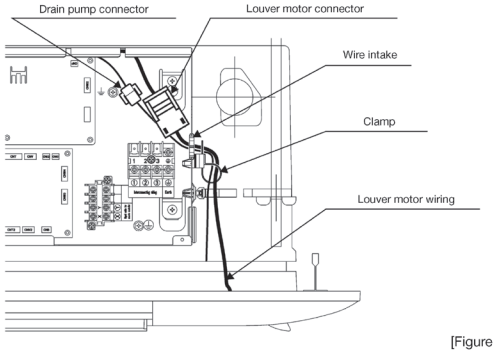
- Improperly tightened hanging bolts can cause the problems listed below, so make sure that you have tightened them securely.



- If there is a gap remaining between the ceiling and the decorative panel even after the hanging bolts are tightened, adjust the installation level of the indoor unit again.

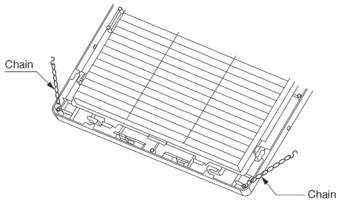


8. Please open the lid of a control box.
9. Like drain pump wiring, please band together by the clamp and put in louver motor wiring into a control box. [Figure 5]
10. Please connect a louver motor connector. [Figure 5]



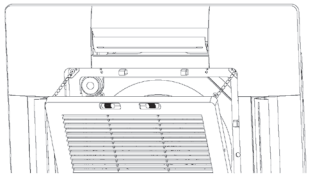
[Figure 5]

11. Attach two chains to the intake grille with two screws. [Figure 6]



[Figure 6]

12. Replace the corner panels. Please also close a chain with a screw together then. [Figure 7]
13. Close the intake grill.



[Figure 7]

Caution

Make sure there is no stress given on the panel when adjusting the height of the indoor unit to avoid unexpected distortion. It may cause the distortion of panel or failing to close the air return grille.

⑥ How to set the air flow direction

It is possible to change the movable range of the louver on the air outlet from the wired remote control . Once the top and bottom position is set, the louver will swing within the range between the top and the bottom when swing operation is chosen. It is also possible to apply different setting to each louver.

Note : This function is not able to be set with wireless remote controls or simple remote control (RCH-H3).

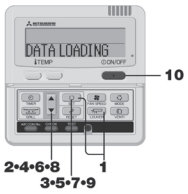
1. Stop the air-conditioner and press SET button and LOUVER button simultaneously for three seconds or more.

The following is displayed if the number of the indoor units connected to the remote control is one. Go to step **4**.

"DATA LOADING "
↓
"No.1 ▲"

The following is displayed if the number of the indoor units connected to the remote control are more than one

"SELECT I/U "
↓
"I/U000 ▲"



2. Press ▲ or ▼ button. (selection of indoor unit)

Select the indoor unit of which the louver is set.

[EXAMPLE]

"I/U000 ▲"⇔"I/U001 ▲▼"⇔"I/U002 ▲▼"⇔
"I/U003 ▲▼"

3. Press SET button. (determination of indoor unit)

Selected indoor unit is fixed.

[EXAMPLE]

"I/U001 " (displayed for two seconds)
↓
"DATA LOADING "
↓
"No.1 ▲"

4. Press ▲ or ▼ button. (selection of louver No.)

Select the louver No. to be set according to the right figure.

[EXAMPLE]

"No.1 ▲"⇔"No.2 ▲▼"⇔"No.3 ▲▼"⇔
"No.4 ▼"

5. Press SET button. (Determination of louver No.)

The louver No. to be set is confirmed and the display shows the upper limit of the movable range.

[EXAMPLE] If No. louver is selected

"No.1 UPPER2 ▲▼" ← current upper limit position

6. Press ▲ or ▼ button. (selection of upper limit position)

Select the upper limit of louver movable range.
"position 1" is the most horizontal, and "position 6" is the most downward.
"position --" is to return to the factory setting. If you need to change the setting to the default setting, use "position --".

"No.1 UPPER1 ▼" (the most horizontal)
⇔"No.1 UPPER2 ▲▼"
⇔"No.1 UPPER3 ▲▼"
⇔"No.1 UPPER4 ▲▼"
⇔"No.1 UPPER5 ▲▼"
⇔"No.1 UPPER6 ▲▼" (the most downwards)
⇔"No.1 UPPER-- ▲" (return to the default setting)

7. Press SET button. (i in of the upper limit position)

The upper limit position is fixed and the setting position is displayed for two seconds. Then proceed to lower limit position selection display.

[EXAMPLE]

No.1 UPPER2 (displayed for two seconds)
↓
No.1 LOWER5 ▲▼ (shows current setting)

8. Press ▲ or ▼ button. (Selection of lower limit position)

Select the lower limit position of louver.
"position 1" is the most horizontal, and "position 6" is the most downwards.
"position --" is to return to the factory setting. If you need to change the setting to the default setting, use "position --".

No.1 LOWER1 ▼ (the most horizontal)
No.1 LOWER2 ▲▼
No.1 LOWER3 ▲▼
No.1 LOWER4 ▲▼
No.1 LOWER5 ▲▼
No.1 LOWER6 ▲▼ (the most downwards)
No.1 LOWER-- ▲ (return to the default setting)

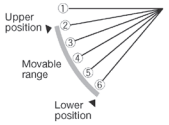
9. Press SET button. (i in of the lower limit position)

Upper limit position and lower limit position are fixed, and the set positions are displayed for two seconds, then setting is completed.

- After the setting is completed, the louver which was set moves from the original position to the lower limit position, and goes back to the original position again. (This operation is not performed if the indoor unit and or indoor unit fan is in operation.)

[EXAMPLE]

No.1 U2 L6 (displayed for two seconds)
SET COMPLETE
No.1 ▲



10. Press ON/OFF button.

Louver adjusting mode ends and returns to the original display.
For setting the swing range of other louvers, return to 1 and proceed same procedure respectively.

Caution

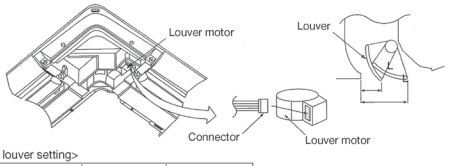
If the upper limit position number and the lower limit position number are set to the same position, the louver is fixed at that position auto swing does not function.

ATTENTION

If you press RESET button during settings, the display will return to previous display.
If you press ON/OFF button during settings, the mode will be ended and return to original display, and the settings that have not been completed will become invalid.

When plural remote controls are connected, louver setting operation cannot be set by slave remote control.

If it is necessary to fix the louver position manually, follow the procedure mentioned below.
1. Shut off the main power switch.
2. Unplug the connector of the louver motor which you want to fix the position.
   Make sure to insulate unplugged connectors electrically with a vinyl tape.
3. Adjust the louver position slowly by hand so as to be within the applicable range mentioned below table.



<Range of louver setting>

Vertical airflow direction	Horizontal 23°	Downwards 50°
Dimension L (mm)	40	24

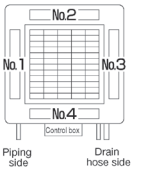
※It can be set between 24~40mm freely.

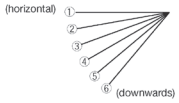
Caution

- Any automatic control or operation from the remote control will be disabled on the louver whose position is fixed in the above way.
- Do not set a louver beyond the specified range. Failure to observe this instruction may result in dripping, dew condensation, the fouling of the ceiling and the malfunctioning of the unit.

NOTICE

- In case the louver No to be set is uncertain, set any louver temporarily.
  The louver will swing once when the setting is completed and it is possible to confirm the louver No and the position.
  After that, choose the correct louver No and set the top and bottom position.





PFA012D628

(5) Ceiling suspended type (FDE)

Model FDE50VG

This manual is for the installation of an indoor unit.
For wired remote control installation, refer to page 288. For wireless kit installation, refer to page 309. For electrical wiring work (Outdoor) and refrigerant pipe work installation for outdoor unit, refer to page 14.

SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, ⚠WARNING and ⚠CAUTION.
  ⚠WARNING: Wrong installation would cause serious consequences such as injuries or death.
  ⚠CAUTION: Wrong installation might cause serious consequences depending on circumstances.
  Both mentions the important items to protect your health and safety so strictly follow them by any means.
- The meanings of "Marks" used here are as shown as follows:
  ⃠ Never do it under any circumstances. ❗ Always do it according to the instruction.
- After completing the installation, do commissioning to confirm there are no abnormalities, and explain to the customers about "SAFETY PRECAUTIONS", correct operation method and maintenance method (air filter cleaning, operation method and temperature setting method) with user's manual of this unit.
  Ask your customers to keep this installation manual together with the user's manual. Also, ask them to hand over the user's manual to the new user when the owner is changed.

⚠WARNING

- **Installation should be performed by the specialist.**
  If you install the unit by yourself, it may lead to serious trouble such as water leakage, electric shock, fire, and injury due to overturn of the unit.
- **Install the system correctly according to these installation manuals.**
  Improper installation may cause explosion, injury, water leakage, electric shock, and fire.
- **When installing in small rooms, take prevention measures not to exceed the density limit of refrigerant in the event of leakage, referred by the formula (accordance with ISO5149).**
  If the density of refrigerant exceeds the limit, please consult the dealer and install the ventilation system, otherwise lack of oxygen can occur, which can cause serious accidents.
- **Use the genuine accessories and the specified parts for installation.**
  If parts unspecified by our company are used it could cause water leakage, electric shock, fire, and injury due to overturn of the unit.
- **Ventilate the working area well in case the refrigerant leaks during installation.**
  If the refrigerant contacts the fire, toxic gas is produced.
- **Install the unit in a location that can hold heavy weight.**
  Improper installation may cause the unit to fall leading to accidents.
- **Install the unit properly in order to be able to withstand strong winds such as typhoons, and earthquakes.**
  Improper installation may cause the unit to fall leading to accidents.
- **Do not mix air in to the cooling cycle on installation or removal of the air conditioner.**
  If air is mixed in, the pressure in the cooling cycle will rise abnormally and may cause explosion and injuries.
- **Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.**
  Power source with insufficient capacity and improper work can cause electric shock and fire.
- **Use specified wire for electrical wiring, fasten the wiring to the terminal securely, and hold the cable securely in order not to apply unexpected stress on the terminal.**
  Loose connections or hold could result in abnormal heat generation or fire.
- **Arrange the electrical wires in the control box properly to prevent them from rising. Fit the lid of the services panel property.**
  Improper fitting may cause abnormal heat and fire.
- **Check for refrigerant gas leakage after installation is completed.**
  If the refrigerant gas leaks into the house and comes in contact with a fan heater, a stove, or an oven, toxic gas is produced.
- **Use the specified pipe, flare nut, and tools for R410A.**
  Using existing parts (R22) could cause the unit failure and serious accident due to explosion of the cooling cycle.
- **Tighten the flare nut according to the specified method by with torque wrench.**
  If the flare nut were tightened with excess torque, it could cause burst and refrigerant leakage after a long period.
- **Do not put the drainage pipe directly into drainage channels where poisonous gases such as sulfide gas can occur.**
  Poisonous gases will flow into the room through drainage pipe and seriously affect the user's health and safety. This can also cause the corrosion of the indoor unit and a resultant unit failure or refrigerant leak.
- **Connect the pipes for refrigeration circuit securely in installation work before compressor is operated.**
  If the compressor is operated when the service valve is open without connecting the pipe, it could cause explosion and injuries due to abnormal high pressure in the system.
- **Stop the compressor before removing the pipe after shutting the service valve on pump down work.**
  If the pipe is removed when the compressor is in operation with the service valve open, air would be mixed in the refrigeration circuit and it could cause explosion and injuries due to abnormal high pressure in the cooling cycle.
- **Only use prescribed option parts. The installation must be carried out by the qualified installer.**
  If you install the system by yourself, it can cause serious trouble such as water leaks, electric shocks, fire.
- **Do not repair by yourself. And consult with the dealer about repair.**
  Improper repair may cause water leakage, electric shock or fire.
- **Consult the dealer or a specialist about removal of the air-conditioner.**
  Improper installation may cause water leakage, electric shock or fire.
- **Turn off the power source during servicing or inspection work.**
  If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating fan.
- **Do not run the unit when the panel or protection guard are taken off.**
  Touching the rotating equipment, hot surface, or high voltage section could cause an injury to be caught in the machine, to get burned, or electric shock.
- **Shut off the power before electrical wiring work.**
  It could cause electric shock, unit failure and improper running.

⚠ CAUTION

- **Perform earth wiring surely.**
  Do not connect the earth wiring to the gas pipe, water pipe, lightning rod and telephone earth wiring. Improper earth could cause unit failure, electric shock and fire due to a short circuit.
- **Earth leakage breaker must be installed.**
  If the earth leakage breaker is not installed, it can cause fire and electric shocks.
- **Use the circuit breaker of correct capacity. Circuit breaker should be the one that disconnect all poles under over current.**
  Using the incorrect one could cause the system failure and fire.
- **Do not use any materials other than a fuse of correct capacity where a fuse should be used.**
  Connecting the circuit by wire or copper wire could cause unit failure and fire.
- **Do not install the indoor unit near the location where there is possibility of flammable gas leakages.**
  If the gas leaks and gathers around the unit, it could cause fire.
- **Do not install and use the unit where corrosive gas (such as sulfurous acid gas etc.) or flammable gas (such as thinner, petroleum etc.) may be generated or accumulated, or volatile flammable substances are handled.**
  It could cause the corrosion of heat exchanger, breakage of plastic parts etc. And inflammable gas could cause fire.
- **Secure a space for installation, inspection and maintenance specified in the manual.**
  Insufficient space can result in accident such as personal injury due to falling from the installation place.
- **Do not use the indoor unit at the place where water splashes such as laundry.**
  Indoor unit is not waterproof. It could cause electric shock and fire.
- **Do not use the indoor unit for a special purpose such as food storage, cooling for precision instrument, preservation of animals, plants, and a work of art.**
  It could cause the damage of the items.
- **Do not install nor use the system near equipments which generate electromagnetic wave or high harmonics.**
  Equipments like inverter equipment, private power generator, high-frequency medical equipment, or telecommunication equipment might influence the air-conditioner and cause a malfunction and breakdown. Or the air-conditioner might influence medical equipments or telecommunication equipments, and obstruct their medical activity or cause jamming.
- **Do not install the remote control at the direct sunlight.**
  It could cause breakdown or deformation of the remote control.
- **Do not install the indoor unit at the place listed below.**
  - Places where flammable gas could leak.
  - Places where carbon fiber, metal powder or any powder is floated.
  - Place where the substances which affect the air-conditioner are generated such as sulfide gas, chloride gas, acid, alkali or ammonic atmospheres.
  - Places exposed to oil mist or steam directly.
  - On vehicles and ships
  - Places where machinery which generates high harmonics is used.
  - Places where cosmetics or special sprays are frequently used.
  - Highly salted area such as beach.
  - Heavy snow area
  - Places where the system is affected by smoke from a chimney.
  - Altitude over 1000m
- **Do not install the indoor unit in the locations listed below (Be sure to install the indoor unit according to the installation manual for each model because each indoor unit has each limitation)**
  - Locations with any obstacles which can prevent inlet and outlet air of the unit
  - Locations where vibration can be amplified due to insufficient strength of structure.
  - Locations where the infrared receiver is exposed to the direct sunlight or the strong light beam. (in case of the infrared specification unit)
  - Locations where an equipment affected by high harmonics is placed. (TV set or radio receiver is placed within 5m)
  - Locations where drainage cannot run off safely.

  It can affect performance or function and etc..
- **Do not put any valuables which will break down by getting wet under the air-conditioner.**
  Condensation could drop when the relative humidity is higher than 80% or drain pipe is clogged, and it damages user's belongings.
- **Do not use the base frame for the outdoor unit which is corroded or damaged after a long period of use.**
  It could cause the unit falling down and injury.
- **Pay attention not to damage the drain pan by weld sputter when brazing work is done near the unit.**
  If sputter entered into the unit during brazing work, it could cause damage (pinhole) of drain pan and leakage of water. To avoid damaging, keep the indoor unit packed or cover the indoor unit.
- **Install the drain pipe to drain the water surely according to the installation manual.**
  Improper connection of the drain pipe may cause dropping water into room and damaging user's belongings.
- **Do not share the drain pipe for indoor unit and GHP (Gas Heat Pump system) outdoor unit.**
  Toxic exhaust gas would flow into room and it might cause serious damage (some poisoning or deficiency of oxygen) to user's health and safety.
- **Be sure to perform air tightness test by pressurizing with nitrogen gas after completed refrigerant piping work.**
  If the density of refrigerant exceeds the limit in the event of refrigerant leakage in the small room, lack of oxygen can occur, which can cause serious accidents.
- **For drain pipe installation, be sure to make descending slope of greater than 1/100, not to make traps, and not to make air-bleeding.**
  Check if the drainage is correctly done during commissioning and ensure the space for inspection and maintenance.
- **Ensure the insulation on the pipes for refrigeration circuit so as not to condense water.**
  Incomplete insulation could cause condensation and it would wet ceiling, floor, and any other valuables.
- **Do not install the outdoor unit where is likely to be a nest for insects and small animals.**
  Insects and small animals could come into the electronic components and cause breakdown and fire. Instruct the user to keep the surroundings clean.
- **Pay extra attention, carrying the unit by hand.**
  Carry the unit with 2 people if it is heavier than 20kg. Do not use the plastic straps but the grabbing place, moving the unit by hand. Use protective gloves in order to avoid injury by the aluminum fin.
- **Make sure to dispose of the packaging material.**
  Leaving the materials may cause injury as metals like nail and woods are used in the package.
- **Do not operate the system without the air filter.**
  It may cause the breakdown of the system due to clogging of the heat exchanger.
- **Do not touch any button with wet hands.**
  It could cause electric shock.
- **Do not touch the refrigerant piping with bare hands when in operation.**
  The pipe during operation would become very hot or cold according to the operating condition, and it could cause a burn or frostbite.
- **Do not clean up the air-conditioner with water.**
  It could cause electric shock.
- **Do not turn off the power source immediately after stopping the operation.**
  Be sure to wait for more than 5 minutes. Otherwise it could cause water leakage or breakdown.
- **Do not control the operation with the circuit breaker.**
  It could cause fire or water leakage. In addition, the fan may start operation unexpectedly and it may cause injury.

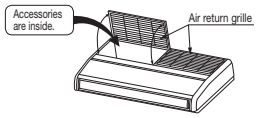
①Before installation

- Install correctly according to the installation manual.
- Confirm the following points:

○Unit type/Power source specification ○Pipes/Wires/Small parts ○Accessory items

Accessory item

For unit hanging		For refrigerant pipe			For drain pipe					For air return grille
Flat washer (M10)	Paper pattern	Pipe cover (large)	Pipe cover (small)	Strap	Drain hose (with clamp)	Hose clamp	Fixing bracket	Screw	Heay insulation	Screw
8	1	1	1	4	1	1	1	2	1	4
For unit hanging	For unit hanging and adjustment	For heat insulation of gas pipe	For heat insulation of liquid pipe	For fixing of pipe cover	For drain pipe connection	For drain hose mounting	For fixing of drain hose	For installing of fixing bracket	For drain hose	For fixing air return grille



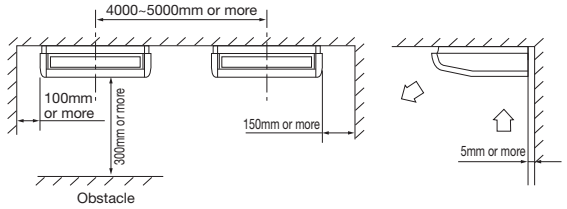
②Selection of installation location for the indoor unit

① Select the suitable areas to install the unit under approval of the user.
- Areas where the indoor unit can deliver hot and cold wind sufficiently. Suggest to the user to use a circulator if the ceiling height is over 3m to avoid warm air being accumulated on the ceiling.
- Areas where there is enough space to install and service.
- Areas where it can be drained properly. Areas where drain pipe descending slope can be taken.
- Areas where there is no obstruction of airflow on both air return grille and air supply port.
- Areas where fire alarm will not be accidentally activated by the air-conditioner.
- Areas where the supply air does not short-circuit.
- Areas where it is not influenced by draft air.
- Areas not exposed to direct sunlight.
- Areas where dew point is lower than around 23°C and relative humidity is lower than 80%. This indoor unit is tested under the condition of JIS (Japan Industrial Standard) high humidity condition and confirmed there is no problem. However, there is some risk of condensation drop if the air-conditioner is operated under the severer condition than mentioned above.
- Areas where TV and radio stays away more than 1m. (It could cause jamming and noise.)
- Areas where any items which will be damaged by getting wet are not placed such as food, table wares, server, or medical equipment under the unit.
- Areas where there is no influence by the heat which cookware generates.
- Areas where not exposed to oil mist, powder and/or steam directly such as above fryer.

② Check if the place where the air-conditioner is installed can hold the weight of the unit. If it is not able to hold, reinforce the structure with boards and beams strong enough to hold it. If the strength is not enough, it could cause injury due to unit falling.

③ When plural indoor units are installed nearby, keep them away for more than 4 to 5m.

Space for installation and service



③Preparation before installation

- If suspension bolt becomes longer, do reinforcement of earthquake resistant.

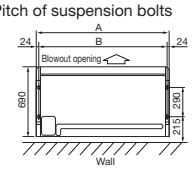
○For grid ceiling
When suspension bolt length is over 500mm, or the gap between the ceiling and roof is over 700mm, apply earthquake resistant brace to the bolt.

○In case the unit is hanged directly from the slab and is installed on the ceiling plane which has enough strength.
When suspension bolt length is over 1000mm, apply the earthquake resistant brace to the bolt.

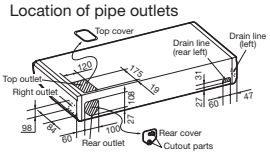
- Prepare four (4) sets of suspension bolt, nut and spring washer (M10) on site.

Pitch of suspension bolts and pipe position

Pitch of suspension bolts



Location of pipe outlets



③Preparation before installation (continued)

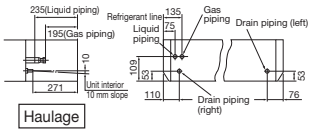
(mm)

Series	type	A	B
Single Split (PAC) series	40 to 50type	1070	1022
	60 to 71type	1320	1272
	100 to 140type	1620	1572
VRF (KX) series	36 to 56type	1070	1022
	71type	1320	1272
	112 to 140type	1620	1572

※Pipes can be taken out in 3 directions (rear, right or top).
- Cut out holes using nippers, etc.
- Cut out holes to take out pipes along the cutoff line on the rear cover.
- Cut out the top face cover aligning to the piping position.
- When taking pipe out to right-hand side, cut out a hole along the groove at the inside of side panel.
- After installing pipes and wires, seal clearances around pipes and wires with putty, etc. to shut off dust.

Make sure to install the covers at rear and top in order to protect the inside of unit from intrusion of dust or protect wires from damages by sharp edges. When taking them out to the right-hand side, remove burrs or sharp edges from the cutout.

Pipe position

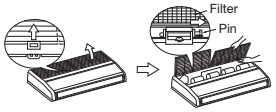


Haulage

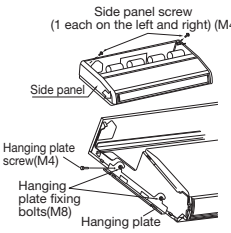
- Move the box as close to the installation area as possible packed.
- If it must be unpacked, wrap the unit with a nylon sling, and be careful not to damage the unit.
  ※Do not hold fragile plastic parts, such as the side panel, blow louver, etc.
- If you need to lay the unit on a floor after unpacking, always put it with the intake grille facing upward.

Preparation before instalation

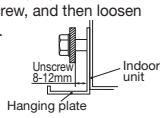
1. Remove the air return grille.
Slide stoppers (4 places) of the catches, then pull out the pins (4 or 6 places).



2. Remove the side panel.
Remove the screw and detach the side panel by sliding it toward the direction indicated by the arrow mark.



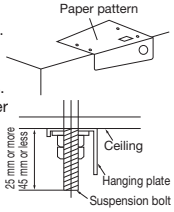
3. Remove the hanging plate.
Remove the screw, and then loosen the fixing bolts.



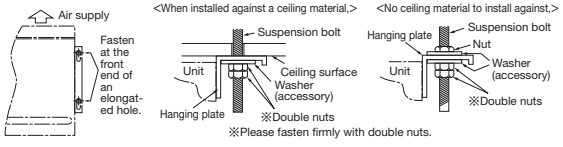
④Installation of indoor unit

Work procedure

1. Select the suspension bolt locations and the pipe hole location.
   (1) Use enclosed paper pattern as a reference, and drill the holes for the suspension bolts and pipe.
   ※Decide the locations based on direct measurements.
   (2) Once the locations are properly placed, the paper pattern can be removed.

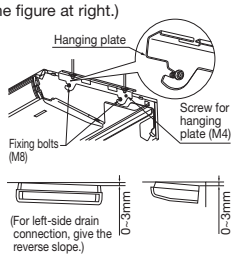


2. Install the suspension bolts in place.
3. Fix with 4 suspension bolts, which can endure load of 500N.
4. Check the measurements given at the right figure for the length of the suspension bolts.
5. Fasten the hanging plate onto the suspension bolts.



※Please fasten firmly with double nuts.

6. Install the unit to the hanging plate. (See the figure at right.)
   (1) Slide the unit in from front side to get it hanged on the hanging plate with the bolts.
   (2) Fasten the four fixing bolts (M8: 2 each on the left and right sides) firmly.
   (3) Fasten the two screws (M4: 1 each on the left and right sides).



⚠**WARNINIG** : Hang a side panel on from the panel side to the rear side and then fasten it securely onto the indoor unit with screws.

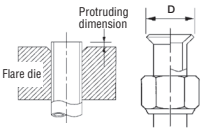
※To ensure smooth drain flow, install the unit with a descending slope toward the drain outlet.

⚠ **CAUTION** : Do not give the reversed slope, which may cause water leaks.

⑤Refrigerant pipe

Caution

●Be sure to use new pipes for the refrigerant pipes. Use the flare nut attached to the product or a nut compatible with JIS B 8607, Class 2.
Regarding whether existing pipes can be reused or not, and the washing method, refer to the instruction manual of the outdoor unit, catalogue or technical data.
1) In case of reuse: Do not use old flare nut, but use the one attached to the unit or compatible with JIS B 8607, Class 2.
2) In case of reuse: Flare the end of pipe replaced partially for R410A.



Pipe dia. d mm	Min. pipe wall thickness mm	Protruding dimension for flare, mm		Flare O.D. D mm	Flare nut tightening torque N·m
		Rigid (Clutch type)			
		For R410A	Conventional tool		
6.35	0.8	0 ~ 0.5	0.7 ~ 1.3	8.9 ~ 9.1	14 ~ 18
9.52	0.8			12.8 ~ 13.2	34 ~ 42
12.7	0.8			16.2 ~ 16.6	49 ~ 61
15.88	1			19.3 ~ 19.7	68 ~ 82
19.05	1.2			23.6 ~ 24.0	100 ~ 120

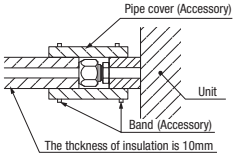
●Use phosphorus deoxidized copper alloy seamless pipe (C1220T specified in JIS H3300) for refrigeration pipe installation.
In addition, make sure there is no damage both inside and outside of the pipe, and no harmful substances such as sulfur, oxide, dust or a contaminant stuck on the pipes.
●Do not use any refrigerant other than R410A.
Using other refrigerant except R410A (R22 etc.) may degrade inside refrigeration oil. And air getting into refrigeration circuit may cause over-pressure and resultant it may result in bursting, etc.
●Store the copper pipes indoors and seal the both end of them until they are brazed in order to avoid any dust, dirt or water getting into pipe. Otherwise it will cause degradation of refrigeration oil and compressor breakdown, etc.
●Use special tools for R410A refrigerant.

Work procedure

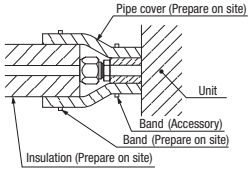
1. Remove the flare nut and blind flanges on the pipe of the indoor unit.
※ Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them. (Gas may come out at this time, but it is not abnormal.)
● Pay attention whether the flare nut pops out. (as the indoor unit is sometimes pressured.)
2. Make a flare on liquid pipe and gas pipe, and connect the refrigeration pipes on the indoor unit.
●When pulling out pipes backward or upward, install them passing through the attached cover together with the electrical cabling.
●Seal the gap with putty, or other, to protect from dust, etc.
※Bend radius of pipe must be 4D or larger. Once a pipe is bent, do not readjust the bending. Do not twist a pipe or collapse to 2/3D or smaller.
※Do a flare connection as follows:
● Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them.
● When fastening the flare nut, align the refrigeration pipe with the center of flare nut, screw the nut for 3-4 times by hand and then tighten it by spanner with the specified torque mentioned in the table above. Make sure to hold the pipe on the indoor unit securely by a spanner when tightening the nut in order to avoid unexpected stress on the copper pipe.
3. Cover the flare connection part of the indoor unit with attached insulation material after a gas leakage inspection, and tighten both ends with attached straps.
● Make sure to insulate both gas pipes and liquid pipes completely.
※Incomplete insulation may cause dew condensation or water dropping.
● Use heat-resistant (120 °C or more) insulations on the gas side pipes.
● In case of using at high humidity condition, reinforce insulation of refrigerant pipes.
Surface of insulation may cause dew condition or water dropping, if insulations are not reinfoced.
4. Refrigerant is charged in the outdoor unit.
As for the additional refrigerant charge for the indoor unit and piping, refer to the installation manual attached to the outdoor unit.

Caution:
Refrigerating machine oil should not be applied to the threads of union or external surface of flare. It is because, even if the same tightening torque is applied, the oil is likely to decrease the slide friction force on the threads and increase, in turn, the axial component force so that it could crack the flare by the stress corrosion.
Refrigerating machine oil may be applied to the internal surface of flare only.

〈The case of using thicness of insulation is 10mm〉

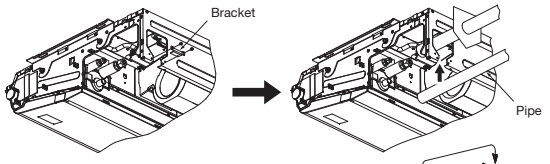


〈The case of using reinfoced insulation〉

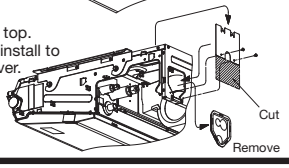


The pipe can be connected from three different directions. (back, reight, top)

● When the pipe is routed through the back.
If the bracket is removed, piping work will become easy.
※After piping, reinstall the removed bracket.



● When the pipe is routed through the top.
Cut the removed top cover, and install to the rear panel instead of rear cover.



⑥Drain pipe

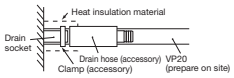
●The drain pipes may pull out either from back, right or left side.

Caution

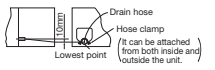
- Install the drain pipe according to the installation manual in order to drain properly. Imperfection in draining may cause flood indoors and wetting the household goods, etc.
- Do not put the drain pipe directly into the ditch where toxic gas such as sulfur, the other harmful andinflammable gas is generated. Toxic gas would flow into the room and it would cause serious damage to user's health and safety (some poisoning or deficiency of oxygen). In addition, it may cause corrosion of heat exchanger and bad smell.
- Connect the pipe securely to avoid water leakage from the joint.
- Insulate the pipe properly to avoid condensation drop.
- Check if the water can flow out properly from both the drain outlet on the indoor unit and the end of the drain pipe after installation.
- Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway. In addition, do not put air vent on the drain pipe. Check if water is drained out properly from the pipe during commissioning. Also, keep sufficient space for inspection and maintenance.

Work procedure

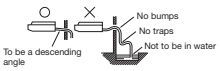
1. Insert drain hose completely to the base, and tighten the drain hose clamp securely. (adhesive must not be used.)
※When plumbing on the left side, move the rubber plug and the cylindrical insulating materials by the pipe connecting hole on the left side of the unit to the right side.



⚠ Beware of a possible outflow of water that may occur upon removal of a drain plug.



2. Fix the drain hose at the lowest point with a hose clamp supplied as an accessory.
※Give a drain hose a gradient of 10mm as illustrated in the right drawing by laying it without leaving a slack.



● Take head of electrical cables so that they may not run beneath the drain hose.
⚠ A drain hose must be clamped down with a hose clamp.
There is a possibility that drain water overflows.
3. Connect VP20(prepare on site) to drain hose. (adhesive must not be used.)
※ Use commercially available rigid PVC general pipe VP20 for drain pipe.
4. Do not to make the up-down bending and trap in the mid-way while assuming that the drain pipes is downhill. (more than 1/100)
● Never set up air vent.
5. Insulate the drain pipe.
● Insulate the drain hose clamp with the heat insulation supplied as accessories.
● When the unit is installed in a humid place, consider precautions against dew condensation such as heat insulation for the drain pipe.

Drain test

●After installation of drain pipe, make sure that drain system work in good condition and no water leakage from joint and drain pan.
●Do drain test even if installation of heating season.

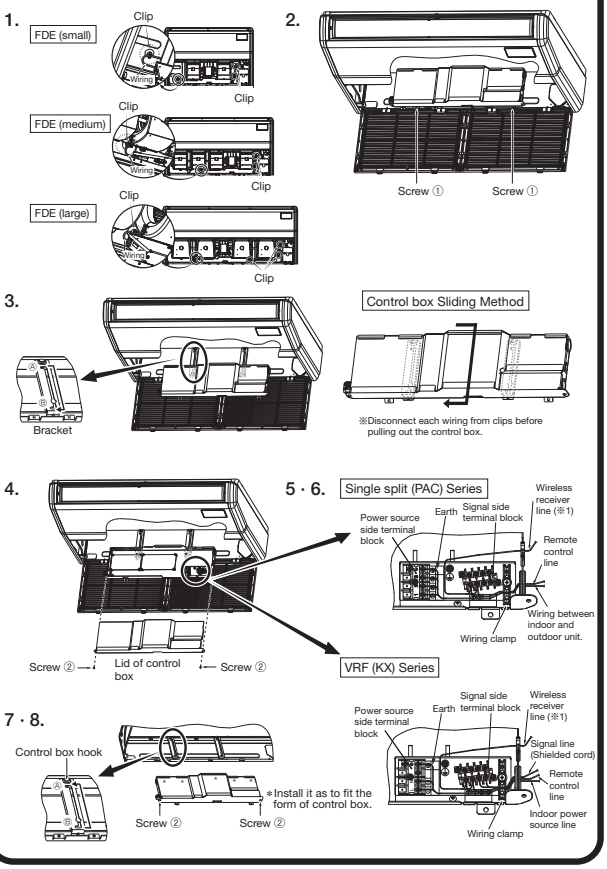
⑦Wiring-out position and wiring connection

- Electrical installation work must be performed according to the installation manual by an electrical installation service provider qualified by a power provider of the country, and be executed according to the technical standards and other regulations applicable to electrical installation in the country.
Be sure to use an exclusive circuit.
- Use specified cord, fasten the wiring to the terminal securely, and hold the cord securely in order not to apply unexpected stress on the terminal.
- Be sure to do D type earth work.
- For the details of electrical wiring work, see attached instruction manual for electrical wiring work.

1. Remove wiring from clips.
2. Remove the control box (Screw ①, ②pcs).
3. Pull out the control box by sliding along the groove on the bracket (Direction Ⓐ→Ⓑ).
4. Remove the lid of control box (Screw ②, ②pcs).
5. Hold each wiring inside the unit and connect to the terminal block surely.
6. Fix the wiring by clamp.
7. Install the lid of control box (Screw ②, ②pcs).
8. Return the control box to the original place by sliding along the groove on the bracket (Direction Ⓑ→Ⓐ).
9. Install the removed parts at their original places.

※1 Wiring for the signal receiving section of wireless kit (Optional) are connected to the X and Y terminals on the terminal block (the site connection side), when the indoor unit is shipped from the factory.
It is not necessary to disconnect these wiring when wired remote control is connected. When the wired/wireless kits are used together, it becomes necessary to set the slaves and remote control.

⑦Wiring-out position and wiring connection (continued)



⑧Control mode switching

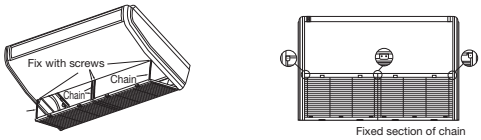
● The control content of indoor units can be switched in following way. (▭ is the default setting)

Switch No.	Control Content	
SW8-4	ON	Indoor unit silent mode
	OFF	Normal operation

⑨Attaching the air return grille

● The air return grille must be attached when electrical cabling work is completed.

1. Fix the chains tied to the air return grille onto the indoor unit with screws supplied as accessories (4 pieces).
2. Close the air return grille. This completes the unit installtion work.



⑩Check list after installation

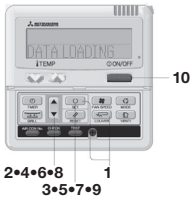
● Check the following items after all installation work completed.

Check if	Expected trouble	Check
The indoor and outdoor units are fixed securely?	Falling, vibration, noise	
Inspection for leakage is done?	Insufficient capacity	
Insulation work is properly done?	Water leakage	
Water is drained properly?	Water leakage	
Power source voltage is same as mentioned in the model name plate?	PCB burnt out, not working at all	
There is mis-wiring or mis-connection of piping?	PCB burnt out, not working at all	
Earth wiring is connected properly?	Electric shock	
Cable size comply with specified size?	PCB burnt out, not working at all	
Any obstacle blocks air flow on air inlet and outlet?	Insufficient capacity	

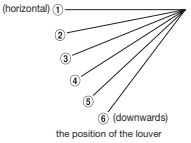
⑪How to set the airflow direction

It is possible to change the movable range of the louver on the air outlet from the wired remote control. Once the top and bottom position is set, the louver will swing within the range between the top and the bottom when swing operation is chosen. It is also possible to apply different setting to each louver.

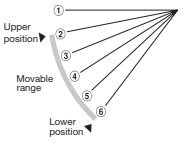
1. Stop the air-conditioner and press SET button and LOUVER button simultaneously for three seconds or more.
   ● The following is displayed if the number of the indoor units connected to the remote control is one. Go to step 4.
   "DATA LOADING "
   ↓
   "No.1 ▲"
   ● The following is displayed if the number of the indoor units connected to the remote control are more than one.
   "SELECT I/U"
   ↓
   "I/U000 ▲"



2. Press ▲or▼button.(selection of indoor unit) ●Select the indoor unit of which the louver is set.
   [EXAMPLE]
   "I/U000 ▲"⇔"I/U001 ⇕"⇔"I/U002 ⇕"⇔
   "I/U003 ⇕"
3. Press SET button.(determination of indoor unit) ●Selected indoor unit is fixed.
   [EXAMPLE]
   "I/U001 " (displayed for two seconds)
   ↓
   "DATA LOADING "
   ↓
   "No.1 ▲"
4. Press▲or▼button.(selection of louver No.) ●Select the louver No. to be set according to the right figure.
   [EXAMPLE]
   "No.1 ▲"⇔"No.2 ⇕"⇔"No.3 ⇕"⇔
   "No.4 ▼"
5. Press SET button.(Determination of louver No.)
   ●The louver No. to be set is confirmed and the display shows the upper limit of the movable range.
   [EXAMPLE] If No.1 louver is selected,
   "No.1 UPPER2 ⇕" ←current upper limit position
6. Press▲or▼button.(selection of upper limit position)
   ● Select the upper limit of louver movable range.
   "position 1" is the most horizontal, and "position 6" is the most downward.
   "position --" is to return to the factory setting.
   If you need to change the setting to the default setting, use "position --".



   "No.1 UPPER1 ▼" (the most horizotal)
   ⇔"No.1 UPPER2 ⇕"
   ⇔"No.1 UPPER3 ⇕"
   ⇔"No.1 UPPER4 ⇕"
   ⇔"No.1 UPPER5 ⇕"
   ⇔"No.1 UPPER6 ▲" (the most downwards)
   ⇔"No.1 UPPER-- ▲" (return to the default setting)
7. Press SET button.(Fixing of the upper limit position)
   ●The upper limit position is fixed and the setting position is displayed for two seconds. Then proceed to lower limit position selection display.
   [EXAMPLE]
   No.1 UPPER2 (displayed for two seconds)
   ↓
   No.1 LOWER5 ⇕ (shows current setting)
8. Press ▲or ▼button.(Selection of lower limit position)
   ●Select the lower limit position of louver.
   "position 1" is the most horizontal, and "position 6 "is the most downwards.
   "position --" is to return to the factory setting. If you need to change the setting to the default setting, use "position --".
   No.1 LOWER1 ▼ (the most horizontal)
   No.1 LOWER2 ⇕
   No.1 LOWER3 ⇕
   No.1 LOWER4 ⇕
   No.1 LOWER5 ⇕
   No.1 LOWER6 ▲ (the most downwards)
   No.1 LOWER-- ▲ (return to the default setting)
9. Press SET button.(Fixing of the lower limit position)
   ●Upper limit position and lower limit position are fixed, and the set positions are displayed for two seconds, then setting is completed.
   ▪ After the setting is completed, the louver which was set moves from the original position to the lower limit position, and goes back to the original position again. (This operation is not performed if the indoor unit and/or indoor unit fan is in operation.)
   [Example]
   No.1 U2 L6 (displayed for two seconds)
   SET COMPLETE
   No.1 ▲



10. Press ⏻ON/OFF button.
    ●Louver adjusting mode ends and returns to the original display.

Caution

If the upper limit position number and the lower limit position number are set to the same position, the louver is fixed at that position auto swing does not funtion.

ATTENTION

If you press RESET button during settings, the display will return to previous display.If you press ⏻ON/OFF button during settings, the mode will be ended and return to original display, and the settings that have not been completed will become invalid.

When plural remote controls are connected, louver setting operation cannot be set by slave remote control.

(6) Duct connected Low / Middle static pressure type (FDUM)

Model FDUM50VF

PJG012D008C F

(a) Indoor unit

This manual is for the installation of an indoor unit.
For wired remote control installation, refer to page 288. For wireless kit installation, refer to page 316. For electrical wiring work (Outdoor) and refrigerant pipe work installation for outdoor unit, refer to page 14.

SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, ⚠WARNING and ⚠CAUTION .
  ⚠WARNING : Wrong installation would cause serious consequences such as injuries or death.
  ⚠CAUTION : Wrong installation might cause serious consequences depending on circumstances.
  Both mentions the important items to protect your health and safety so strictly follow them by any means.
- The meanings of "Marks" used here are as shown on the right:
  ⃠ Never do it under any circumstances. | ❗ Always do it according to the instruction.
- After completing the installation, do commissioning to confirm there are no abnormalities, and explain to the customers about "SAFETY PRECAUTIONS", correct operation method and maintenance method (air filter cleaning, operation method and temperature setting method) with user's manual of this unit.
  Ask your customers to keep this installation manual together with the user's manual. Also, ask them to hand over the user's manual to the new user when the owner is changed.

⚠WARNING

- **Installation should be performed by the specialist.**
  If you install the unit by yourself, it may lead to serious trouble such as water leakage, electric shock, fire, and injury due to overturn of the unit.
- **Install the system correctly according to these installation manuals.**
  Improper installation may cause explosion, injury, water leakage, electric shock, and fire.
- **Check the density refered by the foumula (accordance with ISO5149).**
  If the density exceeds the limit density, please consult the dealer and installate the ventilation system.
- **Use the genuine accessories and the specified parts for installation.**
  If parts unspecified by our company are used it could cause water leakage, electric shock, fire, and injury due to overturn of the unit.
- **Ventilate the working area well in case the refrigerant leaks during installation.**
  If the refrigerant contacts the fire, toxic gas is produced.
- **Install the unit in a location that can hold heavy weight.**
  Improper installation may cause the unit to fall leading to accidents.
- **Install the unit properly in order to be able to withstand strong winds such as typhoons, and earthquakes.**
  Improper installation may cause the unit to fall leading to accidents.
- **Do not mix air in to the cooling cycle on installation or removal of the air-conditioner.**
  If air is mixed in, the pressure in the cooling cycle will rise abnormally and may cause explosion and injuries.
- **Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.**
  Power source with insufficient capacity and improper work can cause electric shock and fire.
- **Use specified wire for electrical wiring, fasten the wiring to the terminal securely, and hold the cable securely in order not to apply unexpected stress on the terminal.**
  Loose connections or hold could result in abnormal heat generation or fire.
- **Arrange the electrical wires in the control box properly to prevent them from rising. Fit the lid of the services panel property.**
  Improper fitting may cause abnormal heat and fire.
- **Check for refrigerant gas leakage after installation is completed.**
  If the refrigerant gas leaks into the house and comes in contact with a fan heater, a stove, or an oven, toxic gas is produced.
- **Use the specified pipe, flare nut, and tools for R410A.**
  Using existing parts (R22) could cause the unit failure and serious accident due to explosion of the cooling cycle.
- **Tighten the flare nut according to the specified method by with torque wrench.**
  If the flare nut were tightened with excess torque, it could cause burst and refrigerant leakage after a long period.
- **Do not put the drainage pipe directly into drainage channels where poisonous gases such as sulfide gas can occur.**
  Poisonous gases will flow into the room through drainage pipe and seriously affect the user's health and safety. This can also cause the corrosion of the indoor unit and a resultant unit failure or refrigerant leak.
- **Connect the pipes for refrigeration circuit securely in installation work before compressor is operated.**
  If the compressor is operated when the service valve is open without connecting the pipe, it could cause explosion and injuries due to abnormal high pressure in the system.
- **Stop the compressor before removing the pipe after shutting the service valve on pump down work.**
  If the pipe is removed when the compressor is in operation with the service valve open, air would be mixed in the refrigeration circuit and it could cause explosion and injuries due to abnormal high pressure in the cooling cycle.
- **Only use prescribed option parts. The installation must be carried out by the qualified installer.**
  If you install the system by yourself, it can cause serious trouble such as water leaks, electric shocks, fire.
- **Do not repair by yourself. And consult with the dealer about repair.**
  Improper repair may cause water leakage, electric shock or fire.
- **Consult the dealer or a specialist about removal of the air-conditioner.**
  Improper installation may cause water leakage, electric shock or fire.
- **Turn off the power source during servicing or inspection work.**
  If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating fan.
- **Do not run the unit when the panel or protection guard are taken off.**
  Touching the rotating equipment, hot surface, or high voltage section could cause an injury to be caught in the machine, to get burned, or electric shock.
- **Shut off the power before electrical wiring work.**
  It could cause electric shock, unit failure and improper running.

⚠ CAUTION

- **Perform earth wiring surely.**
  Do not connect the earth wiring to the gas pipe, water pipe, lightning rod and telephone earth wiring. Improper earth could cause unit failure and electric shock or fire due to a short circuit.
- **Earth leakage breaker must be installed.**
  If the earth leakage breaker is not installed, it could cause electric shocks or fire.
- **Use the circuit breaker of correct capacity. Circuit breaker should be the one that disconnect all poles under over current.**
  Using the incorrect one could cause the system failure and fire.
- **Do not use any materials other than a fuse of correct capacity where a fuse should be used.**
  Connecting the circuit by wire or copper wire could cause unit failure and fire.
- **Do not install the indoor unit near the location where there is possibility of flammable gas leakages.**
  If the gas leaks and gathers around the unit, it could cause fire.
- **Do not install and use the unit where corrosive gas (such as sulfurous acid gas etc.) or flammable gas (such as thinner, petroleum etc.) may be generated or accumulated, or volatile flammable substances are handled.**
  It could cause the corrosion of heat exchanger, breakage of plastic parts etc. And inflammable gas could cause fire.
- **Secure a space for installation, inspection and maintenance specified in the manual.**
  Insufficient space can result in accident such as personal injury due to falling from the installation place.
- **Do not use the indoor unit at the place where water splashes such as laundry.**
  Indoor unit is not waterproof. It could cause electric shock and fire.
- **Do not use the indoor unit for a special purpose such as food storage, cooling for precision instrument, preservation of animals, plants, and a work of art.**
  It could cause the damage of the items.
- **Do not install nor use the system near equipments which generate electromagnetic wave or high harmonics.**
  Equipments like inverter equipment, private power generator, high-frequency medical equipment, or telecommunication equipment might influence the air-conditioner and cause a malfunction and breakdown. Or the air-conditioner might influence medical equipments or telecommunication equipments, and obstruct their medical activity or cause jamming.
- **Do not install the remote control at the direct sunlight.**
  It could cause breakdown or deformation of the remote control.
- **Do not install the indoor unit at the place listed below.**
  · Places where flammable gas could leak.
  · Places where carbon fiber, metal powder or any powder is floated.
  · Place where the substances which affect the air-conditioner are generated such as sulfide gas, chloride gas, acid, alkali or ammonic atmospheres.
  · Places exposed to oil mist or steam directly.
  · On vehicles and ships
  · Places where machinery which generates high harmonics is used.
  · Places where cosmetics or special sprays are frequently used.
  · Highly salted area such as beach.
  · Heavy snow area
  · Places where the system is affected by smoke from a chimney.
  · Altitude over 1000m
- **Do not install the indoor unit in the locations listed below (Be sure to install the indoor unit according to the installation manual for each model because each indoor unit has each limitation)**
  · Locations with any obstacles which can prevent inlet and outlet air of the unit
  · Locations where vibration can be amplified due to insufficient strength of structure.
  · Locations where the infrared receiver is exposed to the direct sunlight or the strong light beam. (in case of the infrared specification unit)
  · Locations where an equipment affected by high harmonics is placed. (TV set or radio receiver is placed within 5m)
  · Locations where drainage cannot run off safely.
  It can affect performance or function and etc..
- **Do not put any valuables which will break down by getting wet under the air-conditioner.**
  Condensation could drop when the relative humidity is higher than 80% or drain pipe is clogged, and it damages user's belongings.
- **Do not use the base frame for the outdoor unit which is corroded or damaged after a long period of use.**
  It could cause the unit falling down and injury.
- **Pay attention not to damage the drain pan by weld sputter when brazing work is done near the unit.**
  If sputter entered into the unit during brazing work, it could cause damage (pinhole) of drain pan and leakage of water. To avoid damaging, keep the indoor unit packed or cover the indoor unit.
- **Install the drain pipe to drain the water surely according to the installation manual.**
  Improper connection of the drain pipe may cause dropping water into room and damaging user's belongings.
- **Do not share the drain pipe for indoor unit and GHP (Gas Heat Pump system) outdoor unit.**
  Toxic exhaust gas would flow into room and it might cause serious damage (some poisoning or deficiency of oxygen) to user's health and safety.
- **Be sure to perform air tightness test by pressurizing with nitrogen gas after completed refrigerant piping work.**
  If the density of refrigerant exceeds the limit in the event of refrigerant leakage in the small room, lack of oxygen can occur, which can cause serious accidents.
- **For drain pipe installation, be sure to make descending slope of greater than 1/100, not to make traps, and not to make air-bleeding.**
  Check if the drainage is correctly done during commissioning and ensure the space for inspection and maintenance.
- **Ensure the insulation on the pipes for refrigeration circuit so as not to condense water.**
  Incomplete insulation could cause condensation and it would wet ceiling, floor, and any other valuables.
- **Do not install the outdoor unit where is likely to be a nest for insects and small animals.**
  Insects and small animals could come into the electronic components and cause breakdown and fire. Instruct the user to keep the surroundings clean.
- **Pay extra attention, carrying the unit by hand.**
  Carry the unit with 2 people if it is heavier than 20kg. Do not use the plastic straps but the grabbing place, moving the unit by hand. Use protective gloves in order to avoid injury by the aluminum fin.
- **Make sure to dispose of the packaging material.**
  Leaving the materials may cause injury as metals like nail and woods are used in the package.
- **Do not operate the system without the air filter.**
  It may cause the breakdown of the system due to clogging of the heat exchanger.
- **Do not touch any button with wet hands.**
  It could cause electric shock.
- **Do not touch the refrigerant piping with bare hands when in operation.**
  The pipe during operation would become very hot or cold according to the operating condition, and it could cause a burn or frostbite.
- **Do not clean up the air-conditioner with water.**
  It could cause electric shock.
- **Do not turn off the power source immediately after stopping the operation.**
  Be sure to wait for more than 5 minutes. Otherwise it could cause water leakage or breakdown.
- **Do not control the operation with the circuit breaker.**
  It could cause fire or water leakage. In addition, the fan may start operation unexpectedly and it may cause injury.

○This model is middle static ducted type air-conditioning unit. Therefore, do not use this model for direct blow type air-conditioning unit.

①Before installation

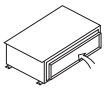
●Install correctly according to the installation manual.

●Confirm the following points:

○Unit type/Power source specification ○Pipes/Wires/Small parts ○Accessory items

Accessory item

For hanging	For refrigerant pipe			For drain pipe			
Flat washer (M10)	Pipe cover (big)	Pipe cover (small)	Strap	Pipe cover (big)	Pipe cover (small)	Drain hose	Hose clamp
							
8	1	1	4	1	1	1	1
For unit hanging	For heat insulation of gas pipe	For heat insulation of liquid tube	For pipe cover fixing	For heat insulation of drain socket	For heat insulation of drain socket	For drain pipe connecting	For drain hose mounting



Accessory parts are stored inside this suction side.

②Selection of installation location for the indoor unit

① Select the suitable areas to install the unit under approval of the user.

- Areas where the indoor unit can deliver hot and cold wind sufficiently. Suggest to the user to use a circulator if the ceiling height is over 3m to avoid warm air being accumulated on the ceiling.
- Areas where there is enough space to install and service.
- Areas where it can be drained properly. Areas where drain pipe descending slope can be taken.
- Areas where there is no obstruction of airflow on both air return grille and air supply port.
- Areas where fire alarm will not be accidentally activated by the air-conditioner.
- Areas where the supply air does not short-circuit.
- Areas where it is not influenced by draft air.
- Areas not exposed to direct sunlight.
- Areas where dew point is lower than around 28°C and relative humidity is lower than 80%.

(This indoor unit is tested under the condition of JIS (Japan Industrial Standard) high humidity condition and confirmed there is no problem. However, there is some risk of condensation drop if the air-conditioner is operated under the severer condition than mentioned above. If there is a possibility to use it under such a condition, attach additional insulation of 10 to 20mm thick for entire surface of indoor unit, refrigeration pipe and drain pipe.)

- Areas where TV and radio stays away more than 1m. (It could cause jamming and noise.)
- Areas where any items which will be damaged by getting wet are not placed such as food, table wares, server, or medical equipment under the unit.
- Areas where there is no influence by the heat which cookware generates.
- Areas where not exposed to oil mist, powder and/or steam directly such as above fryer.
- Areas where lighting device such as fluorescent light or incandescent light doesn't affect the operation.
  (A beam from lighting device sometimes affects the infrared receiver for the wireless remote control and the air-conditioner might not work properly.)

② Check if the place where the air-conditioner is installed can hold the weight of the unit. If it is not able to hold, reinforce the structure with boards and beams strong enough to hold it. If the strength is not enough, it could cause injury due to unit falling.

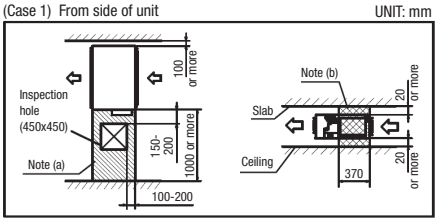
Space for installation and service

●Make installation altitude over 2.5m.

(Indoor Unit)

Select either of two cases to keep space for installation and services.

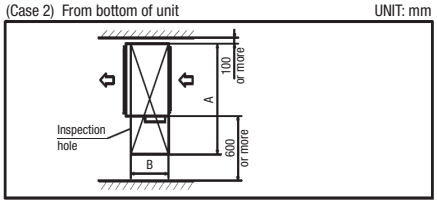
(Case 1) From side of unit UNIT: mm



Notes (a) There must not be obstacle to draw out fan motor. (marked area)

(b) Install refrigerant pipe, drain pipe, and wiring so as not to cross marked area.

(Case 2) From bottom of unit UNIT: mm



(Size of inspection hole) UNIT: mm

Single type	40-50	60-71	100-140
Multi type	22-56	71-90	112-160
A	1100	1300	1720
B	620		725

③Preparation before installation

●If suspension bolt becomes longer, do reinforcement of earthquake resistant.

○For grid ceiling

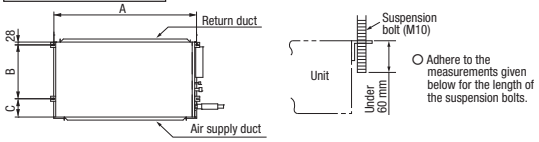
When the suspension bolt length is over 500mm, or the gap between the ceiling and roof is over 700mm, apply earthquake resistant brace to the bolt.

○In case the unit is hanged directly from the slab and is installed on the ceiling plane which has enough strength.

When suspension bolt length is over 1000mm, apply the earthquake resistant brace to the bolt.

●Prepare four (4) sets of suspension bolt, nut and spring washer (M10) on site.

Suspension Bolt Location

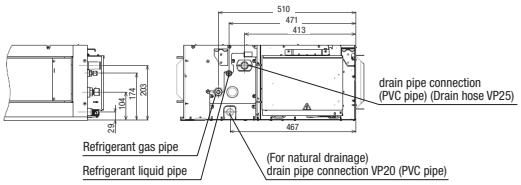


UNIT: mm

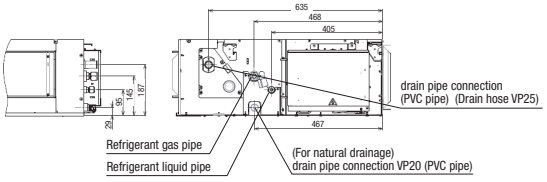
Multi type	22-56	71, 90	112-160
Single type	40-50	60, 71	100-140
A	786	986	1404
B	472	472	530
C	135	135	180

Pipe locations UNIT: mm

Multi type	22-90
Single type	40-71



Multi type	112-160
Single type	100-140

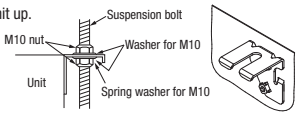


④Installation of indoor unit

Installation

[Hanging]

Hang the unit up.

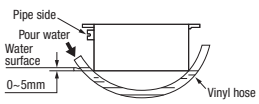


If the measurements between the unit and the ceiling hole do not match upon installation, it may be adjusted with the long holed installation tool.

Adjustment for horizontality

○Either use a level vial, or adjust the level according to the method below.

●Adjust so the bottom side of the unit will be leveled with the water surface as illustrated below.



Let the pipe side be slightly sloped.

○If the unit is not leveled, it may cause malfunctions or inoperation of the float switch.

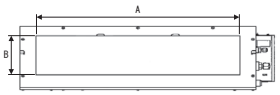
⑤Duct Work

①A corrugated board (for preventing sputtering) is attached to the main body of the air-conditioner (on the outlet port). Do not remove it until connecting the duct.
- ●An air filter can be provided on the main body of the air-conditioner (on the inlet port). Remove it when connecting the duct on the inlet port.

②Blowout duct
- ●Use rectangular duct to connect with unit. Duct size for each unit is as shown below.

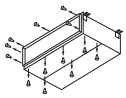
UNIT: mm

Single type	40-50	60-71	100-140
Multi type	22-56	71-90	112-140
A	682	882	1202
B	172	172	172

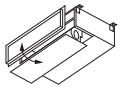


- ●Duct should be at their minimum length.
- ●We recommend to use sound and heat insulated duct to prevent it from condensation.
- ●Connect duct to unit before ceiling attachment.

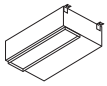
③Inlet port
- ●When shipped the inlet port lies on the back.
- ●When connecting the duct to the inlet port, remove the air filter if it is fitted to the inlet port.
- ●When placing the inlet port to carry out suction from the bottom side, use the following procedure to replace the suction duct joint and the bottom plate.



●Remove the screws which fasten the bottom plate and the duct joint on the inlet port side of the unit.



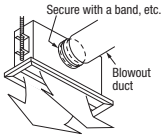
●Replace the removed bottom plate and duct joint.



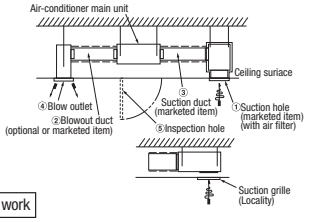
●Fit the duct join with a screw; fit the bottom plate.

- ●Make sure to insulate the duct to prevent dewing on it.

④Install the specific blowout duct in a location where the air will circulate to the entire room.
- ●Conduct the installation of the specific blowout hole and the connection of the duct before attaching them to the ceiling.
- ●Insulate the area where the duct is secured by a band for dew condensation prevention.



⑤Make sure provide an inspection hole on the ceiling. It is indispensable to service electric equipment, motor, functional components and cleaning of heat exchanger.



Bad example of duct work

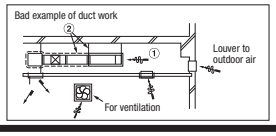
①If a duct is not provided at the suction side but it is substituted with the space over the ceiling, humidity in the space will increase by the influence of capacity of ventilation fan, strength of wind blowing against the out door air louver, weather (rainy day) and others.

a)Moisture in air is likely to condense over the external plates of the unit and to drip on the ceiling. Unit should be operated under the conditions as listed in the above table and within the limitation of wind volume. When the building is a concrete structure, especially immediately after the construction, humidity tends to rise even if the space over the ceiling is not substituted in place of a duct. In such occasion, it is necessary to insulate the entire unit with glass wool (25mm). (Use a wire net or equivalent to hold the glass wool in place.)

b)It may run out the allowable limit of unit operation (Example: When outdoor air temperature is 35°C DB, suction air temperature is 27°C WB) and it could result in such troubles as compressor overload, etc..

c)There is a possibility that the blow air volume may exceed the allowable range of operation due to the capacity of ventilation fan or strength of wind blowing against external air louver so that drainage from be heat exchanger may fall to reach the drain pan but leak outside (Example: drip on to the ceiling) with consequential water leakage in the room.

②If vibration damping is not conducted between the unit and the duct, and between the unit and the slab, vibration will be transmitted to the duct and vibration noise may occur. Also, vibration may be transmitted from the unit to the slab. Vibration damping must be performed.



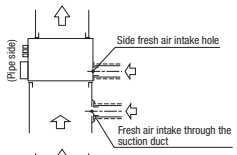
⑤Duct Work (continued)

Connecting the air intake/vent ducts

①Fresh Air Intake

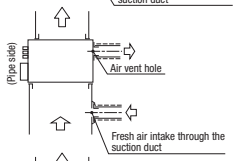
[for air intake duct only]

○Use the side fresh air intake hole, or supply through a part of the suction duct.



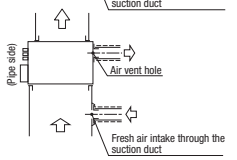
[for simultaneous air intake/vent]

○Intake air through the suction duct. (the side cannot be used)



②Air Vent

○Use the side air vent hole. (always use together with the air intake)

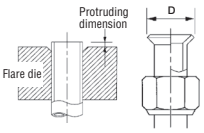


○Insulate the duct to protect it from dew condensation.

⑥Refrigerant pipe

Caution

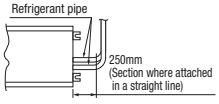
- ●Be sure to use new pipes for the refrigerant pipes. Use the flare nut attached to the product or a nut compatible with JIS B 8607, Class 2.
  Regarding whether existing pipes can be reused or not, and the washing method, refer to the instruction manual of the outdoor unit, catalogue or technical data.
  1) In case of reuse: Do not use old flare nut, but use the one attached to the unit or compatible with JIS B 8607, Class 2.
  2) In case of reuse: Flare the end of pipe replaced partially for R410A.



Pipe dia. d mm	Min. pipe wall thickness mm	Protruding dimension for flare, mm		Flare O.D. D mm	Flare nut tightening torque N·m
		Rigid (Clutch type)			
		For R410A	Conventional tool		
6.35	0.8	0 ~ 0.5	0.7 ~ 1.3	8.9 ~ 9.1	14 ~ 18
9.52	0.8			12.8 ~ 13.2	34 ~ 42
12.7	0.8			16.2 ~ 16.6	49 ~ 61
15.88	1			19.3 ~ 19.7	68 ~ 82
19.05	1.2			23.6 ~ 24.0	100 ~ 120

- ●Use phosphorus deoxidized copper alloy seamless pipe (C1220T specified in JIS H 3300) for refrigeration pipe installation. In addition, make sure there is no damage both inside and outside of the pipe, and no harmful substances such as sulfur, oxide, dust or a contaminant stuck on the pipes.
- ●Do not use any refrigerant other than R410A.
  Using other refrigerant except R410A (R22 etc.) may degrade inside refrigeration oil. And air getting into refrigeration circuit may cause over-pressure and resultant it may result in bursting, etc.
- ●Store the copper pipes indoors and seal the both end of them until they are brazed in order to avoid any dust, dirt or water getting into pipe. Otherwise it will cause degradation of refrigeration oil and compressor breakdown, etc.
- ●Use special tools for R410A refrigerant.

Piping work



When conducting piping work, make sure to allow the pipes to be aligned in a straight line for at least 250 mm, as shown in the left illustration. (This is necessary for the drain pump to function)

Work procedure

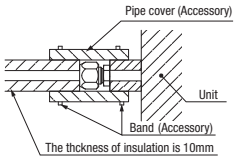
1. Remove the flare nut and blind flanges on the pipe of the indoor unit.
   ※ Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them. (Gas may come out at this time, but it is not abnormal.)
   - ●Pay attention whether the flare nut pops out. (as the indoor unit is sometimes pressured.)
2. Make a flare on liquid pipe and gas pipe, and connect the refrigeration pipes on the indoor unit.
   ※Bend radius of pipe must be 4D or larger. Once a pipe is bent, do not readjust the bending. Do not twist a pipe or collapse to 2/3D or smaller.
   ※Do a flare connection as follows:
   - ●Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them.
   - ●When fastening the flare nut, align the refrigeration pipe with the center of flare nut, screw the nut for 3-4 times by hand and then tighten it by spanner with the specified torque mentioned in the table above. Make sure to hold the pipe on the indoor unit securely by a spanner when tightening the nut in order to avoid unexpected stress on the copper pipe.
3. Cover the flare connection part of the indoor unit with attached insulation material after a gas leakage inspection, and tighten both ends with attached straps.
   - ●Make sure to insulate both gas pipes and liquid pipes completely.
     ※Incomplete insulation may cause dew condensation or water dropping.
   - ●Use heat-resistant (120 °C or more) insulations on the gas side pipes.
   - ●In case of using at high humidity condition, reinforce insulation of refrigerant pipes. Surface of insulation may cause dew condition or water dropping, if insulations are not reinfoced.

⑥Refrigerant pipe (continued)

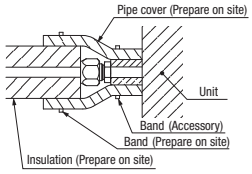
4. Refrigerant is charged in the outdoor unit.
   As for the additional refrigerant charge for the indoor unit and piping, refer to the installation manual attached to the outdoor unit.

Caution:
Refrigerating machine oil should not be applied to the threads of union or external surface of flare. It is because, even if the same tightening torque is applied, the oil is likely to decrease the slide friction force on the threads and increase, in turn, the axial component force so that it could crack the flare by the stress corrosion.
Refrigerating machine oil may be applied to the internal surface of flare only.

<The case of using thicness of insulation is 10mm>



<The case of using reinfoced insulation>



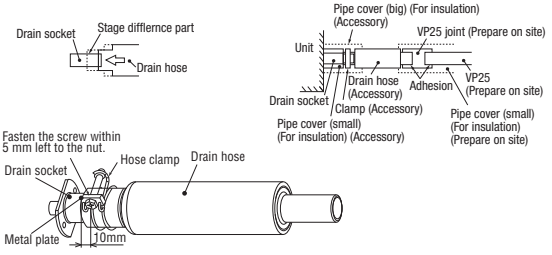
⑦Drain pipe

Caution

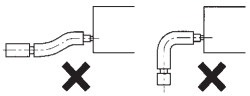
- Install the drain pipe according to the installation manual in order to drain properly.
  Imperfection in draining may cause flood indoors and wetting the household goods, etc.
- Do not put the drain pipe directly into the ditch where toxic gas such as sulfur, the other harmful and inflammable gas is generated. Toxic gas would flow into the room and it would cause serious damage to user's health and safety (some poisoning or deficiency of oxygen).
  In addition, it may cause corrosion of heat exchanger and bad smell.
- Connect the pipe securely to avoid water leakage from the joint.
- Insulate the pipe properly to avoid condensation drop.
- Check if the water can flow out properly from both the drain outlet on the indoor unit and the end of the drain pipe after installation.
- Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway. In addition, do not put air vent on the drain pipe. Check if water is drained out properly from the pipe during commissioning. Also, keep sufficient space for inspection and maintenance.

Work procedure

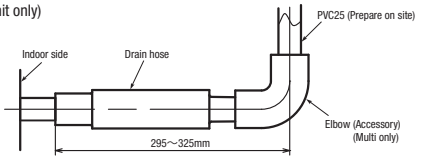
1. Make sure to insert the drain hose (the end mode of soft PVC) to the end of the step part of drain socket.
   Attach the hose clamp to the drain hose around 10mm from the end, and fasten the screw within 5mm left to the nut.
   ●Do not apply adhesives on this end.
   ●Do not use acetone-based adhesives to connect to the drain socket.



2. Prepare a joint for connecting VP25 pipe, adhere and connect the joint to the drain hose (the end made of rigid PVC), and adhere and connect VP25 pipe (prepare on site).
   ※As for drain pipe, apply VP25 made of rigid PVC which is on the market.
   ●Make sure that the adhesive will not get into the supplied drain hose.
   It may cause the flexible part broken after the adhesive is dried up and gets rigid.
   ●The flexible drain hose is intended to absorb a small difference at installation of the unit or drain pipes. Intentional bending, expanding may cause the flexible hose broken and water leakage.

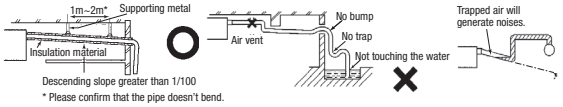


   ●As for drain pipe, apply VP25 (OD32).
   If apply PVC25 (OD25), connect the expanded connector to the drain hose, with adhesive. (Multi unit only)

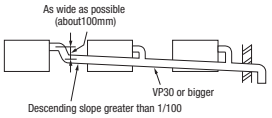


⑦Drain pipe (continued)

3. Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway.
   ●Pay attention not to give stress on the pipe on the indoor unit side, and support and fix the pipe as close place to the unit as possible when connecting the drain pipe.
   ●Do not set up air vent.



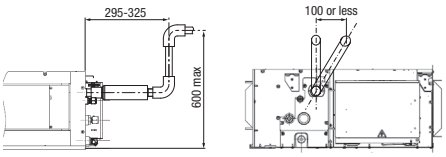
   ●When sharing a drain pipe for more than one unit, lay the main pipe 100mm below the drain outlet of the unit. In addition, select VP30 or bigger size for main drain pipe.



4. Insulate the drain pipe.
   ● Be sure to insulate the drain socket and rigid PVC pipe installed indoors otherwise it may cause dew condensation and water leakage.
   ※After drainage test implementation, cover the drain socket part with pipe cover (small size), then use the pipe cover (big size) to cover the pipe cover (small size), clamps and part of the drain hose, and fix and wrap it with tapes to wrap and make joint part gapless.

Drain up

- The position for drain pipe outlet can be raised up to 600mm above the ceiling. Use elbows for installation to avoid obstacles inside ceiling. If the horizontal drain pipe is too long before vertical pipe, the backflow of water will increase when the unit is stopped, and it may cause overflow of water from the drain pan on the indoor unit. In order to avoid overflow, keep the horizontal pipe length and offset of the pipe within the limit shown in the figure below.



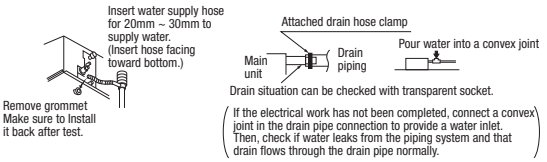
Otherwise, the construction point makes it same as drain pipe construction.

Drain test

1. Conduct a drain test after completion of the electrical work.
2. During the trail, make sure that drain flows properly through the piping and that no water leaks from connections.
3. In case of a new building, conduct the test before it is furnished with the ceiling.
4. Be sure to conduct this test even when the unit is installed in the heating season.

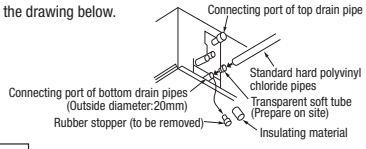
Procedures

1. Supply about 1000 cc of water to the unit through the air outlet by using a feed water pump.
2. Check the drain while cooling operation.



Outline of bottom drain piping work

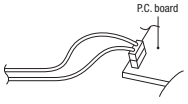
- If the bottom drain piping can be done with a descending gradient (1/50-1/100), it is possible to connect the pipes as shown in the drawing below.



Uncoupling the drain motor connector

- Uncouple the connector CNR for the drain motor as illustrated in the drawing on the right.

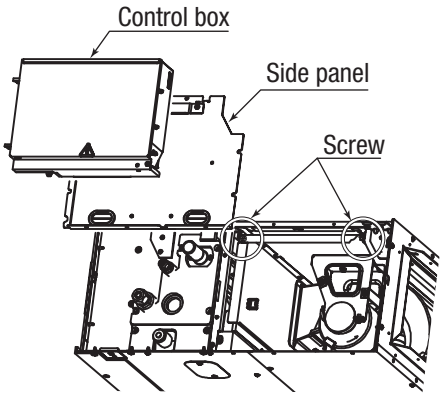
(Note: If the unit is run with the connector coupled, drain water will be discharged from the upper drain pipe joint, causing a water leak.)



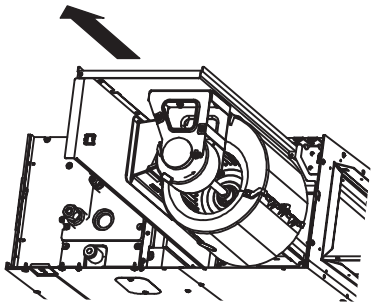
(b) Replacement procedure of the fan unit

Notes (1) The unit is a heavy item. It must be supported securely and handled with care not to drop when it is necessary toreplace.
(2) For the maintenance space, refer to page 113.

(i) Remove the control box and the side panel, and remove the screws marked in the circles (2 places) in the figure.

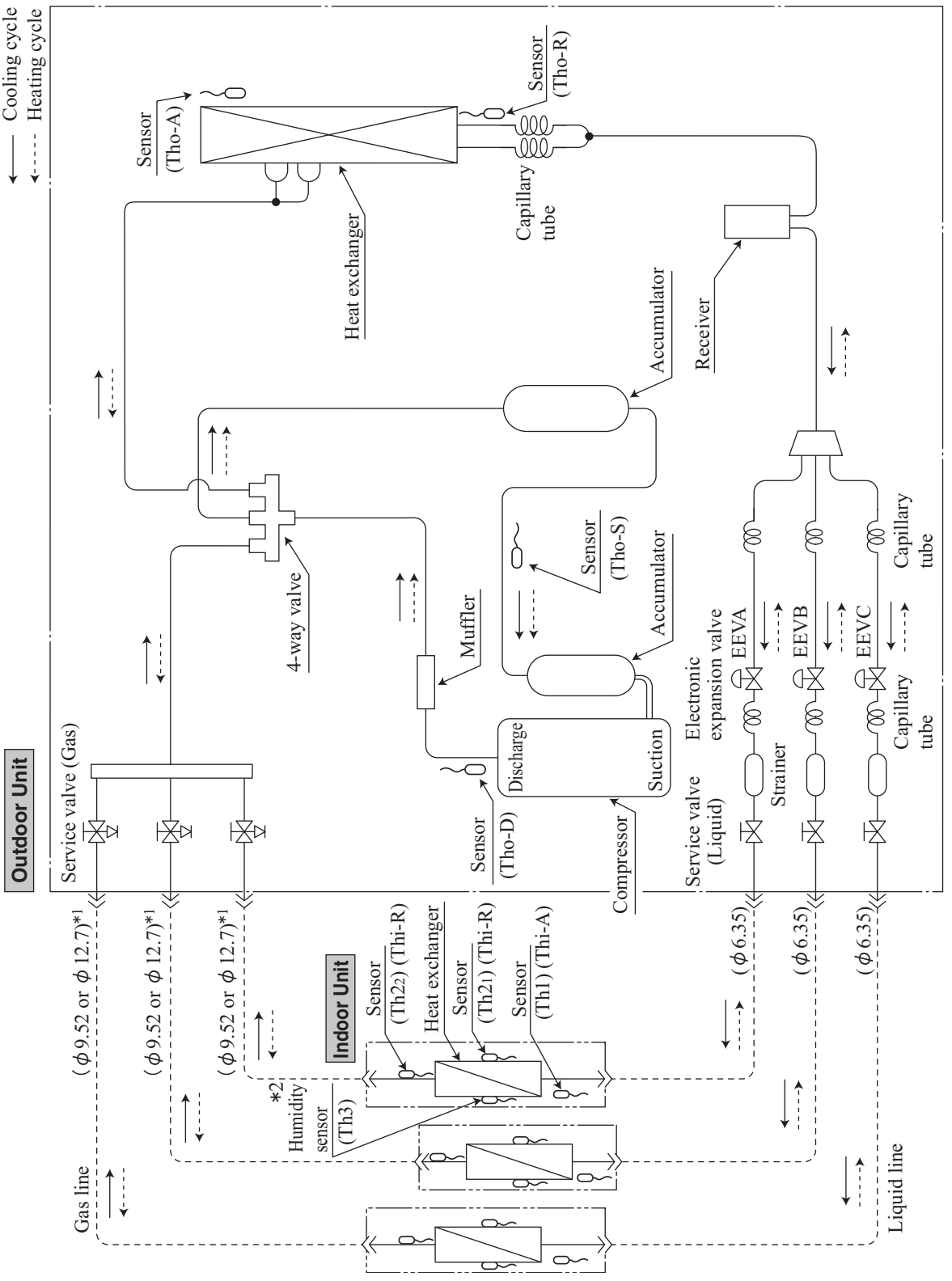


(ii) Take out the fan unit in the arrow direction.



3. PIPING SYSTEM

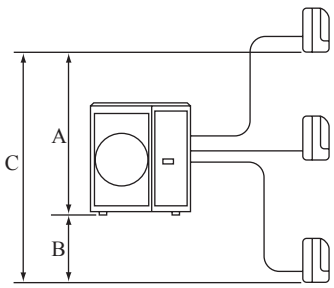
Models SCM50ZS-S1, 60ZM-S1



4. RANGE OF USAGE & LIMITATIONS

Item \ Model			SCM50ZS-S1	SCM60ZM-S1
Indoor intake air temperature (Upper, lower limits)		Cooling	Approximately 18 to 32℃	
		Heating	Approximately 15 to 30℃	
Outdoor air temperature (Upper, lower limits)		Cooling	Approximately -15 to 43℃	
		Heating	Approximately -15 to 24℃	
Indoor units that can be used in combination	Number of connected units		2 to 3 units	
	Total of indoor Units (class kW)		4.0−8.5kW	4.0−11.0kW
Total length for all rooms			Max. 40m	
Length for one indoor unit			Max. 25m	
Difference in height between indoor and outdoor units	When indoor unit is above outdoor unit (A)		Max. 15m	
	When indoor unit is below outdoor unit (B)		Max. 15m	
Difference in height between indoor units (C)			Max. 25m	
Compressor stop/start frequency	1 cycle time		10 min. or more (from stop to stop or from start to start)	
	Stop time		3 min. or more	
Power source voltage	Voltage fluctuation		Within ±10% of rated voltage	
	Voltage drop during start		Within ±15% of rated voltage	
	Interval unbalance		Within ±3% of rated voltage	
Power cable length			32m(1)	

Note(1) The cable specifications are based on the assumption that a metal or plastic conduit is used with no more than three cables contained in a conduit and a voltage drop is 2%. For an installation falling outside of these conditions, please follow the internal cabling regulations. Adapt it to the regulation in effect in each country.



5. TABLE OF INDOOR UNIT COMBINATIONS

- The combinations of the indoor units is indicated by numbers. They are read as follows.
  (Example) SRK20ZSX-S→20 SRK25ZSX-S→25
- The capacity of the indoor units is shown by rooms. If this exceeds the maximum capacity of the outdoor unit, the demand capacity will be proportionally distributed.
- If units are to be combined, use the table below to make the proper selection.

・Number of connectable indoor units

	SCM50ZS-S1,60ZM-S1
MIN	2
MAX	3

(1) Model SCM50ZS-S1

(a) Indoor unit SRK∗∗ZSX type only

<Cooling>

Indoor unit combination		Cooling capacity (kW)						Power consumption (W)			Standard current (A)		
		Indoor unit capacity (kW)			Total capacity (kW)			Min.	Standard	Max.	220V	230V	240V
		A	B	C	Min.	Standard	max.						
1 unit	20	2.0	-	-	1.8	2.0	2.8	500	550	900	2.6	2.5	2.4
	25	2.5	-	-	1.8	2.5	3.4	500	720	1070	3.4	3.2	3.1
	35	3.5	-	-	1.8	3.5	3.9	500	1080	1230	5.1	4.8	4.6
	50	5.0	-	-	1.8	5.0	5.5	500	1700	2000	7.9	7.5	7.2
2 units	20 + 20	2.00	2.00	-	3.0	4.0	5.7	570	910	1800	4.2	4.1	3.9
	20 + 25	1.91	2.39	-	3.0	4.3	5.9	570	1070	1980	5.0	4.8	4.6
	20 + 35	1.82	3.18	-	3.0	5.0	6.2	570	1430	2070	6.6	6.3	6.1
	20 + 50	1.71	4.29	-	3.0	6.0	6.5	570	1960	2150	9.0	8.6	8.2
	25 + 25	2.35	2.35	-	3.0	4.7	6.2	570	1270	2070	5.9	5.6	5.4
	25 + 35	2.21	3.09	-	3.0	5.3	6.5	570	1600	2150	7.4	7.1	6.8
	25 + 50	2.00	4.00	-	3.0	6.0	6.5	570	1960	2150	9.0	8.6	8.2
	35 + 35	3.00	3.00	-	3.0	6.0	6.5	570	1960	2150	9.0	8.6	8.2
	35 + 50	2.47	3.53	-	3.0	6.0	6.5	570	1960	2150	9.0	8.6	8.2
3 units	20 + 20 + 20	1.67	1.67	1.67	3.4	5.0	7.1	690	1050	2150	4.9	4.7	4.5
	20 + 20 + 25	1.60	1.60	2.00	3.4	5.2	7.1	690	1160	2150	5.4	5.1	4.9
	20 + 20 + 35	1.49	1.49	2.61	3.4	5.6	7.1	690	1330	2150	6.2	5.9	5.7
	20 + 25 + 25	1.54	1.93	1.93	3.4	5.4	7.1	690	1260	2150	5.8	5.6	5.4
	20 + 25 + 35	1.45	1.81	2.54	3.4	5.8	7.1	690	1430	2150	6.6	6.3	6.1
	25 + 25 + 25	1.87	1.87	1.87	3.4	5.6	7.1	690	1330	2150	6.2	5.9	5.7
	25 + 25 + 35	1.76	1.76	2.47	3.4	6.0	7.1	690	1490	2150	6.9	6.6	6.3

<Heating>

Indoor unit combination		Heating capacity (kW)						Power consumption (W)			Standard current (A)		
		Indoor unit capacity (kW)			Total capacity (kW)			Min.	Standard	Max.	220V	230V	240V
		A	B	C	Min.	Standard	max.						
1 unit	20	3.0	-	-	1.4	3.0	3.7	480	820	1100	3.9	3.7	3.6
	25	3.4	-	-	1.4	3.4	4.2	480	980	1240	4.6	4.4	4.2
	35	4.5	-	-	1.4	4.5	5.0	480	1270	1490	6.0	5.7	5.5
	50	5.8	-	-	1.4	5.8	6.2	480	1710	2260	7.9	7.6	7.3
2 units	20 + 20	2.95	2.95	-	2.0	5.9	7.3	540	1450	2580	6.7	6.4	6.2
	20 + 25	2.67	3.33	-	2.0	6.0	7.3	540	1500	2580	7.0	6.7	6.4
	20 + 35	2.29	4.01	-	2.0	6.3	7.3	540	1580	2580	7.3	7.0	6.7
	20 + 50	1.89	4.71	-	2.0	6.6	7.3	540	1670	2580	7.7	7.4	7.1
	25 + 25	3.05	3.05	-	2.0	6.1	7.3	540	1530	2580	7.1	6.8	6.5
	25 + 35	2.67	3.73	-	2.0	6.4	7.3	540	1610	2580	7.5	7.1	6.8
	25 + 50	2.20	4.40	-	2.0	6.6	7.3	540	1670	2580	7.7	7.4	7.1
	35 + 35	3.30	3.30	-	2.0	6.6	7.3	540	1670	2580	7.7	7.4	7.1
	35 + 50	2.72	3.88	-	2.0	6.6	7.3	540	1670	2580	7.7	7.4	7.1

<Heating>

Indoor unit combination		Heating capacity (kW)						Power consumption (W)			Standard current (A)		
		Indoor unit capacity (kW)			Total capacity (kW)			Min.	Standard	Max.	220V	230V	240V
		A	B	C	Min.	Standard	max.						
3 units	20 + 20 + 20	2.00	2.00	2.00	3.0	6.0	7.5	600	1210	2580	5.6	5.4	5.1
	20 + 20 + 25	1.91	1.91	2.38	3.0	6.2	7.5	600	1370	2580	6.4	6.1	5.8
	20 + 20 + 35	1.76	1.76	3.08	3.0	6.6	7.5	600	1520	2580	7.1	6.7	6.5
	20 + 25 + 25	1.83	2.29	2.29	3.0	6.4	7.5	600	1430	2580	6.6	6.3	6.1
	20 + 25 + 35	1.70	2.13	2.98	3.0	6.8	7.5	600	1580	2580	7.3	7.0	6.7
	25 + 25 + 25	2.20	2.20	2.20	3.0	6.6	7.5	600	1520	2580	7.1	6.7	6.5
	25 + 25 + 35	2.06	2.06	2.88	3.0	7.0	7.5	600	1640	2580	7.6	7.3	7.0

(b) Indoor unit SKM ∗ ∗ ZSP type only

<Cooling>

Indoor unit combination		Cooling capacity (kW)						Power consumption (W)			Standard current (A)		
		Indoor unit capacity (kW)			Total capacity (kW)			Min.	Standard	Max.	220V	230V	240V
		A	B	C	Min.	Standard	max.						
1 unit	20	2.0	-	-	1.8	2.0	2.7	500	610	900	2.9	2.8	2.6
	25	2.5	-	-	1.8	2.5	3.2	500	800	1070	3.8	3.6	3.5
	35	3.5	-	-	1.8	3.5	3.7	500	1170	1230	5.5	5.2	5.0
2 units	20 + 20	2.00	2.00	-	3.0	4.0	5.6	570	1000	1800	4.7	4.5	4.3
	20 + 25	1.91	2.39	-	3.0	4.3	5.8	570	1150	1980	5.4	5.1	4.9
	20 + 35	1.82	3.18	-	3.0	5.0	6.1	570	1530	2070	7.1	6.8	6.5
	25 + 25	2.35	2.35	-	3.0	4.7	6.1	570	1520	2070	7.1	6.8	6.5
	25 + 35	2.21	3.09	-	3.0	5.3	6.3	570	1720	2150	8.0	7.6	7.3
	35 + 35	3.00	3.00	-	3.0	6.0	6.3	570	2050	2150	9.4	9.0	8.6
3 units	20 + 20 + 20	1.67	1.67	1.67	3.4	5.0	6.9	690	1160	2150	5.4	5.1	4.9
	20 + 20 + 25	1.60	1.60	2.00	3.4	5.2	6.9	690	1250	2150	5.8	5.5	5.3
	20 + 20 + 35	1.49	1.49	2.61	3.4	5.6	6.9	690	1400	2150	6.5	6.2	6.0
	20 + 25 + 25	1.54	1.93	1.93	3.4	5.4	6.9	690	1350	2150	6.3	6.0	5.7
	20 + 25 + 35	1.45	1.81	2.54	3.4	5.8	6.9	690	1500	2150	7.0	6.7	6.4
	25 + 25 + 25	1.87	1.87	1.87	3.4	5.6	6.9	690	1400	2150	6.5	6.2	6.0
	25 + 25 + 35	1.76	1.76	2.47	3.4	6.0	6.9	690	1600	2150	7.4	7.1	6.8

<Heating>

Indoor unit combination		Heating capacity (kW)						Power consumption (W)			Standard current (A)		
		Indoor unit capacity (kW)			Total capacity (kW)			Min.	Standard	Max.	220V	230V	240V
		A	B	C	Min.	Standard	max.						
1 unit	20	3.0	-	-	1.4	3.0	3.5	480	1040	1100	4.9	4.7	4.5
	25	3.4	-	-	1.4	3.4	4.0	480	1200	1240	5.7	5.4	5.2
	35	4.5	-	-	1.4	4.5	4.8	480	1490	1490	7.0	6.7	6.4
2 units	20 + 20	2.95	2.95	-	2.0	5.9	7.0	540	1530	2580	7.1	6.8	6.5
	20 + 25	2.67	3.33	-	2.0	6.0	7.0	540	1580	2580	7.3	7.0	6.7
	20 + 35	2.29	4.01	-	2.0	6.3	7.0	540	1670	2580	7.7	7.4	7.1
	25 + 25	3.05	3.05	-	2.0	6.1	7.0	540	1610	2580	7.5	7.1	6.8
	25 + 35	2.67	3.73	-	2.0	6.4	7.0	540	1700	2580	7.9	7.5	7.2
	35 + 35	3.30	3.30	-	2.0	6.6	7.0	540	1760	2580	8.1	7.8	7.4
3 units	20 + 20 + 20	2.00	2.00	2.00	3.0	6.0	7.3	600	1360	2580	6.3	6.0	5.8
	20 + 20 + 25	1.91	1.91	2.38	3.0	6.2	7.3	600	1450	2580	6.7	6.4	6.2
	20 + 20 + 35	1.76	1.76	3.08	3.0	6.6	7.3	600	1620	2580	7.5	7.2	6.9
	20 + 25 + 25	1.83	2.29	2.29	3.0	6.4	7.3	600	1530	2580	7.1	6.8	6.5
	20 + 25 + 35	1.70	2.13	2.98	3.0	6.8	7.3	600	1680	2580	7.8	7.5	7.1
	25 + 25 + 25	2.20	2.20	2.20	3.0	6.6	7.3	600	1620	2580	7.5	7.2	6.9
	25 + 25 + 35	2.06	2.06	2.88	3.0	7.0	7.3	600	1750	2580	8.1	7.7	7.4

(c) Indoor unit except SRK ∗ ∗ ZSX and SKM ∗ ∗ ZSP type

<Cooling>

Indoor unit combination		Cooling capacity (kW)						Power consumption (W)			Standard current (A)		
		Indoor unit capacity (kW)			Total capacity (kW)			Min.	Standard	Max.	220V	230V	240V
		A	B	C	Min.	Standard	max.						
1 unit	20	2.0	-	-	1.8	2.0	2.7	500	580	900	2.7	2.6	2.5
	25	2.5	-	-	1.8	2.5	3.2	500	760	1070	3.6	3.4	3.3
	35	3.5	-	-	1.8	3.5	3.7	500	1140	1230	5.3	5.1	4.9
	50	5.0	-	-	1.8	5.0	5.3	500	1790	2000	8.3	7.9	7.6
2 units	20 + 20	2.00	2.00	-	3.0	4.0	5.6	570	950	1800	4.4	4.2	4.1
	20 + 25	1.91	2.39	-	3.0	4.3	5.8	570	1110	1980	5.2	4.9	4.7
	20 + 35	1.82	3.18	-	3.0	5.0	6.1	570	1490	2070	6.9	6.6	6.3
	20 + 50	1.71	4.29	-	3.0	6.0	6.3	570	2040	2150	9.4	9.0	8.6
	25 + 25	2.35	2.35	-	3.0	4.7	6.1	570	1320	2070	6.1	5.9	5.6
	25 + 35	2.21	3.09	-	3.0	5.3	6.3	570	1660	2150	7.7	7.4	7.1
	25 + 50	2.00	4.00	-	3.0	6.0	6.3	570	2040	2150	9.4	9.0	8.6
	35 + 35	3.00	3.00	-	3.0	6.0	6.3	570	2040	2150	9.4	9.0	8.6
	35 + 50	2.47	3.53	-	3.0	6.0	6.3	570	2040	2150	9.4	9.0	8.6
3 units	20 + 20 + 20	1.67	1.67	1.67	3.4	5.0	6.9	690	1120	2150	5.2	5.0	4.8
	20 + 20 + 25	1.60	1.60	2.00	3.4	5.2	6.9	690	1200	2150	5.6	5.3	5.1
	20 + 20 + 35	1.49	1.49	2.61	3.4	5.6	6.9	690	1370	2150	6.4	6.1	5.8
	20 + 25 + 25	1.54	1.93	1.93	3.4	5.4	6.9	690	1300	2150	6.0	5.8	5.5
	20 + 25 + 35	1.45	1.81	2.54	3.4	5.8	6.9	690	1470	2150	6.8	6.5	6.3
	25 + 25 + 25	1.87	1.87	1.87	3.4	5.6	6.9	690	1370	2150	6.4	6.1	5.8
	25 + 25 + 35	1.76	1.76	2.47	3.4	6.0	6.9	690	1540	2150	7.1	6.8	6.5

<Heating>

Indoor unit combination		Heating capacity (kW)						Power consumption (W)			Standard current (A)		
		Indoor unit capacity (kW)			Total capacity (kW)			Min.	Standard	Max.	220V	230V	240V
		A	B	C	Min.	Standard	max.						
1 unit	20	3.0	-	-	1.4	3.0	3.5	480	1020	1100	4.8	4.6	4.4
	25	3.4	-	-	1.4	3.4	4.0	480	1180	1240	5.6	5.3	5.1
	35	4.5	-	-	1.4	4.5	4.8	480	1470	1490	6.9	6.6	6.3
	50	5.8	-	-	1.4	5.8	6.0	480	1910	2260	8.8	8.4	8.0
2 units	20 + 20	2.95	2.95	-	2.0	5.9	7.0	540	1510	2580	7.0	6.7	6.4
	20 + 25	2.67	3.33	-	2.0	6.0	7.0	540	1560	2580	7.2	6.9	6.6
	20 + 35	2.29	4.01	-	2.0	6.3	7.0	540	1650	2580	7.7	7.3	7.0
	20 + 50	1.89	4.71	-	2.0	6.6	7.0	540	1740	2580	8.0	7.7	7.4
	25 + 25	3.05	3.05	-	2.0	6.1	7.0	540	1590	2580	7.4	7.1	6.8
	25 + 35	2.67	3.73	-	2.0	6.4	7.0	540	1680	2580	7.8	7.5	7.1
	25 + 50	2.20	4.40	-	2.0	6.6	7.0	540	1740	2580	8.0	7.7	7.4
	35 + 35	3.30	3.30	-	2.0	6.6	7.0	540	1740	2580	8.0	7.7	7.4
	35 + 50	2.72	3.88	-	2.0	6.6	7.0	540	1740	2580	8.0	7.7	7.4
3 units	20 + 20 + 20	2.00	2.00	2.00	3.0	6.0	7.3	600	1340	2580	6.2	5.9	5.7
	20 + 20 + 25	1.91	1.91	2.38	3.0	6.2	7.3	600	1430	2580	6.6	6.3	6.1
	20 + 20 + 35	1.76	1.76	3.08	3.0	6.6	7.3	600	1600	2580	7.4	7.1	6.8
	20 + 25 + 25	1.83	2.29	2.29	3.0	6.4	7.3	600	1510	2580	7.0	6.7	6.4
	20 + 25 + 35	1.70	2.13	2.98	3.0	6.8	7.3	600	1660	2580	7.7	7.4	7.1
	25 + 25 + 25	2.20	2.20	2.20	3.0	6.6	7.3	600	1600	2580	7.4	7.1	6.8
	25 + 25 + 35	2.06	2.06	2.88	3.0	7.0	7.3	600	1730	2580	8.0	7.7	7.3

(2) Model SCM60ZM-S1

(a) Indoor unit SRK ∗ ∗ ZSX type only

<Cooling>

Indoor unit combination		Cooling capacity (kW)						Power consumption (W)			Standard current (A)		
		Indoor unit capacity (kW)			Total capacity (kW)			Min.	Standard	Max.	220V	230V	240V
		A	B	C	Min.	Standard	max.						
1 unit	20	2.0	-	-	1.8	2.0	2.8	500	540	950	2.5	2.4	2.3
	25	2.5	-	-	1.8	2.5	3.4	500	720	1080	3.3	3.2	3.0
	35	3.5	-	-	1.8	3.5	3.9	500	1090	1240	5.0	4.8	4.6
	50	5.0	-	-	1.8	5.0	5.8	500	1780	2100	8.2	7.8	7.5
	60	6.0	-	-	1.8	6.0	6.3	500	2260	2370	10.4	9.9	9.5
2 units	20 + 20	2.00	2.00	-	3.0	4.0	5.7	570	750	1750	3.4	3.3	3.2
	20 + 25	2.00	2.50	-	3.0	4.5	5.9	570	990	1910	4.5	4.3	4.2
	20 + 35	1.93	3.37	-	3.0	5.3	6.2	570	1550	2110	7.1	6.8	6.5
	20 + 50	1.89	4.71	-	3.0	6.6	6.9	570	2280	2390	10.5	10.0	9.6
	20 + 60	1.68	5.03	-	3.0	6.7	6.9	570	2320	2390	10.7	10.2	9.8
	25 + 25	2.45	2.45	-	3.0	4.9	6.2	570	1270	2110	5.8	5.6	5.3
	25 + 35	2.42	3.38	-	3.0	5.8	6.5	570	1840	2270	8.4	8.1	7.7
	25 + 50	2.23	4.47	-	3.0	6.7	6.9	570	2320	2390	10.7	10.2	9.8
	25 + 60	1.97	4.73	-	3.0	6.7	6.9	570	2320	2390	10.7	10.2	9.8
	35 + 35	3.30	3.30	-	3.0	6.6	6.9	570	2280	2390	10.5	10.0	9.6
	35 + 50	2.76	3.94	-	3.0	6.7	6.9	570	2320	2390	10.7	10.2	9.8
	35 + 60	2.47	4.23	-	3.0	6.7	6.9	570	2320	2390	10.7	10.2	9.8
	50 + 50	3.35	3.35	-	3.0	6.7	6.9	570	2320	2390	10.7	10.2	9.8
	50 + 60	3.05	3.65	-	3.0	6.7	6.9	570	2320	2390	10.7	10.2	9.8
3 units	20 + 20 + 20	2.00	2.00	2.00	3.6	6.0	7.5	690	1430	2390	6.6	6.3	6.0
	20 + 20 + 25	1.85	1.85	2.31	3.6	6.0	7.5	690	1430	2390	6.6	6.3	6.0
	20 + 20 + 35	1.60	1.60	2.80	3.6	6.0	7.5	690	1430	2390	6.8	6.5	6.2
	20 + 20 + 50	1.40	1.40	3.50	3.6	6.3	7.5	690	1480	2390	6.8	6.5	6.2
	20 + 20 + 60	1.28	1.28	3.84	3.6	6.4	7.5	690	1500	2390	6.9	6.6	6.3
	20 + 25 + 25	1.69	2.11	2.11	3.6	5.9	7.5	690	1410	2390	6.5	6.2	5.9
	20 + 25 + 35	1.53	1.91	2.67	3.6	6.1	7.5	690	1460	2390	6.7	6.4	6.1
	20 + 25 + 50	1.35	1.68	3.37	3.6	6.4	7.5	690	1500	2390	6.9	6.6	6.3
	20 + 25 + 60	1.26	1.57	3.77	3.6	6.6	7.5	690	1520	2390	7.0	6.7	6.4
	20 + 35 + 35	1.40	2.45	2.45	3.6	6.3	7.5	690	1480	2390	6.8	6.5	6.2
	20 + 35 + 50	1.26	2.20	3.14	3.6	6.6	7.5	690	1520	2390	7.0	6.7	6.4
	25 + 25 + 25	2.00	2.00	2.00	3.6	6.0	7.5	690	1430	2390	6.8	6.5	6.2
	25 + 25 + 35	1.79	1.79	2.51	3.6	6.1	7.5	690	1460	2390	6.7	6.4	6.1
	25 + 25 + 50	1.60	1.60	3.20	3.6	6.4	7.5	690	1500	2390	6.9	6.6	6.3
	25 + 25 + 60	1.52	1.52	3.65	3.6	6.7	7.5	690	1540	2390	7.1	6.8	6.5
	25 + 35 + 35	1.68	2.36	2.36	3.6	6.4	7.5	690	1500	2390	6.9	6.6	6.3
	25 + 35 + 50	1.52	2.13	3.05	3.6	6.7	7.5	690	1540	2390	7.1	6.8	6.5
	35 + 35 + 35	2.20	2.20	2.20	3.6	6.6	7.5	690	1520	2390	7.0	6.7	6.4

<Heating>

Indoor unit combination		Heating capacity (kW)						Power consumption (W)			Standard current (A)		
		Indoor unit capacity (kW)			Total capacity (kW)			Min.	Standard	Max.	220V	230V	240V
		A	B	C	Min.	Standard	max.						
1 unit	20	3.0	-	-	1.5	3.0	3.7	600	780	1330	3.6	3.4	3.3
	25	3.4	-	-	1.5	3.4	4.2	600	950	1510	4.4	4.2	4.0
	35	4.5	-	-	1.5	4.5	5.0	600	1270	1790	5.8	5.6	5.3
	50	5.8	-	-	1.5	5.8	6.4	600	1730	2310	7.9	7.6	7.3
	60	6.8	-	-	1.5	6.8	7.3	600	2040	2660	9.4	9.0	8.6
2 units	20 + 20	3.00	3.00	-	2.1	6.0	7.3	630	1450	2100	6.7	6.4	6.1
	20 + 25	2.71	3.39	-	2.1	6.1	7.5	630	1520	2550	7.0	6.7	6.4
	20 + 35	2.36	4.14	-	2.1	6.5	7.6	630	1620	3000	7.4	7.1	6.8
	20 + 50	2.00	5.00	-	2.1	7.0	7.6	630	1830	3000	8.4	8.0	7.7
	20 + 60	1.78	5.33	-	2.1	7.1	7.6	630	1860	3000	8.5	8.2	7.8
	25 + 25	3.15	3.15	-	2.1	6.3	7.6	630	1580	3000	7.3	6.9	6.6
	25 + 35	2.79	3.91	-	2.1	6.7	7.6	630	1700	3000	7.8	7.5	7.2
	25 + 50	2.37	4.73	-	2.1	7.1	7.6	630	1860	3000	8.5	8.2	7.8
	25 + 60	2.09	5.01	-	2.1	7.1	7.6	630	1860	3000	8.5	8.2	7.8
	35 + 35	3.50	3.50	-	2.1	7.0	7.6	630	1830	3000	8.4	8.0	7.7
	35 + 50	2.92	4.18	-	2.1	7.1	7.6	630	1860	3000	8.5	8.2	7.8
	35 + 60	2.62	4.48	-	2.1	7.1	7.6	630	1860	3000	8.5	8.2	7.8
	50 + 50	3.55	3.55	-	2.1	7.1	7.6	630	1860	3000	8.5	8.2	7.8
	50 + 60	3.23	3.87	-	2.1	7.1	7.6	630	1860	3000	8.5	8.2	7.8
3 units	20 + 20 + 20	2.27	2.27	2.27	3.2	6.8	7.8	660	1450	3000	6.7	6.4	6.1
	20 + 20 + 25	2.09	2.09	2.62	3.2	6.8	7.8	660	1450	3000	6.7	6.4	6.1
	20 + 20 + 35	1.81	1.81	3.17	3.2	6.8	7.8	660	1450	3000	7.1	6.8	6.6
	20 + 20 + 50	1.56	1.56	3.89	3.2	7.0	7.8	660	1620	3000	7.4	7.1	6.8
	20 + 20 + 60	1.44	1.44	4.32	3.2	7.2	7.8	660	1780	3000	8.2	7.8	7.5
	20 + 25 + 25	1.94	2.43	2.43	3.2	6.8	7.8	660	1450	3000	7.1	6.8	6.6
	20 + 25 + 35	1.73	2.16	3.02	3.2	6.9	7.8	660	1500	3000	6.9	6.6	6.3
	20 + 25 + 50	1.49	1.87	3.74	3.2	7.1	7.8	660	1670	3000	7.7	7.3	7.0
	20 + 25 + 60	1.37	1.71	4.11	3.2	7.2	7.8	660	1780	3000	8.2	7.8	7.5
	20 + 35 + 35	1.56	2.72	2.72	3.2	7.0	7.8	660	1620	3000	7.4	7.1	6.8
	20 + 35 + 50	1.37	2.40	3.43	3.2	7.2	7.8	660	1780	3000	8.2	7.8	7.5
	25 + 25 + 25	2.27	2.27	2.27	3.2	6.8	7.8	660	1450	3000	7.1	6.8	6.6
	25 + 25 + 35	2.06	2.06	2.88	3.2	7.0	7.8	660	1620	3000	7.4	7.1	6.8
	25 + 25 + 50	1.80	1.80	3.60	3.2	7.2	7.8	660	1780	3000	8.2	7.8	7.5
	25 + 25 + 60	1.64	1.64	3.93	3.2	7.2	7.8	660	1780	3000	8.2	7.8	7.5
	25 + 35 + 35	1.87	2.62	2.62	3.2	7.1	7.8	660	1670	3000	7.7	7.3	7.0
	25 + 35 + 50	1.64	2.29	3.27	3.2	7.2	7.8	660	1780	3000	8.2	7.8	7.5
	35 + 35 + 35	2.40	2.40	2.40	3.2	7.2	7.8	660	1780	3000	8.2	7.8	7.5

(b) Indoor unit except SRK ∗ ∗ ZSX type

<Cooling>

Indoor unit combination		Cooling capacity (kW)						Power consumption (W)			Standard current (A)		
		Indoor unit capacity (kW)			Total capacity (kW)			Min.	Standard	Max.	220V	230V	240V
		A	B	C	Min.	Standard	max.						
1 unit	20	2.0	-	-	1.8	2.0	2.7	500	570	950	2.6	2.5	2.4
	25	2.5	-	-	1.8	2.5	3.2	500	760	1080	3.5	3.3	3.2
	35	3.5	-	-	1.8	3.5	3.7	500	1150	1240	5.3	5.1	4.8
	50	5.0	-	-	1.8	5.0	5.6	500	1860	2100	8.5	8.2	7.8
	60	6.0	-	-	1.8	6.0	6.1	500	2350	2370	10.8	10.3	9.9
2 units	20 + 20	2.00	2.00	-	3.0	4.0	5.6	570	800	1750	3.7	3.5	3.4
	20 + 25	2.00	2.50	-	3.0	4.5	5.8	570	1050	1910	4.8	4.6	4.4
	20 + 35	1.93	3.37	-	3.0	5.3	6.1	570	1620	2110	7.4	7.1	6.8
	20 + 50	1.89	4.71	-	3.0	6.6	6.8	570	2330	2390	10.7	10.2	9.8
	20 + 60	1.68	5.03	-	3.0	6.7	6.8	570	2370	2390	10.9	10.4	10.0
	25 + 25	2.45	2.45	-	3.0	4.9	6.1	570	1340	2110	6.2	5.9	5.6
	25 + 35	2.42	3.38	-	3.0	5.8	6.4	570	1920	2270	8.8	8.4	8.1
	25 + 50	2.23	4.47	-	3.0	6.7	6.8	570	2370	2390	10.9	10.4	10.0
	25 + 60	1.97	4.73	-	3.0	6.7	6.8	570	2370	2390	10.9	10.4	10.0
	35 + 35	3.30	3.30	-	3.0	6.6	6.8	570	2330	2390	10.7	10.2	9.8
	35 + 50	2.76	3.94	-	3.0	6.7	6.8	570	2370	2390	10.9	10.4	10.0
	35 + 60	2.47	4.23	-	3.0	6.7	6.8	570	2370	2390	10.9	10.4	10.0
	50 + 50	3.35	3.35	-	3.0	6.7	6.8	570	2370	2390	10.9	10.4	10.0
	50 + 60	3.05	3.65	-	3.0	6.7	6.8	570	2370	2390	10.9	10.4	10.0
3 units	20 + 20 + 20	2.00	2.00	2.00	3.6	6.0	7.3	690	1470	2390	6.7	6.5	6.2
	20 + 20 + 25	1.85	1.85	2.31	3.6	6.0	7.3	690	1470	2390	6.7	6.5	6.2
	20 + 20 + 35	1.60	1.60	2.80	3.6	6.0	7.3	690	1470	2390	6.7	6.5	6.2
	20 + 20 + 50	1.40	1.40	3.50	3.6	6.3	7.3	690	1520	2390	7.0	6.7	6.4
	20 + 20 + 60	1.28	1.28	3.84	3.6	6.4	7.3	690	1540	2390	7.1	6.8	6.5
	20 + 25 + 25	1.69	2.11	2.11	3.6	5.9	7.3	690	1450	2390	6.7	6.4	6.1
	20 + 25 + 35	1.53	1.91	2.67	3.6	6.1	7.3	690	1500	2390	6.9	6.6	6.3
	20 + 25 + 50	1.35	1.68	3.37	3.6	6.4	7.3	690	1540	2390	7.1	6.8	6.5
	20 + 25 + 60	1.26	1.57	3.77	3.6	6.6	7.3	690	1560	2390	7.2	6.9	6.6
	20 + 35 + 35	1.40	2.45	2.45	3.6	6.3	7.3	690	1520	2390	7.0	6.7	6.4
	20 + 35 + 50	1.26	2.20	3.14	3.6	6.6	7.3	690	1560	2390	7.2	6.9	6.6
	25 + 25 + 25	2.00	2.00	2.00	3.6	6.0	7.3	690	1470	2390	6.7	6.5	6.2
	25 + 25 + 35	1.79	1.79	2.51	3.6	6.1	7.3	690	1500	2390	6.9	6.6	6.3
	25 + 25 + 50	1.60	1.60	3.20	3.6	6.4	7.3	690	1540	2390	7.1	6.8	6.5
	25 + 25 + 60	1.52	1.52	3.65	3.6	6.7	7.3	690	1580	2390	7.3	6.9	6.6
	25 + 35 + 35	1.68	2.36	2.36	3.6	6.4	7.3	690	1540	2390	7.1	6.8	6.5
	25 + 35 + 50	1.52	2.13	3.05	3.6	6.7	7.3	690	1580	2390	7.3	6.9	6.6
	35 + 35 + 35	2.20	2.20	2.20	3.6	6.6	7.3	690	1560	2390	7.2	6.9	6.6

<Heating>

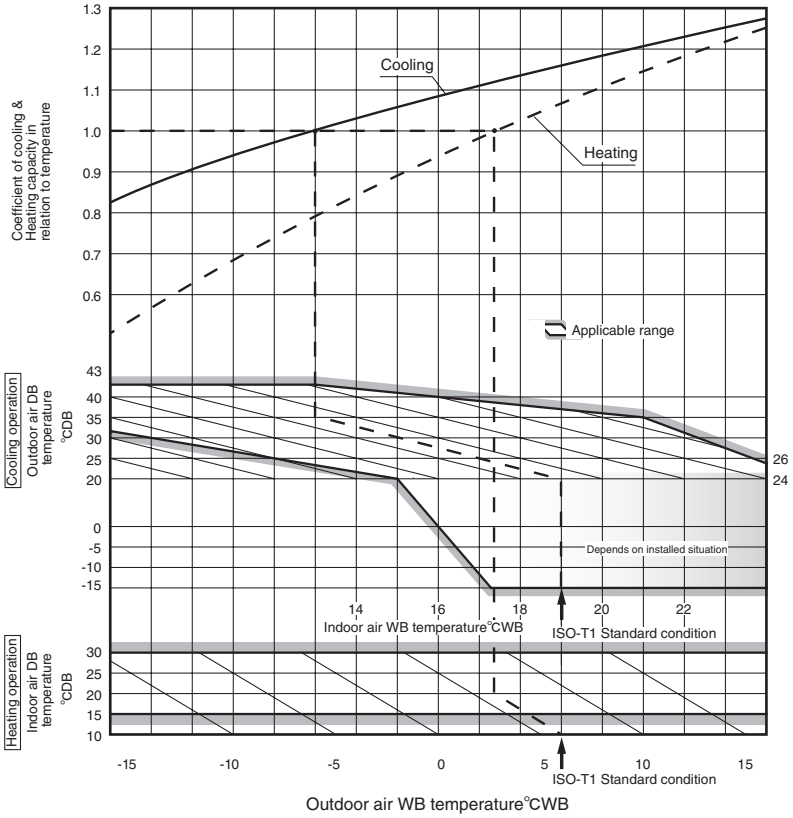
Indoor unit combination		Heating capacity (kW)						Power consumption (W)			Standard current (A)		
		Indoor unit capacity (kW)			Total capacity (kW)			Min.	Standard	Max.	220V	230V	240V
		A	B	C	Min.	Standard	max.						
1 unit	20	3.0	-	-	1.5	3.0	3.5	600	970	1330	4.5	4.3	4.1
	25	3.4	-	-	1.5	3.4	4.0	600	1140	1510	5.2	5.0	4.8
	35	4.5	-	-	1.5	4.5	4.8	600	1480	1790	6.8	6.5	6.2
	50	5.8	-	-	1.5	5.8	6.1	600	1960	2310	9.0	8.6	8.2
	60	6.8	-	-	1.5	6.8	7.0	600	2250	2660	10.3	9.9	9.5
2 units	20 + 20	3.00	3.00	-	2.1	6.0	7.0	630	1520	2100	7.0	6.7	6.4
	20 + 25	2.71	3.39	-	2.1	6.1	7.2	630	1600	2550	7.3	7.0	6.7
	20 + 35	2.36	4.14	-	2.1	6.5	7.3	630	1710	3000	7.9	7.5	7.2
	20 + 50	2.00	5.00	-	2.1	7.0	7.3	630	1940	3000	8.9	8.5	8.2
	20 + 60	1.78	5.33	-	2.1	7.1	7.3	630	1980	3000	9.1	8.7	8.3
	25 + 25	3.15	3.15	-	2.1	6.3	7.3	630	1660	3000	7.6	7.3	7.0
	25 + 35	2.79	3.91	-	2.1	6.7	7.3	630	1790	3000	8.2	7.9	7.5
	25 + 50	2.37	4.73	-	2.1	7.1	7.3	630	1980	3000	9.1	8.7	8.3
	25 + 60	2.09	5.01	-	2.1	7.1	7.3	630	1980	3000	9.1	8.7	8.3
	35 + 35	3.50	3.50	-	2.1	7.0	7.3	630	1940	3000	8.9	8.5	8.2
	35 + 50	2.92	4.18	-	2.1	7.1	7.3	630	1980	3000	9.1	8.7	8.3
	35 + 60	2.62	4.48	-	2.1	7.1	7.3	630	1980	3000	9.1	8.7	8.3
	50 + 50	3.55	3.55	-	2.1	7.1	7.3	630	1980	3000	9.1	8.7	8.3
	50 + 60	3.23	3.87	-	2.1	7.1	7.3	630	1980	3000	9.1	8.7	8.3
3 units	20 + 20 + 20	2.27	2.27	2.27	3.2	6.8	7.6	660	1540	3000	7.1	6.8	6.5
	20 + 20 + 25	2.09	2.09	2.62	3.2	6.8	7.6	660	1540	3000	7.1	6.8	6.5
	20 + 20 + 35	1.81	1.81	3.17	3.2	6.8	7.6	660	1540	3000	7.1	6.8	6.5
	20 + 20 + 50	1.56	1.56	3.89	3.2	7.0	7.6	660	1730	3000	7.9	7.6	7.3
	20 + 20 + 60	1.44	1.44	4.32	3.2	7.2	7.6	660	1900	3000	8.7	8.3	8.0
	20 + 25 + 25	1.94	2.43	2.43	3.2	6.8	7.6	660	1540	3000	7.1	6.8	6.5
	20 + 25 + 35	1.73	2.16	3.02	3.2	6.9	7.6	660	1590	3000	7.3	7.0	6.7
	20 + 25 + 50	1.49	1.87	3.74	3.2	7.1	7.6	660	1780	3000	8.2	7.8	7.5
	20 + 25 + 60	1.37	1.71	4.11	3.2	7.2	7.6	660	1900	3000	8.7	8.3	8.0
	20 + 35 + 35	1.56	2.72	2.72	3.2	7.0	7.6	660	1730	3000	7.9	7.6	7.3
	20 + 35 + 50	1.37	2.40	3.43	3.2	7.2	7.6	660	1900	3000	8.7	8.3	8.0
	25 + 25 + 25	2.27	2.27	2.27	3.2	6.8	7.6	660	1540	3000	7.1	6.8	6.5
	25 + 25 + 35	2.06	2.06	2.88	3.2	7.0	7.6	660	1730	3000	7.9	7.6	7.3
	25 + 25 + 50	1.80	1.80	3.60	3.2	7.2	7.6	660	1900	3000	8.7	8.3	8.0
	25 + 25 + 60	1.64	1.64	3.93	3.2	7.2	7.6	660	1900	3000	8.7	8.3	8.0
	25 + 35 + 35	1.87	2.62	2.62	3.2	7.1	7.6	660	1780	3000	8.2	7.8	7.5
	25 + 35 + 50	1.64	2.29	3.27	3.2	7.2	7.6	660	1900	3000	8.7	8.3	8.0
	35 + 35 + 35	2.40	2.40	2.40	3.2	7.2	7.6	660	1900	3000	8.7	8.3	8.0

6. SELECTION CHARTS

Correct the cooling and heating capacity in accordance with the conditions as follows. The net cooling and heating capacity can be obtained in the following way.

Net capacity = Capacity shown on specification × Correction factors as follows.

(1) Coefficient of cooling and heating capacity in relation to temperatures



(2) Correction of cooling and heating capacity in relation to one way length of refrigerant piping

It is necessary to correct the cooling and heating capacity in relation to the one way piping length between the indoor and outdoor units.

Piping length [m]	7	10	15	20	25
Cooling	1.0	0.99	0.975	0.965	0.95
Heating	1.0	1.0	1.0	1.0	1.0

(3) Correction relative to frosting on outdoor heat exchanger during heating

In additions to the foregoing corrections (1), (2) the heating capacity needs to be adjusted also with respect to the frosting on the outdoor heat exchanger.

Air inlet temperature of outdoor unit in ℃WB	-15	-10	-9	-7	-5	-3	-1	1	3	5 or more
Adjustment coefficient	0.95	0.95	0.94	0.93	0.91	0.88	0.86	0.87	0.92	1.00

How to obtain the cooling and heating capacity

Example : The net cooling capacity of the model SCM50ZS-S1 (SRK25ZSX-S : 3 units) with the piping length of 10m, indoor wet-bulb temperature at 19.0℃ and outdoor dry-bulb temperature 35℃ is

Net cooling capacity = (1.87 × 3) × 0.99 × 1.0 ≒ 5.55kW

- (1.87 × 3): Table of indoor unit combnation (Refer to pege 119)
  Outdoor unit SCM50ZS-S1
  Indoor unit SRK25ZSX-S × 3 units
- 0.99: Length 10m
- 1.0: Factor by air temperatures

7. OUTLINE OF OPERATION CONTROL BY MICROCOMPUTER

7.1 SRK, SRF and SRR series

7.1.1 SRK-ZSX series

(1) Operation control function by wireless remote control

Operation section

OPERATION MODE select button
Each time the button is pressed, the mode changes.

TEMPERATURE button
This button sets the room temperature.

HI/ECO button
This button changes the HIGH POWER/ ECO operation.

AIR FLOW (LEFT/RIGHT) button
This button changes the air flow (left/ right) direction.

SILENT button
This button sets the SILENT operation.

ALLERGEN CLEAR button
This button selects ALLERGEN CLEAR operation.

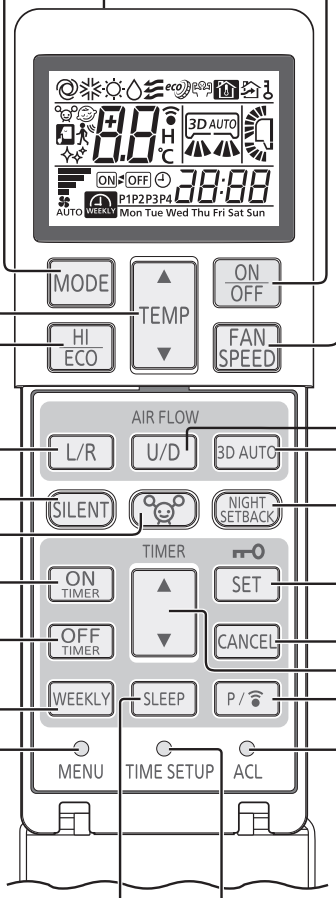
ON TIMER button
This button selects ON TIMER operation.

OFF TIMER button
This button selects OFF TIMER operation.

WEEKLY button
This button switches the WEEKLY TIMER to ON/OFF.

MENU switch
This switch selects the brightness adjustment, AUTO OFF operation, SELF CLEAN operation and PRESET operation.

SLEEP button
This button selects SLEEP operation.



[View with the cover opened]

The above illustration shows all controls, but in practice only the relevant parts are shown.

Transmission section

ON/OFF (luminous) button
Press to start operation, press again to stop.

FAN SPEED button
Each time the button is pressed, the fan speed changes.

AIR FLOW (UP/DOWN) button
This button changes the air flow (up/ down) direction.

3D AUTO button
This button sets 3D AUTO operation.

NIGHT SETBACK button
This button sets NIGHT SETBACK operation.

SET/Child lock button
Use this button to set the timer and Child lock.

CANCEL button
This button cancels the ON timer, OFF timer, and SLEEP operation.

TIMER button
This button is used for setting the current time and timer function.

PROGRAM button
This button sets WEEKLY TIMER.

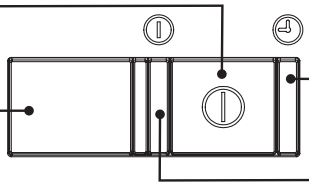
ACL switch
This switch resets the program to default state.

TIME SET UP switch
This switch is used for setting the time.

Unit display section

Unit ON/OFF button
This button can be used for turning on/off the unit when a remote control is not available.

Wireless remote control signal receiver



TIMER light (yellow)
Illuminates during TIMER operation.

RUN light (green)

- Illuminates during operation.
- Blinks slowly when SELF CLEAN operation (3 seconds ON, 1 second OFF).
- Blinks when air flow is stopped to prevent blowing out of cold air in heating operation. (1.5 seconds ON, 0.5 seconds OFF)
- Blinks slowly when AUTO OFF operation during stand by (3.5 seconds ON, 0.5 second OFF).

• RUN lights blink quickly during invalid operation mode.

(2) Unit ON/OFF button

When the wireless remote control batteries become weak, or if the wireless remote control is lost or malfunctioning, this button may be used to turn the unit on and off.

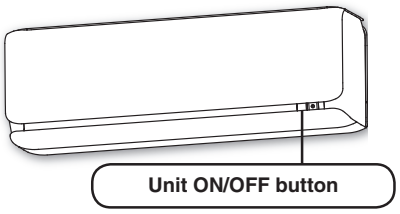
(a) Operation

Push the button once to place the unit in the automatic mode. Push it once more to turn the unit off.

(b) Details of operation

The unit will go into the automatic mode in which it automatically determines, from room temperature (as detected by sensor), whether to go into the COOL, DRY or HEAT modes.

Function / Operation mode	Room temperature setting	Fan speed	Flap/Louver	Timer switch
COOL	About 24ºC	Auto	Auto	Continuous
DRY	About 25ºC			
HEAT	About 26ºC			



(3) Auto restart function

(a) Auto restart function records the operational status of the air-conditioner immediately prior to be switched off by a power cut, and then automatically resumes operations after the power has been restored.

(b) The following settings will be cancelled:

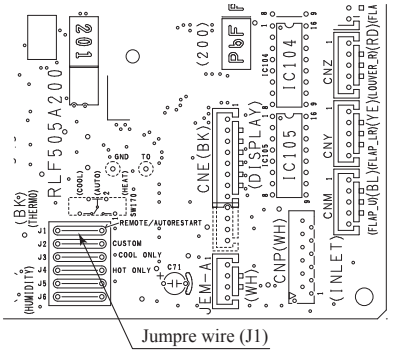
(i) Timer settings

(ii) HIGH POWER operation

Notes (1) Auto restart function is set at on when the air-conditioner is shipped from the factory. Consult with your dealer if this function needs to be switched off.

(2) When power failure ocurrs, the timer setting is cancelled. Once power is resumed, reset the timer.

(3) If the jumper wire (J1) "AUTO RESTART" is cut, auto restart is disabled. (See the diagram at right)



(4) Installing two air-conditioners in the same room

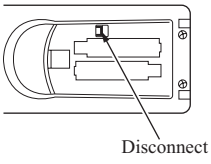
When two air-conditioners are installed in the room, use this setting when the two air-conditioners are not operated with one wireless remote control. Set the wireless remote control and indoor unit.

(a) Setting the wireless remote control

(i) Pull out the cover and take out batteries.

(ii) Disconnect the switching line next to the battery with wire cutters.

(iii) Insert batteries. Close the cover.

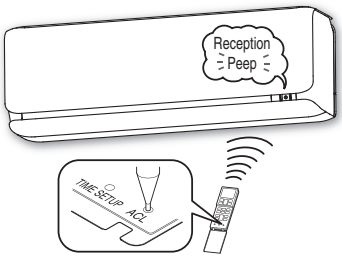


(b) Setting indoor unit

(i) Turn off the power source, and turn it on after 1 minute.

(ii) Point the wireless remote control (that was set according to the procedure described on the left side) at the indoor unit and send a signal by pressing the ACL switch on the wireless remote control.
Since the signal is sent in about 6 seconds after the ACL switch is pressed, point the wireless remote control at the indoor unit for some time.

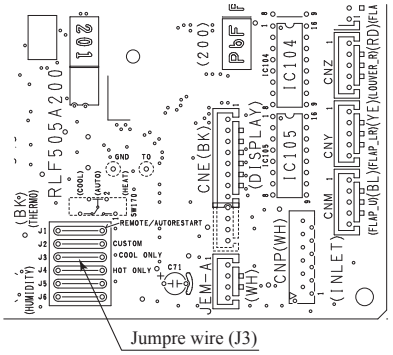
(iii) Check that the reception buzzer sound "Peep" is emitted from the indoor unit.
At completion of the setting, the indoor unit emits a buzzer sound "Peep".
(If no reception sound is emitted, start the setting from the beginning again.)

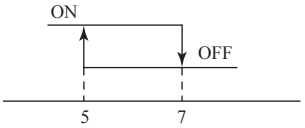


(5) Selection of the annual cooling function

(a) The annual cooling control is valid from factory default setting. It is possible to disable by cutting jumper wire (J3), or changing the setting of dip switch (SW2-4) on the interface kit (option) PCB if it is connected.

Jumper wire (J3)	Interface kit (SC-BIKN2-E) SW2-4	Function
Shorted	ON	Enabled
Shorted	OFF	Disabled
Open	ON	Disabled
Open	OFF	Disabled





Outdoor air temperature (℃)

Notes (1) Default states of the jumper wire (J3) and the interface kit at the shipping from factory – On the PCB, the dip switch (SW2-4) is set to enable the annual cooling function.

(2) To cancel the annual cooling setting, consult your dealer.

(b) Content of control

(i) If the outdoor air temperature sensor (TH2) detects below 5°C, the indoor unit speed is switched to 8th step.

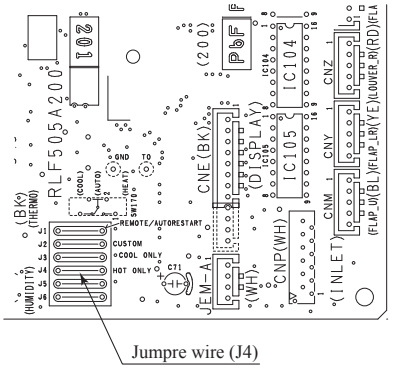
(ii) If the outdoor air temperature sensor (TH2) detects higher than 7°C, the indoor unit speed is changed to the normal control speed.

(6) Heating only function

(a) Heating only function can be enabled by disconnecting the jumper wire (J4).

(b) Control contents

Operation mode setting	Operation mode
COOL/DRY/FAN	FAN
AUTO/HEAT	HEAT



(7) High power operation

Pressing the HI/ECO button intensifies the operating power and initiates powerful cooling and heating operation for 15 minutes continuously. The wireless remote control displays HIGH POWER mark and the FAN SPEED display disappears.

(a) During the HIGH POWER operation, the room temperature is not controlled. When it causes an excessive cooling and heating, press the HI/ECO button again to cancel the HIGH POWER operation.

(b) HIGH POWER operation is not available during the DRY and the ON timer to OFF timer operations.

(c) When HIGH POWER operation is set after ON timer operation, HIGH POWER operation will start from the set time.

(d) When the following operation are set, HIGH POWER operation will be cancelled.

① When the HI/ECO button is pressed again.

② When the operation mode is changed.

③ When it has been 15 minutes since HIGH POWER operation has started.

④ When the 3D AUTO botton is pressed.

⑤ When the SILENT botton is pressed.

⑥ When the NIGHT SETBACK botton is pressed.

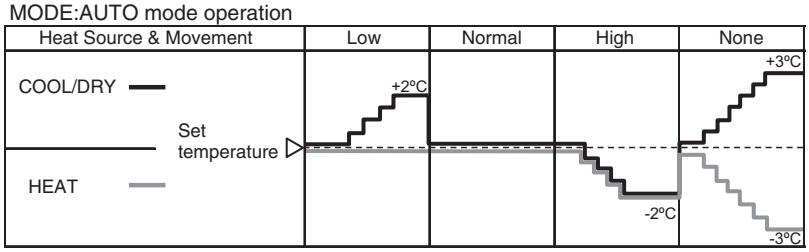
(e) Not operable while the air-conditioner is OFF.

(f) After HIGH POWER operation, the sound of refrigerant flowing may be heard.

(8) Eco operation

(a) Pressing the HI/ECO button initiates a soft operation with the power suppressed in order to avoid an excessive cooling or heating.
(b) The remote control eco displays.
(c) The set temperature will be adjusted according to the amount of movement made by the person(s) the motion sensor has detected.

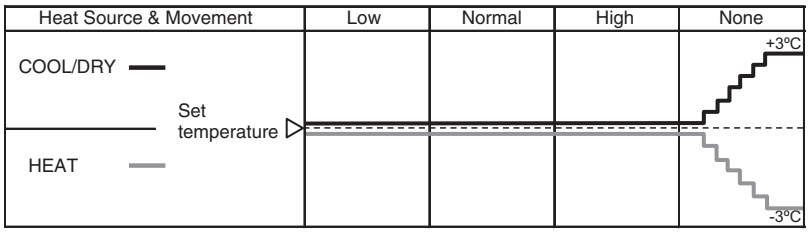
MODE:AUTO mode operation



Low	**When the extent of human movement is low**
High	**When the extent of human movement is high**
None	**When there is no one in the room**

- The set temperature is automatically adjusted during economy operation, however, the indication on the remote control display does not change.
- When the SLEEP TIMER, OFF TIMER, and ON TIMER + OFF TIMER operation are set, the motion sensor does not adjust temperatures.

MODE:COOL/HEAT/DRY mode operation



Notes (1) It will go into economy operation at the next time the air-conditioner runs in the following case.
① When the air-conditioner is stopped by ON/OFF button during economy operation.
② When the air-conditioner is stopped in SLEEP or OFF TIMER operation during economy operation.
③ When the operation is retrieved from SELF CLEAN or ALLERGEN CLEAR operation.

(2) When the following operations are set, economy operation will be cancelled.
① When the HI/ECO button is pressed again.
② When the operation mode is changed from DRY to FAN.
③ When the NIGHT SETBACK button is pressed.

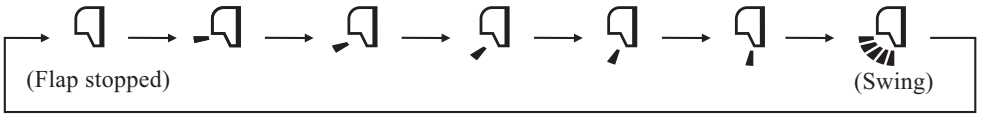
(3) Not operable while the air-conditioner is OFF.

(9) Air flow direction adjustment

Air flow direction can be adjusted with by AIR FLOW U/D (UP/DOWN) and L/R (LEFT/RIGHT) button on the wireless remote control.

(a) Flap

Every time when you press the AIR FLOW U/D (UP/DOWN) button the mode changes as follows

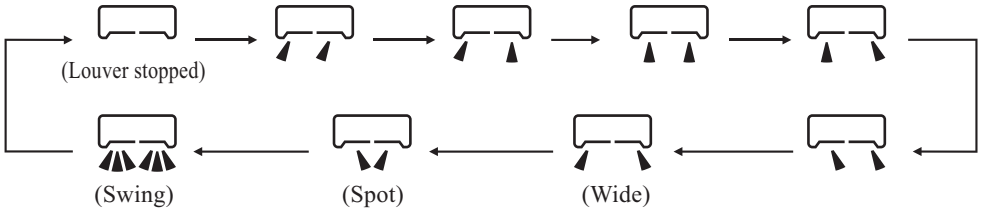


• Angle of flap from horizontal

Wireless remote control display					
COOL, DRY, FAN	Approx. 15°	Approx. 20°	Approx. 25°	Approx. 30°	Approx. 55°
HEAT	Approx. 30°	Approx. 40°	Approx. 45°	Approx. 50°	Approx. 55°

(b) Louver

Every time when you press the AIR FLOW L/R (LEFT/RIGHT) button the mode changes as follows



• Angle of louver

Wireless remote control display					
Center installation	Left approx. 50°	Left approx. 20°	Center	Right approx. 20°	Right approx. 50°
Right end installation	Left approx. 50°	Left approx. 45°	Left approx. 30°	Center	Right approx. 20°
Left end installation	Left approx. 20°	Center	Right approx. 30°	Right approx. 45°	Right approx. 50°

(c) Swing

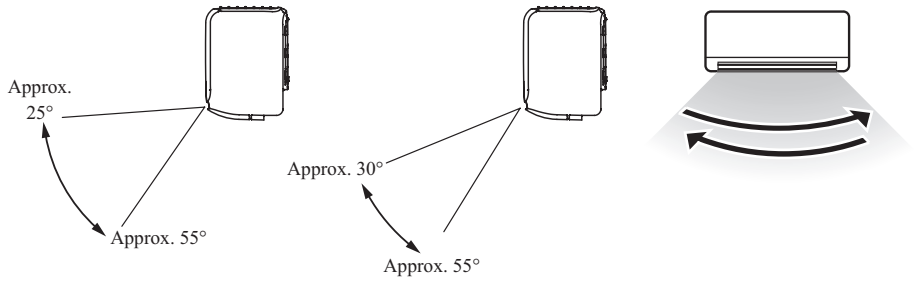
(i) Swing flap

Flap moves in upward and downward directions continuously.

(ii) Swing louver

Louver moves in left and right directions continuously.

◆ In COOL, DRY, FAN operation ◆ In HEAT operation



(d) Memory flap (Flap or louver stopped)

When you press the AIR FLOW (UP/DOWN or LEFT/RIGHT) button once while the flap or louver is operating, it stops swinging at the position. Since this angle is memorized in the microcomputer, the flap or louver will automatically be set at this angle when the next operation is started.

(10) 3D auto operation

Control the flap and louver by 3D AUTO button on the wireless remote control.

Fan speed and air flow direction are automatically controlled, allowing the entire indoor to efficiently conditioned.

(a) During cooling and heating operation (Including auto cooling and heating operation)

(i) Air flow selection is determined according to indoor temperature and setting temperature.

Operation mode	Air flow selection				
	AUTO		HI	MED	LO
Cooling	Room temp. – Setting temp. >5°C	Room temp. – Setting temp. ≦5°C	HI	MED	LO
	HIGH POWER	AUTO			
Heating	Setting temp. – Room temp. >5°C	Setting temp. – Room temp. ≦ 5°C			
	HIGH POWER	AUTO			

(ii) Air flow direction is controlled according to the room temperature and setting temperature.

1) When 3D auto operation starts

	Cooling	Heating
Flap	Up/down swing	
Louver	Wide (Fixed)	Center (Fixed)

2) When Room temp. – Setting temp. is ≦ 5ºC during cooling and when setting temp. – Room temp. is ≦ 5ºC during heating, the system switches to the following air flow direction control. After the louver swings left and right symmetrically for 3 cycles, control is switched to the control in 3).

	Cooling	Heating
Flap	Horizontal blowing (Fixed)	Slant forwardl blowing (Fixed)
Louver	Left/right swing	

3) After the flap swings for 5 cycles, control is switched to the control in 4).

	Cooling	Heating
Flap	Up/down swing	
Louver	Center (Fixed)	

4) For 5 minutes, the following air flow direction control is carried out.

	Cooling	Heating
Flap	Horizontal blowing (Fixed)	Slant forwardl blowing (Fixed)
Louver	Wide (Fixed)	

5) After 5 minutes have passed, the air flow direction is determined according to the room temperature and setting temperature.

Operation mode	Air flow direction contorol		
Cooling	Room temp. – Setting temp. ≦2°C	2°C < Room temp. – Setting temp. ≦ 5°C	Room temp. – Setting temp. > 5°C
	The control in 4) continues.	Control returns to the control in 2).	Control returns to the control in 1).
Heating	Setting temp. – Room temp. ≦2°C	2°C < Setting temp. – Room temp. ≦ 5°C	Setting temp. – Room temp. > 5°C
	The control in 4) continues.	Control returns to the control in 2).	Control returns to the control in 1).

(b) During DRY operation (including auto DRY operation)

Flap	Horizontal blowing (Fixed)
Louver	Wide (Fixed)

(11) Timer operation

(a) Comfort start-up (ON timer operation)

The unit starts the operation 5 to 60 minutes earlier so that the room can approach optimum temperature at ON timer.

(b) Sleep timer operation

Pressing the SLEEP button causes the temperature to be controlled with respect to the set temperature.

(c) OFF timer operation

The OFF timer can be set at a specific time (in 10-minute units) within a 24-hour period.

(d) Weekly timer operation

Up to 4 programs with timer operation (ON timer / OFF timer) are available for each day of the week.

(12) Silent operation

When the silent operation is set, the unit operates by dropping the outdoor fan speed and the compressor speed.

	SCM50		SCM60	
	Cooling	Heating	Cooling	Heating
Outdoor fan speed (Upper limit)	5th speed	5th speed	5th speed	5th speed
Compressor speed (Upper limit)	40 rps	55 rps	35 rps	45 rps

(13) Night setback operation

When the night setback operation is set, the heating operation starts with the setting temperature at 10℃.

(14) Air flow range setting

Take the air-conditioner location into account and adjust the left/right air flow range to maximize air-conditioning.

(a) Setting

(i) If the air-conditioner is running, press the ON/OFF button to stop.

The air flow range setting cannot be made while the unit is running.

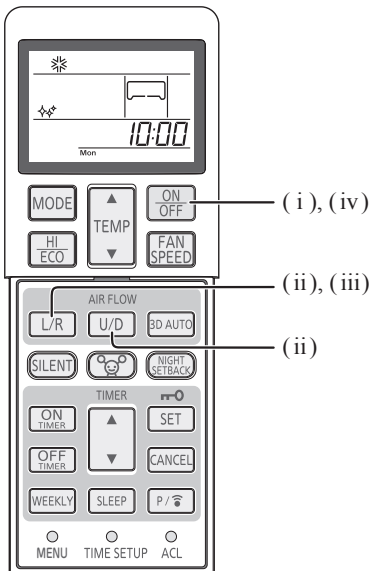
(ii) Press the AIR FLOW U/D (UP/DOWN) button and the AIR FLOW L/R (LEFT/RIGHT) button together for 5 seconds or more.

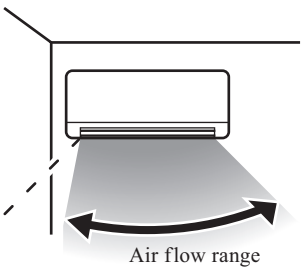
The air flow range setting display illuminates.

(iii) Setting the air flow range.

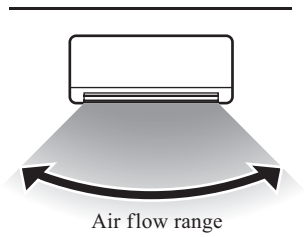
Press the AIR FLOW L/R (LEFT/RIGHT) button and adjust to the desired location.

Each time the AIR FLOW L/R (LEFT/RIGHT) button is pressed, the display is switched in the order of:

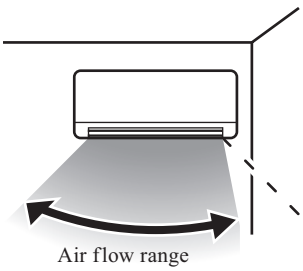




(Left end installation)



(Center installation)



(Right end installation)

(iv) Press the ON/OFF button.

The air-conditioner's air flow range is set.

Press within 60 seconds of setting the air flow range (while the air flow range setting display illuminates).

(15) Display brightness adjustment

This function can be used when it is necessary to adjust the brightness of unit display.

Brightness level	Run light	Timer light
LV2	100%	100%
LV1	50%	50%
LV0	0%	0%

Note (1) When the unit displays self diagnosis or service mode, brightness level is always LV2.

(16) AUTO OFF operation

In order to prevent the air-conditioner from continuing to operate although the person(s) has already left the room, the air-conditioner automatically stops approximalely 1 hour (or 2 hours) after the sensor judges that there is no one in the room.

(a) Emits a warning sound, “Peep, Peep, Peep”, and stops the operation automatically when there is no one in the room for setting time (Standby). When the motion sensor detects a person 12 hours after the operation was stopped, the operation resumes with the same settings. The operation does not resume even if a person is detected after 12 hours has elapsed. (The RUN light blinks slowly during standby.)

(b) When the SLEEP TIMER, OFF TIMER and ON TIMER + OFF TIMER operation are set, the AUTO OFF functions is disabled.

(c) The AUTO OFF function does not activate if the operation is started by the ON TIMER when there is no one at home.

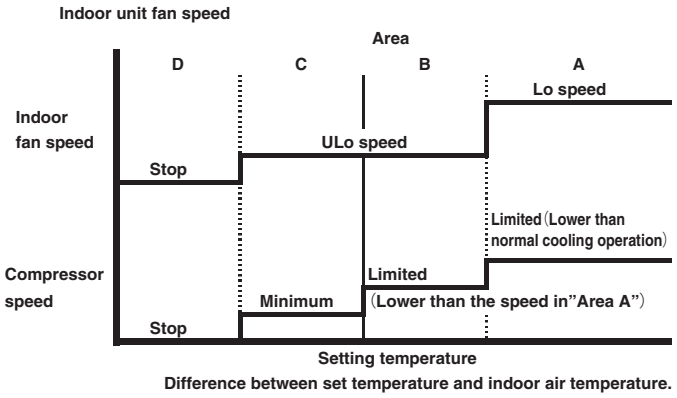
(17) Outline of dehumidifying (DRY) operation

(a) Purpose of DRY mode

The purpose is "Dehumidification", and not to control the humidity to the target condition.
Indoor/outdoor unit control the operation condition to reduce the humidity, and also prevent over cooling.

(b) Outline of control

(i) Indoor unit fan speed and compressor are controlled by the area which is selected by the temperature difference.



(ii) The indoor unit check the current area by every 5 minutes, and operate by the next checking.

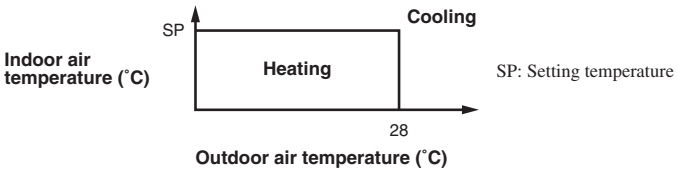
(c) Other

When the outdoor air temperature and room temperature is low in cooling operation, indoor unit can not operate in cooling, and dehumidify. In this case, the units operate in heating to rise the indoor air temperature and after that start DRY operation.

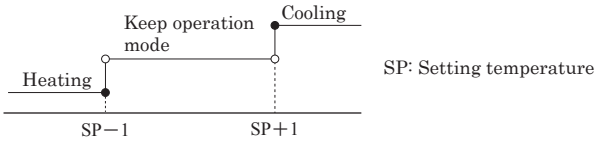
(18) Outline of automatic operation

(a) Determination of operation mode

Operation mode is determined by indoor air temperature and outdoor air temperature as following.



(b) Operation mode is changes when keep cooling and heating thermostat off 20 minutes and be satisfied following conditions. If the setting temperature is changed with the remote control, the operation mode is judged immediately.



※It can not be changed to heating mode if outdoor air temperature is 28℃ or higher.

(c) When the unit is started again within one hour after the stop of automatic operation or when the automatic operation is selected during heating, cooling or dehumidifying operation, the unit is operated in the previous operation mode.

(d) Setting temperature can be adjusted within the following range. There is the relationship as shown below between the signals of the wireless remote control and the setting temperature.

Unit : ℃

		Signals of wireless remote control (Display)												
		18	19	20	21	22	23	24	25	26	27	28	29	30
Setting temperature	Cooling	18	19	20	21	22	23	24	25	26	27	28	29	30
	Heating	18	19	20	21	22	23	24	25	26	27	28	29	30

(19) Protective control function

(a) Dew prevention control [Cooling]

Prevents dewing on the indoor unit.

(i) Operating conditions

When the following conditions have been satisfied for more than 30 minutes after starting operation

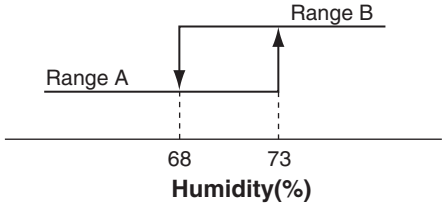
1) Compressor's speed is 22 rps or higher.
2) Detected value of humidity is 68% or higher.

(ii) Contents of operation

1) Air capacity control

Item \ Model		SRK20, 25ZSX-S,-W	SRK35ZSX-S,-W	SRK50, 60ZSX-S,-W
ULO	Upper limit of compressor's speed	RangeA: 40rps, RangeB: 24rps	RangeA: 45rps, RangeB: 24rps	RangeA: 50rps, RangeB: 24rps
	Indoor fan	4th speed		
LO	Upper limit of compressor's speed	RangeA: 40rps, RangeB: 24rps	RangeA: 45rps, RangeB: 24rps	RangeA: 50rps, RangeB: 24rps
	Indoor fan	Adaptable to compressor speed		
AUTO,HI,MED	Upper limit of compressor's speed	RangeA: 40rps, RangeB: 30rps	RangeA: 45rps, RangeB: 30rps	RangeA: 50rps, RangeB: 30rps
	Indoor fan	Adaptable to compressor speed		

Note (1) Ranges A and B are as shown below.



2) When this control has continued for more than 30 minutes continuously,the following wind direction control is performed.
a) When the vertical wind direction is set at other than the vertical swing,the flaps change to the horizontal position.
b) When the horizontal wind direction is set at other than the horizontal swing,the louver changes to the vertical position.

(iii) Reset condition

Humidity is less than 63%.

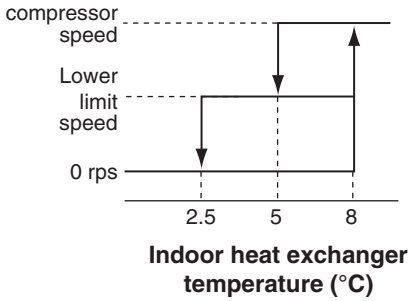
(b) Frost prevention control (During cooling or dehumidifying)

(i) Operating conditions

1) Indoor heat exchanger temperature (Th2) is lower than 5ºC.
2) 5 minutes after reaching the compressor speed except 0 rps.

(ii) Detail of anti-frost operation

Item \ Indoor heat exchanger temperature	5°C or lower	2.5°C or lower
Lower limit of compressor command speed	22 rps(models SRK50, 60 : 25 rps)	0 rps
Indoor fan	Depends on operation mode	Keep the fan speed before frost prevention control
Outdoor fan	Depends on compressor speed	Depends on stop mode
4-way valve	OFF	



Notes (1) When the indoor heat exchanger temperature is in the range of 2.5–5ºC, the speed is reduced by 4 rps at each 20 seconds.
(2) When the temperature is lower than 2.5ºC, the compressor is stopped.
(3) When the indoor heat exchanger temperature is in the range of 5–8ºC, the compressor speed is been maintained.

(iii) Reset conditions

When either of the following condition is satisfied.

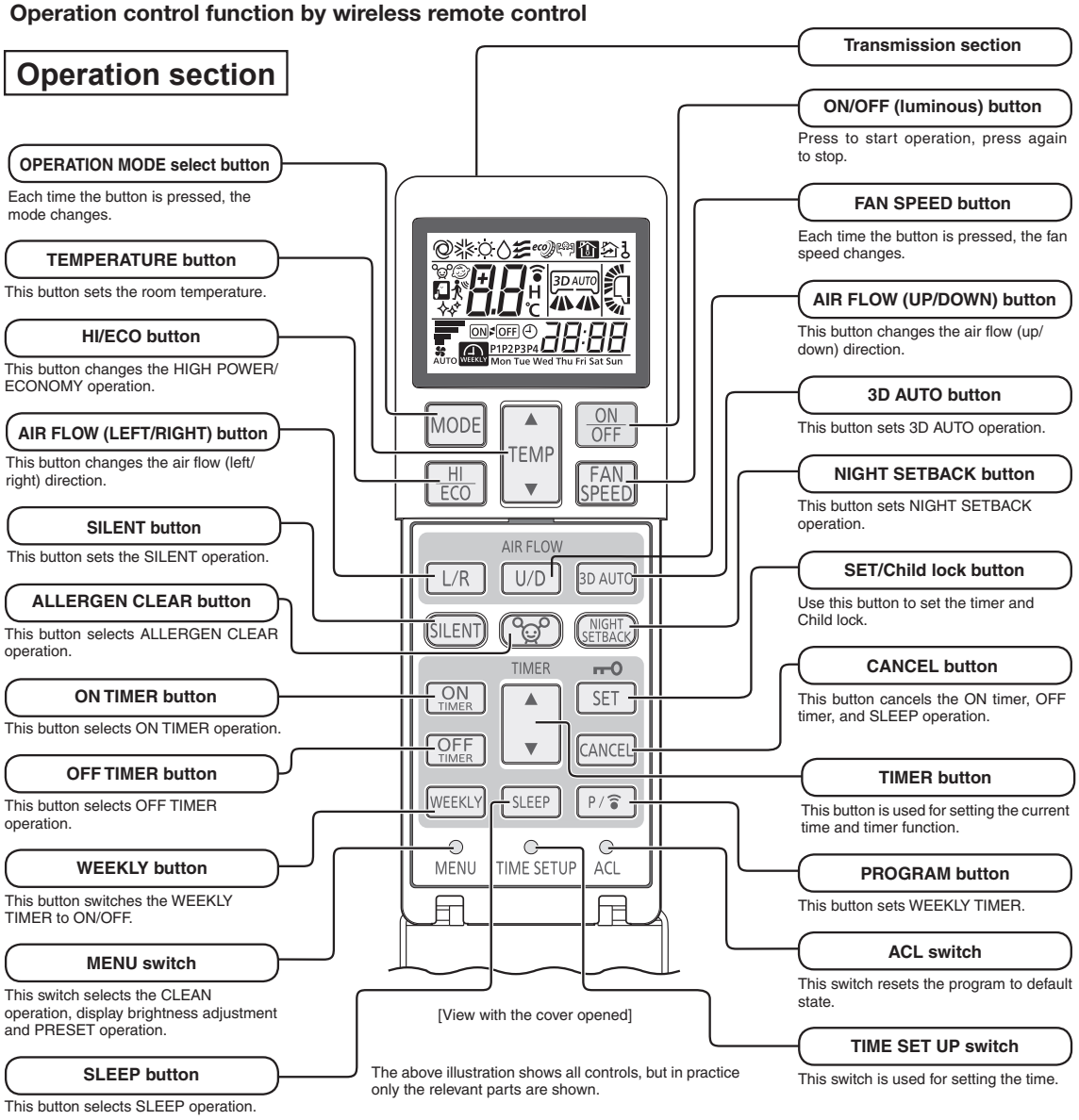
1) The indoor heat exchanger temperature (Th2) is 8ºC or higher.
2) The compressor speed is 0 rps.

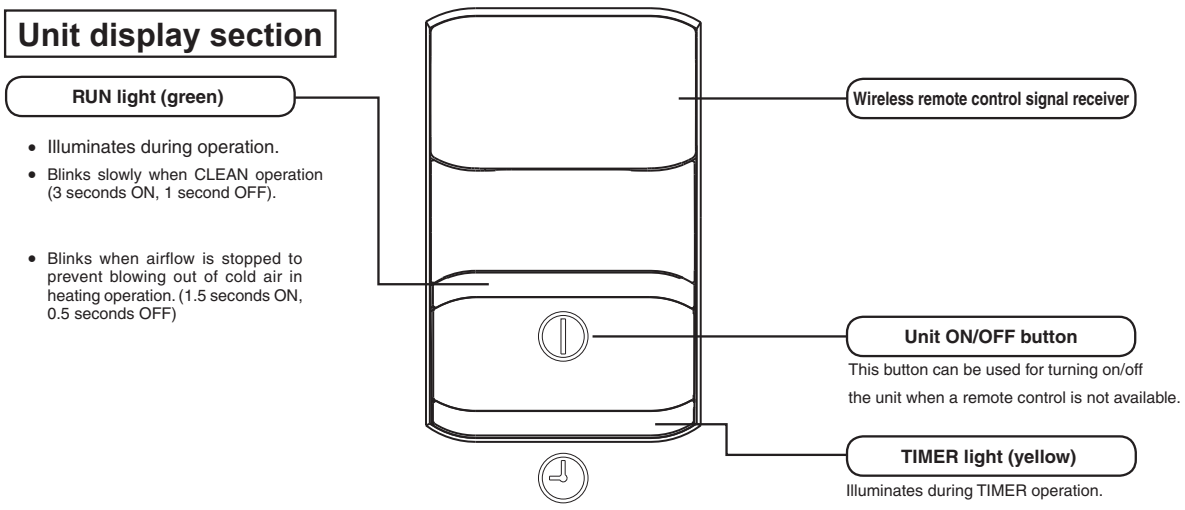
(c) Indoor fan motor protection

When the air-conditioner is operating and the indoor fan motor is turned ON, if the indoor fan motor has operated at 300 min^{-1} or under for more than 30 seconds, the unit enters first in the stop mode and then stops the entire system.

7.1.2 SRK-ZS series

(1) Operation control function by wireless remote control





• RUN and TIMER lights blink quickly during invalid operation mode.

(2) Unit ON/OFF button

When the wireless remote control batteries become weak, or if the wireless remote control is lost or malfunctioning, this button may be used to turn the unit on and off.

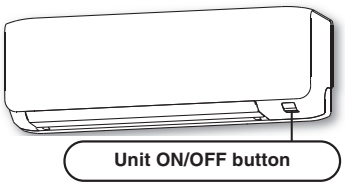
(a) Operation

Push the button once to place the unit in the automatic mode. Push it once more to turn the unit off.

(b) Details of operation

The unit will go into the automatic mode in which it automatically determines, from room temperature (as detected by sensor), whether to go into the COOL, DRY or HEAT modes.

Function / Operation mode	Room temperature setting	Fan speed	Flap/Louver	Timer switch
COOL	About 24ºC	Auto	Auto	Continuous
DRY	About 25ºC			
HEAT	About 26ºC			



(3) Auto restart function

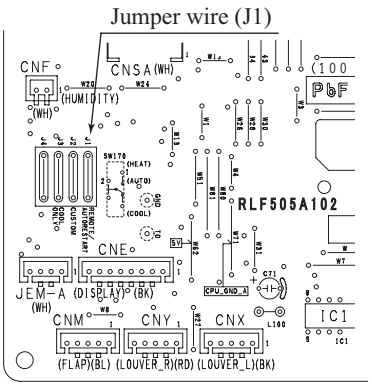
(a) Auto restart function records the operational status of the air-conditioner immediately prior to be switched off by a power cut, and then automatically resumes operations after the power has been restored.

(b) The following settings will be cancelled:

(i) Timer settings

(ii) HIGH POWER operation

Notes (1) Auto restart function is set at on when the air-conditioner is shipped from the factory. Consult with your dealer if this function needs to be switched off.
(2) When power failure ocurrs, the timer setting is cancelled. Once power is resumed, reset the timer.
(3) If the jumper wire (J1) "AUTO RESTART" is cut, auto restart is disabled. (See the diagram at right)



(4) Installing two air-conditioners in the same room

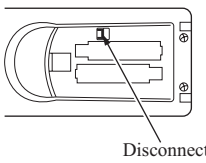
When two air-conditioners are installed in the room, use this setting when the two air-conditioners are not operated with one wireless remote control. Set the wireless remote control and indoor unit.

(a) Setting the wireless remote control

(i) Pull out the cover and take out batteries.

(ii) Disconnect the switching line next to the battery with wire cutters.

(iii) Insert batteries. Close the cover.

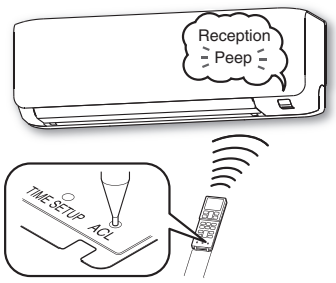


(b) Setting an indoor unit

(i) Turn off the power source, and turn it on after 1 minute.

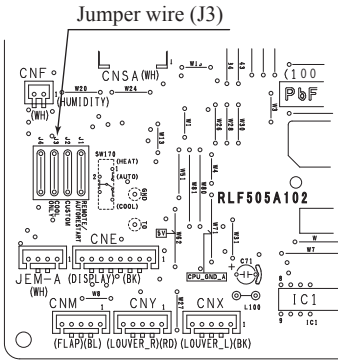
(ii) Point the wireless remote control (that was set according to the procedure described on the left side) at the indoor unit and send a signal by pressing the ACL switch on the wireless remote control.
Since the signal is sent in about 6 seconds after the ACL switch is pressed, point the wireless remote control at the indoor unit for some time.

(iii) Check that the reception buzzer sound "Peep" is emitted from the indoor unit.
At completion of the setting, the indoor unit emits a buzzer sound "Peep".
(If no reception sound is emitted, start the setting from the beginning again.)



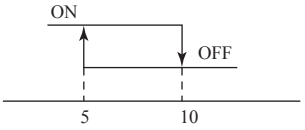
(5) Selection of the annual cooling function

(a) The annual cooling control is valid from factory default setting. It is possible to disable by cutting jumper wire (J3), or changing the setting of dip switch (SW2-4) on the interface kit (option) PCB if it is connected.



Jumper wire (J3)	Interface kit (SC-BIKN2-E) SW2-4	Function
Shorted	ON	Enabled
Shorted	OFF	Disabled
Open	ON	Disabled
Open	OFF	Disabled

Notes (1) Default states of the jumper wire (J3) and the interface kit at the shipping from factory – On the PCB, the dip switch (SW2-4) is set to enable the annual cooling function.
(2) To cancel the annual cooling setting, consult your dealer.



Outdoor air temperature (℃)

(b) Content of control

(i) If the outdoor air temperature sensor (TH2) detects below 5°C, the indoor unit speed is switched to 7th step.

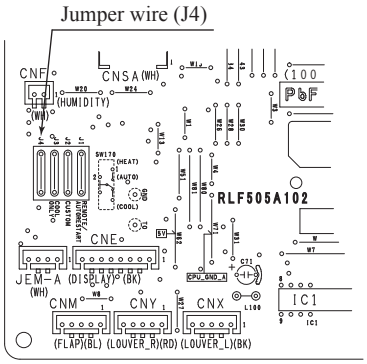
(ii) If the outdoor air temperature sensor (TH2) detects higher than 10°C, the indoor unit speed is changed to the normal control speed.

(6) Heating only function

(a) Heating only function can be enabled by disconnecting the jumper wire (J4).

(b) Control contents

Operation mode setting	Operation mode
COOL/DRY/FAN	FAN
AUTO/HEAT	HEAT



(7) High power operation

Pressing the HI POWER/ECONOMY button intensifies the operating power and initiates powerful cooling and heating operation for 15 minutes continuously. The wireless remote control displays HIGH POWER mark and the FAN SPEED display disappears.

(a) During the HIGH POWER operation, the room temperature is not controlled. When it causes an excessive cooling and heating, press the HI POWER/ECONOMY button again to cancel the HIGH POWER operation.

(b) HIGH POWER operation is not available during the DRY and the ON timer to OFF timer operations.

(c) When HIGH POWER operation is set after ON timer operation, HIGH POWER operation will start from the set time.

(d) When the following operation are set, HIGH POWER operation will be cancelled.

① When the HI POWER/ECONOMY button is pressed again.

② When the operation mode is changed.

③ When it has been 15 minutes since HIGH POWER operation has started.

④ When the 3D AUTO botton is pressed.

⑤ When the SILENT botton is pressed.

⑥ When the NIGHT SETBACK botton is pressed.

(e) Not operable while the air-conditioner is OFF.

(f) After HIGH POWER operation, the sound of refrigerant flowing may be heard.

(8) Economy operation

Pressing the HI POWER/ECONOMY button initiate a soft operation with the power suppressed in order to avoid an excessive cooling or heating. The unit operate 1.5℃ higher than the setting temperature during cooling or 2.5℃ lower than that during heating. The wireless remote control displays ECONOMY mark and the FAN SPEED display disappears.

(a) It will go into ECONOMY operation at the next time the air-conditioner runs in the following cases.
① When the air-conditioner is stopped by ON/OFF button during ECONOMY operation.
② When the air-conditioner is stopped in SLEEP or OFF TIMER operation during ECONOMY operation.
③ When the operation is retrieved from CLEAN or ALLERGEN CLEAR operation.

(b) When the following operation are set, ECONOMY operation will be cancelled.
① When the HI POWER/ECONOMY button is pressed again.
② When the operation mode is changed from DRY to FAN.
③ When the NIGHT SETBACK botton is pressed.

(c) Not operable while the air-conditioner is OFF.

(d) The setting temperature is adjusted according to the following table.

Item \ Mode	Cooling	Heating
Temperature adjustment	①+0.5	①−1.0
	②+1.0	②−2.0
	③+1.5	③−2.5

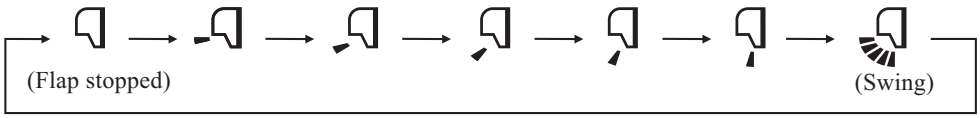
① at the start of operation.
② one hour after the start of operation.
③ two hours after the start of operation.

(9) Air flow direction adjustment

Air flow direction can be adjusted with by AIR FLOW ⬍ (UP/DOWN) and ⬌ (LEFT/RIGHT) button on the wireless remote control.

(a) Flap

Every time when you press the AIR FLOW ⬍ (UP/DOWN) button the mode changes as follows.

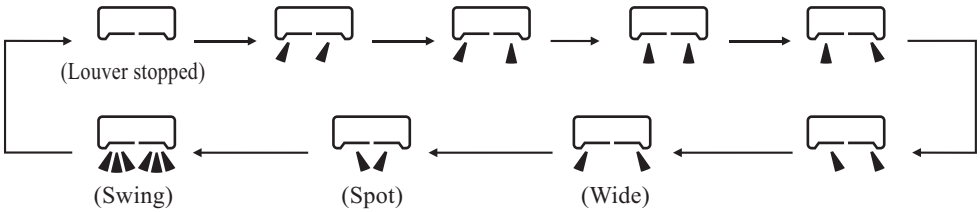


• Angle of flap from horizontal

Wireless remote control display					
COOL, DRY, FAN	Approx. 25°	Approx. 30°	Approx. 40°	Approx. 50°	Approx. 60°
HEAT	Approx. 25°	Approx. 35°	Approx. 50°	Approx. 60°	Approx. 70°

(b) Louver

Every time when you press the AIR FLOW ⬌ (LEFT/RIGHT) button the mode changes as follows.



• Angle of louver

Wireless remote control display					
Center installation	Left approx. 50°	Left approx. 20°	Center	Right approx. 20°	Right approx. 50°
Right end installation	Left approx. 50°	Left approx. 45°	Left approx. 30°	Center	Right approx. 20°
Left end installation	Left approx. 20°	Center	Right approx. 30°	Right approx. 45°	Right approx. 50°

(c) Swing

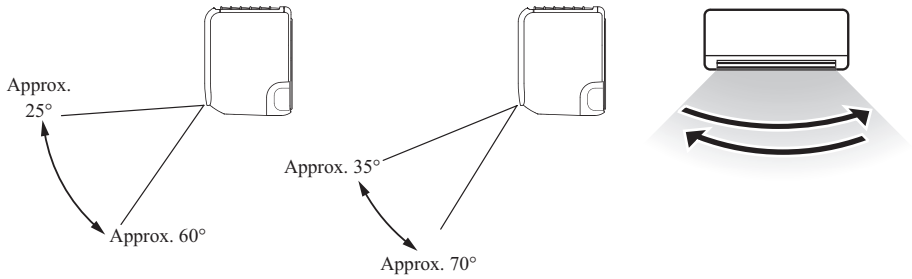
(i) Swing flap

Flap moves in upward and downward directions continuously.

(ii) Swing louver

Louver moves in left and right directions continuously.

◆ In COOL, DRY, FAN operation ◆ In HEAT operation



(d) Memory flap (Flap or louver stopped)

When you press the AIR FLOW (UP/DOWN or LEFT/RIGHT) button once while the flap or louver is operating, it stops swinging at the position. Since this angle is memorized in the microcomputer, the flap or louver will automatically be set at this angle when the next operation is started.

(10) 3D auto operation

Control the flap and louver by 3D AUTO button on the wireless remote control.

Fan speed and air flow direction are automatically controlled, allowing the entire indoor to efficiently conditioned.

(a) During cooling and heating (Including auto cooling and heating)

(i) Air flow selection is determined according to indoor temperature and setting temperature.

Operation mode	Air flow selection				
	AUTO		HI	MED	LO
Cooling	Room temp. – Setting temp. >5°C	Room temp. – Setting temp. ≦ 5°C	HI	MED	LO
	HIGH POWER	AUTO			
Heating	Setting temp. – Room temp. >5°C	Setting temp. – Room temp. ≦ 5°C			
	HIGH POWER	AUTO			

(ii) Air flow direction is controlled according to the room temperature and setting temperature.

1) When 3D auto operation starts

	Cooling	Heating
Flap	Up/down swing	
Louver	Wide (Fixed)	Center (Fixed)

2) When Room temp. – Setting temp. is ≦ 5ºC during cooling and when setting temp. – Room temp. is ≦ 5ºC during heating, the system switches to the following air flow direction control. After the louver swings left and right symmetrically for 3 cycles, control is switched to the control in 3).

	Cooling	Heating
Flap	Horizontal blowing (Fixed)	Slant forwardl blowing (Fixed)
Louver	Left/right swing	

3) After the flap swings for 5 cycles, control is switched to the control in 4).

	Cooling	Heating
Flap	Up/down swing	
Louver	Center (Fixed)	

4) For 5 minutes, the following air flow direction control is carried out.

	Cooling	Heating
Flap	Horizontal blowing (Fixed)	Slant forwardl blowing (Fixed)
Louver	Wide (Fixed)	

5) After 5 minutes have passed, the air flow direction is determined according to the room temperature and setting temperature.

Operation mode	Air flow direction contorol		
Cooling	Room temp. – Setting temp. ≦2°C	2°C < Room temp. – Setting temp. ≦5°C	Room temp. – Setting temp. > 5°C
	The control in 4) continues.	Control returns to the control in 2).	Control returns to the control in 1).
Heating	Setting temp. – Room temp. ≦2°C	2°C < Setting temp. – Room temp. ≦5°C	Setting temp. – Room temp. > 5°C
	The control in 4) continues.	Control returns to the control in 2).	Control returns to the control in 1).

(b) During DRY operation (including auto DRY operation)

Flap	Horizontal blowing (Fixed)
Louver	Wide (Fixed)

(11) Timer operation

(a) Comfort start-up (ON timer operation)

The unit starts the operation 5 to 60 minutes earlier so that the room can approach optimum temperature at ON timer.

(b) Sleep timer operation

Pressing the SLEEP button causes the temperature to be controlled with respect to the set temperature.

(c) OFF timer operation

The OFF timer can be set at a specific time (in 10-minute units) within a 24-hour period.

(d) Weekly timer operation

Up to 4 programs with timer operation (ON timer / OFF timer) are available for each day of the week.

(12) Silent operation

When the silent operation is set, the unit operates by dropping the outdoor fan speed and the compressor speed.

	SCM50		SCM60	
	Cooling	Heating	Cooling	Heating
Outdoor fan speed (Upper limit)	5th speed	5th speed	5th speed	5th speed
Compressor speed (Upper limit)	40 rps	55 rps	35 rps	45 rps

(13) Night setback operation

When the night setback operation is set, the heating operation starts with the setting temperature at 10℃.

(14) Air flow range setting

Take the air-conditioner location into account and adjust the left/right air flow range to maximize air-conditioning.

(a) Setting

(i) If the air-conditioning unit is running, press the ON/OFF button to stop.

The installation location setting cannot be made while the unit is running.

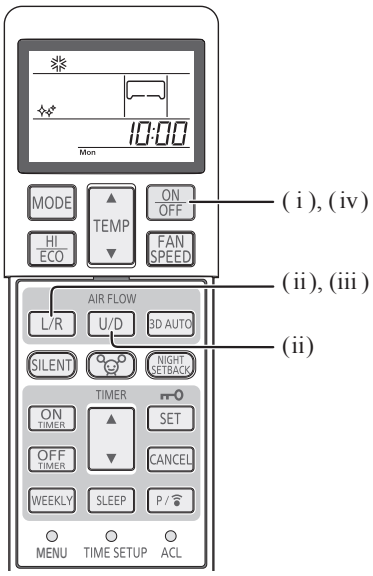
(ii) Press the AIR FLOW U/D (UP/DOWN) button and the AIR FLOW L/R (LEFT/RIGHT) button together for 5 seconds or more.

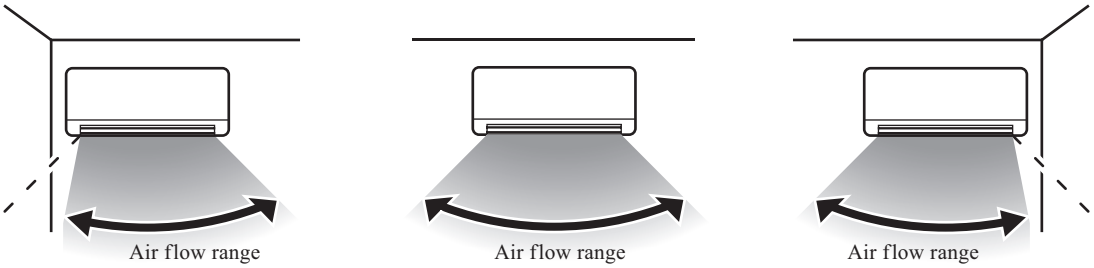
The installation location display illuminates.

(iii) Setting the air-conditioning installation location.

Press the AIR FLOW L/R (LEFT/RIGHT) button and adjust to the desired location.

Each time the AIR FLOW L/R (LEFT/RIGHT) button is pressed, the indicator is switched in the order of:





(Left end installation) (Center installation) (Right end installation)

(iv) Press the ON/OFF button.

The air-conditioner's installation location is set.

Press within 60 seconds of setting the installation location (while the installation location setting display illuminates).

(15) Display brightness adjustment

This function can be used when it is necessary to adjust the brightness of unit display.

Brightness level	Run light	Timer light
LV2	100%	100%
LV1	50%	50%
LV0	0%	0%

Note(1) When the unit displays self diagnosis or service mode, brightness level is always LV2.

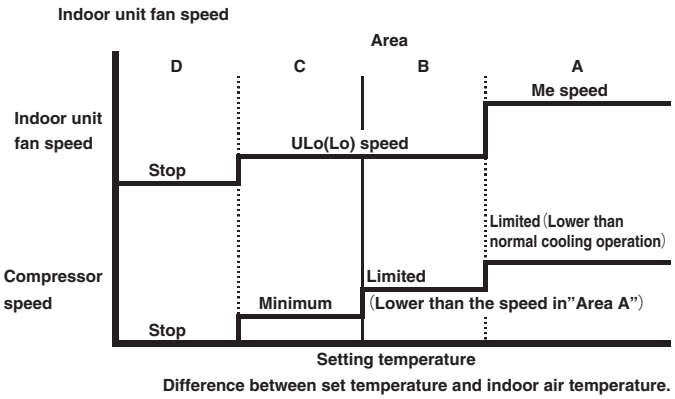
(16) Outline of dehumidifying (DRY) operation

(a) Purpose of DRY mode

The purpose is "Dehumidification", and not to control the humidity to the target condition.
Indoor/outdoor unit control the operation condition to reduce the humidity, and also prevent over cooling.

(b) Outline of control

(i) Indoor unit fan speed and compressor are controlled by the area which is selected by the temperature difference.



(ii) The indoor unit check the current area by every 5 minutes, and operate by the next checking.

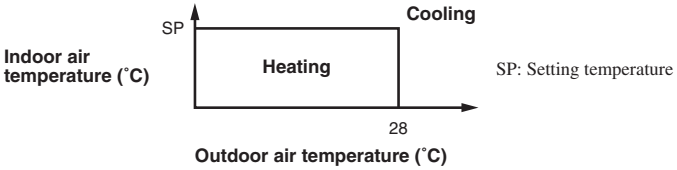
(c) Other

When the outdoor air temperature and room temperature is low in cooling operation, indoor unit can not operate in cooling, and dehumidify. In this case, the units operate in heating to rise the indoor air temperature and after that start DRY operation.

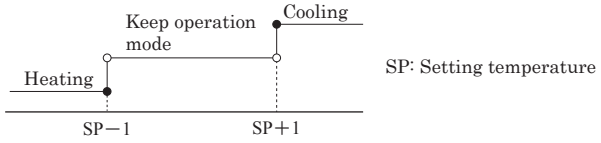
(17) Outline of automatic operation

(a) Determination of operation mode

Operation mode is determined by indoor air temperature and outdoor air temperature as following.



(b) Operation mode is changes when keep cooling and heating thermostat off 20 minutes and be satisfied following conditions. If the setting temperature is changed with the remote control, the operation mode is judged immediately.



※It can not be changed to heating mode if outdoor air temperature is 28℃ or higher.

(c) When the unit is started again within one hour after the stop of automatic operation or when the automatic operation is selected during heating, cooling or dehumidifying operation, the unit is operated in the previous operation mode.

(d) Setting temperature can be adjusted within the following range. There is the relationship as shown below between the signals of the wireless remote control and the setting temperature.

Unit : ℃

		Signals of wireless remote control (Display)												
		18	19	20	21	22	23	24	25	26	27	28	29	30
Setting temperature	Cooling	18	19	20	21	22	23	24	25	26	27	28	29	30
	Heating	20	21	22	23	24	25	26	27	28	29	30	31	32

(e) When the unit is operated automatically with the wired remote control, the cooling operation is controlled according to the display temperatures while the setting temperature is compensated by +2℃ during heating.

(18) Protective control function

(a) Dew prevention control [Cooling]

Prevents dewing on the indoor unit. (SRK35, 50ZS-S, -W only)

(i) Operating conditions

When the following conditions have been satisfied for more than 30 minutes after starting operation

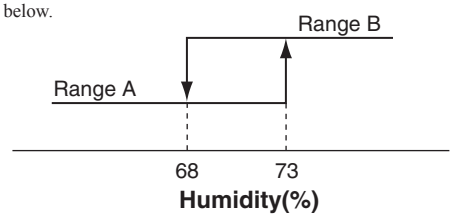
1) Compressor's speed is 32 (model SRK50:28) rps or higher.
2) Detected value of humidity is 68% or higher.

(ii) Contents of operation

1) Air capacity control

Item \ Model		SRK35ZS-S, -W	SRK50ZS-S, -W
LO	Upper limit of compressor's speed	RangeA: 45rps, RangeB: 45rps	RangeA: 50rps, RangeB: 40rps
	Indoor fan	4th speed	
AUTO,HI,MED	Upper limit of compressor's speed	RangeA: 45rps, RangeB: 45rps	RangeA: 50rps, RangeB: 40rps
	Indoor fan	Adaptable to compressor speed (Lower limit 4th speed)	

Note (1) Ranges A and B are as shown below.



2) When this control has continued for more than 30 minutes continuously,the following wind direction control is performed.
   a) When the vertical wind direction is set at other than the vertical swing,the flaps change to the horizontal position.
   b) When the horizontal wind direction is set at other than the horizontal swing,the louver changes to the vertical position.

(iii) Reset condition

Humidity is less than 63%.

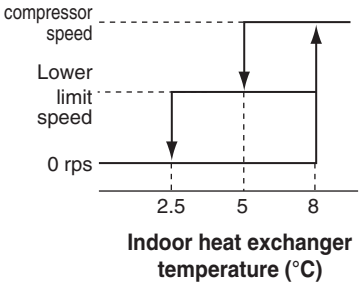
(b) Frost prevention control (During cooling or dehumidifying)

(i) Operating conditions

1) Indoor heat exchanger temperature (Th2) is lower than 5ºC.
2) 5 minutes after reaching the compressor speed except 0 rps.

(ii) Detail of anti-frost operation

Item \ Indoor heat exchanger temperature	5°C or lower	2.5°C or lower
Lower limit of compressor command speed	22 rps(model SRK50 : 23 rps)	0 rps
Indoor fan	Depends on operation mode	Keep the fan speed before frost prevention control
Outdoor fan	Depends on compressor speed	Depends on stop mode
4-way valve	OFF	



Notes (1) When the indoor heat exchanger temperature is in the range of 2.5–5ºC, the speed is reduced by 4 rps at each 20 seconds.
(2) When the temperature is lower than 2.5ºC, the compressor is stopped.
(3) When the indoor heat exchanger temperature is in the range of 5–8ºC, the compressor speed is been maintained.

(iii) Reset conditions

When either of the following condition is satisfied.

1) The indoor heat exchanger temperature (Th2) is 8ºC or higher.
2) The compressor speed is 0 rps.

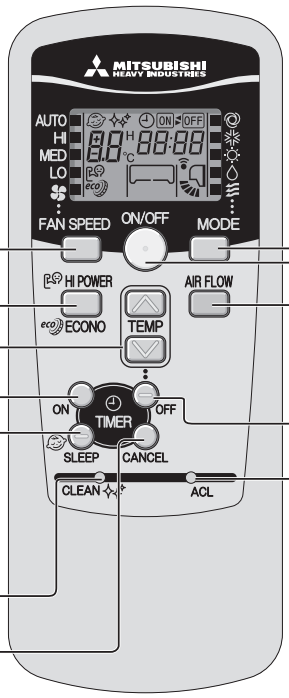
(c) Indoor fan motor protection

When the air-conditioner is operating and the indoor fan motor is turned ON, if the indoor fan motor has operated at 300 min^{-1} or under for more than 30 seconds, the unit enters first in the stop mode and then stops the entire system.

7.1.3 SKM-ZSP series

(1) Operation control function by wireless remote control

Operation section



FAN SPEED button
Each time the button is pressed, the ■ display is switched over in turn.

HI POWER/ECONO button
This button changes the HIGH POWER/ ECONOMY mode.

TEMPERATURE button
These buttons set the room temperature. (These buttons are used for setting the current time and timer function as well.)

ON TIMER button
This button selects ON TIMER operation.

SLEEP button
This button selects SLEEP operation.

CLEAN switch
This switch selects the CLEAN mode.

CANCEL button
This button cancels the ON timer, OFF timer, and SLEEP operation.

OPERATION MODE select button
Each time the button pressed, the ■ display is switched over in turn.

ON/OFF (luminous) button
Press to start operation, press again to stop.

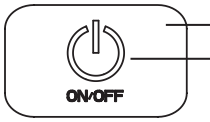
AIR FLOW (UP/DOWN) button
This button changes the air flow (up/down) direction.

OFF TIMER button
This button selects OFF TIMER operation.

ACL switch
This switch is for resetting microcomputer and setting time.

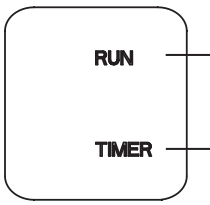
- The above illustration shows all controls, but in practice only the relevant parts are shown.

Unit display section



Wireless remote control signal receiver

Unit ON/OFF button
This button can be used for turning on/off the unit when wireless remote control is not available.



RUN (HOT KEEP) light (green)
- Illuminates during operation.
- Blinks when airflow stops due to the 'HOT KEEP' and 'CLEAN operation'.

TIMER light (yellow)
Illuminates during TIMER operation.

(2) Unit ON/OFF button

When the wireless remote control batteries become weak, or if the wireless remote control is lost or malfunctioning, this button may be used to turn the unit on and off.

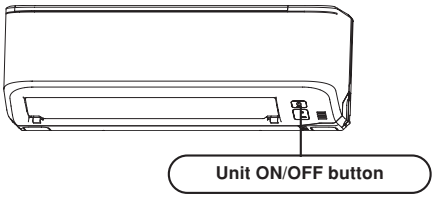
(a) Operation

Push the button once to place the unit in the automatic mode. Push it once more to turn the unit off.

(b) Details of operation

The unit will go into the automatic mode in which it automatically determines, from room temperature (as detected by sensor), whether to go into COOL, DRY or HEAT modes.

Function / Operation mode	Room temperature setting	Fan speed	Flap	Timer switch
COOL	About 24ºC	Auto	Auto	Continuous
DRY				
HEAT				



(3) Auto restart function

(a) Auto restart function records the operational status of the air-conditioner immediately prior to be switched off by a power cut, and then automatically resumes operations after the power has been restored.

(b) The following settings will be cancelled:

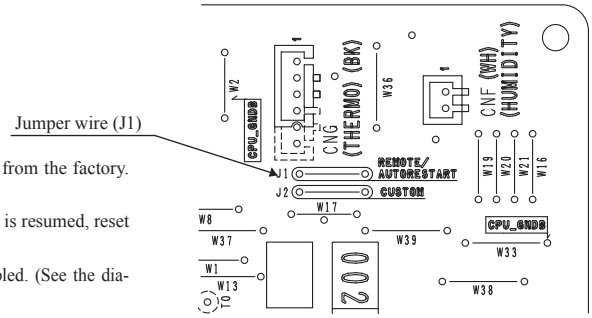
(i) Timer settings

(ii) HIGH POWER operation

Notes (1) Auto restart function is set at on when the air-conditioner is shipped from the factory. Consult with your dealer if this function needs to be switched off.

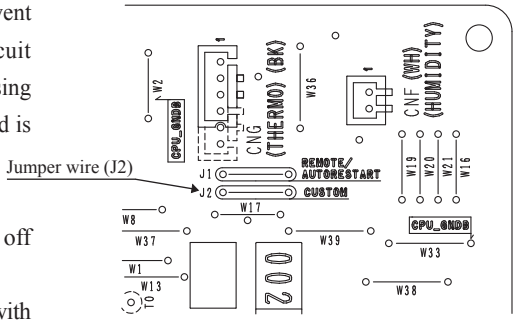
(2) When power failure ocurrs, the timer setting is cancelled. Once power is resumed, reset the timer.

(3) If the jumper wire (J1) "AUTO RESTART" is cut, auto restart is disabled. (See the diagram at right)



(4) Custom cord switching procedure

If two wireless remote control are installed in one room, in order to prevent wrong operation due to mixed signals, please modify the printed circuit board in the indoor unit's control box and the wireless remote control using the following procedure. Be sure to modify both boards. If only one board is modified, receiving (and operation) cannot be done.



(a) Modifying the indoor unit's printed circuit board

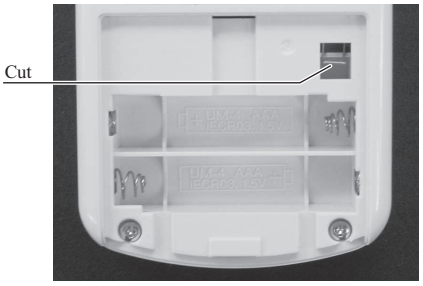
Take out the printed circuit board from the control box and cut off jumper wire (J2) using wire cutters.

After cutting of the jumper wire, take measures to prevent contact with the other the lead wires, etc.

(b) Modifying the wireless remote control

(i) Remove the battery.

(ii) Cut the jumper wire shown in the figure at right.



(5) High power operation

Pressing the HI POWER/ECONO button intensifies the operating power and initiates powerful cooling and heating operation for 15 minutes continuously. The wireless remote control displays and the FAN SPEED display disappears.

(a) During the HIGH POWER operation, the room temperature is not controlled. When it causes an excessive cooling and heating, press the HI POWER/ECONO button again to cancel the HIGH POWER operation.

(b) HIGH POWER operation is not available during dehumidifying and the program timer operations.

(c) When HIGH POWER operation is set after ON TIMER operation, HIGH POWER operation will start from the set time.

(d) When the following operation are set, HIGH POWER operation will be canceled.

① When the HI POWER/ECONO button is pressed again.

② When the operation mode is changed.

③ When it has been 15 minutes since HIGH POWER operation has started.

(e) Not operable while the air-conditioner is OFF.

(6) Economy operation

Pressing the HI POWER/ECONO button initiate a soft operation with the power suppressed in order to avoid an excessive cooling or heating. The unit operate 1.5℃ higher than the setting temperature during cooling or 2.5℃ lower than that during heating. The wireless remote control displays ECONO mark and the FAN SPEED display disappears.

(a) It will go into ECONOMY operation at the next time the air-conditioner runs in the following cases.

① When the air-conditioner is stopped by ON/OFF button during ECONOMY operation.

② When the air-conditioner is stopped in SLEEP or OFF TIMER operation during ECONOMY operation.

③ When the operation is retrieved from CLEAN operation.

(b) When the following operation are set, ECONOMY operation will be canceled.

① When the HI POWER/ECONO button is pressed again.

② When the operation mode is changed DRY to FAN.

(c) Not operable while the air-conditioner is OFF.

(d) The setting temperature is adjusted according to the following table.

Item \ Mode	Cooling	Heating
Temperature adjustment	①+0.5	①−1.0
	②+1.0	②−2.0
	③+1.5	③−2.5

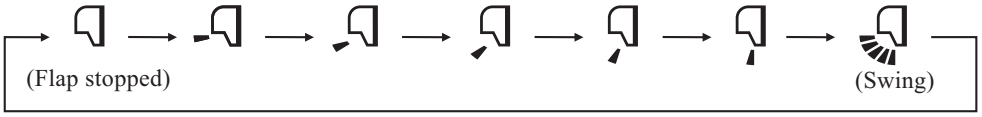
① at the start of operation.
② one hour after the start of operation.
③ two hours after the start of operation.

(7) Flap control

Control the flap by AIR FLOW ⬍ (UP/DOWN) button on the wireless remote control.

(a) Flap

Each time when you press the AIR FLOW ⬍ (UP/DOWN) button the mode changes as follows.

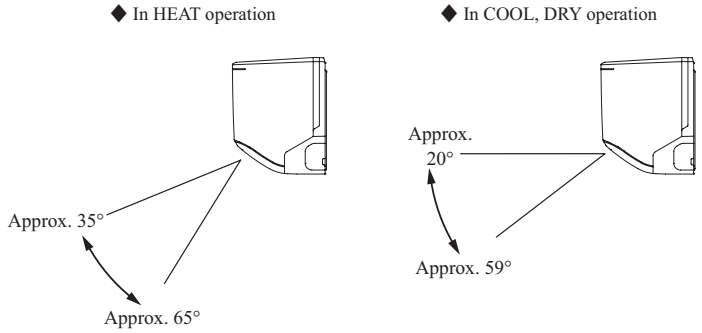


• Angle of flap from horizontal

Remote control display					
COOL , DRY	Approx. 15°	Approx. 25°	Approx. 35°	Approx. 45°	Approx. 59°
HEAT	Approx. 25°	Approx. 35°	Approx. 50°	Approx. 59°	Approx. 65°

(b) Swing

Flap moves in upward and downward directions continuously.



(c) Memory flap

When you press the AIR FLOW (UP/DOWN) button once while the flap is operating, it stops swinging at an angle. Since this angle is memorized in the microcomputer, the flap will automatically be set at this angle when the next operation is started.

(d) When not operating

The flap returns to the position of air flow directly below, when operation has stopped.

(8) Timer operation

(a) Comfortable timer setting (ON timer)

If the timer is set at ON when the operation select switch is set at the cooling or heating, or the cooling or heating in auto mode operation is selected, the comfortable timer starts and determines the starting time of next operation based on the initial value of 15 minutes and the relationship between the room temperature at the setting time (temperature of room temperature sensor) and the setting temperature.

(b) Sleep timer operation

Pressing the SLEEP button causes the temperature to be controlled with respect to the set temperature.

(c) OFF timer operation

The Off timer can be set at a specific time (in 10-minute units) within a 24-hour period.

(9) Outline of heating operation

(a) Operation of major functional components in heating mode

	Heating			
	Thermostat ON	Thermostat OFF	Defrost	Failure
Compressor	ON	OFF	OFF	OFF
Indoor fan motor	ON	ON(HOT KEEP)	OFF	OFF
Outdoor fan motor	ON	OFF (few minutes ON)	OFF	OFF
4-way valve	ON	ON	OFF	OFF (3 minutes ON)

(b) Details of control at each operation mode (pattern)

(i) Fuzzy operation

Deviation between the room temperature setting correction temperature and the suction air temperature is calculated in accordance with the fuzzy rule, and used for control of the air capacity and the compressor command speed.

Model / Fan speed	SKM20ZSP-S	SKM25ZSP-S	SKM35ZSP-S
AUTO	20–115rps		
HI	20–115rps		
MED	20–66rps	20–72rps	20–84rps
LO	20–48rps	20–54rps	20–62rps

When the defrosting, protection device, etc. is actuated, operation is performed in the corresponding mode.

(ii) Hot keep operation

If the hot keep operation is selected during the heating operation, the indoor blower is controlled based on the temperature of the indoor heat exchanger (Th2) to prevent blowing of cool wind.

However, if the fan speed setting is HI and room temperature is 19℃ or higher, this control is not executed.

(10) Outline of cooling operation

(a) Operation of major functional components in cooling mode

	Cooling		
	Thermostat ON	Thermostat OFF	Failure
Compressor	ON	OFF	OFF
Indoor fan motor	ON	ON	ON
Outdoor fan motor	ON	OFF (few minutes ON)	OFF (few minutes ON)
4-way valve	OFF	OFF	OFF

(b) Detail of control in each mode (Pattern)

(i) Fuzzy operation

During the fuzzy operation, the air flow and the compressor command speed are controlled by calculating the difference between the room temperature setting correction temperature and the suction air temperature.

Model / Fan speed	SKM20ZSP-S	SKM25ZSP-S	SKM35ZSP-S
AUTO	20–66rps	20–74rps	20–98rps
HI	20–66rps	20–74rps	20–98rps
MED	20–46rps	20–52rps	20–74rps
LO	20–34rps	20–38rps	20–46rps

(11) Outline of dry (dehumidifying) operation

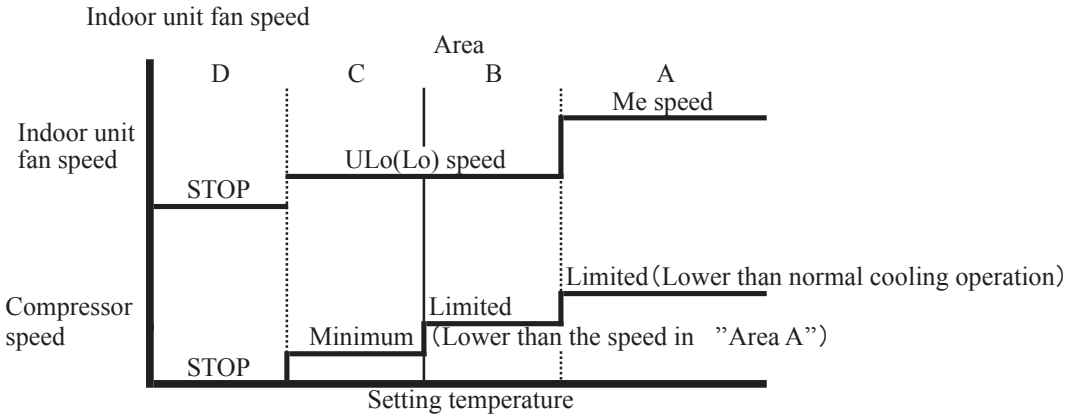
(a) Purpose of DRY mode

The purpose is "Dehumidification", and not to control the humidity to the target condition.

Indoor/outdoor unit control the operation condition to reduce the humidity, and also prevent over cooling.

(b) Outline of control

(i) Indoor unit fan speed and compressor are controlled by the area which is selected by the temperature difference.



(ii) The indoor unit check the current area by every 5 minutes, and operate by the next checking.

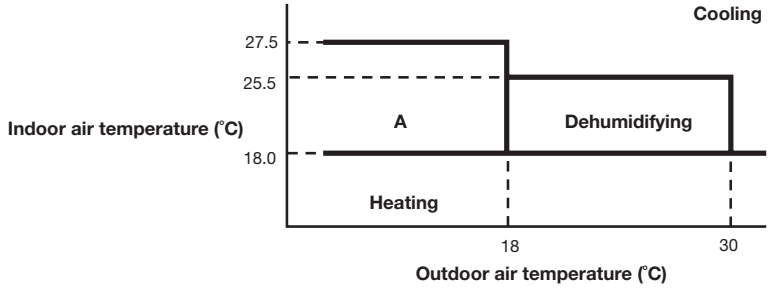
(c) Other

When the outdoor air temperature and room temperature is low for cooling operation, indoor unit can not operate in cooling. In this case, the units operate in heating to rise the room temperature, and after that start dehumidifying operation.

(12) Outline of automatic operation

(a) Determination of operation mode

The unit checks the indoor air temperature and the outdoor air temperature, determines the operation mode, and then begins in the automatic operation.



(b) The unit checks the temperature every hour after the start of operation and, if the result of check is not same as the previous operation mode, changes the operation mode.

(i) If the setting temperature is changed with the wireless remote control, the operation mode is judged immediately.

(ii) When both the indoor and the outdoor air temperatures are in the range "A", cooling or heating is switched depending on the difference between the setting temperature and the indoor air temperature.

(iii) When the operation mode has been judged following the change of setting temperature with the wireless remote control, the hourly judgment of operation mode is cancelled.

(c) When the unit is started again within one hour after the stop of automatic operation or when the automatic operation is selected during heating, cooling or dehumidifying operation, the unit is operated in the previous operation mode.

(d) Setting temperature can be adjusted within the following range. There is the relationship as shown below between the signals of the wireless remote control and the setting temperature.

		Signals of wireless remote control (Display)												
		–6	–5	–4	–3	–2	–1	±0	+1	+2	+3	+4	+5	+6
Setting temperature	Cooling	18	19	20	21	22	23	24	25	26	27	28	29	30
	Dehumidifying	19	20	21	22	23	24	25	26	27	28	29	30	31
	Heating	20	21	22	23	24	25	26	27	28	29	30	31	32

(13) Protection control function

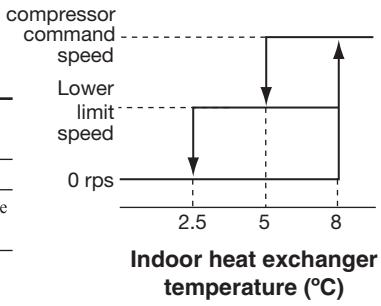
(a) Frost prevention control (During cooling or dehumidifying)

(i) Operating conditions

1) Indoor heat exchanger temperature (Th2) is lower than 5ºC.
2) 5 minutes after reaching the compressor command speed except 0 rps.

(ii) Detail of anti-frost operation

Item \ Indoor heat exchanger temperature	5°C or lower	2.5°C or lower
Lower limit of compressor command speed	22 rps	0 rps
Indoor fan	Depends on operation mode	Protects the fan tap just before frost prevention control
Outdoor fan	Depends on command speed	Depends on stop mode
4-way valve	OFF	



Notes (1) When the indoor heat exchanger temperature is in the range of 2.5–5ºC, the speed is reduced by 4 rps at each 20 seconds.
(2) When the temperature is lower than 2.5ºC, the compressor is stopped.
(3) When the indoor heat exchanger temperature is in the range of 5–8ºC, the compressor command speed is been maintained.

(iii) Reset conditions: When either of the following condition is satisfied.

1) The indoor heat exchanger temperature (Th2) is 8ºC or higher.
2) The compressor command speed is 0 rps.

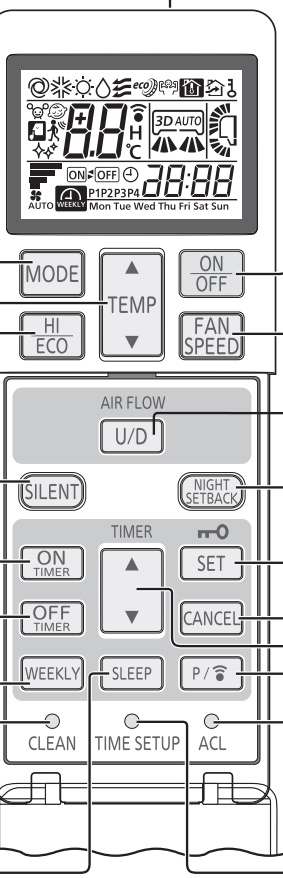
(b) Indoor fan motor protection

When the air-conditioner is operating and the indoor fan motor is turned ON, if the indoor fan motor has operated at 300 min^{-1} or under for more than 30 seconds, the unit enters first in the stop mode and then stops the entire system.

7.1.4 SRF, SRR series

(1) Operation control function by wireless remote control

Operation section



OPERATION MODE select button
Each time the button is pressed, the mode changes.

TEMPERATURE button
This button sets the room temperature.

HI/ECO button
This button changes the HIGH POWER/ ECONOMY operation. (This function is invalid)

SILENT button
This buttion changes the SILENT operation.

ON TIMER button
This button selects ON TIMER operation.

OFF TIMER button
This button selects OFF TIMER operation.

WEEKLY button
This button switches the WEEKLY TIMER to ON/OFF.

CLEAN switch
This switch selects the CLEAN operation.

SLEEP button
This button selects SLEEP operation.

•The above illustration shows all controls, but in practice only the relevant parts are shown.

Transmission section

ON/OFF (luminous) button
Press to start operation, press again to stop.

FAN SPEED button
Each time the button is pressed, the fan speed changes.

AIR FLOW (UP/DOWN) button
This button changes the air flow (up/down) direction.

NIGHT SETBACK button
This button sets NIGHT SETBACK operation.

SET/Child Lock button
Use this button to set the timer and Child Lock.

CANCEL button
This button cancels the ON timer, OFF timer, and SLEEP operation.

TIMER button
This buttions is used for setting the current time and timer function.

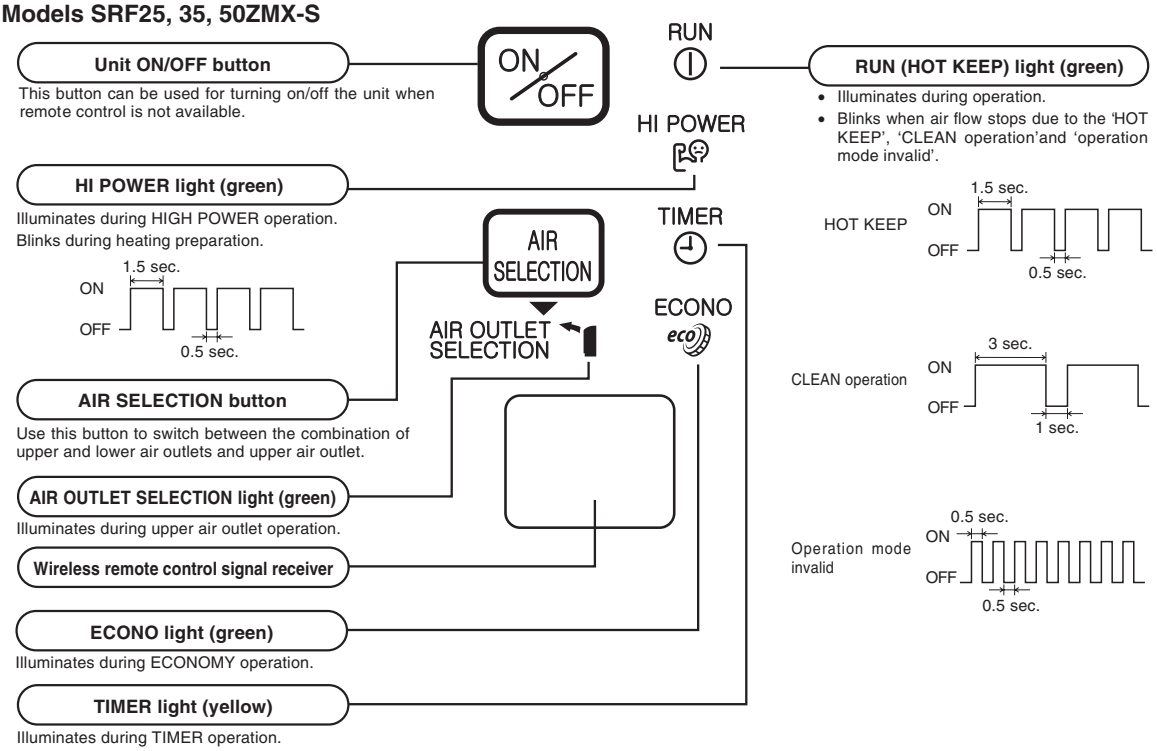
PROGRAM button
This button sets WEEKLY TIMER.

ACL switch
Switch for resetting microcomputer.

TIME SET UP switch
This switch is for setting the time.

Unit display section

Models SRF25, 35, 50ZMX-S



Unit ON/OFF button
This button can be used for turning on/off the unit when remote control is not available.

RUN (HOT KEEP) light (green)
- Illuminates during operation.
- Blinks when air flow stops due to the 'HOT KEEP', 'CLEAN operation'and 'operation mode invalid'.

HI POWER light (green)
Illuminates during HIGH POWER operation.
Blinks during heating preparation.

AIR SELECTION button
Use this button to switch between the combination of upper and lower air outlets and upper air outlet.

AIR OUTLET SELECTION light (green)
Illuminates during upper air outlet operation.

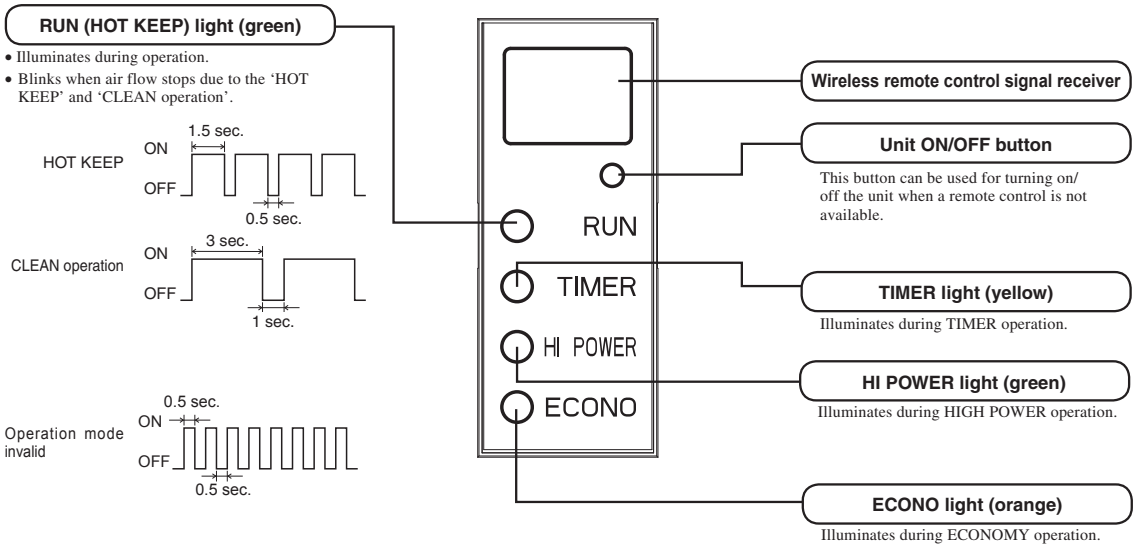
Wireless remote control signal receiver

ECONO light (green)
Illuminates during ECONOMY operation.

TIMER light (yellow)
Illuminates during TIMER operation.

Unit display section

Models SRR25, 35, 50, 60ZM-S



(2) Unit ON/OFF button

When the wireless remote control batteries become weak, or if the wireless remote control is lost or malfunctioning, this button may be used to turn the unit on and off.

(a) Operation

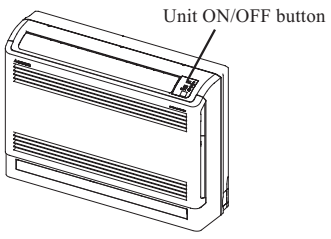
Push the button once to place the unit in the automatic mode. Push it once more to turn the unit off.

(b) Details of operation

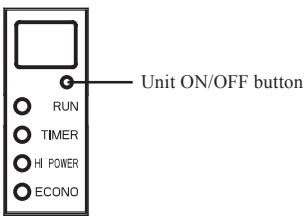
The unit will go into the automatic mode in which it automatically determines, from indoor temperature (as detected by sensor), whether to go into COOL, DRY or HEAT modes.

Function / Operation mode	Indoor temperature setting	Fan speed	Flap/Louver	Timer switch
COOL	About 24ºC	Auto	Auto	Continuous
DRY	About 25ºC			
HEAT	About 26ºC			

• Models SRF25, 35, 50ZMX-S



• Models SRR25, 35, 50, 60ZM-S



(3) Auto restart function

(a) Auto restart function records the operational status of the air-conditioner immediately prior to be switched off by a power cut, and then automatically resumes operations after the power has been restored.

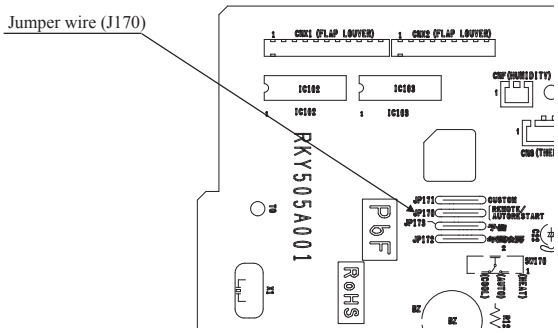
(b) The following settings will be cancelled:

(i) Timer settings

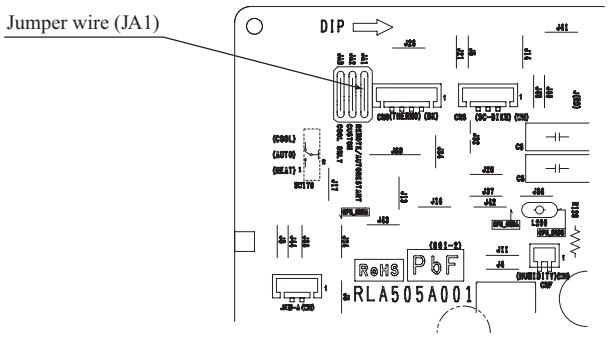
(ii) HIGH POWER operations

Notes (1) Auto restart function is set at on when the air-conditioner is shipped from the factory. Consult with your dealer if this function needs to be switched off.
(2) When power failure ocurrs, the timer setting is cancelled. Once power is resumed, reset the timer.
(3) If the jumper wire (J170 or JA1) "AUTO RESTART" is cut, auto restart is disabled.

• Models SRF25, 35, 50ZMX-S

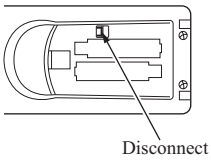


• Model SRR25, 35, 50, 60ZM-S



(4) Installing two air-conditioners in the same room

When two air-conditioners are installed in the room, use setting when the two air-conditioners are not operated with one wireless remote control. Set the wireless remote control and indoor unit.



(a) Setting the wireless remote control

(i) Pull out the cover and take out batteries.

(ii) Disconnect the switching line next to the battery with wire cutters.

(iii) Insert batteries, Close the cover.

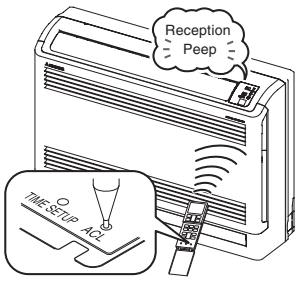
(b) Setting an indoor unit

(i) Turn off the power source, and turn it on after 1 minute.

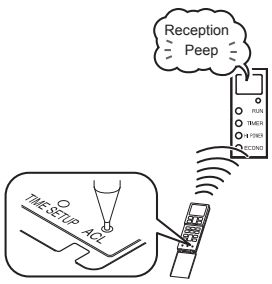
(ii) Point the wireless remote control that was set according to the procedure described on the underside at the indoor unit and send a signal by pressing the ACL switch on the wireless remote control. Since the signal is sent in about 6 seconds after the ACL switch is pressed, point the wireless remote control at the indoor unit for some time.

(iii) Check that the reception buzzer sound "Peep" is emitted from the indoor unit. At completion of the setting, the indoor unit emits a buzzer sound "Peep".(If no reception tone is emitted, start the setting from the beginning again.)

• SRF seris



• SRR seris



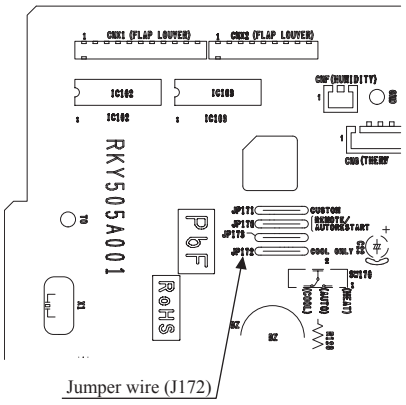
(5) Selection of the annual cooling function

(a) The annual cooling function can be enabled or disabled by means of the jumper wire (J172 or JA3) on the indoor unit PCB or the dip switch (SW2-4) on the interface kit (option) PCB.

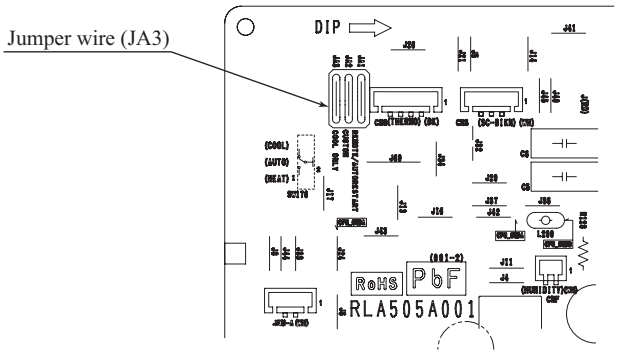
Jumper wire (J172 or JA3)	Interface kit (SC-BIKN2-E) SW2-4	Function
Shorted	ON	Enabled
Shorted	OFF	Disabled
Open	ON	Disabled
Open	OFF	Disabled

Notes (1) Default states of the jumper wire (J172 or JA3) and the interface kit at the shipping from factory – On the PCB, the dip switch (SW2-4) is set to enable the annual cooling function.
(2) To cancel the annual cooling setting, consult your dealer.

• Models SRF25, 35, 50ZMX-S



• Models SRR25, 35, 50, 60ZM-S

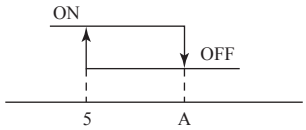


(b) Content of control

(i) If the outdoor air temperature sensor (Tho-A) detects below 5°C, the indoor unit speed is switched to 9th step. (It is not possible to change.)

(ii) If the outdoor air temperature sensor (Tho-A) detects higher than A°C, the indoor unit speed is changed to the normal control speed.

Model	A
SRR25, 35, 50, 60ZM-S	17
SRF25, 35, 50ZMX-S	7



Outdoor air temperature (℃)

(6) High power operation

Pressing the HI POWER/ECONO button intensifies the operating power and initiates powerful cooling and heating operation for 15 minutes continuously. The wireless remote control displays and the FAN SPEED display disappears.

(a) During the HIGH POWER operation, the room temperature is not controlled. When it causes an excessive cooling and heating, press the HI POWER/ECONO button again to cancel the HIGH POWER operation.

(b) HIGH POWER operation is not available during dehumidifying and the program timer operations.

(c) When HIGH POWER operation is set after ON TIMER operation, HIGH POWER operation will start from the set time.

(d) When the following operation are set, HIGH POWER operation will be canceled.

① When the HI POWER/ECONO button is pressed again.
② When the operation mode is changed.
③ When it has been 15 minutes since HIGH POWER operation has started.
④ When the SILENT botton is pressed.
⑤ When the NIGHT SETBACK botton is pressed.

(e) Not operable while the air-conditioner is OFF.

(f) After HIGH POWER operation, the sound of refrigerant flowing may be heard.

(7) Economy operation

Pressing the HI POWER/ECONO button initiate a soft operation with the power suppressed in order to avoid an excessive cooling or heating. The unit operate 1.5℃ higher than the setting temperature during cooling or 2.5℃ lower than that during heating. The wireless remote control displays ECONO mark and the FAN SPEED display disappears.

(a) It will go into ECONOMY operation at the next time the air-conditioner runs in the following cases.

① When the air-conditioner is stopped by ON/OFF button during ECONOMY operation.
② When the air-conditioner is stopped in SLEEP or OFF TIMER operation during ECONOMY operation.
③ When the operation is retrieved from CLEAN or ALLERGEN CLEAR operation.

(b) When the following operation are set, ECONOMY operation will be canceled.

① When the HI POWER/ECONO button is pressed again.
② When the operation mode is changed DRY to FAN.

(c) Not operable while the air-conditioner is OFF.

(d) The setting temperature is adjusted according to the following table.

Item \ Mode	Cooling	Heating
Temperature adjustment	①＋0. 5	①－1. 0
	②＋1. 0	②－2. 0
	③＋1. 5	③－2. 5

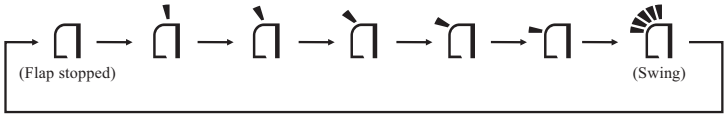
① at the start of operation.
② one hour after the start of operation.
③ two hours after the start of operation.

(8) Flap and louver control (SRF series only)

Control the flap by AIR FLOW ⬍ (UP/DOWN) button on the wireless remote control.

(a) Flap

Each time when you press the AIR FLOW ⬍ (UP/DOWN) button the mode changes as follows.



• Angle of flap from horizontal

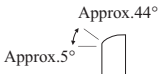
Remote control display					
COOL , DRY, FAN	Approx. 60°	Approx. 50°	Approx. 38°	Approx. 21.5°	Approx. 12°
HEAT	Approx. 44°	Approx. 32°	Approx. 21.5°	Approx. 12°	Approx. 5°

(b) Swing

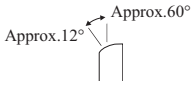
(i) Swing flap

Flap moves in upward and downward directions continuously.

◆ In HEAT operation



◆ In COOL, DRY, FAN operation



(c) Memory flap (Flap stopped)

When you press the AIR FLOW button once while the flap is operating, it stops swinging at the position. Since this angle is memorized in the microcomputer, the flap will automatically be set at this angle when the next operation is started.

(d) When not operating

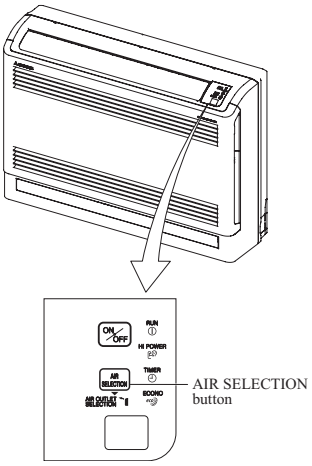
The flap returns to the position of air flow directly below, when operation has stopped.

(9) Air outlet selection (SRF series only)

(a) AIR SELECTION button can switch between the combination of upper and lower air outlets and upper air outlet. Not operable while the air-conditioner is OFF.

(i) Each time the AIR SELECTION button is pressed. The combination of the upper and lower air outlets and the upper air outlet can be switched.

(ii) When the upper air outlet is selected, AIR OUTLET SELECTION light on the unit display area will light green.



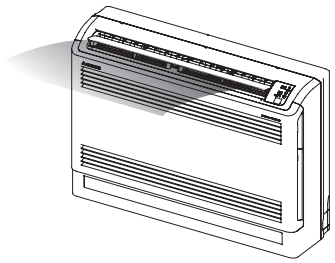
Upper and lower air outlets	Upper air outlet
AIR OUTLET SELECTION light : OFF	AIR OUTLET SELECTION light : ON

(b) Auto air outlet selection

(i) COOL, DRY operation

1) In case both lower and upper outlets operation is selected in COOL or DRY operation, both outlets will be kept for sixty minutes after the start or until indoor temperature is below the setting point. And then the air outlet will change to the upper outlet. That state will be maintained until switch is turned off.

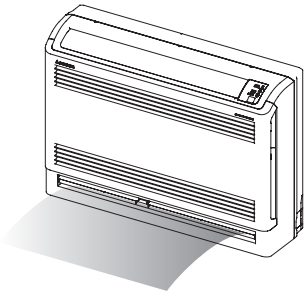
2) In case both outlets operation with auto fan speed mode is selected, the upper outlet will be kept for ten minutes after the start or until indoor temperature is close to reaching the setting point . And then the air outlet will change to both outlets in order to spread comfort air to every corner.



(ii) HEAT operation

1) In case both lower and upper outlets operation with auto fan speed mode is selected, the lower outlet will be kept for twenty minutes after the start or until indoor temperature is close to reaching the setting point . And then the air outlet will change to both outlets. That state will be maintained until the switch is turned off.

2) Automatic adjustment of lower air outlet direction prevents stirring up of warm air and keeps optimum comfort at floor level.



(10) Timer operation

(a) Comfortable timer setting (ON timer)

If the timer is set at ON when the operation select switch is set at the cooling or heating, or the cooling or heating in auto mode operation is selected, the comfortable timer starts and determines the starting time of next operation based on the initial value of 15 minutes and the relationship between the room temperature at the setting time and the setting temperature.

(b) Sleep timer operation

Pressing the SLEEP button causes the temperature to be controlled with respect to the set temperature.

(c) OFF timer operation

The OFF timer can be set at a specific time (in 10-minute units) within a 24-hour period.

(d) Weekly timer operation

Timer operation (ON timer, OFF timer) can be set up to 4 times a day for each weekday.

(11) Night setback

As "Night setback" signal is received from the wireless remote control, the heating operation starts with the setting temperature at 10℃.

(12) Determining the operating mode

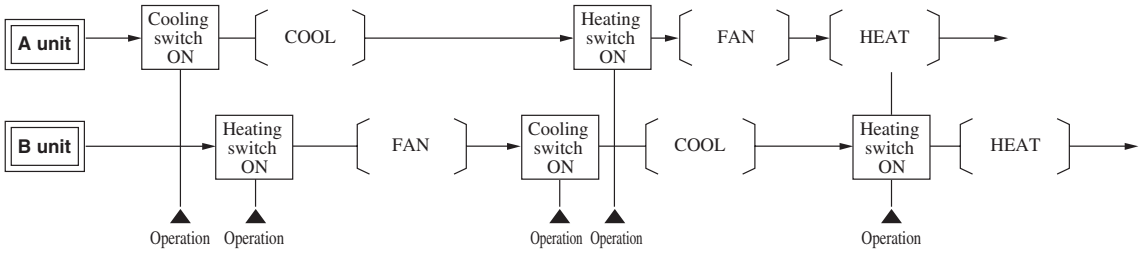
The cooling and heating operating modes are the wireless remote control mode that have been previously determined.

If a mode differing from these is selected after this, the selected mode will appear in the display of the wireless remote control, but only the fan will operate.

Example	First operation			Second operation			Notes
	Selected mode	Remote control display	Operation	Selected mode	Remote control display	Operation	
1	**Cooling**	**COOL**	**COOL**	**Heating**	**HEAT**	**FAN** (1)	• **Different mode is only fan operation.**
2	**Heating**	**HEAT**	**HEAT**	**Cooling**	**COOL**	**FAN**	

Note (1) If the display shows heating and the operation is fan, Hot keep will operate.

Example of operating pattern



Note (1) 〔〕indicates currect operation.

(13) Drain pump abnormalities detection (SRR series only)

(a) Drain motor (DM) is operated during the cooling or dehumidifying mode operations and simultaneously wity the compressor ON. The DM continues to operate for 5 minutes after the operation stop, anomalous stop, thermostat stop or when it was switched from the COOL and DRY operations to the fan or HEAT operation.

	Indoor unit operation mode				
	Stop (1)	COOL	DRY	FAN (2)	HEAT
Compressor ON		Control A			
Compressor OFF	Control B				

Notes (1) Inciuding the stop from the cooling, dehumidifying, fan and heating, and the anomalous stop
(2) Inciuding the "FAN" operation according to the mismatch of operation modes

(i) Control A

1) If the float switch detects any anomalous draining condition, the unit stops with the anomalous stop and the drain pump starts. After detecting the anomalous condition, the drain motor comtinues to be ON.
2) It keeps operating while the float switch is detecting the anomalous condition.

(ii) Control B

If the float switch detects any anomalous drain condition, the drain motor is turned ON for 5 minutes, and at 10 seconds after the drain motor OFF it checks the float switch. If it is normal, the unit is stopped under the normal mode or, if there is any anomalous condition, displayed by the flashing of display lights and the drain motor is turned ON. (The ON condition is maintained during the drain detection.)

(14) Outline of dehumidifying (DRY) operation

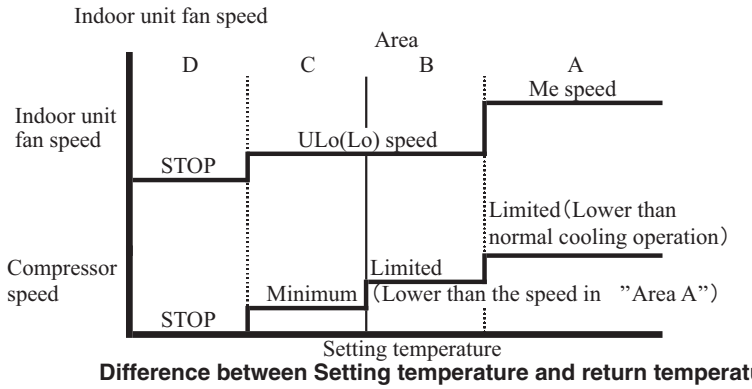
(a) Purpose of DRY mode

The purpose is "Dehumidifying", and not to control the humidity to the target condition.

Indoor/outdoor unit control the operation condition to reduce the humidity, and also prevent over cooling.

(b) Outline of control

(i) Indoor unit fan speed and compressor are controlled by the area which is selected by the temperature difference.



Difference between Setting temperature and return temperature

(ii) The indoor unit check the current area by every 5 minutes, and operate by the next checking.

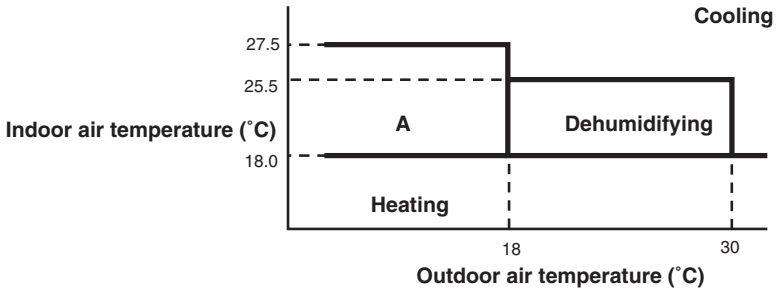
(c) Other

When the outdoor air temperature and room temperature is low for cooling operation, indoor unit can not operate in cooling, and dehumidifying. In this case, the units operate in heating to rise the room temperature, and after that start dehumidifying operation.

(15) Outline of automatic operation

(a) Determination of operation mode

The unit checks the indoor air temperature and the outdoor air temperature, determines the operation mode, and then begins in the automatic operation.



(b) The unit checks the temperature every hour after the start of operation and, if the result of check is not same as the previous operation mode, changes the operation mode.

(i) If the setting temperature is changed with the wireless remote control, the operation mode is judged immediately.

(ii) When both the indoor and the outdoor air temperatures are in the range “A”, cooling or heating is switched depending on the difference between the setting temperature and the indoor air temperature.

(iii) When the operation mode has been judged following the change of setting temperature with the wireless remote control, the hourly judgment of operation mode is cancelled.

(c) When the unit is started again within one hour after the stop of automatic operation or when the automatic operation is selected during heating, cooling or dehumidifying operation, the unit is operated in the previous operation mode.

(d) Setting temperature can be adjusted within the following range. There is the relationship as shown below between the signals of the wireless remote control and the setting temperature.

Unit : ºC

		Signals of wireless remote control (Display)												
		–6	–5	–4	–3	–2	–1	±0	+1	+2	+3	+4	+5	+6
Setting temperature	Cooling	18	19	20	21	22	23	24	25	26	27	28	29	30
	Dehumidifying	19	20	21	22	23	24	25	26	27	28	29	30	31
	Heating	20	21	22	23	24	25	26	27	28	29	30	31	32

(e) When the unit is operated automatically with the wired remote control connected, the cooling operation is controlled according to the display temperatures while the setting temperature is compensated by +1°C during dehumidifying or by +2°C during heating.

(16) Operation permission/prohibition control

The air-conditioner operation is controlled by releasing the jumper wire (J3) on the indoor PCB and inputting the external signal into the CnT.

Note (1) Please install the separately-sold Interface kit (SC-BIK-E). Remove the jumper wire (J1 or J3) from the Interface kit circuit board.

(a) The operation mode is switched over between permission and prohibition by releasing the jumper wire (J3) on the indoor PCB.

When the jumper wire (J3) is short circuited	When the jumper wire (J3) is released
Normal operation is enable (when shipping) When CnT input is set to ON, the operation starts and if the input is set to OFF, the operation stops. For the CnT and remote control inputs, the input which is activated later has priority and can start and stop the operation.	Permission / Prohibition mode When CnT input is set to ON, the operation mode is changed to permission and if input is set to OFF the operation is prohibited.

(b) In the case of CnT input ON (Operation permission)

(i) The air-conditioner can be operated or stopped by the wired remote control signal.
(When the "CENTER" mode is set, the operation can be controlled only by the center input.)

(ii) When the CnT input is changed from OFF to ON, the air-conditioner operation mode is changed depending on the status of the jumper wire (J1) on the indoor control board.

When the jumper wire (J1) is short circuited	When the jumper wire (J1) is released
The signal (a) above starts the air-conditioner. (Shipping status)	When the CnT input is set to ON, the air-conditioner starts operation. After that, the operation of the air-conditioner depends on (a) above. (Local status)

(c) In the case of CnT input OFF (Operation prohibition)

(i) Air-conditioner is unable to control the operation/stop, ect. in accordance with signals from the wired remote control signal wire.

(ii) Air-conditioner stops as it changes CnT input ON → OFF.

(17) External control (remote display) /control of input signal

(a) External control (remote display) output

Following output connectors (CnT) are provided on the printed circuit board of indoor unit.

Note (1) Please install the separately-sold Interface kit (SC-BIK-E). The output connector (CnT) is located on the circuit board of the Interface kit.

- **Operation output:** Power to engage DC 12V relay (provided by the customer) is outputted during operation.
- **Heating output:** Power to engage DC 12V relay (provided by the customer) is outputted during the heating operation.
- **Compressor OPERATION output:** Power to engage DC 12V relay (provided by the customer) is outputted while the compressor is operating.
- **MALFUNCTION output:** When any error occurs, the power to engage DC 12V relay (provided by the customer) is outputted.

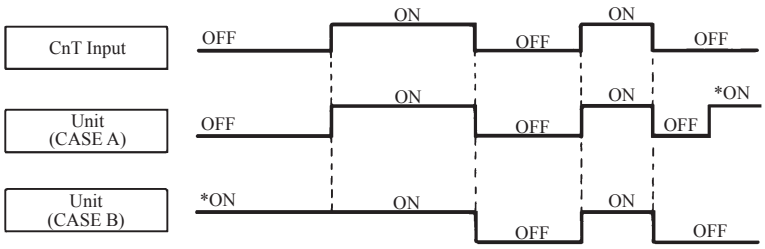
(b) Control of input signal

Control of input signal (switch input, timer input) connectors (CnT) are provided on the printed circuit board of indoor unit. However, when the operation of air-conditioner is under the "CENTER" mode, the wired remote control by CnT is invalid.

(i) Level input

If the factory settings (Jumper wire J1 EXTERNAL INPUT on the PCB of indoor unit) are set, or "LEVEL INPUT" is selected in the wired remote control's indoor unit settings.

1) Input signal to CnT OFF → ON – – – – – Air-conditioner ON
2) Input signal to CnT ON → OFF – – – – – Air-conditioner OFF

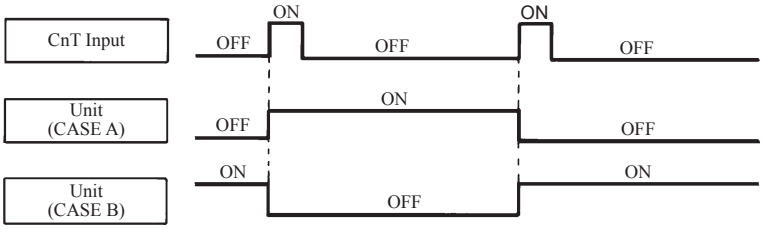


Note (1) The ON with the * mark indicates an ON operation using the wired remote control, etc.

(ii) Pulse input

When Jumper wire J1 on the PCB of indoor unit is cut at the field or "PULSE INPUT" is selected in the wired remote control's indoor unit settings.

Input signal to CnT becomes valid at OFF → ON only and the motion of air-conditioner [ON/OFF] is inverted.



(18) Hot keep operation

If the hot keep operation is selected during the heating operation, the indoor fan is controlled based on the temperature of the indoor heat exchanger (Th2) to prevent blowing of cool wind.

However, if the fan speed setting is HI and room temperature is 19°C or higher, this control is not executed.

(19) Frost prevention control (During cooling or dehumidifying)

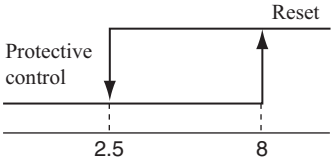
(a) Operating conditions

(i) Indoor heat exchanger temperature (Th2) is lower than 2.5ºC.

(ii) 8 minutes after reaching the compressor command speed except 0 rps.

(b) Detail of anti-frost operation

Item \ Operation mode	Protective control	Reset
Compressor operation	Forced outage	Operation instruction
Indoor fan	Depends on operation mode	Depends on operation mode



Indoor heat exchanger temperature (ºC)

(c) Reset condition: The indoor heat exchanger temperature (Th2) is 8ºC or higher.

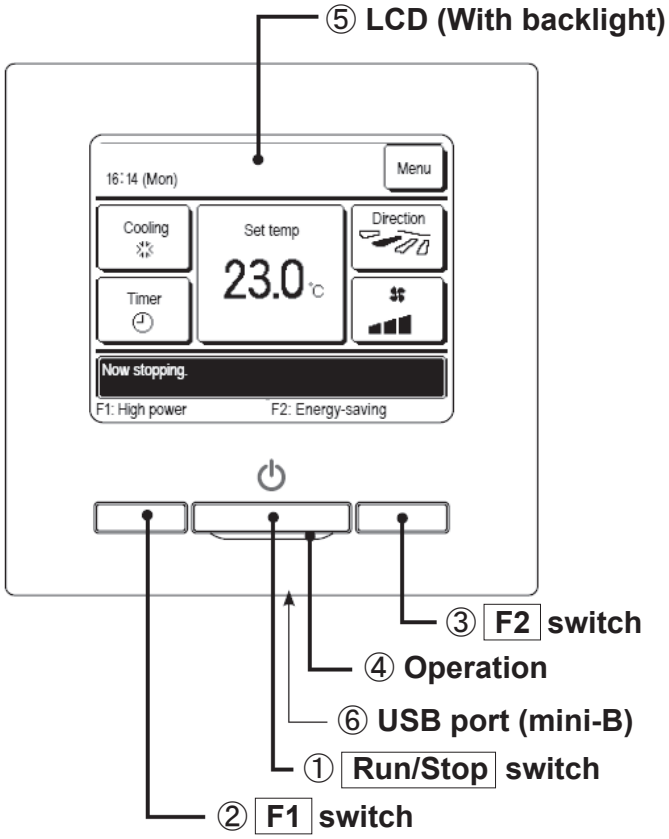
(20) Indoor fan motor protection

When the air-conditioner is operating and the indoor fan motor is turned ON, if the indoor fan motor has operated at 300 (SRF:150) min^{-1} or under for more than 30 seconds, the unit enters first in the stop mode and then stops the entire system.

7.2 FDTC, FDE and FDUM series

7.2.1 Remote control (Option parts)

Model RC-EX3



Touch panel system, which is operated by tapping the LCD screen with a finger, is employed for any operations other than the ①Run/Stop, ②F1 and ③F2 switches.

① Run/Stop switch

One push on the button starts operation and another push stops operation.

② F1 switch③ F2 switch

This switch starts operation that is set in switch function change.

④ Operation

This lamp lights in green(yellow-green) during operation. It changes to red(orange) if any error occurs.
Operation lamp luminance can be changed.

⑤ LCD (With backlight)

A tap on the LCD lights the backlight.
The backlight turns off automatically if there is no operation for certain period of time.
Lighting period of the backlight lighting can be changed.
If the backlight is ON setting, when the screen is tapped while the backlight is turned off,the backlight only is turned on.(Operations with switches ①,② and ③are excluded.)

⑥ USB port

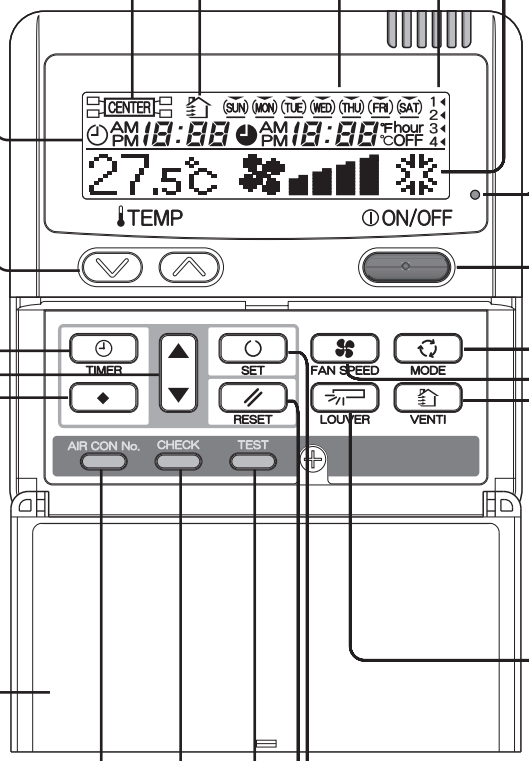
USB connector (mini-B) allows connecting to a personal computer.
For operating methods, refer to the instruction manual attached to the software for personal computer (remote control utility software).

Note(1) When connecting to a personal computer, do not connect simultaneously with other USB devices.
Please be sure to connect to the computer directly,without going through a hub, etc.

Model RC-E5

The figure below shows the remote control with the cover opened. Note that all the items that may be displayed in the liquid crystal display area are shown in the figure for the sake of explanation
Characters displayed with dots in the liquid crystal display area are abbreviated.

The figure below shows the remote control with the cover opened.



Ventilaion display
Displayed during ventilation operation

Central control display
Displayed when the air-conditioning system is controlled by central remote control.

Timer operation display
Displays the timer operation setting.

Temperature setting buttons
These buttons are used to set the temperature of the room.

Timer button
This button is used to set the timer mode.

Timer setting buttons
These buttons are used to set the timer mode and the time.

ESP button
This button is used to select the auto static pressure adjustment mode.

Cover

AIR CON No. button
Display the indoor unit number connected to this remote control.

CHECK button
This button is used at servicing.

TEST button
This button is used during test operation.

Weekly timer display
Displays the settings of the weekly timer.

Operation setting display area
Displays setting temperature, airflow volume, operation mode and oparation message.

Operation/check indicator light
During oparation: Lit in green
In case of error: Flashing in red

Operation/stop button
This button is used to operate and stop the air-conditioning system.
Press the button once to operate the system and press it once again to stop the system.

MODE button
This button is used to change the operation mode.

FAN SPEED button
This button is used to set the air flow volume.

VENT button
This button is used to operate external ventilator.

LOUVER button
This button is used to operate/stop the swing louver.

SET button
•This button is used to fix the setting.
•This button is used to set the silent mode.

RESET button
•Press this button while making settings to go back to the previous operation.
•This button is also used to reset the "**FILTER CLEANING**" display. (Press it after cleaning the air filter)

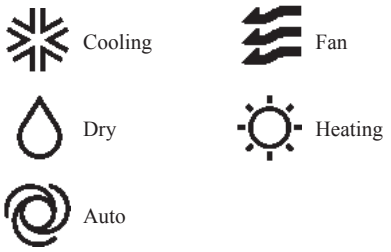
∗ All displays are described in the liguid crystal display for explanation.

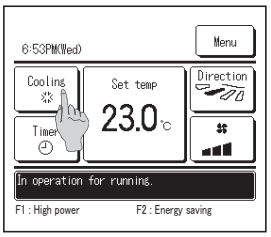
7.2.2 Operation control function by the wired remote control

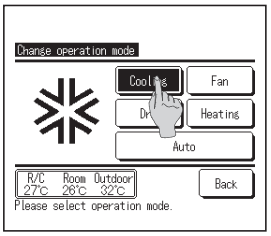
Model RC-EX3

(1) Switching sequence of the operation mode switches of remote control

(a) Tap the change operation mode button on the TOP screen.
(b) When the change operation mode screen is displayed, tap the button of desired mode.
(c) When the operation mode is selected, the display returns to the TOP screen.
Icons displayed have the following meanings.





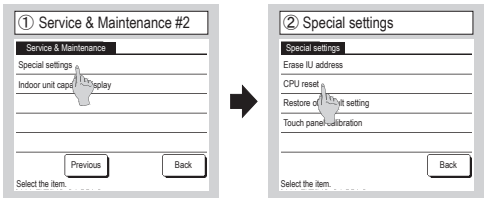


Notes (1) Operation modes which cannot be selected depending on combinations of indoor unit and outdoor unit are not displayed.
(2) When the Auto is selected,the cooling and heating switching operation is performed automatically according to indoor and outdoor temperatures.

(2) CPU reset

Reset CPU from the remote control as follows.

TOP screen → Menu ⇒ Service setting ⇒ Service & Maintenance ⇒ Service password



The selected screen is displayed.

The selected screen is displayed.

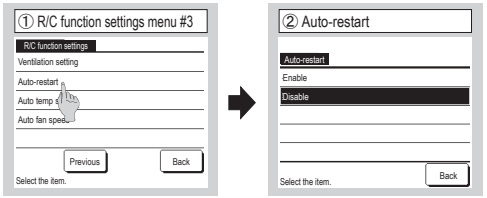
CPU reset

Microcomputers of indoor unit and outdoor unit connected are reset (State of restoration after power failure).

(3) Power failure compensation function (Electric power source failure)

Enable the Auto-restart function from the remote control as follows.

TOP screen → Menu ⇒ Service setting ⇒ R/C function settings ⇒ Service password



If the unit stops during operation,

Enable

It returns to the state before the power failure as soon as the power source is restored (After the end of the primary control at the power on).

Disable

It stops after the restoration of power source.

●Since the status of remote control is retained in memory always, it restarts operations according to the contents of memory as soon as the power source is restored. Although the timer mode is cancelled, the weekly timer, peak cut timer and silent mode timer operate according to the following contents:

- When the clock setting is valid : These timer settings are also valid.
- When the clock setting is invalid : These timer settings become "Invalid" since the clock setting is invalid. These timer settings have to be changed to "Valid" after the timer setting.

●Content memorized with the power failure compensation are as follows.

Note (1) Items (f) and (g) are memorized regardless whether the power failure compensation is effective or not while the setting of silent mode is cancelled regardless whether the power failure compensation is effective or not.

(a) At power failure – Operating/stopped
If it had been operating under the off timer mode, sleep timer mode, the state of stop is memorized.
(b) Operation mode
(c) Air flow volume mode
(d) Room temperature setting
(e) Louver auto swing/stop
However, the stop position (4-position) is cancelled so that it returns to Position (1).
(f) "Remote control function items" which have been set with the administrator or installation function settings ("Indoor function items" are saved in the memory of indoor unit.)
(g) Weekly timer, peak-cut timer or silent mode timer settings
(h) Remote control function setting

(4) Alert displays

If the following (a) to (c) appear, check and repair as follows.

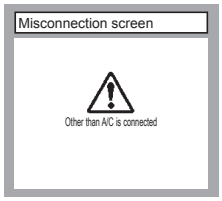
(a) Communication check between indoor unit and remote control

●This appears if communications cannot be established between the remote control and the indoor unit.
Check whether the system is correctly connected (indoor unit, outdoor unit, remote control) and whether the power source for the outdoor unit is connected.

(b) Clock setting check

●This appears when the timer settings are done without clock setting.
Set the clock setting before the timer settings.

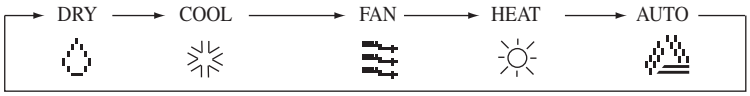
(c) Misconnection



●This appears when something other than the air-conditioner has been connected to the remote control.
Check the location to which the remote control is connected.

Model RC-E5

(1) Switching sequence of the operation mode switches of remote control



(2) CPU reset

This functions when "CHECK" and "ESP" buttons on the remote control are pressed simultaneously. Operation is same as that of the power source reset.

(3) Power failure compensation function (Electric power source failure)

- This becomes effective if "Power failure compensation effective" is selected with the setting of remote control function.
- Since it memorizes always the condition of remote control, it starts operation according to the contents of memory no sooner than normal state is recovered after the power failure. Although the auto swing stop position and the timer mode are cancelled, the weekly timer setting is restored with the holiday setting for all weekdays.
  After recovering from the power failure, it readjusts the clock and resets the holiday setting for each weekday so that the setting of weekly timer becomes effective.
- Content memorized with the power failure compensation are as follows.

Note (1) Items (f), (g) and (h) are memorized regardless whether the power failure compensation is effective or not while the setting of silent mode is cancelled regardless whether the power failure compensation is effective or not.

(a) At power failure – Operating/stopped
If it had been operating under the off timer mode, sleep timer mode, the state of stop is memorized. (Although the timer mode is cancelled at the recovery from power failure, the setting of weekly timer is changed to the holiday setting for all weekdays.)

(b) Operation mode

(c) Air flow volume mode

(d) Room temperature setting

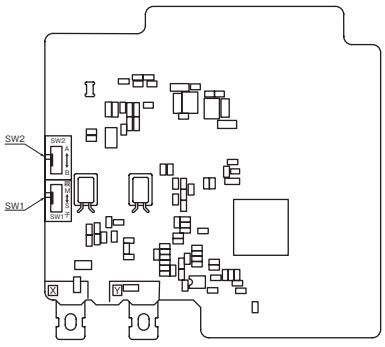
(e) Louver auto swing/stop
However, the stop position (4-position) is cancelled so that it returns to Position (1).

(f) "Remote control function items" which have been set with the remote control function setting ("Indoor function items" are saved in the memory of indoor unit.)

(g) Upper limit value and lower limit value which have been set with the temperature setting control

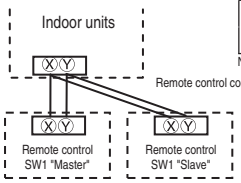
(h) Sleep timer and weekly timer settings (Other timer settings are not memorized.)

[Parts layout on remote control PCB]



Master/ slave setting when more than one remote controls are used

A maximum of two remote controls can be connected to one indoor unit (or one group of indoor units.)



Switch	Setting	Contents
SW1	M	Master remote control
	S	Slave remote control

Note (1) Don't change SW2 because it is not used normally.

Caution

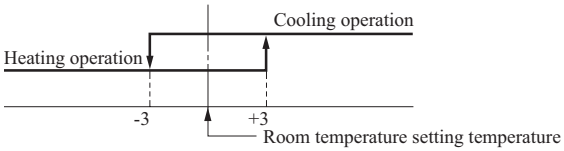
When using multiple remote controls, the following dispiays or settings cannot be done with the slave remote control. It is available only with the master remote control.

①Louver position setting (set upper or lower limit of swinging range)
②Setting indoor unit functions
③Setting temperature range
④Operation data display
⑤Error data display
⑥Silent mode setting
⑦Test operation of drain pump
⑧Remote control sensor setting

7.2.3 Operation control function by the indoor control

(1) Auto operation

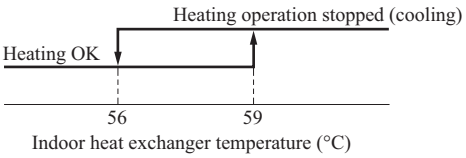
(a) If “Auto” mode is selected by the remote control, the heating and the cooling are automatically switched according to the difference between outdoor air temperature and setting temperature and the difference between setting temperature and return air temperature. (When the switching of cooling mode ↔ heating mode takes place within 3 minutes, the compressor does not operate for 3 minutes by the control of 3-minute timer.) This will facilitate the cooling/heating switching operation in intermediate seasons and the adaptation to unmanned operation at stores, etc (ATM corner of bank).



Notes (1) Temperature range of switching cooling/heating mode can be changed by RC-EX3 from ±1.0 − ±4.0.

(2) Room temperature control during auto cooling/auto heating is performed according to the room temperature setting temperature. (DIFF: ±1 deg)

(3) If the indoor heat exchanger temperature rises to 59°C or higher during heating operation, it is switched automatically to cooling operation. In addition, for 1 hour after this switching, the heating operation is not performed, regardless of the temperature shown at right.



(b) The following automatic controls are performed other than (a) above.

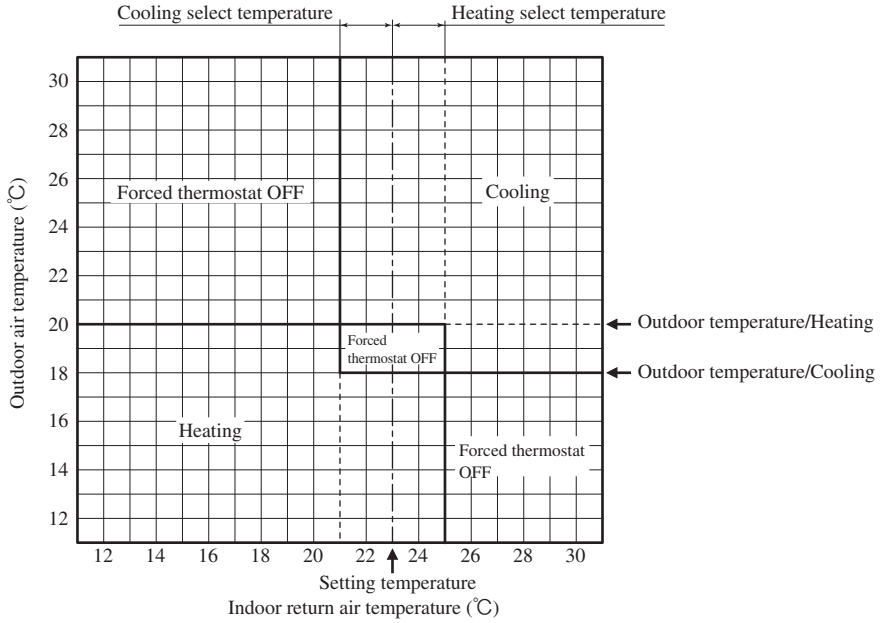
(i) Cooling or heating operation mode is judged according to the conditions of the "Judgment based on Setting temperature + Cooling select temperature and Indoor return air temperature" and the "Judgment based on Outdoor temperature".

1) In case of "Setting temperature - Cooling select temperature < Indoor return air temperature" and "Outdoor temperature/ Cooling < Outdoor air temperature" ⇒ Operation mode: Cooling

2) In case of "Setting temperature + Heating select temperature > Indoor return air temperature" and "Outdoor temperature/Heating > Outdoor air temperature" ⇒ Operation mode: Heating

3) The outdoor air temperature of the above judgment conditions is sampled at every 10 minutes.

4) In the range where the above cooling and heating zones are overlapped ⇒ Forced thermostat OFF



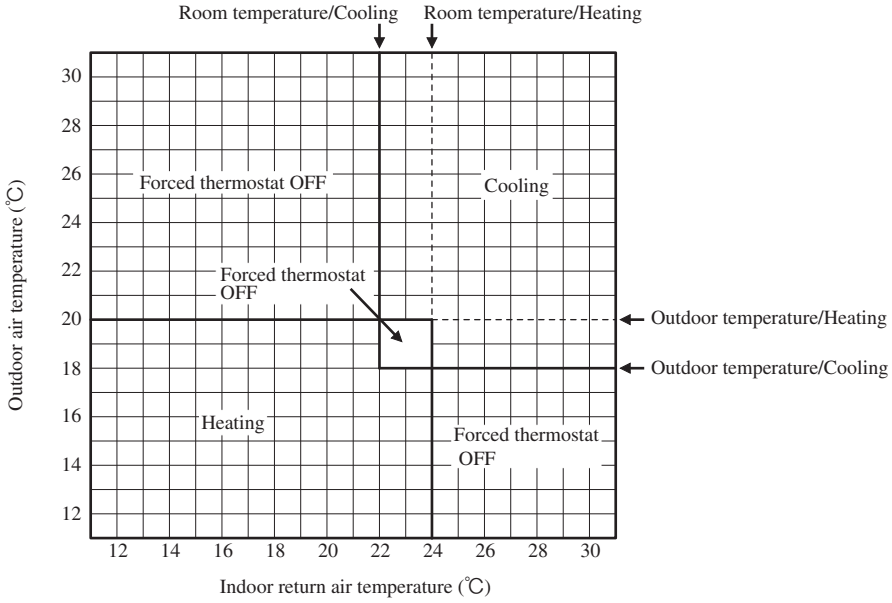
(ii) Regardless of the setting temperature, the cooling or heating operation mode is judged according to the "Judgment based on Room temperature/Cooling or Heating and Outdoor temperature/Cooling or Heating".

1) In case of "Room temperature/Cooling < Indoor return air temperature" and "Outdoor temperature/Cooling < Outdoor air temperature" ⇒ Operation mode: Cooling

2) In case of "Room temperature/Heating > Indoor return air temperature" and "Outdoor temperature /Heating > Outdoor air temperature" ⇒ Operation mode: Heating

3) The outdoor air temperature of the above judgment conditions is sampled at every 10 minutes.

4) In the range where the above cooling and heating zones are overlapped ⇒ Forced thermostat OFF



(2) Operations of functional items during cooling/heating

Operation / Functional item	Cooling		Fan	Heating			Dehumidifying
	Thermostat ON	Thermostat OFF		Thermostat ON	Thermostat OFF	Hot start (Defrost)	
Compressor	○	×	×	○	×	○	○/×
4-way valve	×	×	×	○	○	○(×)	×
Outdoor unit fan	○	×	×	○	×	○(×)	○/×
Indoor unit fan	○	○	○	○/×	○/×	○/×	○/×
Drain pump (3)	○	×(2)	×(2)	○/×(2)			Thermostat ON: ○ Thermostat OFF: ×(2)

Notes (1) ○: Operation ×: Stop ○/×: Turned ON/OFF by the control other than the room temperature control.
(2) ON during the drain motor delay control.
(3) Drain pump ON setting may be selected with the indoor unit function setting of the wired remote control.

(3) Dehumidifying (DRY) operation

Return air temperature sensor [Thi-A (by the remote control when the remote control thermistor is enabled)] controls the indoor temperature environment simultaneously.

(a) Operation is started in the cooling mode. When the difference between the return air temperature and the setting temperature is 2°C or less, the indoor unit fan tap is brought down by one tap. That tap is retained for 3 minutes after changing the indoor unit fan tap.

(b) If the return air temperature exceeds the setting temperature by 3°C during dehumidifying operation, the indoor unit fan tap is raised. That tap is retained for 3 minutes after changing the indoor unit fan tap.

(c) If the thermostat OFF is established during the above control, the indoor unit fan tap at the thermostat ON is retained so far as the thermostat is turned OFF.

(4) Timer operation

(a) RC-EX3

(i) Sleep timer

Set the time from the start to stop of operation. The time can be selected in the range from 30 to 240 minutes (in the unit of 10-minute).

Note (1) Enable the "Sleep timer" setting from the remote control. If the setting is enabled, the timer operates at every time.

(ii) Set OFF timer by hour

Set the time to stop the unit after operation, in the range from 1 to 12 hours (in the unit of hour).

(iii) Set ON timer by hour

Set the time to start the unit after the stop of operation, in the range from 1 to 12 hours (in the unit of hour). It is allowed also to set simultaneously the indoor temperature, operation mode, air flow rate and warm-up enabled/disabled.

(iv) Set ON timer by clock

Set the time to start operation. The time can be set in the unit of 5-minute. This setting can be activated only once or at every time. It is allowed also to set simultaneously the indoor temperature, operation mode, air flow rate and warm-up enabled/disabled.

Note (1) It is necessary to set the clock to use this timer.

(v) Set OFF timer by clock

Set the time to stop operation. The time can be set in the unit of 5-minute. This setting can be activated only once or at every time.

Note (1) It is necessary to set the clock to use this timer.

(vi) Weekly timer

Set the ON or OFF timer for a week. Up to 8 patterns can be set for a day. The day-off setting is provided for holidays and non-business days.

Note (1) It is necessary to set the clock to use the weekly timer.

(vii) **Combination of patterns which can be set for the timer operations**

	Sleep time	Set OFF timer by hour	Set ON timer by hour	Set OFF timer by clock	Set ON timer by clock	Weekly timer
Sleep time		×	×	○	○	○
Set OFF timer by hour	×		×	×	×	×
Set ON timer by hour	×	×		×	×	×
Set OFF timer by clock	○	×	×		○	×
Set ON timer by clock	○	×	×	○		×
Weekly timer	○	×	×	×	×	

Note (1) ○: Allowed ×: Not

(b) RC-E5

(i) Sleep timer

Set the duration of time from the present to the time to turn off the air-conditioner.

It can be selected from 10 steps in the range from "OFF 1 hour later" to "OFF 10 hours later". After the sleep timer setting, the remaining time is displayed with progress of time in the unit of hour.

(ii) OFF timer

Time to turn OFF the air-conditioner can be set in the unit of 10 minutes.

(iii) ON timer

Time to turn ON the air-conditioner can be set. Indoor temperature can be set simultaneously.

(iv) Weekly timer

Timer operation (ON timer, OFF timer) can be set up to 4 times a day for each weekday.

(v) Timer operations which can be set in combination

Item / Item	Timer	OFF timer	ON timer	Weekly timer
Timer		×	○	×
OFF timer	×		○	×
ON timer	○	○		×
Weekly timer	×	×	×	

Notes (1) ○: Allowed ×: Not

(2) Since the ON timer, sleep timer and OFF timer are set in parallel, when the times to turn ON and OFF the airconditioner are duplicated, the setting of the OFF timer has priority.

(5) Remote control display during the operation stop

When the operation is stopped (the power source is turned ON), it displays preferentially the “Room temperature”, “Center/ Remote”, “Filter sign”, “Inspection” and “Timer operation”.

(6) Hot start (Cold draft prevention at heating)

(a) Operating conditions

When either one of following conditions is satisfied, the hot start control is performed.

(i) From stop to heating operation

(ii) From cooling to heating operation

(iii) Form heating thermostat OFF to ON

(iv) After completing the defrost operation (only on units with thermostat ON)

(b) Contents of operation

(i) Indoor fan motor control at hot start

1) Within 7 minutes after starting heating operation, the fan mode is determined depending on the condition of thermostat (fan control with heating thermostat OFF).

a) Thermostat OFF

i) Operates according to the fan control setting at heating thermostat OFF.

ii) Even if it changes from thermostat OFF to ON, the fan continues to operate with the fan control at thermostat OFF till the heat exchanger sensor (Thi-R1 or R2, whichever higher) detects 35°C or higher.

iii) When the heat exchanger sensor (Thi-R1 or R2, whichever higher) detects 35°C or higher, the fan operates with the set air flow volume.

b) Thermostat ON

i) When the heat exchanger sensor (Thi-R1 or R2, whichever higher) detects 25°C or lower, the fan is turned OFF and does not operate.

ii) When the heat exchanger sensor (Thi-R1 or R2, whichever higher) detects 25°C or higher, the fan operates with the fan control at heating thermostat OFF.

iii) When the heat exchanger sensor (Thi-R1 or R2, whichever higher) detects 35°C or higher, the fan operates with the set air flow volume.

c) If the fan control at heating thermostat OFF is set at the “Set air flow volume” (from the remote control), the fan operates with the set air flow volume regardless of the thermostat ON/OFF.

2) Once the fan motor is changed from OFF to ON during the thermostat ON, the indoor fan motor is not turned OFF even if the heat exchanger sensor detects lower than 25°C.

Note (1) When the defrost control signal is received, it complies with the fan control during defrost operation.

3) Once the hot start is completed, it will not restart even if the temperature on the heat exchanger sensor drops.

(ii) During the hot start, the louver is kept at the horizontal position.

(iii) When the fan motor is turned OFF for 7 minutes continuously after defrosting, the fan motor is turned ON regardless of the temperatures detected with the indoor heat exchanger sensors (Thi-R1, R2).

(c) Ending condition

(i) If one of following conditions is satisfied during the hot start control, this control is terminated, and the fan is operated with the set air flow volume.

1) Heat exchanger sensor (Thi-R1 or R2, whichever higher) detects 35°C or higher.

2) It has elapsed 7 minutes after starting the hot start control.

(7) Hot keep

Hot keep control is performed at the start of the defrost operation.

(a) Control

(i) When the indoor heat exchanger temperature (detected with Thi-R1 or R2) drops to 35°C or lower, the speed of indoor fan is changed to the lower tap at each setting.

(ii) During the hot keep, the louver is kept at the horizontal position.

(b) Ending condition

When the indoor fan is at the lower tap at each setting, it returns to the set air flow volume as the indoor heat exchanger temperature rises to 45°C or higher.

(8) Auto swing control (FDTC, FDE only)

Note Even if [Auto Swing] is selected, the louver position with anit draft function is fixed to position 1.

(a) RC-EX3

(i) Louver control

1) To operate the swing louver when the air-conditioner is operating, press the “Direction” button on the TOP screen of remote control. The wind direction select screen will be displayed.

2) To swing the louver, touch the “Auto swing” button. The lover will move up and down. To fix the swing louver at a position, touch one of [1] - [4] buttons. The swing lover will stop at the selected position.

3) Louver operation at the power on with a unit having the louver 4-position control function

The louver swings one time automatically (without operating the remote control) at the power on.

This allows the microcomputer recognizing and inputting the louver motor (LM) position.

(ii) Automatic louver level setting during heating

At the hot start and the heating thermostat OFF, regardless whether the auto swing switch is operated or not (auto swing or louver stop), the louver takes the level position (in order to prevent blowing of cool wind). The louver position display LCD continues to show the display which has been shown before entering this control.

(iii) Louver free stop control

If you touch the “Menu” → “Next” → “R/C settings” buttons one after another on the TOP screen of remote control, the “Flap control” screen is displayed. If the free stop is selected on this screen, the louver motor stops upon receipt of the stop signal from the remote control. If the auto swing signal is received from the remote control, the auto swing will start from the position before the stop.

(b) RC-E5

(i) Louver control

1) Press the “LOUVER” button to operate the swing louver when the air-conditioner is operating.

“SWING ” is displayed for 3 seconds and then the swing louver moves up and down continuously.

2) To fix the swing louver at a position, press one time the “LOUVER” button while the swing louver is moving so that four stop positions are displayed one after another per second.

When a desired stop position is displayed, press the “LOUVER” button again. The display stops, changes to show the “STOP 1 ” for 5 seconds and then the swing louver stops.

3) Louver operation at the power on with a unit having the louver 4-position control function

The louver swings one time automatically (without operating the remote control) at the power on.

This allows inputting the louver motor (LM) position, which is necessary for the microcomputer to recognize the louver position.

Note (1) If you press the “LOUVER” button, the swing motion is displayed on the louver position LCD for 10 second. The display changes to the “SWING ” display 3 seconds later.

(ii) Automatic louver level setting during heating

At the hot start with the heating thermostat OFF, regardless whether the auto swing switch is operated or not (auto swing or louver stop), the louver takes the level position (In order to prevent the cold start). The louver position display LCD continues to show the display which has been shown before entering this control.

(iii) Louver-free stop control

When the louver-free stop has been selected with the indoor function of wired remote control “ POSITION”, the louver motor stops when it receives the stop signal from the remote control. If the auto swing signal is received from the remote control, the auto swing will start from the position where it was before the stop.

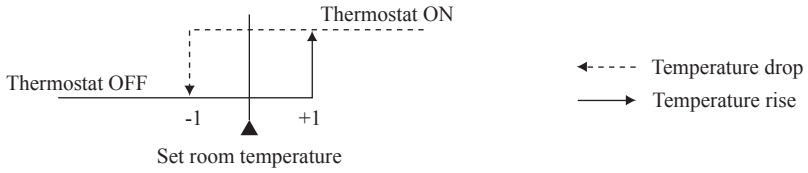
Note (1) When the indoor function of wired remote control “ POSITION” has been switched, switch also the remote control function “ POSITION” in the same way.

(9) Thermostat operation

(a) Cooling

(i) Thermostat is operated with the room temperature control.

(ii) Thermostat is turned ON or OFF relative to the set room temperature as shown below.

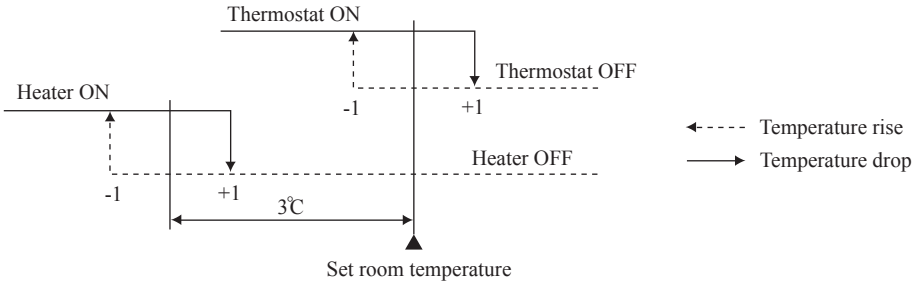


(iii) Thermostat is turned ON when the room temperature is in the range of -1 < Set temperature < +1 at the start of cooling operation (including from heating to cooling).

(b) Heating

(i) Thermostat is operated with the room temperature control.

(ii) Thermostat is turned ON or OFF relative to the set room temperature as shown below.



(iii) Thermostat is turned ON when the room temperature is in the range of -1 < Set point < +1 at the start of heating operation (including from cooling to heating).

(c) Fan control during heating thermostat OFF

(i) Following fan controls during the heating thermostat OFF can be selected with the indoor function setting of the wired remote control.

① Low fan speed (Factory default), ② Set fan speed, ③ Intermittence, ④ Fan OFF

(ii) When the "Low fan speed (Factory default)" is selected, the following taps are used for the indoor fans.

・For AC motor : Lo tap

・For DC motor : ULo tap

(iii) When the "Set fan speed" is selected, it is operated with the set fan speed also in the thermostat OFF condition.

(iv) If the "Intermittence" is selected, following controls are performed:

1) If the thermostat is turned OFF during the heating operation, the indoor unit moves to the hot control and turns OFF the indoor fan if the heat exchanger sensors (both Thi-R1 and R2) detect 25°C or lower.
2) Indoor fan OFF is fixed for 5 minutes. After the 5 minutes, the indoor fan is operated at Lo or ULo for 2 minutes. In the meantime the louver is controlled at level.
3) After operating at Lo or ULo for 2 minutes, the indoor fan moves to the state of 1) above.
4) If the thermostat is turned ON, it moves to the hot start control.
5) When the heating thermostat is turned OFF, the remote control displays the temperature detected at the fan stop and revises the temperature later when the indoor fan changes from Lo or ULo to stop.
   The remote control uses the operation data display function to display temperatures and updates values of temperature even when the indoor fan is turned OFF.
6) When the defrosting starts while the heating thermostat is turned OFF or the thermostat is turned OFF during defrosting, the indoor fan is turned OFF. (Hot keep or hot start control takes priority.) However, the suction temperature is updated at every 7-minute.
7) When the heating thermostat is turned ON or the operation is changed to another mode (including stop), this control is stopped immediately, and the operating condition is restored.

(v) When the "Fan OFF" is selected, the fan on the indoor unit of which the thermostat has been turned OFF, is turned OFF. The same occurs also when the remote control sensor is effective.

(d) Fan control during cooling thermostat OFF

(i) Following fan controls during the cooling thermostat OFF can be selected with the indoor function setting of the wired remote control.

① Low fan speed, ② Set fan speed (Factory default), ③ Intermittence, ④ Fan OFF

(ii) When the "Low fan speed" is selected, the following taps are used for the indoor fans.

・For AC motor : Lo tap

・For DC motor : ULo tap

(iii) When the "Set fan speed" is selected, it is operated with the set fan speed also in the thermostat OFF condition.

(iv) If the "Intermittence" is selected, following controls are performed:

1) If the thermostat is turned OFF during the cooling operation, the indoor unit fan motor stope.

2) Indoor fan OFF is fixed for 5 minutes. After the 5 minutes, the indoor fan is operated at Lo or ULo for 2 minutes. In the meantime the louver is controlled at level.

3) After operating at Lo or ULo for 2 minutes, the indoor fan moves to the state of 1) above.

4) If the thermostat is turned ON, the fan starts operation at set fan speed.

5) When the cooling thermostat is turned OFF, the remote control displays the temperature detected at the fan stop and revises the temperature later when the indoor fan changes from Lo or ULo to stop.

By using operation data display function at wireless remote control, the tempenature as displayad and the value is updated including the fan stops.

6) When the cooling thermostat is turned ON or the operation is changed to another mode (including stop), this control is stopped immediately, and the operating condition is restored.

(v) When the "Fan OFF" is selected, the fan on the indoor unit of which the thermostat has been turned OFF, is turned OFF. The same occurs also when the remote control sensor is effective.

(10) Filter sign

As the operation time (Total ON time of ON/OFF switch) accumulates to 180 hours (1), "FILTER CLEANING" is displayed on the remote control. (This is displayed when the unit is in trouble and under the centralized control, regardless of ON/OFF.)

Notes (1) Time setting for the filter sign can be made as shown below using the indoor function of wired remote control "Filter sign". (It is set at setting 1 at the shipping from factory.)

Filter sign setting	Function
Setting **1**	Setting time: 180 hrs (Factory default)
Setting **2**	Setting time: 600 hrs
Setting **3**	Setting time: 1,000 hrs
Setting **4**	Setting time: 1,000 hrs (Unit stop) (2)

(2) After the setting time has elapsed, the "FILTER CLEANING" is displayed and, after operating for 24 hours further (counted also during the stop), the unit stops.

(11) Compressor inching prevention control

(a) 3-minute timer

When the compressor has been stopped by the thermostat, remote control operation switch or anomalous condition, its restart will be inhibited for 3 minutes. However, the 3-minute timer is invalidated at the power on the electric power source for the unit.

(b) 3-minute forced operation timer

(i) Compressor will not stop for 3 minutes after the compressor ON. However, it stops immediately when the unit is stopped by means of the ON/OFF switch or by when the thermostat turned OFF the change of operation mode.

(ii) If the thermostat is turned OFF during the forced operation control of heating compressor, the louver position (with the auto swing) is returned to the level position.

Note (1) The compressor stops when it has entered the protective control.

(12) Drain pump control

(a) This control is operated when the inverter frequency is other than 0 Hz during the cooling operation and automatic cooling and dehumidifying operations.

(b) Drain pump ON condition continues for 5 minutes even when it enters the OFF range according to (i) above after turning the drain pump ON, and then stops. The 5-minute delay continues also in the event of anomalous stop.

(c) The drain pump is operated with the 5-minute delay operation when the compressor is changed from ON to OFF.

(d) Even in conditions other than the above (such as heating, fan, stop, cooling thermostat OFF), the drain pump control is performed by the drain detection.

(e) Following settings can be made using the indoor function setting of the wired remote control.

(i) ❄◇〔Standard(in cooling & dry)〕: Drain pump is run during cooling and dry.

(ii) ❄◇AND☀〔Operate in standard & heating〕: Drain pump is run during cooling, dry and heating.

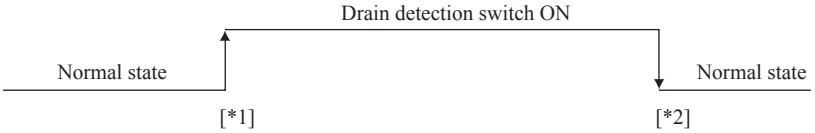
(iii) ❄◇AND☀AND≡〔Operate in heating & fan〕: Drain pump is run during cooling, dry, heating and fan.

(iv) ❄◇AND≡〔Operate in standard & fan〕: Drain pump is run during cooling, dry and fan.

Note (1) Values in〔 〕are for the RC-EX3 model.

(13) Drain motor (DM) control

(a) Drain detection switch is turned ON or OFF with the float switch (FS) and the timer.



[＊1] Drain detection switch is turned “ON” when the float switch “Open” is detected for 3 seconds continuously in the drain detectable space.

[＊2] Drain detection switch is turned “OFF” when the float switch “Close” is detected for 10 seconds continuously.

(i) It detects always from 30 seconds after turning the power ON.

1) There is no detection of anomalous draining for 10 seconds after turning the drain pump OFF.

2) Turning the drain detection switch “ON” causes to turn ON the drain pump forcibly.

3) Turning the drain detection switch “OFF” releases the forced drain pump ON condition.

(b) Indoor unit performs the control A or B depending on each operating condition.

	Indoor unit operation mode				
	Stop (1)	Cooling	Dry	Fan (2)	Heating
Compressor ON		Control A			
Compressor OFF		Control B			

Notes (1) Including the stop from the cooling, dehumidifying, fan and heating, and the anomalous stop
(2) Including the “Fan” operation according to the mismatch of operation modes

(i) Control A

1) If the float switch detects any anomalous draining condition, the unit stops with the anomalous stop (displays E9) and the drain pump starts. After detecting the anomalous condition, the drain motor continues to be ON.

2) It keeps operating while the float switch is detecting the anomalous condition.

(ii) Control B

If the float switch detects any anomalous drain condition, the drain motor is turned ON for 5 minutes, and at 10 seconds after the drain motor OFF it checks the float switch. If it is normal, the unit is stopped under the normal mode or, if there is any anomalous condition, E9 is displayed and the drain motor is turned ON. (The ON condition is maintained during the drain detection.)

(14) Operation check/drain pump test run operation mode

(a) If the power is turned on by the dip switch (SW7-1) on the indoor PCB when electric power source is supplied, it enters the mode of operation check/drain pump test run. It is ineffective (prohibited) to change the switch after turning power on.

(b) When the communication with the remote control has been established within 60 seconds after turning power on by the dip switch (SW7-1) ON, it enters the operation check mode. Unless the remote control communication is established, it enters the drain pump test run mode.

Note (1) To select the drain pump test run mode, disconnect the remote control connector (CnB) on the indoor PCB to shut down the remote control communication.

(c) Operation check mode

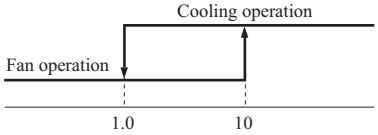
There is no communication with the outdoor unit but it allows performing operation in respective modes by operating the remote control.

(d) Drain pump test run mode

As the drain pump test run is established, the drain pump only operates and during the operation protective functions by the microcomputer of indoor unit become ineffective.

(15) Cooling, dehumidifying frost protection

(a) To prevent frosting during cooling mode or dehumidifying mode operation, the of compressor speed is reduced if the indoor heat exchanger temperature (detected with Thi-R) drops to 1.0°C or lower at 4 minutes after the start of compressor operation. If the indoor unit heat exchanger temperature is 1.0°C or lower after 1 minutes, the compressor speed is reduced further. If it becomes 2.5°C or higher, the control terminates. When the indoor heat exchanger temperature has become as show below after reducing the compressor speed, it is switched to the fan operation. For the selection of indoor fan speed, refer to item 2).



(b) Selection of indoor fan speed

If it enters the frost prevention control during cooling operation (excluding dehumidifying), the indoor unit fan speed is switched.

(i) In the case of FDUM only.

1) When the indoor return air detection temperature (detected with Thi-A) is 23°C or higher and the indoor heat exchanger temperature (detected with Thi-R) detects the compressor frequency drop start temperature A°C+1°C, of indoor unit fan speed is increased by 20 min^{-1}.

2) If the phenomenon of 1) above is detected again after the acceleration of indoor unit fan, indoor unit fan speed is increased further by 20 min^{-1}.

Note (1) Indoor unit fan speed can be increased by up to 2 taps.

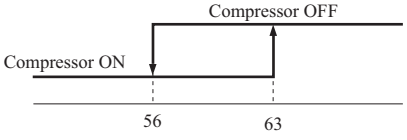
• Compressor frequency drop start temperature

Item \ Symbol	A
Temperature - Low (Factory default)	1.0
Temperature - High	2.5

Note (1) Frost prevention temperature setting can be selected with the indoor unit function setting of the wired remote control.

(16) Heating overload protection

(a) If the indoor heat exchanger temperature (detected with Thi-R) at 63°C or higher is detected for 2 seconds continuously, the compressor stops. When the compressor is restarted after a 3-minute delay, if a temperature at 63°C or higher is detected for 2 seconds continuously within 60 minutes after initial detection and if this is detected 5 times consecutively, the compressor stops with the anomalous stop (E8). Anomalous stop occurs also when the indoor heat exchanger temperature at 63°C or higher is detected for 6 minutes continuously.



(b) Indoor unit fan speed selection

If, after second detection of heating overload protection up to fourth, the indoor fan is set at Me and Lo taps when the compressor is turned ON, the indoor fan speed is increased by 1 tap.

(17) Anomalous fan motor

(a) After starting the fan motor, if the fan motor speed is 200 min^{-1} or less is detected for 30 seconds continuously and 4 times within 60 minutes, then fan motor stops with the anomalous stop (E16).

(b) If the fan motor fails to reach at -50 min^{-1} less than the required speed, it stops with the anomalous stop (E20).

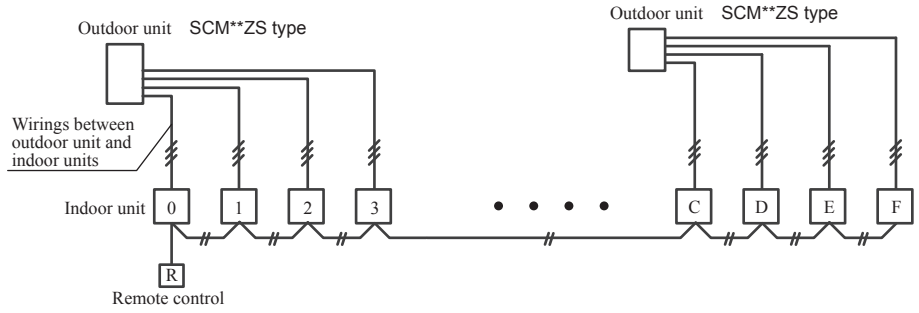
(18) Plural unit control – Control of 16 units group by one remote control

(a) Function

One remote control switch can control a group of multiple number of unit (Max. 16 indoor units). "Operation mode" which is set by the remote control switch can operate or stop all units in the group one after another in the order of unit No.(1) Thermostat and protective function of each unit function independently.

Note (1) Unit No. is set by SW2 on the indoor unit control PCB. Unit No. setting by SW2 is necessary for the indoor unit only.

SW2: For setting of 0 – 9, A – F



(2) Unit No. may be set at random unless duplicated, it should be better to set orderly like 0, 1, 2…, F to avoid mistake.

(b) Display to the remote control

(i) Center or each remote control basis, heating preparation: the youngest unit No. among the operating units in the remote mode (or the center mode unless the remote mode is available) is displayed.

(ii) Inspection display, filter sign: Any of unit that starts initially is displayed.

(iii) Confirmation of connected units

1) In case of RC-EX3 remote control

If you touch the buttons in the order of "Menu" → "Next" → "Service & Maintenance" → "IU address" on the TOP screen of remote control, the indoor units which are connected are displayed.

2) In case of RC-E5 remote control

Pressing "AIR CON No." button on the remote control displays the indoor unit address. If "▲" "▼" button is pressed at the next, it is displayed orderly starting from the unit of youngest No.

(iv) In case of anomaly

1) If any anomaly occurs on a unit in a group (a protective function operates), that unit stops with the anomalous stop but any other normal units continue to run as they are.

2) Signal wiring procedure

Signal wiring between indoor and outdoor units should be made on each unit same as the normal wiring. For the group control, lay connect with sires wiring between rooms using terminal blocks (X, Y) of remote control.

Connect the remote control communication wire separately from the power source wire or wires of other electric devices (AC220V or higher).

(19) High ceiling control

When sufficient air flow rate cannot be obtained from the indoor unit which is installed at a room with high ceiling, the air flow rate can be increased by changing the fan tap. To change the fan tap, use the indoor unit function "FAN SPEED SET" on the wired remote control.

Fan tap		Indoor unit airflow setting			
FAN SPEED SET	STANDARD	PHi - Hi - Me - Lo	Hi - Me - Lo	Hi - Lo	Hi - Me
	HIGH SPEED1, 2	PHi - PHi - Hi - Me	PHi - Hi - Me	PHi - Me	PHi - Hi

Notes (1) Factory default is STANDARD.

(2) At the hot-start and heating thermostat OFF, or other, the indoor unit fan is operated at the low speed tap of each setting.

(3) This function is not able to be set with wireless remote controls or simple remote control (RCH-E3).

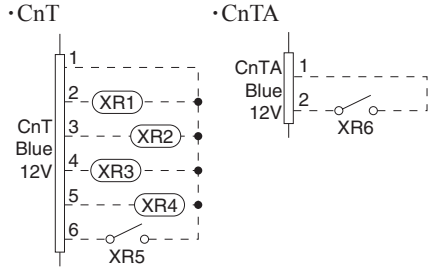
(20) Abnormal temperature sensor (return air/indoor heat exchanger) broken wire/short-circuit detection

(a) Broken wire detection
When the return air temperature sensor detects -55°C or lower or the heat exchanger temperature sensor detect -55°C or lower for 5 seconds continuously, the compressor stops. After a 3-minute delay, the compressor restarts but, if it is detected again within 60 minutes after the initial detection for 6 minutes continuously, stops again (the return air temperature sensor: E7, the heat exchanger temperature sensor: E6).

(b) Short-circuit detection
If the heat exchanger temperature sensor detects 70°C or higher for 5 seconds continuously at 2 minutes and 20 seconds after the compressor ON during cooling operation, the compressor stops (E6).

(21) External input/output control (CnT or CnTA)

External input/output connectors are provided on the indoor unit control PCB, and each input/output is possible to be changed by RC-EX3.
Be sure to connect the wired remote control to the indoor unit. Remote operation with CnT/CnTA only is not possible.



Input/Output	Connector	Factory default setting	RC-EX3 function name
Output	CnT-2 (XR1)	Operation output	External output 1
	CnT-3 (XR2)	Heating output	External output 2
	CnT-4 (XR3)	Compressor ON output	External output 3
	CnT-5 (XR4)	Inspection(Error) output	External output 4
"Input	CnT-6 (XR5)	Remote operation input	External input 1
(Volt-free contact)"	CnTA (XR6)	Remote operation input	External input 2

■ Priority order for combinations of CnT and CnTA input.

		CnTA					
		① Operation stop level	② Operation stop pulse	③ Operation permission/prohibition	④ Operation permission/prohibition pulse	⑤ Cooling/heating selection level	⑥ Cooling/heating selection pulse
CnT	① Operation stop level	CnT ①	CnT ①	CnT ① +CnTA ②	CnT ①	CnT ① /CnTA ⑤	CnT ① /CnTA ⑥
	② Operation stop pulse	CnT ②	CnT ②	CnT ② +CnTA ③	CnT ②	CnT ② /CnTA ⑤	CnT ② /CnTA ⑥
	③ Operation permission/prohibition level	CnT ③ >CnTA ①	CnT ③ >CnTA ②	CnT ③ +CnTA ③	CnT ③	CnT ③ /CnTA ⑤	CnT ③ /CnTA ⑥
	④ Operation permission/prohibition pulse	CnT ④	CnT ④	CnT ④ +CnTA ③※	CnT ④	CnT ④ /CnTA ⑤	CnT ④ /CnTA ⑥
	⑤ Cooling/heating selection level	CnT ⑤ /CnTA ①	CnT ⑤ /CnTA ②	CnT ⑤ /CnTA ③※	CnT ⑤ /CnTA ④	CnT ⑤	CnT ⑤
	⑥ Cooling/heating selection pulse	CnT ⑥ /CnTA ①	CnT ⑥ /CnTA ②	CnT ⑥ /CnTA ③	CnT ⑥ /CnTA ④	CnT ⑥	CnT ⑥

Note (1) Following operation commands are accepted when the operation prohibition is set with CnTA as indicated with *.
Individual operation command from remote control, test run command from outdoor unit and operation command from option device, CnT input.

Reference: Explanation on the codes and the combinations of codes in the table above
1. In case of CnT "Number", the CnT "Number" is adopted and CnTA is invalidated.
2. In case of CnTA "Number", the CnTA "Number" is adopted and CnT is invalidated.
3. In case of CnT "Number"/CnTA "Number", the CnT "Number" and the CnTA "Number" become independent functions each other.
4. In case of CnT "Number" + CnTA "Number", the CnT "Number" and the CnTA "Number" become competing functions each other.
5. In case of CnT "Number" > CnTA "Number", the function of CnT "Number" supersedes that of CnTA "Number".
6. In case of CnT "Number" < CnTA "Number", the function of CnTA "Number" supersedes that of CnT "Number".

(The "Number" above means ① - ⑥ in the table.)

(a) Output for external control (remote display)

Indoor unit outputs the following signal for operation status monitoring.

	Output name	Condition
1	Operation output	During operation
2	Heating output	During heating operation
3	Compressor ON output	During compressor operation
4	Inspection(Error) output	When anomalous condition occurs.
5	Cooling output	During cooling operation
6	Fan operation output 1	When indoor unit's fan is operating
7	Fan operation output 2	When indoor unit's fan is operating, and fan speed is higher than Hi speed.
8	Fan operation output 3	When indoor unit's fan is operating, and fan speed is Lower than Me speed.
9	Defrost/oil return output	When indoor unit receive defrost/oil return signal from the outdoor unit.
10	Ventilation output	When "Venti.ON" is selected from remote control
11	Free cooling output	When the ambient temp. is between 10 - 18 C in cooling and fan operation
12	Indoor unit overload alrm output	Refer to "IU overload alarm"

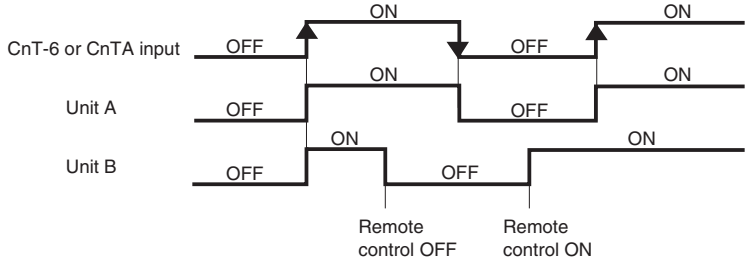
(b) Input for external control

The external input for the indoor unit can be selected from the following input.

	Input name	Content
1	Run/Stop	Refer to [(21) (c) Remote operation input]
2	Premission/Prohibition	Refer to [(22) Operation permission/prohibition]
3	Cooling/Heating	Refer to [(24) Selection of cooling/heating external input function]
4	Emergency stop	Indoor/outdoor units stop the operation, and [E63] is displayed.
5	Setting temperature shift	Set temperature is shifted by +2/-2C in cooling/heating.
6	Forced thermo-OFF	Unit goes thermo off.
7	Temporary stop	Refer to [(23) Temporary stop input]
8	Silent mode	Outdoor unit silent mode is avtivate.

(i) In case of "Level input" setting (Factory default)

Input signal to CnT-6 or CnTA is OFF→ON …… unit ON
Input signal to CnT-6 or CnTA is ON→OFF …… unit OFF
Operation is not inverted.

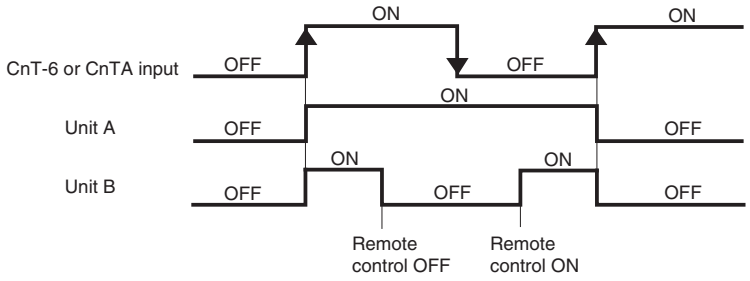


Note (1) The latest operation has priority.

It is available to operate/stop by remote control or center control.

(ii) In case of "Pulse input" setting (Local setting)

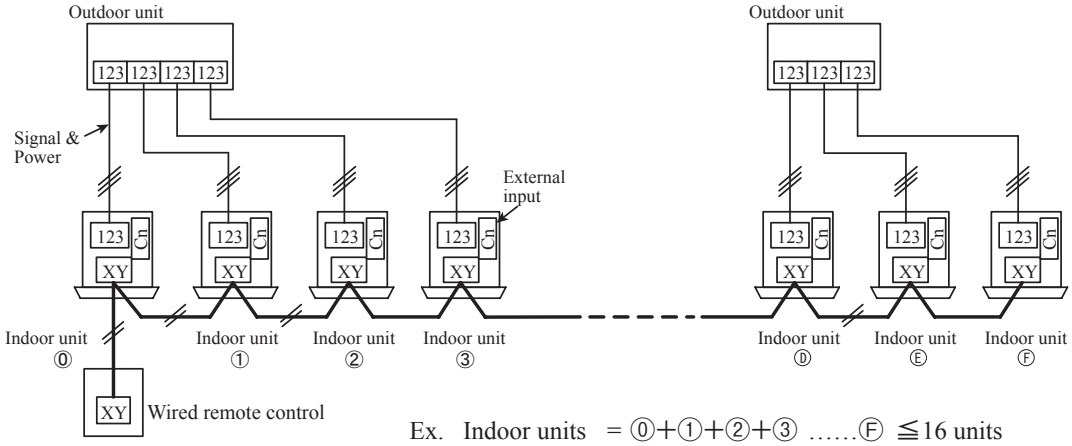
It is effective only when the input signal to CnT-6 or CnTA is changed OFF→ON, and at that time unit operation [ON/OFF] is inverted.



(c) Remote operation

(i) In case of multiple units (Max. 16 indoor units group) are connected to one wired remote control

When the indoor function setting of wired remote control for "External control set" is changed from "Individual (Factory default)" to " For all units", all units connected in one wired remote control system can be controlled by external operation input.



Ex. Indoor units = ⓪+①+②+③ ……Ⓕ ≦16 units

	Individual operation (Factory default)		All units operation (Local setting)	
CnT-6 or CnTA	ON	OFF	ON	OFF
	Only the unit directly connected to the remote control can be operated.	Only the unit directly connected to the remote control can be stopped opeartion.	All units in one remote control system can be operated.	All units in one remote control system can be stopped operation.
	Unit ① only	Unit ① only	Units ①－Ⓕ	Units ①－Ⓕ

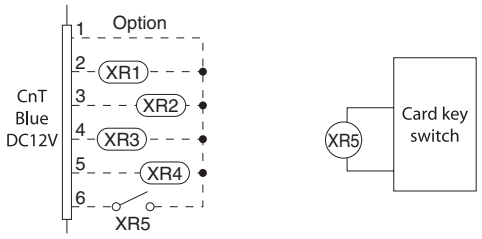
When more than one indoor unit (Max. 16 indoor units) are connected in one wired remote control system:
(1) With the factory default, external input to CnT-6 or CnTA is effective for only the unit ①.
(2) When setting "For all unit" (Local setting), all units in one remote control system can be controlled by external input to CnT-6 or CnTA on the indoor unit ①.
(3) External input to CnT-6 or CnTA on the other indoor unit than the unit ① is not effective.

(22) Operation permission/prohibition

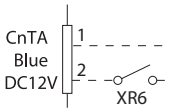
(In case of adopting card key switches or commercially available timers)

When the indoor function setting of wired remote control for "Operation permission/prohibition" is changed from "Invalid (Factory default)" to " Valid", following control becomes effective.

・CnT



・CnTA (FDUM, FDE only)



Note (1) CnTA function can be changed by RC-EX3.

	Normal operation (Factory default)		Operation permission/prohibition mode "Valid" (Local setting)	
CnT-6 or CnTA	ON	OFF	ON	OFF
	Operation	Stop	Operation permission*1	Operation prohibition (Unit stops)

*1 **Only the "LEVEL INPUT" is acceptable for external input**, however when the indoor function setting of "Level input (Factory default)" or "Pulse input" is selected by the function for "External input" of the wired remote control, operation status will be changed as follows.

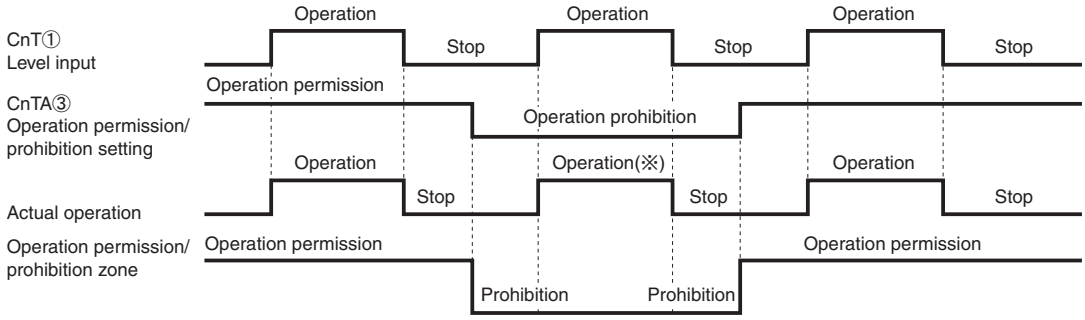
In case of "Level input" setting	In case of "Pulse input" setting
Unit operation from the wired remote control becomes available*(1)	Unit starts operation *(2)

*(1) In case that "Operation permission/prohibition mode" setting is "Valid" and "External input" setting is "Level input (Factory default)";
① When card key switch is ON (CnT-6 or CnTA ON: Operation permission), start/stop operation of the unit from the wired remote control becomes available.
② When card key switch is OFF (CnT-6 or CnTA OFF: Operation prohibition), the unit stops operation in conjunction with OFF signal, and start/stop operation of the unit from the wired remote control becomes unavailable.

*(2) In case that "Operation permission/prohibition mode" setting is "Valid" and "External input" setting is "Pulse input (Local setting)";
① When card key switch is ON (Operation permission), the unit starts operation in conjunction with ON signal. and also start/stop operation of the unit from the wired remote control becomes available.
② When card key switch is OFF (Operation prohibition), the unit stops operation in conjunction with OFF signal, and start/stop operation of the unit from the wired remote control becomes unavailable.

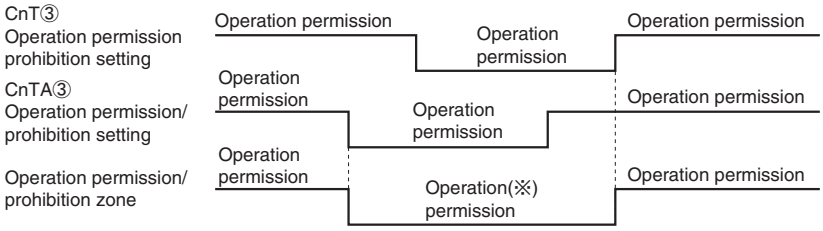
(3) This function is invalid only at "Center mode" setting done by central control.

(a) In case of CnT ① Operation stop level > CnTA ③ Operation permission/prohibition level



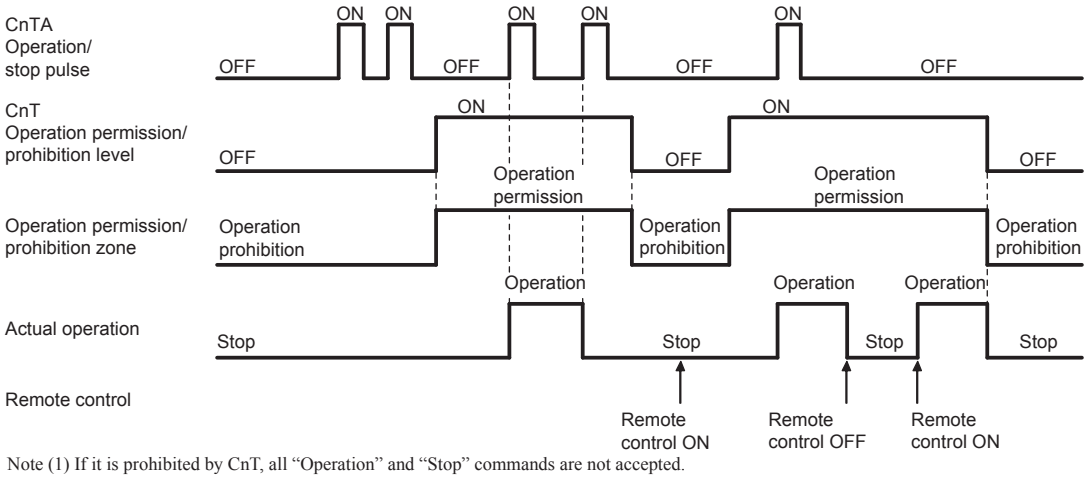
(※) CnT level input supersedes CnTA operation prohibition.

(b) In case of CnT ③ operation permission/prohibition level + CnTA ③ operation permission/prohibition level



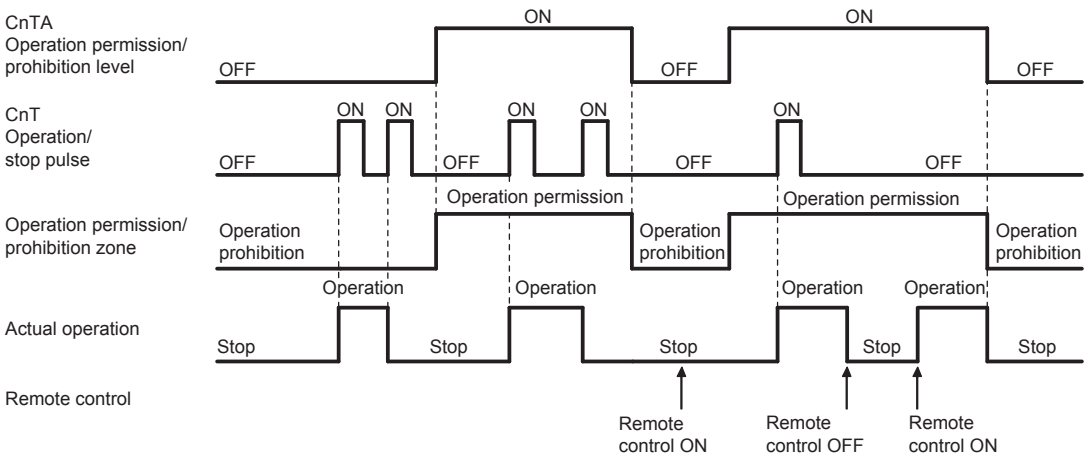
(※) Operation prohibition zone is determined by the OR judgment between CnT operation prohibition zone and CnTA operation prohibition zone.

(c) In case of CnT ③ operation permission/prohibition level > CnTA ② operation/stop pulse



Note (1) If it is prohibited by CnT, all "Operation" and "Stop" commands are not accepted.

(d) In case of CnT ② operation/stop pulse + CnTA ③ operation permission/prohibition level

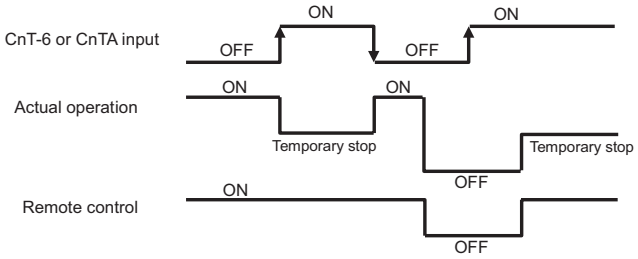


(23) Temporary stop input

In case of temporary stop, operation lamp of remote control lights, but indoor/outdoor unit stop the operation.

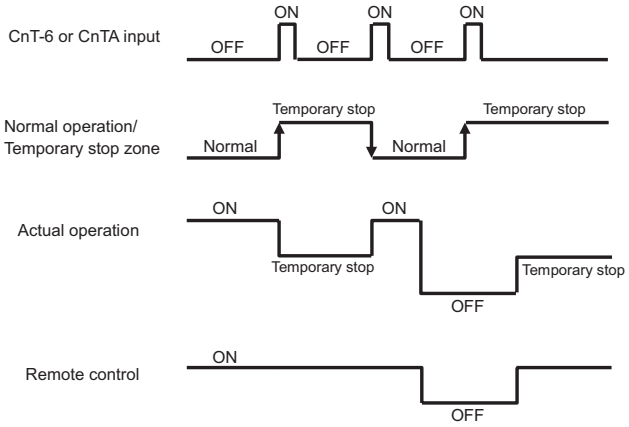
(a) In case of "level input" setting (Factory default)

Input signal to CnT-6 or CnTA is OFF → ON : Temporary stop
Input signal to CnT-6 or CnTA is OFF → ON : Normal operation



(b) In case of "pulse input" setting (Local setting)

It is effective only when the input signal is changed OFF→ON, and "temporary stop/normal operation" is inverted.



(24) Selection of cooling/heating external input function

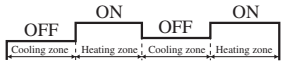
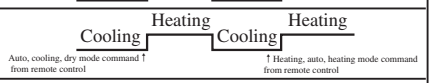
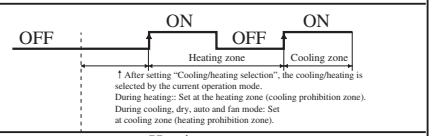
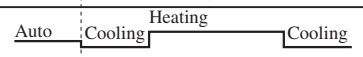
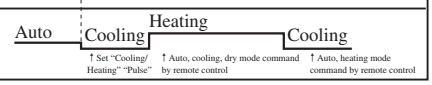
(a) When "External input 1 setting: Cooling/heating" is set by the indoor unit function from remote control, the cooling or heating is selected with CnT-6 or CnTA.

(b) When the external input 1 method selection: Level input is set by the indoor unit function:
・CnT-6 or CnTA: OPEN → Cooling operation mode
・CnT-6 or CnTA: CLOSE → Heating operation mode

(c) When the external input 1 method selection: Pulse input is set by the indoor unit function:
If the external input is changed OPEN → CLOSE, operation modes are inverted (Cooling → Heating or Heating → Cooling).

(d) If the cooling/heating selection signal is given by the external input, the operation mode is transmitted to the remote control.

■ Selection of cooling/heating external input function

External input selection	External input method	Operation	
External input selection Cooling/heating selection	⑤ Level	External terminal input (CnT or CnTA)	
		Cooling/heating	
		Cooling/heating (Competitive)	
	⑥ Pulse	External terminal input (CnT or CnTA)	
		Cooling/heating	
		Cooling/heating (Competitive)	

Note (1) Regarding the priority order for combinations of CnT and CnTA, refer to Page 185.

(25) Fan control at heating startup

(a) Starting conditions

At the start of heating operation, if the difference of setting temperature and return air temperature is 5°C or higher after the end of hot start control, this control is performed.

(b) Contents of control

(i) Sampling is made at each minute and, when the indoor unit heat exchanger temperature (detected with Thi-R) is 37°C or higher, present number of revolutions of indoor unit fan speed is increased by 10 min^{-1}.

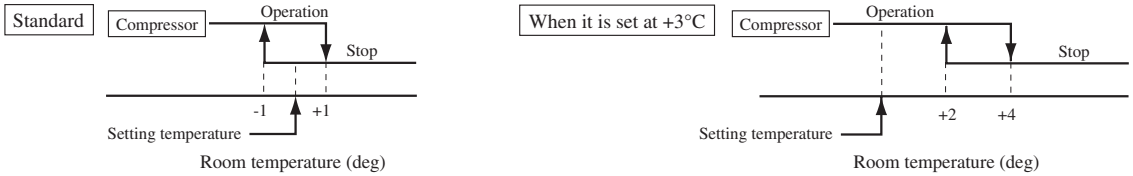
(ii) If the indoor unit heat exchanger temperature drops below 37°C at next sampling, present number of revolutions of indoor unit fan speed is reduced by 10 min^{-1}.

(c) Ending conditions

Indoor fan speed is reduced to the setting airflow volume when the compressor OFF is established and at 30 minutes after the start of heating operation.

(26) Room temperature detection temperature compensation during heating

With the standard specification, the compressor is turned ON/OFF with the thermostat setting temperature. When the thermostat is likely to turn OFF earlier because the unit is installed at the ceiling where warm air tends to accumulate, the setting can be changed with the wired remote control indoor unit function "SP OFFSET". The compressor and the heater are turned ON/OFF at one of the setting temperature +3, +2 or +1°C in order to improve the feeling of heating. The setting temperature, however, has the upper limit of 30°C.



(27) Return air temperature compensation

This is the function to compensate the deviation between the detection temperature by the return air temperature sensor and the measured temperature after installing the unit.

(a) It is adjustable in the unit of 0.5°C with the wired remote control indoor unit function "RETURN AIR TEMP".

• +1.0°C, +1.5°C, +2.0°C • -1.0°C, -1.5°C, -2.0°C

(b) Compensated temperature is transmitted to the remote control and the compressor to control them.

Note (1) The detection temperature compensation is effective on the indoor unit sensor only.

(28) High power operation (RC-EX3 only)

It operates at with the set temperature. fixed at 16°C for cooling, 30°C for heating and maximum indoor fan speed for 15 minutes maximum.

(29) Energy-saving operation (RC-EX3 only)

It operates with the setting temperature fixed at 28°C for cooling, 22°C for heating or 25°C for auto. When fan control in cooling/heating thermo-OFF setting is "Set fan speed", fan speed during thermo-OFF is changed to "Low"(Maximum capacity is restricted at 80%.)

(30) Warm-up control (RC-EX3 only)

Operation will be started 5 to 60 minutes before use according to the forecast made by the microcomputer which calculates when the operation should be started in order to warm up the indoor temperature near the setting temperature at the setting time of operation start.

(31) Home leave mode (RC-EX3 only)

When the unit is not used for a long period of time, the room temperature is maintained at a moderate leval, avoiding extremely hot or cool temperature.

(a) Cooling or heating is operated according to the outdoor temperature (factory setting 35°C for cooling, 0°C for heating) and the setting temperature. (factory setting 33°C for cooling, 10°C for heating)

(b) Setting temperature and indoor fan speed can be set by RC-EX3.

(32) Auto temp. setting (RC-EX3 only)

Setting temperature is adjusted automatically at the adequate temperature the center setting temperature. is 24°C by correcting the outdoor air temperature.

(33) Fan circulator operation (RC-EX3 only)

When the fan is used for circulation, the unit is operated as follows depending on the setting with the remote control.

(a) If the invalid is selected with the remote control, the fan is operated continuously during the fan operation. (mormal fan mode)

(b) If the valid is selected with the remote control, the fan is operated or stopped when on the difference of the remote control temperature sensor and the return air temperature sensor becomes bigger than 3°C.

(34) The operation judgment is executed every 5 minutes (RC-EX3 only)

Setting temperature Ts is changed according to outdoor temperature.
This control is valid with cooling and heating mode. (Not auto mode)

(a) Operate 5 minutes forcedly.

(b) Setting temperature is adjusted every 10 minutes.

(i) Cooling mode
Ts = outdoor temperature − offset value

(ii) Heating mode
Ts = outdoor temperature − offset value

(c) If the return air temperature lower than 18°C in cooling or return air temperature becomes higher than 25°C in heating, unit goes thermostat OFF.

(35) Auto fan speed control (RC-EX3 only)

In order to reach the room temperature to the set temperature as quickly as possible, the air flow rate is increased when the set temperature of thermostat differs largely from the return air temperature. According to temperature difference between set temperature and return air temperature, indoor fan tap are controlled automalically.

・Auto 1: Changes the indoor fan tap within the range of Hi ↔ Me ↔ Lo.
・Auto 2: Changes the indoor fan tap within the range of PHi ↔ Hi ↔ Me ↔ Lo.

(36) IU overload alarm (RC-EX3 only)

If the following condition is satisfied at 30 minutes after starting operation, RC-EX3 shows maintenance code "M07" and the signal is transmitted to the external output (CnT-2-5).

・Cooling, Dry, Auto(Cooling) : Indoor air temperature = Set room temperature by remote control + Alarm temperature difference
・Heating, Auto(Heating) : Indoor air temperature = Set room temperature by remote control - Alarm temperature difference

Alarm temperature difference is selectable between 5 to 10°C.

If the following condition is satisfied or unit is stopped, the signal is disappeared.

・Cooling, Dry, Auto(Cooling) : Indoor air temperature = Set room temperature + Alarm temperature difference -2°C
・Heating, Auto(Heating) : Indoor air temperature = Set room temperature - Alarm temperature difference +2°C

(37) Peak-cut timer (RC-EX3 only)

Power consumption can be reduced by restricting the maximum capacity.
Set the [Start time], the [End time] and the capacity limit % (Peak-cut %).

・4-operation patterns per day can be set at maximum.
・The setting time can be changed by 5-minutes interval.
・The selectable range of capacity limit % (Peak-cut %) is from 0% to 40-80% (20% interval).
・Holiday setting is available.

7.3 Outdoor units

7.3.1 Outline of heating operation

(1) Summary

(a) Capacity control

(i) Indoor unit SRK ** ZSX models only

Model	SCM50ZS-S1	SCM60ZM-S1
Capacity	1.4 – 7.5 kW	1.5 – 7.8 kW

(ii) Indoor unit SKMZSP-S models only**

Model	SCM50ZS-S1	SCM60ZM-S1
Capacity	1.4 – 7.3kW	–

(iii) Indoor unit except SRK ** ZSX and SKMZSP-S models**

Model	SCM50ZS-S1	SCM60ZM-S1
Capacity	1.4 – 7.3 kW	1.5 – 7.6 kW

Capacity control is within the range shown above. If demand capacity of the indoor units exceeds the maximum capacity of the outdoor unit, the demand capacity will be proportionally distributed.

(b) Outdoor compressor speed control

Indoor compressor total speed value	Decision speed
0 rps	0 rps
A rps or less	**A** rps
More than **A** rps, but **B** rps or less	**A** rps to **B** rps
More than **B** rps	**B** rps

● Values of **A**, **B**

Item \ Model		SCM50	SCM60
A	Two connection	30 rps	40 rps
	More than three connection		30 rps
B	One connection	120 rps	90 rps
	More than two connection		120 rps

(2) Operation of major functional components in heating mode

Functional components \ Operation		Heating	Thermostat OFF (All indoor units)	Thermostat OFF (Some of indoor units)	Fan, stop, abnormal stop (Some of indoor units)	Failure (Outdoor unit)
Compressor speed		Multi-operation rpm calculated based on the rpm required for each indoor unit	0 (All indoor units)	0 (Thermostat off units)	0 (Fan, stop, abnormal stop units)	0 (All units)
Indoor fan	Fixed	According to mode switching	Hot keep	According to mode switching		Hot keep
	Automatic	According to command speed	Hot keep	According to command speed		Hot keep
Outdoor fan		According to outdoor fan speed	OFF	According to outdoor fan speed		OFF
Electronic expansion valve		According to decision speed	According to stop mode	According to heating stop unit control (Thermostat off units)	According to heating stop unit control (Fan, stop, abnormal stop units)	According to stop mode
Compressor		ON	OFF	ON	ON	OFF

(3) Defrost operation

(a) Starting conditions

Defrost operation can be started only when all of the following conditions are satisfied.

(i) After start of heating operation

When it elapsed 40 minutes. (Accumulated compressor operation time)

(ii) After end of defrost operation

When it elapsed 40 minutes. (Accumulated compressor operation time)

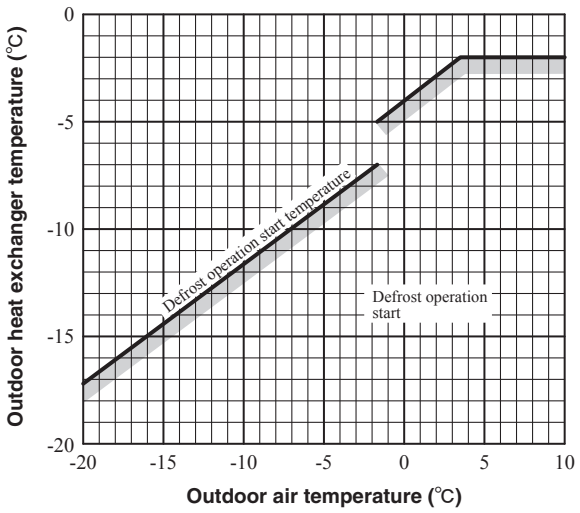
(iii) Outdoor heat exchanger temperature (Tho-R)

When the temperature has been below −2ºC for 3 minutes continuously.

(iv) The condition of outdoor air temperature (Tho-A) and the outdoor heat exchanger temperature (Tho-R)

(Tho-A)−(Tho-R) ≧ 0.44 × (Tho-A) + A

Tho-A	A
−2 °C ≦ Tho-A	4
−15 °C ≦ Tho-A < −2 °C	6
Tho-A < −15 °C	6



(v) During continuous compressor operation

In addition, when the speed command from the indoor control of the indoor unit during heating operation has counted 0 rps 10 times or more and all conditions of (i), (ii), (iii) and (v) above and the outdoor air temperature is 3ºC or less are satisfied (note that when the temperature for outdoor heat exchanger sensor (Tho-R) is −2ºC or less: 62 rps or more, −2ºC or less: less than 62 rps), defrost operation is started.

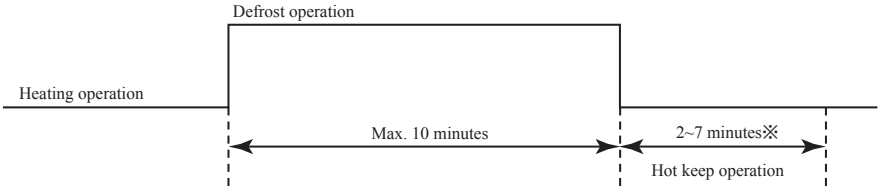
(b) Ending conditions

Operation returns to the heating cycle when either one of the following conditions is satisfied.

(i) Outdoor heat exchanger sensor (Tho-R) temperature: 20ºC or higher

(ii) Outdoor heat exchanger sensor (Tho-R) temperature: 2 minutes as for 10ºC

(iii) Continued operation time of defrost → For more than 10 minutes



※ Depends on an operation condition, the time can be longer than 7 minutes.

7.3.2 Outline of cooling operation

(1) Summary

(a) Capacity control

(i) Indoor unit SRK ∗∗ ZSX models only

Model	SCM50ZS-S1	SCM60ZM-S1
Capacity	1.8 − 7.1 kW	1.8 − 7.5 kW

(ii) Indoor unit SKM ∗∗ ZSP-S models only

Model	SCM50ZS-S1	SCM60ZM-S1
Capacity	1.8 − 6.9 kW	−

(iii) Indoor unit except SRK ∗∗ ZSX and SKM∗∗ ZSP-S models

Model	SCM50ZS-S1	SCM60ZM-S1
Capacity	1.8 − 6.9 kW	1.8 − 7.3 kW

Capacity control is within the range shown above. If demand capacity of the indoor units exceeds the maximum capacity of the outdoor unit, the demand capacity will be proportionally distributed.

(b) Outdoor compressor speed control

Indoor compressor total speed value	Decision speed
0 rps	0 rps
A rps or less	**A** rps
More than **A** rps, but **B** rps or less	**A** rps to **B** rps
More than **B** rps	**B** rps

● Values of **A**, **B**

Model	SCM50	SCM60
A	30 rps	20 rps
B	120 rps	120 rps

(2) Operation of major functional components in cooling mode

Functional components \ Operation		Cooling	Thermostat OFF (All indoor units)	Thermostat OFF (Some of indoor units)	Fan, stop, abnormal stop (Some of indoor units)	Failure (Outdoor unit)
Compressor speed		Multi-operation rpm calculated based on the rpm required for each indoor unit	0 (All indoor units)	0 (Thermostat off units)	0 (Fan, stop, abnormal stop units)	0 (All units)
Indoor fan	**Fixed**	According to mode switching				
	Automatic	According to command speed	According to mode switching	According to command speed		
Outdoor fan		According to outdoor fan speed	OFF	According to outdoor fan speed		OFF
Electronic expansion valve		According to decision speed	According to stop mode	All closed (Thermostat off units)	All closed (Fan, stop, abnormal stop units)	According to stop mode
Compressor		ON	OFF	ON	ON	OFF

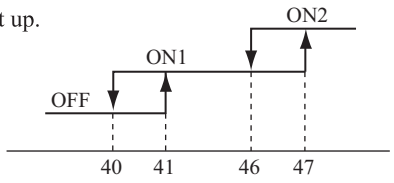
7.3.3 Protective control function

(1) Cooling overload protective control

(a) Operating conditions

When the outdoor air temperature (Tho-A) has become continuously for 30 seconds at 41ºC or more, or 47ºC or more with the compressor running, the lower limit speed of compressor is brought up.

Item \ Model	SCM50, 60	
Outdoor air temperature	41°C or more	47°C or more
Lower limit speed	30 rps	40 rps



Outdoor air temperature (°C)

(b) Detail of operation

The lower limit of compressor speed is set to 30 or 40 rps and even if the calculated result becomes lower than that after fuzzy calculation, the speed is kept to 30 or 40 rps. However, when the thermostat OFF, the speed is reduced to 0 rps.

(c) Reset conditions

When either of the following conditions is satisfied.

(i) The outdoor air temperature is lower than 40ºC.

(ii) The compressor speed is 0 rps.

(2) Cooling high pressure control

(a) Purpose

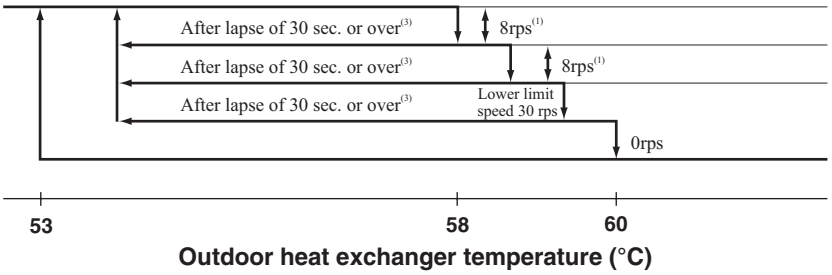
Prevents anomalous high pressure operation during cooling.

(b) Detector

Outdoor heat exchanger sensor (Tho-R).

(c) Detail of operation

(Example) Fuzzy



Outdoor heat exchanger temperature (°C)

Notes (1) When the outdoor heat exchanger temperature is in the range of 58–60ºC, the compressor speed is reduced by 8 rps at each 20 seconds.
(2) When the temperature is 60ºC or higher, the compressor is stopped.
(3) When the outdoor heat exchanger temperature is in the range of 53–58ºC, if the compressor speed is been maintained and the operation has continued for more than 30 seconds at the same speed, it returns to the normal cooling operation.

(3) Cooling low outdoor temperature protective control

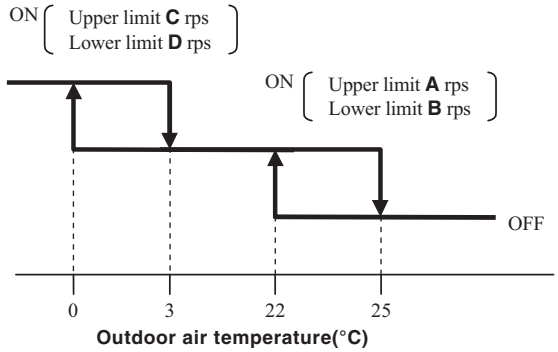
(a) Operating conditions

When the outdoor air temperature (Tho-A) is 22°C or lower continues for 20 seconds while compressor speed is other than 0 rps.

(b) Detail of operation

(i) The lower limit of compressor speed is set to **B** or **D** rps and even if the speed becomes lower than **B** or **D** rps, the speed is kept to **B** or **D** rps. However, when the thermostat OFF, the speed is reduced to 0 rps.

(ii) The upper limit of compressor speed is set to **A** or **C** rps, the speed is kept to **A** or **C** rps.



• Values of **A-D**

Model	SCM50	SCM60
A	75 rps	75 rps
B	35 rps	30 rps
C	60 rps	60 rps
D	45 rps	40 rps

(c) Reset conditions

When the either of the following conditions is satisfied.

(i) When the outdoor air temperature (Tho-A) becomes 25°C or higher.

(ii) When the compressor speed is 0rps.

(4) Heating high pressure control

(a) Starting condition

When the indoor heat exchanger temperature (Th2) has risen to a specified temperature while the compressor is turned on.

(b) Operating condition

Compressor speed is controlled according to the zones of indoor heat exchanger temperature as shown by the following table.

	Th2 < P1	P1 ≦ Th2 < P2	P2 ≦ Th2 < P3	P3 ≦ Th2 < P4	P4 ≦ Th2
Protection control speed (NP)	Normal	Retention	NP–4rps	NP–8rps	NP = 0
Sampling time (s)	Normal	20	20	20	Normal

• Model SCM50

Unit: °C

NP \ Th2	P1	P2	P3	P4
10 ≦ NP < 115	45	52	56	58
115 ≦ NP < 120	45 – 43	52 – 50	56 – 54	58
120 ≦ NP	43	50	54	58

• Model SCM60

Unit: °C

NP \ Th2	P1	P2	P3	P4
10 ≦ NP < 90	45	52	56	58
90 ≦ NP < 120	45 – 43	52 – 45	56 – 48	58
120 ≦ NP	43	45	48	58

(5) Heating overload protective control

(a) Operating conditions

When the outdoor air temperature (Tho-A) is 13ºC or higher continues for 30 seconds while the compressor speed other than 0 rps.

(b) Detail of operation

(i) Taking the upper limit of compressor speed range at **A**, **C** or **E**, if the output speed obtained with the fuzzy calculation exceeds the upper limit, the upper limit value is maintained.

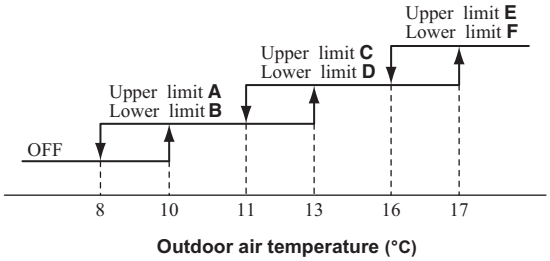
(ii) The lower limit of compressor speed is set to **B**, **D** or **F** and even if the calculated result becomes lower than that after fuzzy calculation, the speed is kept to **B**, **D** or **F**. However, when the thermostat OFF, the speed is reduced to 0 prs.

(iii) Inching prevention control is activated and inching prevention control is carried out with the minimum speed set at **B**, **D** or **F**.

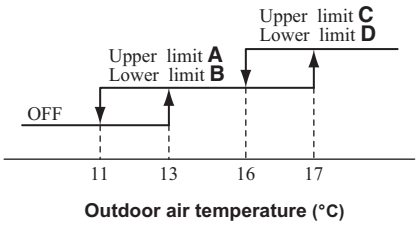
(c) Reset conditions

The outdoor air temperature (Tho-A) is lower than 8ºC (model SCM60 : 11ºC).

Model SCM50



Model SCM60



Unit: rps

Model \ Item		A	B	C	D	E	F
SCM50	Indoor unit : 3 units or more	120	30	90	35	75	40
	Indoor unit : 2 units or less	120	40	90	40	75	40
SCM60		90	30	75	40	—	—

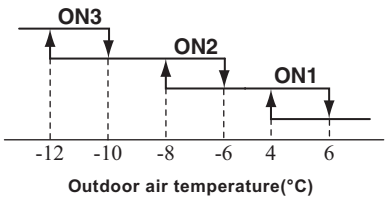
(6) Heating low outdoor temperature protective control

(a) Operating conditions

When the outdoor air temperature (Tho-A) is lower than 4ºC or higher continues for 30 seconds while the compressor speed is other than 0 rps.

(b) Detail of operation

The lower limit compressor speed is change as shown in the figure below.



Unit: rps

Model \ Item		ON1	ON2	ON3
SCM50	Indoor unit : 1 unit	35	55	65
	Indoor unit : 2 units or more	35	55	65
SCM60	—	35	40	—

(c) Reset conditions

When either of the following conditions is satisfied.

(i) The outdoor air temperature (Tho-A) becomes 6ºC.

(ii) The compressor speed is 0 rps.

(7) Refrigeration cycle system protective control

(a) Starting condition

This control starts when the following conditions are satisfied.

(i) When it has elapsed 30 minutes after the compressor was changed from OFF to ON in the cooling operation mode for more than 5 minutes.

(ii) When the compressor speed has satisfied the following conditions.

(iii) When the indoor air temperature of running indoor unit (Th1) and the indoor heat exchanger temperature (Th2) have satisfied the following condition even on one unit.

Unit	Compressor speed		Indoor air temperature (Th1, °C)	Indoor air temperature (Th1) and indoor heat exchanger temperature (Th2)	Duration
	SCM50	SCM60			
1	60 rps	40 rps	$10 \leqq Th1 \leqq 40$	Th1 - 4 < Th2	5 minute
2	70 rps	50 rps			
3	80 rps	60 rps		Th1 - 3 < Th2	

(b) Contents of control

(i) Stop the compressor and delay the start, and then restarts.

(ii) Compressor stops by the abnormal stop when the compressor stop has occurred 3 times in one hour.

(8) Crankcase heater

(a) Operating conditions

This control starts when all the conditions below are satisfied.

(i) After the operation mode is changed to stop and the compressor speed becomes 0 rps continuously for 30 minutes.

(ii) When the temperature detected by the outdoor air temperature (Tho-A) is -2°C or lower after the compressor stops.

(b) Detail of operation

The crankcase heater operates, warming up the compressor, then refrigerant begins circulating smoothly when the air-conditioner starts its heating operation, and heating begins.

(c) Reset conditions

When the temperature detected by the outdoor air temperature (Tho-A) reaches 0°C or higher, or the operation mode changes from stop to cooling or heating.

(9) Inching prevention

When the compressor becomes to the thermostat operation within 5 minutes since operation start or becomes dehumidifying operation, the operation is continued with the compressor speed of minimum rps forcibly.

(10) Compressor overheat protection

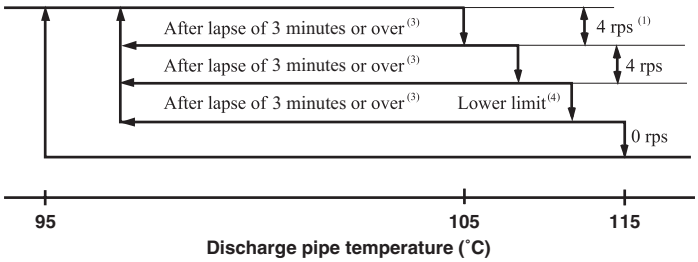
(a) Purpose

It is designed to prevent deterioration of oil, burnout of motor coil and other trouble resulting from the compressor overheat.

(b) Detail of operation

(i) Speeds are controlled with temperature detected by the sensor (Tho-D) mounted on the discharge pipe.

(Example) Fuzzy



Notes (1) When the discharge pipe temperature is in the range of 105−115ºC, the speed is reduced by 4 rps.

(2) When the discharge pipe temperature is raised and continues operation for 20 seconds without changing, then the speed is reduced again by 4 rps.

(3) If the discharge pipe temperature is in the range of 95−105ºC even when the compressor speed is maintained for 3 minutes when the temperature is in the range of 95−105ºC, the speed is raised by 1 rps and kept at that speed for 3 minutes. This process is repeated until the command speed is reached.

(4) Lower limit speed

Model \ Item		Cooling	Heating
Lower limit speed	SCM50	32 rps	32 rps
	SCM60	25 rps	32 rps

(ii) If the temperature of 115ºC is detected by the sensor on the discharge pipe, then the compressor will stop immediately. When the discharge pipe temperature drops and the time delay of 3 minutes is over, the unit starts again within 1 hour but there is no start at the third time.

(11) Current safe

(a) Purpose

Current is controlled not to exceed the upper limit of the setting operation current.

(b) Detail of operation

(i) Input current to the converter is monitored with the current sensor fixed on the printed circuit board of the outdoor unit and, if the operation current value reaches the limiting current value, the compressor speed is reduced.

(ii) If the mechanism is actuated when the compressor speed is less than 30 rps, the compressor is stopped immediately. Operation starts again after a delay time of 3 minutes.

(c) Current safe control value

Set this using the jumper wire (J1 or J2) on the outdoor PCB. Control starts when it exceeds the control value.

1) Switching with jumper wire

		Jumper wire (J2)	
		Short-circuit (At shipping from factory)	Short-circuit
Jumper wire (J1)	Short-circuit (At shipping from factory)	Current safe ①	Current safe ②
	Open	Current safe ③	Current safe ③

2) Control value

Unit: A

Model	Current safe ①		Current safe ②		Current safe ③	
	Cooling	Heating	Cooling	Heating	Cooling	Heating
SCM50	10.0	12.0	10.0	10.0	7.5	7.5
SCM60	11.0	14.0	10.0	10.0	7.5	7.5

(12) Current cut

(a) Purpose

Inverter is protected from overcurrent.

(b) Detail of operation

Output current from the inverter is monitored with a shunt resistor and, if the current exceeds the setting value, the compressor is stopped immediately. Operation starts again after a delay time of 3 minutes.

(13) Outdoor unit failure

This is a function for determining when there is trouble with the outdoor unit during air-conditioning.

The compressor is stopped if any one of the following in item (a), (b) is satisfied. Once the unit is stopped by this functi on, it is not restarted.

(a) When the input current is measured at 1 A or less for 3 continuous minutes or more.

(b) If the compressor sends a 0 rps signal to the indoor unit 3 times or more within 20 minutes of the power being turned on.

(14) Discharge pipe sensor disconnection protection control

(a) When the compressor speed is other than 0 rps.

(i) Tho-D(10)−Tho-D(0) < 8 °C, and Tho-D(10)−Tho-A(10) < 5 °C

The compressor speed is set on **A** rps for 5 minutes. After 5 minutes, the compressor speed is set on **B** rps for 5 minutes.

(ii) Tho-D(20)−Tho-D(15) < 5 °C

The compressor speed is set on 0 rps.

Notes (1) Tho-D(X): After compressor operation, the discharge pipe temperature sensor after X minutes.
(2) Tho-A(X): After compressor operation, the outdoor air temperature sensor after X minutes.

(b) Once the unit is stopped by this function, it is not restarted.

• Values of **A**, **B**

Model	SCM50	SCM60
A	30 rps	20 rps
B	60 rps	60 rps

(15) Regulation of outdoor air flow

(a) The fan operates as follows according to the compressor speed. (Except during defrost operation.)

◆Model SCM50

	Cooling			Heating		
Compressor speed (rps)	Less than 30	More than 30 but 48 or less	48 or more	Less than 30	More than 30 but 61 or less	61 or more
Outdoor fan speed	4th speed	5th speed	6th speed	4th speed	5th speed	6th speed

◆Model SCM60

	Cooling		Heating	
Compressor speed (rps)	Less than 48	48 or more	Less than 61	61 or more
Outdoor fan speed	5th speed	6th speed	5th speed	6th speed

(b) If the outdoor unit's fan speed drops, the outdoor fan is run for 1 minute at that speed.

(16) Serial signal transmission error protection

(a) Purpose

Prevents malfunction resulting from error on the indoor ↔ outdoor signals.

(b) Detail of operation

(i) If the compressor is operating and a serial signal cannot be received from the indoor control with outdoor control having serial signals continues for 7 minute and 35 seconds, the compressor is stopped.

(ii) After the compressor has been stopped, it will be restarted after the compressor start delay if a serial signal can be received again from the indoor control.

(17) Rotor lock

If the motor for the compressor does not turn after it has been started, it is determined that a compressor lock has occurred and the compressor is stopped.

(18) Outdoor fan motor protection

If the outdoor fan motor has operated at 75 min^{-1} or under for more than 30 seconds, the compressor and fan motor are stopped.

(19) Outdoor fan control at low outdoor temperature

(a) Cooling

(i) Operating conditions

When the outdoor air temperature (Tho-A) is 22ºC or lower continues for 30 seconds while the compressor speed is other than 0 rps.

(ii) Detail of operation

After the outdoor fan operates at A speed for 60 seconds; the corresponding outdoor heat exchanger temperature shall implement the following controls.

● Value of A

	Outdoor fan
Outdoor air temperature > 10˚C	2nd speed
Outdoor air temperature ≦ 10˚C	1st speed

1) Outdoor heat exchanger temperature (Tho-R) ≦ 22ºC
After the outdoor fan speed drops (down) to 1 speed for 60 seconds; if the outdoor heat exchanger temperature is lower than 22ºC, gradually reduce the outdoor fan speed by 1 speed.

● Lower limit speed

	Lower limit speed
Outdoor air temperature > 16˚C	2nd speed
Outdoor air temperature ≦ 16˚C	1st speed

2) 22ºC < Outdoor heat exchanger temperature (Tho-R) ≦ 37ºC) (SCM60 : 40ºC)
After the outdoor fan speed maintains at A speed for 20 seconds; if the outdoor heat exchanger temperature is 22ºC-37ºC (SCM60 : 40ºC), maintain outdoor fan speed.

3) Outdoor heat exchanger temperature (Tho-R) > 37ºC (SCM60 : 40ºC)
After the outdoor fan speed rises (up) to 1 speed for 60 seconds; if the outdoor heat exchanger temperature is higher than 37ºC (SCM60 : 40ºC), gradually increase outdoor fan speed by 1 speed. (Upper limit 4th speed)

(iii) Reset conditions

When either of the following conditions is satisfied.

1) The outdoor air temperature (Tho-A) is 24ºC or higher.
2) The compressor speed is 0 rps.

(b) Heating

(i) Operating conditions

When the outdoor air temperature (Tho-A) is 3ºC or lower continues for 30 seconds while the compressor speed is other than 0 rps.

(ii) Detail of operation

The outdoor fan is stepped up by 1 speed. (Upper limit 7th speed)

(iii) Reset conditions

When either of the following conditions is satisfied.

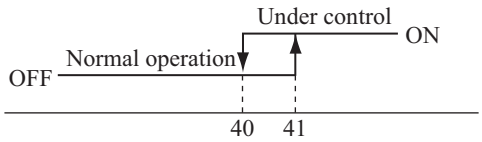
1) The outdoor air temperature (Tho-A) is 5ºC or higher.
2) The compressor speed is 0 rps.

(20) Outdoor fan control at overload

(a) Cooling

(i) Starting condition

When the outdoor air temperature (Tho-A) has risen higher than 41°C for 30 seconds continuously while the compressor is operating.



Outdoor air temperature(°C)

(ii) Contents of control

The outdoor fan is stepped up by 3 speed. (Upper limit 6th speed)

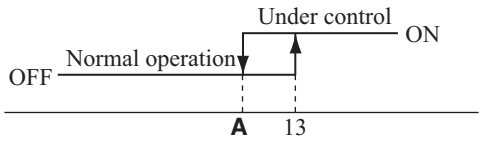
(iii) Reset condition

When the compressor is turned off or the outdoor air temperature (Tho-A) has dropped lower than 40°C.

(b) Heating

(i) Starting condition

When the outdoor heat exchanger temperature (Tho-R) has risen higher than 13°C for 30 seconds continuously while the compressor is operating.



Outdoor heat exchanger temperature(°C)

(ii) Contents of control

The outdoor unit fan is stepped down by **B** speed. (Lower limit is **C** speed)

(iii) Reset condition

When the compressor is turned off or the outdoor heat exchanger temperature (Tho-R) has dropped lower than **A**.

Model		A(℃)	B	C
SCM50		10	3	2nd
SCM60	Indoor unit : 1 unit	8	4	1st
	Indoor unit : 2 units or more	10	3	2nd

8. MAINTENANCE DATA

8.1 SRK, SKM, SRF and SRR series

(1) Cautions

(a) If you are disassembling and checking an air-conditioner, be sure to turn off the power before beginning. When working on indoor units, let the unit sit for about 1 minute after turning off the power before you begin work. When working on an outdoor unit, there may be an electrical charge applied to the main circuit (electrolytic condenser), so begin work only after discharging this electrical charge (to DC10V or lower).

(b) When taking out printed circuit boards, be sure to do so without exerting force on the circuit boards or package components.

(c) When disconnecting and connecting connectors, take hold of the connector housing and do not pull on the lead wires.

(2) Items to check before troubleshooting

(a) Have you thoroughly investigated the details of the trouble which the customer is complaining about?

(b) Is the air-conditioner running? Is it displaying any self-diagnosis information?

(c) Is a power source with the correct voltage connected?

(d) Are the control lines connecting the indoor and outdoor units wired correctly and connected securely?

(e) Is the outdoor unit's service valve open?

(3) Troubleshooting procedure (If the air-conditioner does not run at all)

If the air-conditioner does not run at all, diagnose the trouble using the following troubleshooting procedure. If the air-conditioner is running but breaks down, proceed to troubleshooting step (4).

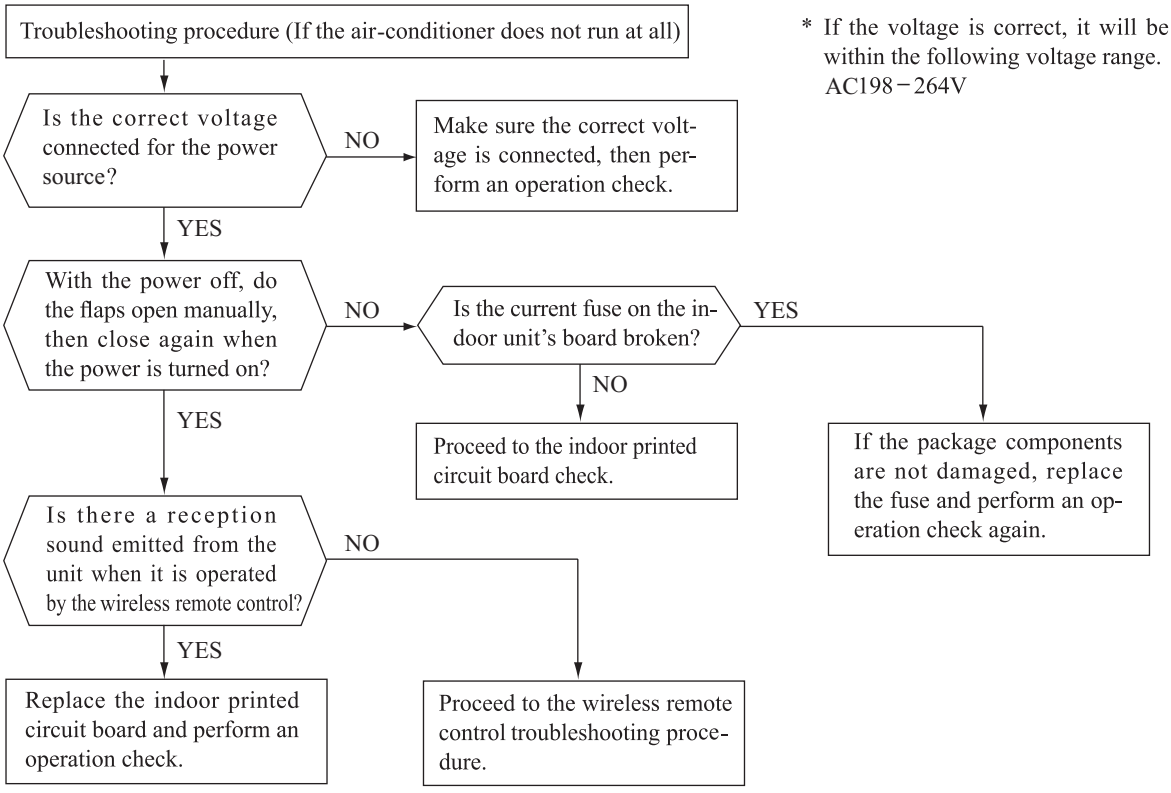
Important When all the following conditions are satisfied, we say that the air-conditioner will not run at all.

(a) The RUN light does not light up.

(b) The flaps do not open.

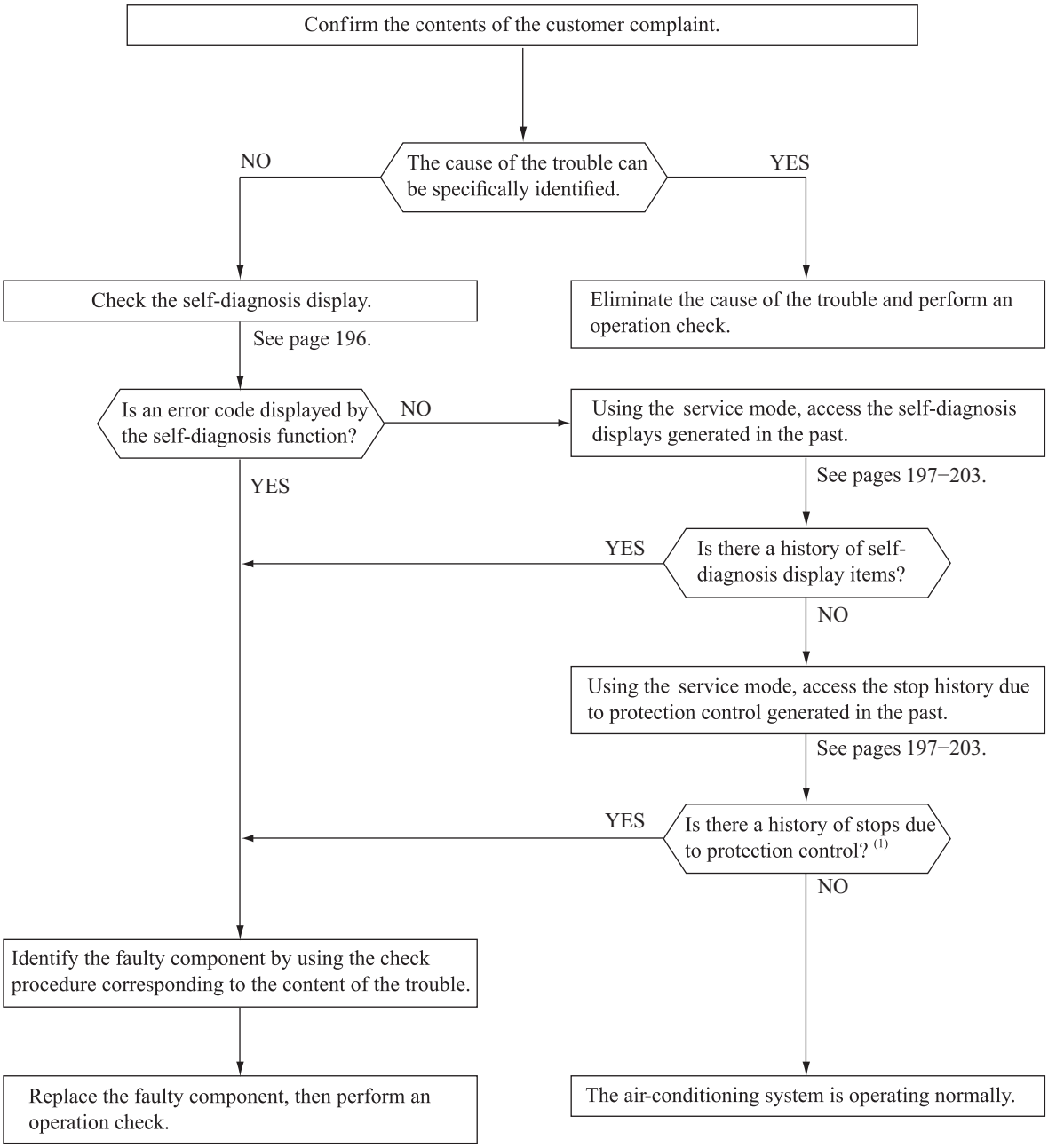
(c) The indoor unit fan motors do not run.

(d) The self-diagnosis display does not function.



* If the voltage is correct, it will be within the following voltage range.
AC198－264V

(4) Troubleshooting procedure (If the air-conditioner runs)



Note (1) Even in cases where only intermittent stop data are generated, the air-conditioning system is normal. However, if the same protective operation recurs repeatedly (3 or more times), it will lead to customer complaints. Judge the conditions in comparison with the contents of the complaints.

(5) Self-diagnosis table

When this air-conditioner performs an emergency stop, the reason why the emergency stop occurred is displayed by the flashing of display lights. If the air-conditioner is operated using the remote control 3 minutes or more after the emergency stop, the trouble display stops and the air-conditioner resumes operation. (1)

Indoor unit display panel		Wired (2) remote control display	Description of trouble	Cause	Display (flashing) condition
RUN light	TIMER light				
1-time flash	ON	—	Heat exchanger sensor 1 error	• Broken heat exchanger sensor 1 wire, poor connector connection • Indoor PCB is faulty	When a heat exchanger sensor 1 wire disconnection is detected while operation is stopped. (If a temperature of –28ºC or lower is detected for 15 seconds, it is judged that the wire is disconnected.) (Not displayed during operation.)
2-time flash	ON	—	Room temperature sensor error	• Broken room temperature sensor wire, poor connector connection • Indoor PCB is faulty	When a room temperature sensor wire disconnection is detected while operation is stopped. (If a temperature of –45ºC or lower is detected for 15 seconds, it is judged that the wire is disconnected.) (Not displayed during operation.)
3-time flash	ON	—	Heat exchanger sensor 2 error	• Broken heat exchanger sensor 2 wire, poor connector connection • Indoor PCB is faulty	When a heat exchanger sensor 2 wire disconnection is detected while operation is stopped. (If a temperature of –28ºC or lower is detected for 15 seconds, it is judged that the wire is disconnected.) (Not displayed during operation.)
4-time flash	ON	E 9	Drain(3) trouble	• Defective drain pump (DM), broken drain pump wire • Anomalous float switch operation • Defective indoor PCB faulty	If the float switch OPEN is defected for 3 seconds continuously or if float switch connector or wire is disconnected.
6-time flash	ON	E 16	Indoor fan motor error	• Defective fan motor, poor connector connection	When conditions for turning the indoor unit's fan motor on exist during air-conditioner operation, an indoor fan motor speed of 300 (SRF : 150) min^{-1} or lower is measured for 30 seconds or longer. (The air-conditioner stops.)
Keeps flashing	1-time flash	E 38	Outdoor air temperature sensor error	• Broken outdoor air temp. sensor wire, poor connector connection • Outdoor main PCB is faulty	–55ºC or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. Or –55ºC or higher is detected for within 20 seconds after power ON. (The compressor is stopped.)
Keeps flashing	2-time flash	E 37	Outdoor heat exchanger sensor error	• Broken heat exchanger sensor wire, poor connector connection • Outdoor main PCB is faulty	–55ºC or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. Or –55ºC or higher is detected for within 20 seconds after power ON. (The compressor is stopped.)
Keeps flashing	4-time flash	E 39	Discharge pipe sensor error	• Broken discharge pipe sensor wire, poor connector connection • Outdoor main PCB is faulty	–25ºC or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. (The compressor is stopped.)
Keeps flashing	5-time flash	E 53	Outdoor suction pipe sensor error	• Broken suction pipe sensor wire, poor connector connection • Outdoor sub PCB is faulty	–55ºC or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. Or –55ºC or higher is detected for within 20 seconds after power ON. (The compressor is stopped)
ON	1-time flash	E 42	Current cut	• Compressor locking, open phase on compressor output, short circuit on power transistor, service valve is closed	The compressor output current exceeds the set value during compressor start. (The air-conditioner stops.)
ON	2-time flash	E 59	Trouble of outdoor unit	• Broken compressor wire • Compressor blockage	When there is an emergency stop caused by trouble in the outdoor unit, or the input current value is found to be lower than the set value. (The air-conditioner stops.)
ON	3-time flash	E 58	Current safe stop	• Overload operation • Overcharge • Compressor locking	When the compressor speed is lower than the set value and the current safe has operated. (the compressor stops)
ON	4-time flash	E 51	Power transistor error	• Broken power transistor	When the power transistor is judged breakdown while compressor starts. (The compressor is stopped.)
ON	5-time flash	E 36	Over heat of compressor	• Gas shortage, defective discharge pipe sensor, service valve is closed	When the value of the discharge pipe sensor exceeds the set value. (The air-conditioner stops.)
ON	6-time flash	E 5	Error of signal transmission	• Defective power source, Broken signal wire, defective indoor/outdoor sub PCB	When there is no signal between the indoor PCB and outdoor PCB for 10 seconds or longer (when the power is turned on), or when there is no signal for 7 minute 35 seconds or longer (during operation)(the compressor is stopped).
ON	7-time flash	E 48	Outdoor fan motor error	• Defective fan motor, poor connector connection	When the outdoor fan motor speed continues for 30 seconds or longer at 75 min^{-1} or lower. (3 times) (The air-conditioner stops.)
ON	Keeps flashing	E 35	Cooling high pressure protection	• Overload operation, overcharge • Broken outdoor heat exchange sensor wire • Service valve is closed	When the value of the outdoor heat exchanger sensor exceeds the set value.
2-time flash	2-time flash	E 60	Rotor lock	• Defective compressor • Open phase on compressor • Defective outdoor PCB	If the compressor motor's magnetic pole positions cannot be correctly detected when the compressor starts. (The air-conditioner stops.)
5-time flash	ON	E 47	Active filter voltage error	• Defective active filter	When the wrong voltage connected for the power source. When the outdoor main PCB is faulty
7-time flash	ON	E 57	Refrigeration cycle system protective control	• Service valve is closed. • Refrigerant is insufficient	When refrigeration cycle system protective control operates.
—	—	E 45	Outdoor sub PCB communication error	• Outdoor sub PCB fauly • Poor connection of wire between outdoor sub PCB – main PCB	Communication error for 15 minutes: Detected more than 15 seconds 4 times
—	—	E 1	Error of wired remote control wiring	• Broken wired remote control wire, defective indoor PCB	The wired remote control wire Y is open. The wired remote control wires X and Y are reversely connected. Noise is penetrating the wired remote control lines. The wired remote control or indoor PCB is faulty. (The communications circuit is faulty.)
Stays OFF	Keeps flashing	—	Limit switch error	• Defective limit switch • Defective suction panel set • Defective indoor control PCB	Actuation of limit switch

Notes (1)The air-conditioner cannot be restarted using the remote control for 3 minutes after operation stops.
(2)The wired remote control is option parts.
(3)SRR series only.

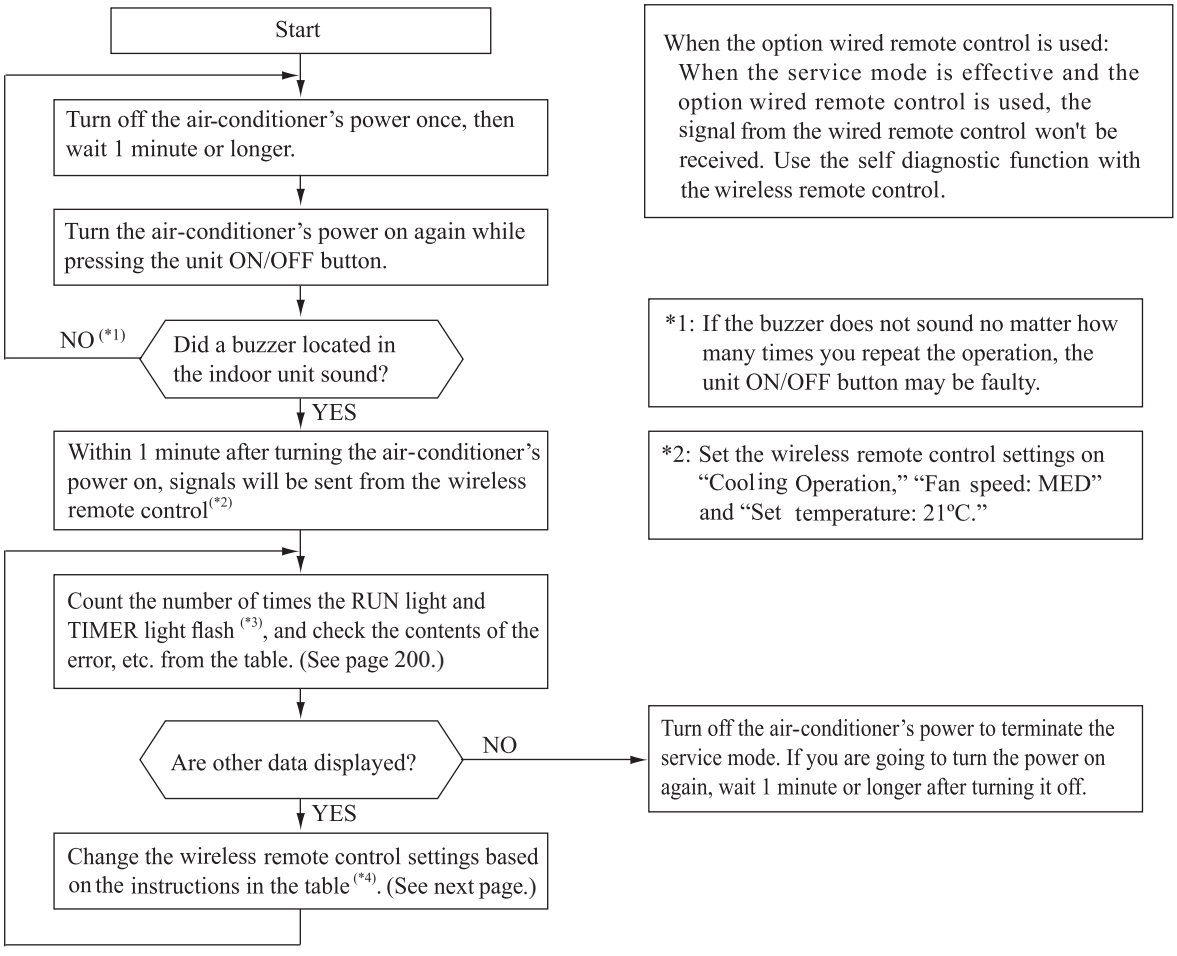
(6) Service mode (Trouble mode access function)

This air-conditioner is capable of recording error displays and protective stops (service data) which have occurred in the past. If self-diagnosis displays cannot be confirmed, it is possible to get a grasp of the conditions at the time trouble occurred by checking these service data.

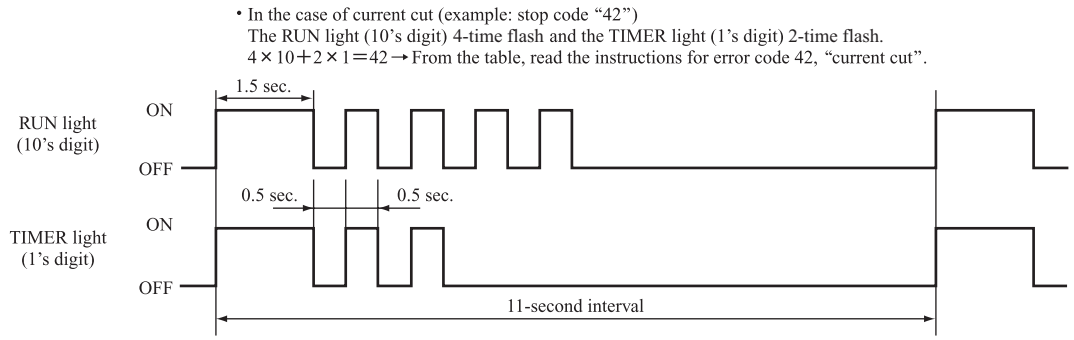
(a) Explanation of terms

Term	Explanation
Service mode	The service mode is the mode where service data are displayed by flashing of the display lights when the operations in item (b) below are performed with the indoor control.
Service data	These are the contents of error displays and protective stops which occurred in the past in the air-conditioner system. Error display contents and protective stop data from past anomalous operations of the air-conditioner system are saved in the indoor unit control's non-volatile memory (memory which is not erased when the power goes off). There are two types of data, self-diagnosis data and stop data, described below.
Self-diagnosis data	These are the data which display the reason why a stop occurred when an error display(self-diagnosis display) occurred in an indoor unit. Data are recorded for up to 5 previous occurrences. Data which are older than the 5th previous occurrence are erased. In addition, data on the temperature of each sensor (room temperature, indoor heat exchanger, outdoor heat exchanger, outdoor air temperature, discharge pipe), remote control information (operation switching, fan speed switching) are recorded when trouble occurs, so more detailed information can be checked.
Stop data	These are the data which display the reason by a stop occurred when the air-conditioning system performed protective stops, etc. in the past. Even if stop data alone are generated, the system restarts automatically. (After executing the stop mode while the display is normal, the system restarts automatically.) Data for up to 10 previous occasions are stored. Data older than the 10th previous occasion are erased. (Important) In cases where transient stop data only are generated, the air-conditioner system may still be normal. However, if the same protective stop occurs frequently (3 or more times), it could lead to customer complaints.

(b) Service mode display procedure



*3: To count the number of flashes in the service mode, count the number of flashes after the light lights up for 1.5 second initially (start signal). (The time that the light lights up for 1.5 second (start signal) is not counted in the number of flashes.)



*4: When in the service mode, when the wireless remote control settings (operation mode, fan speed mode, temperature setting) are set as shown in the following table and sent to the air-conditioner unit, the unit switches to display of service data.

(i) Self-diagnosis data

What are Self-diagnosis data?

These are control data (reasons for stops, temperature at each sensor, wireless remote control information) from the time when there were error displays (abnormal stops) in the indoor unit in the past.

Data from up to 5 previous occasions are stored in memory. Data older than the 5th previous occasion are erased.

The temperature setting indicates how many occasions previous to the present setting the error display data are and the operation mode and fan speed mode data show the type of data.

Wireless remote control setting		Contents of output data
Operation mode	Fan speed mode	
Cooling	MED	Displays the reason for stopping display in the past (error code).
	HI	Displays the room temperature sensor temperature at the time the error code was displayed in the past.
	AUTO	Displays the indoor heat exchanger sensor temperature at the time the error code was displayed in the past.
Heating	LO	Displays the wireless remote control information at the time the error code was displayed in the past.
	MED	Displays the outdoor air temperature sensor temperature at the time the error code was displayed in the past.
	HI	Displays the outdoor heat exchanger sensor temperature at the time the error code was displayed in the past.
	AUTO	Displays the discharge pipe sensor temperature at the time the error code was displayed in the past.

Wireless remote control setting	Indicates the number of occasions previous to the present the error display data are from.
Temperature setting	
21ºC	1 time previous (previous time)
22ºC	2 times previous
23ºC	3 times previous
24ºC	4 times previous
25ºC	5 times previous

Only for indoor heat exchanger sensor 2

Wireless remote control setting	Indicates the number of occasions previous to the present the error display data are from.
Temperature setting	
26ºC	1 time previous (previous time)
27ºC	2 times previous
28ºC	3 times previous
29ºC	4 times previous
30ºC	5 times previous

(Example)

Wireless remote control setting			Displayed data
Operation mode	Fan speed mode	Temperature setting	
Cooling	MED	21ºC	Displays the reason for the stop (error code) the previous time an error was displayed.
		22ºC	Displays the reason for the stop (error code) 2 times previous when an error was displayed.
		23ºC	Displays the reason for the stop (error code) 3 times previous when an error was displayed.
		24ºC	Displays the reason for the stop (error code) 4 times previous when an error was displayed.
		25ºC	Displays the reason for the stop (error code) 5 times previous when an error was displayed.

(ii) Stop data

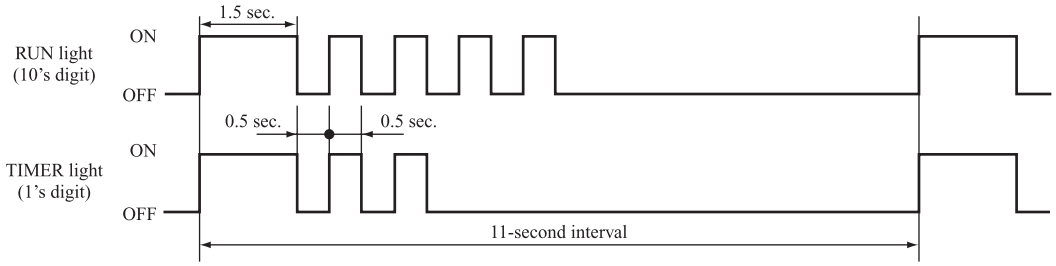
Wireless remote control setting			Displayed data
Operation mode	Fan speed mode	Temperature setting	
Cooling	LO	21ºC	Displays the reason for the stop (stop code) the previous time when the air-conditioner was stopped by protective stop control.
		22ºC	Displays the reason for the stop (stop code) 2 times previous when the air-conditioner was stopped by protective stop control.
		23ºC	Displays the reason for the stop (stop code) 3 times previous when the air-conditioner was stopped by protective stop control.
		24ºC	Displays the reason for the stop (stop code) 4 times previous when the air-conditioner was stopped by protective stop control.
		25ºC	Displays the reason for the stop (stop code) 5 times previous when the air-conditioner was stopped by protective stop control.
		26ºC	Displays the reason for the stop (stop code) 6 times previous when the air-conditioner was stopped by protective stop control.
		27ºC	Displays the reason for the stop (stop code) 7 times previous when the air-conditioner was stopped by protective stop control.
		28ºC	Displays the reason for the stop (stop code) 8 times previous when the air-conditioner was stopped by protective stop control.
		29ºC	Displays the reason for the stop (stop code) 9 times previous when the air-conditioner was stopped by protective stop control.
		30ºC	Displays the reason for the stop (stop code) 10 times previous when the air-conditioner was stopped by protective stop control.

(c) Error code, stop code table (Assignment of error codes and stop codes is done in common for all models.)

Number of flashes when in service mode		Stop coad or Error coad	Error content	Cause	Occurrence conditions	Error display	Auto recovery
RUN light (10's digit)	TIMER light (1's digit)						
OFF	OFF	0	Normal	—	—	—	—
	1-time flash	01	Error of wired remote control wiring	Broken wired remote control wire, defective indoor PCB	The wired remote control wire Y is open. The wired remote control wires X and Y are reversely connected. Noisc is penetrating the wired remote control lines. The wired remote control or indoor PCB is faulty.	—	○
	5-time flash	05	Can not receive signals for 35 seconds (if communications have recovered)	Power source is faulty. Power source cables and signal lines are improperly wired. Indoor or outdoor sub PCB are faulty	When 35 seconds passes without communications signals from either the outdoor unit or the indoor unit being detected correctly.	○	—
3-time flash	5-time flash	35	Cooling high pressure control	Cooling overload operation. Outdoor unit fan speed drops. Outdoor heat exchanger sensor is short circuit.	When the outdoor heat exchanger sensor's value exceeds the set value.	○ (5 times)	○
	6-time flash	36	Compressor overheat 115°C	Refrigerant is insufficient. Discharge pipe sensor is faulty. Service valve is closed.	When the discharge pipe sensor's value exceeds the set value.	○ (2 times)	○
	7-time flash	37	Outdoor heat exchanger sensor is abnormal	Outdoor heat exchanger sensor wire is disconnected. Connector connections are poor. Outdoor main PCB is faulty	–55°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after intial detection of this anomalous temperature. Or–55°C higher is detected for 5 seconds continuously within 20 seconds after power ON.	○ (3 times)	○
	8-time flash	38	Outdoor air temperature sensor is abnormal	Outdoor air temperature sensor wire is disconnected. Connector connections are poor. Outdoor main PCB is faulty	–55°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after intial detection of this anomalous temperature. Or–55°C higher is detected for 5 seconds continuously within 20 seconds after power ON.	○ (3 times)	○
	9-time flash	39	Discharge pipe sensor is abnormal (anomalous stop)	Discharge pipe sensor wire is disconnected. Connector connections are poor. Outdoor main PCB is faulty	–25°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after intial detection of this anomalous temperature.	○ (3 times)	○
4-time flash	2-time flash	42	Current cut	Compressor lock. Compressor wiring short circuit. Compressor output is open phase. Outdoor main PCB is faulty Service valve is closed. Electronic expansion valve is faulty. Compressor is faulty.	Compressor start fails 42 times in succession and the reason for the final failure is current cut.	○ (2 times)	○
	5-time flash	45	Anomalous outdoor sub PCB commuication	Outdoor sub PCB fauly. Poor connection of wire between outdoor sub PCB-main PCB.	Communication error for 15 minutes: Detected more than 15 seconds 4 times.	○	○
	7-time flash	47	Active filter voltage error	Defective active filter.	When the wrong voltage connected for the power source. When the outdoor main PCB is faulty.	○	—
	8-time flash	48	Outdoor fan motor is abnormal	Outdoor fan motor is faulty. Connector connections are poor. Outdoor main PCB is faulty.	When a fan speed of 75 min^{-1} or lower continues for 30 seconds or longer.	○ (3 times)	○
5-time flash	1-time flash	51	Short circuit in the power transistor (high side) Current cut circuit breakdown	Outdoor main PCB is faulty Power transistor is damaged.	When it is judged that the power transistor was damaged at the time the compressor started.	○	—
	3-time flash	53	Suction pipe sensor is abnormal	Suction pipe sensor wire is disconnected. Connector connections are poor. Outdoor sub PCB is faulty.	–55°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after intial detection of this anomalous temperature. Or–55°C higher is detected for 5 seconds continuously within 20 seconds after compressor ON.	○ (3 times)	○
	7-time flash	57	Refrigeration cycle system protective control	Service valve is closed. Refrigerant is insufficient.	When refrigeration cycle system protective control operates.	○ (3 times)	○
	8-time flash	58	Current safe	Refrigerant is overcharge. Compressor lock. Overload operation.	When there is a current safe stop during operation.	—	○
	9-time flash	59	Compressor wiring is unconnection Voltage drop	Compressor wiring is disconnected. Power transistor is damaged. Power source construction is defective. Outdoor main PCB is faulty. Compressor is faulty.	When the current is 1A or less at the time the compressor started. When the power source voltage drops during operation.	○	○
6-time flash	OFF	60	Rotor lock	Compressor is faulty. Compressor output is open phase. Electronic expansion valve is faulty. Overload operation. Outdoor main PCB is faulty.	After the compressor starts, when the compressor stops due to rotor lock.	○ (2 times)	○
	1-time flash	61	Connection lines between the indoor and outdoor units are faulty	Connection lines are faulty. Indoor or outdoor sub PCB are faulty.	When 10 seconds passes after the power is turned on without communications signals from the indoor or outdoor unit being detected correctly.	○	—
	2-time flash	62	Serial transmission error	Indoor or outdoor sub PCB are faulty. Noise is causing faulty operation.	When 7 minute 35 seconds passes without communications signals from either the outdoor unit or the indoor unit being detected correctly.	○	—
8-time flash	OFF	80	Indoor fan motor is abnormal	Indoor fan motor is faulty. Connector connections are poor. Indoor PCB is faulty.	When the indoor fan motor is detected to be running at 300 (SRF : 150) min^{-1} or lower speed with the fan motor in the ON condition while the air-conditioner is running.	○	—
	2-time flash	82	Indoor heat exchanger sensor is abnormal (anomalous stop)	Indoor heat exchanger sensor wire is disconnected. Connector connections are poor	When a temperature of –28°C or lower is sensed continuously for 40 minutes during heating operation. (the compressor stops).	○	—
	4-time flash	84	Anti-condensation control	High humidity condition. Humidity sensor is faulty.	Anti-condensation prevention control is operating.	—	○
	5-time flash	85	Anti-frost control	Indoor unit fan speed drops. Indoor heat exchanger sensor is broken wire.	When the anti-frost control operates and the compressor stops during cooling operation.	—	○
	6-time flash	86	Heating high pressure control	Heating overload operation. Indoor unit fan speed drops. Indoor heat exchanger sensor is short circuit.	When high pressure control operates during heating operation and the compressor stops.	—	○
	7-time flash	87	Drain trouble	Defective drain pump (DM). broken drain pump wire Anomalous float switch operation Defective indoor PCB faulty	If the float switch OPEN is defected for 3 seconds continuously or if float switch connector or wire is disconnected.	○ (4 times)	—

Note (1) The number of flashes when in the service mode do not include the 1.5 second period when the lights light up at first (start signal). (See the example shown below.)

• In the case of current cut (example: stop code "42")
The RUN light (10's digit) 4-time flash and the TIMER light (1's digit) 2-time flash.
4 × 10 + 2 × 1 = 42 → From the table, read the instructions for error code 42, "current cut".



(2) Error display: – Is not displayed. (automatic recovery only)
○ Displayed.
If there is a ( ) displayed, the error display shows the number of times that an auto recovery occurred for the same reason has reached the number of times in ( ).
If no ( ) is displayed, the error display shows that the trouble has occurred once.

(3) Auto recovery: – Does not occur
○ Auto recovery occurs.

(d) Operation mode, Fan speed mode information tables

(i) Operation mode

Display pattern when in service mode RUN light (10's digit)	Operation mode when there is an abnormal stop
–	AUTO
1-time flash	DRY
2-time flash	COOL
3-time flash	FAN
4-time flash	HEAT

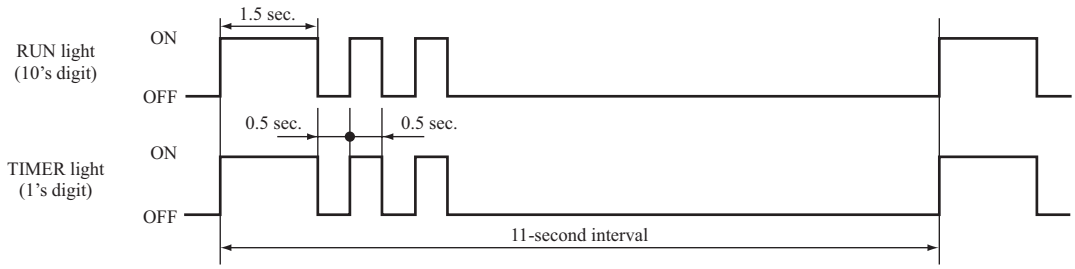
(ii) Fan speed mode

Display pattern when in service mode TIMER light (1's digit)	Fan speed mode when there is an abnormal stop
–	AUTO
2-time flash	HI
3-time flash	MED
4-time flash	LO
5-time flash	ULO
6-time flash	HI POWER
7-time flash	ECONO

* If no data are recorded (error code is normal), the information display in the operation mode and fan speed mode becomes as follows.

Mode	Display when error code is normal.
Operation mode	AUTO
Fan speed mode	AUTO

(Example): Operation mode: COOL, Fan speed mode: HI



(e) Temperature information

(i) Room temperature sensor, indoor heat exchanger sensor, outdoor air temperature sensor, outdoor heat exchanger sensor temperature

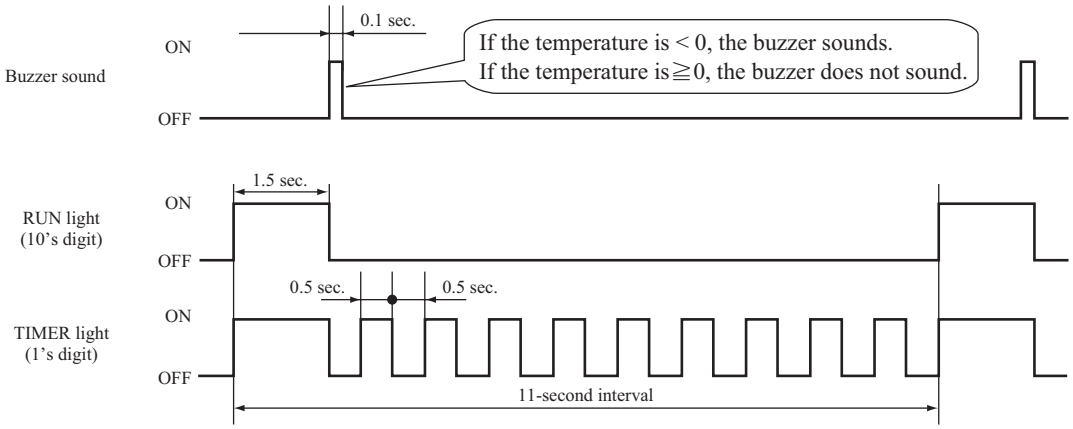
Unit: °C

Buzzer sound / RUN light (10's digit) \ TIMER light (1's digit)		0	1	2	3	4	5	6	7	8	9
Yes (sounds for 0.1 second)	6	-60	-61	-62	-63	-64					
	5	-50	-51	-52	-53	-54	-55	-56	-57	-58	-59
	4	-40	-41	-42	-43	-44	-45	-46	-47	-48	-49
	3	-30	-31	-32	-33	-34	-35	-36	-37	-38	-39
	2	-20	-21	-22	-23	-24	-25	-26	-27	-28	-29
	1	-10	-11	-12	-13	-14	-15	-16	-17	-18	-19
	0		-1	-2	-3	-4	-5	-6	-7	-8	-9
No (does not sound)	0	0	1	2	3	4	5	6	7	8	9
	1	10	11	12	13	14	15	16	17	18	19
	2	20	21	22	23	24	25	26	27	28	29
	3	30	31	32	33	34	35	36	37	38	39
	4	40	41	42	43	44	45	46	47	48	49
	5	50	51	52	53	54	55	56	57	58	59
	6	60	61	62	63	64	65	66	67	68	69
	7	70	71	72	73	74	75	76	77	78	79
	8	80	81	82	83	84	85	86	87	88	89
	9	90	91	92	93	94	95	96	97	98	99

* If no data are recorded (error code is normal), the display for each temperature information becomes as shown below.

Sensor name	Sensor value displayed when the error code is normal
Room temperature sensor	-64ºC
Indoor heat exchanger sensor	-64ºC
Outdoor air temperature sensor	-64ºC
Outdoor heat exchanger sensor	-64ºC

(Example) Outdoor heat exchanger temperature data: "-9ºC"



(ii) Discharge pipe sensor temperature

Unit: °C

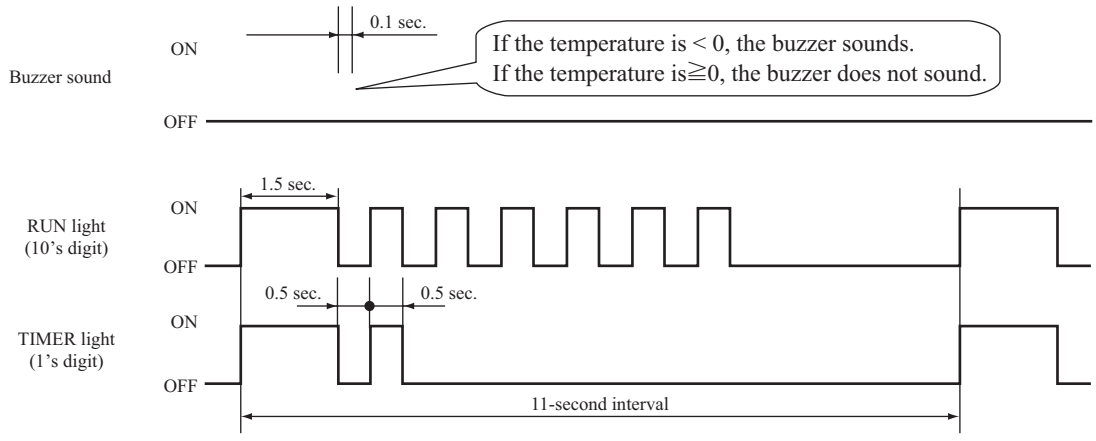
Buzzer sound	RUN light (10's digit) \ TIMER light (1's digit)	0	1	2	3	4	5	6	7	8	9
Yes (sounds for 0.1 second)	3	-60	-62	-64							
	2	-40	-42	-44	-46	-48	-50	-52	-54	-56	-58
	1	-20	-22	-24	-26	-28	-30	-32	-34	-36	-38
	0		-2	-4	-6	-8	-10	-12	-14	-16	-18
No (does not sound)	0	0	2	4	6	8	10	12	14	16	18
	1	20	22	24	26	28	30	32	34	36	38
	2	40	42	44	46	48	50	52	54	56	58
	3	60	62	64	66	68	70	72	74	76	78
	4	80	82	84	86	88	90	92	94	96	98
	5	100	102	104	106	108	110	112	114	116	118
	6	120	122	124	126	128	130	132	134	136	138
	7	140	142	144	146	148	150				

* If no data are recorded (error code is normal), the display for each temperature information becomes as shown below.

Sensor name	Sensor value displayed when the error code is normal
Discharge pipe sensor	-64ºC

(Example) Discharge pipe temperature data: "122ºC"

* In the case of discharge pipe data, multiply the reading value by 2. (Below, 61 x 2 = "122ºC")



Service data record form

Customer		Model	
Date of investigation			
Machine name			
Content of complaint			

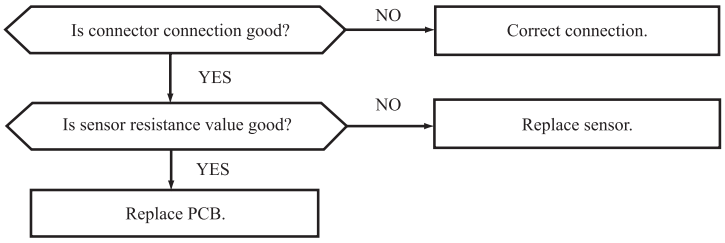
Wireless remote control settings			Content of displayed data	Display results			Display content
Temperature setting	Operation mode	Fan speed mode		Buzzer (Yes/No.)	RUN light (Times)	TIMER light (Times)	
21	Cooling	MED	Error code on previous occasion.				
		HI	Room temperature sensor on previous occasion.				
		AUTO	Indoor heat exchanger sensor 1 on previous occasion.				
	Heating	LO	Wireless remote control information on previous occasion.				
		MED	Outdoor air temperature sensor on previous occasion.				
		HI	Outdoor heat exchanger sensor on previous occasion.				
		AUTO	Discharge pipe sensor on previous occasion.				
26	Cooling	AUTO	Indoor heat exchanger sensor 2 on previous occasion.				
22	Cooling	MED	Error code on second previous occasion.				
		HI	Room temperature sensor on second previous occasion.				
		AUTO	Indoor heat exchanger sensor 1 on second previous occasion.				
	Heating	LO	Wireless remote control information on second previous occasion.				
		MED	Outdoor air temperature sensor on second previous occasion.				
		HI	Outdoor heat exchanger sensor on second previous occasion.				
		AUTO	Discharge pipe sensor on second previous occasion.				
27	Cooling	AUTO	Indoor heat exchanger sensor 2 on second occasion.				
23	Cooling	MED	Error code on third previous occasion.				
		HI	Room temperature sensor on third previous occasion.				
		AUTO	Indoor heat exchanger sensor 1 on third previous occasion.				
	Heating	LO	Wireless remote control information on third previous occasion.				
		MED	Outdoor air temperature sensor on third previous occasion.				
		HI	Outdoor heat exchanger sensor on third previous occasion.				
		AUTO	Discharge pipe sensor on third previous occasion.				
28	Cooling	AUTO	Indoor heat exchanger sensor 2 on third occasion.				
24	Cooling	MED	Error code on fourth previous occasion.				
		HI	Room temperature sensor on fourth previous occasion.				
		AUTO	Indoor heat exchanger sensor 1 on fourth previous occasion.				
	Heating	LO	Wireless remote control information on fourth previous occasion.				
		MED	Outdoor air temperature sensor on fourth previous occasion.				
		HI	Outdoor heat exchanger sensor on fourth previous occasion.				
		AUTO	Discharge pipe sensor on fourth previous occasion.				
29	Cooling	AUTO	Indoor heat exchanger sensor 2 on fouth occasion.				
25	Cooling	MED	Error code on fifth previous occasion.				
		HI	Room temperature sensor on fifth previous occasion.				
		AUTO	Indoor heat exchanger sensor 1 on fifth previous occasion.				
	Heating	LO	Wireless remote control information on fifth previous occasion.				
		MED	Outdoor air temperature sensor on fifth previous occasion.				
		HI	Outdoor heat exchanger sensor on fifth previous occasion.				
		AUTO	Discharge pipe sensor on fifth previous occasion.				
30	Cooling	AUTO	Indoor heat exchanger sensor 2 on fifth occasion.				
21	Cooling	LO	Stop code on previous occasion.				
22			Stop code on second previous occasion.				
23			Stop code on third previous occasion.				
24			Stop code on fourth previous occasion.				
25			Stop code on fifth previous occasion.				
26			Stop code on sixth previous occasion.				
27			Stop code on seventh previous occasion.				
28			Stop code on eighth previous occasion.				
29			Stop code on ninth previous occasion.				
30			Stop code on tenth previous occasion.				
Judgment							Examiner
Remarks							

Note (1) In the case of indoor heat exchanger sensor 2, match from 26 to 30 the temperature setting of wireless remote control. (Refer to page 198)

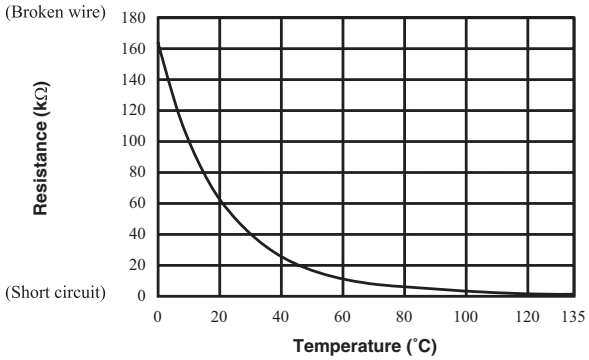
(7) Inspection procedures corresponding to detail of trouble

Sensor error

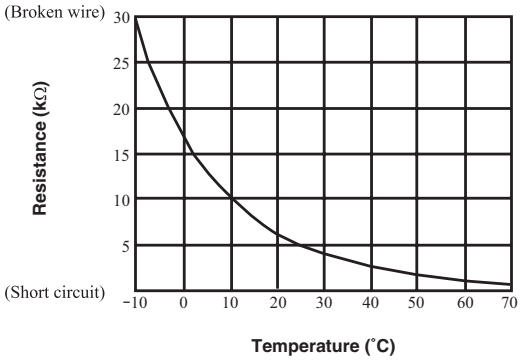
[Broken sensor wire, connector poor connection]



◆ **Discharge pipe and power transistor sensor temperature characteristics**

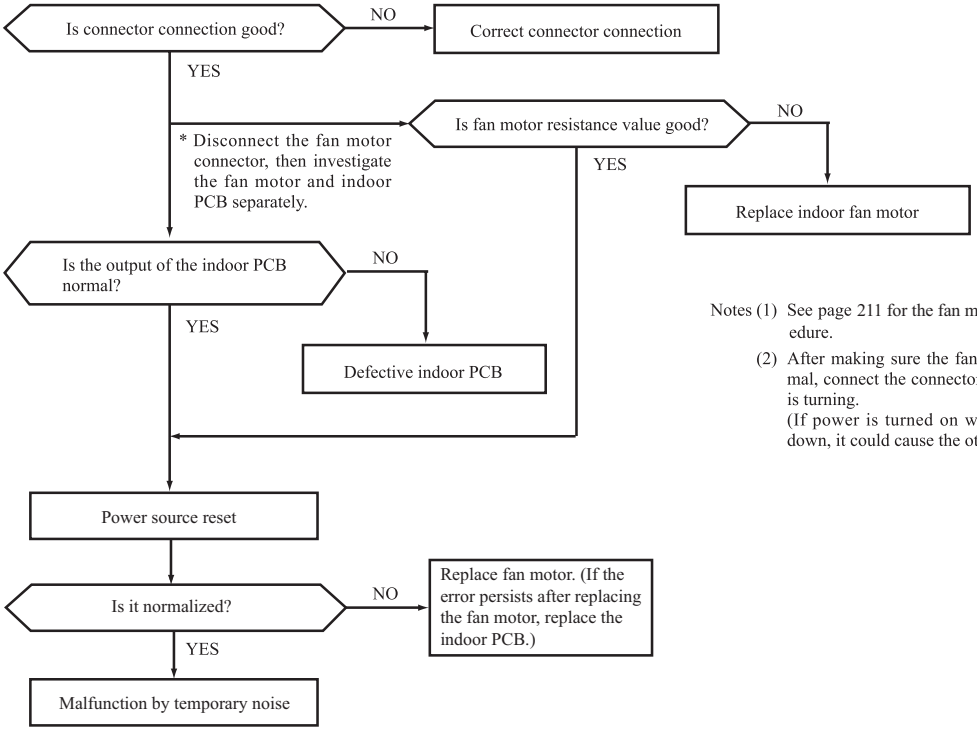


◆ **Sensor temperature characteristics〔Room temp., indoor heat exchanger temp., outdoor heat exchanger temp., outdoor air temp. outdoor suction pipe temp.〕**



Indoor fan motor error

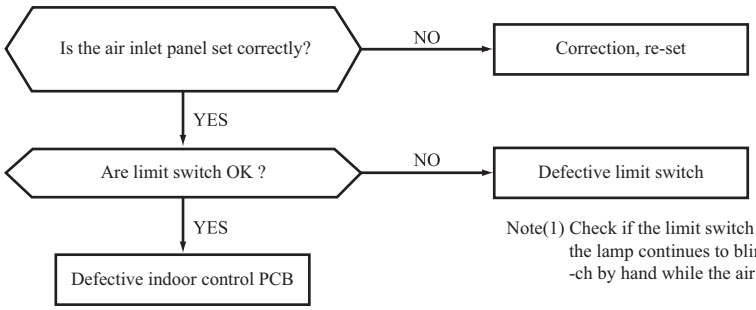
[Defective fan motor, connector poor connection, defective indoor PCB]



Notes (1) See page 211 for the fan motor and indoor PCB check procedure.

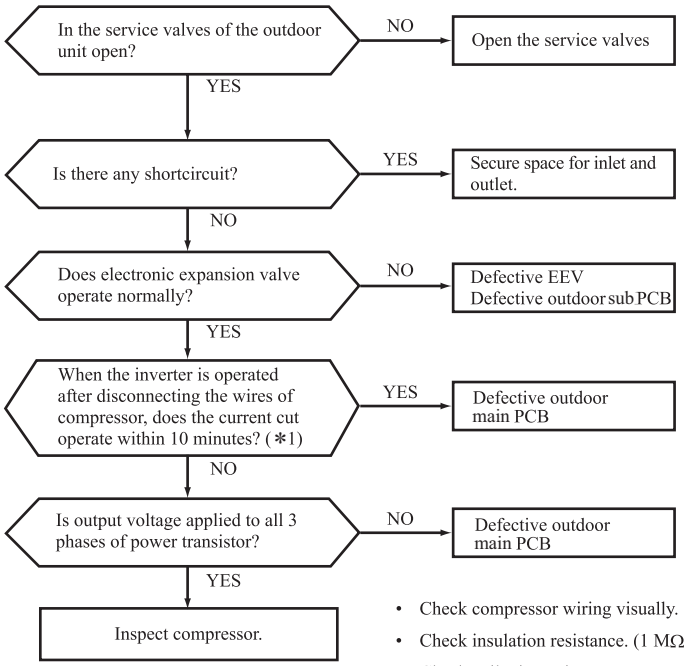
(2) After making sure the fan motor and indoor PCB are normal, connect the connectors and confirm that the fan motor is turning.
(If power is turned on while one or the other is broken down, it could cause the other to break down also.)

Limit switch anomaly (SRK20, 25, 35, 50ZSX-S, -W only) [Defective limit switch, defective indoor control PCB, Defective air inlet panel set]



Note(1) Check if the limit switch functions properly or not by seeing whether the lamp continues to blink or can be reset by pressing the limit swit--ch by hand while the air inlet panel is removed.

Current cut [Compressor lock, Compressor wiring short circuit, Compressor output is open phase, Outdoor PCB is faulty, Service valve is closed, EEV is faulty, Compressor faulty.]



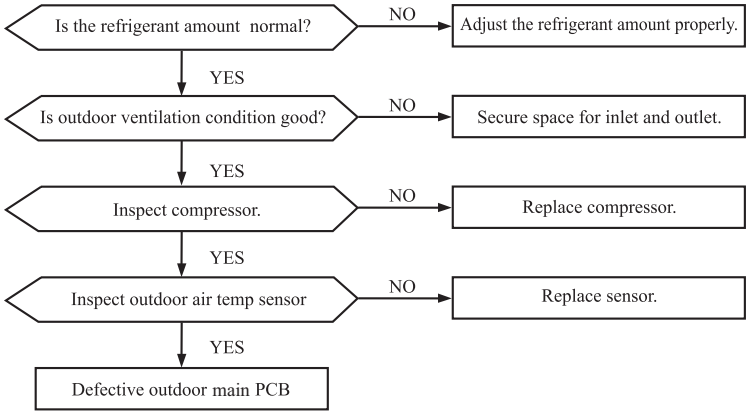
For inspection of electronic expansion valve, see page 214.

∗1 If it is normal, it is the rotor lock problem.

- Check compressor wiring visually.
- Check insulation resistance. (1 MΩ or over)
- Check coil wire resistance.
  1.703Ω or more at 20ºC

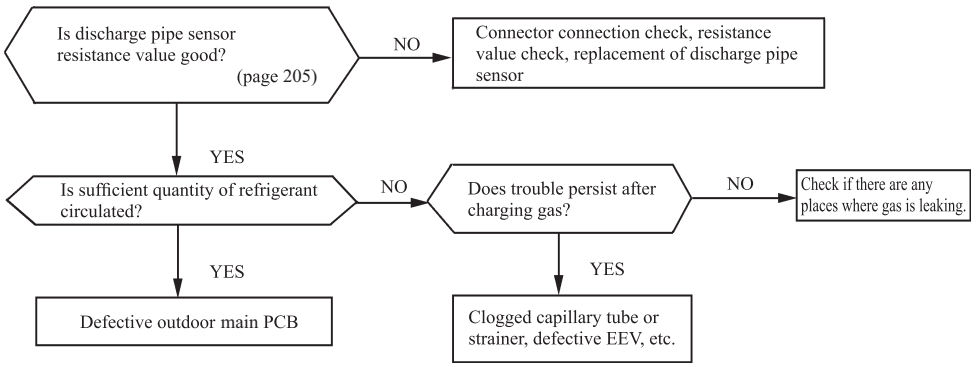
If check results are normal, compressor is locked.

Current safe stop [Overload operation, compressor lock, overcharge]



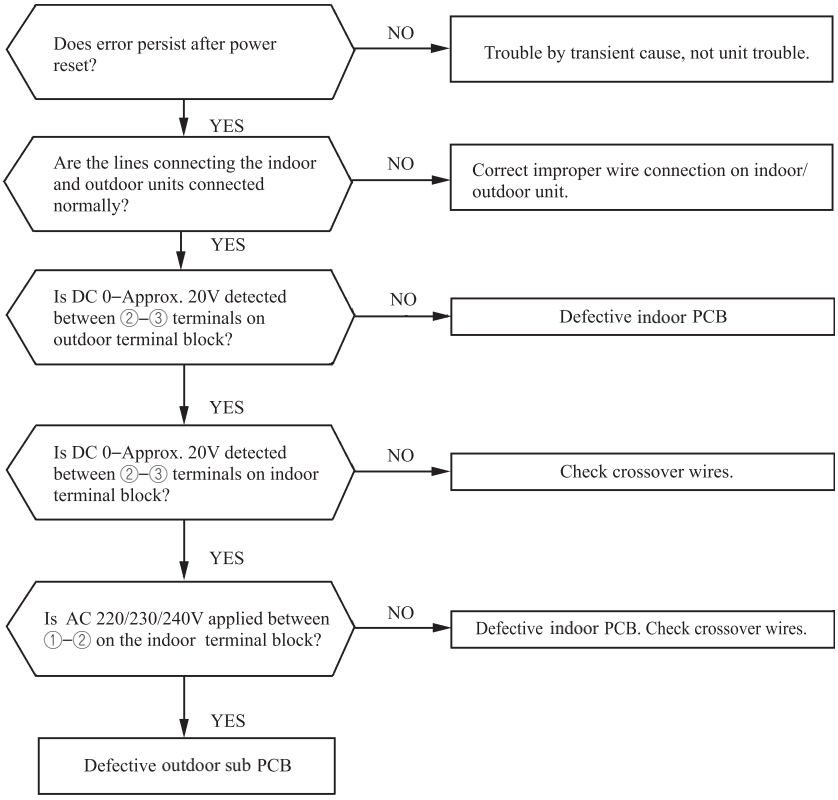
Over heat of compressor

[Gas shortage, defective discharge pipe sensor]



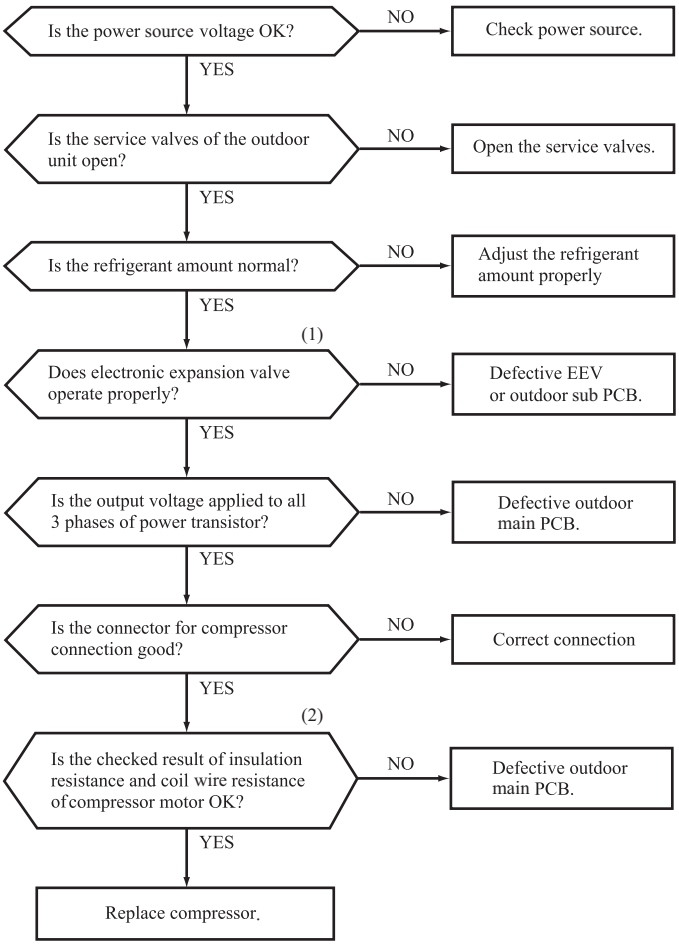
Error of signal transmission

[Wiring error including power cable, defective indoor/outdoor PCB]



Trouble of outdoor unit

[Insufficient refregerant amount, Faulty power transistor, Broken compressor wire
Service valve close, Defective EEV, Defective outdoor PCB]



Proper power source voltages are as follows.
(At the power source outlet)
AC 220V : AC198−242V
AC 230V : AC 207−253V
AC 240V : AC 216−264V

◆ Judgment of refrigerant quantity

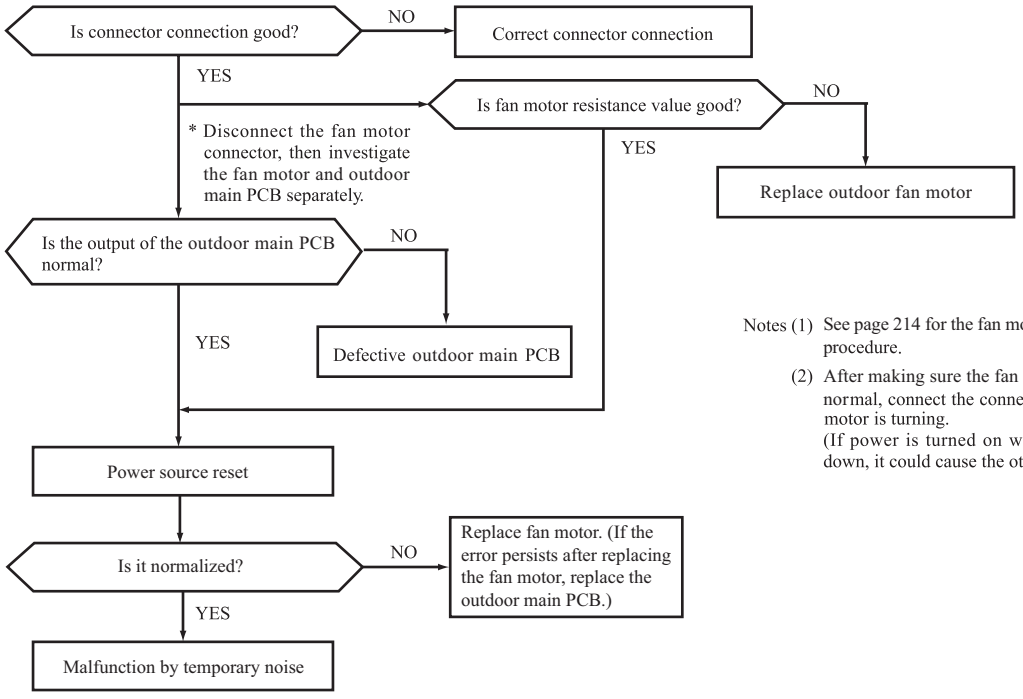
(1) Phenomenon of insufficient refrigerant
- (a) Loss of capacity
- (b) Poor defrost operation
  (Frost is not removed completely.)
- (c) Longer time of hot keep
  (5 minute or more)
  (Normal time: Approx. 1−1 minute and 30 seconds)

Notes (1) For inspection of electronic expansion valve, see page 214.

(2) Check coil wire resistance, see page 206.

Outdoor fan motor error

[Defective fan motor, connector poor connection, defective outdoor PCB]

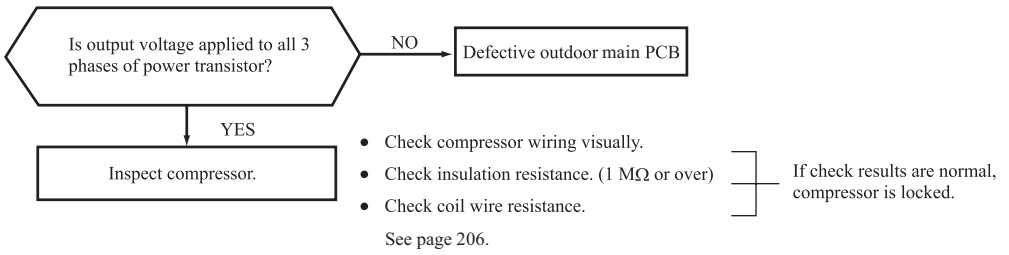


Notes (1) See page 214 for the fan motor and outdoor main PCB check procedure.

(2) After making sure the fan motor and outdoor main PCB are normal, connect the connectors and confirm that the fan motor is turning.
(If power is turned on while one or the other is broken down, it could cause the other to break down also.)

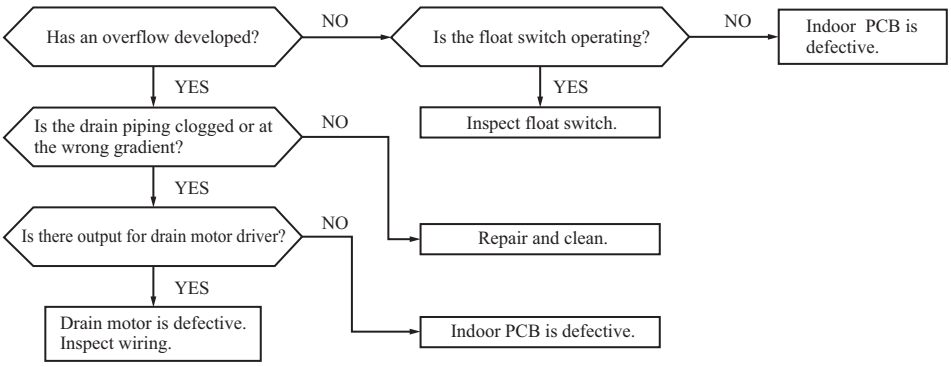
Rotor lock

[Defective compressor, defective outdoor PCB]



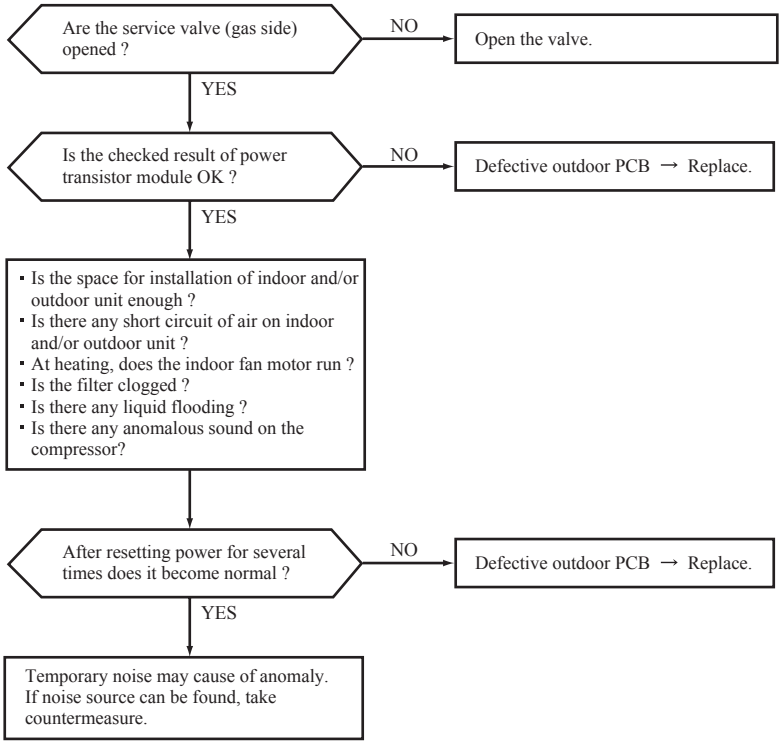
Drain abnormality (SRR only)

[Drain piping defective,pump defect, float switch, indoor PCB]



Service valve (gas side) closed operation

[Service valve (gas side) closed, Defective outdoor PCB]



(8) Phenomenon observed after shortcircuit, wire breakage on sensor

(a) Indoor unit

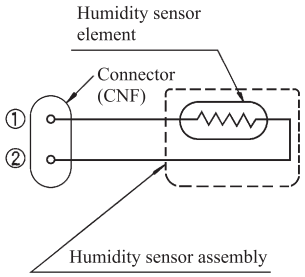
Sensor	Operation mode	Phenomenon	
		Shortcircuit	Disconnected wire
Room temperature sensor	Cooling	Release of continuous compressor operation command.	Continuous compressor operation command is not released.
	Heating	Continuous compressor operation command is not released.	Release of continuous compressor operation command.
Heat exchanger sensor	Cooling	Freezing cycle system protection trips and stops the compressor.	Continiuous compressor operation command is not released. (Anti-frosting)
	Heating	High pressure control mode (Compressor stop command)	Hot keep (Indoor fan stop)
Humidity sensor(1)	Cooling	Refer to the table below.	Refer to the table below.
	Heating	Normal system operation is possible.	

Note (1) SRK 20-60ZSX-S(-W), SRK35, 50ZS-S(-W), SRF only.

■ **Humidity sensor operation**

Failure mode		Control input circuit resding	Air-conditioning system operation
Disconnected wire	① Disconnected wire	Humidity reading is 0%	Anti-condensation control is not done.
	② Disconnected wire		
	①② Disconnected wire		
Short circuit	① and ② are shot circuited	Humidity reading is 100%	Anti-condensation control keep doing.

Remark: Do not perform a continuity check of the humidity sensor with a tester. If DC current is applied, it could damage the sensor.

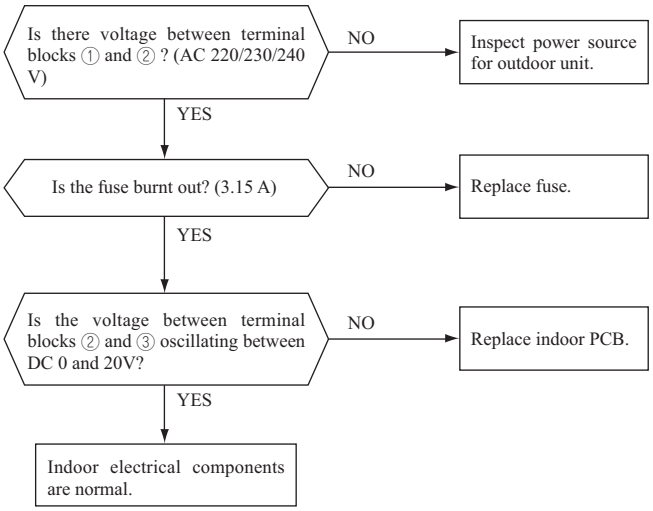


(b) Outdoor unit

Sensor	Operation mode	Phenomenon	
		Shortcircuit	Disconnected wire
Heat exchanger sensor	Cooling	Compressor stop.	Compressor stop.
	Heating	Defrost operation is not performed.	Defrost operation is performed for 10 minutes at approx. 35 minutes.
Ourdoor air temperature sensor	Cooling	The compressor cannot pick up its speed owing to the current safe so that the designed capacity is not achieved.	Compressor stop.
	Heating	The compressor cannot pick up its speed owing to the heating overload protection so that the designed capacity is not achieved.	Defrost operation is performed for 10 minutes at approx. 35 minutes.
Discharge pipe sensor	All modes	Compressor overload protection is disabled. (Can be operated.)	Compressor stop

(9) Checking the indoor electrical equipment

(a) Indoor PCB check procedure



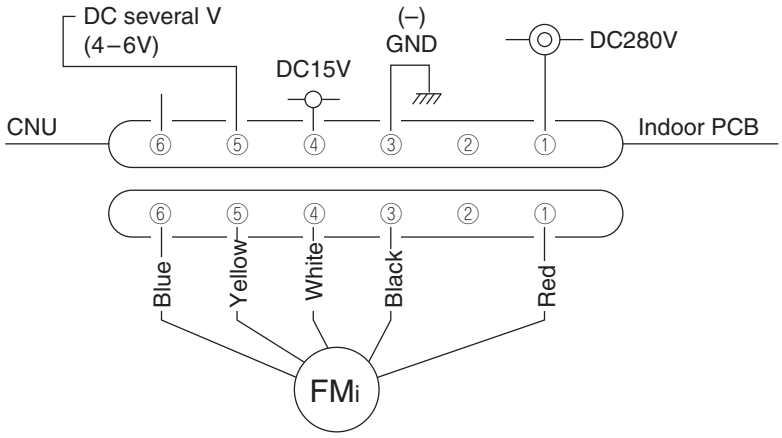
(b) Indoor fan motor check procedure

This is a diagnostic procedure for determining if the indoor fan motor or the indoor PCB is broken down.

(i) Indoor PCB output check

1) Turn off the power.
2) Remove the front panel, then disconnect the fan motor lead wire connector.
3) Turn on the power. If the unit operates when the ON/OFF button is pressed, if trouble is detected after the voltages in the following figure are output for approximately 30 seconds, it means that the indoor PCB is normal and the fan motor is broken down.

   If the voltages in the following figure are not output at connector pins No. ①, ④ and ⑤, the indoor PCB has failed and the fan motor is normal.



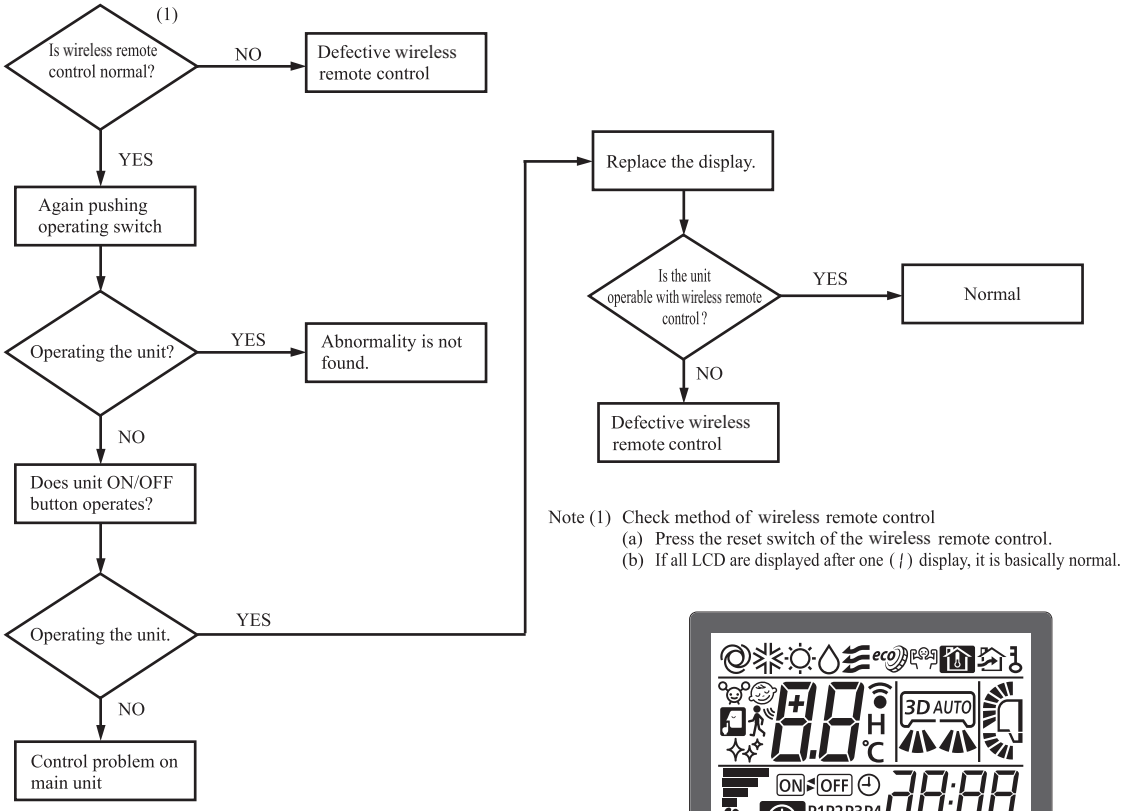
Measuring point	Resistance when normal
① - ③	DC280V
④ - ③	DC15V
⑤ - ③	DC several V (4–6V)

(ii) Fan motor resistance check

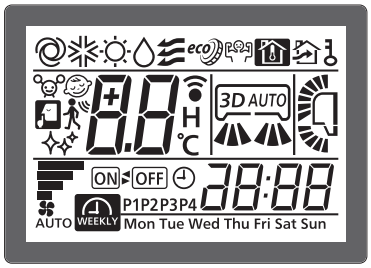
Measuring point	Resistance when normal
① - ③ (Red - Black)	20 MΩ or higher
④ - ③ (White - Black)	20 kΩ or higher

Notes (1) Remove the fan motor and measure it without power connected to it.
(2) If the measured value is below the value when the motor is normal, it means that the fan motor is faulty.

(10) How to make sure of wireless remote control

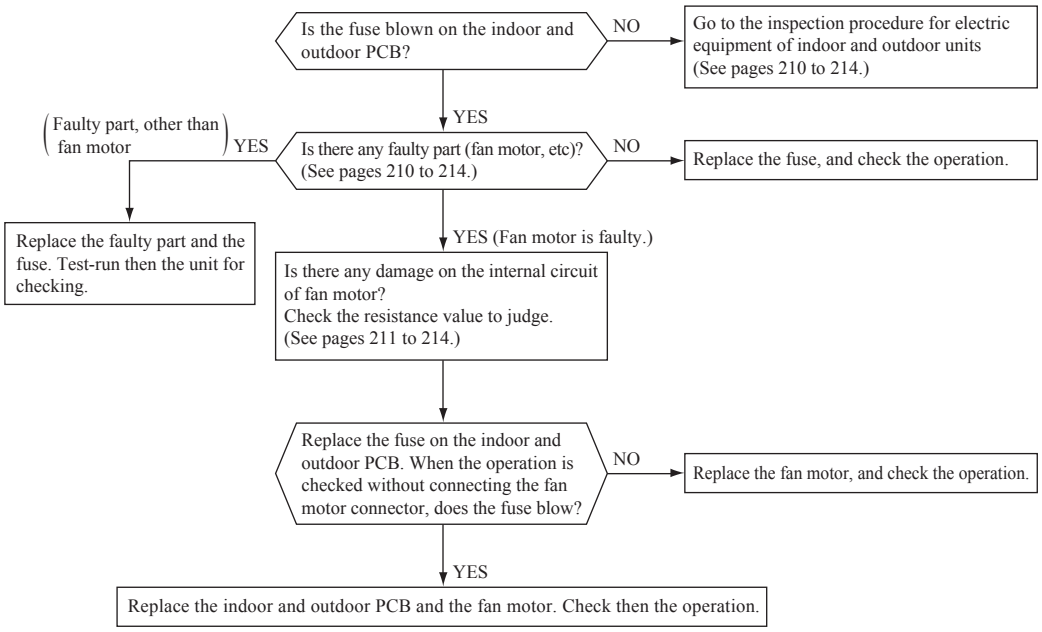


Note (1) Check method of wireless remote control
(a) Press the reset switch of the wireless remote control.
(b) If all LCD are displayed after one (!) display, it is basically normal.



◆ Simplified check method of wireless remote control
It is normal if the signal transmission section of the wireless remote control emits a whitish light at each transmission on the monitor of digital camera.

(11) Inspection procedure for blown fuse on the indoor and outdoor PCB



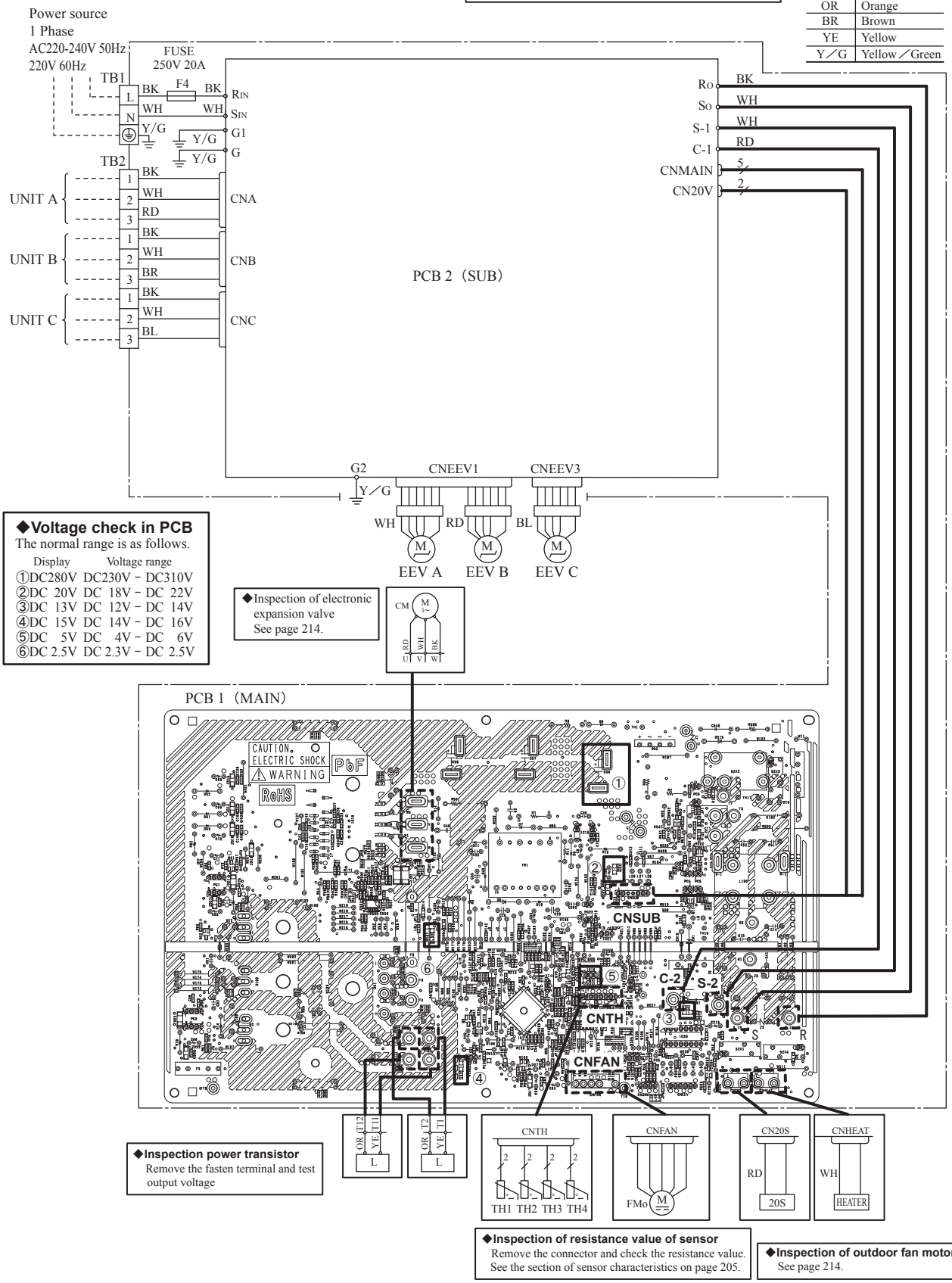
(12) Outdoor unit inspection points
Models SCM50ZS-S1,60ZM-S1

Color marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
RD	Red
WH	White
OR	Orange
BR	Brown
YE	Yellow
Y／G	Yellow／Green

⚠CAUTION- HIGH VOLTAGE
High voltage is produced in the control box. Don't touch electrical parts in the control box for 5 minutes after the unit is stopped.

◆Power source and serial signal inspection
① to ②: AC 220/230/240V
② to ③ : Normal if the voltage oscillates between DC 0 and approx. 20V



◆Voltage check in PCB
The normal range is as follows.

Display	Voltage range
①DC280V	DC230V – DC310V
②DC 20V	DC 18V – DC 22V
③DC 13V	DC 12V – DC 14V
④DC 15V	DC 14V – DC 16V
⑤DC 5V	DC 4V – DC 6V
⑥DC 2.5V	DC 2.3V – DC 2.5V

◆Inspection of electronic expansion valve
See page 214.

◆Inspection power transistor
Remove the fasten terminal and test output voltage

◆Inspection of resistance value of sensor
Remove the connector and check the resistance value.
See the section of sensor characteristics on page 205.

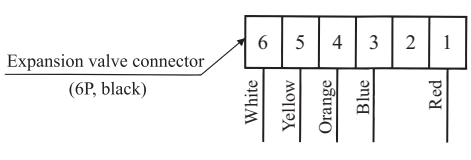
◆Inspection of outdoor fan motor
See page 214.

(a) Inspection of electronic expansion valve

Electronic expansion valve operates for approx. 10 seconds after the power on, in order to determine its aperture. Check t operating sound and voltage during the period of time. (Voltage cannot be checked during operation in which only the apertı change occurs.)

(i) If it is heard the sound of operating electronic expansion valve, it is almost normal.

(ii) If the operating sound is not heard, check the output voltage.



1 – 3
1 – 4
1 – 5
1 – 6

} Approx. DC5V is detected for 10 seconds after the power c

(iii) If voltage is detected, the outdoor sub PCB is normal.

(iv) If the expansion valve does not operate (no operating sound) while voltage is detected, the expansion valve is defective.

• Inspection of electronic expansion valve as a separate unit

Measure the resistance between terminals with an analog tester.

Measuring point	Resistance when normal
1 – 6	46 ± 4Ω (at 20ºC)
1 – 4	
1 – 3	
1 – 5	

(b) Outdoor fan motor check procedure

• When the outdoor fan motor error is detected, diagnose which of the outdoor fan motor or outdoor main PCB is defective.

• Diagnose this only after confirming that the indoor unit is normal.

(i) Outdoor main PCB output check

1) Turn off the power.

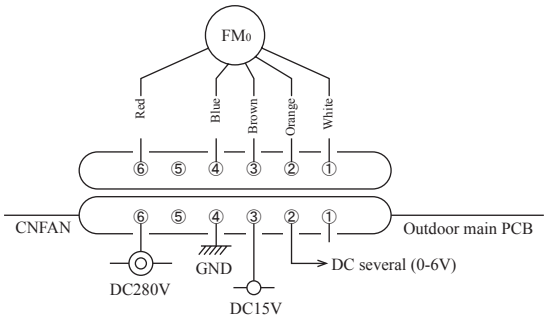
2) Disconnect the outdoor fan motor connector CNFAN.

3) When the outdoor unit is operated by inserting the power source plug and pressing (ON) the backup switch for more th 5 seconds, if the voltage of pin No. ② in the following figure is output for 30 seconds at 20 seconds after turning "ON" the backup switch, the outdoor main PCB is normal but the fan motor is defective.

If the voltage is not detected, the outdoor main PCB is defective but the fan motor is normal.

Note (1) The voltage is output 3 times repeatedly. If it is not detected, the indoor unit displays the error message.

Model SCM50, 60



Measuring point	Resistance when normal
⑥ – ④	DC280V
③ – ④	DC15V
② – ④	DC several V(0-6V)

(ii) Fan motor resistance check

Model SCM50

Measuring point	Resistance when normal
⑥–④(Red - Blue)	20 MΩ or higher
③–④(Brown - Blue)	20 kΩ or higher

Notes(1) Remove the fan motor and measure it without power cnnected to it.

(2) If the measured value is below the value when the motor is normal, it means that the fan motor is fauly.

8.2 FDTC, FDE and FDUM series

8.2.1 Diagnosing of microcomputer circuit

(1) Selfdiagnosis function

(a) Check indicator table

Whether a failure exists or not on the indoor unit and outdoor unit can be know by the contents of remote control error code, indoor/outdoor unit green LED (power pilot lamp and microcomputer normality pilot lamp) or red LED (check pilot lamp).

(i) Indoor unit

Remote control		Indoor control PCB		Location of trouble	Description of trouble	Repair method	Reference page
Error code	Red LED	Red LED	Green LED (1)				
No-indication	Stays OFF	Stays OFF	Keeps flashing	—	• **Normal operation**	—	—
		Stays OFF	Stays OFF	Indoor unit power source	• Power OFF, broken wire/blown fuse, broken transformer wire	Repair	234
		* 3-time flash	Keeps flashing	Remote control wires	• Poor connection, breakage of remote control wire * For wire breaking at power ON, the LED is OFF.	Repair	235
				Remote control	• Defective remote control PCB	Replacement of remote control	
WAIT or INSPECT I/U		Stays OFF	Keeps flashing	Indoor-outdoor units connection wire	• Poor connection, breakage of indoor-outdoor units connection wire	Repair	236–240
				Remote control	• Improper setting of master and slave by remote control		
E1	Keeps flashing	Stays OFF	* Keeps flashing	Remote control wires (Noise)	• **Poor connection of remote control signal wire (White)** * For wire breaking at power ON, the LED is OFF • **Intrusion of noise in remote control wire**	Repair	241
				Remote control indoor control PCB	*• Defective remote control or indoor control PCB (defective communication circuit)?	Replacement of remote control or PCB	
E5		2-time flash	Keeps flashing	Indoor-outdoor units connection wire	• **Poor connection of wire between indoor-outdoor units during operation (disconnection, loose connection)** • **Anomalous communication between indoor-outdoor units by noise, etc.**	Repair	242
		2-time flash	Keeps flashing	(Noise)	• **CPU-runaway on outdoor control PCB**	Power reset or Repair	
				Outdoor control PCB	*• Occurrence of defective outdoor control PCB on the way of power source (defective communication circuit)?	Replacement of PCB	
		2-time flash	Keeps flashing	Outdoor control PCB	• **Defective outdoor control PCB on the way of power source**	Replacement	
				Fuse	• **Blown fuse**		
E6		1-time flash	Keeps flashing	Indoor heat exchanger temperature sensor	• **Defective indoor heat exchanger temperature sensor** (defective element, broken wire, short-circuit) • Poor contact of temperature sensor connector	Replacement, repair of temperature sensor	243
				Indoor control PCB	*• **Defective indoor control PCB (Defective temperature sensor input circuit)?**	Replacement of PCB	
E7		1-time flash	Keeps flashing	Indoor return air temperature sensor	• **Defective indoor return air temperature sensor** (defective element, broken wire, short-circuit) • Poor contact of temperature sensor connector	Replacement, repair of temperature sensor	244
				Indoor control PCB	*• **Defective indoor control PCB (Defective temperature sensor input circuit)?**	Replacement of PCB	
E8		1-time flash	Keeps flashing	Installation or operating condition	• **Heating over-load** (Anomalously high indoor heat exchanger temperature)	Repair	245
				Indoor heat exchanger temperature sensor	• **Defective indoor heat exchanger temperature sensor (short-circuit)**	Replacement of temperature sensor	
				Indoor control PCB	*• **Defective indoor control PCB** (Defective temperature sensor input circuit)?	Replacement of PCB	
E9		1-time flash	Keeps flashing	Drain trouble	• **Defective drain pump (DM), broken drain pump wire**, disconnected connector	Replacement, repair of DM	246
				Float switch	• **Anomalous float switch operation** (malfunction) (In case of FDTC, FDUM)	Repair	
				Indoor control PCB	*• **Defective indoor control PCB** (Defective float switch input circuit) *• **Defective indoor control PCB** (Defective DM drive output circuit)?	Replacement of PCB	
				Option	• **Defective option parts** (At optional anomalous input setting)	Repair	
E10		Stays OFF	Keeps flashing	Number of connected indoor units	• **When multi-unit control by remote control is performed, the number of units is over**	Repair	247
		Keeps flashing	Keeps flashing	Address setting error	• **Address setting error of indoor units**	Repair	248
E11 E16		1-time flash	Keeps flashing	Fan motor	• **Defective fan motor**	Replacement, repair	249
				Indoor control PCB	• **Defective indoor control PCB**	Replacement	
E19		1-time flash	Keeps flashing	Indoor control PCB	• **Improper operation mode setting**	Repair	250
E20		1-time flash	Keeps flashing	Fan motor	• Indoor fan motor rotation speed anomaly	Replacement, repair	251
				Indoor power PCB	• Defective indoor power PCB	Replacement	
E28		Stays OFF	Keeps flashing	Remote control temperature sensor	• Broken wire of remote control temperature sensor	Repair	252

Notes (1) **Normal indicator lamp (Indoor unit: Green) extinguishes (or lights continuously) only when CPU is anomalous. It keeps flashing in any trouble other than anomalous CPU.**

(2) * mark in the description of trouble means that, in ordinary diagnosis, it cannot identify the cause definitely, and, if the trouble is repaired by replacing the part, it is judged consequently that the replaced part was defective.

(ii) Outdoor unit

Remote control		Indoor control PCB		Location of trouble	Description of trouble	Repair method	Reference page
Error code	Red LED	Red LED	Green LED				
E35	Keeps flashing	Stays OFF	Keeps flashing	Installation, operation status	• Higher outdoor heat exchanger temperature	Repair	253
				Outdoor heat exchanger temperature sensor	• Defective outdoor heat exchanger temperature sensor	Replacement, repair of temperature sensor	
				Outdoor main PCB	*• Defective outdoor main PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E36		Stays OFF	Keeps flashing	Installation, operation status	• Higher discharge temperature	Repair	254
				Discharge pipe temperature sensor	• Defective discharge pipe temperature sensor	Replacement, repair of temperature sensor	
				Outdoor main PCB	*• Defective outdoor main PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E37		Stays OFF	Keeps flashing	Outdoor heat exchanger temperature sensor	• Defective outdoor heat exchanger temperature sensor, broken wire or poor connector connection	Replacement, repair of temperature sensor	255
				Outdoor main PCB	*• Defective outdoor main PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E38		Stays OFF	Keeps flashing	Outdoor air temperature sensor	• Defective outdoor air temperature sensor, broken wire or poor connector connection	Replacement, repair of temperature sensor	256
				Outdoor main PCB	*• Defective outdoor main PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E39		Stays OFF	Keeps flashing	Discharge pipe temperature sensor	• Defective discharge pipe temperature sensor, broken wire or poor connector connection	Replacement, repair of temperature sensor	257
				Outdoor main PCB	*• Defective outdoor main PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E42		Stays OFF	Keeps flashing	Outdoor main PCB, compressor	• Current cut (Anomalous compressor over-current)	Replacement of PCB	258• 259
				Installation, operation status	• Service valve closing operation	Repair	
E45		Stay OFF	Keeps flashing	Outdoor main PCB	• Anomalous outdoor main PCB commuication	Replacement of PCB	260
				Outdoor sub PCB	• Anomalous outdoor sub PCB commuication		
E47		Stays OFF	Keeps flashing	Outdoor sub PCB	• Defective active filter	Repair PCB replacement	261
E48		Stays OFF	Keeps flashing	Fan motor	• Defective fan motor	Replacement	262
				Outdoor main PCB	• Defective outdoor main PCB		
E51		Stays OFF	Keeps flashing	Power transistor error (outdoor main PCB)	• Power transistor error	Replacement of PCB	263
E53		Stays OFF	Keeps flashing	Outdoor suction pipe sensor	• Defective suction pipe temperature sensor, broken wire or poor connector connection	Replacement, repair of temperature sensor	264
				Outdoor sub PCB	• Defective outdoor sub PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E57		Stays OFF	Keeps flashing	Operation status	• Shortage in refrigerant quantity	Repair	265
				Installation status	• Service valve closing operation	Service valve opening check	
E58		Stays OFF	Keeps flashing	• Overload operation • Overcharge • Compressor locking	• Current safe stop	Replacement	266
E59		Stays OFF	Keeps flashing	Compressor, outdoor main PCB	• Anomalous compressor startup	Replacement	267
E60		Stays OFF	Keeps flashing	Compressor	• Anomalous compressor rotor lock	Replacement	268

Notes (1) * mark in the description of trouble means that, in ordinary diagnosis, it cannot identify the cause definitely, and, if the trouble is repaired by replacing the part, it is judged consequently that the replaced part was defective.

(iii) Display sequence of error codes or inspection indicator lamps

■ **Occurrence of one kind of error**

Displays are shown respectively according to errors.

■ **Occurrence of plural kinds of error**

Section	Category of display
Error code on remote control	• Displays the error of higher priority (When plural errors are persisting) E1 E5 ·····E10>E3 >·····Eb0
Red LED on indoor control PCB	• Displays the present errors. (When a new error has occurred after the former error was reset.)

■ **Error detecting timing**

Section	Error description	Error code	Error detecting timing
Indoor	Drain trouble (Float switch activated)	E9	Whenever float switch is activated after 30 second had past since power ON.
	Communication error at initial operation	"WAIT"	No communication between indoor and outdoor units is established at initial operation.
	Remote control communication circuit error	E1	Communication between indoor unit and remote control is interrupted for mote than 2 minutes continuously after initial communication was established.
	Communication error during operation	E5	Communication between indoor and outdoor units is interrupted for mote than 2 minutes continuously after initial communication was established.
	Excessive number of connected indoor units by controlling with one remote control	E10	Whenever excessively connected indoor units is detected after power ON.
	Return air temperature sensor anomaly	E7	-50°C or lower is detected for 5 seconds continuously within 60 minutes after initial detection of this anomalous temperature.
	Indoor heat exchanger temperature sensor anomaly	E6	-50°C or lower is detected for 5 seconds continuously within 60 minutes after initial detection of this anomalous temperature. Or 70°C or higher is detected for 5 seconds continuously.
Outdoor	Outdoor air temperature sensor anomaly	E38	-55°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous sensor. Or -55°C or higher is detected for 5 seconds continuously within 20 seconds after power ON.
	Outdoor heat exchanger temperature sensor anomaly	E37	-55°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous sensor. Or -55°C or lower is detected for 5 seconds continuously within 20 seconds after power ON.
	Discharge pipe temperature sensor anomaly	E39	-25°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous sensor.
	Suction pipe temperature sensor anomaly	E53	-55°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous sensor. Or -55°C or higher is detected for 5 seconds continuously within 20 seconds after power ON.

■ **Error log and reset**

Error indicator	Memorized error log	Reset
Remote control display	• Higher priority error is memorized.	• Stop the unit by pressing the ON/OFF switch of remote control. • If the unit has recovered from anomaly, it can be operated.
Red LED on indoor control PCB	• Not memorized.	

■ **Resetting the error log**

• Resetting the memorized error log in the remote control

Holding down "CHECK" button, press "TIMER" button to reset the error log memorized in the remote control.

• Resetting the memorized error log

The remote control transmits error log erase command to the indoor unit when "VENTI" button is pressed while holding down "CHECK" button.

Receiving the command, the indoor unit erase the log and answer the status of no error.

(2) Troubleshooting procedure

When any trouble has occurred, inspect as follows. Details of respective inspection method will be described on later pages.

Trouble → Confirmation of power source (Indoor/ outdoor unit) → Confirmation of remote control and LEDs on the PCB of indoor unit (Indoor/ outdoor unit, remote control) → Check of the anomalous operation data on the remote control → Inspection of the unit/ remote control → Replacement/ repair of faulty part, test run, adjustment

(3) Troubleshooting at the indoor unit

With the troubleshooting, find out any defective part by checking the voltage (AC, DC), resistance, etc. at respective connectors at around the indoor PCB, according to the inspection display or operation status of unit (the compressor does not run, fan does not run, the 4-way valve does not switch, etc.), and replace or repair in the unit of following part.

(a) Replacement part related to indoor PCB's

Control PCB, power PCB, temperature sensor (return air, indoor heat exchanger), remote control and fuse

Note (1) With regard to parts of high voltage circuits and refrigeration cycle, judge it according to ordinary inspection methods.

(b) Instruction of how to replace indoor control PCB

SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the replacement in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, WARNING and CAUTION.
  Both mentions the important items to protect your health and safety so strictly follow them by any means.

⚠ WARNING	Wrong installation would cause serious consequences such as injuries or death.
⚠ CAUTION	Wrong installation might cause serious consequences depending on circumstances.

- After completing the replacement, do commissioning to confirm there are no anomaly.

⚠ WARNING

- Replacement should be performed by the specialist.
  If you replace the PCB by yourself, it may lead to serious trouble such as electric shock or fire.
- Replace the PCB correctly according to these instructions.
  Improper replacement may cause electric shock or fire.
- Shut off the power before electrical wiring work.
  Replacement during the applying the current would cause the electric shock, unit failure or improper running.
  It would cause the damage of connected equipment such as fan motor,etc.
- Fasten the wiring to the terminal securely, and hold the cable securely so as not to apply unexpected stress on the terminal.
  Loose connections or hold could result in abnormal heat generation or fire.
- Check the connection of wiring to PCB correctly before turning on the power, after replacement.
  Defectiveness of replacement may cause electric shock or fire.

⚠ CAUTION

- In connecting connector onto the PCB, connect not to deform the PCB. It may cause breakage or malfunction.
- Insert connecter securely, and hook stopper. It may cause fire or improper running.
- Bundle the cables together so as not to be pinched or be tensioned. It may cause malfunction or electric shock for disconnection or deformation.

PSB012D976C G

(i) FDTC series

1) Control PCB

Replace and set up the PCB according to this instruction.

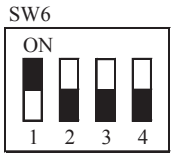
a) Set to an appropriate address and function using switch on PCB.
Select the same setting with the removed PCB.

Item	Switch	Content of control	
Address	SW2	Plural indoor units control by 1 remote control	
Test run	SW7-1	OFF	Normal
		ON	Operation check/drain motor test run

b) Set to an appropriate capacity using the model selector switch(SW6).

Select the same capacity with the PCB removed from the unit.

SW6	-1	-2	-3	-4
25VF	ON	OFF	OFF	OFF
35VF	OFF	ON	OFF	OFF
50VF	ON	OFF	ON	OFF



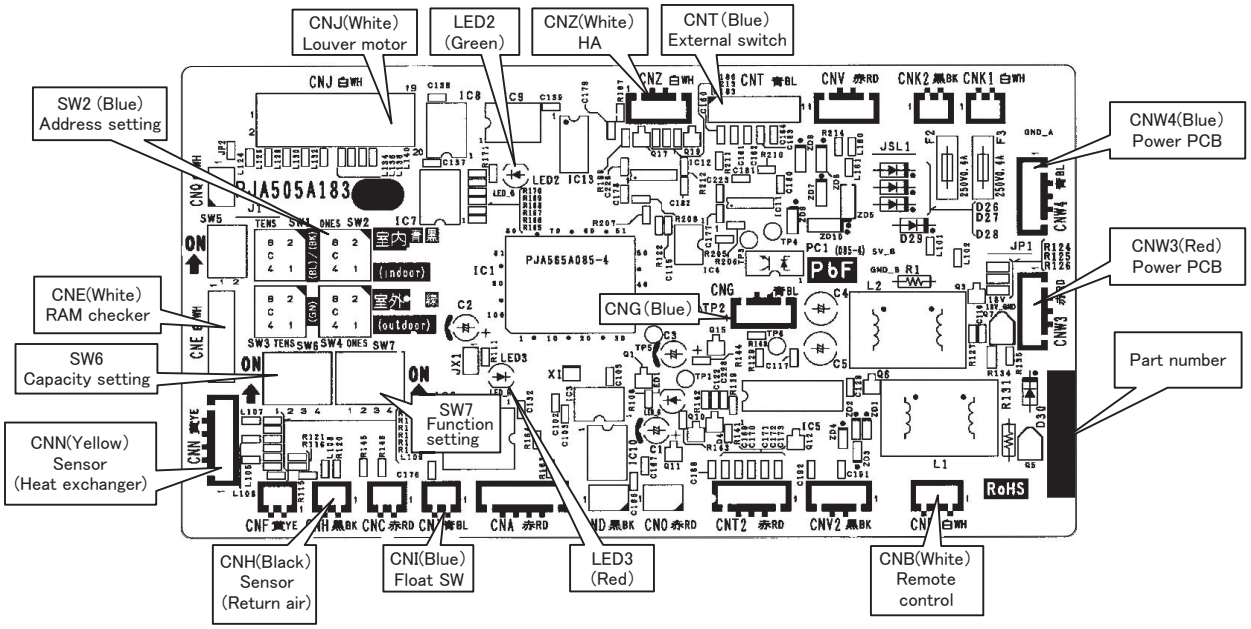
Example setting for 25VF

c) Replace the PCB

i) Fix the PCB so as not to pitch the cords.
ii) Connect connectors to the PCB. Connect a cable connector with the PCB connector of the same color.
iii) Do not pass CPU surrounding about wirings.

d) Control PCB

Parts mounting are different by the kind of PCB.



2) Power PCB

PSB012D953A △D

This PCB is a general PCB. Replace the PCB according to this instruction.

a) Replace the PCB

i) Unscrew terminal of the wiring(yellow/green) soldered to PCB from the box.

ii) Cut the band that binds the wiring (red and blue) from connector CNW1 and CNW2, and the wiring (yellow/green) from PCB (T2/T3) . (Note 1) (However, do not cut the band that binds only the red and blue wirings.)

iii) Replace the PCB only after all the wirings connected to the connector are removed.

iv) Fix the board such that it will not pinch any of the wires.

v)Reconnect the wirings to the PCB. Wiring connector color should match with the color of connector of the PCB. (Note 2)

vi) Let the wiring (red and blue) pass beneath the (yellow/green) wiring and bind together with band.

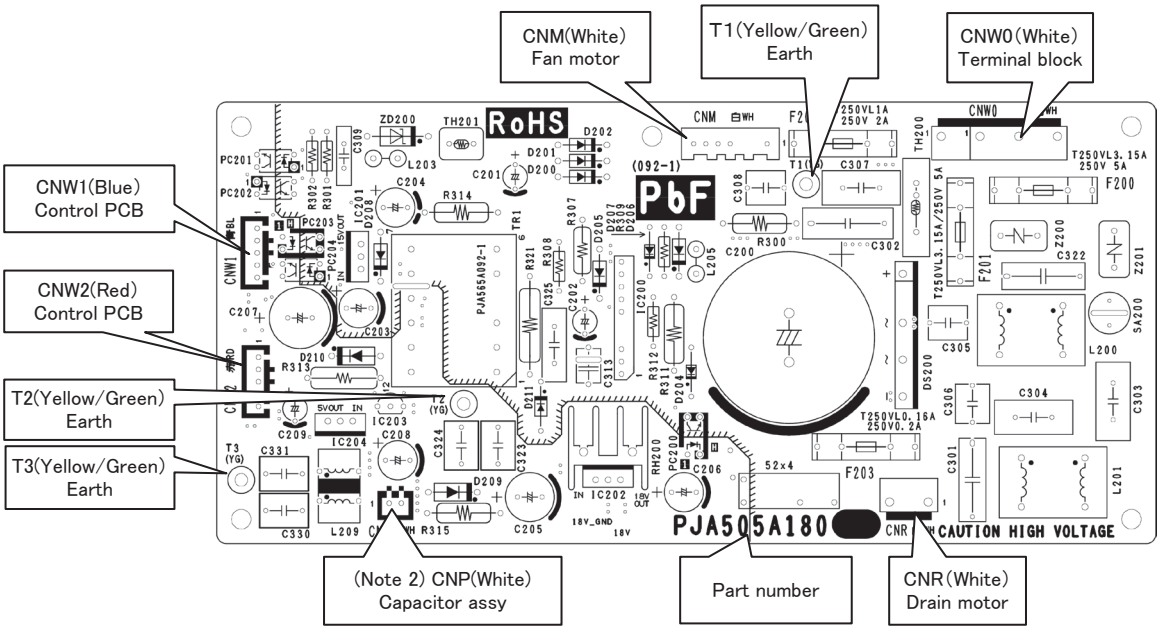
vii) Screw back the terminal of wiring (yellow/green) from PCB(T1, T2/T3), that was removed in i). In that case, do not place the crimping part of the wiring under the PCB.

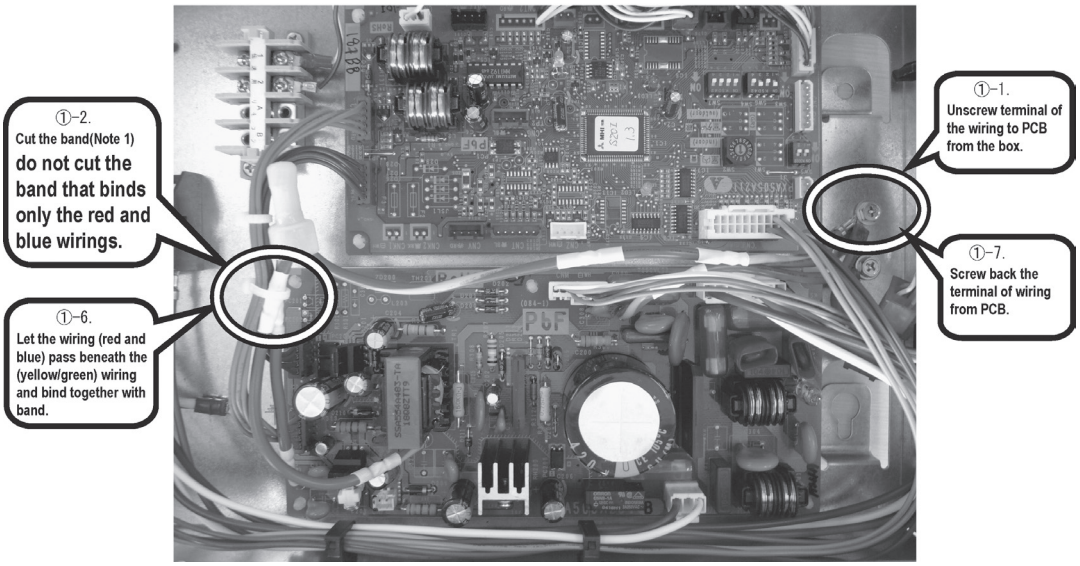
(Note 1): It might not be applicable on some models.

(Note 2): After replacing PCB, connection between capacitor assy and connector CNP is no longer needed.

b) Power PCB

Parts mounting are different by the kind of PCB.





PSB012D990B △D

(ii) FDE, FDUM series

1) Control PCB

Replace and set up the PCB according to this instruction.

a) Set to an appropriate address and function using switch on PCB.

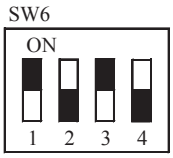
Select the same setting with the removed PCB.

Item	Switch	Content of control	
Address	SW2	Plural indoor units control by 1 remote control	
Test run	SW7-1	OFF	Normal
		ON	Operation check/drain motor test run

b) Set to an appropriate capacity using the model selector switch(SW6).

Select the same capacity with the PCB removed from the unit.

SW6	-1	-2	-3	-4
50V	ON	OFF	ON	OFF



c) Replace the PCB

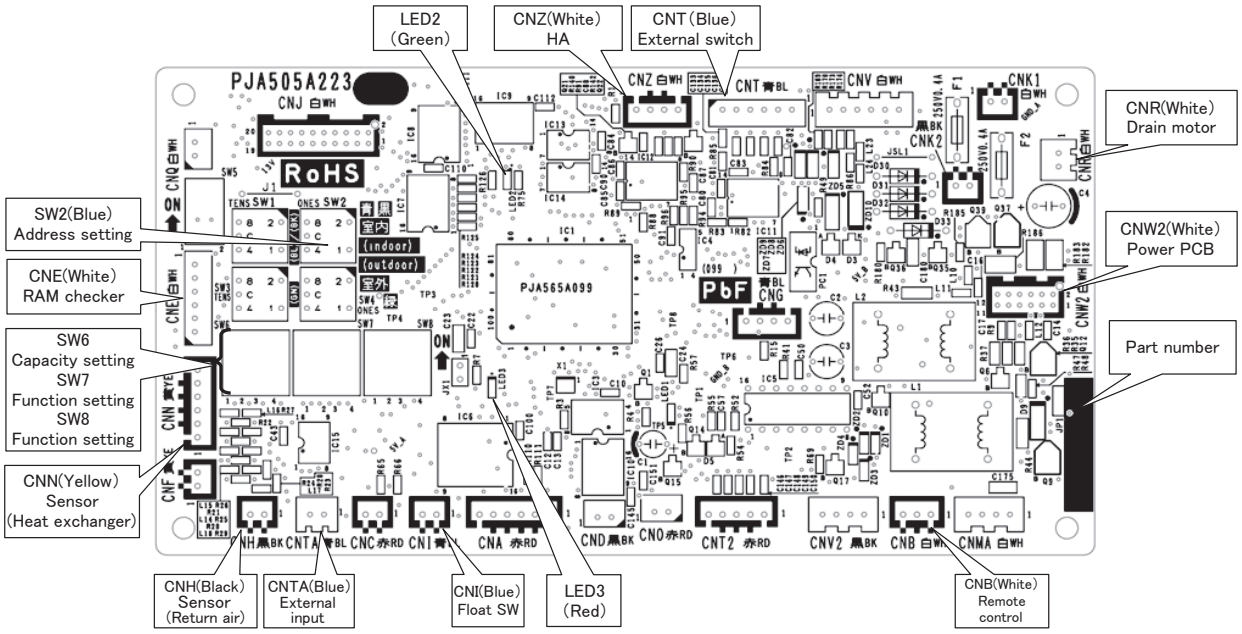
i) Exchange PCB after detaching all connectors connected with the PCB.

ii) Fix the PCB so as not to pitch the wiring.

iii) Connect connectors to the PCB. Match the wiring connector to the connector color on the PCB and connect it.

d) Control PCB

Parts mounting are different by the kind of PCB.



2) Power PCB

PSB012D992C

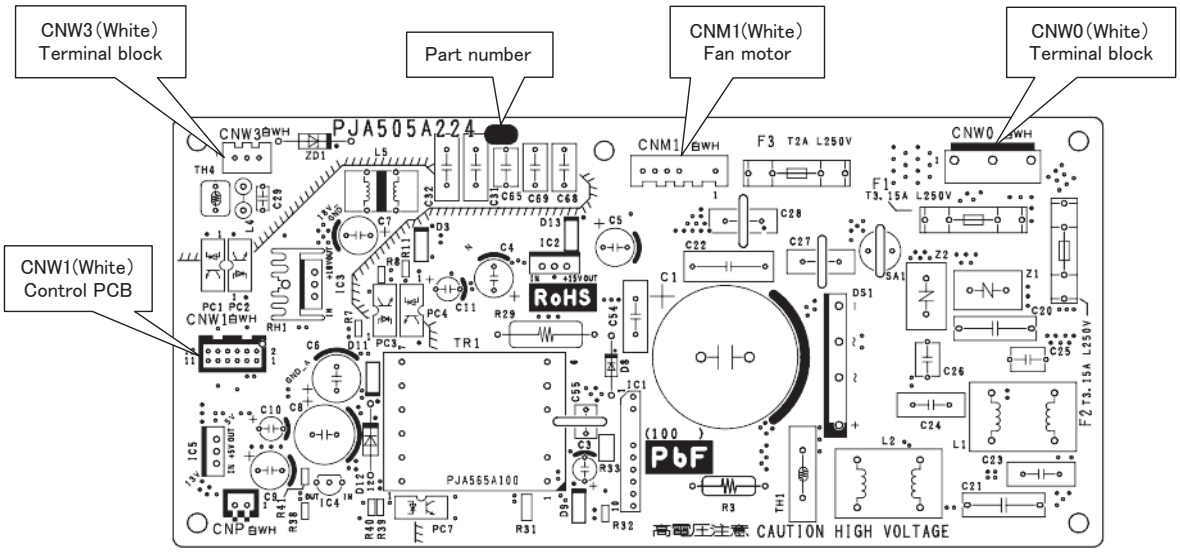
This PCB is a general PCB. Replace the PCB according to this instruction.

a) Replace the PCB

i) Unscrew terminal of the wiring(yellow/green) connected to terminal block (CNWO) from the box.
ii) Replace the PCB only after all the wirings connected to the connector are removed.
iii) Fix the board such that it will not pinch any of the wires.
iv) Reconnect the wirings to the PCB. Wiring connector color should match with the color of connector of the PCB.
v) Screw back the terminal of wiring, that was removed in i).

b) Power PCB

Parts mounting are different by the kind of PCB.



●DIP switch setting list

Switches	Description		Default setting		Remarks
SW2	Address No. setting at plural indoor units control by 1 R/C		0		0-F
SW6-1 SW6-2 SW6-3 SW6-4	Model selection		As per model		See table 1
SW7-1	Test run, Drain motor	Normal*/Test run	OFF	Normal	
SW7-2	Reserved		OFF		Keep OFF
SW7-3	Powerful mode	Valid*/Invalid	ON	Valid	
SW7-4	Reserved		OFF		Keep OFF
SW8-1	Reserved		OFF		Keep OFF
SW8-2	Reserved		OFF		Keep OFF
SW8-3	Reserved		OFF		Keep OFF
SW8-4	Reserved		OFF		Keep OFF
JSL1	Superlink terminal spare	Normal*/switch to spare	With		

* Default setting

Table 1: Indoor unit model selection with SW6-1-SW6-4

	25VF	35VF	50VF
SW6-1	ON	OFF	ON
SW6-2	OFF	ON	OFF
SW6-3	OFF	OFF	ON
SW6-4	OFF	OFF	OFF

(4) Check of anomalous operation data with the remote control

(a) In case of RC-EX3 remote control

[Operating procedure]

① On the TOP screen, touch the buttons in the order of "Menu" → "Service setting" → "Service & Maintenance" → "Service password" → "Set" → "Error display" → "Error history".

② When only one indoor unit is connected to the remote control, followings will be displayed.

1. When there is any anomaly: "Loading. Wait a while" is displayed, followed by the operation data at the occurrence of anomaly. Contents of display
   - Error code
   - Number and data item
2. When there is no anomaly: "No anomaly" is displayed, and this mode is terminated.

③ When two or more indoor units are connected to the remote control, followings will be displayed.

1. When there is any anomaly: If the unit having anomaly is selected on the "Select IU" screen, "Loading. Wait a while" is displayed, followed by the operation data at the occurrence of anomaly.

   Contents of display
   - Indoor unit No.
   - Error code
   - Number and data item
2. When there is no anomaly: "No anomaly" is displayed, ant this mode is terminated.

Note (1) When the number of connected units cannot be shown in a page, select "Next".

④ If you press [RUN/STOP] button, the display returns to the TOP screen.

◎ If you touch "Back" button on the way of setting, the display returns to the last precious screen.

Note (1) When two remote controls are used to control indoor units, the check of anomaly operation data can be made on the master remote control only. (It cannot be operated from the slave remote control.)

■ Anomaly operation data (Corresponding data may not be provided depending on models. Such items will not be displayed.)

Number		Data Item
01	❋	(Operation Mode)
02	SET TEMP___℃	(Set Temperature)
03	RETURN AIR__℃	(Return Air Temperature)
04	SENSOR___℃	(Remote Control Sensor Sensor)
05	THI-R1__℃	(Indoor Heat Exchanger Sensor / U Bend)
06	THI-R2__℃	(Indoor Heat Exchanger Sensor /Capillary)
07	THI-R3__℃	(Indoor Heat Exchanger Sensor /Gas Header)
08	I/U FANSPEED___	(Indoor Unit Fan Speed)
09	DEMAND___Hz	(Frequency Requirements)
10	ANSWER___Hz	(Response Frequency)
11	I/U EEV____P	(Pulse of Indoor Unit Expansion Value)
12	TOTAL I/U RUN____H	(Total Running Hours of The Indoor Unit)
13	SUPPLY AIR___℃	(Supply Air Temperature)
21	OUTDOOR___℃	(Outdoor Air Temperature)
22	THO-R1___℃	(Outdoor Heat Exchanger Sensor)
23	THO-R2___℃	(Outdoor Heat Exchanger Sensor)
24	COMP___Hz	(Compressor Frequency)
25	HP___MPa	(High Pressure)
26	LP____MPa	(Low Pressure)
27	Td___℃	(Discharge Pipe Temperature)
28	COMP BOTTOM__℃	(Comp Bottom Temperature)
29	CT___AMP	(Current)
30	TARGET SH___℃	(Target Super Heat)
31	SH___℃	(Super Heat)
32	TDSH___℃	(Discharge Pipe Super Heat)
33	PROTECTION No.__	(Protection State No. of The Compressor)
34	O/U FANSPEED___	(Outdoor Unit Fan Speed)
35	63H1	(63H1 On/Off)
36	DEFROST	(Defrost Control On/Off)
37	TOTAL COMP RUN___H	(Total Running Hours of The Compressor)
38	O/U EEV1____P	(Pulse of The Outdoor Unit Expansion Valve EEVC)
39	O/U EEV2____P	(Pulse of The Outdoor Unit Expansion Valve EEVH)

●Details of Compressor protection status No. 33

No.	Contents of display
"0"	Normal
"1"	Discharge pipe temperature protection control
"2"	Discharge pipe temperature anomaly
"3"	Current safe control of inverter primary current
"4"	High pressure protection control
"5"	High pressure anomaly
"6"	Low pressure protection control
"7"	Low pressure anomaly
"8"	Anti-frost prevention control
"9"	Current cut
"10"	Power transistor protection control
"11"	Power transistor anomaly (Overheat)
"12"	Compression ratio control
"13"	Spare
"14"	Dewing prevention control
"15"	Current safe control of inverter secondary current
"16"	Stop by compressor rotor lock
"17"	Stop by compressor startup failure

Note(1) Operation data display on the remote control.
- ・Data are dispalyed until canceling the protection control.
- ・In case of multiple protections controlled, only the younger No. is displayed.

Note(2) Common item.
- ① In heating mode.
  During protection control by the command signal for reducing compressor frequency from indoor unit, No. "4" is displayed.
- ② In cooling and dehumidifying mode.
  During protection control by the command signal for reducing compressor frequency from indoor unit, No. "8" is displayed.

(b) In case of RC-E5 remote control

Operation data can be checked with remote control unit operation.

① Press the CHECK button.
The display change " OPER DATA ▼"

② Press the ○ (SET) button while " OPER DATA ▼ " is displayed.

③ When only one indoor unit is connected to remote control, " DATA LOADING " is displayed (blinking indication during data loading).
Next, operation data of the indoor unit will be displayed. Skip to step ⑦.

④ When plural indoor units is connected, the smallest address number of indoor unit among all connected indoor unit is displayed.
[Example]:
" SELECT I/U " (blinking 1 seconds) → " I/U000 ▲ " blinking.

⑤ Select the indoor unit number you would like to have data displayed with the ▲ ▼ button.

⑥ Determine the indoor unit number with the ○ (SET) button. (The indoor unit number changes from blinking indication to continuous indication)
" I/U000 " (The address of selected indoor unit is blinking for 2 seconds.)
↓
" DATA LOADING " (A blinking indication appears while data loaded.)
Next, the operation data of the indoor unit is indicated.

Number	Data Item	
01	✻	(Operation Mode)
02	SET TEMP ___℃	(Set Temperature)
03	RETURN AIR ___℃	(Return Air Temperature)
04	SENSOR ___℃	(Remote Control Sensor Tempeature)
05	THI-R1 ___℃	(Indoor Heat Exchanger Sensor / U Bend)
06	THI-R2 ___℃	(Indoor Heat Exchanger Sensor /Capillary)
07	THI-R3 ___℃	(Indoor Heat Exchanger Sensor /Gas Header)
08	I/U FANSPEED ___	(Indoor Unit Fan Speed)
09	DEMAND ___Hz	(Frequency Requirements)
10	ANSWER ___Hz	(Response Frequency)
11	I/U EEV ____P	(Pulse of Indoor Unit Expansion Value)
12	TOTAL I/U RUN ____H	(Total Running Hours of The Indoor Unit)
21	OUTDOOR ___℃	(Outdoor Air Temperature)
22	THO-R1 ___℃	(Outdoor Heat Exchanger Sensor)
23	THO-R2 ___℃	(Outdoor Heat Exchanger Sensor)
24	COMP ___Hz	(Compressor Frequency)
25	HP ___MPa	(High Pressure)
26	LP ___MPa	(Low Pressure)
27	Td ___℃	(Discharge Pipe Temperature)
28	COMP BOTTOM ___℃	(Comp Bottom Temperature)
29	CT ___AMP	(Current)
30	TARGET SH ___℃	(Target Super Heat)
31	SH ___℃	(Super Heat)
32	TDSH ___℃	(Discharge Pipe Super Heat)
33	PROTECTION No. __	(Protection State No. of The Compressor)
34	O/U FANSPEED ___	(Outdoor Unit Fan Speed)
35	63H1	(63H1 On/Off)
36	DEFROST	(Defrost Control On/Off)
37	TOTAL COMP RUN ___H	(Total Running Hours of The Compressor)
38	O/U EEV1 ____P	(Pulse of The Outdoor Unit Expansion Valve EEVC)
39	O/U EEV2 ____P	(Pulse of The Outdoor Unit Expansion Valve EEVH)

⑦ Upon operation of the ▲ ▼ button, the current operation data is displayed in order from data number 01.
The items displayed are in the above table.
*Depending on models, the items that do not have corresponding data are not displayed.

⑧ To display the data of a different indoor unit, press the AIR CON No. button, which allows you to go back to the indoor unit selection screen.

⑨ Pressing the ⏻ON/OFF button will stop displaying data.
Pressing the // (RESET) button during remote control unit operation will undo your last operation and allow you to go back to the previous screen.

⊙If two (2) remote controls are connected to one (1) inside unit, only the master control is available for trial operation and confirmation of operation data. (The slave remote control is not available.)

●Details of Compressor protection status No. 33

No.	Contents of display
"0"	Normal
"1"	Discharge pipe temperature protection control
"2"	Discharge pipe temperature anomaly
"3"	Current safe control of inverter primary current
"4"	High pressure protection control
"5"	High pressure anomaly
"6"	Low pressure protection control
"7"	Low pressure anomaly
"8"	Anti-frost prevention control
"9"	Current cut
"10"	Power transistor protection control
"11"	Power transistor anomaly (Overheat)
"12"	Compression ratio control
"13"	Spare
"14"	Dewing prevention control
"15"	Current safe control of inverter secondary current
"16"	Stop by compressor rotor lock
"17"	Stop by compressor startup failure

Note(1) Operation data display on the remote control.
・Data are dispalyed until canceling the protection control.
・In case of multiple protections controlled, only the younger No. is displayed.
Note(2) Common item.
① In heating mode.
During protection control by the command signal for reducing compressor frequency from indoor unit, No. "4" is displayed.
② In cooling and dehumidifying mode.
During protection control by the command signal for reducing compressor frequency from indoor unit, No. "8" is displayed.

(5) Inverter checker for diagnosis of inverter output

●Checking method

(a) Setup procedure of checker.

(i) Power OFF (Turn off the breaker).

(ii) Remove the terminal cover of compressor and disconnect the wires (U, V, W) from compressor.

(iii) Connect the wires U (Red) , V (White) and W (Black) of the checker to the terminal of disconnected wires (U, V, W) from compressor respectively.

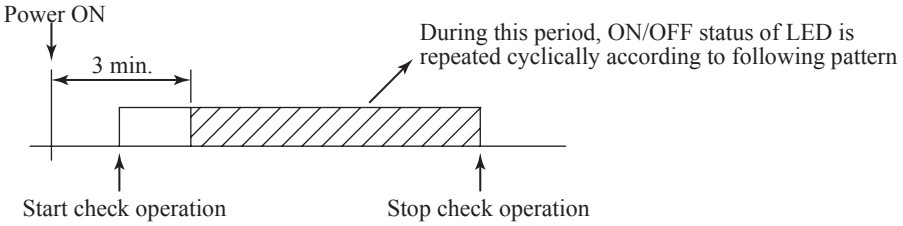
(b) Operation for judgment.

(i) Power ON and start check operation on cooling or heating mode.

(ii) Check ON/OFF status of 6 LED's on the checker.

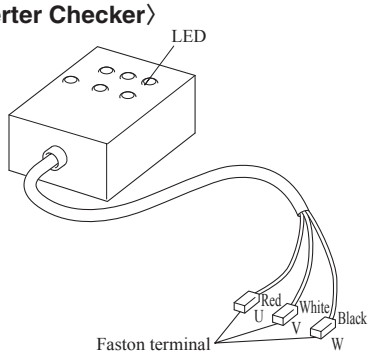
(iii) Judge the PCB by ON/OFF status of 6 LED's on the checker.

ON/OFF status of LED	If all of LED are ON/OFF according to following pattern	If all of LED stay OFF or some of LED are ON/OFF
Outdoor main PCB	Normal	Anomalous



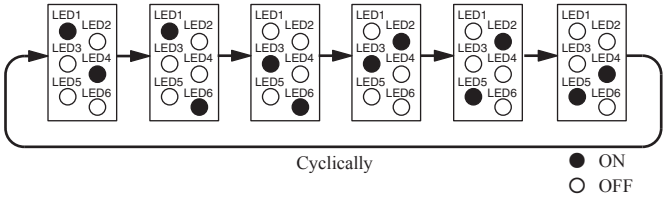
(iv) Stop check operation within about 2minutes after starting check operation.

〈**Inverter Checker**〉



Connect to the terminal of the wires which are disconnected from compressor.

LED ON/OFF pattern



(6) Outdoor unit inspection points

●See page 213 to 216.

8.2.2 Troubleshooting flow

(1) List of troubles

Remote control display	Description of trouble	Reference page
None	Operates but does not cool	227
None	Operates but does not heat	228
None	Earth leakage breaker activated	229
None	Excessive noise/vibration (1/3)	230
None	Excessive noise/vibration (2/3)	231
None	Excessive noise/vibration (3/3)	232
None	Louver motor failure (FDTC and FDE only)	233
None	Power source system error (Power source to indoor control PCB)	234
None	Power source system error (Power source to remote control)	235
INSPECT I/U	INSPECT I/U (When 1 or 2 remote controls are connected)	236
INSPECT I/U	INSPECT I/U (Connection of 3 units or more remote controls)	237
WAIT	Communication error at initial operation	238−240
E1	Remote control communication circuit error	241
E5	Communication error during operation	242
E6	Indoor heat exchanger temperature sensor anomaly	243
E7	Return air temperature sensor anomaly	244
E8	Heating overload operation	245
E9	Drain trouble (FDTC and FDUM only)	246
E10	Excessive number of connected indoor units (more than 17 units) by controlling with one remote control	247
E11	Address setting error of indoor units	248
E16	Indoor fan motor anomaly	249
E19	Indoor unit operation check, drain motor check setting error	250
E20	Indoor fan motor rotation speed anomaly	251
E28	Remote control temperature sensor anomaly	252
E35	Cooling high pressure operation	253
E36	Discharge pipe temperature error	254
E37	Outdoor heat exchanger temperature sensor anomaly	255
E38	Outdoor air temperature sensor anomaly	256
E39	Discharge pipe temperature sensor anomaly	257
E42	Current cut	258·259
E45	Outdoor sub PCB communication error	260
E47	Active filter voltage error	261
E48	Outdoor fan motor anomaly	262
E51	Power transistor anomaly	263
E53	Suction pipe temperature sensor anomaly	264
E57	Insufficient refrigerant amount or detection of service valve closure	265
E58	Current safe stop	266
E59	Compressor startup failure	267
E60	Compressor rotor lock error	268

(2) Troubleshooting

Error code	LED	Green	Red	Content
Remote control: None	Indoor	Keeps flashing	Stays OFF	Operates but does not cool
	Outdoor	–	Stays OFF	

1. Applicable model

All models

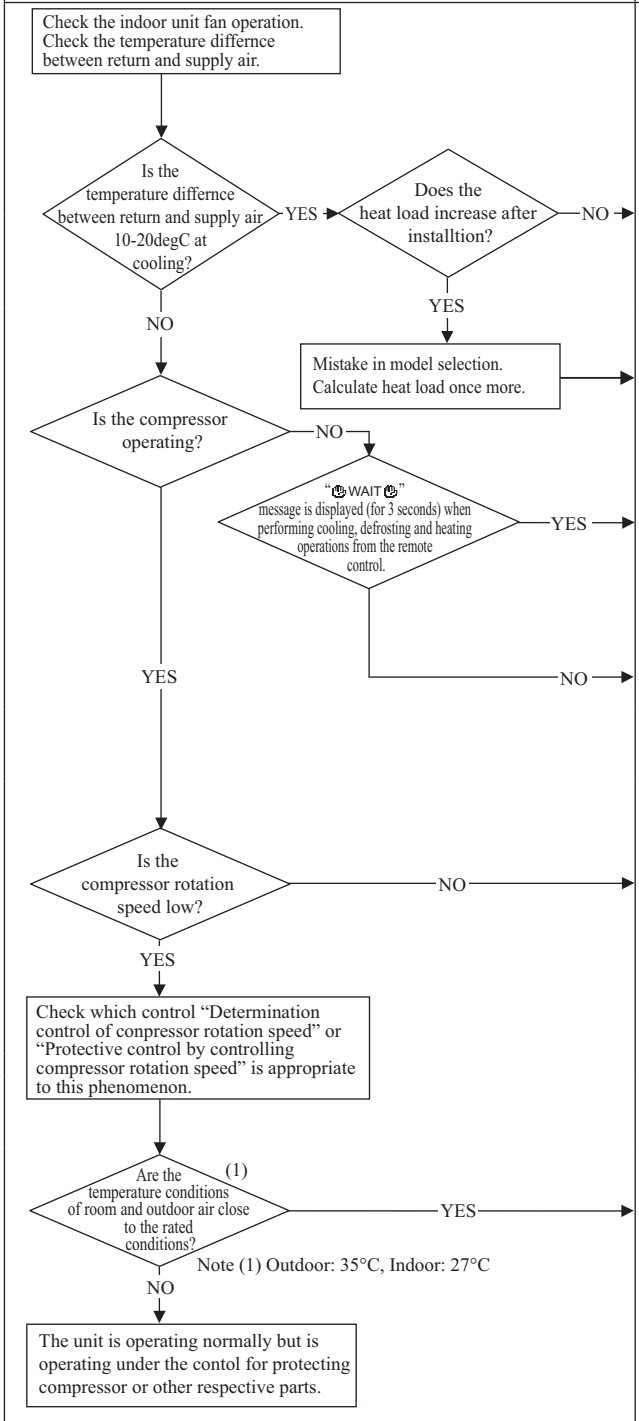
2. Error detection method

3. Condition of error displayed

4. Presumable cause

- Poor compression of compressor
- Faulty expansion valve operation

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote control: None	Indoor	Keeps flashing	Stays OFF	Operates but does not heat
	Outdoor	–	Stays OFF	

1.Applicable model

All models

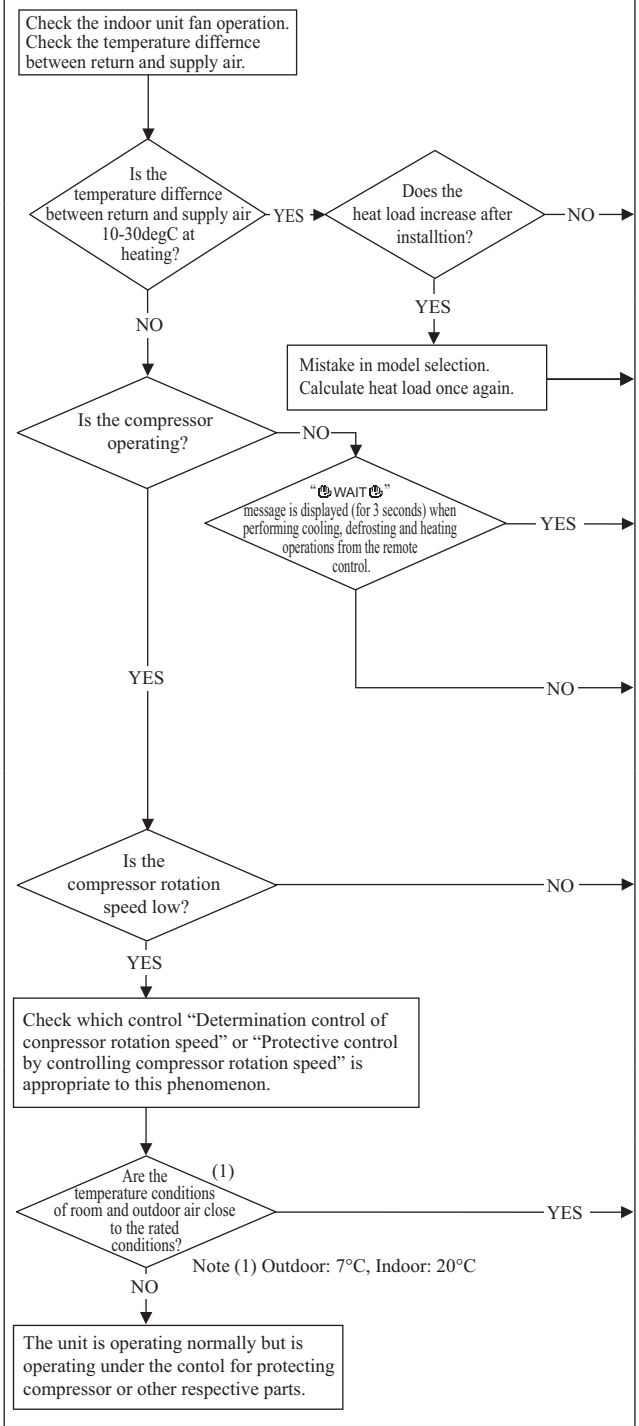
2.Error detection method

3. Condition of error displayed

4.Presumable cause

- Faulty 4-way valve operation
- Poor compression of compressor
- Faulty expansion valve operation

5.Troubleshooting



Note:

Error code

Remote control: None

LED	Green	Red
Indoor	Stays OFF	Stays OFF
Outdoor	–	Stays OFF

Content

Earth leakage breaker activated

1.Applicable model

All models

2.Error detection method

3. Condition of error displayed

4.Presumable cause

- Defective compressor
- Noise

5.Troubleshooting

Diagnosis	Countermeasure
Are OK the insulation resistance and coil resistance of compressor? NO	Replace compressor.*
Is insulation of respective harnesses OK? Is any harness bitten between pannel and casing or etc? NO	Secure insulation resistance.
Check the outdoor unit grounding wire/earth leakage breaker.	

Check of the outdoor unit grounding wire/earth leakage breaker

① Run an independent grounding wire from the grounding screw of outdoor unit to the grounding terminal on the distribution panel. (Do not connect to another grounding wire.)
② In order to prevent malfunction of the earth leakage breaker itself, confirm that it is conformed to higher harmonic regulation.

* Insulation resistance of compressor
- Immediately after installation or when the unit has been left for long time without power source, the insulation resistance may drop to a few MΩ because of refrigerant migrated in the compressor.
  When the earth breaker is activated at lower insulation resistance, check the following points.

① 6 hours after power ON, check if the insulation resistance recovers to normal.
When power ON, crankease heater heat up compressor and evaporate the refrigerant migrated in the compressor.
② Check if the earth leakage breaker is conformed to higher harmonic regulation or not.
Since the unit is equipped with inverter, it is necessary to use components conformed to higher harmonic regulation in order to prevent malfunction of earth leakage breaker.

Note:

Error code	LED	Green	Red	Content
Remote control: None	Indoor	–	–	Excessive noise/vibration (1/3)
	Outdoor	–	–	

1.Applicable model

All models

2.Error detection method

3. Condition of error displayed

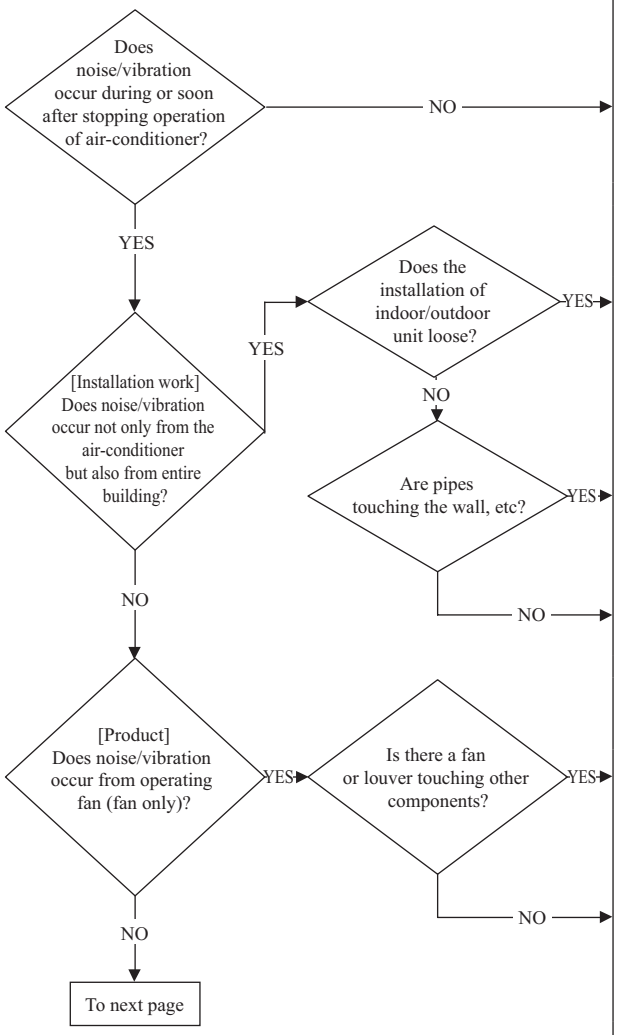
4.Presumable cause

① Improper installation work
- Improper anti-vibration work at instllation
- Insufficient strength of mounting face

② Defective product
- Before/after shipping from factory

③ Improper adjustment during commissioning
- Excess/shortage of refrigerant, etc.

5.Troubleshooting

Diagnosis	Countermeasure
	If excessive noise/vibration persists when sufficient time has elapsed after stopping the unit, it is considered that the air-conditioner is not the source. Check the installed condition carefully, and correct the position or insert rubber cushions or others into the gap, if necessary. Prevent the vibration from transmitting to wall and etc by fixing pipes on the wall or wrapping rubber cushion around the pipe which goes through the hole in the wall or applying other appropriate means. Strength of ceiling wall, floor, etc. may be insufficient. Review the installing position or reinforce it. Check for leaning of installed unit or anomalous mounting of fan, louver or motor and specify the contacting point and correct it. When the heat exchanger or filter is clogged, clean them. In case that the unit is installed at the site where background noise is very low, small noise from indoor unit can be heard, but it is normal. Before installation, check for background noise. If backgound nois is very low, convince client prior to installation.

Note:

Error code	LED	Green	Red	Content
Remote control: None	Indoor	–	–	Excessive noise/vibration (2/3)
	Outdoor	–	–	

1.Applicable model

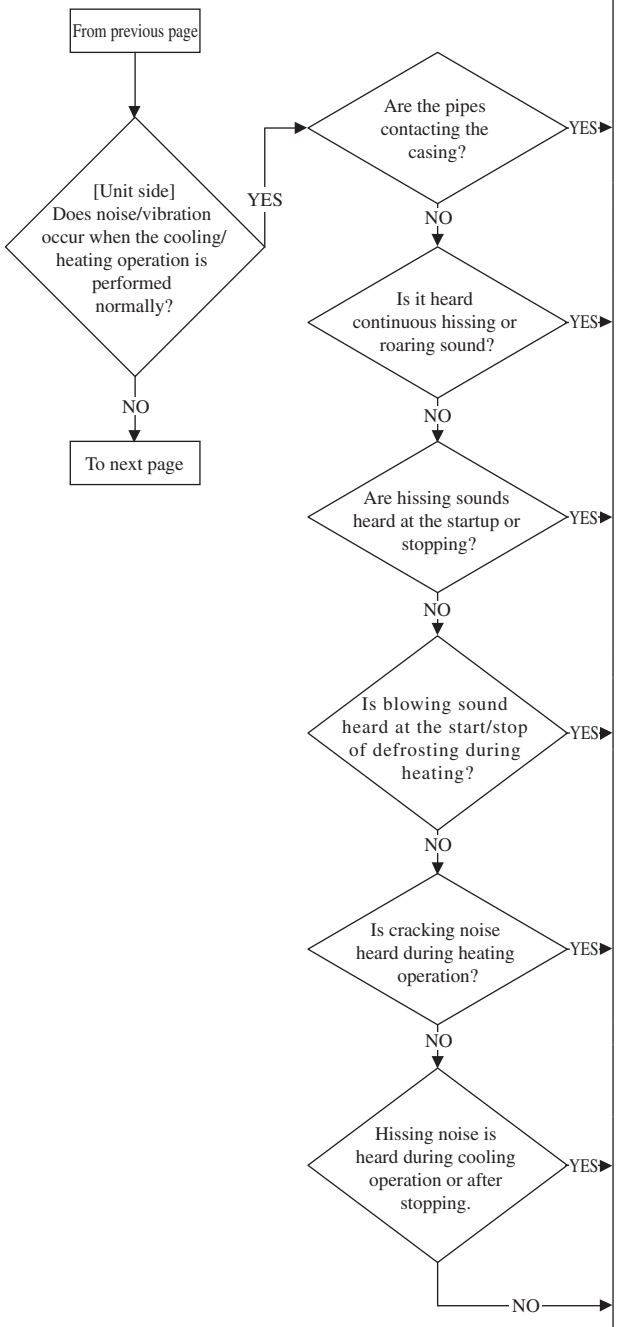
All models

2.Error detection method

3. Condition of error displayed

4.Presumable cause

5.Troubleshooting



Diagnosis	Countermeasure
Are the pipes contacting the casing? YES	Rearrange the piping to avoid contact with the casing.
Is it heard continuous hissing or roaring sound? YES	It is noise/vibration that is generated when the refrigerant gas or liquid flow through inside of piping of air-conditioner. It is likely to occur particularly during cooling or defrost operation in the heating mode. It is normal.
Are hissing sounds heard at the startup or stopping? YES	The noise/vibration occurs when the refrigerant starts or stops flowing. It is normal.
Is blowing sound heard at the start/stop of defrosting during heating? YES	When the defrost operation starts or stops during heating, the refrigerant flow is reversed due to switching 4-way valve. This causes a large change in pressure which produces a blowing sound. It may accompany also the hissing sounds as mentioned above. They are normal.
Is cracking noise heard during heating operation? YES	After the start or stop of heating operation or during defrost operation, abrupt changes in temperature cause resin parts to shrink or expand. This is normal.
Hissing noise is heard during cooling operation or after stopping. YES	It is the sound produced by the drain pump that discharges drain from the indoor unit. The pump continues to run for 5 minutes after stopping the cooling operation. This is normal.
NO	Apply the damper sealant at places considered to be the sources such as the pressure reducing mechanism (expansion valve), capillary, etc.

Note:

Error code	LED	Green	Red	Content
Remote control: None	Indoor	–	–	Excessive noise/vibration (3/3)
	Outdoor	–	–	

1.Applicable model

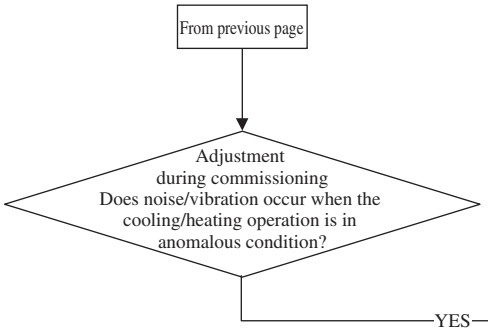
All models

2.Error detection method

3. Condition of error displayed

4.Presumable cause

5.Troubleshooting

Diagnosis	Countermeasure
	If insufficient cooling/ heating problem happens due to anomalous operating conditions at cooling/ heating, followings are suspicious. • Overcharge of refrigerant • Insufficient charge of refrigerant • Intrusion of air, nitrogen, etc. In such occasion, it is necessary to recover refrigerant, vacuum-dry and recharge refrigerant. * Since there could be many causes of noise/ vibration, the above do not cover all. In such case, check the conditions when, where, how the noise/vibration occurs according to following check point. • Indoor/outdoor unit • Cooling/heating/fan mode • Startup/stop/during operation • Operating condition (Indoor/outdoor temperatures, pressure) • Time it occurred • Operation data retained by the remote control such as compressor rotation speed, heat exchanger temperature, EEV opening degree, etc. • Tone (If available, record the noise) • Any other anomalies

Note:

Error code	LED	Green	Red	Content
Remote control: None	Indoor	Keeps flashing	Stays OFF	Louver motor failure (FDTC and FDE only)
	Outdoor	–	Stays OFF	

1.Applicable model

FDTC and FDE series only

2.Error detection method

3. Condition of error displayed

4.Presumable cause

- Defective LM
- LM wire breakage
- Faulty indoor control PCB

5.Troubleshooting

Diagnosis	Countermeasure
▲ Check at the indoor unit side.	
Operate after waiting for more than 1 minute.	
Does the louver operate at the power on? NO → Is LM wiring broken?	
Is LM wiring broken? YES	Repair wiring.
Is LM wiring broken? NO → Is LM locked?	
Is LM locked? NO	Defective indoor control PCB → Replace.
Is LM locked? YES	Replace LM.
Does the louver operate at the power on? YES → Is the louver operable with the remote control?	
Is the louver operable with the remote control? YES	Normal
Is the louver operable with the remote control? NO	Adjust LM lever and then check again.
LM: louver motor	

Note:

Error code	LED	Green	Red	Content
Remote control: None	Indoor	Stays OFF	Stays OFF	Power source system error (Power source to indoor control PCB)
	Outdoor	–	Stays OFF	

1. Applicable model

All models

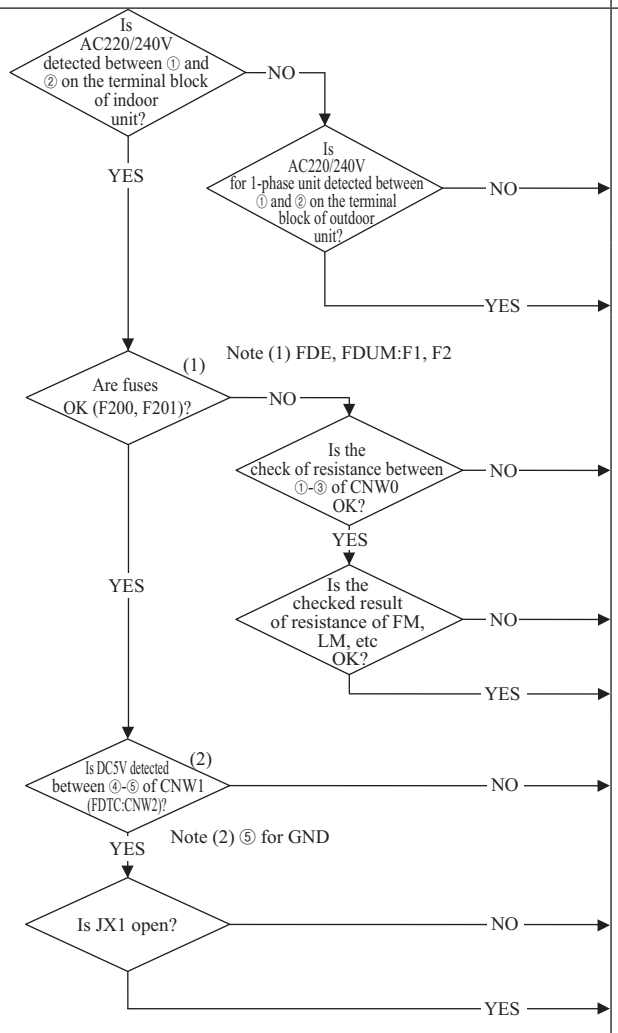
2. Error detection method

3. Condition of error displayed

4. Presumable cause

- Misconnection or breakage of connecting wires
- Blown fuse
- Faulty indoor control or power PCB
- Broken harness
- Faulty outdoor sub PCB (Noise filter)

5. Troubleshooting



Note:

Error code	LED	Green	Red
Remote control: None	Indoor	Keeps flashing	3-time flash
	Outdoor	–	Stays OFF

Content: Power source system error (Power source to remote control)

1. Applicable model

All models

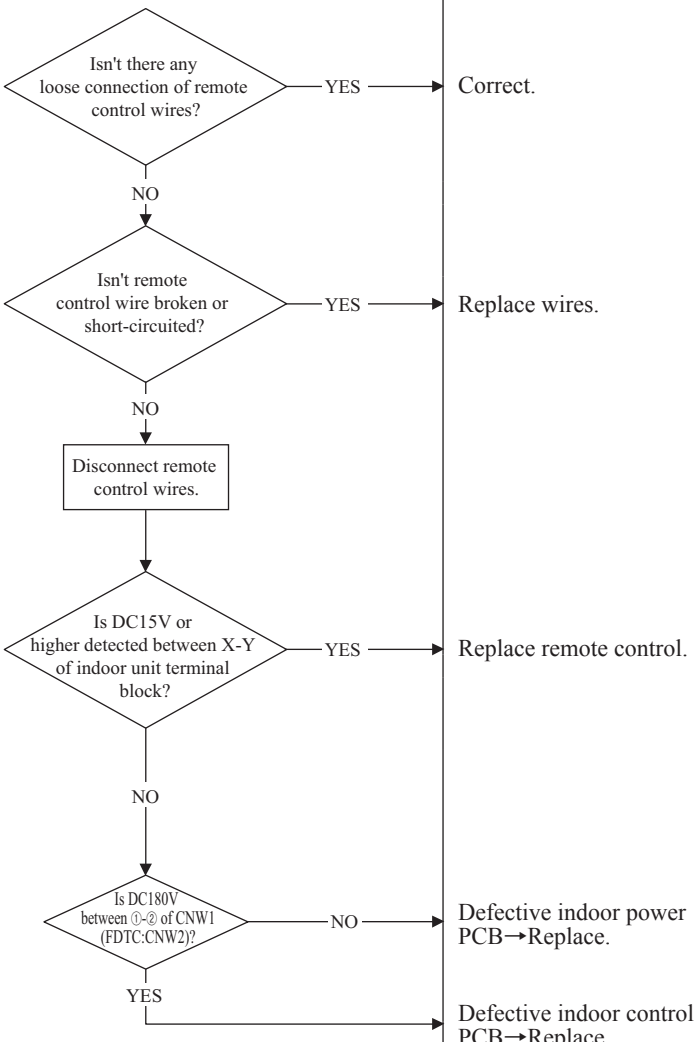
2. Error detection method

3. Condition of error displayed

4. Presumable cause

- Remote control wire breakage/short-circuit
- Defective remote control
- Malfunction by noise
- Faulty indoor power PCB
- Broken harness
- Faulty indoor control PCB

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote control: INSPECT I/U	Indoor	Keeps flashing	Stays OFF	INSPECT I/U (When 1 or 2 remote controls are connected)
	Outdoor	–	Stays OFF	

1. Applicable model

All models

2. Error detection method

Communication between indoor unit and remote control is disabled for more than 30 minutes after the power on.

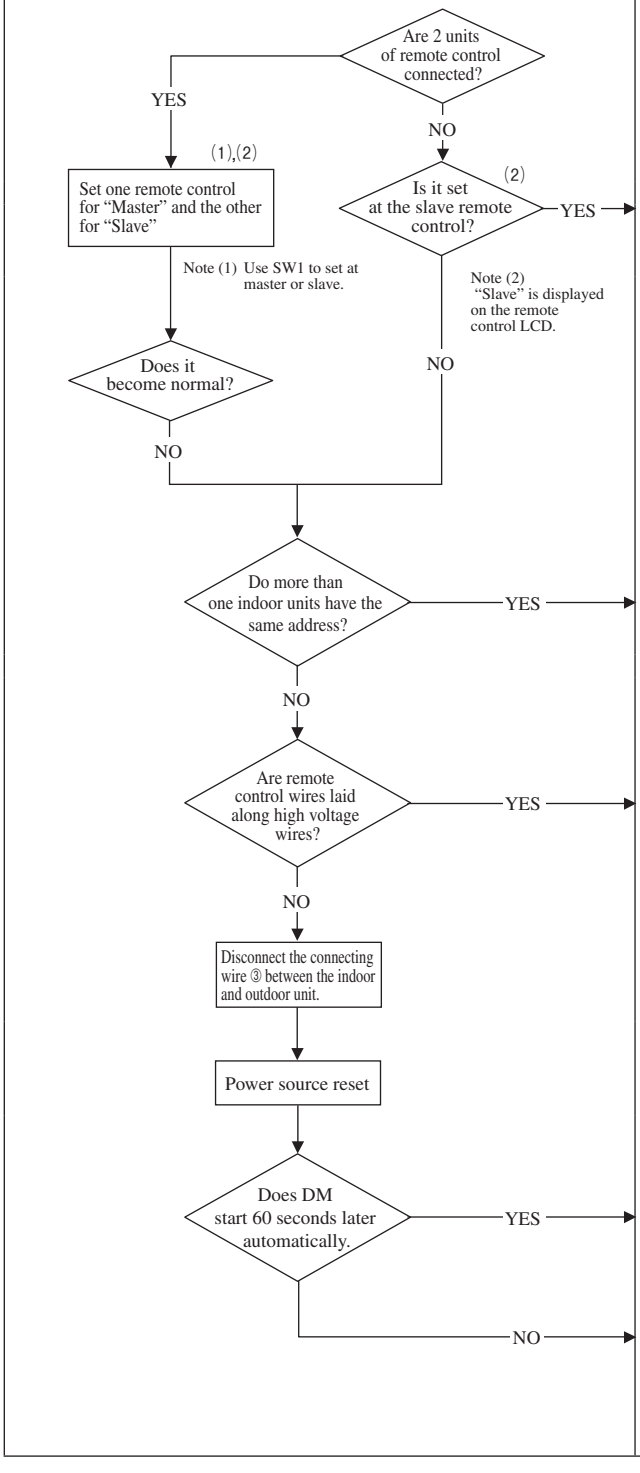
3. Condition of error displayed

Same as above

4. Presumable cause

- Improper setting
- Surrounding environment
- Defective remote control communication circuit
- Faulty indoor control PCB

5. Troubleshooting



Note: If any error is detected 30 minutes after displaying "WAIT" on the remote control, the display changes to "INSPECT I/U".

Error code	LED	Green	Red	Content
Remote control: INSPECT I/U	Indoor	Keeps flashing	Stays OFF	INSPECT I/U (Connection of 3 units or more remote control)
	Outdoor	–	Stays OFF	

1. Applicable model

All models

2. Error detection method

Indoor unit cannot communicate for more than 30 minutes after the power on with remote control.

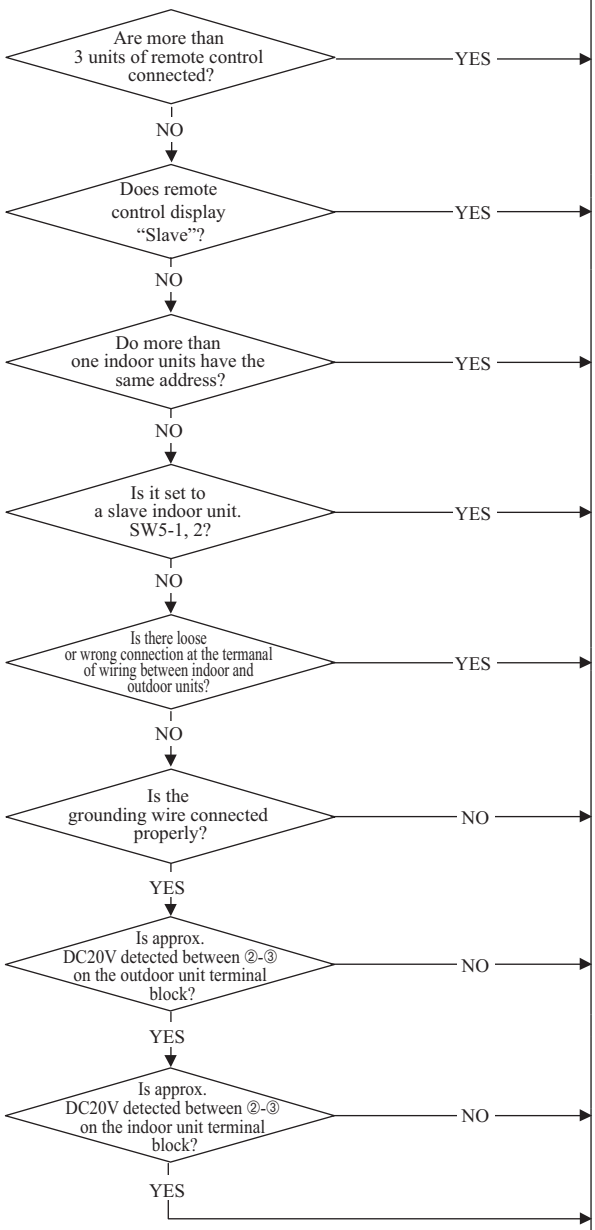
3. Condition of error displayed

Same as above

4. Presumable cause

- Improper setting
- Surrounding environment
- Defective remote control communication circuit
- Faulty indoor control or power PCB
- Faulty outdoor sub PCB

5. Troubleshooting



Note: If any error is detected 30 minutes after displaying "WAIT" on the remote control, the display changes to "INSPECT I/U".

Error code	LED	Green	Red	Content
Remote control: WAIT	Indoor	Keeps flashing	Stays OFF	Communication error at initial operation (1/3)
	Outdoor	–	Stays OFF	

1. Applicable model

All models

When the remote control LCD displays "WAIT" 2 minutes after the power on.

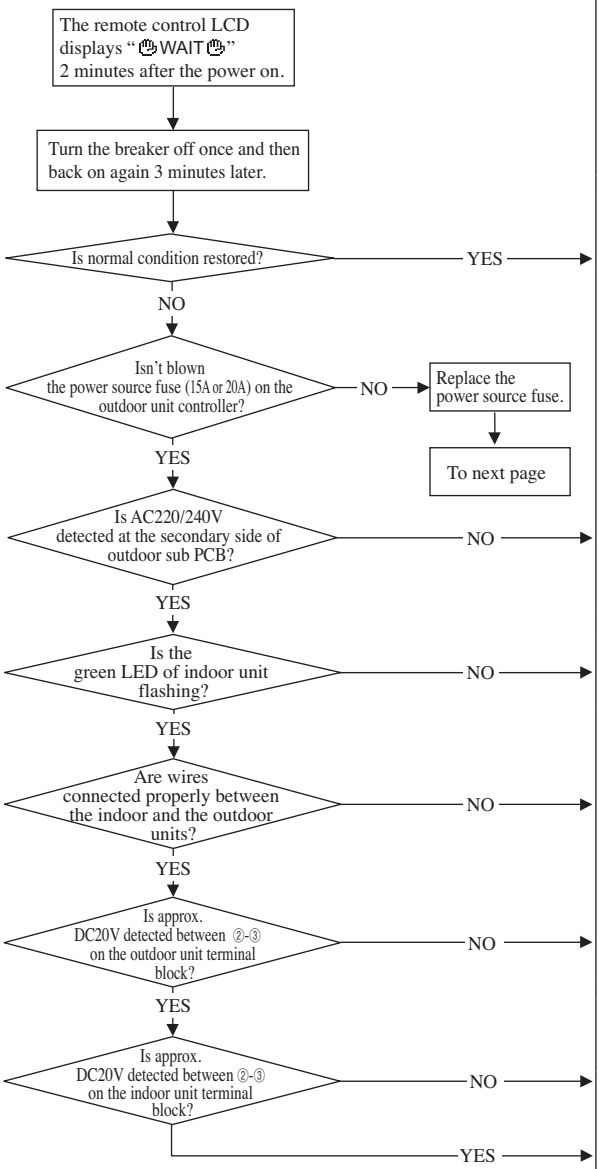
2. Error detection method

3. Condition of error displayed

4. Presumable cause

- Blown fuse
- Faulty outdoor sub PCB
- Connection between PCB's
- Faulty indoor control PCB
- Defective remote control
- Broken remote control wire

5. Troubleshooting



Note: If any anomaly is detected during communication, the error code E5 is displayed. Inspection procedure is same as above. (Excluding matters related to connection) When the power source is reset after the occurrence of E5, the LED will display "WAIT" if the anomaly continues. If the breaker ON/OFF is repeated in a short period of time (within 1 minute), "WAIT" may be displayed. In such occasion, turn the breaker off and wait for 3 minutes.

Error code	LED	Green	Red	Content
Remote control: WAIT	Indoor	Keeps flashing	Stays OFF	Communication error at initial operation (2/3)
	Outdoor	–	Stays OFF	

1. Applicable model

All models

When the fuse is blown, the method to inspect outdoor sub PCB before replacing the power source fuse

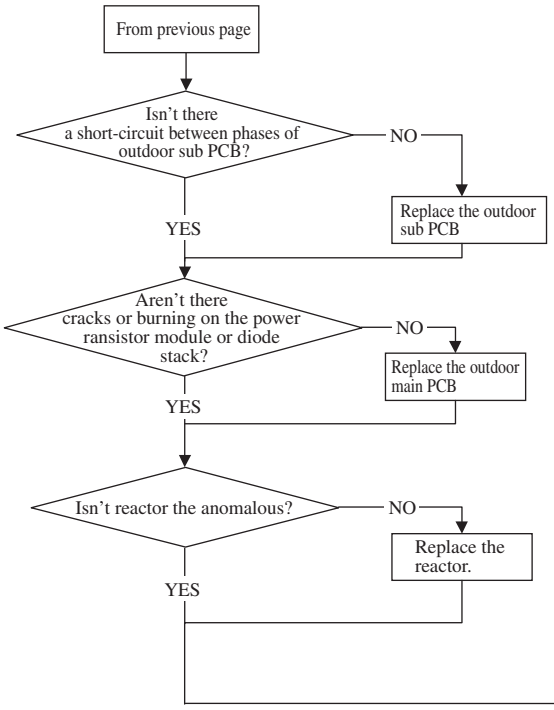
2. Error detection method

3. Condition of error displayed

4. Presumable cause

- Blown fuse
- Faulty outdoor sub PCB
- Faulty outdoor main PCB
- Faulty reactor

5. Troubleshooting

Diagnosis	Countermeasure
	Replace fuse.

Note:

Error code	LED	Green	Red	Content
Remote control: WAIT	Indoor	Keeps flashing	Stays OFF	Communication error at initial operation (3/3)
	Outdoor	–	Stays OFF	

1. Applicable model

All models

When the remote control display is extinguished after the power on.

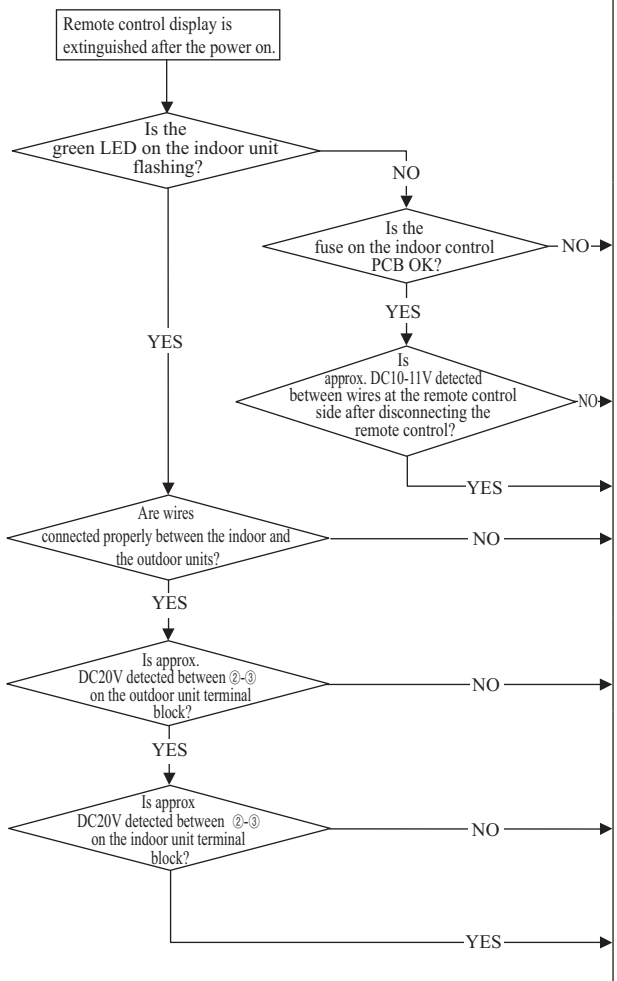
2. Error detection method

3. Condition of error displayed

4. Presumable cause

- Blown fuse
- Connection between PCB's
- Blown fuse
- Faulty indoor control PCB
- Defective remote control
- Wire breakage on remote control
- Faulty outdoor sub PCB

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote control: E1	Indoor	Keeps flashing	Stays OFF	Remote control communication circuit error
	Outdoor	–	Stays OFF	

1. Applicable model

All models

2. Error detection method

When normal communication between the remote control and the indoor unit is interrupted for more than 2 minutes. (Detectable only with the remote control)

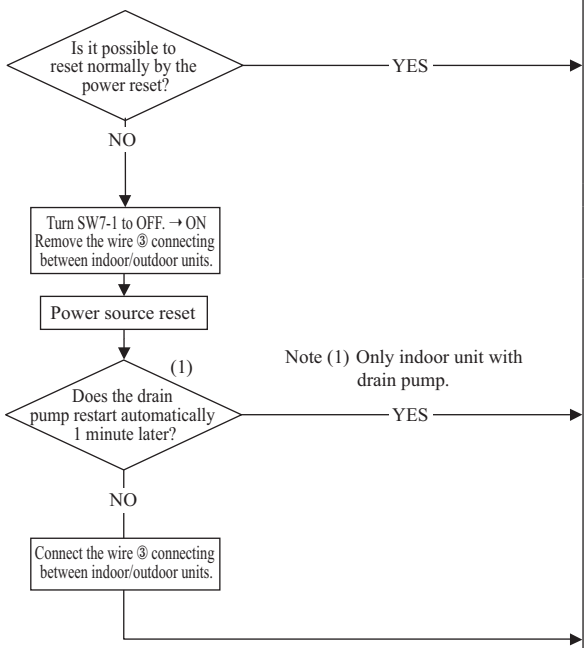
3. Condition of error displayed

Same as above

4. Presumable cause

- Defective communication circuit between remote control-indoor unit
- Noise
- Defective remote control
- Faulty indoor control PCB

5. Troubleshooting



Note: If the indoor unit cannot communicate normally with the remote control for 180 seconds, the indoor contnrol PCB starts to reset automatically.

Error code	LED	Green	Red	Content
Remote control: E5	Indoor	Keeps flashing	2-time flash	Communication error during operation
	Outdoor	–	6-time flash	

1. Applicable model

All models

2. Error detection method

When normal communication between indoor and outdoor unit is interrupted for more than 2 minutes.

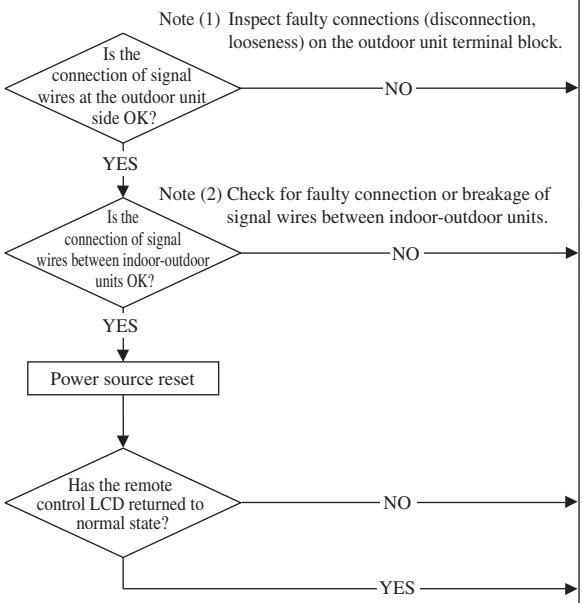
3. Condition of error displayed

Same as above is detected during operation.

4. Presumable cause

- Unit No. setting error
- Broken remote control wire
- Faulty remote control wire connection
- Faulty outdoor sub PCB

5. Troubleshooting



Note:

Error code

Remote control: E6

LED	Green	Red
Indoor	Keeps flashing	1-time flash
Outdoor	–	Stays OFF

Content

Indoor heat exchanger temperature sensor anomaly

1. Applicable model

All models

2. Error detection method

Anomalously low temperature or high temperature (resistance) is detected on the indoor heat exchanger sensor (Thi-R1, R2 or R3).

3. Condition of error displayed

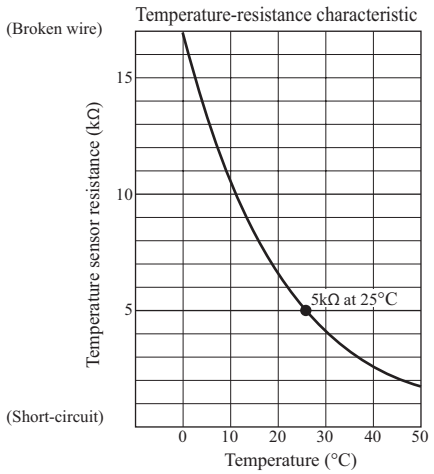
- When the temperature sensor detects -50°C or lower for 5 seconds continuously, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this error occurs again within 60 minutes after the initial detection.
- Or if 70°C or higher is detected for 5 seconds continuously.

4. Presumable cause

- Defective indoor heat exchanger sensor connector
- Indoor heat exchanger temperature sensor anomaly
- Faulty indoor control PCB

5. Troubleshooting

Diagnosis	Countermeasure
Is the connection of indoor heat exchanger temperature sensor connector OK? → NO	Correct. → Insert connector securely.
YES → Are characteristics of indoor heat exchanger temperature sensor OK? → NO	Defective indoor heat exchanger temperature sensor → Replace.
YES	Defective indoor control PCB → Replace. (Defective indoor unit heat exchanger temperature sensor input circuit)



Note:

Error code	LED	Green	Red	Content
Remote control: E7	Indoor	Keeps flashing	1-time flash	Return air temperature sensor anomaly
	Outdoor	–	Stays OFF	

1. Applicable model

All models

2. Error detection method

Anomalously low temperature or high temperature (resistance) is detected by indoor return air temperature sensor (Thi-A)

3. Condition of error displayed

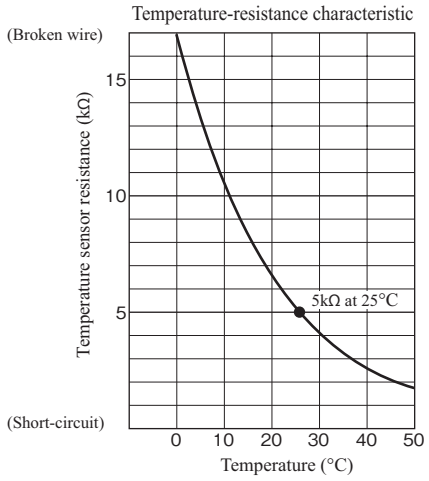
- When the temperature sensor detects -50°C or lower for 5 seconds continuously, the compressor stops. After 3-minute delay, the compressor starts again automatically, but if this error occurs again within 60 minutes after the initial detection.

4. Presumable cause

- Defective return air temperature sensor connector
- Defective return air temperature sensor
- Faulty indoor control PCB

5. Troubleshooting

Diagnosis	Countermeasure
Is the connection of return air temperature sensor connector OK? → NO	Correct. → Connect connector.
YES → Are the characteristics of return air temperature sensor OK? → NO	Defective return air temperature sensor → Replace.
YES	Defective indoor control PCB → Replace. (Defective return air temperature sensor input circuit)



Note:

Error code	LED	Green	Red	Content
Remote control: E8	Indoor	Keeps flashing	1-time flash	Heating overload operation
	Outdoor	–	Stays OFF	

1. Applicable model

All models

2. Error detection method

Indoor heat exchanger temperature sensor (Thi-R1, R2, R3)

3. Condition of error displayed

When it is detected 5 times within 60 minutes from initial detection or when the overload condition is detected for 6 minutes continuously.

4. Presumable cause

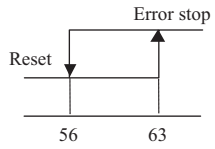
- Clogged air filter
- Defective indoor heat exchanger temperature sensor connector
- Defective indoor heat exchanger temperature sensor
- Anomalous refrigerant system

5. Troubleshooting

Diagnosis	Countermeasure
Is the air filter clogged? YES	Wash.
NO → Is the indoor heat exchanger temperature sensor connection OK? NO	Defective indoor heat exchanger temperature sensor connector → Correct.
YES → Are the characteristics of indoor heat exchanger temperature sensor OK? NO	Defective indoor heat exchanger temperature sensor.
* For the characteristics of indoor heat exchanger temperature, refer to E6.	
YES → Check the error data with the remote control. → Is the unit operating in the state of heating overload? NO	Check refrigerant system.
YES	Adjust.

Note (1) Judge if it is in the state of overload or not as follows.
- ▲ Is there any short-circuit of air?
- ▲ Isn't there any fouling or clogging on the indoor heat exchanger?
- ▲ Is the outdoor fan control normal?
- ▲ Isn't the indoor and outdoor air temperature too high?

Note (2) For characteristics of indoor heat exchanger temperature sensor, see the error display E6.



Note: During heating operation; After starting compressor, compressor rotation speed is decreased by detecting indoor heat exchanger temperature (Thi-R) in order to control high pressure.

Error code

Remote control: E9

LED	Green	Red
Indoor	Keeps flashing	1-time flash
Outdoor	–	Stays OFF

Content

Drain trouble
(FDTC and FDUM only)

1. Applicable model

FDTC and FDUM series only

2. Error detection method

Float switch is activated

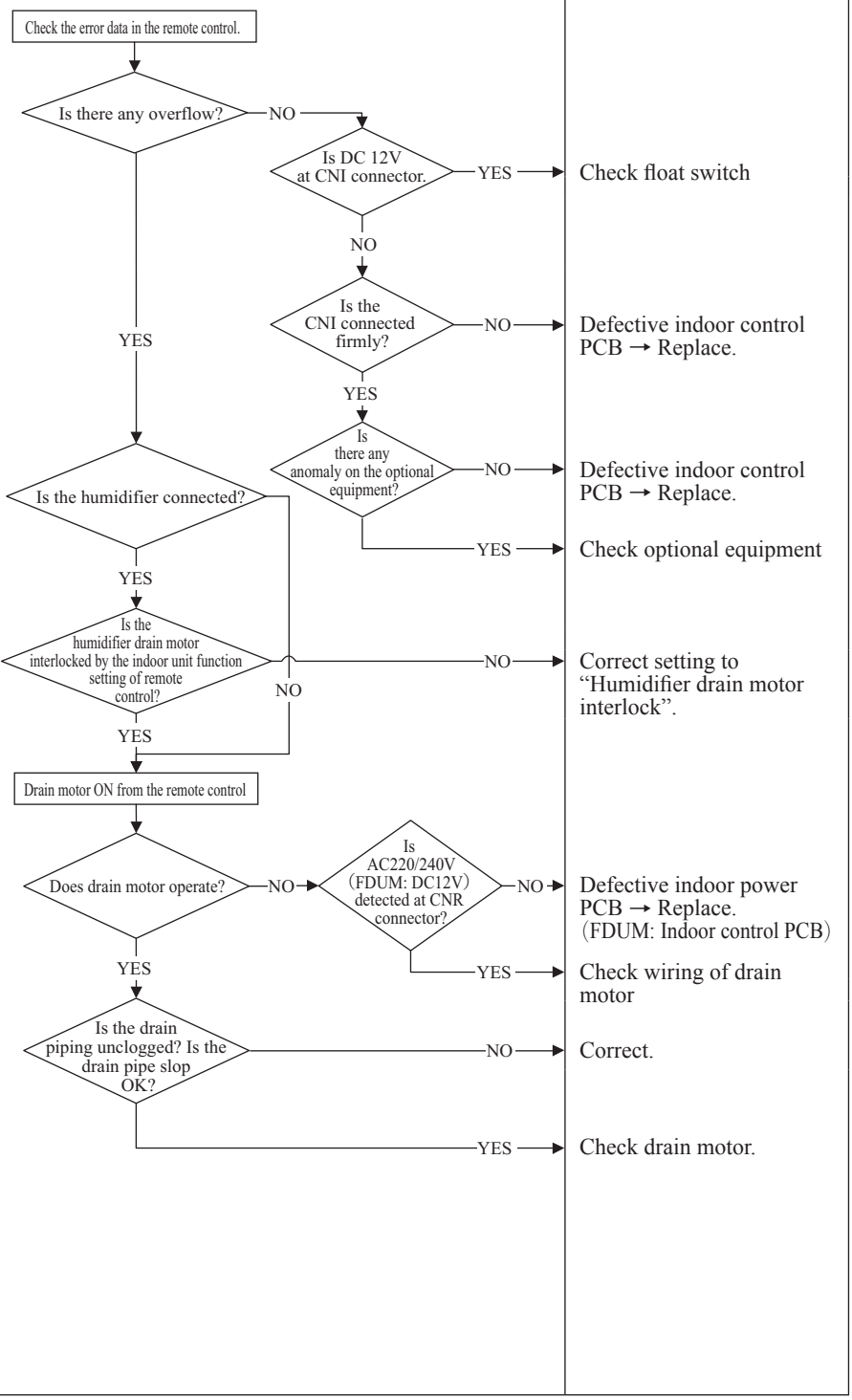
3. Condition of error displayed

If the float switch OPEN is detected for 3 seconds continuously or if float switch connector or wire is disconnected.

4. Presumable cause

- Defective indoor control or power PCB
- Float switch setting error
- Humidifier drain motor interlock setting error
- Option equipment setting error
- Drain piping error
- Defective drain motor
- Disconnection of drain motor wiring

5. Troubleshooting



Note: When this error occurred at power ON, disconnection of wire or connector of the float switch is suspected. Check and correct it (or replace it, if necessary).

Error code

Remote control: E10

LED	Green	Red
Indoor	Keeps flashing	Stays OFF
Outdoor	–	Stays OFF

Content: Excessive number of connected indoor units (more than 17 units) by controlling with one remoto control

1. Applicable model

All models

2. Error detection method

When it detects more than 17 of indoor units connected to one remote contorl

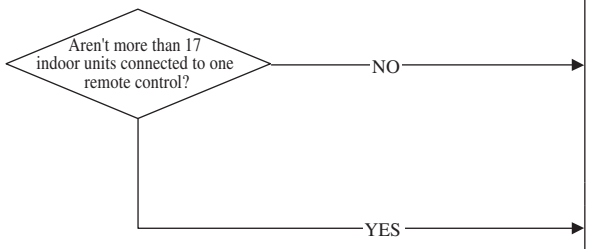
3. Condition of error displayed

Same as above

4. Presumable cause

- Excessive number of indoor units connected
- Defective remote control

5. Troubleshooting



Diagnosis	Countermeasure
Aren't more than 17 indoor units connected to one remote control? NO	Defective remote control → Replace.
Aren't more than 17 indoor units connected to one remote control? YES	Reduce to 16 or less units.

Note:

Error code	LED	Green	Red	Content
Remote control: E11	Indoor	Keeps flashing	Keeps flashing	Address setting error of indoor units
	Outdoor	–	Stays OFF	

1. Applicable model

All models

2. Error detection method

IU address has been set using the "Master IU address set" function of remote control.

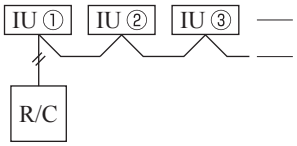
3. Condition of error displayed

Same as above

4. Presumable cause

Same as above

5. Troubleshooting

Diagnosis	Countermeasure
E11 occurs ↓ Is "Master IU address set" function of remote control used? YES →	• In cases of RC-EX3 Menu → Service setting → IU settings → Service password → IU select • In cases of RC-E5 Return address No. to "IU …" using [▲] or [▼] button.
In case the wiring is below and "Master IU address set" is used, E11 is appeared. 	

Note:

Error code	LED	Green	Red	Content
Remote control: E16	Indoor	Keeps flashing	1-time flash	Indoor fan motor anomaly
	Outdoor	–	Stays OFF	

1. Applicable model

All models

2. Error detection method

Detected by rotation speed of indoor fan motor

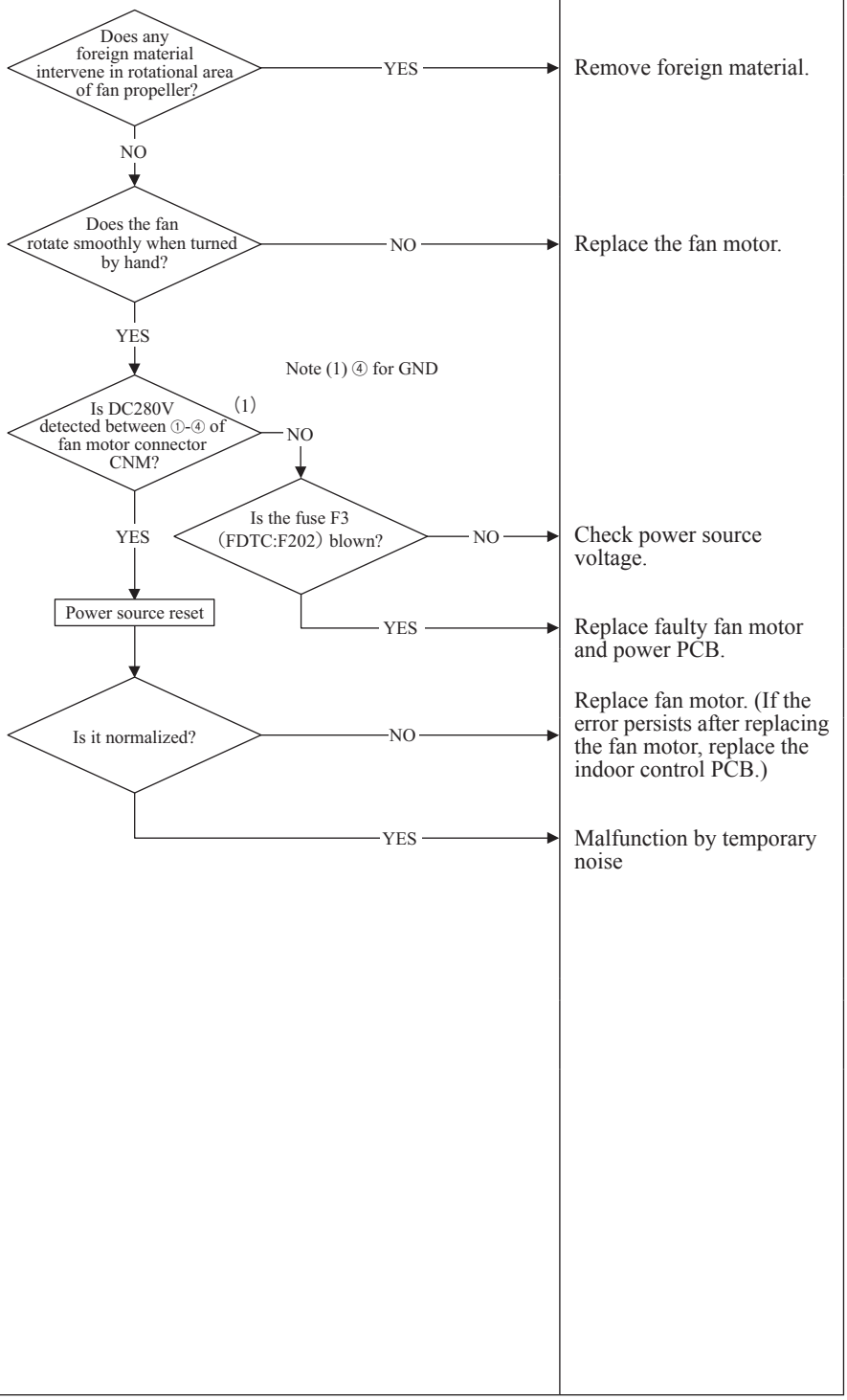
3. Condition of error displayed

When actual rotation speed of indoor fan motor drops to lower than 200min^{-1} for 30 seconds continuously, the compressor and the indoor fan motor stop. After 2-second, it starts again automatically, but if this error occurs 4 times within 60 minutes after the initial detection.

4. Presumable cause

- Defective indoor power (control) PCB
- Foreign material at rotational area of fan propeller
- Defective fan motor
- Dust on indoor power (control) PCB
- Blown fuse
- External noise, surge

5. Troubleshooting



Note:

Error code

Remote control: E19

LED	Green	Red
Indoor	Keeps flashing	1-time flash
Outdoor	–	Stays OFF

Content

Indoor unit operation check, drain motor check setting error

1. Applicable model

All models

2. Error detection method

After indoor operation check, when the communication between indoor and outdoor unit is established and SW7-1 is still kept ON.

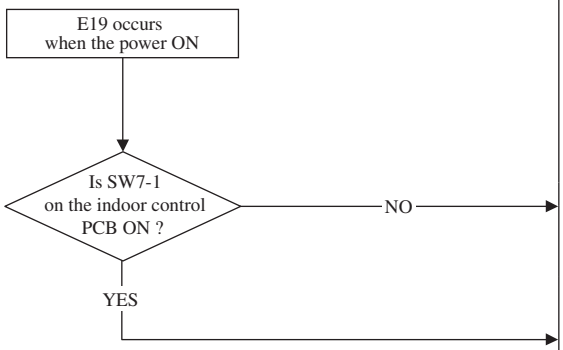
3. Condition of error displayed

Same as above

4. Presumable cause

Mistake in SW7-1 setting
(Due to forgetting to turn OFF SW7-1 after indoor operation check)

5. Troubleshooting



Diagnosis	Countermeasure
Is SW7-1 on the indoor control PCB ON ? NO	Defective indoor control PCB (Defective SW7) →Replace.
Is SW7-1 on the indoor control PCB ON ? YES	Turn SW7-1 on the indoor control PCB OFF and reset the power.

Note:

Error code	LED	Green	Red	Content
Remote control: E20	Indoor	Keeps flashing	1-time flash	Indoor fan motor rotation speed anomaly
	Outdoor	–	Stays OFF	

1. Applicable model

All models

2. Error detection method

Detected by rotation speed of indoor fan motor

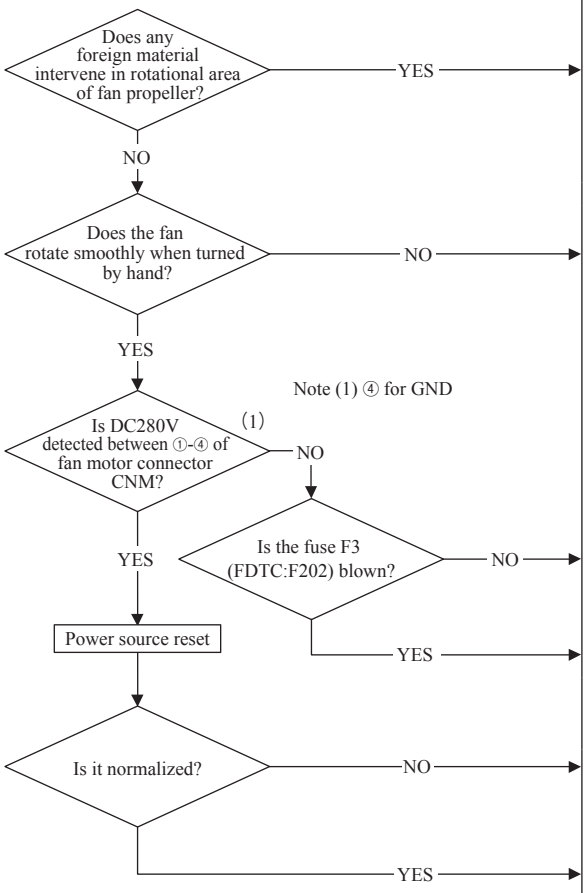
3. Condition of error displayed

When the actual fan rotation speed does not reach to the speed of [required speed-50min^{-1}] after 2 minutes have been elapsed since the fan motor rotation speed command was output, the unit stops by detecting indoor fan motor anomaly.

4. Presumable cause

- Defective indoor power (control) PCB
- Foreign material at rotational area of fan propeller
- Defective fan motor
- Dust on indoor power (control) PCB
- Blown fuse
- External noise, surge

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote control: E28	Indoor	Keeps flashing	Stays OFF	Remote control temperature sensor anomaly
	Outdoor	–	Stays OFF	

1. Applicable model

All models

2. Error detection method

Detection of anomalously low temperature (resistance) of remote control temperature sensor (Thc)

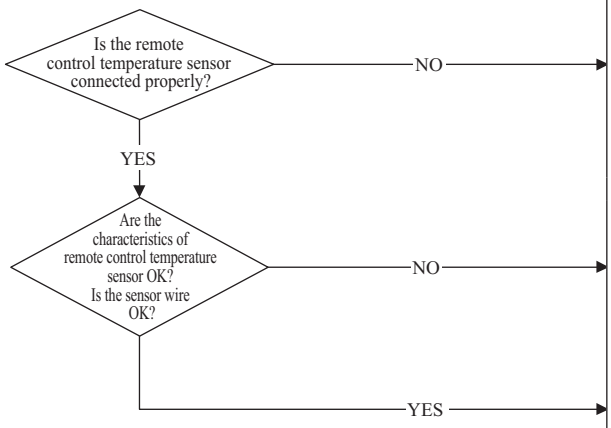
3. Condition of error displayed

When the temperature sensor detects -50°C or lower for 5 seconds continuously, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this error occurs again within 60 minutes after the initial detection.

4. Presumable cause

- Faulty connection of remote control temperature sensor
- Defective remote control temperature sensor
- Defective remote control PCB

5. Troubleshooting



Resistance-temperature characteristics of remote control temperature sensor (Thc)

Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)
0	65	30	16
1	62	32	15
2	59	34	14
4	53	36	13
6	48	38	12
8	44	40	11
10	40	42	9.9
12	36	44	9.2
14	33	46	8.5
16	30	48	7.8
18	27	50	7.3
20	25	52	6.7
22	23	54	6.3
24	21	56	5.8
26	19	58	5.4
28	18	60	5.0

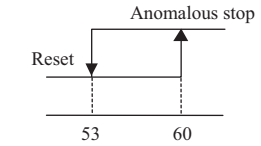
Note: After 10 seconds has passed since remote control sensor was switched from valid to invalid, E28 will not be displayed even if the sensor harness is disconnected. At same time the sensor, which is effective, is switched from remote control sensor to indoor return air temperature sensor. Even though the remote control sensor is set to be Effective, the return air temperature displayed on remote control for checking still shows the value detected by indoor return air temperature sensor, not by remote control temperature sensor.

Error code	LED	Green	Red	Content
Remote control: E35	Indoor	Keeps flashing	Stays OFF	Cooling high pressure operation
	Outdoor	–	2-time flash	

1. Applicable model

All models

2. Error detection method



Outdoor heat exchanger temperature (°C)

3. Condition of error displayed

When anomalous outdoor heat exchanger temperature occurs 5 times within 60 minutes or 60°C or higher continues for 10 minutes, including the compressor stop.

4. Presumable cause

- Defective outdoor heat exchanger temperature sensor
- Defective outdoor main PCB
- Indoor, outdoor unit installation spaces
- Short-circuit of air on indoor, outdoor units
- Fouling, clogging of heat exchanger
- Excessive refrigerant quantity

5. Troubleshooting

Diagnosis	Countermeasure
* For the characteristics of outdoor heat exchanger temperature sensor, refer to E37.	
Are normal the characteristics of outdoor heat exchanger temperature sensor normal? — NO	Replace outdoor heat exchanger temperature sensor.
YES	
Is the unit operating in the state of cooling overload? — YES	Check unit side. • Isn't the air circulation of outdoor unit short-circuited? • Are installation spaces adequate? • Isn't there any fouling or clogging on heater exchanger?
NO	
Is the high pressure control normal — NO	Control operation check*
YES	
Is the temperature (measured actually) at direction of error correct? — NO	Defective outdoor main PCB→Replace.
YES	Excessive refrigerant amount: Recharge refrigerant by weighing proper amount on a scale.

Note:

Error code	LED	Green	Red	Content
Remote control: E36	Indoor	Keeps flashing	Stays OFF	Discharge pipe temperature error
	Outdoor	–	5-time flash	

1. Applicable model

All models

2. Error detection method

For the error detection method, refer to the protective control by controlling compressor rotation speed and cooling high pressure protective control of micro computer control function for corresponding models.

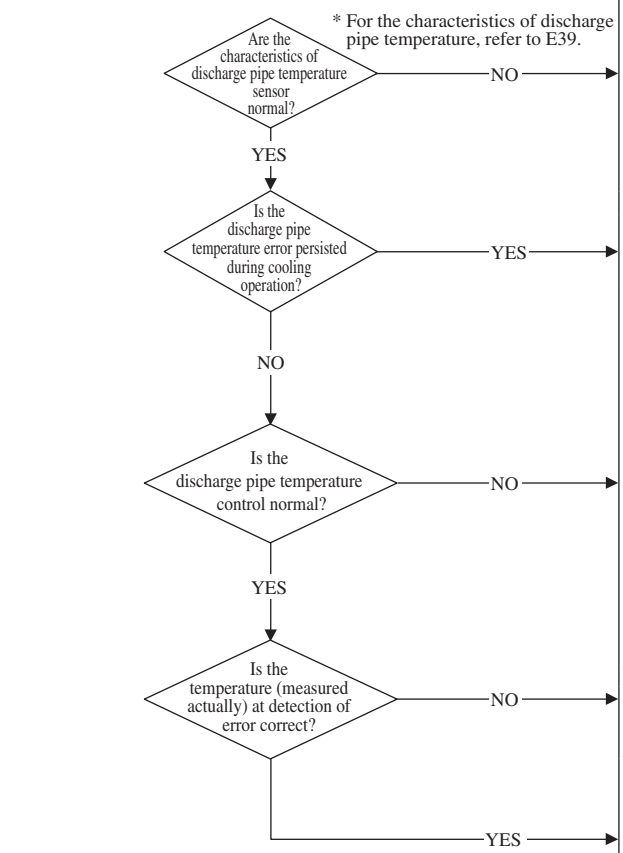
3. Condition of error displayed

When discharge pipe temperature anomaly is detected 2 times within 60 minutes is compressor stop.

4. Presumable cause

- Defective outdoor main PCB
- Defective discharge pipe temperature sensor
- Clogged filter
- Indoor, outdoor unit installation spaces
- Short-circuit of air on indoor, outdoor units
- Fouling, clogging of heat exchanger

5. Troubleshooting



* For the contents of control, refer to the protective control by controlling compressor rotation speed and cooling high pressure protective control of micro computer control function for corresponding models.

Note:

Error code

Remote control: E37

LED	Green	Red
Indoor	Keeps flashing	Stays OFF
Outdoor	–	8-time flash

Content

Outdoor heat exchanger temperature sensor anomaly

1. Applicable model

All models

2. Error detection method

Detection of anomalously low temperature (resistance) on the outdoor heat exchanger temperature sensor

3. Condition of error displayed

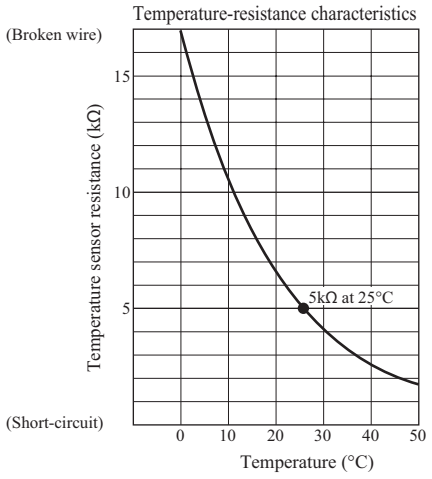
- When the temperature sensor detects -55 °C or lower for 20 seconds continuously within 2 minutes to 2 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minute delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes.
- When -55 °C or lower is detected for within 20 second after power ON.

4. Presumable cause

- Defective outdoor main PCB
- Broken sensor harness or temperature sensing section
- Disconnected wire connection (connector)

5. Troubleshooting

Diagnosis	Countermeasure
Is the outdoor heat exchanger temperature sensor connector connected properly? → NO	Correct connector.
YES → For the characteristics of outdoor heat exchanger temperature sensor, see the following graph. Are the characteristics of outdoor heat exchanger temperature sensor OK? → NO	Defective outdoor heat exchanger temperature sensor→Replace.
YES	Defective outdoor main PCB→Replace. (Defective outdoor heat exchanger temperature sensor input circuit)



Note:

Error code	LED	Green	Red	Content
Remote control: E38	Indoor	Keeps flashing	Stays OFF	Outdoor air temperature sensor anomaly
	Outdoor	–	8-time flash	

1. Applicable model

All models

2. Error detection method

Detection of anomalously low temperature (resistance) on outdoor air temperature sensor

3. Condition of error displayed

- When the temperature sensor detects -55 °C or lower for 5 seconds continuously within 2 minutes to 2 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minute delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes.
- When -55 °C or lower is detected for within 20 second after power ON.

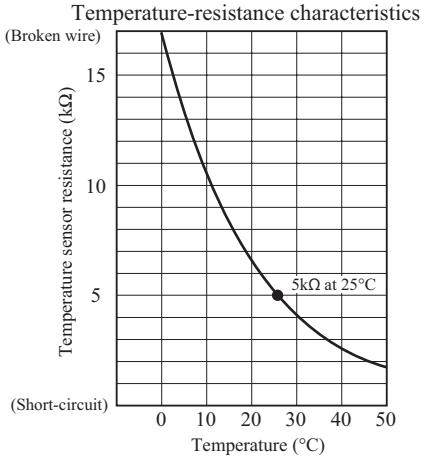
4. Presumable cause

- Defective outdoor main PCB
- Broken sensor harness or temperature sensing section (Check molding.)
- Disconnected wire connection (connector)

5. Troubleshooting

Diagnosis	Countermeasure
Is the suction pipe temperature sensor connector connected properly? → NO	Correct connector.
YES → Is the characteristics of the suction pipe temperature sensor OK? (For the characteristics of suction pipe temperature sensor, see the following graph.) → NO	Defective outdoor air temperature sensor → Replace.
YES	Defective outdoor main PCB → Replace. (Defective outdoor air temperature sensor input circuit)

Temperature-resistance characteristics



Note:

Error code	LED	Green	Red	Content
Remote control: E39	Indoor	Keeps flashing	Stays OFF	Discharge pipe temperature sensor anomaly
	Outdoor	–	8-time flash	

1. Applicable model

All models

2. Error detection method

Detection of anomalously low temperature (resistance) on the discharge pipe temperature sensor

3. Condition of error displayed

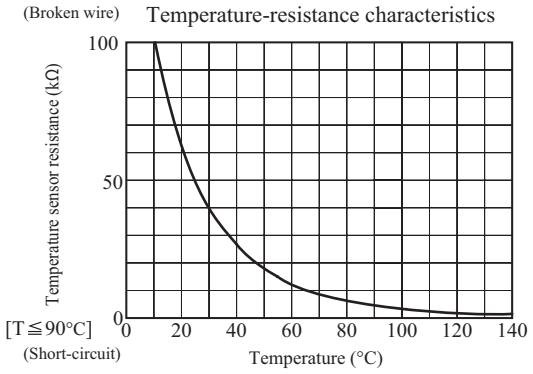
When the temperature sensor detects -25 °C or lower for 5 seconds continuously within 10 minutes to 10 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minute delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes.

4. Presumable cause

- Defective outdoor main PCB
- Broken sensor harness or temperature sensing section (Check molding.)
- Disconnected wire connection (connector)

5. Troubleshooting

Diagnosis	Countermeasure
Is the discharge pipe temperature sensor connector connected properly? → NO	Correct connector.
YES → Are the characteristics of discharge pipe temperature sensor OK? (For the characteristics of discharge pipe temperature sensor, see the following graph.) → NO	Defective discharge pipe temperature sensor → Replace.
YES	Defective outdoor main PCB → Replace. (Defective temperature sensor input circuit)



Note:

Error code	LED	Green	Red	Content
Remote control: E42	Indoor	Keeps flashing	Stays OFF	Current cut (1/2)
	Outdoor	–	1-time flash	

1. Applicable model

All models

2. Error detection method

In order to prevent from overcurrent of inverter, if the current exceeds the specifications, it makes the compressor stopping.

3. Condition of error displayed

- If the output current of inveter exceeds the specifications, it makes the compressor stopping.

4. Presumable cause

- The valves closed
- Faulty power source
- Insufficient refrigerant amount
- Faulty compressor
- Faulty power transistor module

5. Troubleshooting

Diagnosis	Countermeasure
Is the Power source voltage OK? — NO	Check power source.
YES → Are the service valves opened? — NO	Open the valves.
YES → Is the high pressure during operation OK? — NO	Check refrigerant amount and refregerant circuit *In case of transitional increase of high pressure and/or test run, several times restarting may recover it, because liquid refrigerant (migrated) in the compresser is discharged from the compressor.
YES → Is the checked result of insulation resistance and coil wire resistance (1) of compressor motor OK? — NO Note (1) 1.703Ω or more at 20°C	Replace compressor.
YES → To next page.	

Note:

Error code

Remote control: E42

LED	Green	Red
Indoor	Keeps flashing	Stays OFF
Outdoor	–	1-time flash

Content

Current cut (2/2)

1. Applicable model

All models

2. Error detection method

In order to prevent from overcurrent of inverter, if the current exceeds the specifications, it makes the compressor stopping.

3. Condition of error displayed

- If the output current of inveter exceeds the specifications, it makes the compressor stopping.

4. Presumable cause

- Defective outdoor main PCB
- Faulty power source
- Insufficient refrigerant amount
- Faulty compressor
- Faulty power transistor module

5. Troubleshooting

Diagnosis	Countermeasure
From previous page Is the checked result of power transistor module OK? NO	Defective outdoor main PCB→Replace.
YES • Is the space for installation of indoor and/or outdoor unit enough? • Is there any short circuit of air on indoor and/or outdoor unit? • At cooling, does the outdoor fan motor run? Are the service valves fully opened? Is the filter clogged? • At heating, does the indoor fan motor run? Are the service valves fully opened? Is the filter clogged? • Is there any liquid flooding? Is the superheat within normal range? Is the suction pipe temperature sensor normal? • Is there any anoumalous sound on the compressor?	
After resetting power for several times does it become normal? NO	Defective outdoor main PCB→Replace.
YES Temporary noise may cause of anomaly. If noise source can be found, take countermeasure.	

Note:

Error code

Remote control: E45

LED	Green	Red
Indoor	Keeps flashing	Stays OFF
Outdoor	–	4-time flash

Content

Outdoor sub PCB communication error

1. Applicable model

All models

2. Error detection method

Detected communication error of more than 15 seconds 4 times in 15 minutes.

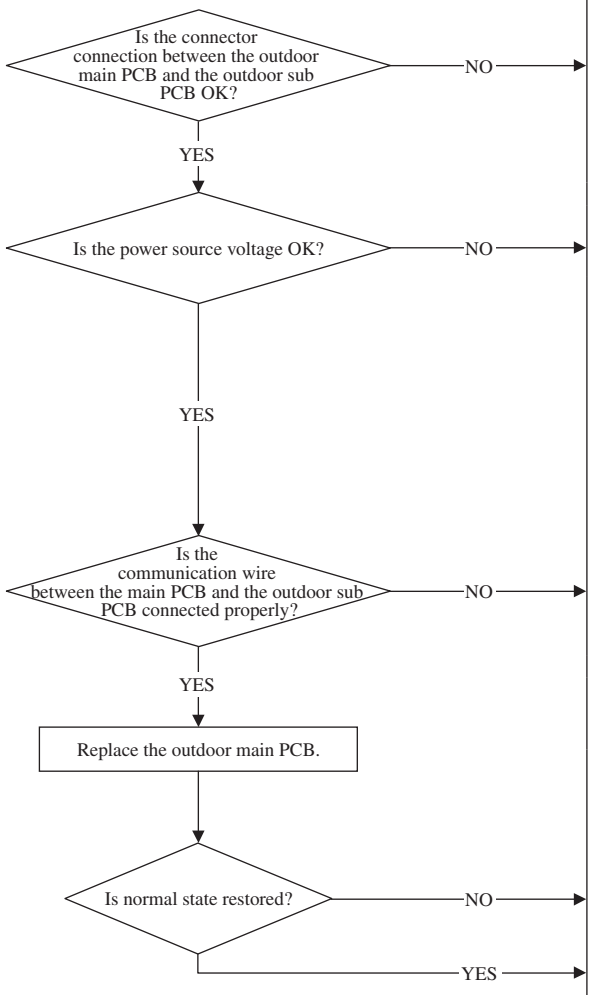
3. Condition of error displayed

When communication is not established between the outdoor sub PCB and the outdoor main PCB.

4. Presumable cause

- Defective outdoor sub PCB
- Defective connector between the outdoor main PCB and outdoor sub PCB
- Defective outdoor main PCB

5. Troubleshooting



Note:

Error code

Remote control: E47

LED	Green	Red
Indoor	Keeps flashing	Stays OFF
Outdoor	–	2-time flash

Content

Active filter voltage error

1. Applicable model

All models

2. Error detection method

Error is displayed if the converter voltage exceeds DC340V (3 times within 20 minutes). Remote control may be set after 3 minutes delay.

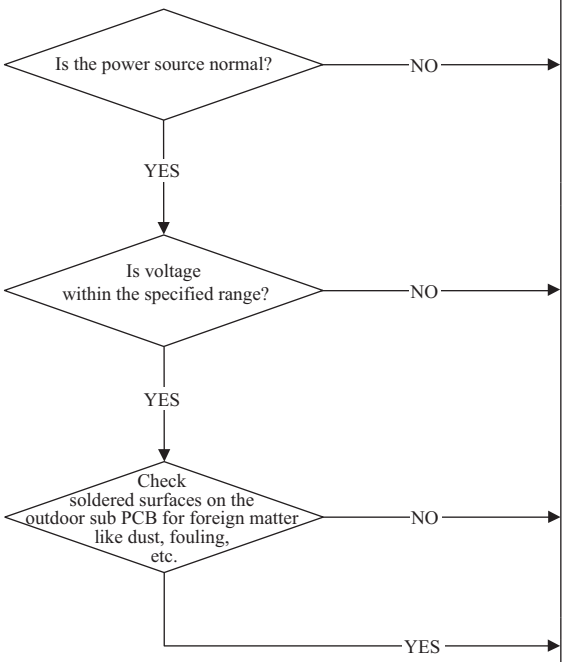
3. Condition of error displayed

Same as above

4. Presumable cause

- Defective outdoor sub PCB
- Dust on outdoor sub PCB
- Anomalous power source

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote control: E48	Indoor	Keeps flashing	Stays OFF	Outdoor fan motor anomaly
	Outdoor	–	ON	

1. Applicable model

All models

2. Error detection method

Detected by rotation speed of outdoor fan motor

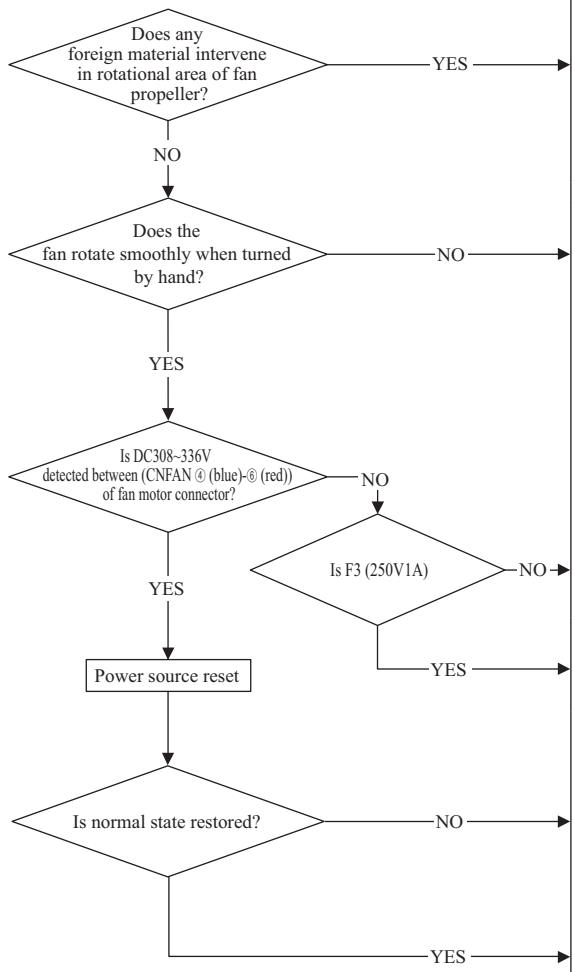
3. Condition of error displayed

When actual rotation speed of outdoor fan motor drops to 75min^{-1} or lower for 30 minutes continuously, the compressor and the outdoor fan motor stop. After 3-minute delay, it starts again automatically, but if this anomaly occurs 3 times within 60 minutes after the initial detection.

4. Presumable cause

- Defective outdoor main PCB
- Foreign material at rotational area of fan propeller
- Defective fan motor
- Dust on outdoor main PCB
- Blown F3 fuse

5. Troubleshooting



Note: When E48 error occurs, in almost cases F3 fuse on the outdoor main PCB is blown. There are a lot of cases that fuse is blown and E48 occurs due to defective fan motor. And even though only the outdoor main PCB (or fuse) is replaced,, another trouble could occur. Therefore when fuse is blown, check whether the fan motor is OK or not.
After confirming the fan motor normal, check by power ON. (Don't power ON without confirming the fan motor normal.)

Error code	LED	Green	Red	Content
Remote control: E51	Indoor	Keeps flashing	Stays OFF	Power transistor anomaly
	Outdoor	–	1-time flash	

1. Applicable model

All models

2. Error detection method

Power transistor primary current

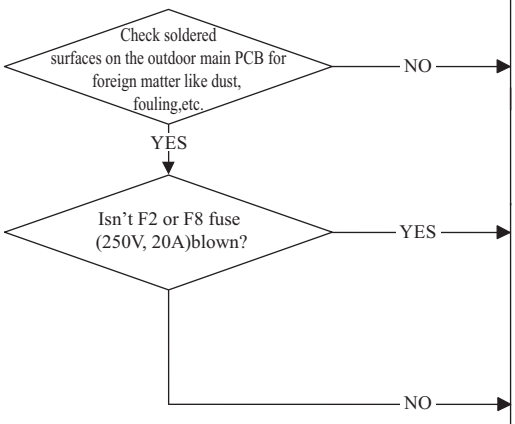
3. Condition of error displayed

If the power transistor primary current exceeds the setting value for 3 seconds, the compressor stops.

4. Presumable cause

- Faulty outdoor main PCB
- Dust on outdoor main PCB
- Blown fuse

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote control: E53	Indoor	Keeps flashing	Stays OFF	Suction pipe temperature sensor anomaly
	Outdoor	–	8-time flash	

1. Applicable model

All models

2. Error detection method

Detection of anomalously low temperature (resistance) on suction pipe temperature sensor

3. Condition of error displayed

- When the temperature sensor detects -55 °C or lower for 5 seconds continuously within 2 minutes to 2 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minute delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes.
- When -55 °C or lower is detected for within 20 second after power ON.

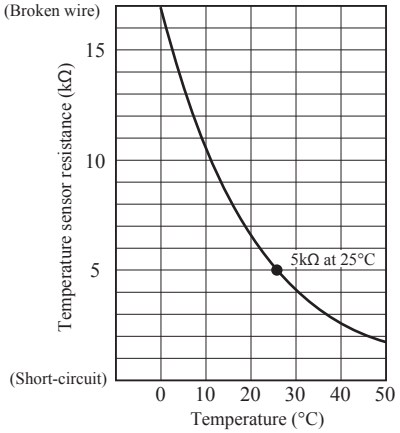
4. Presumable cause

- Defective outdoor sub PCB
- Broken sensor harness or temperature sensing section (Check molding.)
- Disconnected wire connection (connector)

5. Troubleshooting

Diagnosis	Countermeasure
Is the suction pipe temperature sensor connector connected properly? → NO	Correct connector.
YES → For the characteristics of suction pipe temperature sensor, see the following graph. Is the characteristics of the suction pipe temperature sensor OK? → NO	Defective suction pipe temperature sensor→ Replace.
YES	Defective outdoor sub PCB→Replace. (Defective suction pipe temperature sensor input circuit)

Temperature-resistance characteristics



Note:

Error code

Remote control: E57

LED	Green	Red
Indoor	Keeps flashing	Stays OFF
Outdoor	–	2-time flash

Content

Insufficient refrigerant amount or detection of service valve closure

1. Applicable model

All models

2. Error detection method

- Judge insufficient refrigerant amount by detecting the temperature differnce between indoor heat exchanger (Thi-R) and indoor return air (Thi-A).

3. Condition of error displayed

When the insufficient refrigerant amount is detected 3 times within 60 minutes.

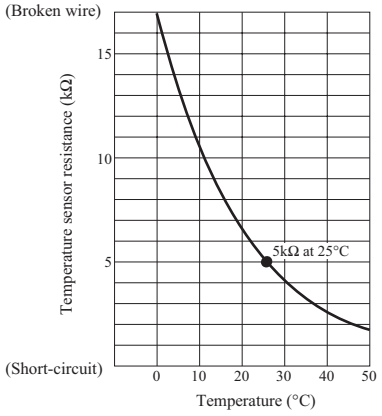
4. Presumable cause

- Defective indoor heat exchanger temperature sensor
- Defective indoor return air temperature sensor
- Defective indoor control PCB
- Insufficient refregerant amount

5. Troubleshooting

Diagnosis	Countermeasure
Is the service valve fully opened? NO	Open fully.
YES → Are the connections of indoor heat exchanger and/or return air temperature sensor connectors OK? NO	Correct indoor heat exchanger, return air temperature sensor connector connections.
YES → Are the characteristics of indoor heat exchanger and/or return air temperature sensor OK? NO	Defective indoor heat exchanger, return air temperature sensor → Replace.
YES → Is the low pressure during operation normal? NO	Charge refrigerant.
YES	Defective indoor control PCB→Replace. (Defective indoor heat exchanger, return air temperature sensor input circuits)

Indoor heat exchanger, return air temperature sensor
Temperature-resistance characteristics



Note:

Error code	LED	Green	Red	Content
Remote control: E58	Indoor	Keeps flashing	Stays OFF	Current safe stop
	Outdoor	–	3-time flash	

1. Applicable model

All models

2. Error detection method

When the current safe control has operated at the compressor speed of 30 rps or under:

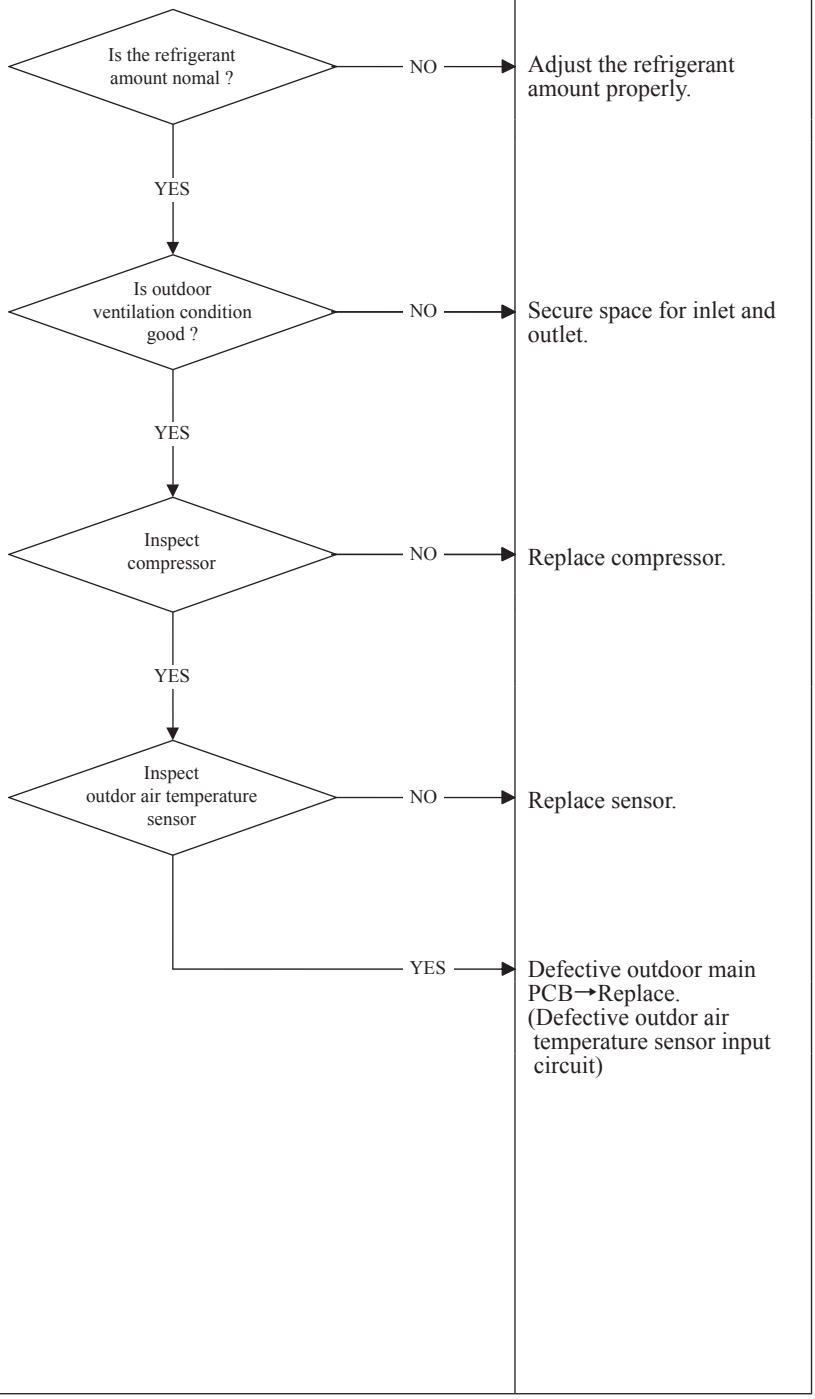
3. Condition of error displayed

Same as above

4. Presumable cause

- Excessive refrigerant amount
- Indoor,outdoor unit installation spaces
- Faulty compressor
- Defective outdor air temperature sensor
- Defective outdoor main PCB

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote control: E59	Indoor	Keeps flashing	Stays OFF	Compressor startup failure
	Outdoor	–	2-time flash	

1. Applicable model

All models

2. Error detection method

If it fails to change over to the rotor detection operation of compressor motor

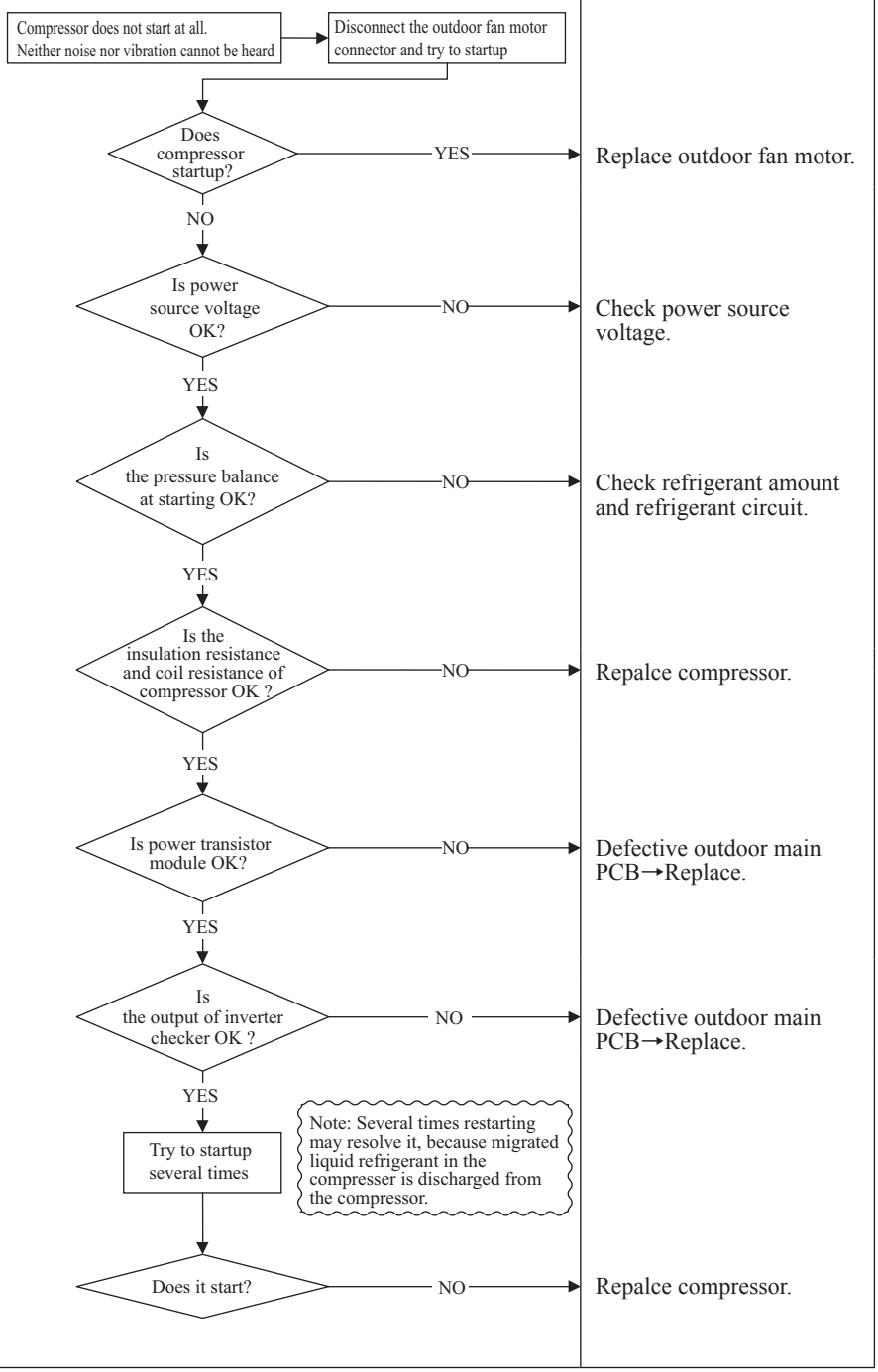
3. Condition of error displayed

If compressor fails to startup for 42 times

4. Presumable cause

- Faulty outdoor fan motor
- Faulty outdoor main PCB
- Anomalous power source voltage
- Improper refrigerant amount and refrigerant circuit
- Faulty compressor (Motor bearing)

5. Troubleshooting



Note: Insulation resistance
- The unit is left for long period without power source or soon after installation, migrated liquid refrigerant may dissolve in the refrigerant oil in the compressor. In such case insulation resistance decreases upto several MΩ or lower. If the electric leakage breaker is activated due to low insulation resistance, check followings.
  ① Check whether the electric leakage breake conforms to high-hermonic specifications
  (As units has inverter, in order to prevent from improper operation, be sure to use high-hermonic one.)

Error code

Remote control: E60

LED	Green	Red
Indoor	Keeps flashing	Stays OFF
Outdoor	–	7-time flash

Content

Compressor rotor lock error

1. Applicable model

All models

2. Error detection method

Compressor rotor position

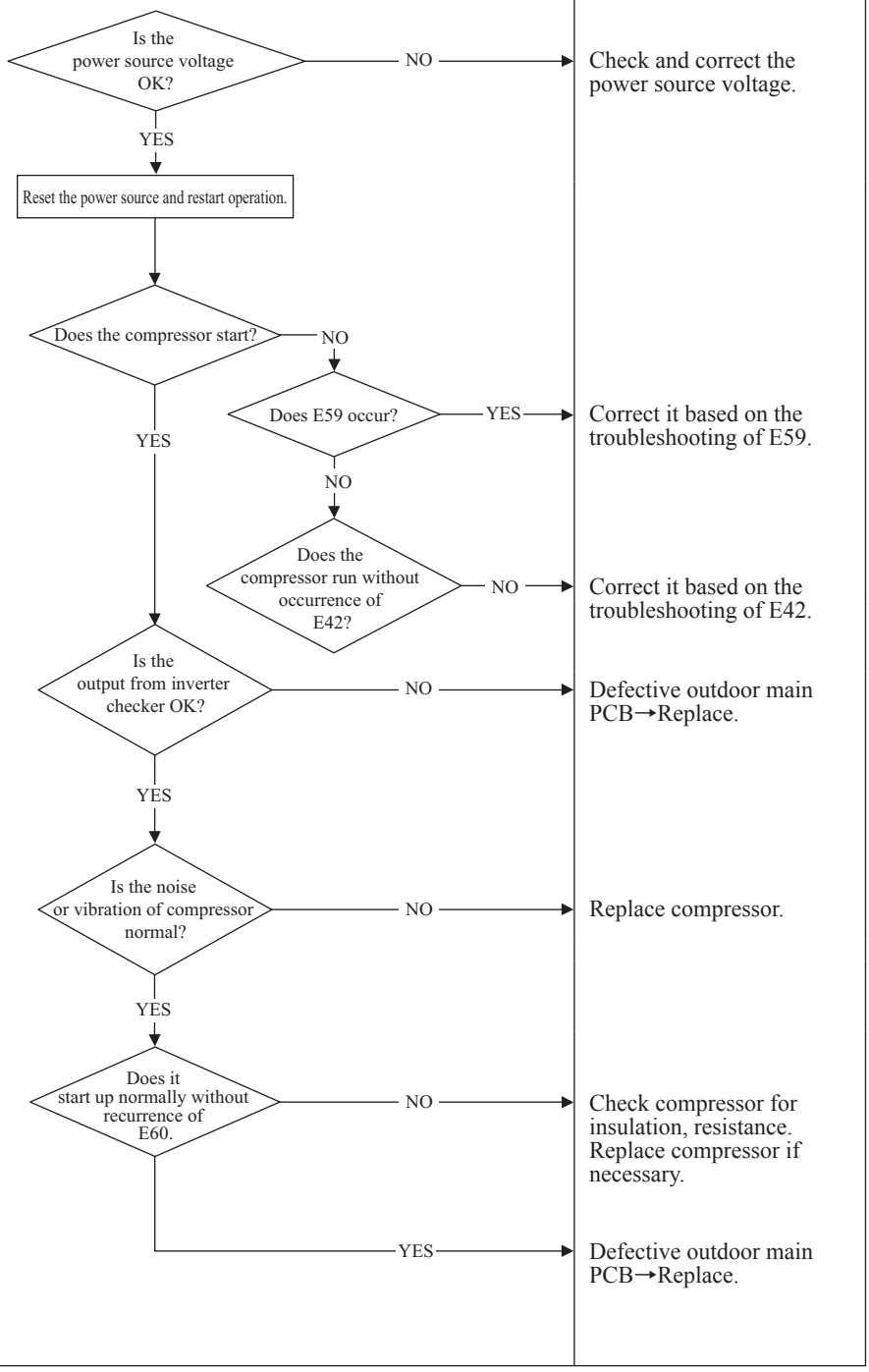
3. Condition of error displayed

If it fails again to detect the rotor position after shifting to the compressor rotor position detection operation, the compressor stops.

4. Presumable cause

- Defective outdoor main PCB
- Anomalous power source voltage
- Improper refrigerant amount and refrigerant circuit
- Defective compressor (motor, bearing)

5. Troubleshooting



Note: Insulation resistance

- The unit is left for long period without power source or soon after installation, migrated liquid refrigerant may dissolve in the refrigerant oil in the compressor. In such case insulation resistance decreases upto several MΩ or lower. If the electric leakage breaker is activated due to low insulation resistance, check followings.
  ① Check whether the electric leakage breake conforms to high-hermonic specifications
  (As units has inverter, in order to prevent from improper operation, be sure to use high-hermonic one.)

9. TABLE OF FUNCTIONS CONNECTED WIRED REMOTE CONTROL (RC-E5)

If wired remote control (option part) is connected to the following indoor units, some of the functions cannot be used. Please see following table for details.

- Wall mounted type : SRK＊＊ZSX-S, ZS-S
- Floor standing type : SRF＊＊ZMX-S, ZMA-S
- Ceiling concealed type : SRR＊＊ZM-S

○ : OK, △ : Conditionally OK, × : N/A

NO.	Functions	SRK	SRR	SRF	Outline of function	Remarks
1	Several remote controls for 1unit	○	○	○	Indoor unit can be connected max. 2 remote controls.	
2	Control of several indoor units	○	○	○	One remote control can be connected toa max. of 16 indoor unit.	
3	Plural control	△	×	×	One outdoor unit can be connected to a max. of 4 indoor units.	Only SRK50,60ZSX-S
4	Central control	○	○	○	Signal of center mode from central control can be restricted to operation of remote control.	
5	Run/Stop	○	○	○		
6	Change operation mode	○	○	○	Display of operation mode range is automatically decided from the indoor unit's imformation.	
7	Adjust fan speed	○	○	○	Display of airflow range is automatically decided from the indoor unit's imformation.	
8	Auto swing of flap	○	×	○	Display of air flow direction ON/OFF is automatically decided from the indoor unit's imformation.	Flap control only. Louver cannot be controlled.
9	Setting of air flow direction	×	×	×	Setting of air flow direction for indoor unit that can be changed air flow direction.	
10	Setting of temperture	△	△	△		Temperture range can be set from 18 degree to 30 degree. Carving 0.5℃ is rounded up.
11	Timer operation	○	○	○	Sleep timer mode, Off timer mode, On timer mode, Weekly timer mode.	Warm up timer and sleep control of on timer mode is impossible.
12	Ventilation control	×	×	×	Air infiltration can be controlled by the indoor unit that has this function.	RAC unit does not have this function.
13	Display of unit number	○	○	○	Display address number of remote control.	Address setted by SC-BIKN2-E for RAC
14	Service switch-1: Display of error data	△	△	△	Display and memorize the error code data that are checked finally.	Only error code is used in the RAC unit.
15	Service switch -2 display of operation data	△	△	△	Display operation data.	RAC unit can be displayed some data.
16	Trial run	○	○	○	Cooling operation signal is sent to the indoor unit.	
17	Forced operation of drain pump	×	×	×	Forced operation of drain pump is sent to the indoor unit.	
18	Setting of compressor frequency	○	○	○	Fixing compressor frequency.	
19	Quiet mode	×	×	×	On timer in order to start quiet mode.	RAC unit does not have this function.
20	Auto address change from remote control	×	×	×	Auto address can be changed from remote control.	RAC unit does not have this function.
21	Indoor unit's address set of master	×	×	×	Adapt control for 3 pipe system.	RAC unit does not have this function.
22	Filter reset	×	×	×	Turning off signal display of filter sign and sending reset signal of operating time.	RAC unit does not have this function.
23	Clear memory of error code in remote control	○	○	○	Reset memory that remote control has the error code.	
24	Clear memory of error code in the indoor unit	○	○	○	Reset memory of error for the indoor unit.	
25	Clear address in indoor unit	×	×	×	Reset memory of address for the indoor unit.	RAC unit does not have this function.
26	Reset CPU	○	○	○	Reset outdoor or indoor CPU.	
27	Function setting	△	△	△	It is possible to set the function of remote control and indoor unit.	RAC unit can be set a part of function.
28	Setting of temperature range	△	△	△	Set Max and Min temperature.	For RAC models, only the range from 18℃ to 30℃ is available.
29	External input	○	○	○	External input from CnT terminal can be switched between all unit operation and individual operation.	
30	Auto adjustment of static pressure	×	×	×	Change auto adjustment of static pressure.	RAC unit does not have this function.
31	Setting of static pressure	×	×	×	Displayed part blinks on and off when it recives a signal about auto adjustment of static pressure mode.	RAC unit does not have this function.
32	Filter sign	×	×	×	Displays filter sign via signal from indoor unit when counting time achieves target time.	RAC unit does not have this function.

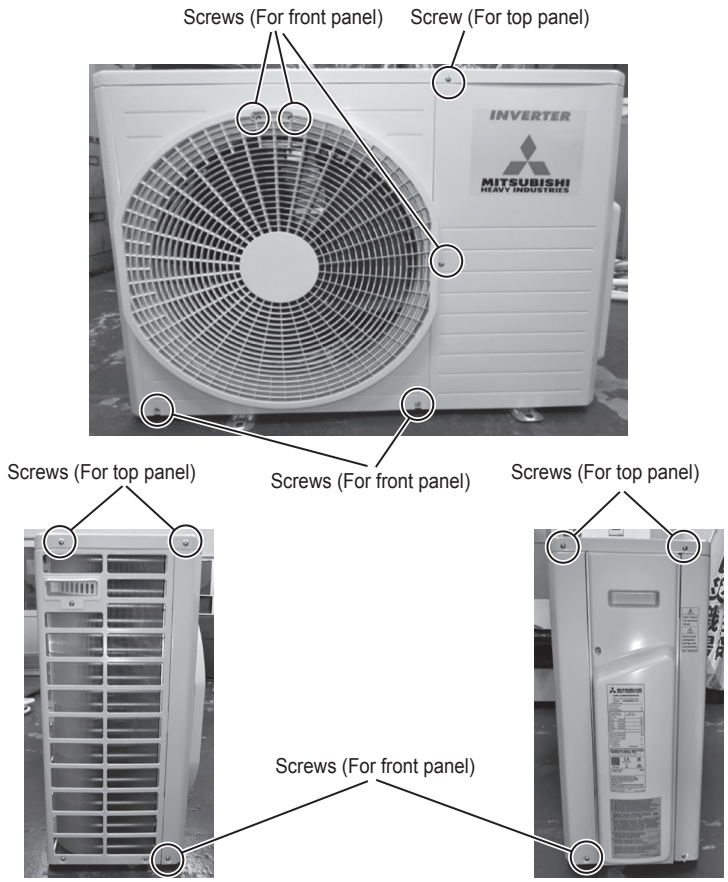
NO.	Functions	SRK	SRR	SRF	Outline of function	Remarks
33	Preparation of display of heating opration	○	○	○	Display of preparative heating opration from indoor unit.	Starting time of heating, thermo operation
34	Display of defrost operation	○	○	○	Display of defrost operation from indoor unit.	Defrost operation
35	Display of compressor protection operation	×	×	×	Display of compressor protection operation from outdoor unit during compressor soft starting.	RAC unit does not have this function.
36	Missmatch operation mode	×	×	×	Display it when cooling only outdoor unit is received signal of heating operation.	RAC unit does not have this function. (RAC unit operates by fan mode.)
37	Periodic check	×	×	×	Displays when periodic check signal is received.	RAC unit does not have this function.
38	Display of check	○	○	○	Display of checking in case of signal of error code address from remote control.	RAC unit does not have this function.
39	Display of auto cleaning operation	×	×	×	Displays it when it is received auto cleaning singnal from indoor unit.	RAC unit does not have this function.
40	Display of room temperature	○	○	○	Display room temperature.	
41	Display of demand control operation	×	×	×	Display of demand operation from indoor unit.	RAC unit does not have this function.
42	Display of operation on auto adjusting static pressure	×	×	×	Display checking when it receives signal of auto adjusting static pressure operation.	RAC unit does not have this function.
43	External static pressure setting	×	×	×	It is available to select manual setting or automatic setting for setting external static pressure by remote control.	RAC unit does not have this function.

10. COMPONENT REPLACEMENT

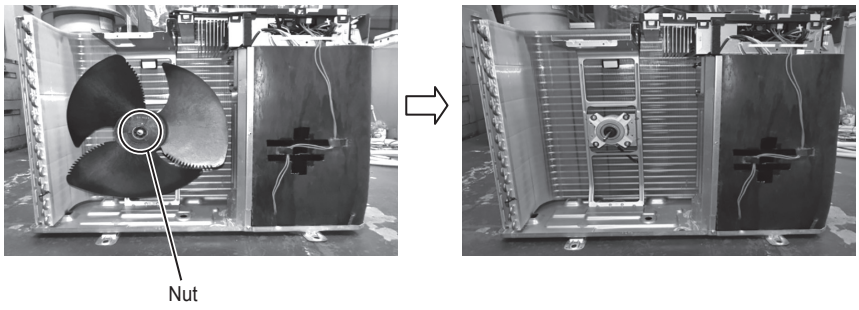
Models SCM50ZS-S1, 60ZM-S1

Fan and fan motor (FMo)

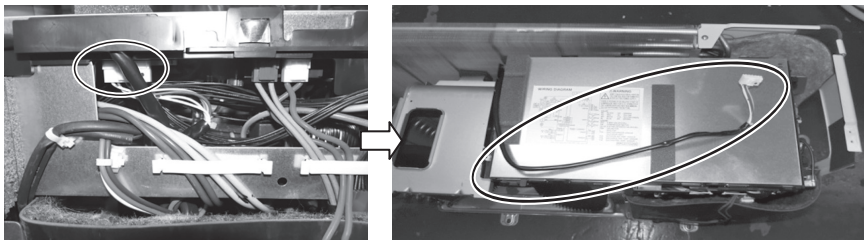
1. Loosen 5 screws and remove the top panel.
2. And then loosen 7 screws and remove the front panel together with the fan guard.



3. Loosen a nut and remove the fan propeller.

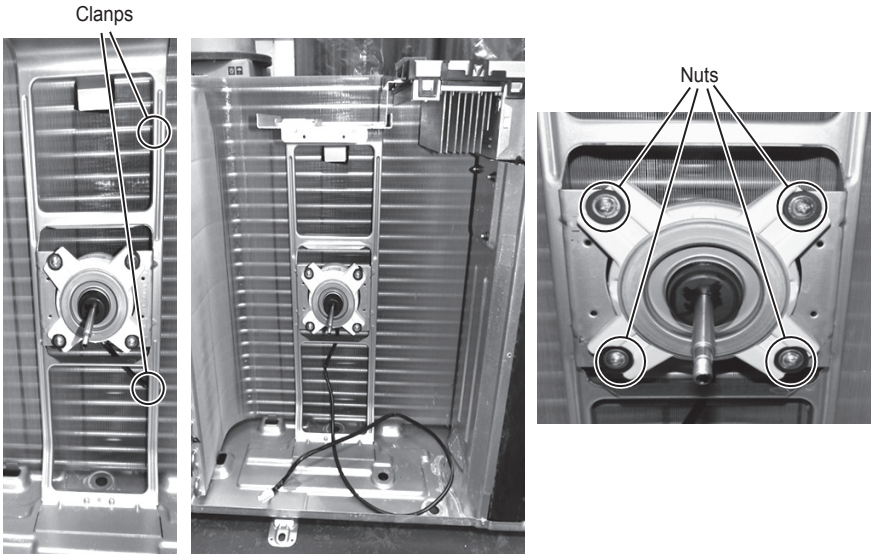


4. Disconnect the connector of CNFAN.



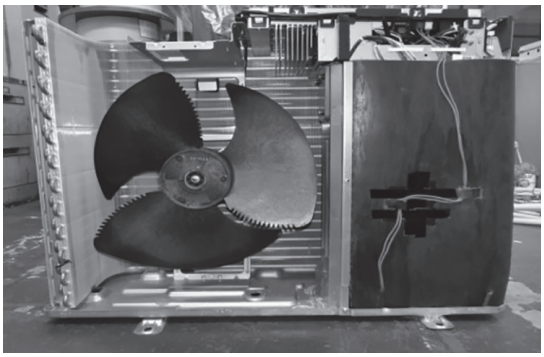
Fan and fan motor (FMo)

5. Detach the clamps.
6. Pull out the cable.
7. Loose 4 nuts.
8. Remove the fan motor (FMo).



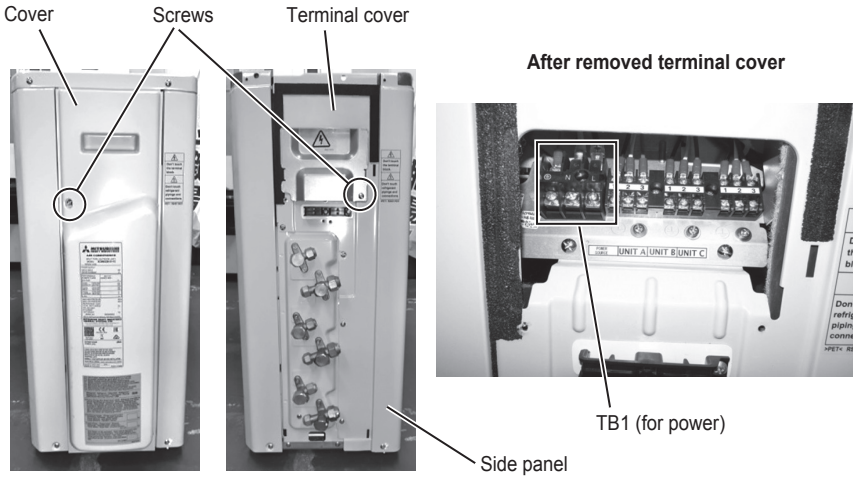
Compressor (CM)

1. Loosen screws and remove the front panel and top panel.



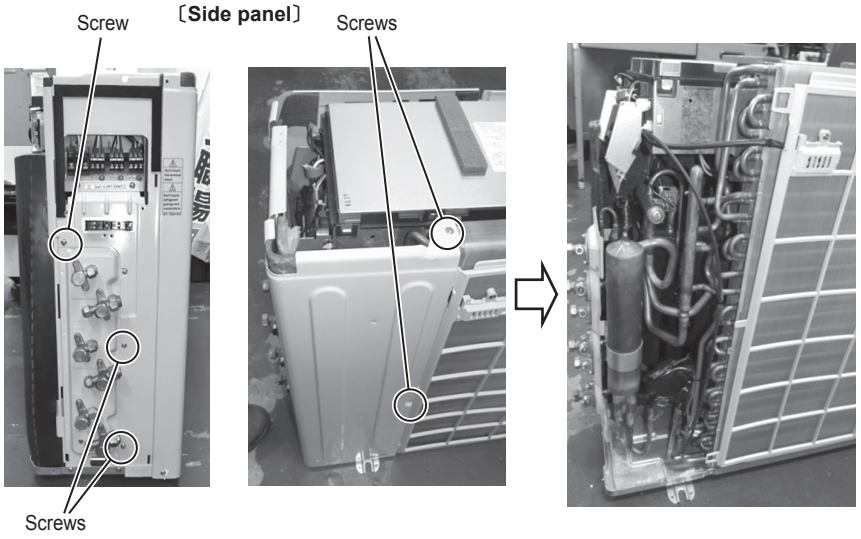
2. Loosen screws and remove the cover and the terminal cover.
3. Loosen screws and disconnect all power cables locally installed

Caution
Be sure to do above work after turning the power OFF by breaker.

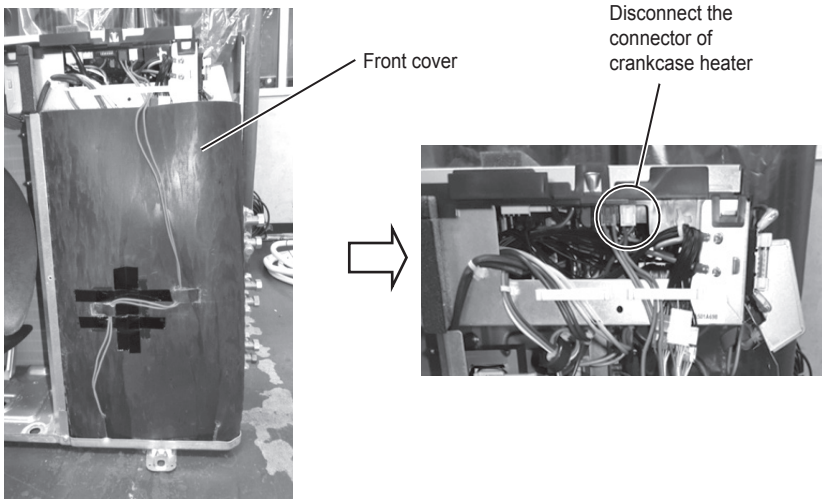


Compressor (CM)

4. Loosen screws and remove the side panel.

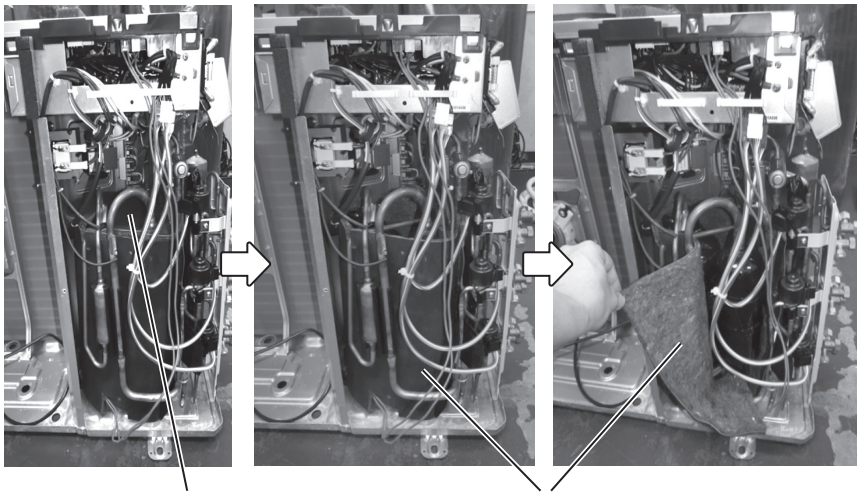


5. Untie the string and remove rear and front insulation cover.
6. Disconnect the connector of crankcase heater.



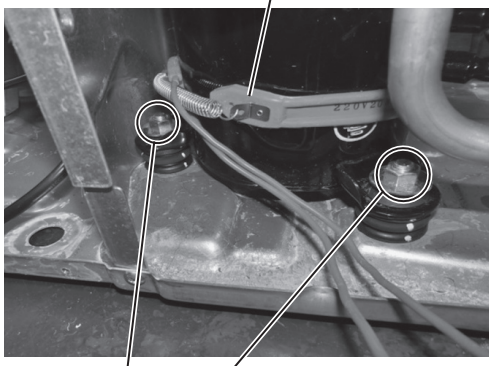
Compressor (CM)

7. Remove the top cover and the side jacket of compressor.

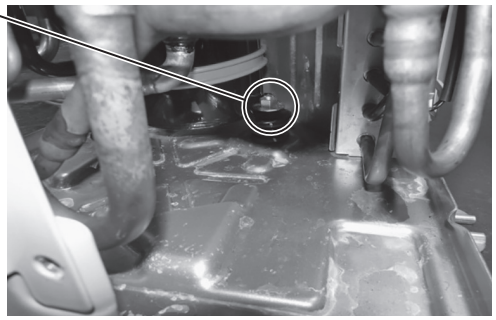


8. Remove the crankcase heater. (It is available to remove the crankcase heater after removing the compressor)
9. Loosen 3 nuts of compressor fixing bolts.

〔**Front view**〕



〔**Rear view**〕



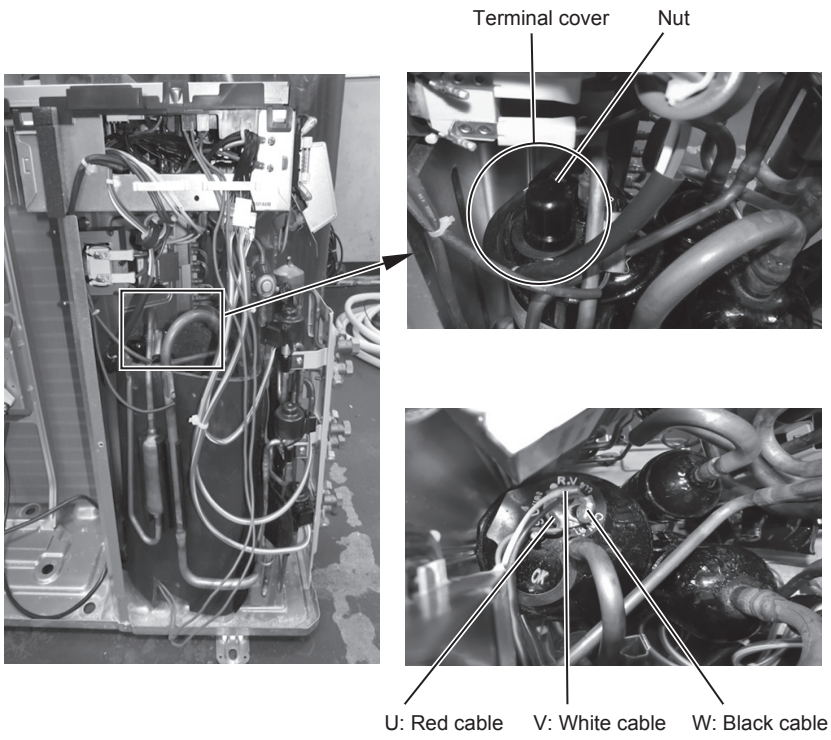
Compressor (CM)

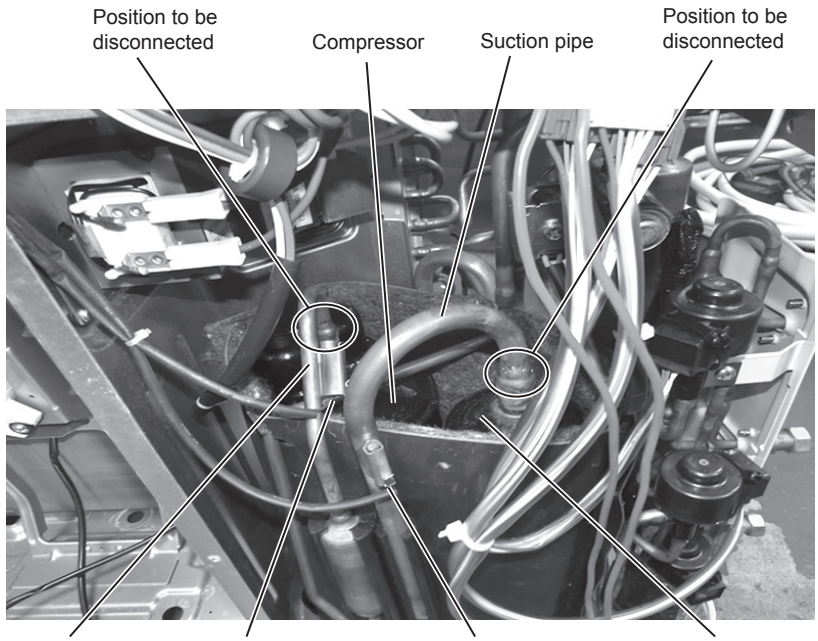
10. Loosen a nut and remove the terminal cover.
11. Disconnect the fasten connectors from compressor.
    U: Red cable
    V: White cable
    W: Black cable

Note : Be sure to do above work after elapsing 3 minutes from power OFF.

12. Disconnect the pipes for suction and discharge by brazing.
    (It is available to cut suction and discharger pipes to remove the compressor)

〈Caution〉
When brazing, do not forget to disconnect suction pipe temperature sensor (Tho-S) and discharge pipe temperature sensor (Tho-D) from sockets.
Without disconnecting sensors, sensors may have damage by the heat during brazing.

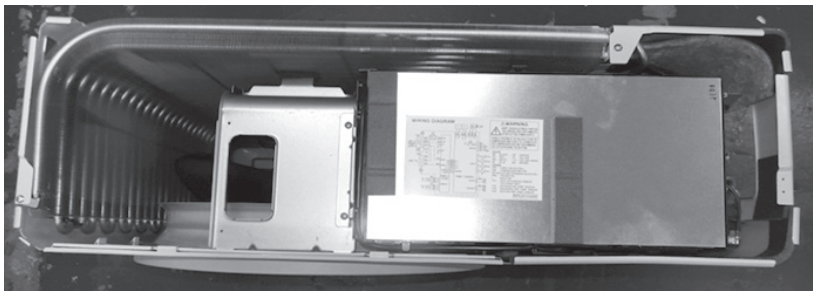




Main PCB (PCB1) on the upper layer

1. Loosen the screws and remove the top panel and front panel.
2. Unlatch the cover and remove the cover of control box.

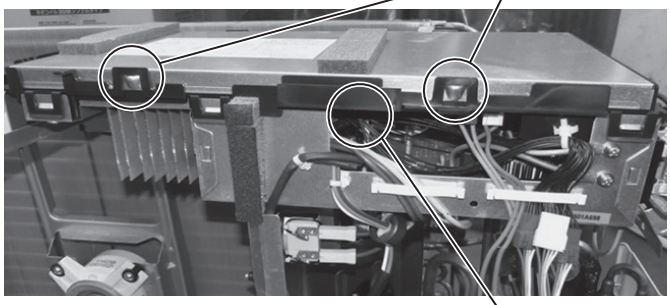
〔**Top view**〕



3. Disconnect the connector of CNFAN.

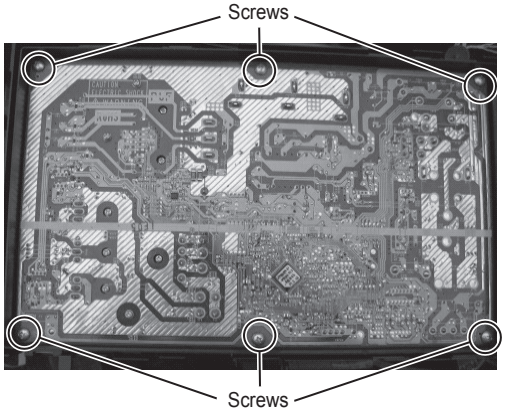
Note: Be sure to do following work after elapsing 3 minutes from power OFF.

〔**Front view**〕

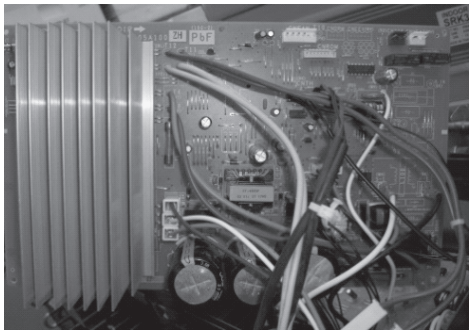


4. Loosen 6 screws and lift up the main PCB.

〔**Top view of PCB after removing the cover**〕



〔**Side view after lifting**〕



Main PCB (PCB1) on the upper layer

5. Disconnect all connectors on the main PCB side.

①Disconnect the fasten connectors for power source to compressor.

U : Red cable
V : White cable
W : Black cable

②Disconnect the fasten connectors of reactotr which is located just above the 4-way valve.

③Disconnect the connector of fan motor (CNFAN).

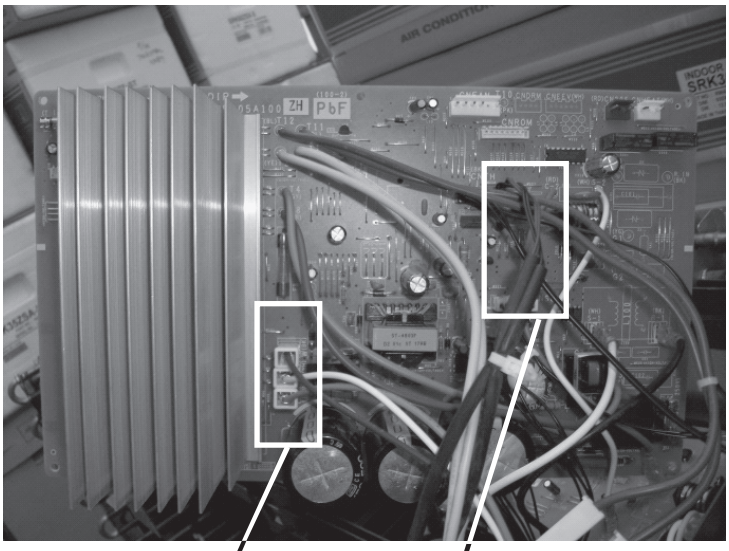
④Disconnect the connector of CNSUB.
(Going to Sub PCB)

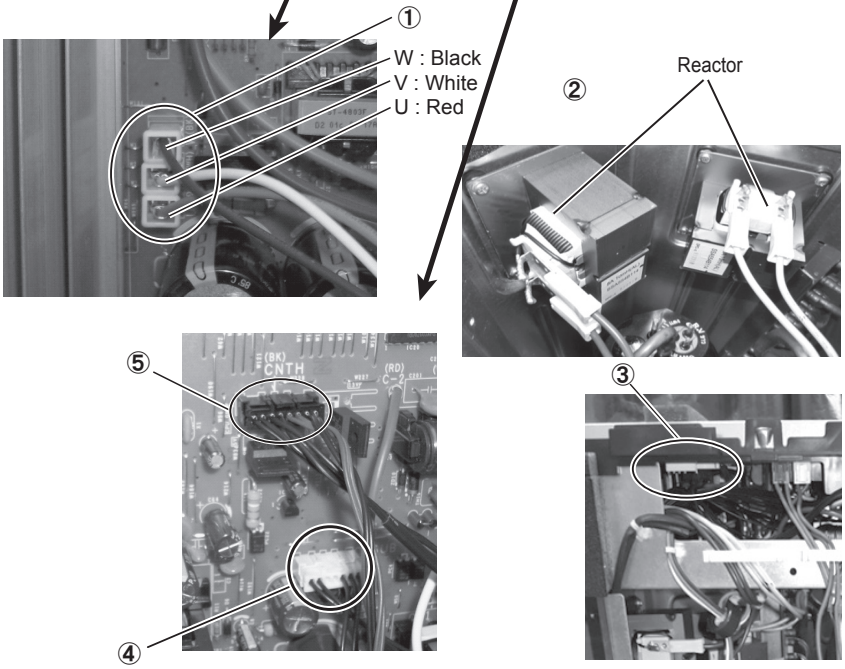
⑤Disconnect the connector of CNTH.
For
Tho-A (Outdoor air temp.)
Tho-R (Heat exchanger temp.)
Tho-D (Discharge pipe temp.)
Tho-S (Suction pipe temp.)

6. Disconnect all connectors on the Sub PCB side.

①Disconnect the fasten connectors of power line.
(Going to Main PCB)

〔Main PCB〕





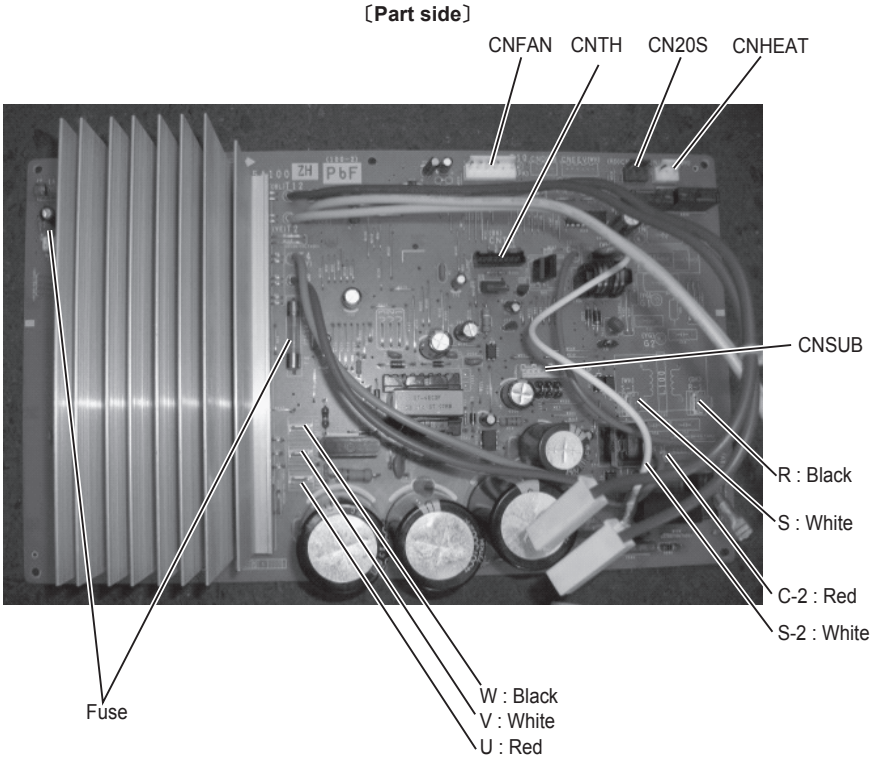
〔Sub PCB〕

Main PCB (PCB1) on the upper layer

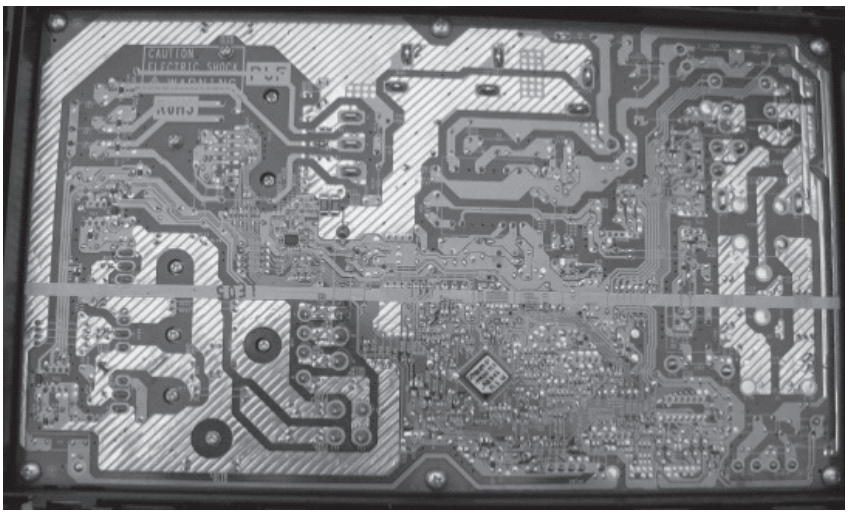
Layout of Main PCB

〈**Main PCB**〉

〔**Part side**〕



〔**Pattern side**〕



Sub PCB (PCB2) on the lower layer

1.After removing the Main PCB, disconnect all connectors on Sub PCB.

①Disconnect the connector of CNEEV1.
（for EEVA & EEVB)

②Disconnect the connector of CNEEV3.
（for EEVC)

③Disconnect the connector of CNMAIN.
(Going to Main PCB)

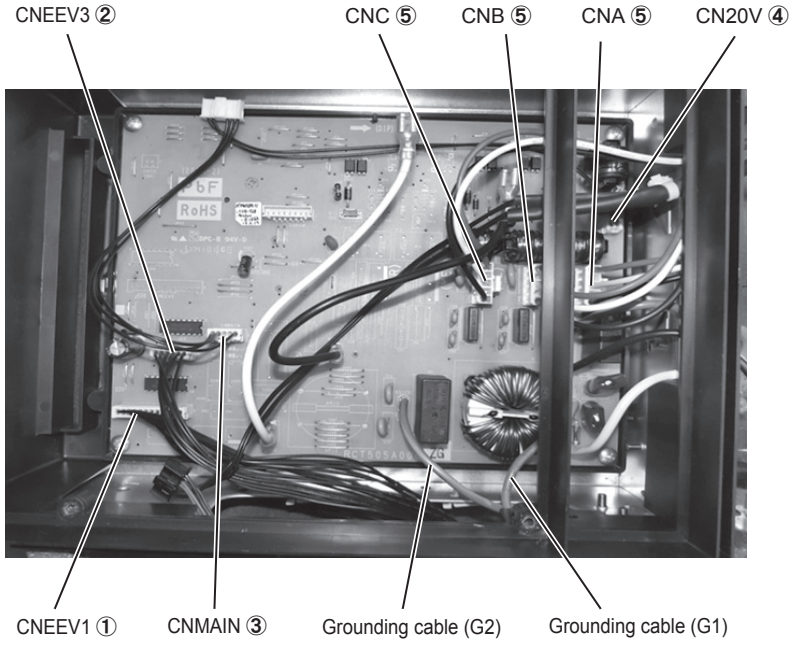
④Disconnect the connector of CN20V.
(Going to Main PCB)

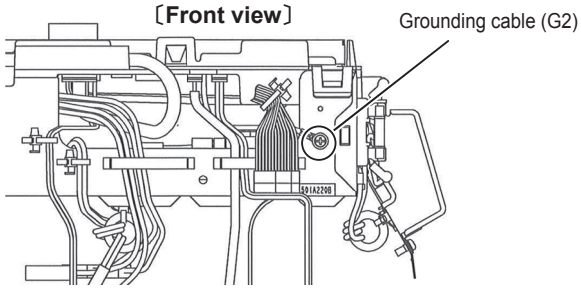
⑤Disconnect the connectors of CNA, CNB and CNC.

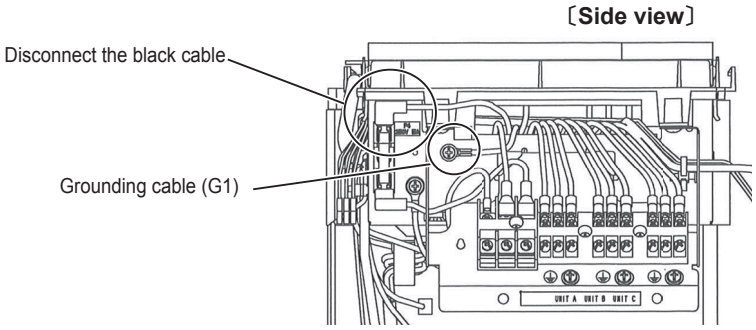
2.Loosen screws and disconnect the grounding cables.

3.Disconnect the fasten connector of the black cable.

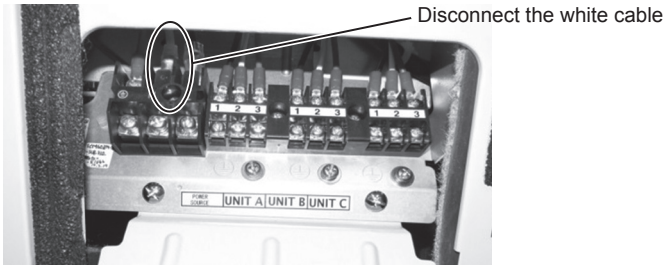
Note : Be sure to do above work after elapsing 3 minutes from power OFF.





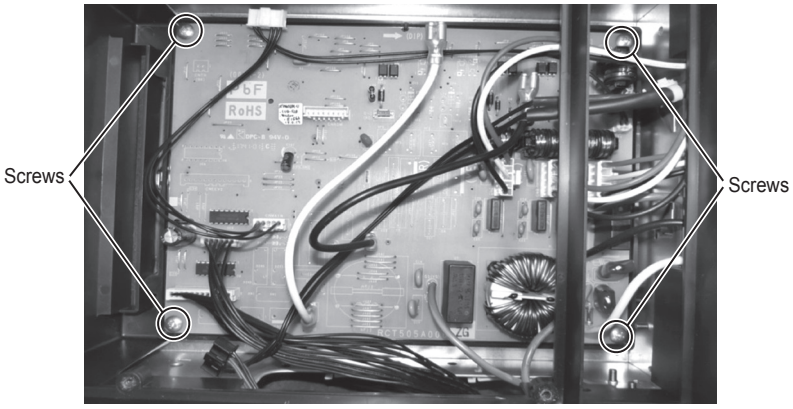


4. Loosen the screw of N-terminal and disconnect the white cable.



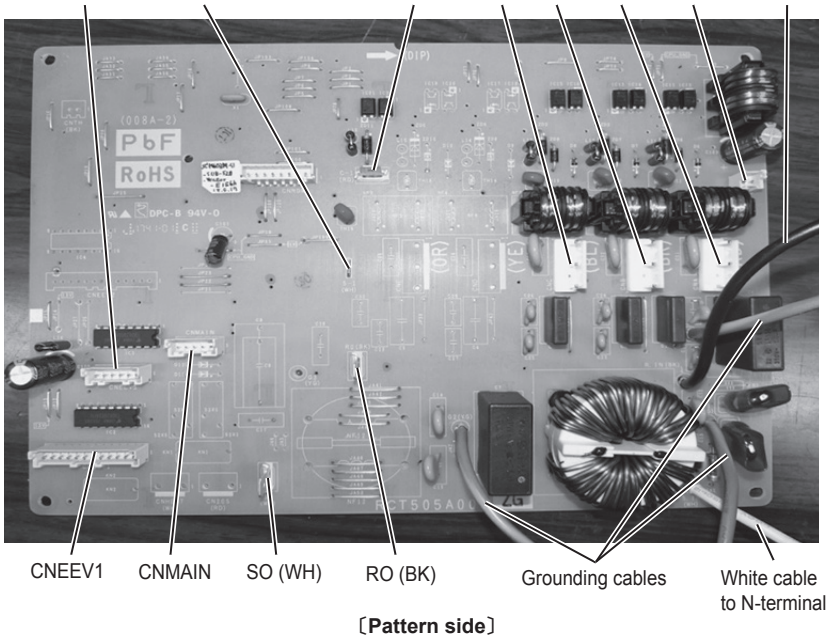
Sub PCB (PCB2) on the lower layer

5. Loosen 4 screws and remove Sub PCB.

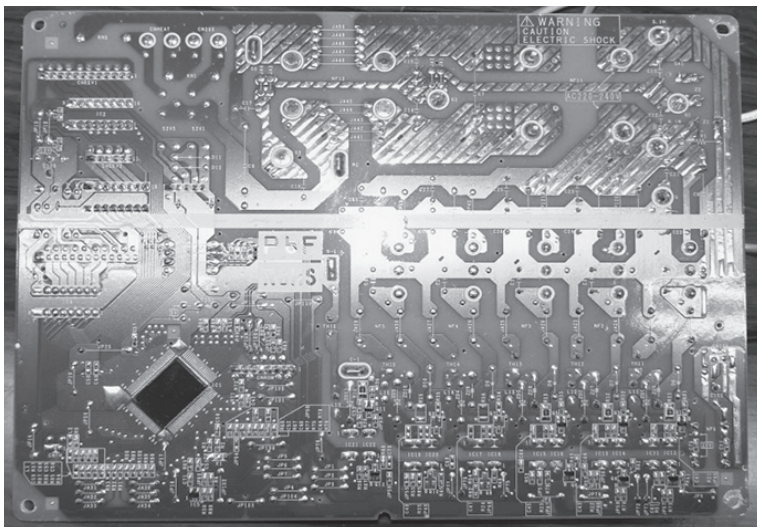


Layout of Sub PCB

〔**Part side**〕



〔**Pattern side**〕

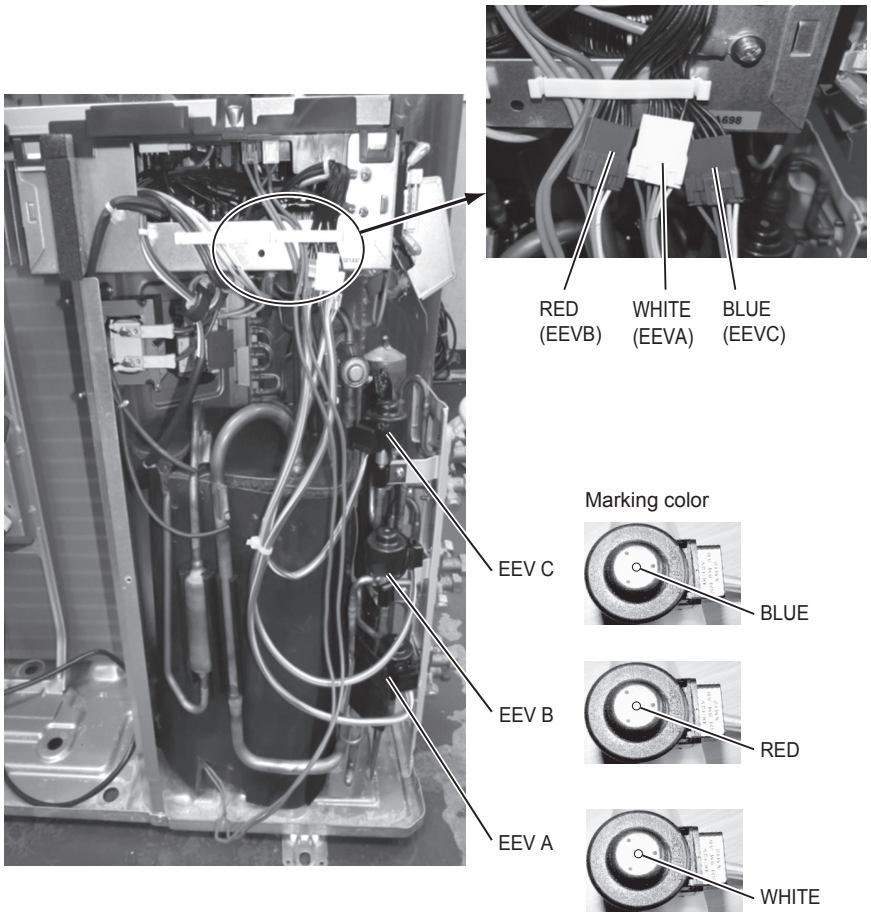


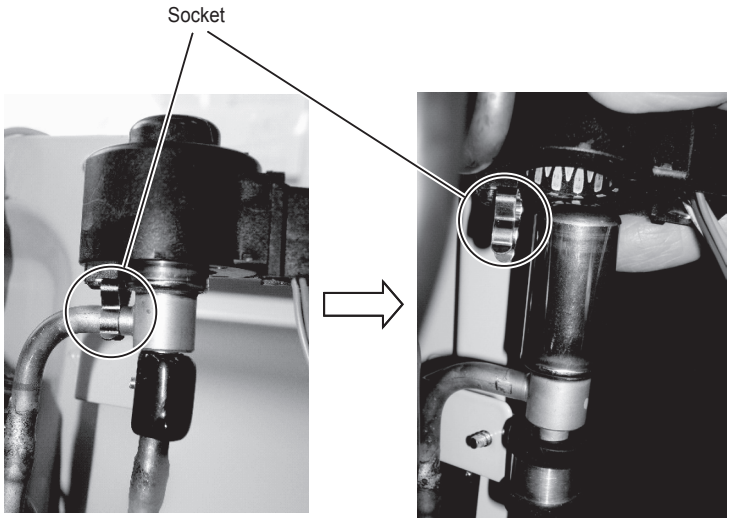
EEV coils

1. Remove the faulty EEV coil and disconnect the connector.

Note:
1) When disconnecting the connector, be sure to check the color marked on the top of coil and the color of the connector.

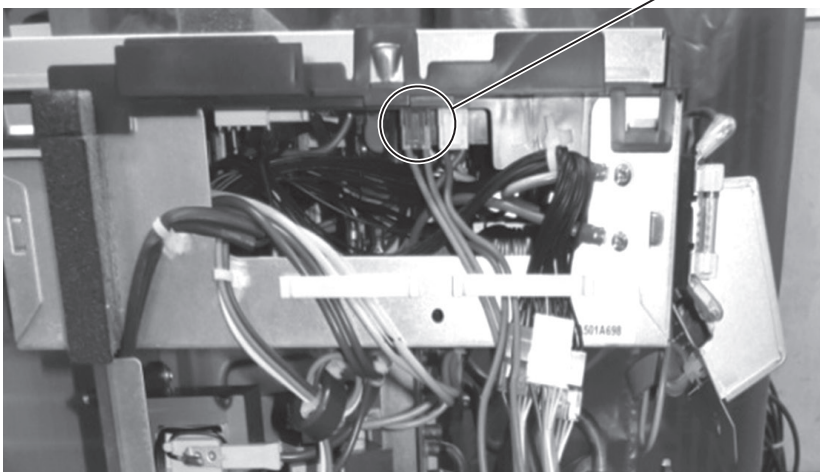
2) When replace to a new coil, be sure to insert the socket attached to the coil to the pipe correctly.

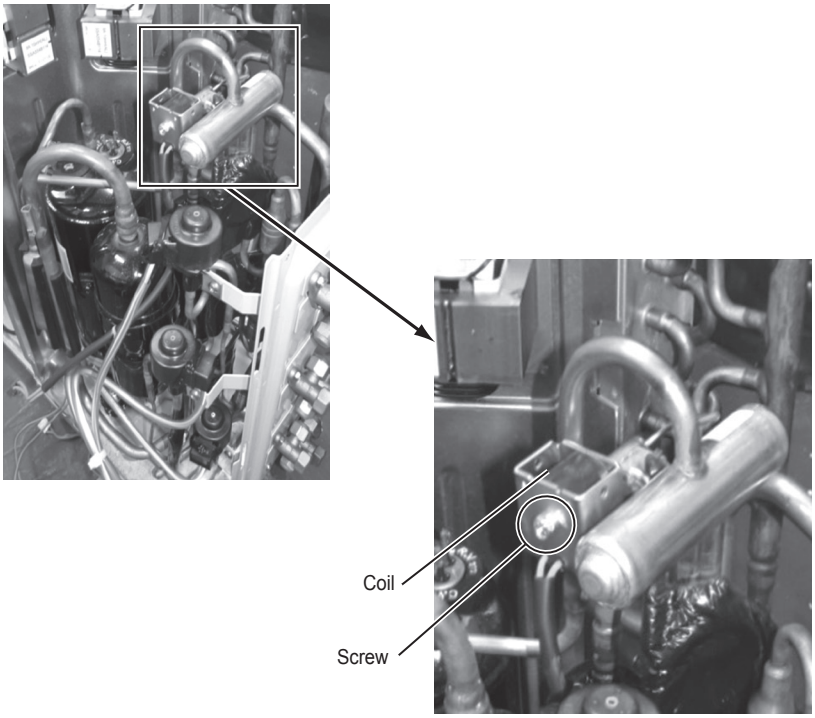




4-way valve coil

1. Disconnect the connector.
2. Loosen a screw and remove the coil.

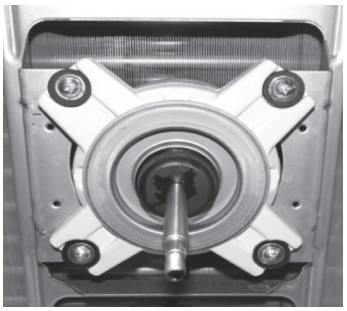


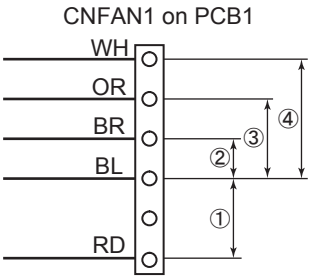


11. CHECKING PROCEDURE

Models SCM50ZS-S1, 60ZM-S1

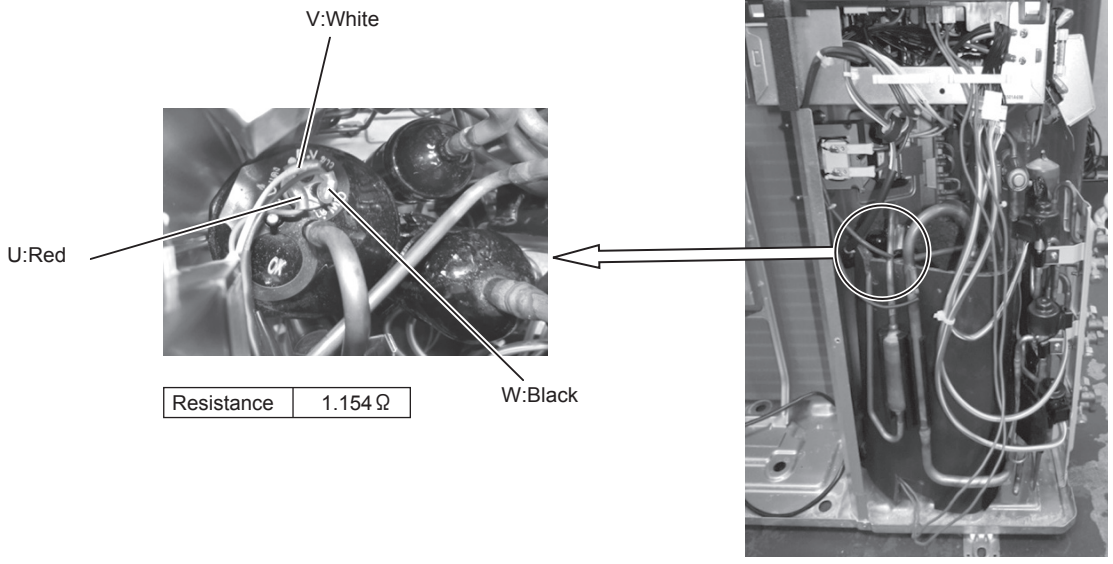
＜Fan motor＞





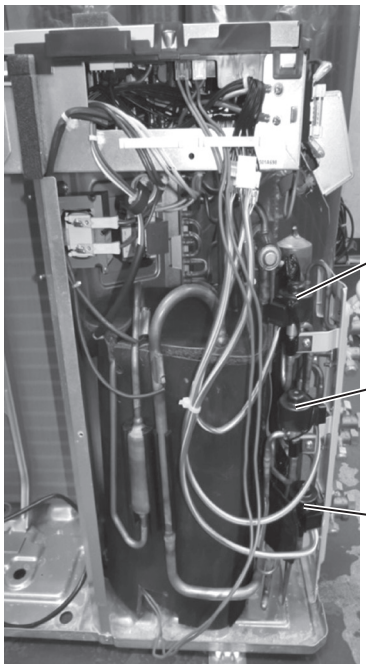
NO.	Output
①	DC280V
②	DC15V
③	DC0−6V
④	DC0−5V

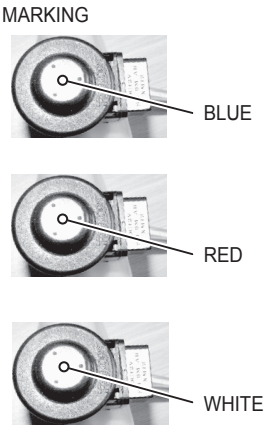
＜Compressor＞

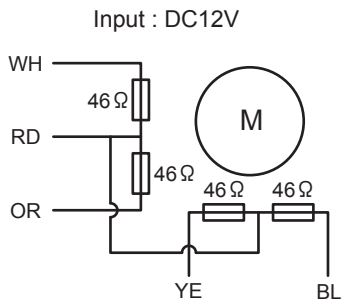


Resistance	1.154 Ω

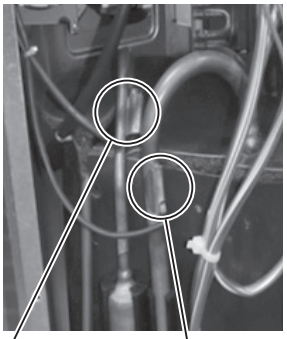
<EEV A – EEV C>


EEV C
EEV B
EEV A


MARKING
BLUE
RED
WHITE

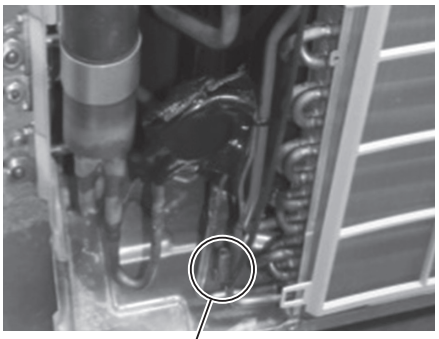

Input : DC12V
WH
RD
OR
46Ω
46Ω
46Ω
46Ω
M
YE
BL

＜Sensor＞

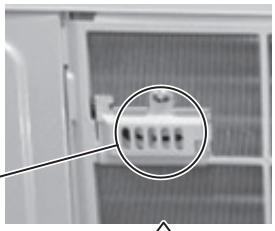


Discharge pipe temp. sensor (Tho-D)

Suction pipe temp. sensor (Tho-S)

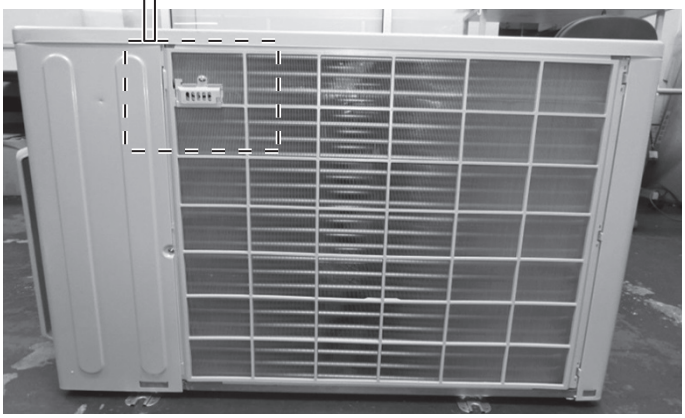


Heat exchanger sensor (Tho-R)

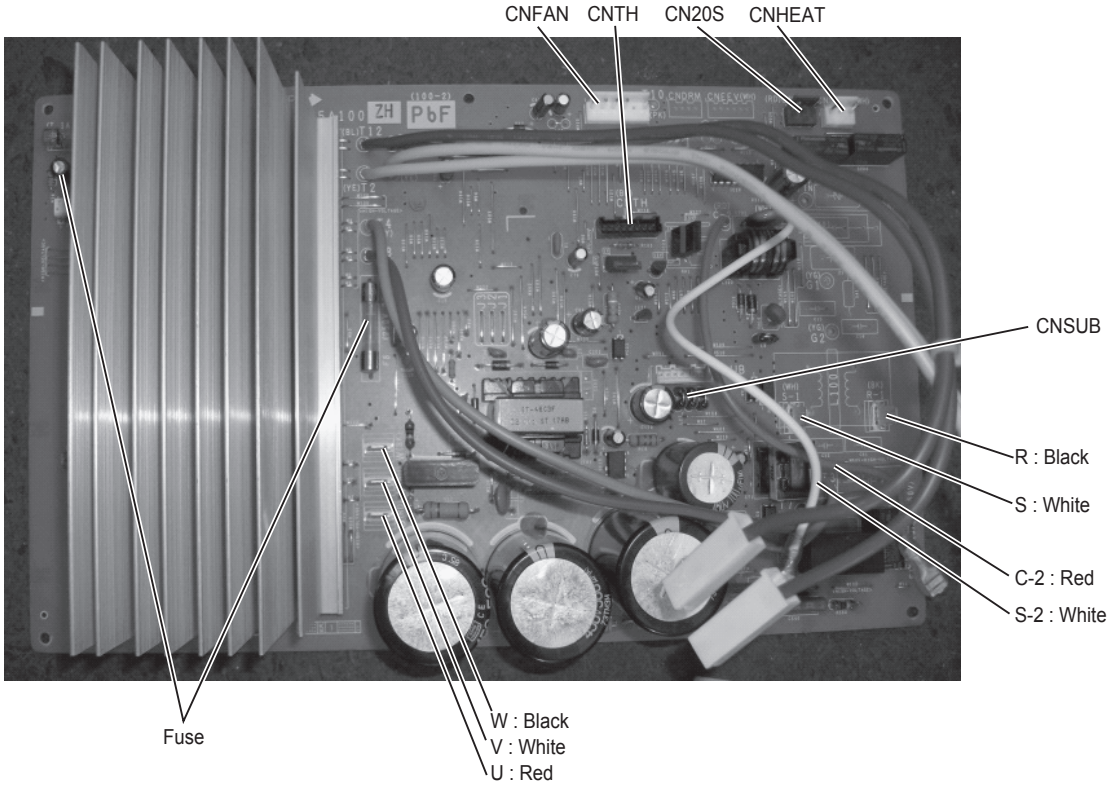


Outdoor air temp. sensor (Tho-A)

Name	Color	Resistance(kΩ)	
		25℃	90℃
Tho-R	Black	5.0	
Tho-A	Black	5.0	
Tho-D	Black		4.6
Tho-S	Black	5.0	

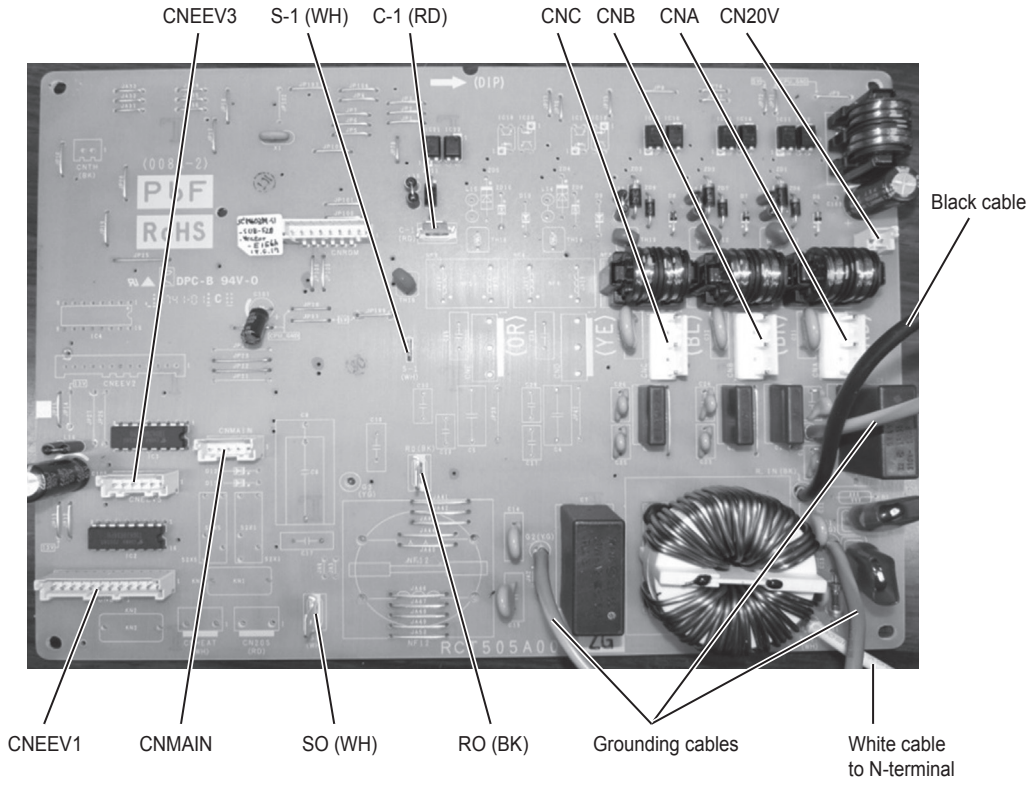


＜Main PCB:PCB1＞



Connector	Connected to	Normal value	Remark
CNFAN	Fan motor		
CNSUB(5-7)	CNMAIN of SUB PCB	DC13V	
CNSUB(6-7)		DC5V	
R1-S1	RO, SO of SUB PCB	AC220-240V	
C-2 - S-2	C-1,S-1 of SUB PCB	DC20V	
CNSUB(1-2)	CN20V of SUB PCB	DC20V	
CNTH	Sensor		Tho-R,Tho-A,Tho-D,Tho-S
CN20S	20S	AC220-240V	For solenoid coil of 4-way valve
CNHEAT	Crankacase heater	AC220-240V	For crankcase heater
U	Compressor	AC300V	
V	Compressor		
U	Compressor		

<SUB PCB:PCB2>



Connector	Connected to	Normal value	Remark
R_{IN}	TB1(L)	AC220-240V	Power source
S_{IN}	TB1(N)	AC0V	Power source
RO	R-1 of Main PCB	AC220-240V	
SO	S-1 of Main PCB	AC0V	
S-1 - C-1	S-2,C-2 of Main PCB	DC20V	
CN20V	CNSUB of Main PCB	DC20V	
CNA(Black-White)	Indoor unit A	AC220-240V	Power source
CNA(Red)	Indoor unit A	AC0V	Earth
CNB(Black-White)	Indoor unit B	AC220-240V	Power source
CNB(Brown)	Indoor unit B	AC0V	Earth
CNC(Black-White)	Indoor unit C	AC220-240V	Power source
CNC(Blue)	Indoor unit C	AC0V	Earth
CNEEV1	EEV A(WH) and EEV B(RD)		
CNMAIN(1-4)	CNSUB of Main PCB	DC13V	
CNMAIN(5-4)		DC5V	
CNEEV3	EEV C(BL)		

12. OPTION PARTS

PJZ012A131 B

12.1 Wired remote control

(1) Model RC-EX3

1. Safety precautions

●Please read this manual carefully before starting installation work to install the unit properly.
Every one of the followings is important information to be observed strictly.

⚠WARNING	Failure to follow these instructions properly may result in serious consequences such as death, severe injury, etc.
⚠CAUTION	Failure to follow these instructions properly may cause injury or property damage.

It could have serious consequences depending on the circumstances.

●The following pictograms are used in the text.

⃠	Never do.	❗	Always follow the instructions given.

●Keep this manual at a safe place where you can consult with whenever necessary. Show this manual to installers when moving or repairing the unit. When the ownership of the unit is transferred, this manual should be given to a new owner.

⚠WARNING

❗ **Consult your dealer or a professional contractor to install the unit.**
Improper installation made on your own may cause electric shocks, fire or dropping of the unit.

❗ **Installation work should be performed properly according to this installation manual.**
Improper installation work may result in electric shocks, fire or break-down.

❗ **Be sure to use accessories and specified parts for installation work.**
Use of unspecified parts may result in drop, fire or electric shocks.

❗ **Install the unit properly to a place with sufficient strength to hold the weight.**
If the place is not strong enough, the unit may drop and cause injury.

❗ **Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.**
Power source with insufficient and improper work can cause electric shock and fire.

❗ **Shut OFF the main power source before starting electrical work.**
Otherwise, it could result in electric shocks, break-down or malfunction.

⃠ **Do not modify the unit.**
It could cause electric shocks, fire, or break-down.

❗ **Be sure to turn OFF the power circuit breaker before repairing/ inspecting the unit.**
Repairing/inspecting the unit with the power circuit breaker turned ON could cause electric shocks or injury.

⚠WARNING

Do not install the unit in appropriate environment or where inflammable gas could generate, flow in, accumulate or leak.

If the unit is used at places where air contains dense oil mist, steam, organic solvent vapor, corrosive gas (ammonium, sulfuric compound, acid, etc) or where acidic or alkaline solution, special spray, etc. are used, it could cause electric shocks, break-down, smoke or fire as a result of significant deterioration of its performance or corrosion.

Do not install the unit where water vapor is generated excessively or condensation occurs.

It could cause electric shocks, fire, or break-down.

Do not use the unit in a place where it gets wet, such as laundry room.

It could cause electric shocks, fire, or break-down.

Do not operate the unit with wet hands.

It could cause electric shocks.

Do not wash the unit with water.

It could cause electric shocks, fire, or break-down.

Use the specified cables for wiring, and connect them securely with care to protect electronic parts from external forces.

Improper connections or fixing could cause heat generation, fire, etc.

Seal the inlet hole for remote control cable with putty.

If dew, water, insect, etc. enters through the hole, it could cause electric shocks, fire or break-down.

If dew or water enters the unit, it may cause screen display anomalies.

When installing the unit at a hospital, telecommunication facility, etc., take measures to suppress electric noises.

It could cause malfunction or break-down due to hazardous effects on the inverter, private power generator, high frequency medical equipment, radio communication equipment, etc.

The influences transmitted from the remote control to medical or communication equipment could disrupt medical activities, video broadcasting or cause noise interference.

Do not leave the remote control with its upper case removed.

If dew, water, insect, etc. enters through the hole, it could cause electric shocks, fire or break-down.

⚠CAUTION

Do not install the remote control at following places.

(1) It could cause break-down or deformation of remote control.
- Where it is exposed to direct sunlight
- Where the ambient temperature becomes 0 ˚C or below, or 40 ˚C or above
- Where the surface is not flat
- Where the strength of installation area is insufficient

(2) Moisture may be attached to internal parts of the remote control, resulting in a display failure.
- Place with high humidity where condensation occurs on the remote control
- Where the remote control gets wet

(3) Accurate room temperature may not be detected using the temperature sensor of the remote control.
- Where the average room temperature cannot be detected
- Place near the equipment to generate heat
- Place affected by outside air in opening/closing the door
- Place exposed to direct sunlight or wind from air-conditioner
- Where the difference between wall and room temperature is large

To connect to a personal computer via USB, use the dedicated software.
Do not connect other USB devices and the remote control at the same time.

It could cause malfunction or break-down of the remote control/personal computer.

2 . Accessories & Prepare on site

Following parts are provided.

Accessories	R/C main unit, wood screw (ø3.5 x 16) 2 pcs, Quick reference

Following parts are arranged at site. Prepare them according to the respective installation procedures.

Item name	Q'ty	Remark
Switch box For 1 piece or 2 pieces (JIS C 8340 or equivalent)	1	These are not required when installing directly on a wall.
Thin wall steel pipe for electric appliance directly on a wall. (JIS C 8305 or equivalent)	As required	
Lock nut, bushing (JIS C 8330 or equivalent)	As required	
Lacing (JIS C 8425 or equivalent)	As required	Necessary to run R/C cable on the wall.
Putty	Suitably	For sealing gaps
Molly anchor	As required	
R/C cable (0.3 mm^2 x 2 pcs)	As required	See right table when longer than 100 m

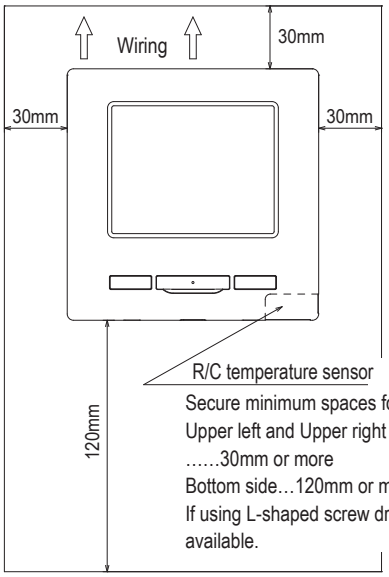
When the cable length is longer than 100 m, the max size for wires used in the R/C case is 0.5 mm^2 . Connect them to wires of larger size near the outside of R/C. When wires are connected, take measures to prevent water, etc. from entering inside.

≦ 200 m	0.5 mm^2 x 2 cores
≦ 300m	0.75 mm^2 x 2 cores
≦ 400m	1.25 mm^2 x 2 cores
≦ 600m	2.0 mm^2 x 2 cores

3 . Installation place

Secure the installation space shown in the figure.
For the installation method, “embedding wiring” or “exposing wiring” can be selected.
For the wiring direction, “Backward”, “Upper center” or “Upper left” can be selected.
Determine the installation place in consideration of the installation method and wiring direction.

Installation space

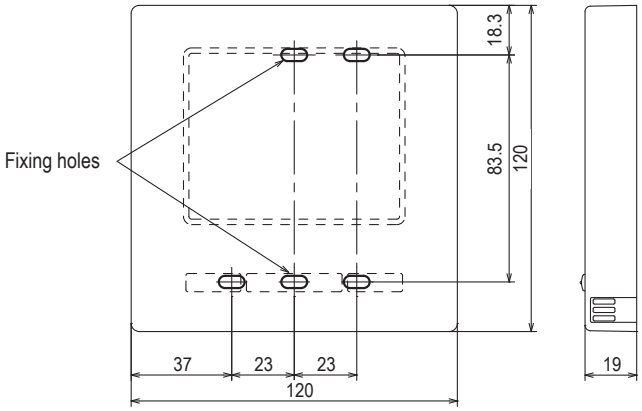


Secure minimum spaces for disassembling the case.
Upper left and Upper right sides
……30mm or more
Bottom side…120mm or more
If using L-shaped screw driver, 50mm or more is available.

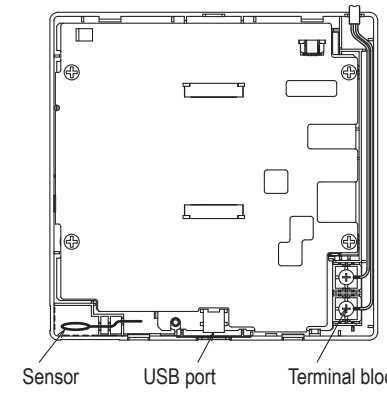
4 . Installation procedure

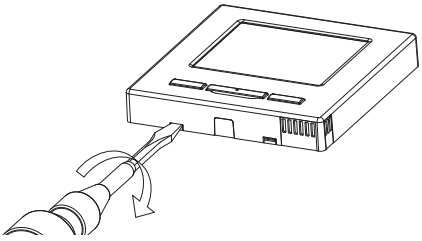
Perform installation and wiring work for the remote control according to the following procedure.

Dimensions (Viewed from front)



PCB side (Viewed from rear)





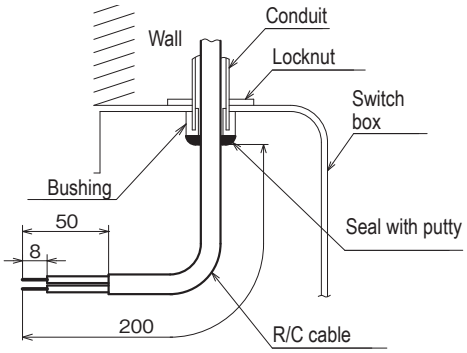
To remove the upper case from the bottom cases of R/C

· Insert the tip of flat head screwdriver or the like in the recess at the lower part of R/C and twist it lightly to remove. It is recommended that the tip of the screwdriver be wrapped with tape to avoid damaging the case.
Take care to protect the removed upper case from moisture or dust.

In case of embedding wiring

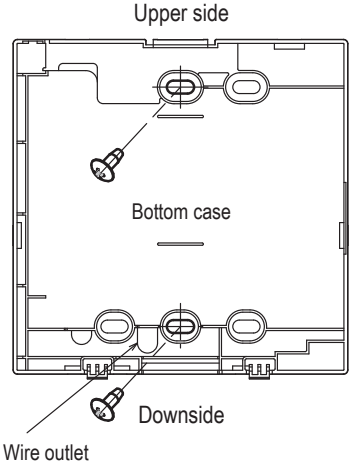
(When the wiring is retrieved “Backward”)

① Embed the switch box and the R/C wires beforehand.
Seal the inlet hole for the R/C wiring with putty.

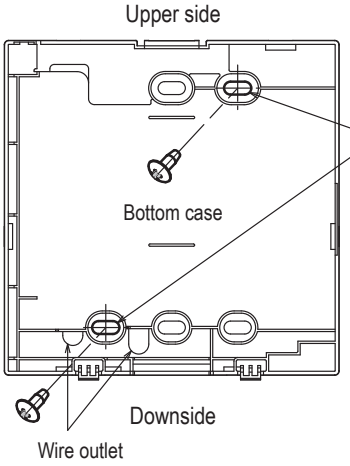


② When wires are passed through the bottom case, fix the bottom case at 2 places on the switch box.

Switch box for 1 pcs



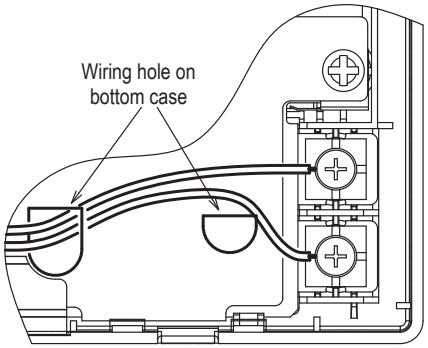
Switch box for 2 pcs



Cut out the thin wall part at the screw mounting section with a knife or the like before tightening the screw.

③ Connect wires from X and Y terminals of R/C to X and Y terminals of indoor unit. R/C wires (X, Y) have no polarity. Fix wires such that the wires will run around the terminal screws on the top case of R/C.

④ Install the upper case with care not to pinch wires of R/C.

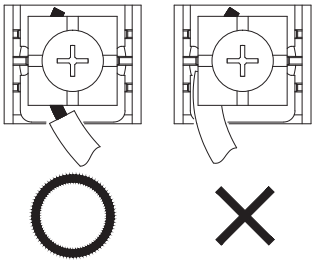


Cautions for wire connection

Use wires of no larger than 0.5 mm^2 for wiring running through the remote control case. Take care not to pinch the sheath.

Tighten by hand (0.7 N· m or less) the wire connection.

If the wire is connected using an electric driver, it may cause failure or deformation.



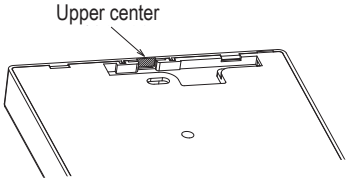
In case of exposing wiring

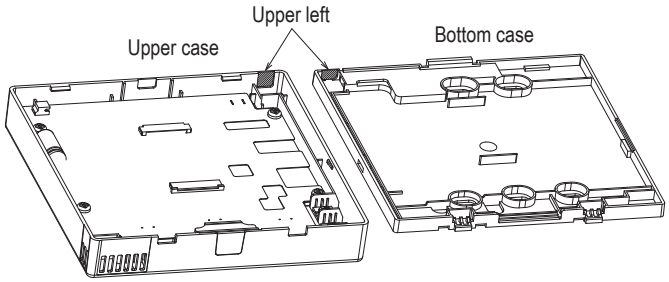
(When the wiring is taken out from the "upper center" or "upper left" of R/C)

① Cut out the thin wall sections on the cases for the size of wire.

When taking the wiring out from the upper center, open a hole before separating the upper and bottom cases. This will reduce risk of damaging the PCB and facilitate subsequent work.

When taking the wiring out from the upper left, take care not to damage the PCB and not to leave any chips of cut thin wall inside.





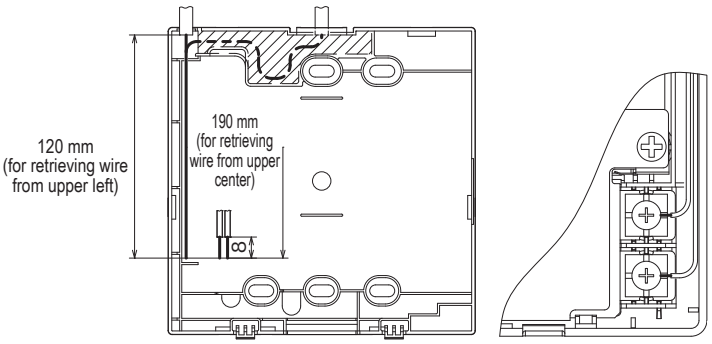
② Fix the bottom R/C case on a flat surface with two wood screws.

③ In case of the upper center, pass the wiring behind the bottom case. (Hatched section)

④ Connect wires from X and Y terminals of R/C to X and Y terminals of indoor unit. R/C wires (X, Y) have no polarity. Fix wires such that the wires will run around the terminal screws on the top case of R/C.

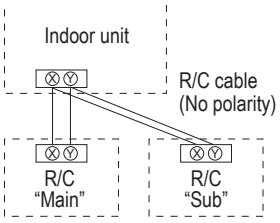
⑤ Install the top case with care not to pinch wires of R/C.

⑥ Seal the area cut in ① with putty.



5 . Main/Sub setting when more than one remote control are used

Up to two units of R/C can be used at the maximum for 1 indoor unit or 1 group.
One is main R/C and the other is sub R/C.
Operating range is different depending on the main or sub R/C.



Set the "Main" and "Sub" as described at Section 8.

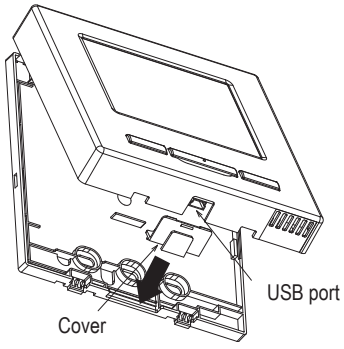
R/C operations			Main	Sub
Run/Stop, Change set temp, Change flap direction, Auto swing, Change fan speed operations			○	○
High power operation, Energy-saving operation			○	○
Silent mode control			○	×
Useful functions	Individual flap control		○	×
	Anti draft setting		○	×
	Timer		○	○
	Favorite setting		○	○
	Weekly timer		○	×
	Home leave mode		○	×
	External ventilation		○	○
	Select the language		○	○
Energy-saving setting			○	×
Filter	Filter sign reset		○	○
User setting	Initial settings		○	○
	Administrator settings	Permission/ Prohibition setting	○	×
		Outdoor unit silent mode timer	○	×
		Setting temp. range	○	×
		Temp. increment setting	○	×
		Set temp. display	○	○
		R/C display setting	○	○
		Change administrator password	○	○
		F1/F2 function setting	○	○

○: operable ×: not operable

R/C operations				Main	Sub
Service setting	Installation settings	Installation date		○	×
		Company information		○	○
		Test run		○	×
		Static pressure adjustment		○	×
		Change auto-address		○	×
		Address setting of main IU		○	×
		IU back-up function		○	×
		Infrared sensor (motion sensor) setting		○	×
	R/C function settings	Main/Sub of R/C		○	○
		Return air temp.		○	×
		R/C sensor		○	×
		R/C sensor adjustment		○	×
		Operation mode		○	×
		ºC / ºF		○	×
		Fan speed		○	×
		External input		○	×
		Upper/lower flap control		○	×
		Left/right flap control		○	×
		Ventilation setting		○	×
		Auto-restart		○	×
		Auto temp. setting		○	×
		Auto fan speed		○	×
	IU settings			○	×
	Service & Maintenance	IU address		○	○
		Next service date		○	×
		Operation data		○	×
		Error display	Error history	○	○
			Display/erase anomaly data	○	×
			Reset periodical check	○	○
		Saving IU settings		○	×
		Special settings	Erase IU address	○	×
			CPU reset	○	○
			Restore of default setting	○	×
			Touch panel calibration	○	○
		Indoor unit capacity display		○	×

Advice: Connection to personal computer

It can be set from a personal computer via the USB port (mini-B).
Connect after removing the cover for USB port of upper case.
Replace the cover after use.
Special software is necessary for the connection.
For details, view the web site or refer to the engineering data.

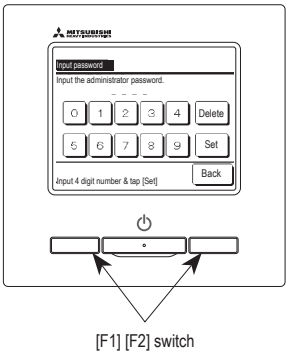


Advice: Initializing of password

Administrator password (for daily setting items) and
service password (for installation, test run and maintenance) are used.

○ The administrator password at factory default is "0000". This setting can be changed (Refer to User's Manual).
If the administrator password is forgotten, it can be initialized by holding down the [F1] and [F2] switches together for five seconds on the administrator password input screen.

○ Service password is "9999", which cannot be changed.
When the administrator password is input, the service password is also accepted.



(2) Model RC-E5

PJA012D730 B

Read together with indoor unit's installation manual.

⚠WARNING

- Fasten the wiring to the terminal securely and hold the cable securely so as not to apply unexpected stress on the terminal.
  Loose connection or hold will cause abnormal heat generation or fire.
- Make sure the power source is turned off when electric wiring work.
  Otherwise, electric shock, malfunction and improper running may occur.

⚠CAUTION

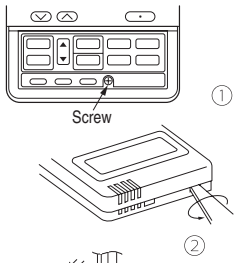
- Do not install the remote control at the following places in order to avoid malfunction.
  (1) Places exposed to direct sunlight
  (2) Places near heat devices
  (3) High humidity places
  (4) Hot surface or cold surface enough to generate condensation
  (5) Places exposed to oil mist or steam directly
  (6) Uneven surface
- Do not leave the remote control without the upper case.
  In case the upper cace needs to be detached, protect the remote control with a packaging box or bag in order to keep it away from water and dust.

Accessories	Remote control, wood screw (ø3.5×16) 2 pieces
Prepare on site	Remote control cord (2 cores) the insulation thickness in 1mm or more. [In case of embedding cord] Erectrical box, M4 screw (2 pieces) [In case of exposing cord] Cord clamp (if needed)

Installation procedure

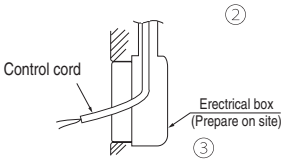
① Open the cover of remote control, and remove the screw under the buttons without fail.

② Remove the upper case of remote control.
Insert a flat-blade screw driver into the dented part of the upper part of the remote control, and wrench slightly.

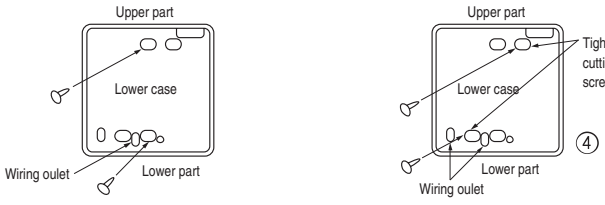


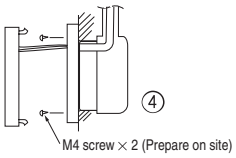
[In case of embedding cord]

③ Embed the erectrical box and remote control cord beforehand.



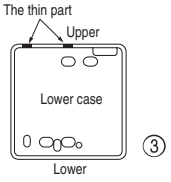
④ Prepare two M4 screws (recommended length is 12-16mm) on site, and install the lower case to erectrical box.
Choose either of the following two positions in fixing it with screws.





⑤ Connect the remote control cord to the terminal block.
Connect the terminal of remote control (X,Y) with the terminal of indoor unit (X,Y). (X and Y are no polarity)

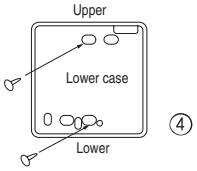
⑥ Install the upper case as before so as not to catch up the remote control cord, and tighten with the screws.



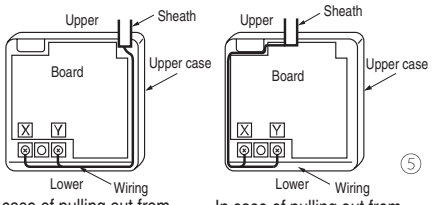
[In case of exposing cord]

③ You can pull out the remote control cord from left upper part or center upper part.
Cut off the upper thin part of remote control lower case with a nipper or knife, and grind burrs with a file etc.

④ Install the lower case to the flat wall with attached two wooden screws.



⑤ Connect the remote control cord to the terminal block.
Connect the terminal of remote control (X,Y) with the terminal of indoor unit (X,Y).
(X and Y are no polarity)
Wiring route is as shown in the right diagram depending on the pulling out direction.

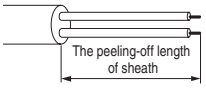


In case of pulling out from upper left

In case of pulling out from upper center

The wiring inside the remote control case should be within 0.3mm^2 (recommended) to 0.5mm^2.
The sheath should be peeled off inside the remote control case.
The peeling-off length of each wire is as below.

Pulling out from upper left	Pulling out from upper center
X wiring : 215mm Y wiring : 195mm	X wiring : 170mm Y wiring : 190mm



⑥ Install the upper case as before so as not to catch up the remote control cord, and tighten with the screws.
⑦ In case of exposing cord, fix the cord on the wall with cord clamp so as not to slack.

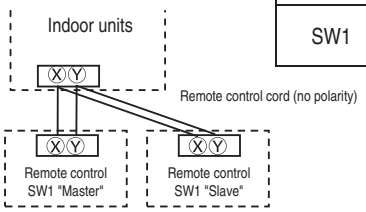
Installation and wiring of remote control

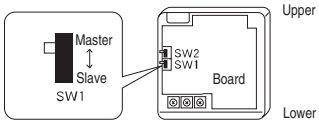
① Wiring of remote control should use 0.3mm^2 × 2 cores wires or cables. (on-site configuration)
② Maximum prolongation of remote control wiring is 600 m.
If the prolongation is over 100m, change to the size below.
But, wiring in the remote control case should be under 0.5mm^2 . Change the wire size outside of the case according to wire connecting. Waterproof treatment is necessary at the wire connecting section. Be careful about contact failure.
100 - 200m·····0.5mm^2 × 2 cores
Under 300m·····0.75mm^2 × 2 cores
Under 400m·····1.25mm^2 × 2 cores
Under 600m·····2.0mm^2 × 2 cores

Master/ slave setting when more than one remote controls are used

A maximum of two remote controls can be connected to one indoor unit (or one group of indoor units.)

Switch	Setting	Contents
SW1	M	Master remote control
	S	Slave remote control





Set SW1 to "Slave" for the slave remote control. It was factory set to "Master" for shipment.
Note: The setting "Remote control thermistor enabled" is only selectable with the master remote control in the position where you want to check room temperature.
The air-conditioner operation follows the last operation of the remote control regardless of the master/ slave setting of it.

The indication when power source is supplied

When power source is turned on, the following is displayed on the remote control until the communication between the remote control and indoor unit settled.
Master remote control : "WAIT M"
Slave remote control : "WAIT S"

At the same time, a mark or a number will be displayed for two seconds first.
This is the software's administration number of the remote control, not an error cord.

※ The left mark is only an example. Other marks may appear.

When remote control cannot communicate with the indoor unit for half an hour, the below indication will appear.
Check wiring of the indoor unit and the outdoor unit etc.

The range of temperature setting

When shipped, the range of set temperature differs depending on the operation mode as below.

Heating : 16-30°C (55-86°F)

Except heating (cooling, fan, dry, automatic) : 18-30°C (62-86°F)

●Upper limit and lower limit of set temperature can be changed with remote control.

Upper limit setting: valid during heating operation. Possible to set in the range of 20 to 30˚C (68 to 86˚F).

Lower limit setting: valid except heating (automatic, cooling, fan, dry) Possible to set in the range of 18 to 26°C (62 to 79°F).

When you set upper and lower limit by this function, control as below.

1. When ⑫TEMP RANGE SET, remote control function of function setting mode is "INDN CHANGE" (factory setting),

   【If upper limit value is set】

   During heating, you cannot set the value exceeding the upper limit.

   【If lower limit value is set 】

   During operation mode except heating, you cannot set the value below the lower limit.

2. When ⑫TEMP RANGE SET, remote control function of function setting mode is "NO INDN CHANGE"

   【If upper limit value is set】

   During heating, even if the value exceeding the upper limit is set, upper limit value will be sent to the indoor unit. But, the indication is the same as the temperature set.

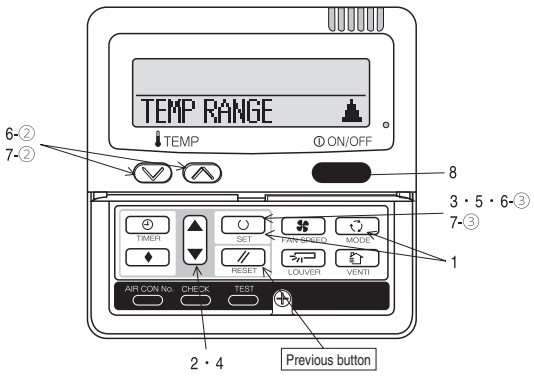
   【If lower limit value is set 】

   During except heating, even if the value lower than the lower limit is set, lower limit value will be sent to the indoor unit. But, the indication is the same as the temperature set.

●How to set upper and lower limit value

1. Stop the air-conditioner, and press (SET) and (MODE) button at the same time for over three seconds.
   The indication changes to "FUNCTION SET ▼".
2. Press ▼ button once, and change to the "TEMP RANGE ▲ " indication.
3. Press (SET) button, and enter the temperature range setting mode.
4. Select "UPPER LIMIT ▼" or "LOWER LIMIT ▲" by using ▲ ▼ button.
5. Press (SET) button to fix.
6. When "UPPER LIMIT ▼" is selected (valid during heating)
   ① Indication: "∨ ∧ SET UP" → "UPPER 30˚C ∨"
   ② Select the upper limit value with temperature setting button ∨ ∧. Indication example: "UPPER 26˚C ∨ ∧" (blinking)
   ③ Press (SET) button to fix. Indication example: "UPPER 26˚C" (Displayed for two seconds)
   After the fixed upper limit value displayed for two seconds, the indication will return to "UPPER LIMIT ▼".
7. When "LOWER LIMIT ▲" is selected (valid during cooling, dry, fan, automatic)
   ① Indication: "∨ ∧ SET UP" → "LOWER 18˚C ∧"
   ② Select the lower limit value with temperature setting button ∨ ∧. Indication example: "LOWER 24˚C ∨ ∧" (blinking)
   ③ Press (SET) button to fix. Indication for example: "LOWER 24˚C" (Displayed for two seconds)
   After the fixed lower limit value displayed for two seconds, the indication will return to "LOWER LIMIT ▼".
8. Press ON/OFF button to finish.

- It is possible to finish by pressing ON/OFF button on the way, but unfinished change of setting is unavailable.
- During setting, if you press (RESET) button, you return to the previous screen.



The functional setting

●The initial function setting for typical using is performed automatically by the indoor unit connected, when remote control and indoor unit are connected.
As long as they are used in a typical manner, there will be no need to change the initial settings.
If you would like to change the initial setting marked "○", set your desired setting as for the selected item.
The procedure of functional setting is shown as the following diagram.

[Flow of function setting]

Start : Stop air-conditioner and press "(SET)" and "(MODE)" buttons at the same time for over three seconds.
Finalize : Press "(SET)" button.
Reset : Press "(RESET)" button.
Select : Press ▲ ▼ button.
End : Press ON/OFF button.
It is possible to finish above setting on the way, and unfinished change of setting is unavailable.
"○" : Initial settings
"※" : Automatic criterion

Record and keep the setting

Consult the technical data etc. for each control details

Stop air-conditioner and press (SET) + (MODE) buttons at the same time for over three seconds.

FUNCTION SET ▼

To next page

FUNCTION ▼ (Remote control function)

Function	setting		
01 ESP SET	ESP VALID	○	Validate setting of ESP:External Static Pressure
	ESP INVALID		Invalidate setting of ESP
02 AUTO RUN SET			
	AUTO RUN ON	※	
	AUTO RUN OFF	※	Automatical operation is impossible
03 TEMP SW			
	VALID	○	
	INVALID		Temperature setting button is not working
04 MODE SW			
	VALID	○	
	INVALID		Mode button is not working
05 ON/OFF SW			
	VALID	○	
	INVALID		On/Off button is not working
06 FAN SPEED SW			
	VALID	※	
	INVALID	※	Fan speed button is not working
07 LOUVER SW			
	VALID	※	
	INVALID	※	Louver button is not working
08 TIMER SW			
	VALID	○	
	INVALID		Timer button is not working
09 SENSOR SET			
	SENSOR OFF	○	Remote sensor is not working.
	SENSOR ON		Remote sensor is working.
	SENSOR +3.0℃		Remote sensor is working, and to be set for producing +3.0°C increase in temperature.
	SENSOR +2.0℃		Remote sensor is working, and to be set for producing +2.0°C increase in temperature.
	SENSOR +1.0℃		Remote sensor is working, and to be set for producing +1.0°C increase in temperature.
	SENSOR -1.0℃		Remote sensor is working, and to be set for producing -1.0°C increase in temperature.
	SENSOR -2.0℃		Remote sensor is working, and to be set for producing -2.0°C increase in temperature.
	SENSOR -3.0℃		Remote sensor is working, and to be set for producing -3.0°C increase in temperature.
10 AUTO RESTART			
	INVALID	○	
	VALID		
11 VENT LINK SET			
	NO VENT	○	
	VENT LINK		In case of Single split series, by connecting ventilation device to CnT of the indoor printed circuit board (in case of VRF series, by connecting it to CnD of the indoor printed circuit board), the operation of ventilation device is linked with the operation of indoor unit.
	NO VENT LINK		In case of Single split series, by connecting ventilation device to CnT of the indoor printed circuit board (in case of VRF series, by connecting it to CnD of the indoor printed circuit board), you can operate /stop the ventilation device independently by (VENT) button.
12 TEMP RANGE SET			
	INDIV CHANGE	○	If you change the range of set temperature, the indication of set temperature will vary following the control.
	NO INDIV CHANGE		If you change the range of set temperature, the indication of set temperature will not vary following the control, and keep the set temperature.
13 I/U FAN			
	HI-MID-LO	※	Air flow of fan becomes of ※-※-※-※ or the four speed of ※-※-※-※.
	HI-LO	※	Air flow of fan becomes of ※-※.
	HI-MID		Air flow of fan becomes of ※-※.
	1 FAN SPEED	※	Air flow of fan is fixed at one speed.
14 POSITION			If you change the remote control function "14 POSITION", you must change the indoor function "04 POSITION" accordingly.
	4POSITION STOP	○	You can select the louver stop position in the four.
	FREE STOP		The louver can stop at any position.
15 MODEL TYPE			
	HEAT PUMP	※	
	COOLING ONLY	※	
16 EXTERNAL CONTROL SET			
	INDIVIDUAL	○	If you input signal into CnT of the indoor printed circuit board from external, the indoor unit will be operated independently according to the input from external.
	FOR ALL UNITS		If you input into CnT of the indoor printed circuit board from external, all units which connect to the same remote control are operated according to the input from external.
17 ROOM TEMP INDICATION SET			
	INDICATION OFF	○	
	INDICATION ON		In normal working indication, indoor unit temperature is indicated instead of airflow. (Only the master remote control can be indicated.)
18 ※ INDICATION			
	INDICATION ON	○	
	INDICATION OFF		Heating preparation indication should not be indicated.
19 ℃/°F SET			
	℃	○	Temperature indication is by degree C
	°F		Temperature indication is by degree F

To next page

ON/OFF button (finished)

Note 1: The initial setting marked "※" is decided by connected indoor and outdoor unit, and is automatically defined as following table.

Function No.	Item	Default	Model
Remote control function02	AUTO RUN SET	AUTO RUN ON	"Auto-RUN" mode selectable indoor unit.
		AUTO RUN OFF	Indoor unit without "Auto-RUN" mode
Remote control function06	FAN SPEED SW	VALID	Indoor unit with two or three step of air flow setting
		INVALID	Indoor unit with only one of air flow setting
Remote control function07	LOUVER SW	VALID	Indoor unit with automatically swing louver
		INVALID	Indoor unit without automatically swing louver
Remote control function13	I/U FAN	HI-MID-LO	Indoor unit with three step of air flow setting
		HI-LO	Indoor unit with two step of air flow setting
		HI-MID	
		1 FAN SPEED	Indoor unit with only one of air flow setting
Remote control function15	MODEL TYPE	HEAT PUMP	Heat pump unit
		COOLING ONLY	Exclusive cooling unit

Note 3: As for plural indoor unit, set indoor functions to each master and slave indoor unit.
But only master indoor unit is received the setting change of indoor unit function "05 EXTERNAL INPUT" and "06 PERMISSION / PROHIBISHION".

From previous page

(Indoor unit function) I/U FUNCTION ▲

Indoor unit No. are indicated only when plural indoor units are connected.

I/U000 ▲
I/U001 ≑
I/U002 ≑
I/U003 ≑
I/U004 ≑

To set other indoor unit, press AIR CON No. button, which allows you to go back to the indoor unit selection screen (for example: I/U 000 ▲).

Function / **setting**

- 02 FAN SPEED SET
  - STANDARD ※
  - HIGH SPEED 1 ※
  - HIGH SPEED 2
- 03 FILTER SIGN SET
  - INDICATION OFF
  - TYPE 1 ○ — The filter sign is indicated after running for 180 hours.
  - TYPE 2 — The filter sign is indicated after running for 600 hours.
  - TYPE 3 — The filter sign is indicated after running for 1000 hours.
  - TYPE 4 — The filter sign is indicated after running for 1000 hours, then the indoor unit will be stopped by compulsion after 24 hours.
- 04 POSITION — If you change the indoor function "04 POSITION", you must change the remote control function "14 POSITION" accordingly.
  - 4POSITION STOP ○ — You can select the louver stop position in the four.
  - FREE STOP — The louver can stop at any position.
- 05 EXTERNAL INPUT
  - LEVEL INPUT ○
  - PULSE INPUT
- 06 OPERATION PERMISSION/PROHIBITION
  - INVALID ○
  - VALID — Permission/prohibition control of operation will be valid.
- 07 EMERGENCY STOP
  - INVALID ○
  - VALID — With the VRF series, it is used to stop all indoor units connected with the same outdoor unit immediately. When stop signal is inputed from remote on-off terminal "CNT-6", all indoor units are stopped immediately.
- 08 ※SP OFFSET
  - OFFSET +3.0℃ — To be reset for producing +3.0˚C increase in temperature during heating.
  - OFFSET +2.0℃ — To be reset for producing +2.0˚C increase in temperature during heating.
  - OFFSET +1.0℃ — To be reset for producing +1.0˚C increase in temperature during heating.
  - NO OFFSET ○
- 09 RETURN AIR TEMP
  - OFFSET +2.0℃ — To be reset producing +2.0˚C increase in return air temperature of indoor unit.
  - OFFSET +1.5℃ — To be reset producing +1.5˚C increase in return air temperature of indoor unit.
  - OFFSET +1.0℃ — To be reset producing +1.0˚C increase in return air temperature of indoor unit.
  - NO OFFSET ○
  - OFFSET -1.0℃ — To be reset producing -1.0˚C increase in return air temperature of indoor unit.
  - OFFSET -1.5℃ — To be reset producing -1.5˚C increase in return air temperature of indoor unit.
  - OFFSET -2.0℃ — To be reset producing -2.0˚C increase in return air temperature of indoor unit.
- 10 ※FAN CONTROL
  - LOW FAN SPEED ○ — When heating thermostat is OFF, fan speed is low speed.
  - SET FAN SPEED — When heating thermostat is OFF, fan speed is set speed.
  - INTERMITTENCE — When heating thermostat is OFF, fan speed is operated intermittently.
  - FAN OFF — When heating thermostat is OFF, the fan is stopped. When the remote thermistor is working, "FAN OFF" is set automatically. Do not set "FAN OFF" when the indoor unit's thermistor is working.
- 11 FROST PREVENTION TEMP — Change of indoor heat exchanger temperature to start frost prevention control.
  - TEMP HIGH
  - TEMP LOW ○
- 12 FROST PREVENTION CONTROL — Working only with the Single split series.
  - FAN CONTROL ON ○ — To control frost prevention, the indoor fan tap is raised.
  - FAN CONTROL OFF
- 13 DRAIN PUMP LINK
  - ❄♨ ○ — Drain pump is run during cooling and dry.
  - ❄♨AND※ — Drain pump is run during cooling, dry and heating.
  - ❄♨AND※AND≋ — Drain pump is run during cooling, dry, heating and fan.
  - ❄♨AND≋ — Drain pump is run during cooling, dry and fan.
- 14 ❄FAN REMAINING
  - NO REMAINING ○ — After cooling is stopped, the fan does not perform extra operation.
  - 0.5 HOUR — After cooling is stopped, the fan perform extra operation for half an hour.
  - 1 HOUR — After cooling is stopped, the fan perform extra operation for an hour.
  - 6 HOUR — After cooling is stopped, the fan perform extra operation for six hours.
- 15 ※FAN REMAINING
  - NO REMAINING ○ — After heating is stopped or heating thermostat is OFF, the fan does not perform extra operation.
  - 0.5 HOUR — After heating is stopped or heating thermostat is OFF, the fan perform extra operation for half an hour.
  - 2 HOUR — After heating is stopped or heating thermostat is OFF, the fan perform extra operation for two hours.
  - 6 HOUR — After heating is stopped or heating thermostat is OFF, the fan perform extra operation for six hours.
- 16 ※FAN INTERMITTENCE
  - NO REMAINING ○
  - 2minOFF 5minON — During heating is stopped or heating thermostat is OFF, the fan perform intermittent operation for five minutes with low fan speed after twenty minutes' OFF.
  - 5minOFF 5minON — During heating is stopped or heating thermostat is OFF, the fan perform intermittent operation for five minutes with low fan speed after five minutes' OFF.
- 17 PRESSURE CONTROL
  - STANDARD ※
  - TYPE1 ※ — Connected "OA Processing" type indoor unit, and is automatically defined.

From previous page

Note2: Fan setting of "HIGH SPEED"

Fan tap		Indoor unit air flow setting			
		❄all - ❄all - ❄all - ❄all	❄all - ❄all - ❄all	❄all - ❄all	❄all - ❄all
FAN SPEED SET	STANDARD	UH - Hi - Me - Lo	Hi - Me - Lo	Hi - Lo	Hi - Me
	HIGH SPEED1, 2	UH - UH - Hi - Me	UH - Hi - Me	UH - Me	UH - Hi

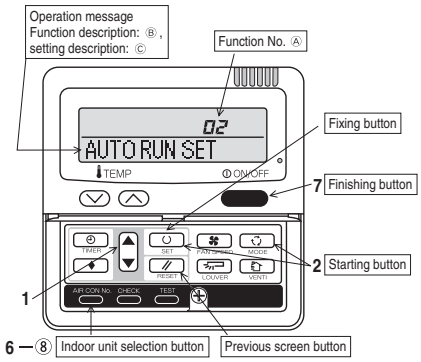
Initial function setting of some indoor unit is "HIGH SPEED".
4 speed is not able to be set with wireless remote control.

How to set function

1. **Stop air-conditioner and press (SET) (MODE) buttons at the same time for over three seconds, and the "FUNCTION SET ▼" will be displayed.**

2. **Press (SET) button.**
3. **Make sure which do you want to set, "FUNCTION ▼" (remote control function) or "I/U FUNCTION▲ " (indoor unit function).**
4. **Press ▲ or ▼ button.**
   Selecct "FUNCTION ▼" (remote control function) or "I/U FUNCTION ▲" (indoor unit function).

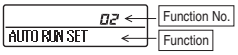
5. **Press (SET) button.**



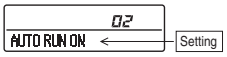
6. **【On the occasion of remote control function selection】**

① "DATA LOADING" (Indication with blinking)
↓
Display is changed to "01 ESP SET".

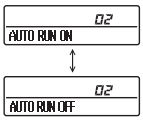
② Press ▲ or ▼ button.
"No. and function"are indicated by turns on the remote control function table, then you can select from them.
(For example)



③ Press (SET) button.
The current setting of selected function is indicated.
(for example) "AUTO RUN ON" ← If "02 AUTO RUN SET" is selected



④ Press ▲ or ▼ button.
Select the setting.



⑤ Press (SET)
"SET COMPLETE" will be indicated, and the setting will be completed.
Then after "No. and function" indication returns, Set as the same procedure if you want to set continuously ,and if to finish, go to 7.

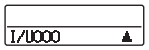
7. **Press ON/OFF button.**
   Setting is finished.

【On the occasion of indoor unit function selection】

① "DATA LOADING" (Blinking for 2 to 23 seconds to read the data)
↓
Indication is changed to "02 FAN SPEED SET".
Go to ②.

[Note]

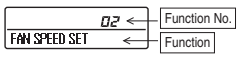
(1) If plural indoor units are connected to a remote control, the indication is "I/U 000" (blinking) ← The lowest number of the indoor unit connected is indicated.



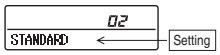
(2) Press ▲ or ▼ button.
Select the number of the indoor unit you are to set
If you select "ALL UNIT ▼", you can set the same setting with all unites.

(3) Press (SET) button.

② Press ▲ or ▼ button.
"No. and function" are indicated by turns on the indoor unit function table, then you can select from them.
(For example)



③ Press (SET) button.
The current setting of selected function is indicated.
(For example) "STANDARD" ← If "02 FAN SPEED SET" is selected.



④ Press ▲ or ▼ button.
Select the setting.

⑤ Press (SET) button.
"SET COMPLETE" will be indicated, and the setting will be completed.
Then after "No. and function" indication returns, set as the same procedure if you want to set continuously , and if to finish, go to 7.

※ When plural indoor units are connected to a remote control, press the AIR CON No. button, which allows you to go back to the indoor unit selection screen. (example "I/U 000 ▲")

- It is possible to finish by pressing ON/OFF button on the way, but unfinished change of setting is unavailable.
- During setting, if you press (RESET) button, you return to the previous screen.
- Setting is memorized in the control and it is saved independently of power failure.

【How to check the current setting】

When you select from "No. and funcion" and press set button by the previous operation, the "Setting" displayed first is the current setting.
(But, if you select "ALL UNIT ▼", the setting of the lowest number indoor unit is displayed.)

12.2 Wireless kit

PJA012D791

(1) FDTC series (RCN-TC-24W-E2)

Note :
Following functions of FDTC Type-F indoor unit series are not able to be set with this wireless remote control (RCN-TC-24W-E2).
1. Individual flap control system

Safety precautions

●Please read this manual carefully before starting installation work to install the unit properly.
Every one of the followings is important information to be observed strictly.
⚠WARNING Failure to follow these instructions properly may result in serious consequences such as death, severe injury, etc.
⚠CAUTION Failure to follow these instructions properly may cause injury or property damage. It could have serious consequences depending on the circumstances.
●The following pictograms are used in the text.

⃠	Never do.	❗	Always follow the instructions given.

●Keep this manual at a safe place where you can consult with whenever necessary. Show this manual to installers when moving or repairing the unit. When the ownership of the unit is transferred, this manual should be given to a new owner.

⚠WARNING

- **Consult your dealer or a professional contractor to install the unit.**
  Improper installation made on your own may cause electric shocks, fire or dropping of the unit.
- **Installation work should be performed properly according to this installation manual.**
  Improper installation work may result in electric shocks, fire or break-down.
- **Be sure to use accessories and specified parts for installation work.**
  Use of unspecified parts may result in drop, fire or electric shocks.
- **Install the unit properly to a place with sufficient strength to hold the weight.**
  If the place is not strong enough, the unit may drop and cause injury.
- **Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.**
  Power source with insufficient and improper work can cause electric shock and fire.
- **Shut OFF the main power source before starting electrical work.**
  Otherwise, it could result in electric shocks, break-down or malfunction.
- **Do not modify the unit.**
  It could cause electric shocks, fire, or break-down.
- **Be sure to turn OFF the power circuit breaker before repairing/inspecting the unit.**
  Repairing/inspecting the unit with the power circuit breaker turned ON could cause electric shocks or injury.
- **Do not install the unit in appropriate environment or where inflammable gas could generate, flow in, accumulate or leak.**
  If the unit is used at places where air contains dense oil mist, steam, organic solvent vapor, corrosive gas (ammonium, sulfuric compound, acid, etc) or where acidic or alkaline solution, special spray, etc. are used, it could cause electric shocks, break-down, smoke or fire as a result of signi ficant deterioration of its performance or corrosion.
- **Do not install the unit where water vapor is generated excessively or condensation occurs.**
  It could cause electric shocks, fire, or break-down.
- **Do not use the unit in a place where it gets wet, such as laundry room.**
  It could cause electric shocks, fire, or break-down.
- **Do not operate the unit with wet hands.**
  It could cause electric shocks.

⚠WARNING

- **Do not wash the unit with water.**
  It could cause electric shocks, fire, or break-down.
- **Use the specified cables for wiring, and connect them securely with care to protect electronic parts from external forces.**
  Improper connections or fixing could cause heat generation, fire, etc.
- **When installing the unit at a hospital, telecommunication facility, etc., take measures to suppress electric noises.**
  It could cause malfunction or break-down due to hazardous effects on the inverter, private power generator, high frequency medical equipment, radio communication equipment, etc.
  The influences transmitted from the remote control to medical or communication equipment could disrupt medical activities, video broadcasting or cause noise interference.
- **Do not leave the remote control with its PCB case removed.**
  If dew, water, insect, etc. enters through the hole, it could cause electric shocks, fire or break-down.

⚠CAUTION

- Do not install the wireless kit at the following places in order to avoid malfunction.
  It could cause break-down or deformation of remote control.
  (1) Places exposed to direct sunlight
  (2) Places near heat devices
  (3) High humidity places
  (4) Hot surface or cold surface enough to generate condensation
  (5) Places exposed to oil mist or steam directly
  (6) Uneven surface
  (7) Places affected by the direct air flow of the AC unit.
  (8) Places where the receiver is influenced by the fluorescent lamp (especially inverter type) or sunlight.
  (9) Places where the receiver is affected by infrared rays of any other communication devices.
  (10) Places where some object may obstruct the communication with the remote control.

① Accessories

Please make sure that you have all of the following accessories.

① Receiver		1
② Parts set		1
③ Installation manual		1

① Wireless remote control		1
② Remote control holder		1
③ Screw for holder		2
④ AAA dry cell battery (LR03)		2
⑤ User's manual		1

② Preparation before installation

Setting on site

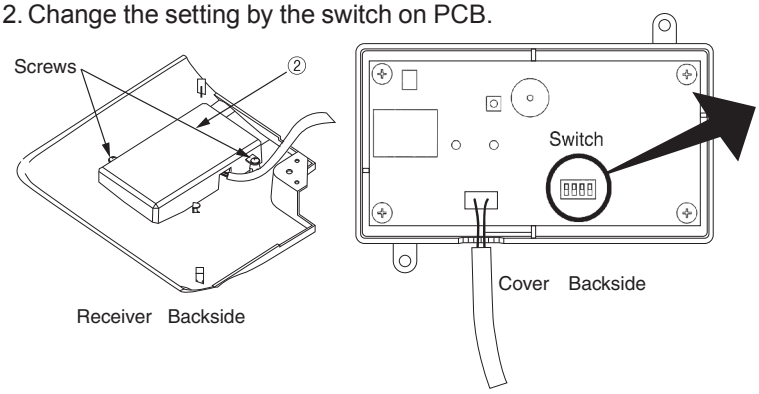
PCB on the receiver has the following switches to set the functions. Default setting is shown with ☐ mark.

SW1-1	Prevents interference during plural setting	☐ ON : Normal OFF : Remote
SW1-2	Receiver master/slave setting	☐ ON : Master OFF : Slave
SW1-3	Buzzer	☐ ON : Valid OFF : Invalid
SW1-4	Auto restart	ON : Valid ☐ OFF : Invalid

② Preparation before installation (continued)

To change setting

1. Remove the cover by unscrewing two screws from the back of receiver.
2. Change the setting by the switch on PCB.



Master/Slave setting when using plural remote controls

Up to two receiver or wired remote control can be installed in one indoor unit group. When two receiver or wired remote control are used, it is necessary to change SW on the PCB to set it as slave.

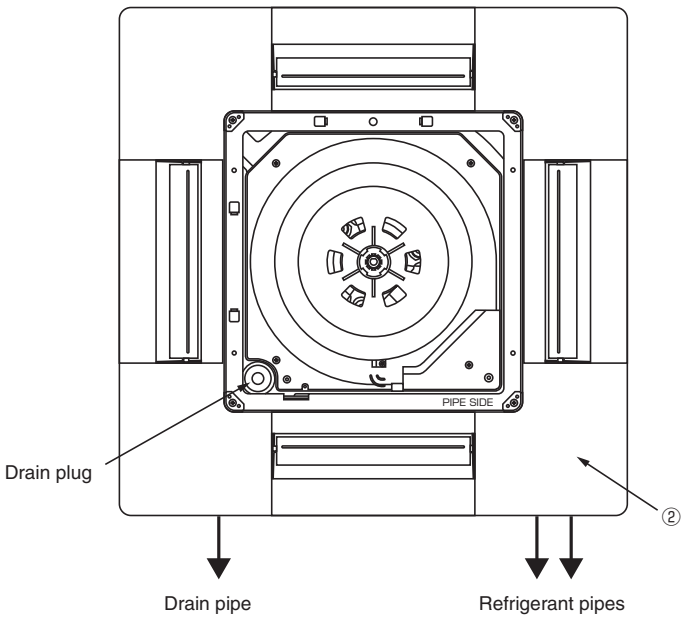
3. When SW1-1 is turned to OFF position, change the wireless remote control setting.
   For the method of changing the setting, refer to Setting to avoid mixed communication of ④ Wireless remote control .
   *The receivable area of the signal refer to ⑤ Receiver .

③ How to install the receiver

The receiver can be installed by replacing with a corner panel on the applicable decorative panel.

Preparation before installation

① Remove the air return grille.
② Remove a corner panel located on the refrigerant pipes side.
③ Remove two screws and detach the lid from the control box of the air-conditioner.

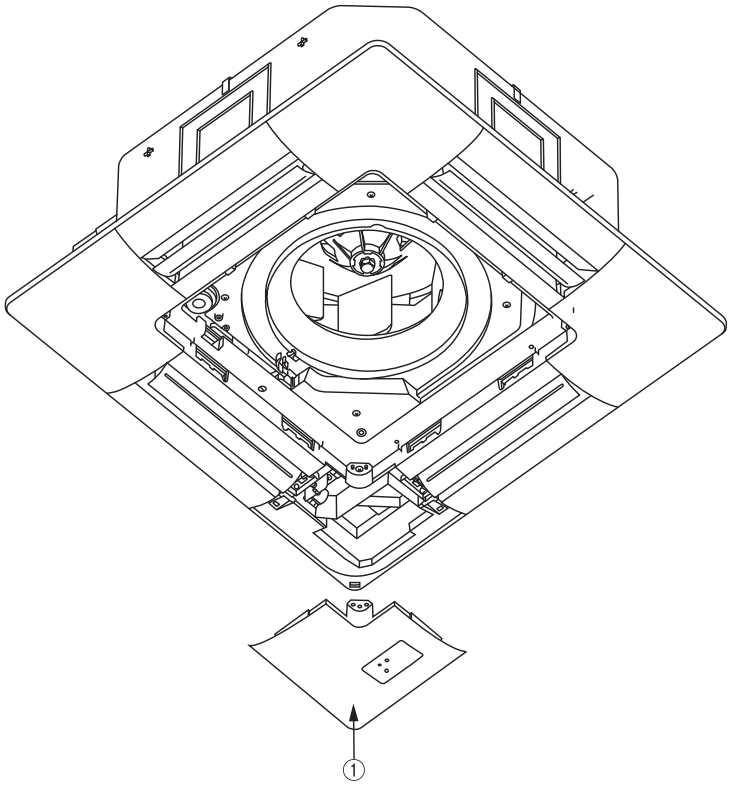


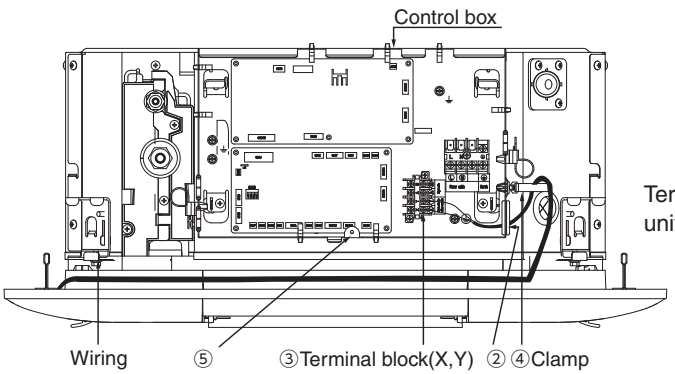
③ How to install the receiver(continued)

Installation of the receiver

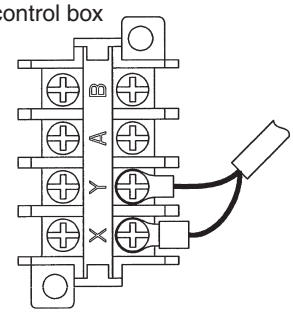
① Attach the receiver to the panel according to the panel installation manual.
② Put the wiring in the control box with other wiring as shown below.
③ Connect the wiring to the terminal block (X,Y) provided in the control box.(No polarity)
④ Fix the wiring with the clamp as shown below.
⑤ Reattach the control box lid with 1 screw removed.

Note: Make sure wires not to be pinched by any other parts like panel and control box.





Terminal block (X,Y) in the indoor unit control box

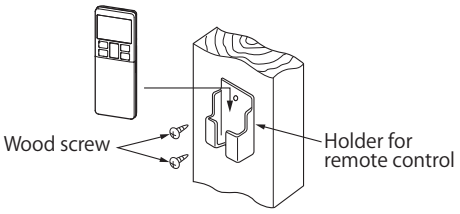


④ Wireless remote control

Installation tips for the remote control holder

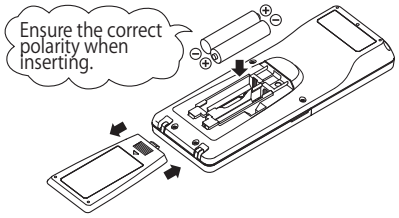
Fix the remote control holder using the screws supplied with this product.

* Precautions for installing the holder
- Adjust the position so that it is upright.
- Ensure that the screw heads are not protruding.
- Do not attach the holder on plaster wall.



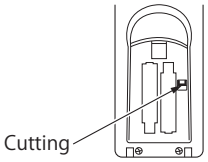
How to insert batteries

1. Detach the back lid.
2. Insert the batteries. (two AAA batteries)
3. Reattach the back lid.



Setting to avoid mixed communication

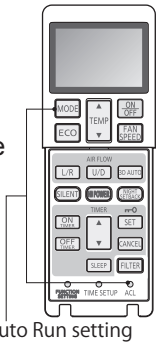
1. Detach the back lid, and remove the batteries.
2. Cut off the switching wire in the battery compartment using nippers.
3. Insert the batteries, and attach the back lid.



Changing the wireless remote control setting

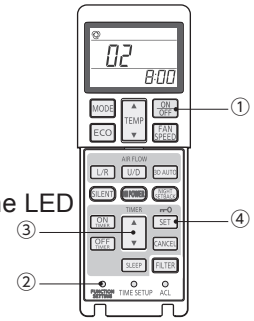
How to change the Auto Run setting
The Auto Run mode is not available on the building air-conditioner and gas heat pump series (excluding the cooling/heating free multi system).
When using the wireless remote control to operate those models, set the wireless remote control to disable the Auto Run mode.
To disable the Auto Run mode, press the ACL switch while holding down the MODE button, or insert batteries while holding down the MODE button.

* Note: Once the batteries are removed, the setting is reset to the factory default.
When the batteries are removed, repeat the steps described above.



Indoor function settings

1. How to set indoor functions
   ① Press the ON/OFF button to stop the unit.
   ② Press the desired one of the buttons shown item **2.** while holding down the FUNCTION SETTING switch.
   ③ Use the selection buttons, ▲ and ▼, to change the setting.
   ④ Press the SET button.
   The buzzer on the wireless remote control signal receiver beeps twice, and the LED lamp flashes four times at two-second intervals.



④ Wireless remote control (continued)

2. Setting details
   The following functions can be set.

Button	Number indicator	Function setting
FAN SPEED	00	Fun speed setting : Standard
	01	Fun speed setting : Setting 1 *
	02	Fun speed setting : Setting 2 *
MODE	00	Room heating temperature adjustment : Disable
	01	Room heating temperature adjustment : +1°C
	02	Room heating temperature adjustment : +2°C
	03	Room heating temperature adjustment : +3°C
FILTER	00	Filter sign display : OFF
	01	Filter sign display : 180 hours
	02	Filter sign display : 600 hours
	03	Filter sign display : 1000 hours
	04	Filter sign display : Operation stop after 1000 hours have elapsed
U/P (Up/Down)	00	Anti draft setting : Disable
	01	Anti draft setting : Enable
SILENT	00	Infrared sensor setting (Motion sensor setting) : Disable
	01	Infrared sensor setting (Motion sensor setting) : Enable
HI POWER	00	Infrared sensor control (Motion sensor control) : Disable
	01	Infrared sensor control (Motion sensor control) : Power control only
	02	Infrared sensor control (Motion sensor control) : Auto OFF only
	03	Infrared sensor control (Motion sensor control) : Power control + Auto OFF
ON TIMER	00	Cooling fan residual-period running : Disable
	01	Cooling fan residual-period running : 0.5 hours
	02	Cooling fan residual-period running : 2 hours
	03	Cooling fan residual-period running : 6 hours
OFF TIMER	00	Heating fan residual-period running : Disable
	01	Heating fan residual-period running : 0.5 hours
	02	Heating fan residual-period running : 2 hours
	03	Heating fan residual-period running : 6 hours
NIGHT SETBACK	00	Remote control signal receiver LED : Brightness High
	01	Remote control signal receiver LED : Brightness Low
	02	Remote control signal receiver LED : OFF

* Refer to technical data.

⑤ Receiver

1 Control plural indoor units with one remote control

Up to 16 indoor units can be connected.

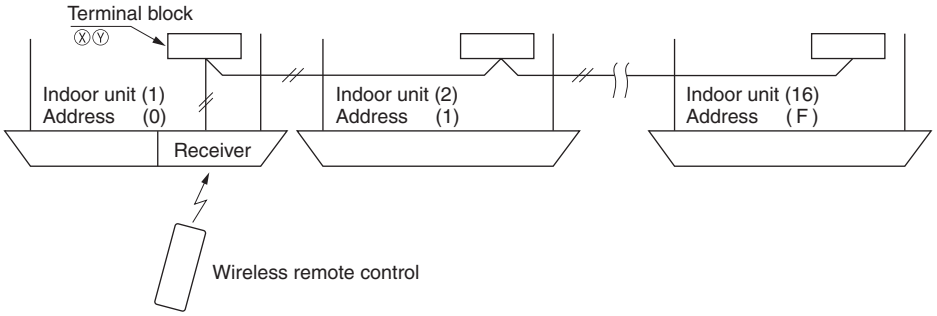
1. Connect the XY terminal with 2 cores wire. As for the size, refer to the following note.
2. For Packaged air-conditioner series, set the indoor unit address with SW2 on the indoor unit PCB from [0] to [F] so as not to duplicate.

Restrictions on the thickness and length of wire (Maximun total extension 600m.)

Standard	Within 0.3 mm² × 100m
	Within 0.5 mm² × 200m
	Within 0.75mm² × 300m
	Within 1.25mm² × 400m
	Within 2.0 mm² × 600m

For the shop series

For VRF series, set the indoor unit address with SW1, SW2 and SW5-2 on the indoor unit PCB from [000] to [127] so as not to duplicate.

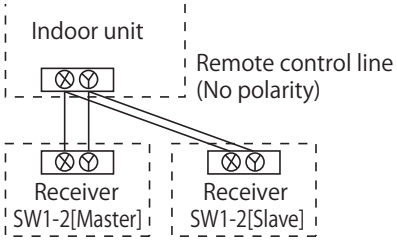


For the building air-conditioner and gas heat pump series

Set the indoor unit and outdoor unit numbers by manually specifying the addresses.
Use the rotary switchs SW1 and SW2 provided on the indoor unit PCB (printed circuit board) to set the indoor unit numbers so that they are not duplicated.

Master/Slave setting when using plural remote control

Up to two receivers can be installed in one indoor unit group.

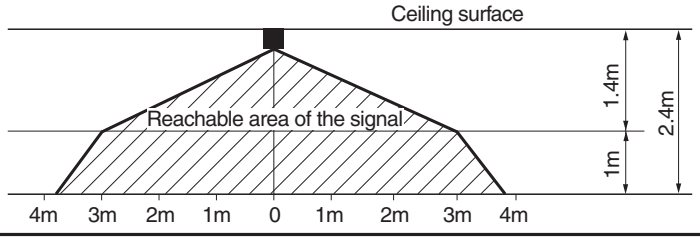


Switch	Setting	Function
SW1-2	ON	Master
	OFF	Slave

Wireless remote control's operable area

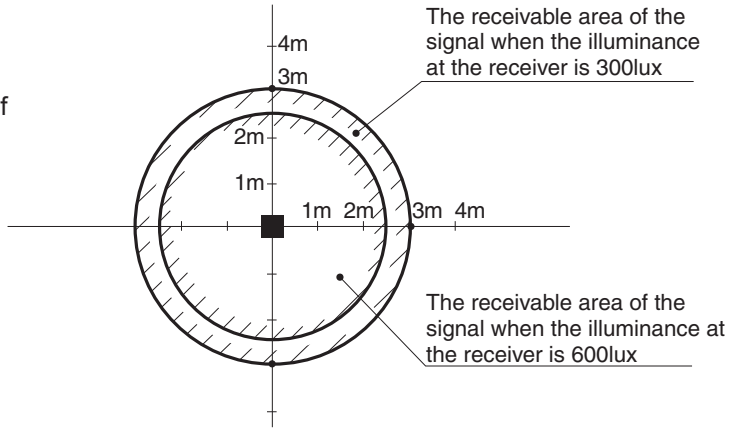
1. Standard reachable area of the signal

[Condition] Illuminance at the receiver: 300lux
(when no lighting is installed within 1m of the receiver in an ordinary office.)



⑤ Receiver (continued)

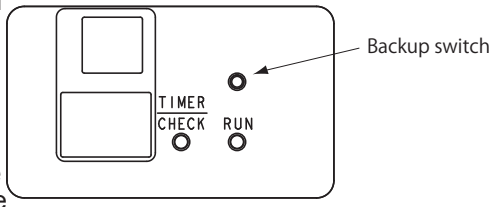
2. Correlation between illuminance at the receiver and reachable area of the signal in a plain view.
   The drawing in the right shows the correlation between the reachable area of the signal and illuminance at the receiver when the wireless remote control is operated at 1m high under the condition of ceiling height of 2.4m.



3. Installation tips when several receivers are installed close
   Minimum distance between the indoor units which can avoid cross communication is 5m under the condition of 300lux of illuminance at the receiver.
   (When no lighting is installed within 1m of the receiver in an ordinary office.)

Backup switch

A backup switch is provided on the receiver section of the panel surface.
When operation from the wireless remote control unit is not possible (due to flat batteries, a mislaid unit, a unit failure), you can use it as an emergency means. You should operate this switch manually.



1. If pressed while the air-conditioner is in a halt, it will cause the air-conditioner to start operation in the automatic mode (in the case of cooling only, in the cooling mode).
   Wind speed: Hi fan, Temperature setting: 23°C, Louver: horizontal
2. If pressed while the air-conditioner is in operation, it will stop the air-conditioner.

Cooling test run operation

- After safety confirmation, turn on the power.
- Transmit a cooling operation command with the wireless remote control unit, while the backup switch on the receiver is depressed.
- If the backup switch on the receiver is pressed during a test run, it will end the test run.
- If you cannot operate the unit properly during a test run, please check wiring by consulting with inspection guides.

How to read the two-digit display

On the receiver of a wireless kit, a two-digit (7-segment) display is provided.

1. An indication will be displayed for one hour after power on.
2. An indication will be displayed for 3.5 seconds after transmitting a “STOP” command from the wireless remote control or the operation of the backup switch to stop the unit.
3. An indication appearing in (1) or (2) above will go off as soon as the unit starts operation.
4. When there are no error records to indicate, addresses of all the connected units are displayed.
5. When there are some error records remaining, the error records are displayed.
6. Error records can be cleared by transmitting a “STOP” command from the wireless remote control, while the backup button is pressed.

(2) FDE series (RCN-E-E2)

PFA012D630Ⓐ

Safety precautions

●Please read this manual carefully before starting installation work to install the unit properly. Every one of the followings is important information to be observed strictly.
⚠WARNING Failure to follow these instructions properly may result in serious consequences such as death, severe injury, etc.
⚠CAUTION Failure to follow these instructions properly may cause injury or property damage. It could have serious consequences depending on the circumstances.
●The following pictograms are used in the text.

⃠	Never do.	❗	Always follow the instructions given.

●Keep this manual at a safe place where you can consult with whenever necessary. Show this manual to installers when moving or repairing the unit. When the ownership of the unit is transferred, this manual should be given to a new owner.

⚠WARNING

- **Consult your dealer or a professional contractor to install the unit.**
  Improper installation made on your own may cause electric shocks, fire or dropping of the unit.
- **Installation work should be performed properly according to this installation manual.**
  Improper installation work may result in electric shocks, fire or break-down.
- **Be sure to use accessories and specified parts for installation work.**
  Use of unspecified parts may result in drop, fire or electric shocks.
- **Install the unit properly to a place with sufficient strength to hold the weight.**
  If the place is not strong enough, the unit may drop and cause injury.
- **Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.**
  Power source with insufficient and improper work can cause electric shock and fire.
- **Shut OFF the main power source before starting electrical work.**
  Otherwise, it could result in electric shocks, break-down or malfunction.
- **Do not modify the unit.**
  It could cause electric shocks, fire, or break-down.
- **Be sure to turn OFF the power circuit breaker before repairing/inspecting the unit.**
  Repairing/inspecting the unit with the power circuit breaker turned ON could cause electric shocks or injury.
- **Do not install the unit in appropriate environment or where inflammable gas could generate, flow in, accumulate or leak.**
  If the unit is used at places where air contains dense oil mist, steam, organic solvent vapor, corrosive gas (ammonium, sulfuric compound, acid, etc) or where acidic or alkaline solution, special spray, etc. are used, it could cause electric shocks, break-down, smoke or fire as a result of significant deterioration of its performance or corrosion.
- **Do not install the unit where water vapor is generated excessively or condensation occurs.**
  It could cause electric shocks, fire, or break-down.
- **Do not use the unit in a place where it gets wet, such as laundry room.**
  It could cause electric shocks, fire, or break-down.
- **Do not operate the unit with wet hands.**
  It could cause electric shocks.

⚠WARNING

- **Do not wash the unit with water.**
  It could cause electric shocks, fire, or break-down.
- **Use the specified cables for wiring, and connect them securely with care to protect electronic parts from external forces.**
  Improper connections or fixing could cause heat generation, fire, etc.
- **When installing the unit at a hospital, telecommunication facility, etc., take measures to suppress electric noises.**
  It could cause malfunction or break-down due to hazardous effects on the inverter, private power generator, high frequency medical equipment, radio communication equipment, etc.
  The influences transmitted from the remote control to medical or communication equipment could disrupt medical activities, video broadcasting or cause noise interference.
- **Do not leave the remote control with its PCB case removed.**
  If dew, water, insect, etc. enters through the hole, it could cause electric shocks, fire or break-down.

⚠CAUTION

- Do not install the wireless kit at the following places in order to avoid malfunction.
  It could cause break-down or deformation of remote control.
  (1) Places exposed to direct sunlight
  (2) Places near heat devices
  (3) High humidity places
  (4) Hot surface or cold surface enough to generate condensation
  (5) Places exposed to oil mist or steam directly
  (6) Uneven surface
  (7) Places affected by the direct air flow of the AC unit.
  (8) Places where the receiver is influenced by the fluorescent lamp (especially inverter type) or sunlight.
  (9) Places where the receiver is affected by infrared rays of any other communication devices.
  (10) Places where some object may obstruct the communication with the remote control

① Accessories

Please make sure that you have all of the following accessories.

① Receiver		1
② Parts set		1
③ Installation manual		1

① Wireless remote control		1
② Remote control holder		1
③ Screw for holder		2
④ AAA dry cell battery (LR03)		2
⑤ User's manual		1

② Preparation before installation

Setting on site

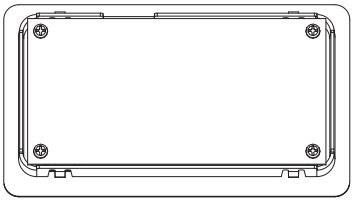
PCB on the receiver has the following switches to set the function.
Default setting is shown with [ ] mark.

SW1-1	Prevents interference during plural setting	[ON : Normal] OFF : Customized
SW1-2	Receiver master/slave setting	[ON : Master] OFF : Slave
SW1-3	Buzzer	[ON : Valid] OFF : Invalid
SW1-4	Auto restart	ON : Valid [OFF : Invalid]

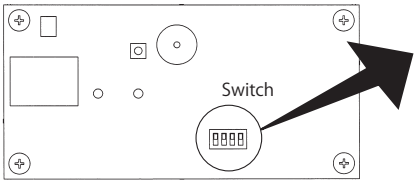
② Preparation before installation (continued)

To change setting

1. Remove four screws located on the back of the receiver and detach the board.
2. Change the setting by the switch on PCB.



Receiver backside



Default settings

Master/Slave setting when using plural remote controls

Up to two receiver or wired remote control can be installed in one indoor unit group. When two receiver or wired remote control are used, it is necessary to change SW on the PCB to set it as slave.

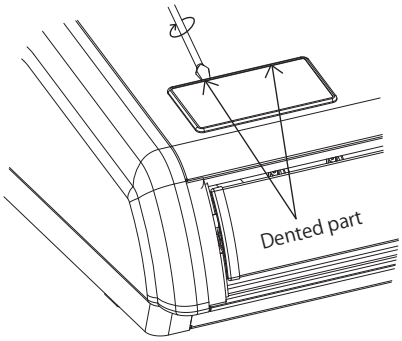
3. When SW1-1 is turned to OFF position, change the wireless remote control setting. For the method of changing the setting, refer to Setting to avoid mixed communication of ④ Wireless remote control .

*The receivable area of the signal refer to ⑤ Receiver .

③ How to install the receiver

The receiver can be installed by replacing with a cover of the panel.

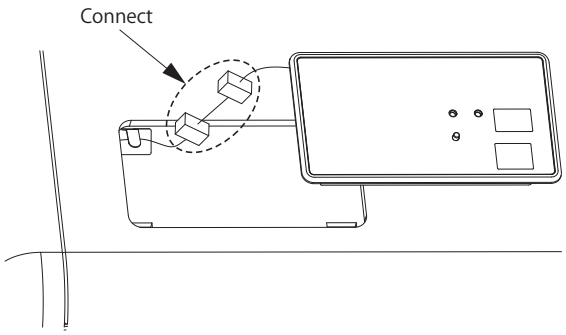
CAUTION: When installing the receiver after unit has been fixed, injury due to falling may result because of working at high place.

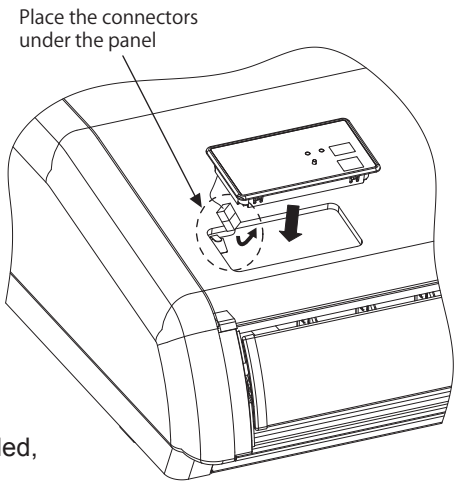


① **Remove the cover**
Insert a flat-blade screw driver into the dented part (2 places), and wrench slightly.

② **Connect the wiring**
Connect wiring of the receiver to the wiring in the back.

ATTENTION: Do not remove the clamp fixed the wiring.





③ **Installation of the receiver**
Check direction of the receiver, and fix to the panel.

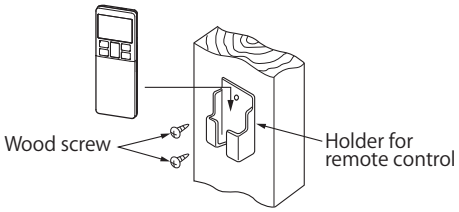
CAUTION: Connect the connectors before installing the receiver. In case of connecting after the receiver had been installed, it will be necessary to remove the panel.

④ Wireless remote control

Installation tips for the remote control holder

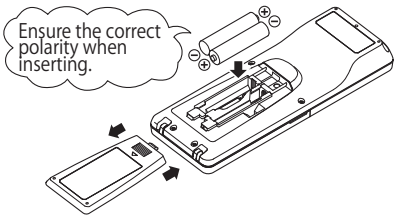
Fix the remote control holder using the screws supplied with this product.

* Precautions for installing the holder
- Adjust the position so that it is upright.
- Ensure that the screw heads are not protruding.
- Do not attach the holder on plaster wall



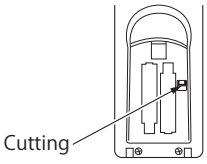
How to insert batteries

1. Detach the back lid.
2. Insert the batteries. (two AAA batteries)
3. Reattach the back lid.



Setting to avoid mixed communication

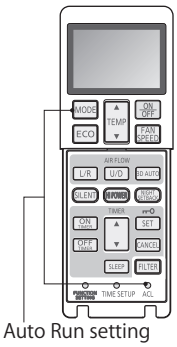
1. Detach the back lid, and remove the batteries.
2. Cut off the switching wire in the battery compartment using nippers.
3. Insert the batteries, and attach the back lid.



Changing the wireless remote control setting

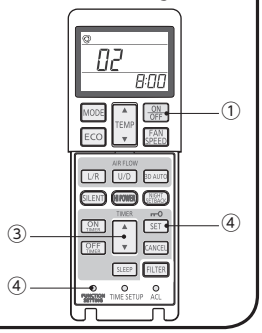
How to change the Auto Run setting
The Auto Run mode is not available on the building air-conditioner and gas heat pump series (excluding the cooling/heating free multi system).
When using the wireless remote control to operate those models, set the wireless remote control to disable the Auto Run mode.
To disable the Auto Run mode, press the ACL switch while holding down the MODE button, or insert batteries while holding down the MODE button.

* Note: Once the batteries are removed, the setting is reset to the factory default.
When the batteries are removed, repeat the steps described above.



Indoor function settings

1. How to set indoor functions
   ① Press the ON/OFF button to stop the unit.
   ② Press the desired one of the buttons shown item **2.** while holding down the FUNCTION SETTING switch.
   ③ Use the selection buttons, ▲ and ▼, to change the setting.
   ④ Press the SET button.
   The buzzer on the wireless remote control signal receiver beeps twice, and the LED lamp flashes four times at two-second intervals.



④ Wireless remote control (continued)

2. Setting details
   The following functions can be set.

Button	Number indicator	Function setting
FAN SPEED	00	Fun speed setting : Standard
	01	Fun speed setting : Setting 1 *
	02	Fun speed setting : Setting 2 *
MODE	00	Room heating temperature adjustment : Disable
	01	Room heating temperature adjustment : +1°C
	02	Room heating temperature adjustment : +2°C
	03	Room heating temperature adjustment : +3°C
FILTER	00	Filter sign display : OFF
	01	Filter sign display : 180 hours
	02	Filter sign display : 600 hours
	03	Filter sign display : 1000 hours
	04	Filter sign display : Operation stop after 1000 hours have elapsed
U/P (Up/Down)	00	Anti draft setting : Disable
	01	Anti draft setting : Enable
SILENT	00	Infrared sensor setting (Motion sensor setting) : Disable
	01	Infrared sensor setting (Motion sensor setting) : Enable
HI POWER	00	Infrared sensor control (Motion sensor control) : Disable
	01	Infrared sensor control (Motion sensor control) : Power control only
	02	Infrared sensor control (Motion sensor control) : Auto OFF only
	03	Infrared sensor control (Motion sensor control) : Power control + Auto OFF
ON TIMER	00	Cooling fan residual-period running : Disable
	01	Cooling fan residual-period running : 0.5 hours
	02	Cooling fan residual-period running : 2 hours
	03	Cooling fan residual-period running : 6 hours
OFF TIMER	00	Heating fan residual-period running : Disable
	01	Heating fan residual-period running : 0.5 hours
	02	Heating fan residual-period running : 2 hours
	03	Heating fan residual-period running : 6 hours
NIGHT SETBACK	00	Remote control signal receiver LED : Brightness High
	01	Remote control signal receiver LED : Brightness Low
	02	Remote control signal receiver LED : OFF

* Refer to technical data.

⑤ Receiver

1 Control plural indoor units with one remote control

Up to 16 indoor units can be connected.

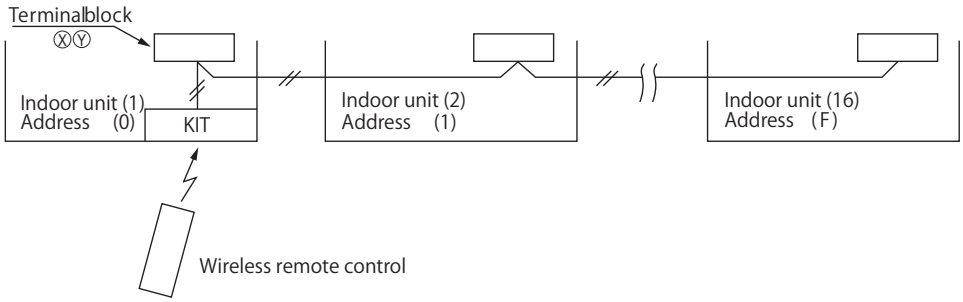
1. Connect the XY terminal with 2 cores wire. As for the size, refer to the following note.
2. For Packaged air-conditioner series, set the indoor unit address with SW2 on the indoor unit PCB from [0] to [F] so as not to duplicate.

Restrictions on the thickness and length of wire (Maximun total extension 600m.)

Standard	Within 0.3 mm² × 100m
	Within 0.5 mm² × 200m
	Within 0.75mm² × 300m
	Within 1.25mm² × 400m
	Within 2.0 mm² × 600m

For the shop series

For VRF series, set the indoor unit address with SW1, SW2 and SW5-2 on the indoor unit PCB from [000] to [127] so as not to duplicate.

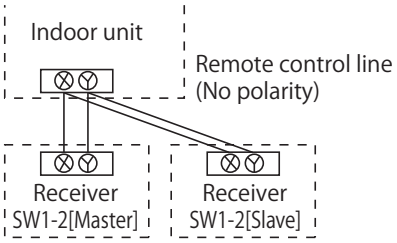


For the building air-conditioner and gas heat pump series

Set the indoor unit and outdoor unit numbers by manually specifying the addresses.
Use the rotary switchs SW1 and SW2 provided on the indoor unit PCB (printed circuit board) to set the indoor unit numbers so that they are not duplicated.

Master/Slave setting when using plural remote control

Up to two receivers can be installed in one indoor unit group.

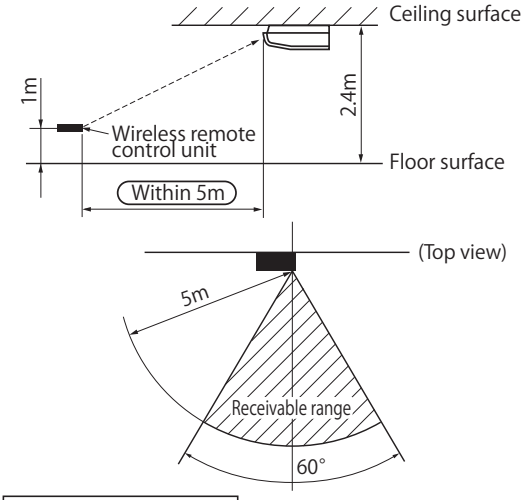


Switch	Setting	Function
SW1-2	ON	Master
	OFF	Slave

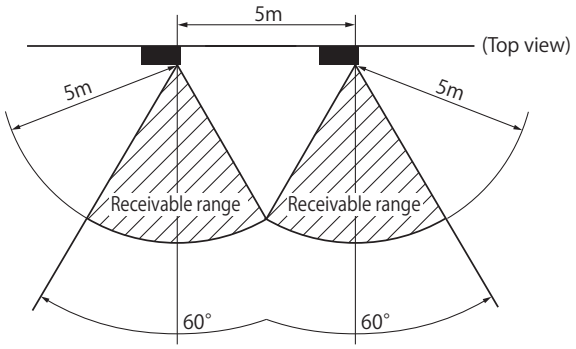
⑤ Receiver (continued)

Wireless remote control's operable area

1. Standard signal receiving range
   [Condition]
   Illuminance at the receiver area: 360 lux.
   (When no lighting fixture is located within 1m of indoor unit in an ordinary office)

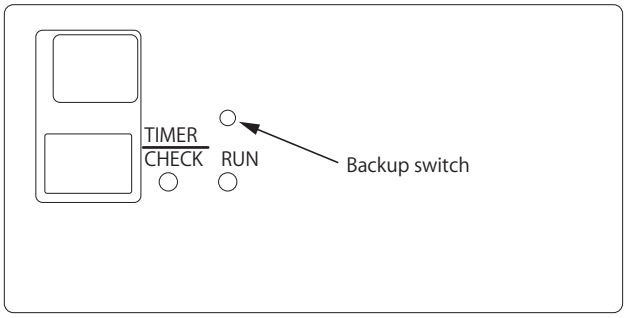


2. Points for attention in connecting a plural number of indoor units
   [Condition]
   Illuminance at the receiver area: 360 lux.



Backup switch

A backup switch is provided on the receiver section of the panel surface.
When operation from the wireless remote control unit is not possible (due to flat batteries, a mislaid unit, a unit failure), you can use it as an emergency means. You should operate this switch manually.



1. If pressed while the air-conditioner is in a halt, it will cause the air-conditioner to start operation in the automatic mode (in the case of cooling only, in the cooling mode).
   Wind speed: Hi fan, Temperature setting: 23°C, Louver: horizontal.
2. If pressed while the air-conditioner is in operation, it will stop the air-conditioner.

Cooling test run operation

- After safety confirmation, turn on the power.
- Transmit a cooling operation command with the wireless remote control unit, while the backup switch on the receiver is depressed.
- If the backup switch on the receiver is pressed during a test run, it will end the test run.
- If you cannot operate the unit properly during a test run, please check wiring by consulting with inspection guides.

How to read the two-digit display

A two-digit indicator (7-segment indicator) is provided on the receiver section.

1. An indication will be displayed for one hour after power on.
2. An indication appears for 3.5 seconds when a “Stop” command is sent from the wireless remote control unit while the air-conditioner is not running.
3. An indication appearing in (1) or (2) above will go off as soon as the unit starts operation.
4. When there are no error records to indicate, addresses are displayed for all of the connected units.
5. When there are some error records remaining, the error records are displayed.
6. Error records can be cleared by transmitting a “Stop” command from the wireless remote control unit, while the backup switch is depressed.

(3) FDUM series (RCN-KIT4-E2)

PJZ012D112A

Safety precautions

●Please read this manual carefully before starting installation work to install the unit properly.
Every one of the followings is important information to be observed strictly.
⚠WARNING Failure to follow these instructions properly may result in serious consequences such as death, severe injury, etc.
⚠CAUTION Failure to follow these instructions properly may cause injury or property damage. It could have serious consequences depending on the circumstances.
●The following pictograms are used in the text.

⃠	Never do.	❗	Always follow the instructions given.

●Keep this manual at a safe place where you can consult with whenever necessary. Show this manual to installers when moving or repairing the unit. When the ownership of the unit is transferred, this manual should be given to a new owner.

⚠WARNING

- **Consult your dealer or a professional contractor to install the unit.**
  Improper installation made on your own may cause electric shocks, fire or dropping of the unit.
- **Installation work should be performed properly according to this installation manual.**
  Improper installation work may result in electric shocks, fire or break-down.
- **Be sure to use accessories and specified parts for installation work.**
  Use of unspecified parts may result in drop, fire or electric shocks.
- **Install the unit properly to a place with sufficient strength to hold the weight.**
  If the place is not strong enough, the unit may drop and cause injury.
- **Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.**
  Power source with insufficient and improper work can cause electric shock and fire.
- **Shut OFF the main power source before starting electrical work.**
  Otherwise, it could result in electric shocks, break-down or malfunction.
- **Do not modify the unit.**
  It could cause electric shocks, fire, or break-down.
- **Be sure to turn OFF the power circuit breaker before repairing/inspecting the unit.**
  Repairing/inspecting the unit with the power circuit breaker turned ON could cause electric shocks or injury.
- **Do not install the unit in appropriate environment or where inflammable gas could generate, flow in, accumulate or leak.**
  If the unit is used at places where air contains dense oil mist, steam, organic solvent vapor, corrosive gas (ammonium, sulfuric compound, acid, etc) or where acidic or alkaline solution, special spray, etc. are used, it could cause electric shocks, break-down, smoke or fire as a result of significant deterioration of its performance or corrosion.
- **Do not install the unit where water vapor is generated excessively or condensation occurs.**
  It could cause electric shocks, fire, or break-down.
- **Do not use the unit in a place where it gets wet, such as laundry room.**
  It could cause electric shocks, fire, or break-down.
- **Do not operate the unit with wet hands.**
  It could cause electric shocks.

⚠WARNING

- **Do not wash the unit with water.**
  It could cause electric shocks, fire, or break-down.
- **Use the specified cables for wiring, and connect them securely with care to protect electronic parts from external forces.**
  Improper connections or fixing could cause heat generation, fire, etc.
- **When installing the unit at a hospital, telecommunication facility, etc., take measures to suppress electric noises.**
  It could cause malfunction or break-down due to hazardous effects on the inverter, private power generator, high frequency medical equipment, radio communication equipment, etc.
  The influences transmitted from the remote control to medical or communication equipment could disrupt medical activities, video broadcasting or cause noise interference.
- **Do not leave the remote control with its PCB case removed.**
  If dew, water, insect, etc. enters through the hole, it could cause electric shocks, fire or break-down.

⚠CAUTION

- Do not install the wireless kit at the following places in order to avoid malfunction.
  It could cause break-down or deformation of remote control.
  (1) Places exposed to direct sunlight
  (2) Places near heat devices
  (3) High humidity places
  (4) Hot surface or cold surface enough to generate condensation
  (5) Places exposed to oil mist or steam directly
  (6) Uneven surface
  (7) Places affected by the direct air flow of the AC unit.
  (8) Places where the receiver is influenced by the fluorescent lamp (especially inverter type) or sunlight.
  (9) Places where the receiver is affected by infrared rays of any other communication devices.
  (10) Places where some object may obstruct the communication with the remote control.

① Accessories

Please make sure that you have all of the following accessories.

① Receiver		1
② Wiring (3m)		1
③ Parts set (A)		1
④ Parts set (B)		1
⑤ Parts set (C)		1
⑥ Installation manual		1

① Wireless remote control		1
② Remote control holder		1
③ Screw for holder		2
④ AAA dry cell battery (LR03)		2
⑤ User's manual		1

① Screw for receiver		2
② Fixing band		1
③ Clamp		5
④ Screw for clamp		5

① Receiver installation bracket		1
② Screw for the bracket		2
③ Installation fitting		2

② Preparation before installation

Setting on site

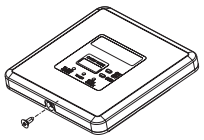
PCB on the receiver has the following switches to set the function. Default setting is shown with ☐ mark.

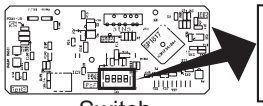
SW1-1	Prevents interference during plural setting	☐ ON : Normal	OFF : Customized
SW1-2	Receiver master/ slave setting	☐ ON : Master	OFF : Slave
SW1-3			
SW1-4	Auto restart	ON : Valid	☐ OFF : Invalid

② Preparation before installation (continued)

To change setting

1. Remove one screws located on the under of the receiver and detach the board.
2. Change the setting by the switch on PCB.





Switch

Default settings

3. When SW1-1 is turned to OFF position, change the wireless remote control setting. For the method of changing the setting, refer to Setting to avoid mixed communication of ④ Wireless remote control .

*The receivable area of the signal refer to ⑤ Receiver .

Master/Slave setting when using plural remote controls

Up to two receiver or wired remote control can be installed in one indoor unit group.
When two receiver or wired remote control are used, it is necessary to change SW on the PCB to set it as slave.

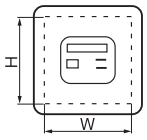
③ How to install the receiver

The following two methods can be used to install the receiver onto a ceiling or a wall.
Select a method according to the installation position.

<Installation position> (A) Direct installation onto the ceiling with wood screws.
(B) Installation with accessory's bracket

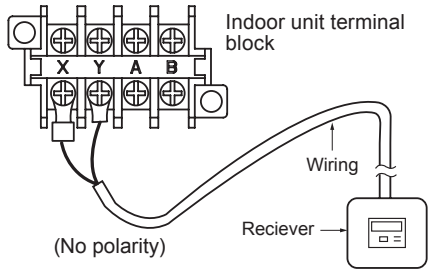
(1) Drilling of the ceiling (ceiling opening)

Drill the receiver installation holes with the dimensions shown right at the ceiling position where wires can be connected.



(A) Direct installation onto the ceiling with wood screws.	88mm(H)×101mm(W)
(B) Installation with enclosed bracket	108mm(H)×108mm(W)

(2) Wiring connection of receiver



⚠ Caution

Do not connect the wiring to the power source of the terminal block. If it is connected, printed board will be damaged.

(3) Installation of the receiver

Remove the screw on the side of the receiver and sprit it into the upper case and lower case.
Install the receiver with one of the two installation methods (A) to (C) shown below.

(A) Direct installation onto the ceiling with screws

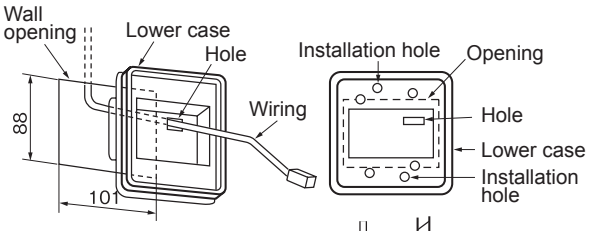
▷ Use this installation method when the ceiling is wooden, and there is no problem for strength in installing directly with wood screws.

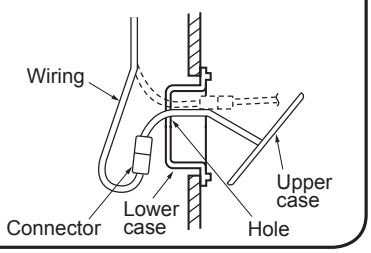
① Put through the wiring from the back side to the hole of the lower case.

② Fit the lower case into the ceiling opening. Make sure that the clearance between the convex part of the back of the lower case and the ceiling opening must be as equal as possible on both sides.

③ Using the two installation holes shown right, fix the lower case onto the ceiling with the enclosed wood screws. (The other four holes are not used.)

④ Connect the wiring with the wiring from the upper case by the connector.



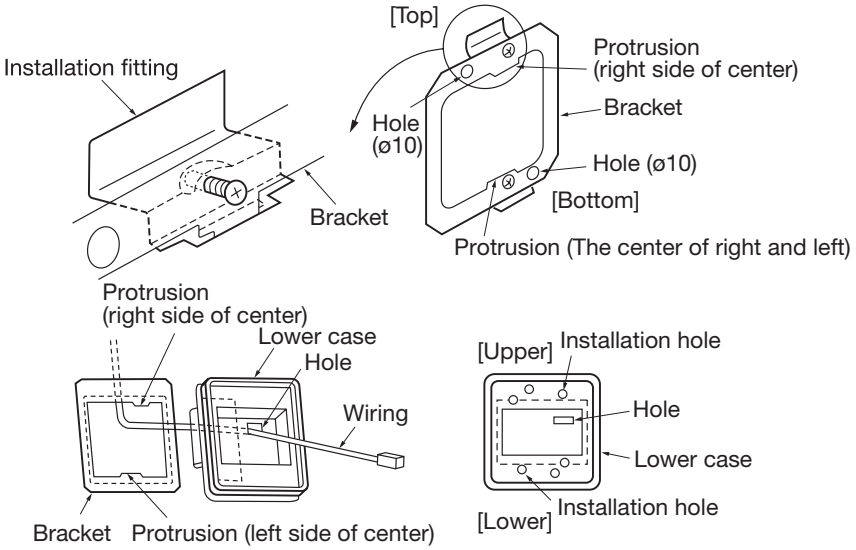


③ How to install the receiver(continued)

⑤ Take out the connector to the backside from the hole of the lower case putting through the wiring at ①.
⑥ Fit the upper case and the lower case, and tighten the screws.

(B) Installation with enclosed bracket

Use this method when installaing onto a gypsum board (7 to 18mm), etc.

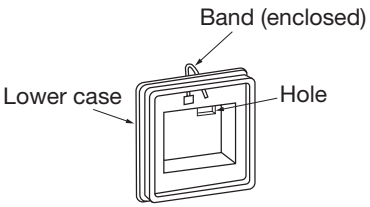


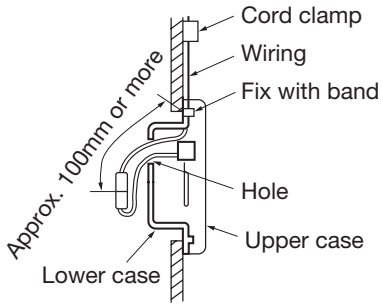
① Catch the two protrusion of the enclosed bracket onto the fitting as shown above, and temporarily fix with the screws. (The bracket has an Upper/Lower and front/back orientation. Confirm the Upper/Lower protrusion positions and the positional relation of the ø10 holes on the bracket and the installation hole on the lower case with the above drawing.)
② Insert the end of the installation fitting into the back of the ceiling from the opening, and tighten the screws to fix the bracket onto the ceiling.
③ Pass the wiring from the rear side through the hole on the lower case.
④ Fit the lower case onto the bracket, and fix the lower case to the bracket using the two installation holes shown above. (The other four holes are not used.)
⑤ Follow step ① to ⑥ for (A) to complete the installation.

③ How to install the receiver (continued)

(C) Exposed installation

Use the following procedure when installing the case with the wiring exposed.





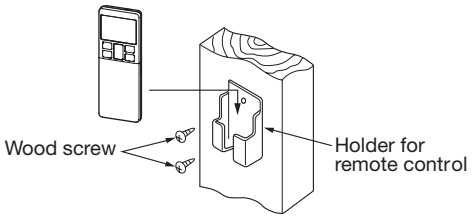
① Cut off the thin section on the side of the upper case with a pair of nippers or a knife, and remove the burrs with a file, etc. (The wiring is passed through this section.)
② Pass the enclosed band through the wiring outlet hole on the lower case.
③ Use on of the light detection adaptor installation methods (A) or (B) explained in section 3, and fix the lower case onto the wall. Do not pass the wiring through the hole on the lower case.
④ Fix the wiring using the band while leaving the wiring length from the band fixing section to the end of the wiring connector at 100mm or more.
⑤ Connect the wiring with the wiring protruding front the upper case using a connector.
⑥ Pass the connected connector and the excess wiring through the hole on the lower case.
⑦ Fit the upper case onto the lower case, and tighten the screws.
⑧ Adequately fix the wiring with the enclesed cord clamp.

④ Wireless remote control

Installation tips for the remote control holder

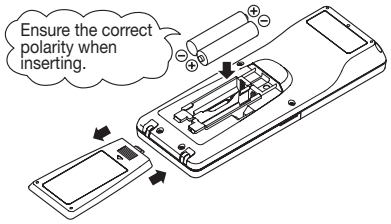
Fix the remote control holder using the screws supplied with this product.

* Precautions for installing the holder
- Adjust the position so that it is upright.
- Ensure that the screw heads are not protruding.
- Do not attach the holder on plaster wall.



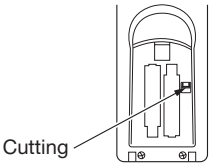
How to insert batteries

1. Detach the back lid.
2. Insert the batteries. (two AAA batteries)
3. Reattach the back lid.



Setting to avoid mixed communication

1. Detach the back lid, and remove the batteries.
2. Cut off the switching wire in the battery compartment using nippers.
3. Insert the batteries, and attach the back lid.

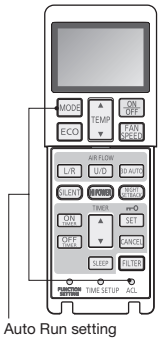


④ Wireless remote control (continued)

Changing the wireless remote control setting

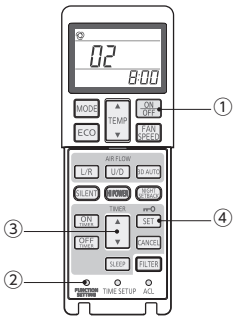
How to change the Auto Run setting
The Auto Run mode is not available on the building air-conditioner and gas heat pump series (excluding the cooling/heating free multi system).
When using the wireless remote control to operate those models, set the wireless remote control to disable the Auto Run mode.
To disable the Auto Run mode, press the ACL switch while holding down the MODE button, or insert batteries while holding down the MODE button.

* Note: Once the batteries are removed, the setting is reset to the factory default.
When the batteries are removed, repeat the steps described above.



Indoor function settings

1. How to set indoor functions
   ① Press the ON/OFF button to stop the unit.
   ② Press the desired one of the buttons shown below while holding down the FUNCTION SETTING switch.
   ③ Use the selection buttons, ▲ and ▼, to change the setting.
   ④ Press the SET button.
   The buzzer on the wireless remote control signal receiver beeps twice, and the LED lamp flashes four times at two-second intervals.
2. Setting details
   The following functions can be set.



Button	Number indicator	Function setting
FAN SPEED	00	Fun speed setting : Standard
	01	Fun speed setting : Setting 1 *
	02	Fun speed setting : Setting 2 *
MODE	00	Room heating temperature adjustment : Disable
	01	Room heating temperature adjustment : +1°C
	02	Room heating temperature adjustment : +2°C
	03	Room heating temperature adjustment : +3°C
FILTER	00	Filter sign display : OFF
	01	Filter sign display : 180 hours
	02	Filter sign display : 600 hours
	03	Filter sign display : 1000 hours
	04	Filter sign display : Operation stop after 1000 hours have elapsed
U/P	00	Anti draft setting : Disable
	01	Anti draft setting : Enable
SILENT	00	Infrared sensor setting (Motion sensor setting) : Disable
	01	Infrared sensor setting (Motion sensor setting) : Enable
HI POWER	00	Infrared sensor control (Motion sensor control) : Disable
	01	Infrared sensor control (Motion sensor control) : Power control only
	02	Infrared sensor control (Motion sensor control) : Auto OFF only
	03	Infrared sensor control (Motion sensor control) : Power control and Auto OFF

Button	Number indicator	Function setting
ON TIMER	00	Cooling fan residual-period running : Disable
	01	Cooling fan residual-period running : 0.5 hours
	02	Cooling fan residual-period running : 2 hours
	03	Cooling fan residual-period running : 6 hours
OFF TIMER	00	Heating fan residual-period running : Disable
	01	Heating fan residual-period running : 0.5 hours
	02	Heating fan residual-period running : 2 hours
	03	Heating fan residual-period running : 6 hours
NIGHT SETBACK	00	Remote control signal receiver LED : Brightness High
	01	Remote control signal receiver LED : Brightness Low
	02	Remote control signal receiver LED : OFF

* Refer to technical data.

⑤ Receiver

1 Control plural indoor units with one remote control

Up to 16 indoor units can be connected.

1. Connect the XY terminal with 2 cores wire. As for the size, refer to the following note.
2. For Packaged air-conditioner series, set the indoor unit address with SW2 on the indoor unit PCB from [0] to [F] so as not to duplicate.

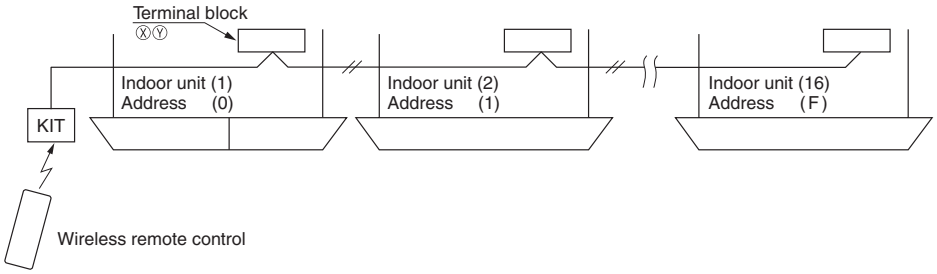
Restrictions on the thickness and length of wire (Maximun total extension 600m.)

Standard	Within 0.3 mm² × 100m
	Within 0.5 mm² × 200m
	Within 0.75mm² × 300m
	Within 1.25mm² × 400m
	Within 2.0 mm² × 600m

⑤ Receiver (continued)

For the shop series

For VRF series, set the indoor unit address with SW1, SW2 and SW5-2 on the indoor unit PCB from [000] to [127] so as not to duplicate.

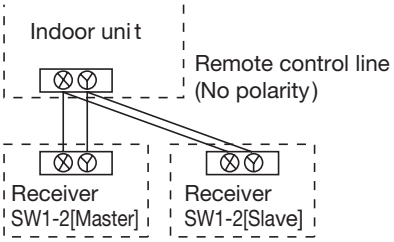


For the building air-conditioner and gas heat pump series

Set the indoor unit and outdoor unit numbers by manually specifying the addresses.
Use the rotary switchs SW1 and SW2 provided on the indoor unit PCB (printed circuit board) to set the indoor unit numbers so that they are not duplicated.

Master/Slave setting when using plural remote control

Up to two receivers can be installed in one indoor unit group.

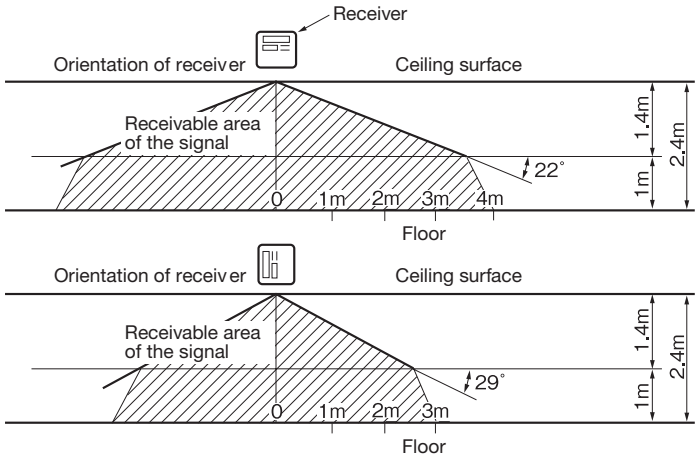


Switch	Setting	Function
SW1-2	ON	Master
	OFF	Slave

When installed on ceiling

1. Standard reachable area of the signa

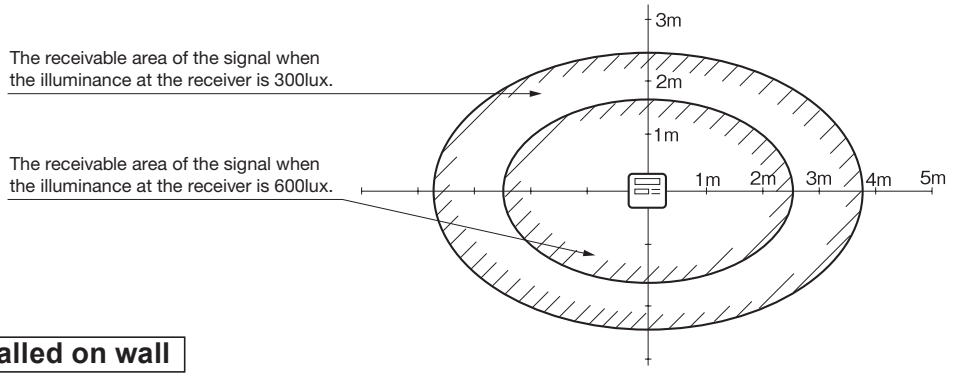
[Condition] Illuminance at the receiver : **300lux** (when no lighting is installed within 1m of the receiver in an ordinary office.)



2. Correlation between illuminance at the receiver and reachable area of the signal in a plain view.

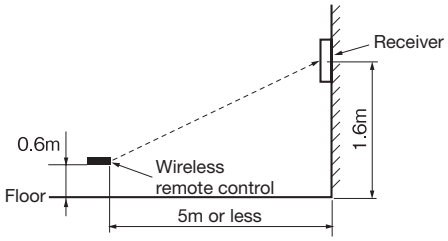
[Condition] Correlation between the reachable area of the signal and illuminance at the receiver when the wireless remote control is operated at 1m high under the condition of ceiling height of 2.4m. When the illuminance becomes double, the area is narrowed down to two third.

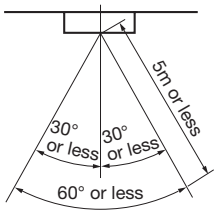
⑤ Receiver (continued)



When installed on wall

[Condition] Illuminance at the receiver : 800lux.

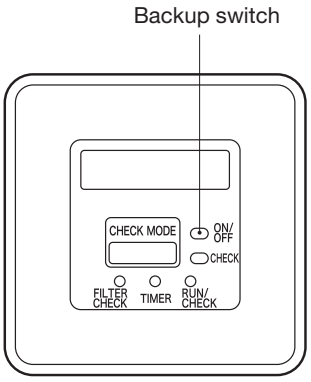




Backup switch

A backup switch is provided on the receiver section of the panel surface. When operation from the wireless remote control unit is not possible (due to flat batteries, a mislaid unit, a unit failure), you can use it as an emergency means. You should operate this switch manually.

1. If pressed while the air-conditioner is in a halt, it will cause the air-conditioner to start operation in the automatic mode (in the case of cooling only, in the cooling mode). Wind speed: Hi fan, Temperature setting: 23°C, Louver: horizontal
2. If pressed while the air-conditioner is in operation, it will stop the air-conditioner.



Cooling test run operation

- After safety confirmation, turn on the power.
- Transmit a cooling operation command with the wireless remote control unit, while the backup switch on the receiver is depressed.
- If the backup switch on the receiver is pressed during a test run, it will end the test run.
- If you cannot operate the unit properly during a test run, please check wiring by consulting with inspection guides.

How to read the 6-digit display

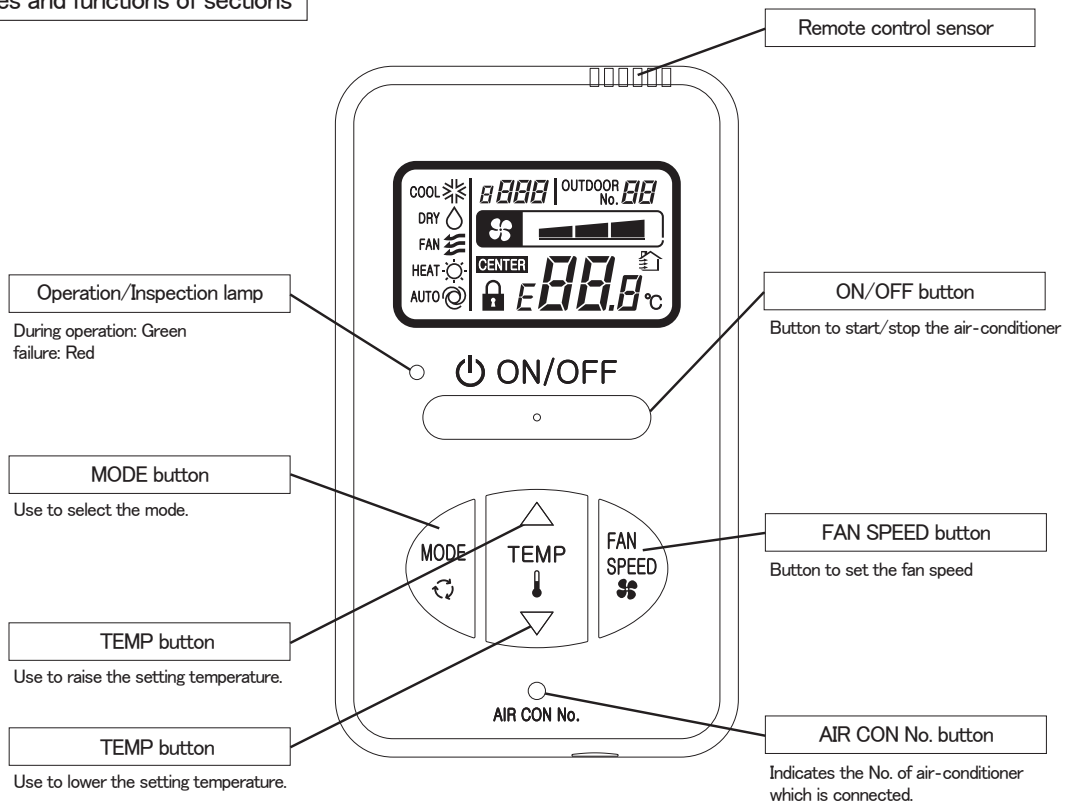
A 6-digit indicator (7-segment indicator) is provided on the receiver section.

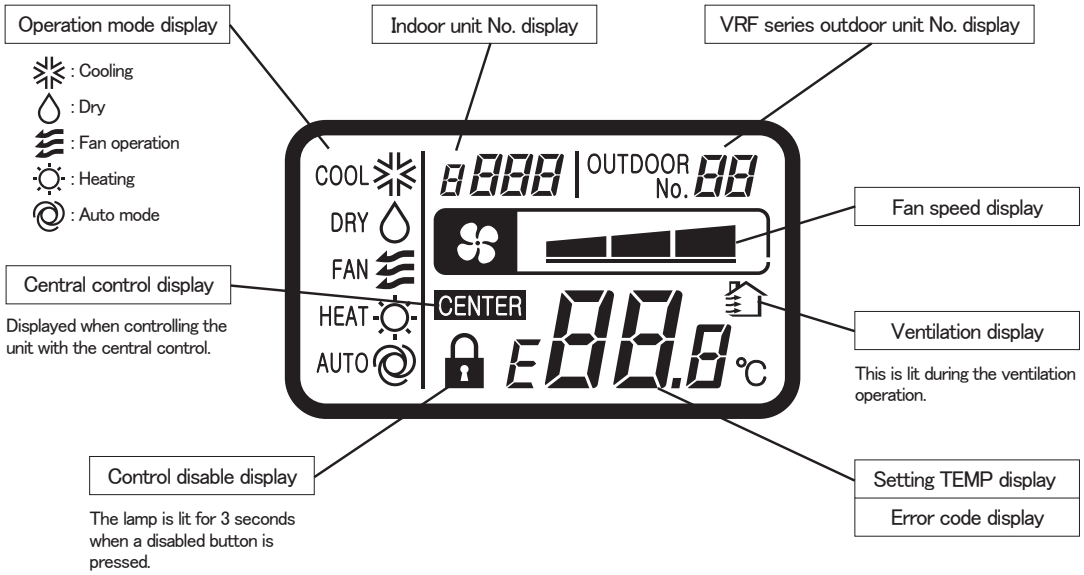
1. An indication will be displayed for one hour after power on.
2. An indication appears for 3.5 seconds when a “Stop” command is sent from the wireless remote control unit while the air-conditioner is not running.
3. An indication appearing in (1) or (2) above will go off as soon as the unit starts operation.
4. When there are no error records to indicate, addresses are displayed for all of the connected units.
5. When there are some error records remaining, the error records are displayed.
6. Error records can be cleared by transmitting a “Stop” command from the wireless remote control unit, while the backup switch is depressed.

12.3 Simple wired remote control (RCH-E3)

Notes:
Following functions of FDU indoor unit series are not able to be set with this simple wired remote control (RCH-E3).
1. 4-fan speed setting (P-Hi/Hi/Me/Lo)→ 3-fan speed setting (Hi/Me/Lo)

Names and functions of sections





Installation of remote control

Do not install the remote control at the following places in order to avoid malfunction.

(1) Places exposed to direct sunlight
(2) Places near heat devices
(3) High humidity places
(4) Hot surface or cold surface enough to generate condensation
(5) Places exposed to oil mist or steam directly
(6) Uneven surface

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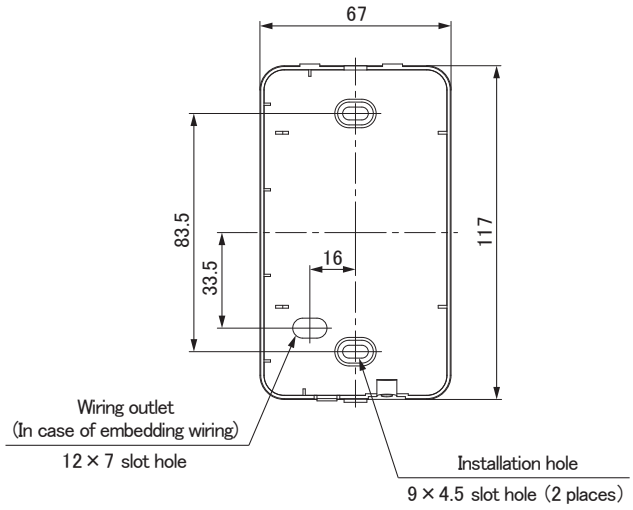
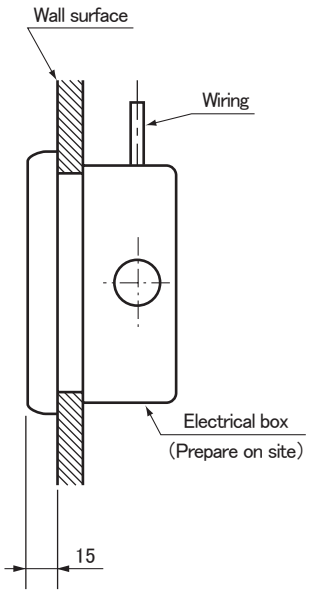
Remote control installation dimensions

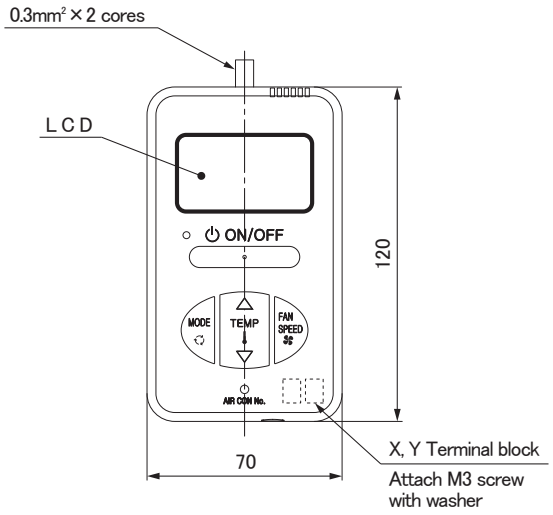


Note: Installation screw for remote control
M4 screw (2 pieces)

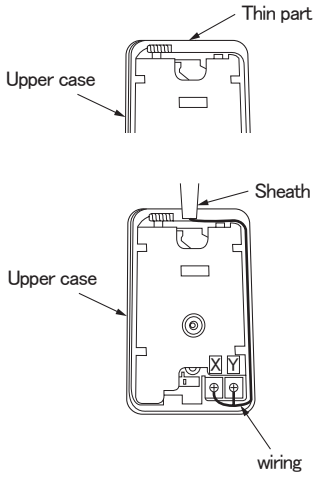
In case of embedding wiring



In case of exposing wiring

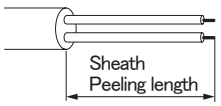


The remote control wiring can be extracted from the upper center.
After the thin part in the upper side of the remote control upper case is scraped with a nipper or knife, remove burr with a file.



The peeling length of each wiring is as follows:

X wiring : 160mm
Y wiring : 150mm



Wiring specifications

(1) Wiring of remote control should use 0.3mm² × 2 cores wires or cables. (on-site configuration)
(2) Maximum prolongation of remote control wiring is 600m.
If the prolongation is over 100m, change to the size below.
But, the wiring in the remote control case should be 0.3mm² (recommended) to 0.5mm².
Change the wire size outside of the case according to wire connecting. Waterproof treatment is necessary at the wire
connecting section. Be careful about contact failure.

Unit:mm

Length	Wiring thickness
100 to 200m	0.5mm² × 2 cores
Under 300m	0.75mm² × 2 cores
Under 400m	1.25mm² × 2 cores
Under 600m	2.0mm² × 2 cores

Adapted to **RoHS** directive

Simple Remote Control Installation Manual

PJZ012D069 A

Read together with indoor unit's installation manual.

⚠WARNING

- **Fasten the wiring to the terminal securely and hold the cable securely so as not to apply unexpected stress on the terminal.**
  Loose connection or hold will cause abnormal heat generation or fire.
- **Make sure the power source is turned off when electric wiring work.**
  Otherwise, electric shock, malfunction and improper running may occur.

⚠ CAUTION

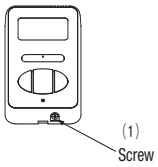
- **Do not install the remote control at the following places in order to avoid malfunction.**
  (1) Places exposed to direct sunlight
  (2) Places near heat devices
  (3) High humidity places
  (4) Hot surface or cold surface enough to generate condensation
  (5) Places exposed to oil mist or steam directly
  (6) Uneven surface
- **Do not leave the remote control without the upper case.**
  In case the upper cace needs to be detached, protect the remote control with a packaging box or bag in order to keep it away from water and dust.

Accessories	Remote control, wood screw (ϕ3.5×16) 2 pieces
Prepare on site	Remote control cord (2 cores) (Refer to [2. Installation and wiring of remote control]) [In case of embedding cord] Electrical box, M4 screw (2 pieces) [In case of exposing cord] Cord clamp (if needed)

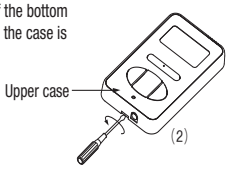
1. Installation procedure

In case of embedding cord

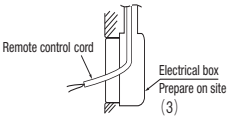
(1) Make certain to remove the screw on the bottom surface of the remote control.



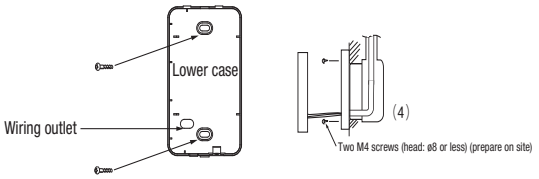
(2) Remove the upper case of the remote control.
Insert a flat-blade screwdriver to a concave portion of the bottom surface of the remote control and slightly twist it, and the case is removed.



(3) Pre-bury the electrical box and remote control cord.



(4) Prepare two M4 screws (recommended length: 12 – 16mm), and install the lower case to the electrical box.
Do not use a screw whose screw head is larger than the height of the wall around the screw hole.

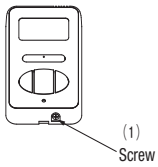


(5) Connect the remote control cord to the terminal block.
Connect the terminals (X and Y) of the remote control and the terminals (X and Y) of the indoor unit. (No polarity of X and Y)

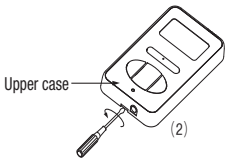
(6) Mount the upper case for restoring to its former state so as not to crimp the remote control cord, and secure with the removed screw.

In case of exposing cord

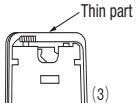
(1) Make certain to remove a screw on the bottom surface of the remote control.



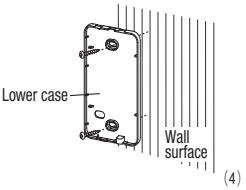
(2) Remove the upper case of the remote control.
Insert a flat-blade screwdriver to a concave portion of the bottom surface of the remote control and slightly twist it, and the case is removed.



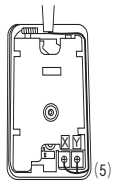
(3) The remote control cord can be extracted from the upper center.
After the thin part in the upper side of the remote control upper case is scraped with a nipper or knife, remove burr with a file.



(4) The lower case of the remote control is mounted to a flat wall with two accessory wood screws.

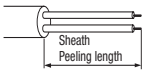


(5) Connect the remote control cord to the terminal block.
Connect the terminals (X and Y) of the remote control and the terminals (X and Y) of the indoor unit. (No polarity of X and Y)
The wiring route is as shown in the right.



The wiring in the remote control case should be 0.3 mm^2 (recommended) to 0.5 mm^2 at maximum.
Further, peel off the sheath.
The peeling length of each wiring is as follows:

X wiring : 160mm
Y wiring : 150mm



(6) Mount the upper case for restoring to its former state so as not to crimp the remote control cord, and secure with the removed screw.

(7) In the case of exposing installation, secure the remote control cord to the wall surface with a cord clamp so as not to loosen the remote control cord.

2. Installation and wiring of remote control

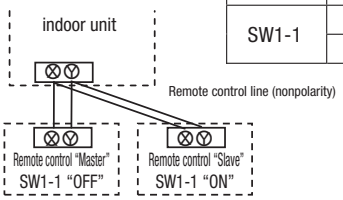
(1) Wiring of remote control should use 0.3mm^2 × 2 cores wires or cables. (on-site configuration)
(2) Maximum prolongation of remote control wiring is 600 m.
If the prolongation is over 100m, change to the size below.
But, the wiring in the remote control case should be 0.3mm^2 (recommended) to 0.5mm^2.
Change the wire size outside of the case according to wire connecting. Waterproof treatment is necessary at the wire connecting section. Be careful about contact failure.

100 - 200m·····0.5mm^2 × 2 cores
Under 300m·····0.75mm^2 × 2 cores
Under 400m·····1.25mm^2 × 2 cores
Under 600m·····2.0mm^2 × 2 cores

3. Master/ slave setting when more than one remote control are used

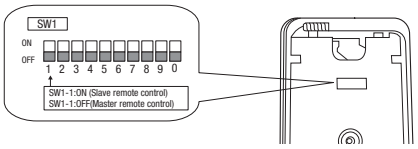
(1) Up to two remote controls can be connected to one unit (or one group) of indoor unit.

Switch	Setting	Function detail
SW1-1	ON	Slave remote control
	OFF	Master remote control



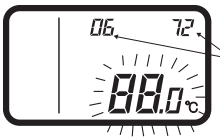
(2) Set the switch SW1-1 of the slave remote control is "Slave" (ON). The factory default is set as "Master" (OFF).

(Note) • The remote control sensor enabled setting can be set only to the master remote control.
• Install the master remote control at the position to detect room temperature.
• The air-conditioner operation follows the last operation of the remote control in case of the master / slave setting.



4. The indication when power source is supplied

(1) At the time of turning the power source on, after the light is on for the first 2 seconds, the display becomes as shown below.
The number displayed on the upper side of LCD in the remote control is the software number, and this is not an error code.



Software number
(The number in the left is one example. Another number may be shown.)

(2) Then, "88.0 ℃" blinks on the remote control until the communication between the remote control and the indoor unit is established.

(3) In the case of connecting one remote control with one unit (or one group) of indoor unit, make certain to set the master remote control (factory default).
If the slave remote control is set, a communication cannot be established.

(4) If a state where the communication between the remote control and the indoor unit cannot be established continues about for 30 minutes, "E" is displayed. Confirm the wiring of the indoor unit and the outdoor unit and master/slave setting of the remote control.

5. Confirmation method for return air temperature

Return air temperature can be confirmed by the remote control operation.

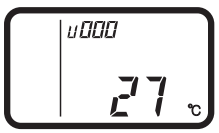
(1) **Press AIR CON No. button for over 5 seconds.**
"88" blinks on the temperature setting indicator.
("88" blinks for approximately 2 seconds while data are read.)
↓
Then, the return air temperature is displayed.
(Example) return air temperature: "27 °C" (blinking)

(Note) For the return air temperature, in the normal case, the return air temperature of the indoor unit is displayed; however, in the case that the remote control sensor is effective, detected temperature by the remote control sensor is displayed.

(2) **Press ⏻ ON/OFF button.**
End.

[In the case that the remote sensor is ineffective and plural indoor units are connected to one remote control]

(1) **Press AIR CON No. button for over 5 seconds.**
indoor unit No. indicator: "U 000" (blinking)
(Among the connected indoor units, the lowest number is displayed.)



(2) **Press TEMP△ or TEMP▽ button.**
Select the indoor unit No.

(3) **Press MODE button.**
Dectder the indoor unit No.
(Example) indoor unit No. indicator: "U 000"
"88" blinks on the temperature setting indicator. (blinking for approximately 2 to 10 seconds while data is read) Then, the return air temperature is displayed. When AIR CON No. is pressed, return to the indoor unit selection display (example, "U 000").

(4) **Press ⏻ ON/OFF button.**
End.

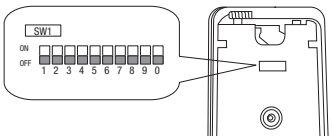
6. Function setting

Each function of the remote control and the indoor unit is automatically set to the initial setting, which is the standard use, on the occasion of connecting the remote control with the indoor unit. In the case of the standard use, the setting change is unnecessary. However, if you whould like to change the initial setting " ○ ", change the setting for only the item of the function number. **Record the setting contents and stored them.**

(1) Function setting item by switch on PCB

Switch No.	Setting	Setting detail	Initial setting
SW1-1	ON	Slave remote control	
	OFF	Master remote control	○
SW1-2	ON	Remote control sensor enabled	
	OFF	Remote control sensor disabled	○
SW1-3	ON	"MODE" button prohibited	
	OFF	"MODE" button enabled	○
SW1-4	ON	"ON/OFF" button prohibited	
	OFF	"ON/OFF" button enabled	○

Switch No.	Setting	Setting detail	Initial setting
SW1-5	ON	"TEMP" button prohibited	
	OFF	"TEMP" button enabled	○
SW1-6	ON	"FAN SPEED" button prohibited	※ Note 1
	OFF	"FAN SPEED" button enabled	※ Note 1
SW1-7	ON	Auto restart function enabled	
	OFF	Auto restart function disabled	○
SW1-8, 9, 0	ON	Not used	
	OFF		



- As for the slave remote control, function setting is impossible other than SW1-1.
- In the indoor unit with only one fan speed, "FAN SPEED" button cannot be enabled.

(2) Function setting item by button operation

Classification	Function No.	Function	Setting No.	Setting	Initial setting	Remarks
Remote control function	01	Indoor unit fan speed	01	Fan speed: three steps	※ Note 1	The fan speed is three steps, ❋▪▪■ - ❋▪▪■ - ❋▪■.
			02	Fan speed: two steps (Hi-Lo)	※ Note 1	The fan speed is two steps, ❋▪▪■ - ❋▪■.
			03	Fan speed: two steps (Hi-Me)		The fan speed is two steps, ❋▪▪■ - ❋▪▪■.
			04	Fan: one step	※ Note 1	The fan speed is fixed to one step.
	03	Remote control sensor at the time of cooling	01	Remote control sensor : no offset	○	
			02	Remote control sensor : +3.0 °C		At the time of cooling, in the case of remote control sensor enabled, offset temperature at +3.0°C.
			03	Remote control sensor : +2.0 °C		At the time of cooling, in the case of remote control sensor enabled, offset temperature at +2.0°C.
			04	Remote control sensor : +1.0 °C		At the time of cooling, in the case of remote control sensor enabled, offset temperature at +1.0°C.
			05	Remote control sensor : -1.0 °C		At the time of cooling, in the case of remote control sensor enabled, offset temperature at -1.0°C.
			06	Remote control sensor : -2.0 °C		At the time of cooling, in the case of remote control sensor enabled, offset temperature at -2.0°C.
			07	Remote control sensor : -3.0 °C		At the time of cooling, in the case of remote control sensor enabled, offsett temperature at -3.0°C.
	04	Remote control sensor at the time of heating	01	Remote control sensor : no offset	○	
			02	Remote control sensor : +3.0 °C		At the time of heating, in the case of remote control sensor enabled, offset temperature at +3.0°C.
			03	Remote control sensor : +2.0 °C		At the time of heating, in the case of remote control sensor enabled, offset temperature at +2.0°C.
			04	Remote control sensor : +1.0 °C		At the time of heating, in the case of remote control sensor enabled, offset temperature at +1.0°C.
			05	Remote control sensor : -1.0 °C		At the time of heating, in the case of remote control sensor enabled, offset temperature at -1.0°C.
			06	Remote control sensor : -2.0 °C		At the time of heating, in the case of remote control sensor enabled, offset temperature at -2.0°C.
			07	Remote control sensor : -3.0 °C		At the time of heating, in the case of remote control sensor enabled, offset temperature at -3.0°C.
	05	Ventilation setting	01	No ventilator connection	○	
			02	Ventilator links air-conditioner		In case of Single split series, by connecting ventilation device to CNT of the indoor printed circuit board (in case of VRF series, by connecting it to CND of the indoor printed circuit board), the operation of ventilation device is linked with the operation of indoor unit.
	06	"Auto" operation setting	01	"Auto" operation enabled	※ Note 1	
			02	"Auto" operation disabled	※ Note 1	"Auto" operation disabled
Indoor unit function	07	Operation permission/ prohibition	01	Disabled	○	
			02	Enabled		Operation permission/prohibition control is enabled.
	08	External input	01	Level input	○	
			02	Pulse input		
	09	Fan speed setting	01	Standard	Note2	
			02	High speed 1	Note2	
			03	High speed 2	Note2	
	10	Fan remaining operation at the time of cooling	01	No remaining operation	○	After cooling stopped, no fan remaining operation
			02	0.5 hours		After cooling stopped, fan remaining operation for 0.5 hours
			03	1 hour		After cooling stopped, fan remaining operation for 1 hour
			04	6 hours		After cooling stopped, fan remaining operation for 6 hours
	11	Fan remaining operation at the time of heating	01	No remaining operation	○	After heating stopped or after heating thermostat OFF, no fan remaining operation
			02	0.5 hours		After heating stopped or after heating thermostat OFF, fan remaining operation for 0.5 hours
			03	2 hours		After heating stopped or after heating thermostat OFF, fan remaining operation for 2 hours
			04	6 hours		After heating stopped or after heating thermostat OFF, fan remaining operation for 6 hours
	12	Setting temperature offset at the time of heating	01	No offset	○	
			02	Setting temperature offset + 3.0 °C		The setting temperature at the time of heating is offset by +3.0 °C.
			03	Setting temperature offset + 2.0 °C		The setting temperature at the time of heating is offset by +2.0 °C.
			04	Setting temperature offset + 1.0 °C		The setting temperature at the time of heating is offset by +1.0 °C.
	13	Heating fan controller	01	Low fan speed	※ Note 1	At the time of heating thermostat OFF, operate with low fan speed.
			02	Setting fan speed		At the time of heating thermostat OFF, operate with the setting fan speed.
			03	Intermittent operation	※ Note 1	At the time of heatingr thermostat OFF, intermittently operate.
			04	Fan off		At the time of heating thermostat OFF, a fan will be stopped. When the remote control sensor is enabled, automatically set to "Fan off". Do not set at the time of the indoor unit sensor.
	14	Return air temperature offset	01	No offset	○	
			02	Return air temperature offset +2.0 °C		Offset the return air temperature of the indoor unit by +2.0 °C.
			03	Return air temperature offset +1.5 °C		Offset the return air temperature of the indoor unit by +1.5 °C.
			04	Return air temperature offset +1.0 °C		Offset the return air temperature of the indoor unit by +1.0 °C.
			05	Return air temperature offset -1.0 °C		Offset the return air temperature of the indoor unit by -1.0 °C.
			06	Return air temperature offset -1.5 °C		Offset the return air temperature of the indoor unit by -1.5 °C.
			07	Return air temperature offset -2.0 °C		Offset the return air temperature of the indoor unit by -2.0 °C.

Note 1: The symbol " ※ " in the initial setting varies depending upon the indoor unit and the outdoor unit to be connected, and this is automatically determined as follows:

Swith No. Function No.	Function	Setting	Product model
SW1-6	"FAN SPEED" button	"FAN SPEED" button prohibited	Product model whose indoor fan speed is only one step
		"FAN SPEED" button enabled	Product model whose indoor fan speed is two steps or three steps
Remote control function 01	Indoor unit fan speed	Fan speed: three steps	Product model whose indoor unit fan speed is three steps
		Fan speed: two steps (Hi-Lo)	Product model whose indoor unit fan speed is two steps
		Fan speed: two steps (Hi-Me)	
		Fan: one step	Product model whose indoor unit fan speed is only one step
Remote control function 06	"Auto" operation setting	"Auto" operation enabled	Product model where "Auto" mode is selectable
		"Auto" operation disabled	Product model without "Auto" mode
Indoor unit function 13	Heating fan control	Low fan speed	Product model except FDUS
		Intermittent operation	FDUS

Note 2: Fan speed of "High speed" setting

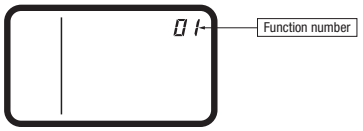
Fan speed setting	Indoor unit fan speed setting		
	❋▪▪■ - ❋▪▪■ - ❋▪■	❋▪▪■ - ❋▪■	❋▪▪■ - ❋▪▪■
Standard	Hi — Mid — Lo	Hi — Lo	Hi — Mid
High speed 1 ・ 2	UHi — Hi — Mid	UHi — Mid	UHi — Hi

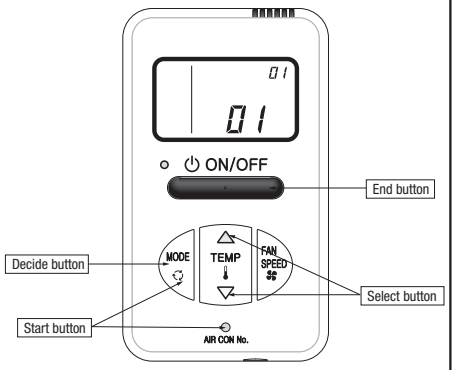
Initial setting of some indoor unit is "High speed".

Note 3: As for plural indoor unit, set indoor functions to each master and slave indoor unit.
But only master indoor unit is received the setting change of indoor unit function "07 Operation permission/ prohibition" and "08 External input".

7. How to set functions by button operation

(1) **Stop air-conditioner, and simultaneously press AIR CON No. and MODE buttons at the same time for over three seconds.**
The function number "01" blinks in the upper right.

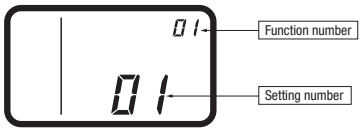




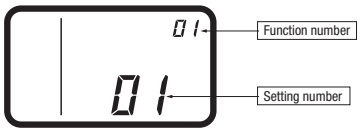
(2) **Press TEMP△ or TEMP▽ button.**
Select the function number.

(3) **Press MODE button.**
Decide the function number.

(4) **[In the case of selecting the remote control function (01-06)]**
① The current setting number of the selected function number blinks
(Example)
Function number: "01" (lighting)
Setting number: "01" (blinking)



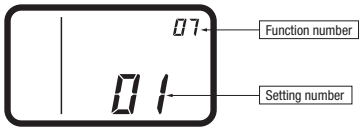
② **Press TEMP△ or TEMP▽ button.**
Select the setting number.
③ **Press MODE button.**
The setting is completed.
Light is on for approximately 3 to 20 seconds while data of the decided function No. and setting No. are transmitted.
(Example)
Function number: "01" (lighting for 3 to 20 seconds)
Setting number: "01" (lighting for 3 to 20 seconds)



Then, the screen goes back to the function number blinking indication (1), if the setting is sequentially conducted, continue with the same procedures. If the setting is finished, proceed to (5).

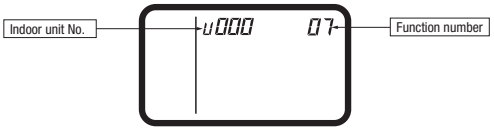
(5) **Press ON/OFF button.**
The setting is completed.

[In the case of selecting the indoor unit function (07-14)]
① **"88" blinks on the temperature setting indicators.**
(blinking for approximately 2 to 10 seconds while data are read)
↓
After that, the current setting number of the selected function number blinks.
(Example)
Function number: "07" (lighting)
Setting number: "01" (blinking)



Proceed to ②.

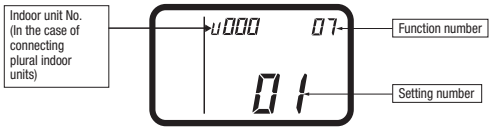
[Note]
a. In the case of connecting one remote control to plural indoor units, the display will be as follows:
Indoor unit No. display: "U 000" (blinking)
(Display the lowest number among the connected indoor units.)



b. Press TEMP△ or TEMP▽ button.
Select the indoor unit No. to be set.
If "U ALL" is selected, the same setting can be set to all units.
c. Press MODE button.
Decide the indoor unit No.
"88" blinks on the temperature setting indicators. (blinking for 2 to 10 seconds while data are read)
When AIR CON No. button is pressed, go back to the indoor unit selection display (for example, "U 000" blinking).

② **Press TEMP△ or TEMP▽ button.**
Select the setting number

③ **Press MODE button.**
The setting is completed.
Light is on for approximately 3 to 20 seconds while data of the decided function No. and setting No. are transmitted.
(Example)
Indoor unit No.: "U 000" (lighting for 3 to 20 seconds)
Function number: "07" (lighting for 3 to 20 seconds)
Setting number: "01" (lighting for 3 to 20 seconds)



Then, the screen goes back to the function number blinking indication (1), if the setting is sequentially conducted, continue with the same procedures. If the setting is finished, proceed to (5).

- Even if ON/OFF button is pressed during setting, the setting is ended. However, any details where the setting has not been completed will be ineffective.
- The setting contents are stored in the control, and even if the power failure occur, this will not be lost.

[Confirmation method for current setting]
According to the operation, the "setting number" displayed first after selecting "function number" and pressing MODE button is the currently set content.
(However, in the case of selecting "U ALL" (all units), the setting number of the lowest number among the indoor units is displayed.)

12.4 Interface kit (SC-BIKN2-E)

RKZ012A099

Accessories included in package

Be sure to check all the accessories included in package.

No.	Part name	Quantity
①	Indoor unit's connection cable (cable length: 1.8m)	1
②	Wood screws (for mounting the interface: ø4x 25)	2
③	Tapping screws (for the cable clump and the interface mounting bracket)	3
④	Interface mounting bracket	1
⑤	Cable clamp (for the indoor unit's connection cable)	1
⑥	CnT terminal connection cable (total cable length: 0.5m)	1

Safety precautions

Before use, please read these Safety precautions thoroughly before installation.

- All the cautionary items mentioned below are important safety related items to be taken into consideration, so be sure to observe them at all times.

⚠Warning	Incorrect installation could lead to serious consequences such as death, major injury or enviromental destruction.

- Symbols used in these precautions

❗	Always go along these instruction.

- After completed installation, carry out trial operation to confirm no anomaly, and ask the user to keep this installation manual in a good place for future reference.

⚠ Warnings

❗

- **Installation must be carried out by a qualified installer.**
  If you install it by yourself, it may cause an electric shock, fire and personal injury , as a result of a system malfunction.
- **Install it in full accordance with the installation manual.**
  Incorrect installation may cause an electric shock, fire and personal injury.
- **Electrical work must be carried out by a qualified electrician in accordance with the technical standard for electrical equipment, the indoor wiring standard and this installation manual.**
  Incorrect installation may cause an electric shock, fire and personal injury.
- **Use the specific cables for wiring. And connect all the cables to terminals or connectors securely and clamp them with cable clamps in order for external forces not to be transmitted to the terminals directly.**
  Incomplete connection may cause malfunction, and lead to heat generation and fire.
- **Use the original accessories and specified components for installation.**
  If the parts other than those prescribed by us are used, it may cause an electric shock, fire and personal injury.

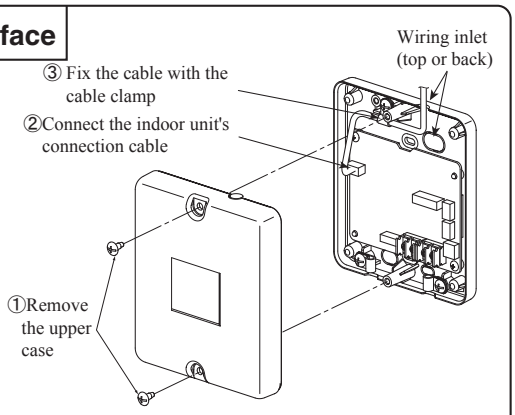
Connecting the indoor unit's connection cable to the interface

①Remove the upper case of the interface.
- Remove 2 screws from the interface casing before removal of upper casing.

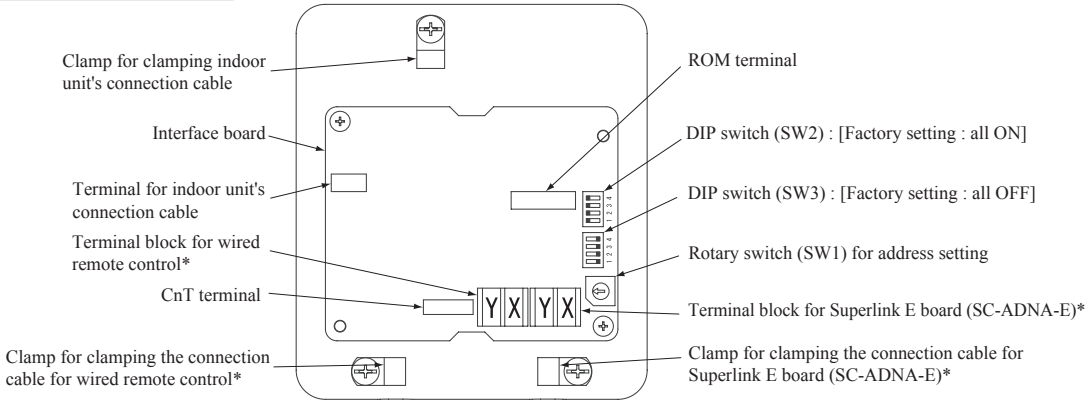
②Connect the indoor unit's connection cable to the interface.
- Connect the connector of the indoor unit connection cable to the connector on the interface's circuit board.

③Fix the indoor unit's connection cable with the cable clamp.
- Cable can be brought in from the top or from the back.
- Cut out the punch-outs for the connection cables running into the casing with cutter.

④Connect the indoor unit's connection cable to the indoor control PCB.
- Connect the indoor unit's connection cable to the indoor control PCB securely.
- Clamp the connection cable to the indoor control box securely with the cable clamp provided as an accessory.
- Regarding the cable connection to the indoor unit, refer to the installation manual for indoor unit.



Name of each part of the interface



*Either the connection cables of Superlink E board (SC-ADNA-E) or of wired remote control is connectable.

Switch	Setting	Function	Switch	Setting	Function
SW2-1	ON**	CnT level input	SW2-3	ON**	External input (CnT input)
	OFF	CnT pulse input		OFF	Operation permission/prohibition (CnT input)
SW2-2	ON**	Wired remote control : Enable	SW2-4	ON**	Annual cooling : Enable***
	OFF	Wired remote control : Disable		OFF	Annual cooling : Disable***

** Factory setting

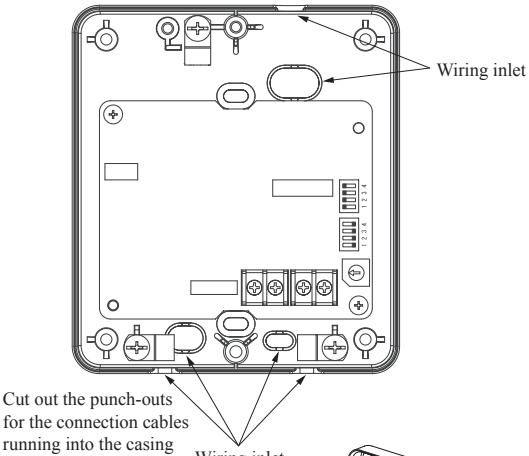
*** Indoor fan control at low outdoor air temperature in cooling

Installation of the interface

- Install the interface within the range of the connection cable length (approximately 1.3m) from the indoor unit.
- Be sure not to extend the connection cable on site. If the connection cable is extended, malfunction may occur.
- Fix the interface on the wall, pillar or the like.

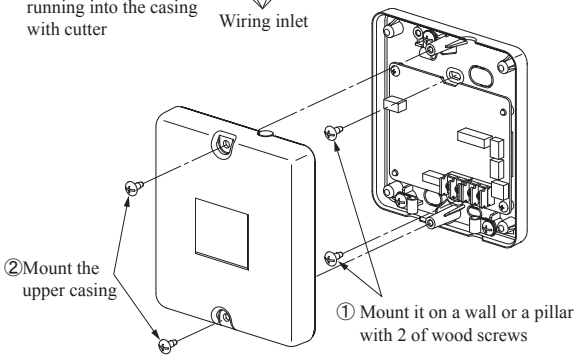
●Don't install the interface and wired remote control at the following places.

○Places exposed to direct sunlight
○Places near heating devices
○High humidity places
○Surfaces where are enough hot or cold to generate condensation
○Places exposed to oil mist or steam directly
○Uneven surface



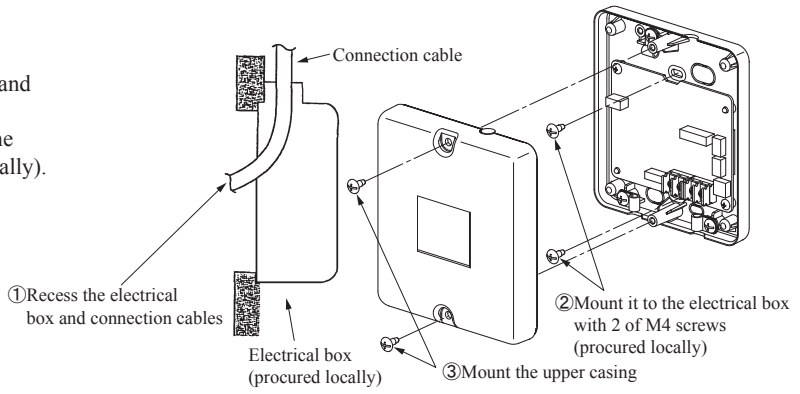
Mounting the interface directly on a wall

①Mount the lower casing of the interface on a flat surface with wood screws provided as standard accessory.
②Mount the upper casing.



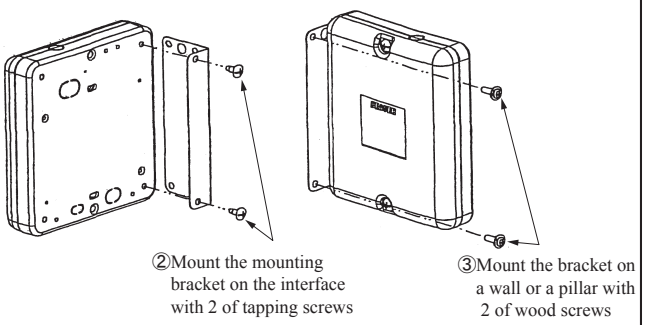
Recessing the interface in the wall

①Recess the electrical box (procured locally) and connection cables in the wall.
②Mount the lower casing of the interface to the electrical box with M4 screws (procured locally).
③Mount the upper casing.



Mounting the interface with the mounting bracket

①Mount the upper casing.
②Mount the mounting bracket to the interface with tapping screws provided as standard accessory.
③Mount the mounting bracket on wall or the like with wood screws provided as standard accessory.



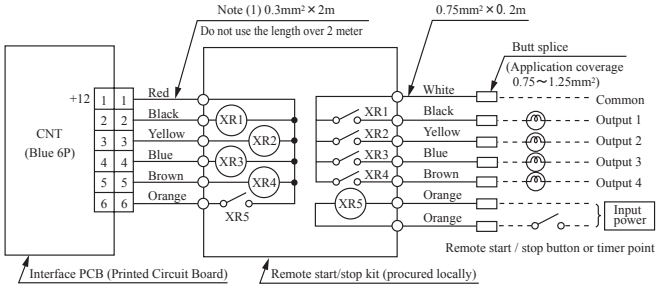
Installation check items

☐ Are the connection cables connected securely to the terminal blocks and connectors?
☐ Are the thickness and length of the connection cables conformed with the standard?

Functions of CnT connector

It is available to operate the air-conditioner and to monitor the operation status with the external control unit (remote display) by sending the input/output signal through CnT connector on the indoor control PCB.

①Connect a external remote control unit (procured locally) to CnT terminal.
②In case of the pulse input, switch OFF the DIP switch SW2-1 on the interface PCB.
③When setting operation permission/prohibition mode, switch OFF the DIP switch SW2-3 on the interface PCB.



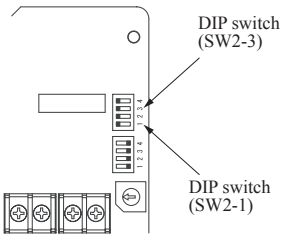
Input/ Output	Function	Output signal		Content
		Relay	ON/OFF	
Output 1	Operation output	XR_1	ON	During air-conditioner operation
Output 2	Heating output	XR_2	ON	During heating operation
Output 3	Compressor operation output	XR_3	ON	During compressor running
Output 4	Malfunction output	XR_4	ON	During anomalous stop

●XR_{1-4} are for the DC 12V relay
●XR_5 is a DC 12/24V or AC 220-240V relay
●CnT connector (local) maker, model

Connector	Molex	5264-06
Terminals	Molex	5263T

Input/ Output	Function	SW2-1 Setting		SW2-3 Setting	SW2-3 Input signal Level/Pulse	SW2-3 Input signal XR_5	Content	Air-conditioner	Operation by remote control
Input	External control input	ON*	Level input	ON*	Level	OFF→ON	External input	ON	Allowed
						ON→OFF		OFF	
				OFF		OFF→ON	Operation permission	OFF	
						ON→OFF	Operation prohibition	OFF	Not allowed
		OFF	Pulse input	ON*	Pulse	OFF→ON	External input	OFF→ON	Allowed
								ON→OFF	
				OFF	Level	OFF→ON	Operation permission	ON	
						ON→OFF	Operation prohibition	OFF	Not allowed

* Factory setting

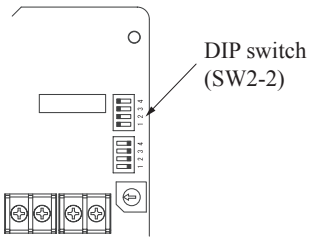


In case of the eco touch remote control (RC-EX3 or later model), the external outputs (1 – 4) and the external input can be changed using the function setting of eco touch remote control. For the setting method, refer to the installation manual. Also refer to the technical manual to know how it is adapted to the function setting for the external outputs and input, at the indoor unit side.

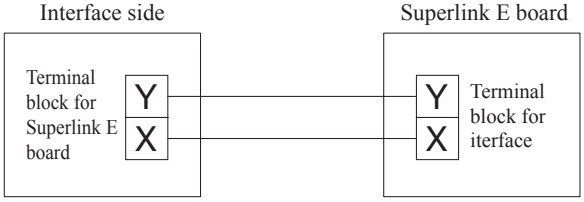
Connection of Superlink E board

Regarding the connection of Superlink E board, refer to the installation manual of Superlink E board.
For electrical work, power source for all of units in the Superlink system must be turned OFF.

①Switch ON the DIP switch SW2-2 (Factory setting: ON) on the interface PCB.
Caution: Wireless remote control attached to the indoor unit can be used in parallel, after connecting the wired remote control. However, some of functions other than the basic functions such as RUN/STOP, temperature setting, etc. may not work properly and may have a mismatch between the display and the actual behavior.



②Wiring connection between the interface and the Superlink E board.

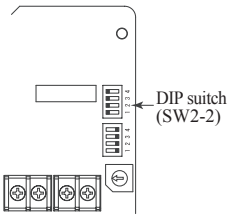


No.	Names of recommended signal wires
1	Shielded wire
2	Vinyl cabtyre round cord
3	Vinyl cabtyre round cable
4	Vinyl insulated wire vinyl sheathed cable for control

Within 200 m 0.5 mm² × 2 cores
Within 300 m 0.75 mm² × 2 cores
Within 400 m 1.25 mm² × 2 cores
Within 600 m 2.0 mm² × 2 cores

③Clamp the connection cables with cable clamps.

Connection of wired remote control



Regarding the connection of wired remote control, refer to the installation manual of wired remote control.

①Switch ON the DIP switch SW2-2 (Factory setting : ON) on the interface PCB.

Caution: Wireless remote control attached to the indoor unit can be used in parallel, after connecting the wired remote control. However, some of functions other than the basic functions such as RUN/STOP, temperature setting, etc. may not work properly and may have a mismatch between the display and the actual behavior.

②Wiring connection between the interface and the wired remote control.

Installation and wiring of wired remote control

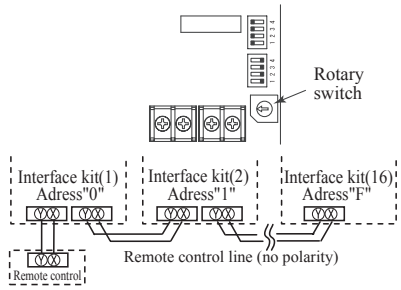
Ⓐ Install the wired remote control with reference to the attached installation manual of wired remote control.
Ⓑ 0.3mm² x 2 cores cable should be used for the wiring of wired remote control.
Ⓒ Maximum length of wiring is 600m.
If the length of wiring exceeds 100m, change the size of cable as mentioned below.
100m-200m: 0.5mm² x 2 cores, 300m or less: 0.75mm² x 2 cores, 400m or less: 1.25mm² x 2 cores, 600m or less: 2.0mm² x 2 cores
However, cable size connecting to the terminal of wired remote control should not exceed 0.5mm². Accordingly if the size of connection cable exceeds 0.5mm², be sure to downsize it to 0.5mm² at the nearest section of the wired remote control and waterproof treatment should be done at the connecting section in order to avoid contact failure.
Ⓓ Don't use the multi-core cable to avoid malfunction.
Ⓔ Keep the wiring of wired remote control away from grounding (Don't touch it to any metal frame of building, etc.).
Ⓕ Connect the connection cables to the terminal blocks of the wired remote control and the interface securely (no polarity).

③Clamp the connection cables with cable clamps.

Control of multiple units by a single wired remote control

Multiple units (up to 16) can be controlled by a single wired remote control.
In this case, all units connected with a single wired remote control will operate under the same mode and same setting temperature.

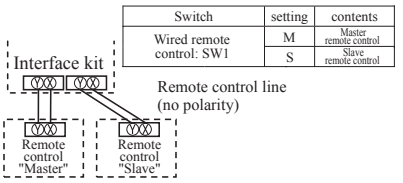
①Connect all the interface with 2 cores cables of wired remote control line.
②Set the address of indoor unit for remote control communication from "0" to "F" with the rotary switch SW1 on the interface PCB.
③After turning the power ON, the address of indoor unit can be displayed by pressing AIR CON No. button on the wired remote control.
Make sure all indoor units connected are displayed in order by pressing ▲ or ▼ button.



Master/Slave setting wired when 2 of wired remote control are used

Maximum two wired remote control can be connected to one indoor unit (or one group of indoor units)

①Set the DIP switch SW1 on the wired remote control to "Slave" for the slave remote control. (Factory setting : Master)
○ Caution : Remote control sensor of the slave remote control is invalid.



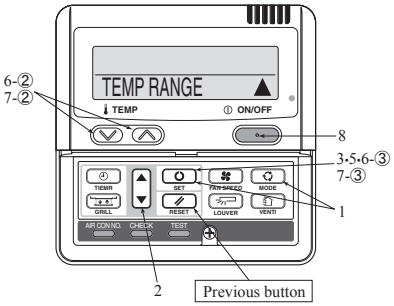
● When using the wireless remote control in parallel with the wired remote control;
Since temperature setting range of wired remote control is different from that of wireless remote control, please adjust the setting range of wired remote control to be the same setting range of wireless remote control by following procedure. (The set temperature may not be displayed correctly on the wireless remote control, unless change of temperature setting range is done.)
Changing procedure of temperature setting range is as follows.

How to set upper and lower limit of temperature setting range

1. Stop the air-conditioner, and press (SET) and (MODE) button at the same time for 3 seconds or more.
The indication changes to"FUNCTION SET▼"
2. Press ▼ button once, and change to the "TEMP RANGE▲" indication.
3. Press (SET) button, and enter the temperature range setting mode.
4. Confirm that the "Upper limit ▼ " is shown on the display.
5. Press (SET)button to fix.
6. ①Indication: "☝∨ ∧ SET UP"→"UPPER 28℃ ∨ ∧"
②Select the upper limit value 30℃ with temperature setting button △."UPPER30℃∨ " (blinking)
③Press (SET) button to fix. "UPPER 30℃" (Displayed for two seconds)
After the fixed upper limit value displayed for two seconds, the indication will return to"UPPER LIMIT▼".
7. Press ▼ button once, "LOWER LIMIT ▲ " is selected, press (SET) button to fix.
①Indication: "☝∨ ∧ SET UP" → "LOWER 20℃∨ ∧"
②Select the lower limit value 18℃ with temperature setting button ▽."LOWER18℃∧ " (blinking)
③Press (SET) button to fix. "LOWER 18℃" (Displayed for two seconds)
After the fixed lower limit value displayed for two seconds, the indication will return to"LOWER LIMIT▼"
8. Press ON/OFF button to finish.

Temperature setting range

Mode	Temperature setting range
Cooling, Heating, Dry, Auto	18-30℃



- It is possible to quit in the middle by pressing ON/OFF button, but the change of setting is incompleted.
- During setting, if pressing (RESET) button, it returns to the previous screen.

12.5 Superlink E board (SC-ADNA-E)

PJZ012D029K

- Read and understand the instructions completely before starting installation.
- Refer to the instructions for both indoor and outdoor units.

Safety precautions

- Carefully read "Safety precautions" first. Follow the instructions for installation.
- Precautions are grouped into "Warning⚠" and "Caution⚠". The "Warning⚠" group includes items that may lead to serious injury or death if not observed. The items included in the "Caution⚠" group also may lead to serious results under certain conditions. Both groups are crucial for safety installation. Read and understand them carefully.
- After installation, conduct the test operation of the device to check for any abnormalities. Describe how to operate the device to the customer following the installation instruction manual. Instruct the customer to keep this installation instruction for future reference.

⚠Warning

- This device should be installed by the dealer where you purchase the device or a licensed professional shop. If the device is incorrectly installed by the customer, it may result in electric shock or fire.
- Install the device carefully following the installation instruction. If the device is incorrectly installed, it may result in electric shock or fire.
- Use the accessory parts and specified parts for installation. If any parts that do not match the specifications are used, it may result in electric shock or fire.
- A person with the electrical service certification should conduct the service based on the "Technical standards for electrical facilities", "Electrical Wiring Code", and the installation instruction. If the work is done incorrectly, it may result in electric shock or fire.
- Wiring should be securely connected using the specified types of wire. No external force on the wire should be applied to any terminals. If a secure connection is not achieved, it may result in electric shock or fire.

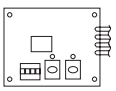
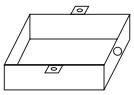
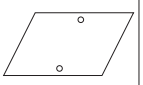
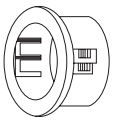
⚠Caution

- Provide ground connection.
  The ground line should never be connected to the gas supply piping, the water supply piping, the lightning conductor rod, nor the telephone ground.If the grounding is improper, it may result in electric shock.
- Do not install the device in the following locations.
  1.Where there is mist/spray of oil or steam such as kitchens.
  2.Where there is corrosive gases such as sulfurous acid gas.
  3.Where there is a device generating electromagnetic waves.
  These may interfere with the control system resulting in the device becoming uncontrollable.
  4.Where flammable volatile materials such as paint thinner and gasoline may exist or where they are handled. This may cause a fire.

1 Application

Indoor-to-outdoor three core communication specification type 3 (since October 2007)

2 Accessories

SL E board	Metal box	Metal cover	Screw for ground
			M4×8L 2 pieces 
Pan head screws	Locking supports	Binding band	Grommet
ø4×8L 2 pieces 	To secure the print board and the metal box Made of nylon 4 pieces 		

3 Function

Allowing the center console SL1N-E, SL2N-E, and SL4N-AE/BE to control and monitor the commercial air-conditioner unit.

4 Control switching

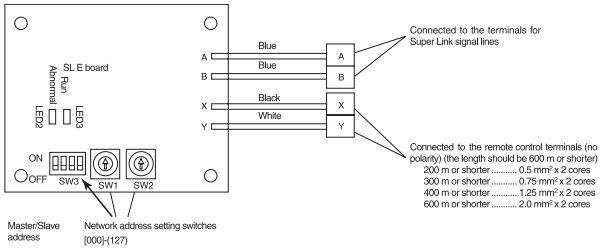
Settings can be changed by the switch SW3 on the SL E board as in the following.

Switch	Symbol	Switch	Remark
SW3	1	ON	Master
		OFF (default)	Slave
	2	ON	Fixed previous protocol
		OFF (default)	Automatic adjustment of Superlink protocol
	3	ON	Indicates the forced operation stop when abnormality has occurred.
		OFF (default)	Indicates the status of running/stop as it is, when abnormality has occurred.
	4	ON	The hundredth address activated "1"
		OFF (default)	The hundredth address activated "0"

5 Connection outline

Note for setting the address

- Set the address between 00 and 47 for the previous Superlink connection and between 000 and 127 for the new Superlink connection. (*1)
- Do not set the address overlapping with those of the other devices in the network. (The default is 000)



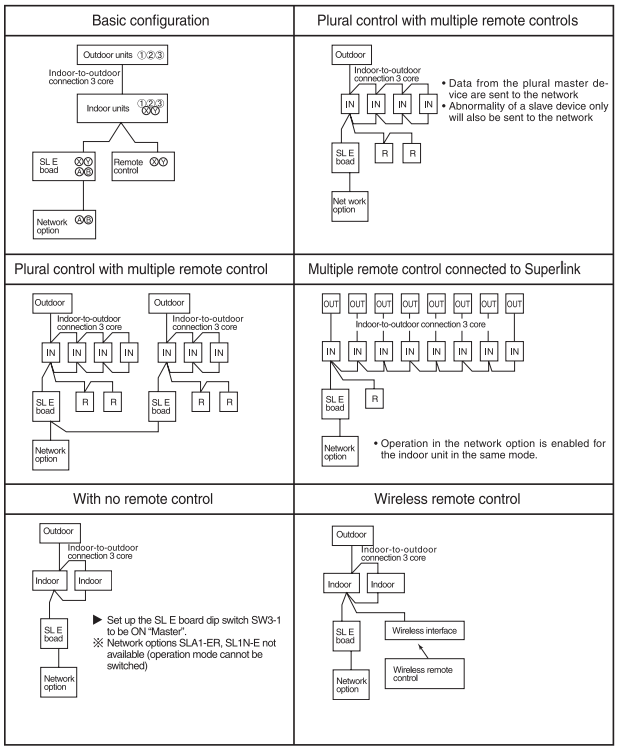
(*1) Whether the actual link is either the new Superlink or the previous Superlink depends on the models of the connected outdoor and indoor units. Consult the agent or the dealer.

Signal line specification

Communication method	Previous Superlink	New Superlink
Line type	MVVS	MVVS
Line diameter	0.75 - 1.25mm²	0.75/1.25mm²
Signal line (total length)	up to 1000m	up to 1500/1000m (*2)
Signal line (maximum length)	up to 1000m	up to 1000m

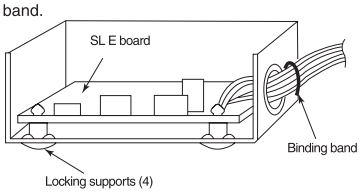
(*2) Up to 1500 m for 0.75 mm², and up to 1000 m for 1.25 mm².
Do not use 2.0 mm². It may cause an error.
(*3) Connect grounding on both ends of the shielding wire.
For the grounding method, refer to the section "6 Installation".

(1) Set the Superlink network address with SW1 (tens place), SW2 (ones place), and SW3 (hundreds place).
(2) Set the SL E board SW3-1 to be ON (Master) when using this without any remote control (no wired remote controller nor wireless remote control).
(3) Set up the plural master/slave device using the dip switches on the indoor unit board.
(4) Set up the remote control master/slave device using the slide switch on the remote control board.
(5) Set up "0" to "F" using the address rotary switch on the indoor unit board when controlling the indoor unit with the multiple remote control.

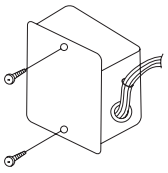


6 Installation

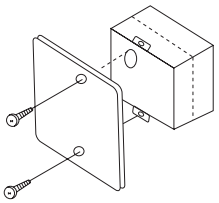
1. When using the metal box (mounted on the indoor unit / mounted on the back of the remote control):
   (1) Mount the SL E board in the metal box using the locking supports.
   (2) Wiring should go through the provided grommet since then through the wiring to the hole on the Metal box.
   Secure the grommet after inserting the grommet into the Metal box as shown in below figure, then tie the wiring at the outlet of the unit using a binding band.



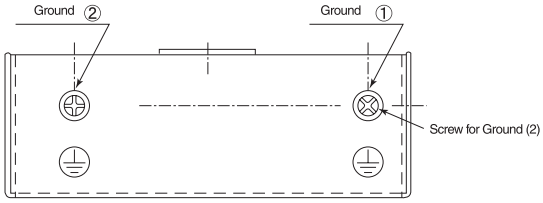
▲ When installed outside the indoor unit, put the metal cover on.



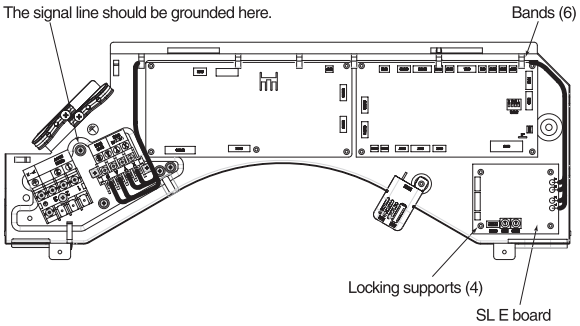
▲ When installed on the back of the remote control, mount it directly on the remote control bottom case.



Connect grounding. Connect grounding for the power line to Ground ①, and grounding for the signal line to Ground ② or to the Ground on the indoor unit control box.



2. When connecting to the indoor unit control box (ceiling-concealed type and FDT type only):
   (1) Mount the SL E board in the control box using the locking supports.
   (2) Remove 6 bands from the box and put the wiring through the bands to be secured.



Electrical shock hazard! Make sure to turn the power off for servicing. Be cautious so that no abnormal force should be applied to the wiring. Do not let the SL E board hung by the wiring. Do not damage the board with a screw driver.
The board is sensitive to static electricity. Release the static electricity of your body before servicing.
(you can do this by touching the control board which is grounded).

Location of installation

Install the device at the location where there are no electromagnetic waves nor where there is water and dust. The specified temperature range of the device is 0 to 40°C. Install the device at the location where the ambient temperature stays within the range. If it exceeds the specification, make sure to provide solution such as installing a cooling fan. When used outside of the range, it may cause abnormal operation.

7 Indicator display

Check the LED 3 (green) and LED 2 (red) on the SL E board for flashing.

SL E board LEDs		Inspection mode	Display on the integrated network control device
Red	Green		
Off	Flashing	Normal communication	
Off	Off	• Disconnection in the remote control communication line (X or Y) • Short-circuit in the remote control communication line (between X and Y) • Faulty indoor unit remote control power • Faulty remote control communication circuit • Faulty CPU on SL E board	No corresponding unit number
One flash	Flashing	• Disconnection in the Superlink signal line (A or B) • Short-circuit in the Superlink signal line (between A and B) • Faulty Superlink signal circuit	
Two flashes	Flashing	• Faulty address setting for the SL E board (Set up the address for previous SL E board : more than 48 new SL E board : more than 128)	
Three flashes	Flashing	• SL E board parent not set up when used without a remote control • Faulty remote control communication circuit	E1
Four flashes	Flashing	• Address overlapping for the SL E board and the Superlink network connected indoor unit	E2
Off	Flashing	• Number of connected devices exceeds the specification for the multiple indoor unit control	E10

12.6 Ceiling concealed type (SRR) option pats

(1) Bottom air inlet kit

This manual contains installation points for BOTTOM AIR INLET KIT manufactured by MHI.
Carry out the work following the instructions below.
Keep this manual properly with USER'S MANUAL provided with the indoor unit.

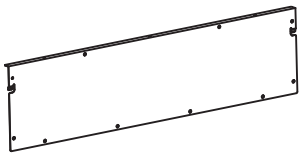
CAUTION

- After unpacking, carry out this work on the ground.
- Do not carry out the work during operation, or there is a danger of being entangled in the rotating parts and getting injured.
- Be sure to cut off the power and stop the unit before maintenance.

1) Applicable model of unit and type of BOTTOM AIR INLET KIT

BOTTOM AIR INLET KIT		UT-BAT1EF	UT-BAT2EF	UT-BAT3EF
Model	for FDUT	15,22,28,36	45,56	71
	for SRR	25,35	50,60	

2) Parts list of BOTTOM AIR INLET KIT

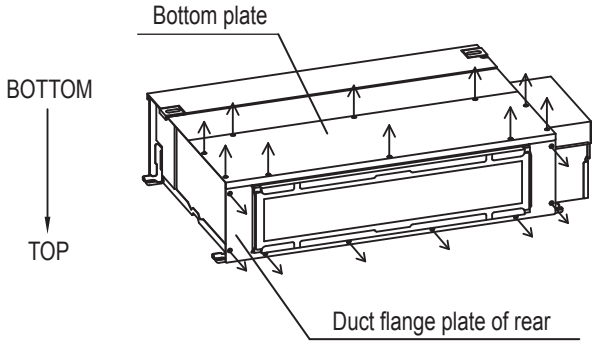
Rear panel	Fan guard	Parts set (Tapping screw)
 1pc.	 1pc.	4mm(dia)X12mm(length) UT-BAT1EF 12pcs. UT-BAT2EF 12pcs. UT-BAT3EF 14pcs.

3) Installation Points

(Figure shows the state that the unit is placed on a floor. Top and bottom are inverted after installing the unit.)

(i) Place the unit as shown below.

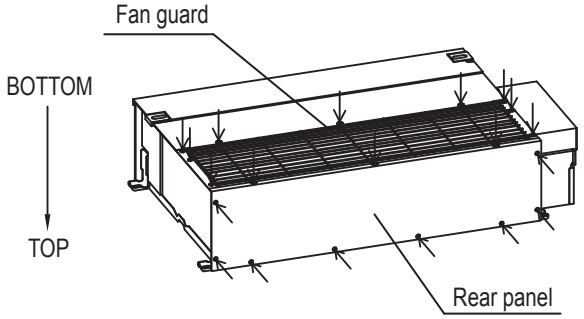
(ii) Remove the bottom plate and duct flange plate of rear from the unit. Keep the removed tapping screws to reuse later.



◆The number of tapping screws to be removed

Model		Bottom	Rear
FDUT	15,22,28,36	10 pcs.	8 pcs.
	45,56	10 pcs.	9 pcs.
	71	12 pcs.	8 pcs.
SRR	25,35	10 pcs.	8 pcs.
	50,60	10 pcs.	9 pcs.

(iii) Install rear panel by using removed tapping screws in process(2). Install fan guard by using tapping screws in parts set.



◆The number of tapping screws to be tightened

Model		Fan guard	Rear panel
FDUT	15,22,28,36	12 pcs.	8 pcs.
	45,56	12 pcs.	9 pcs.
	71	14 pcs.	8 pcs.
SRR	25,35	12 pcs.	8 pcs.
	50,60	12 pcs.	9 pcs.

(2) Remote sensor kit (SC-THB-E3)

Sensor for return air temperature detection is located in the air inlet of the indoor unit.
Use the remote sensor kit SC-THB-E3, and install it on the suitable wall so the temperature of the room can be accurately detected.
This remote sensor kit is to be used as an alternative to the pre-installed sensor of the indoor unit.

1) Accessory parts

No.	Part name	Q'ty	No.	Part name	Q'ty
①	Sensor box	1	④	Band	1
②	Cable (8m)	1	⑤	Screw (4X16)	2
③	Tape (Double -stick)	1			

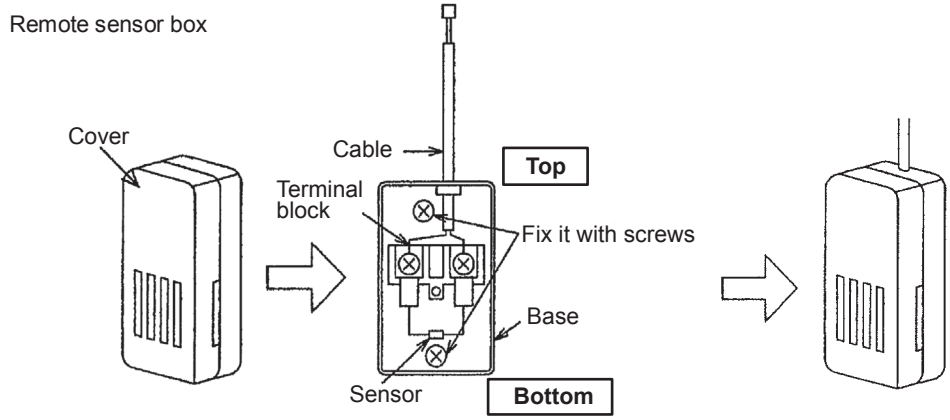
※Installation manual in the SC-THB-E3 is not it for SRR_ZM-S.

2) Selection of installation position

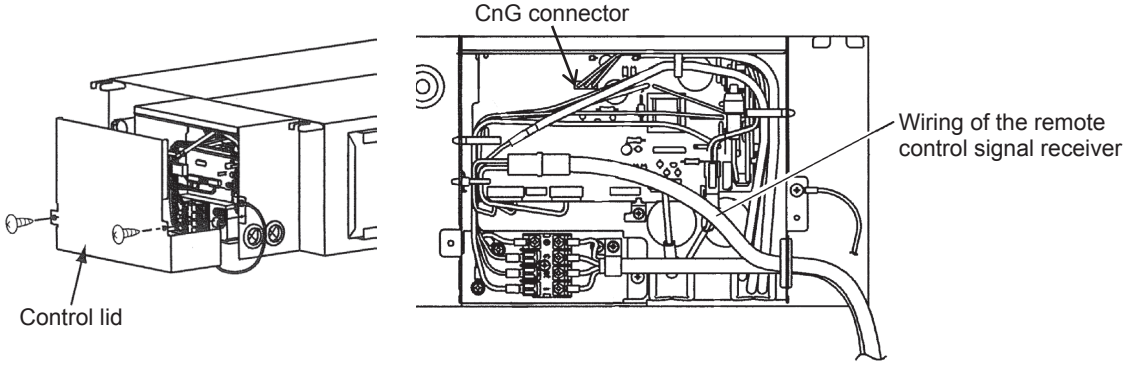
- The thermistor for detecting room temperature is located inside the remote sensor box.
- Do not install the remote sensor in places where.
  - Average room temperature can not be detected.
  - A heat source is located nearby.
  - The wall temperature is different from average room temperature.
  - Affected by the outdoor air when opening / closing the door, etc.
  - The discharge air from indoor unit blows directly.
  - Covered by curtains or other obstacles.
  - Exposed to the sun.
  - Exposed to water, humidity or dew.
- Mount the remote sensor vertically on the wall surface, etc.
- Run the sensor cable in a place where the power cable or electrical noise will not cause any abnormal operation.

3) Installation procedure

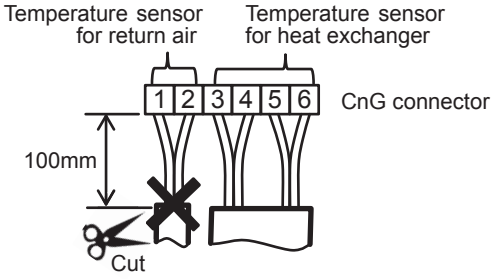
(a) Insert the tip of slotted screwdriver to the gap between the cover and base of the sensor box (①), and twist it to disassemble.
(b) Fix the base to the wall with screws (⑤).
(c) Connect the cable (②) to the terminal block in the base. (Non polarity)
(d) Attach the cover to the base.



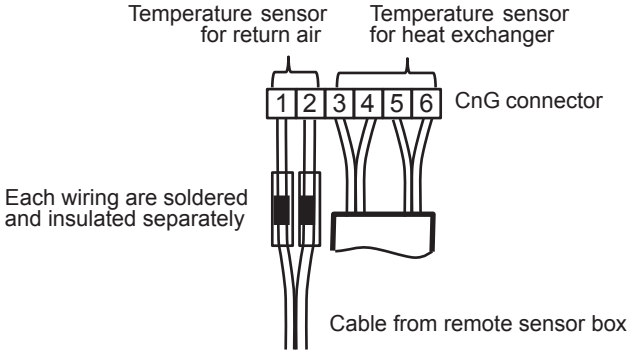
(e) Remove the control lid of the indoor unit. Take off CnG connector from PCB of the indoor unit .



(f) Cut wiring from 1 & 2 pins of CnG connector. (wiring length : about 100 mm from the connector)
If the pre-installed return air temperature sensor ASSY is not removed, the end of the sensor wiring should prevent a short circuit by insulating tape etc.



(g) Insert the cable from remote sensor box to the control box of the indoor unit through the grommet of the remote control signal receiver side.
(h) Adjust the length of the cable and cut it off. (Connector cable is not need.)
(i) Connect the cable from remote sensor box and the cut wiring (procedure (f)) of CnG connector.
(Non polarity)
Be sure to connect the wirings by solder separately. Then, wirings should prevent a short circuit separately by insulating tapes etc. In case of faulty wiring connection, it can cause electrical shock and fire.



(j) Put CnG connector back on the indoor unit PCB.
(k) Attach the control lid of the indoor unit.

12.7 OA spacer (FDTC only)

PJZ012D074 B

This manual describes the installation methods for OA spacer (TC-OAS-E) and the duct joint (TC-OAD-E).
◎This OA spacer is designed for assembling on the indoor unit (FDTC Series), not for be using independently.

Application model	FDTCA151R, 201R, FDTCA22-56KXE4R, FDTC22-56KXE6 FDTC22-56KXE6A, FDTC22-56KXE6B, FDTC22-56KXE6D FDTC40V, 50V, FDTC40-60VB, FDTC25-60VD, FDTC25-60VF

◎Prepare the duct (size: ø75) and the booster fan at site.
◎For the installation of indoor unit, refer to the installation manual attached to the indoor unit.

SAFETY PRECAUTIONS

● Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work in order to protect yourself.

⚠WARNING

●Installation should be performed by the specialist.
If you install the unit by yourself, it may lead to serious trouble such as water leakage, electric shock, fire, and injury due to overturn of the unit.

●Install the system correctly according to these installation manuals.
Improper installation may cause explosion, injury, water leakage, electric shock, and fire.

●Use the genuine accessories and the specified parts for installation.
If parts unspecified by our company are used it could cause water leakage, electric shock, fire, and injury due to overturn of the unit.

●Turn off the power source during servicing or inspection work.
If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating fan.

●Shut off the power before electrical wiring work.
It could cause electric shock, unit failure and improper running.

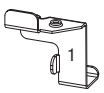
⚠CAUTION

●Do not install and use the unit where corrosive gas (such as sulfurous acid gas etc.) or flammable gas (such as thinner, petroleum etc.) may be generated or accumulated, or volatile flammable substances are handled.
It could cause the corrosion of heat exchanger, breakage of plastic parts etc. And inflammable gas could cause fire.

① Before installation

●Confirm the following parts are included:

OA spacer (TC-OAS-E)

Spacer	Bracket 1	Bracket 2	Bracket 3	Bracket 4	Bolt
					
1	2	2	2	2	8

Duct joint (TC-OAD-E)

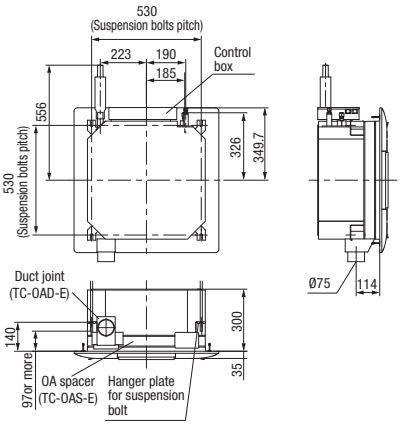
Duct Joint	Screw	Insulation 1 (120 × 54)	Insulation 2 (40 × 60)
			
1	6	1	2

② Prior study before installation (Usage limitation)

(1) Temperature conditions for OA spacer

- Adjust the temperature conditions of mixed air with outdoor air and indoor air within the usage range of suction air temperature for the air-conditioner.
- The usage temperature conditions of intake outdoor air and indoor air around the ducts are shown in the following table.
- If the temperature conditions of intake outdoor air do not meet, process the outdoor air before intaking.

Operation mode	Usage temperature conditions	
	Intake outdoor air	Indoor air around the ducts
In heating	5ºC DB or higher	18.5ºC WB or lower and 60% RH or lower
In cooling	29ºC DB or lower and 80% RH or lower	20ºC DB or higher



(2) Intake outdoor air volume

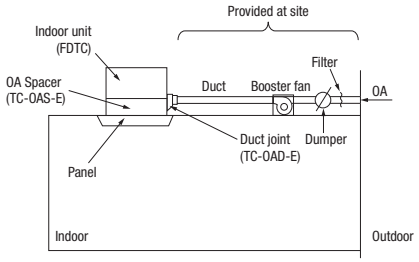
- Intake outdoor air volume is 2.6 m³/min at the maximum (when two sets of duct joints are used).
  Up to two sets of duct joint can be installed on OA spacer.
  In case one set of duct joint is installed: 1.3 m³/min max.
  In case two sets of duct joint is installed: 2.6 m³/min max.

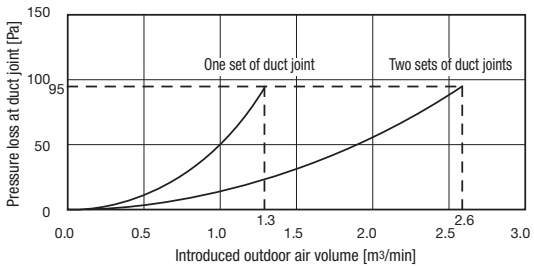
(3) Selection of booster fan

- Select the booster fan based on the duct resistance plus the pressure loss at the duct joint. (See the figure)

(4) Other conditions

- Determine the capacity of air-conditioner based on the calculation of air-conditioner load including the heat load of intake outdoor air.
- Install the filter for the intake outdoor air and the reverse flow prevention dumper during the duct work at site.
- Insulate the duct and duct joint in order to prevent dewing.
- Interlock the operation of booster fan with ON/OFF operation of the indoor unit. (See Section 7.)



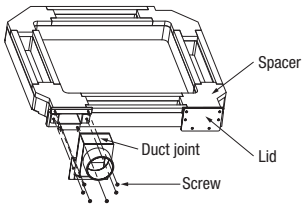


③ Installation of duct joint (TC-OAD-E) onto OA spacer

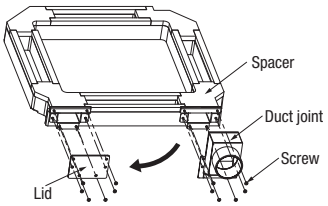
・There are two places where the duct joint can be installed.

When installing one duct joint

Install OA spacer at either one of two installation places on the duct joint.

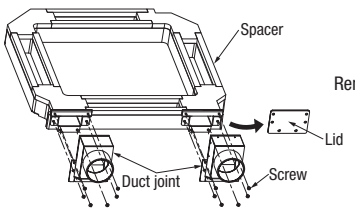


To install the duct joint, screw it in as shown at left.



When installing the duct joint at the lid side, remove the lid and reinstall it at the other end before installing the duct joint.

When installing two duct joints



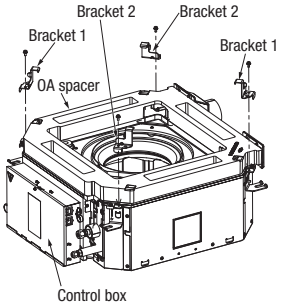
Remove the lid and then install two pieces of duct joint.

④ Installation of OA spacer on the indoor unit

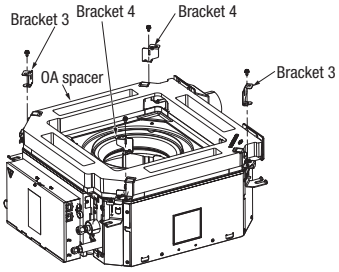
OA spacer can be installed regardless whether the indoor unit has already been hanged or not.
(It is recommended to install before hanging the unit for convenience of installation.)

1-1. When installing OA spacer before hanging the indoor unit

① Placing OA spacer on the indoor unit, fix the brackets 1 and 2 (2 pieces each) with bolts.
Install OA spacer in the appropriate position that the duct joint side of OA spacer becomes opposite to the control box of indoor unit.

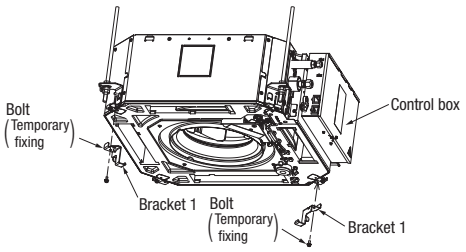


② Fix the brackets 3 and 4 (2 pieces each) with bolts.

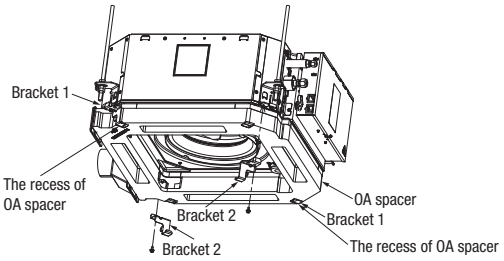


1-2. When installing OA spacer after hanging the indoor unit

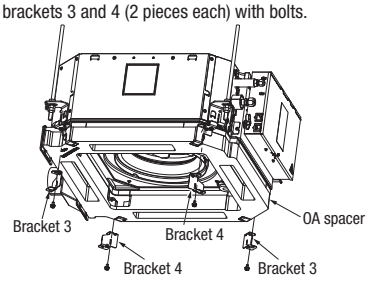
① After hanging the indoor unit (*), fix the bracket 1 (2 pieces) temporarily with bolt by 2 turns as shown in the figure.
* For the height (position) of hanging the indoor unit, refer to Section 5.



② Install OA spacer.
i. Install it in the way that the recess of OA spacer will fit on the bracket 1 fixed temporarily at the step ①.
ii. Tighten the bolt of bracket 1.
iii. Fix the bracket 2 with bolt. (Tighten up)

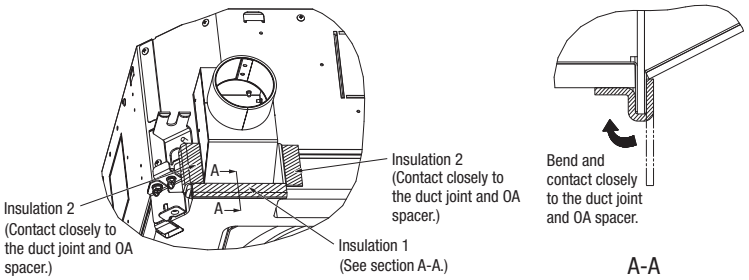


③ Fix the brackets 3 and 4 (2 pieces each) with bolts.



2. Applying insulation

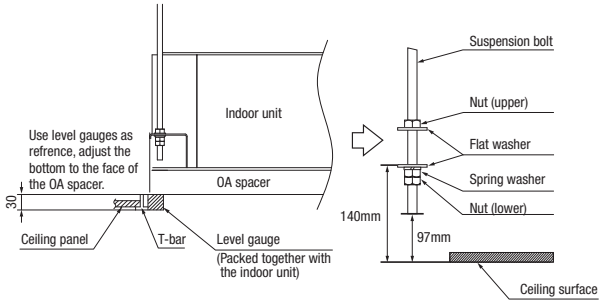
Applying the insulation attached to duct joint set (TC-OAD-E)
① Applying the insulation 1 as shown in the figure.
② Applying the insulation 2 as shown in the figure.
* Be sure to cover the entire surface of sheet metal of the duct joint with the insulation.

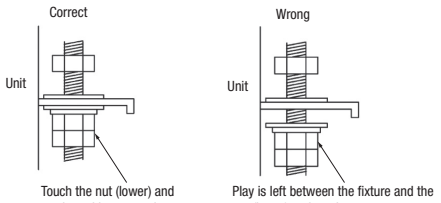


⑤ Installation of indoor unit

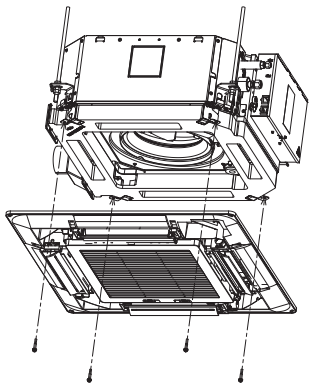
Work procedure

1. This units is designed for 2 x 2 grid ceiling.
   If necessary, please detach the T bar temporarily before you install it.
   If it is installed on a ceiling other than 2 x 2 grid ceiling, provide an inspection port on the control box side.
2. Arrange the suspension bolt at the right position (530mm530mm).
3. Make sure to use four suspension bolts and fix them so as to be able to hold 500N load.
4. Ensure that the lower end of the suspension bolt should be 97mm above the ceiling plane. Temporarily put the four lower nuts 140mm above the ceiling plane and the upper nuts on distant place from the lower nuts in order not to obstruct hanging the indoor unit or adjust the indoor unit position, and then hang the indoor unit.
5. Adjust the indoor unit position after hanging it by inserting the level gauge (Packed together with the indoor unit.) attached on the package into the air supply port and checking if the gap between the ceiling plane and the indoor unit is appropriate. (*) In order to adjust the indoor unit position, adjust the lower nuts while the upper nuts are put on distant place. Confirm there is no backlash between the hanger plate for suspension bolt and the lower nut and washer.
   * Use the level gauge only when OA spacer has been installed before hanging (④ 1-1 only).





⑥ Installation of panel



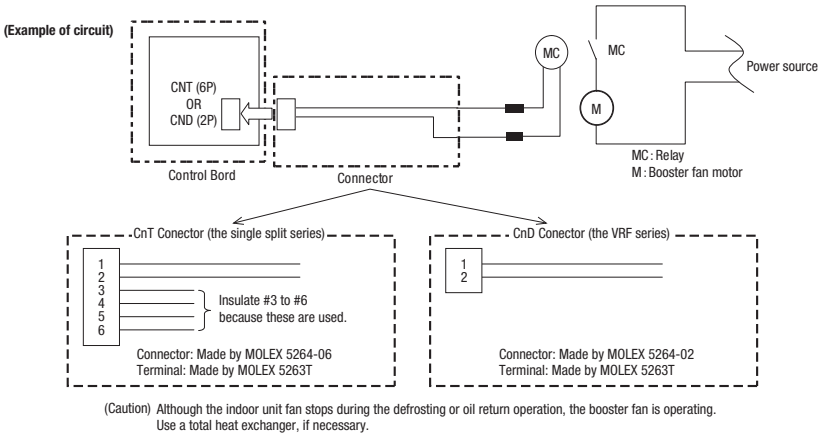
Tighten the panels to the brackets 3 and 4 with bolts.
For further details, refer to the installation manual of panel.

(Caution) Connect the connector of lover motor within the control box.

⑦ Interlocking with the indoor unit fan

◎Connect the Single split series and the VRF series to CnT on the indoor PCB and to CnD on the indoor PCB respectively. If a ventilation device is connected been geared with the motion of indoor device (ON: DC12V output, OFF: 0V output), the ventilation device is operated/stopped.

◎Set it at "VENT LINK" by selecting "No. 11 VENT LINK SET" from the Functional setting by remote control. For details, refer to the "ELECTRIC WIRNG WORK INSTRUCTION" of indoor unit.



(Caution) Although the indoor unit fan stops during the defrosting or oil return operation, the booster fan is operating.
Use a total heat exchanger, if necessary.

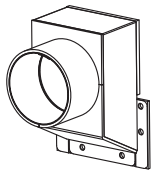
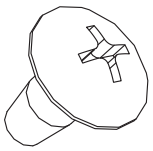
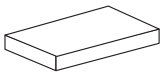
12.8 Duct joint (FDTC only)

PJZ012D073

● This product is used by assembling on the spacer (TC-OAS-E)

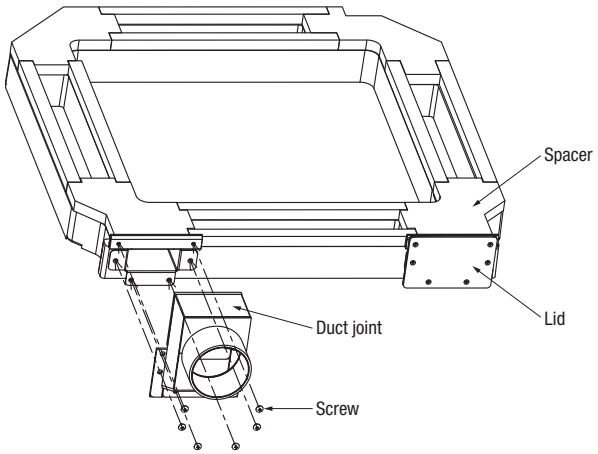
1.Before installation

• Confirm the following parts are included:

Duct joint	Screw	Insulation 1 (120 × 54)	Insulation 2 (40 × 60)
			
1	6	1	2

2.Regarding the use of this product

• Fix the product on the spacer (TC-OAS-E) as shown below.
• For the installation method, refer to the installation manual of the spacer.



12.9 Filter kit (FDUM only)

PJZ012D076A A

This manual contains installation points and operating instructions for the filter kit manufactured by MHI. Carry out the work following the instructions below.
This manual also contains information on the usage after installation,
so keep this manual properly with USER'S MANUAL provided with the indoor unit.

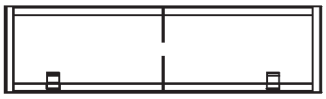
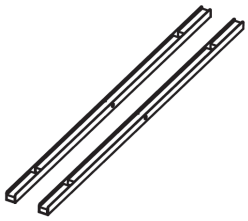
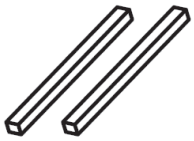
⚠ CAUTION

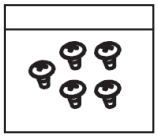
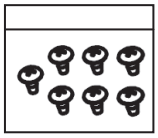
After unpacking, carry out this work on the ground.
Do not carry out the work during operation, or there is a danger of being entangled in the rotating parts and getting injured.
Clean the air filter regularly.
Be sure to entrust qualified serviceman to performance on the air filter.
Be sure to cut off the power and stop the unit before performing maintenance.

1. Table of filter kit parts No. and corresponding object models

	Small mode	Medium mode	Large mode
Single type	40, 50	60, 71	100 - 140
Multi type	22 - 56	71, 90	112 - 160
Filter Kit	UM-FL1EF	UM-FL2EF	UM-FL3EF

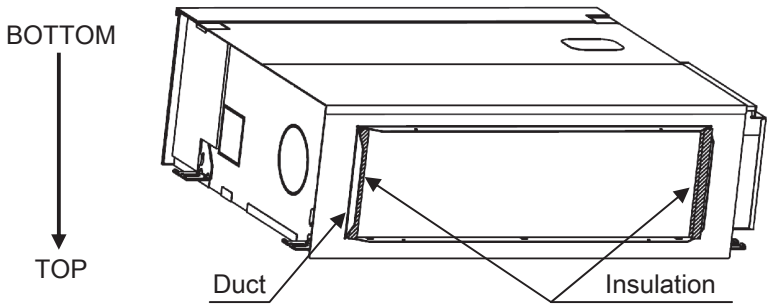
2. Parts list of filter kit

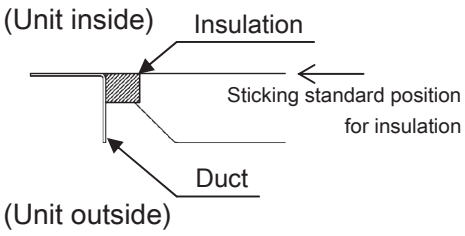
Filter	Rail	Insulation
 1pc	 2pc	 2pc

Bracket	Parts set (screw)
 1pc	 small and medium model : 5pcs.  large model : 7pcs. 1pc

3. Installation points

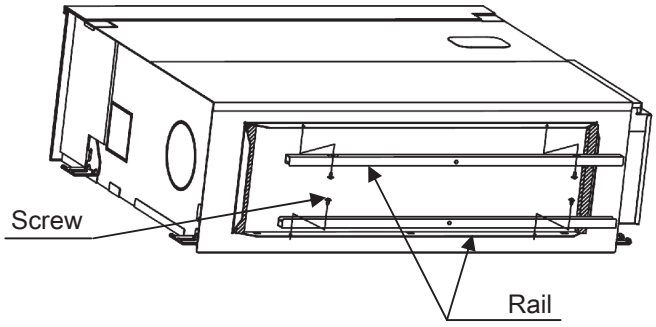
(1) Stick the insulation on both inner sides of the duct, leaving no space up and down.



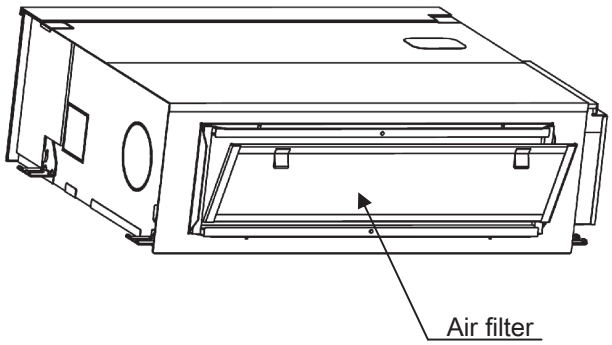


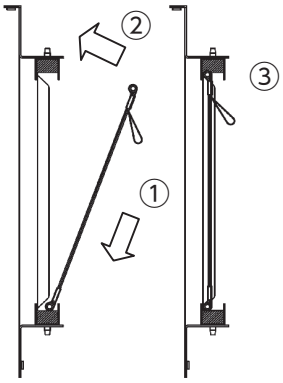
(*) After unpacking, bottom side of the unit is located at the upper side.

(2) Install the rail on both inner sides of the duct with the screw.



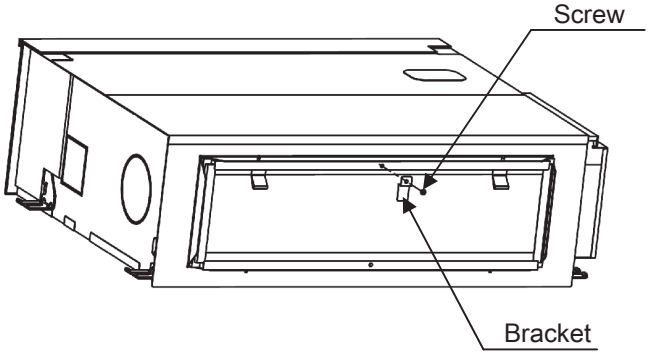
(3) Install the air filter on the rails.





Installation procesure

(4) Install the bracket on the rail with the screw.



(**) When the unit is installed, bottom side of the unit is located at the lower side.

13. TECHNICAL INFORMATION

(1) Model SCM50ZS-S1

Information to identify the model(s) to which the information relates to:	
Indoor unit model name	**SRK25ZSX-S x 2**
Outdoor unit model name	**SCM50ZS-S1**

If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.

Function(indicate if present)	
cooling	**Yes**
heating	**Yes**

Average(mandatory)	**Yes**
Warmer(if designated)	**No**
Colder(if designated)	**No**

Item	symbol	value	unit
Design load			
cooling	Pdesignc	**5.00**	kW
heating / Average	Pdesignh	**4.70**	kW
heating / Warmer	Pdesignh	**-**	kW
heating / Colder	Pdesignh	**-**	kW

Item	symbol	value	class
Seasonal efficiency and energy efficiency class			
cooling	SEER	**5.70**	A+
heating / Average	SCOP/A	**3.84**	A
heating / Warmer	SCOP/W	**-**	-
heating / Colder	SCOP/C	**-**	-

Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	Pdh	**4.70**	kW
heating / Warmer (2℃)	Pdh	**-**	kW
heating / Colder (-22℃)	Pdh	**-**	kW

Back up heating capacity at outdoor temperature Tdesignh			unit
heating / Average (-10℃)	elbu	**0**	kW
heating / Warmer (2℃)	elbu	**-**	kW
heating / Colder (-22℃)	elbu	**-**	kW

Declared capacity for cooling, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	Pdc	**5.00**	kW
Tj=30℃	Pdc	**3.70**	kW
Tj=25℃	Pdc	**3.60**	kW
Tj=20℃	Pdc	**3.90**	kW

Declared energy efficiency ratio, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	EERd	**3.80**	-
Tj=30℃	EERd	**5.80**	-
Tj=25℃	EERd	**8.30**	-
Tj=20℃	EERd	**7.50**	-

Declared capacity for heating / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**4.00**	kW
Tj=2℃	Pdh	**2.50**	kW
Tj=7℃	Pdh	**2.00**	kW
Tj=12℃	Pdh	**2.30**	kW
Tj=bivalent temperature	Pdh	**4.70**	kW
Tj=operating limit	Pdh	**4.70**	kW

Declared coefficient of performance / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**2.75**	-
Tj=2℃	COPd	**3.60**	-
Tj=7℃	COPd	**5.30**	-
Tj=12℃	COPd	**6.30**	-
Tj=bivalent temperature	COPd	**2.55**	-
Tj=operating limit	COPd	**2.45**	-

Declared capacity for heating / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW

Declared coefficient of performance / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-

Declared capacity for heating / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**-**	kW
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Tj=-15℃	Pdh	**-**	kW

Declared coefficient of performance / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**-**	-
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Tj=-15℃	COPd	**-**	-

Bivalent temperature			
heating / Average	Tbiv	**-10**	℃
heating / Warmer	Tbiv	**-**	℃
heating / Colder	Tbiv	**-**	℃

Operating limit temperature			
heating / Average	Tol	**-15**	℃
heating / Warmer	Tol	**-**	℃
heating / Colder	Tol	**-**	℃

Cycling interval capacity			
for cooling	Pcycc	**-**	kW
for heating	Pcych	**-**	kW

Cycling interval efficiency			
for cooling	EERcyc	**-**	-
for heating	COPcyc	**-**	-

Degradation coefficient			
cooling	Cdc	**0.25**	-

Degradation coefficient			
heating	Cdh	**0.25**	-

Electric power input in power modes other than 'active mode'			
off mode	Poff	**11**	W
standby mode	Psb	**11**	W
thermostat-off mode	Pto(cooling)	**27**	W
	Pto(heating)	**27**	W
crankcase heater mode	Pck	**0**	W

Annual electricity consumption			
cooling	Qce	**307**	kWh/a
heating / Average	Qhe	**1714**	kWh/a
heating / Warmer	Qhe	**-**	kWh/a
heating / colder	Qhe	**-**	kWh/a

Capacity control(indicate one of three options)	
fixed	**No**
staged	**No**
variable	**Yes**

Other items			
Sound power level(indoor)	Lwa	**55**	dB(A)
Sound power level(outdoor)	Lwa	**61**	dB(A)
Global warming potential	GWP	**1975**	kgCO2eq.
Rated air flow(indoor)	-	**732**	m3/h
Rated air flow(outdoor)	-	**2460**	m3/h

Contact details for obtaining more information	Name and address of the manufacturer or of its authorised representative. Mitsubishi Heavy Industries Air-Conditioning Europe, Ltd. 5 The Square, Stockley Park, Uxbridge, Middlesex,UB11 1ET, United kingdom

RWC000Z314

Information to identify the model(s) to which the information relates to:	
Indoor unit model name	**SRK20ZSX-S x 3**
Outdoor unit model name	**SCM50ZS-S1**

If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.

Function(indicate if present)	
cooling	**Yes**
heating	**Yes**

Average(mandatory)	**Yes**
Warmer(if designated)	**No**
Colder(if designated)	**No**

Item	symbol	value	unit
Design load			
cooling	Pdesignc	**5.00**	kW
heating / Average	Pdesignh	**4.90**	kW
heating / Warmer	Pdesignh	**-**	kW
heating / Colder	Pdesignh	**-**	kW

Item	symbol	value	class
Seasonal efficiency and energy efficiency class			
cooling	SEER	**6.80**	A++
heating / Average	SCOP/A	**4.40**	A+
heating / Warmer	SCOP/W	**-**	-
heating / Colder	SCOP/C	**-**	-

Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	Pdh	**4.90**	kW
heating / Warmer (2℃)	Pdh	**-**	kW
heating / Colder (-22℃)	Pdh	**-**	kW

Back up heating capacity at outdoor temperature Tdesignh			unit
heating / Average (-10℃)	elbu	**0**	kW
heating / Warmer (2℃)	elbu	**-**	kW
heating / Colder (-22℃)	elbu	**-**	kW

Declared capacity for cooling, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	Pdc	**5.00**	kW
Tj=30℃	Pdc	**3.70**	kW
Tj=25℃	Pdc	**3.69**	kW
Tj=20℃	Pdc	**4.25**	kW

Declared energy efficiency ratio, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	EERd	**4.80**	-
Tj=30℃	EERd	**7.10**	-
Tj=25℃	EERd	**10.10**	-
Tj=20℃	EERd	**9.40**	-

Declared capacity for heating / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**4.33**	kW
Tj=2℃	Pdh	**2.63**	kW
Tj=7℃	Pdh	**2.36**	kW
Tj=12℃	Pdh	**2.75**	kW
Tj=bivalent temperature	Pdh	**4.90**	kW
Tj=operating limit	Pdh	**5.00**	kW

Declared coefficient of performance / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**3.10**	-
Tj=2℃	COPd	**4.20**	-
Tj=7℃	COPd	**6.05**	-
Tj=12℃	COPd	**7.65**	-
Tj=bivalent temperature	COPd	**2.70**	-
Tj=operating limit	COPd	**2.60**	-

Declared capacity for heating / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW

Declared coefficient of performance / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-

Declared capacity for heating / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**-**	kW
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Tj=-15℃	Pdh	**-**	kW

Declared coefficient of performance / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**-**	-
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Tj=-15℃	COPd	**-**	-

Bivalent temperature			
heating / Average	Tbiv	**-10**	℃
heating / Warmer	Tbiv	**-**	℃
heating / Colder	Tbiv	**-**	℃

Operating limit temperature			
heating / Average	Tol	**-15**	℃
heating / Warmer	Tol	**-**	℃
heating / Colder	Tol	**-**	℃

Cycling interval capacity			
for cooling	Pcycc	**-**	kW
for heating	Pcych	**-**	kW

Cycling interval efficiency			
for cooling	EERcyc	**-**	-
for heating	COPcyc	**-**	-

Degradation coefficient			
cooling	Cdc	**0.25**	-

Degradation coefficient			
heating	Cdh	**0.25**	-

Electric power input in power modes other than 'active mode'			
off mode	Poff	**12**	W
standby mode	Psb	**12**	W
thermostat-off mode	Pto(cooling)	**30**	W
	Pto(heating)	**30**	W
crankcase heater mode	Pck	**0**	W

Annual electricity consumption			
cooling	Qce	**258**	kWh/a
heating / Average	Qhe	**1559**	kWh/a
heating / Warmer	Qhe	**-**	kWh/a
heating / colder	Qhe	**-**	kWh/a

Capacity control(indicate one of three options)	
fixed	**No**
staged	**No**
variable	**Yes**

Other items			
Sound power level(indoor)	Lwa	**53**	dB(A)
Sound power level(outdoor)	Lwa	**61**	dB(A)
Global warming potential	GWP	**1975**	kgCO2eq.
Rated air flow(indoor)	-	**678**	m3/h
Rated air flow(outdoor)	-	**2460**	m3/h

Contact details for obtaining more information	Name and address of the manufacturer or of its authorised representative. Mitsubishi Heavy Industries Air-Conditioning Europe, Ltd. 5 The Square, Stockley Park, Uxbridge, Middlesex,UB11 1ET, United kingdom

Information to identify the model(s) to which the information relates to:	
Indoor unit model name	**SRK25ZS-S x 2**
Outdoor unit model name	**SCM50ZS-S1**

If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.

Function(indicate if present)	
cooling	**Yes**
heating	**Yes**

Average(mandatory)	**Yes**
Warmer(if designated)	**No**
Colder(if designated)	**No**

Item	symbol	value	unit
Design load			
cooling	Pdesignc	**5.00**	kW
heating / Average	Pdesignh	**4.75**	kW
heating / Warmer	Pdesignh	**-**	kW
heating / Colder	Pdesignh	**-**	kW

Item	symbol	value	class
Seasonal efficiency and energy efficiency class			
cooling	SEER	**5.60**	A+
heating / Average	SCOP/A	**3.94**	A
heating / Warmer	SCOP/W	**-**	-
heating / Colder	SCOP/C	**-**	-

Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	Pdh	**4.75**	kW
heating / Warmer (2℃)	Pdh	**-**	kW
heating / Colder (-22℃)	Pdh	**-**	kW

Back up heating capacity at outdoor temperature Tdesignh			unit
heating / Average (-10℃)	elbu	**0**	kW
heating / Warmer (2℃)	elbu	**-**	kW
heating / Colder (-22℃)	elbu	**-**	kW

Declared capacity for cooling, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	Pdc	**5.00**	kW
Tj=30℃	Pdc	**3.70**	kW
Tj=25℃	Pdc	**3.20**	kW
Tj=20℃	Pdc	**3.65**	kW

Declared energy efficiency ratio, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	EERd	**3.45**	-
Tj=30℃	EERd	**5.20**	-
Tj=25℃	EERd	**8.10**	-
Tj=20℃	EERd	**7.60**	-

Declared capacity for heating / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**4.40**	kW
Tj=2℃	Pdh	**2.60**	kW
Tj=7℃	Pdh	**2.20**	kW
Tj=12℃	Pdh	**3.70**	kW
Tj=bivalent temperature	Pdh	**4.75**	kW
Tj=operating limit	Pdh	**4.30**	kW

Declared coefficient of performance / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**2.60**	-
Tj=2℃	COPd	**4.15**	-
Tj=7℃	COPd	**4.95**	-
Tj=12℃	COPd	**5.60**	-
Tj=bivalent temperature	COPd	**2.15**	-
Tj=operating limit	COPd	**2.00**	-

Declared capacity for heating / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW

Declared coefficient of performance / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-

Declared capacity for heating / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**-**	kW
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Tj=-15℃	Pdh	**-**	kW

Declared coefficient of performance / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**-**	-
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Tj=-15℃	COPd	**-**	-

Bivalent temperature			
heating / Average	Tbiv	**-10**	℃
heating / Warmer	Tbiv	**-**	℃
heating / Colder	Tbiv	**-**	℃

Operating limit temperature			
heating / Average	Tol	**-15**	℃
heating / Warmer	Tol	**-**	℃
heating / Colder	Tol	**-**	℃

Cycling interval capacity			
for cooling	Pcycc	**-**	kW
for heating	Pcych	**-**	kW

Cycling interval efficiency			
for cooling	EERcyc	**-**	-
for heating	COPcyc	**-**	-

Degradation coefficient			
cooling	Cdc	**0.25**	-

Degradation coefficient			
heating	Cdh	**0.25**	-

Electric power input in power modes other than 'active mode'			
off mode	Poff	**10**	W
standby mode	Psb	**10**	W
thermostat-off mode	Pto(cooling)	**18**	W
	Pto(heating)	**21**	W
crankcase heater mode	Pck	**0**	W

Annual electricity consumption			
cooling	Qce	**313**	kWh/a
heating / Average	Qhe	**1689**	kWh/a
heating / Warmer	Qhe	**-**	kWh/a
heating / colder	Qhe	**-**	kWh/a

Capacity control(indicate one of three options)	
fixed	**No**
staged	**No**
variable	**Yes**

Other items			
Sound power level(indoor)	Lwa	**52**	dB(A)
Sound power level(outdoor)	Lwa	**61**	dB(A)
Global warming potential	GWP	**1975**	kgCO2eq.
Rated air flow(indoor)	-	**594**	m3/h
Rated air flow(outdoor)	-	**2460**	m3/h

Contact details for obtaining more information	Name and address of the manufacturer or of its authorised representative. Mitsubishi Heavy Industries Air-Conditioning Europe, Ltd. 5 The Square, Stockley Park, Uxbridge, Middlesex,UB11 1ET, United kingdom

Information to identify the model(s) to which the information relates to:	
Indoor unit model name	**SRK20ZS-S x 3**
Outdoor unit model name	**SCM50ZS-S1**

Function(indicate if present)	
cooling	**Yes**
heating	**Yes**

If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.

Average(mandatory)	**Yes**
Warmer(if designated)	**No**
Colder(if designated)	**No**

Item	symbol	value	unit
Design load			
cooling	Pdesignc	**5.00**	kW
heating / Average	Pdesignh	**4.75**	kW
heating / Warmer	Pdesignh	**-**	kW
heating / Colder	Pdesignh	**-**	kW

Item	symbol	value	class
Seasonal efficiency and energy efficiency class			
cooling	SEER	**6.54**	A++
heating / Average	SCOP/A	**3.95**	A
heating / Warmer	SCOP/W	**-**	-
heating / Colder	SCOP/C	**-**	-

Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	Pdh	**4.75**	kW
heating / Warmer (2℃)	Pdh	**-**	kW
heating / Colder (-22℃)	Pdh	**-**	kW

Back up heating capacity at outdoor temperature Tdesignh			unit
heating / Average (-10℃)	elbu	**0**	kW
heating / Warmer (2℃)	elbu	**-**	kW
heating / Colder (-22℃)	elbu	**-**	kW

Declared capacity for cooling, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	Pdc	**5.00**	kW
Tj=30℃	Pdc	**3.70**	kW
Tj=25℃	Pdc	**3.20**	kW
Tj=20℃	Pdc	**3.65**	kW

Declared energy efficiency ratio, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	EERd	**4.40**	-
Tj=30℃	EERd	**6.90**	-
Tj=25℃	EERd	**9.40**	-
Tj=20℃	EERd	**8.60**	-

Declared capacity for heating / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**4.40**	kW
Tj=2℃	Pdh	**2.60**	kW
Tj=7℃	Pdh	**2.20**	kW
Tj=12℃	Pdh	**3.70**	kW
Tj=bivalent temperature	Pdh	**4.75**	kW
Tj=operating limit	Pdh	**4.30**	kW

Declared coefficient of performance / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**2.60**	-
Tj=2℃	COPd	**4.20**	-
Tj=7℃	COPd	**4.90**	-
Tj=12℃	COPd	**5.55**	-
Tj=bivalent temperature	COPd	**2.15**	-
Tj=operating limit	COPd	**2.00**	-

Declared capacity for heating / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW

Declared coefficient of performance / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-

Declared capacity for heating / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**-**	kW
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Tj=-15℃	Pdh	**-**	kW

Declared coefficient of performance / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**-**	-
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Tj=-15℃	COPd	**-**	-

Bivalent temperature			
heating / Average	Tbiv	**-10**	℃
heating / Warmer	Tbiv	**-**	℃
heating / Colder	Tbiv	**-**	℃

Operating limit temperature			
heating / Average	Tol	**-15**	℃
heating / Warmer	Tol	**-**	℃
heating / Colder	Tol	**-**	℃

Cycling interval capacity			
for cooling	Pcycc	**-**	kW
for heating	Pcych	**-**	kW

Cycling interval efficiency			
for cooling	EERcyc	**-**	-
for heating	COPcyc	**-**	-

Degradation coefficient			
cooling	Cdc	**0.25**	-

Degradation coefficient			
heating	Cdh	**0.25**	-

Electric power input in power modes other than 'active mode'			
off mode	Poff	**11**	W
standby mode	Psb	**11**	W
thermostat-off mode	Pto(cooling)	**26**	W
	Pto(heating)	**28**	W
crankcase heater mode	Pck	**0**	W

Annual electricity consumption			
cooling	Qce	**268**	kWh/a
heating / Average	Qhe	**1686**	kWh/a
heating / Warmer	Qhe	**-**	kWh/a
heating / colder	Qhe	**-**	kWh/a

Capacity control(indicate one of three options)	
fixed	**No**
staged	**No**
variable	**Yes**

Other items			
Sound power level(indoor)	Lwa	**50**	dB(A)
Sound power level(outdoor)	Lwa	**61**	dB(A)
Global warming potential	GWP	**1975**	kgCO2eq.
Rated air flow(indoor)	-	**558**	m3/h
Rated air flow(outdoor)	-	**2460**	m3/h

Contact details for obtaining more information	Name and address of the manufacturer or of its authorised representative. Mitsubishi Heavy Industries Air-Conditioning Europe, Ltd. 5 The Square, Stockley Park, Uxbridge, Middlesex,UB11 1ET, United kingdom

Information to identify the model(s) to which the information relates to:	
Indoor unit model name	**SKM25ZSP-S x 2**
Outdoor unit model name	**SCM50ZS-S1**

If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.

Function(indicate if present)	
cooling	**Yes**
heating	**Yes**

Average(mandatory)	**Yes**
Warmer(if designated)	**No**
Colder(if designated)	**No**

Item	symbol	value	unit
Design load			
cooling	Pdesignc	**5.00**	kW
heating / Average	Pdesignh	**4.75**	kW
heating / Warmer	Pdesignh	**-**	kW
heating / Colder	Pdesignh	**-**	kW

Item	symbol	value	class
Seasonal efficiency and energy efficiency class			
cooling	SEER	**5.10**	A
heating / Average	SCOP/A	**3.92**	A
heating / Warmer	SCOP/W	**-**	-
heating / Colder	SCOP/C	**-**	-

Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	Pdh	**4.75**	kW
heating / Warmer (2℃)	Pdh	**-**	kW
heating / Colder (-22℃)	Pdh	**-**	kW

Back up heating capacity at outdoor temperature Tdesignh			unit
heating / Average (-10℃)	elbu	**0**	kW
heating / Warmer (2℃)	elbu	**-**	kW
heating / Colder (-22℃)	elbu	**-**	kW

Declared capacity for cooling, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	Pdc	**5.00**	kW
Tj=30℃	Pdc	**3.70**	kW
Tj=25℃	Pdc	**3.20**	kW
Tj=20℃	Pdc	**3.65**	kW

Declared energy efficiency ratio, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	EERd	**3.25**	-
Tj=30℃	EERd	**4.85**	-
Tj=25℃	EERd	**7.05**	-
Tj=20℃	EERd	**6.70**	-

Declared capacity for heating / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**4.40**	kW
Tj=2℃	Pdh	**2.60**	kW
Tj=7℃	Pdh	**2.20**	kW
Tj=12℃	Pdh	**3.70**	kW
Tj=bivalent temperature	Pdh	**4.75**	kW
Tj=operating limit	Pdh	**4.30**	kW

Declared coefficient of performance / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**2.60**	-
Tj=2℃	COPd	**4.10**	-
Tj=7℃	COPd	**4.95**	-
Tj=12℃	COPd	**5.60**	-
Tj=bivalent temperature	COPd	**2.15**	-
Tj=operating limit	COPd	**2.00**	-

Declared capacity for heating / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW

Declared coefficient of performance / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-

Declared capacity for heating / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**-**	kW
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Tj=-15℃	Pdh	**-**	kW

Declared coefficient of performance / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**-**	-
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Tj=-15℃	COPd	**-**	-

Bivalent temperature			
heating / Average	Tbiv	**-10**	℃
heating / Warmer	Tbiv	**-**	℃
heating / Colder	Tbiv	**-**	℃

Operating limit temperature			
heating / Average	Tol	**-15**	℃
heating / Warmer	Tol	**-**	℃
heating / Colder	Tol	**-**	℃

Cycling interval capacity			
for cooling	Pcycc	**-**	kW
for heating	Pcych	**-**	kW

Cycling interval efficiency			
for cooling	EERcyc	**-**	-
for heating	COPcyc	**-**	-

Degradation coefficient			
cooling	Cdc	**0.25**	-

Degradation coefficient			
heating	Cdh	**0.25**	-

Electric power input in power modes other than 'active mode'			
off mode	Poff	**9**	W
standby mode	Psb	**9**	W
thermostat-off mode	Pto(cooling)	**17**	W
	Pto(heating)	**20**	W
crankcase heater mode	Pck	**0**	W

Annual electricity consumption			
cooling	Qce	**344**	kWh/a
heating / Average	Qhe	**1699**	kWh/a
heating / Warmer	Qhe	**-**	kWh/a
heating / colder	Qhe	**-**	kWh/a

Capacity control(indicate one of three options)	
fixed	**No**
staged	**No**
variable	**Yes**

Other items			
Sound power level(indoor)	Lwa	**59**	dB(A)
Sound power level(outdoor)	Lwa	**61**	dB(A)
Global warming potential	GWP	**1975**	kgCO2eq.
Rated air flow(indoor)	-	**510**	m3/h
Rated air flow(outdoor)	-	**2460**	m3/h

Contact details for obtaining more information	Name and address of the manufacturer or of its authorised representative. Mitsubishi Heavy Industries Air-Conditioning Europe, Ltd. 5 The Square, Stockley Park, Uxbridge, Middlesex,UB11 1ET, United kingdom

Information to identify the model(s) to which the information relates to:	
Indoor unit model name	**SKM20ZSP-S x 3**
Outdoor unit model name	**SCM50ZS-S1**

If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.

Function(indicate if present)	
cooling	**Yes**
heating	**Yes**

Average(mandatory)	**Yes**
Warmer(if designated)	**No**
Colder(if designated)	**No**

Item	symbol	value	unit
Design load			
cooling	Pdesignc	**5.00**	kW
heating / Average	Pdesignh	**4.75**	kW
heating / Warmer	Pdesignh	**-**	kW
heating / Colder	Pdesignh	**-**	kW

Item	symbol	value	class
Seasonal efficiency and energy efficiency class			
cooling	SEER	**5.92**	A+
heating / Average	SCOP/A	**3.93**	A
heating / Warmer	SCOP/W	**-**	-
heating / Colder	SCOP/C	**-**	-

Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	Pdh	**4.75**	kW
heating / Warmer (2℃)	Pdh	**-**	kW
heating / Colder (-22℃)	Pdh	**-**	kW

Back up heating capacity at outdoor temperature Tdesignh			unit
heating / Average (-10℃)	elbu	**0**	kW
heating / Warmer (2℃)	elbu	**-**	kW
heating / Colder (-22℃)	elbu	**-**	kW

Declared capacity for cooling, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	Pdc	**5.00**	kW
Tj=30℃	Pdc	**3.70**	kW
Tj=25℃	Pdc	**3.20**	kW
Tj=20℃	Pdc	**3.65**	kW

Declared energy efficiency ratio, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	EERd	**4.20**	-
Tj=30℃	EERd	**6.00**	-
Tj=25℃	EERd	**8.00**	-
Tj=20℃	EERd	**7.90**	-

Declared capacity for heating / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**4.40**	kW
Tj=2℃	Pdh	**2.60**	kW
Tj=7℃	Pdh	**2.20**	kW
Tj=12℃	Pdh	**3.70**	kW
Tj=bivalent temperature	Pdh	**4.75**	kW
Tj=operating limit	Pdh	**4.30**	kW

Declared coefficient of performance / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**2.60**	-
Tj=2℃	COPd	**4.15**	-
Tj=7℃	COPd	**4.90**	-
Tj=12℃	COPd	**5.60**	-
Tj=bivalent temperature	COPd	**2.15**	-
Tj=operating limit	COPd	**2.00**	-

Declared capacity for heating / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW

Declared coefficient of performance / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-

Declared capacity for heating / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**-**	kW
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Tj=-15℃	Pdh	**-**	kW

Declared coefficient of performance / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**-**	-
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Tj=-15℃	COPd	**-**	-

Bivalent temperature			
heating / Average	Tbiv	**-10**	℃
heating / Warmer	Tbiv	**-**	℃
heating / Colder	Tbiv	**-**	℃

Operating limit temperature			
heating / Average	Tol	**-15**	℃
heating / Warmer	Tol	**-**	℃
heating / Colder	Tol	**-**	℃

Cycling interval capacity			
for cooling	Pcycc	**-**	kW
for heating	Pcych	**-**	kW

Cycling interval efficiency			
for cooling	EERcyc	**-**	-
for heating	COPcyc	**-**	-

Degradation coefficient			
cooling	Cdc	**0.25**	-

Degradation coefficient			
heating	Cdh	**0.25**	-

Electric power input in power modes other than 'active mode'			
off mode	Poff	**10**	W
standby mode	Psb	**10**	W
thermostat-off mode	Pto(cooling)	**20**	W
	Pto(heating)	**22**	W
crankcase heater mode	Pck	**0**	W

Annual electricity consumption			
cooling	Qce	**296**	kWh/a
heating / Average	Qhe	**1693**	kWh/a
heating / Warmer	Qhe	**-**	kWh/a
heating / colder	Qhe	**-**	kWh/a

Capacity control(indicate one of three options)	
fixed	**No**
staged	**No**
variable	**Yes**

Other items			
Sound power level(indoor)	Lwa	**58**	dB(A)
Sound power level(outdoor)	Lwa	**61**	dB(A)
Global warming potential	GWP	**1975**	kgCO2eq.
Rated air flow(indoor)	-	**510**	m3/h
Rated air flow(outdoor)	-	**2460**	m3/h

Contact details for obtaining more information	Name and address of the manufacturer or of its authorised representative. Mitsubishi Heavy Industries Air-Conditioning Europe, Ltd. 5 The Square, Stockley Park, Uxbridge, Middlesex,UB11 1ET, United kingdom

(2) Model SCM60ZM-S1

Information to identify the model(s) to which the information relates to:	
Indoor unit model name	**SRK25ZSX-S+SRK35ZSX-S**
Outdoor unit model name	**SCM60ZM-S1**

If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.

Function(indicate if present)	
cooling	**Yes**
heating	**Yes**

Average(mandatory)	**Yes**
Warmer(if designated)	**No**
Colder(if designated)	**No**

Item	symbol	value	unit
Design load			
cooling	Pdesignc	**6.00**	kW
heating / Average	Pdesignh	**7.00**	kW
heating / Warmer	Pdesignh	**-**	kW
heating / Colder	Pdesignh	**-**	kW

Item	symbol	value	class
Seasonal efficiency and energy efficiency class			
cooling	SEER	**5.61**	A+
heating / Average	SCOP/A	**3.82**	A
heating / Warmer	SCOP/W	**-**	-
heating / Colder	SCOP/C	**-**	-

Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	Pdh	**6.56**	kW
heating / Warmer (2℃)	Pdh	**-**	kW
heating / Colder (-22℃)	Pdh	**-**	kW

Back up heating capacity at outdoor temperature Tdesignh			unit
heating / Average (-10℃)	elbu	**0.44**	kW
heating / Warmer (2℃)	elbu	**-**	kW
heating / Colder (-22℃)	elbu	**-**	kW

Declared capacity for cooling, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	Pdc	**6.00**	kW
Tj=30℃	Pdc	**4.42**	kW
Tj=25℃	Pdc	**3.19**	kW
Tj=20℃	Pdc	**4.20**	kW

Declared energy efficiency ratio, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	EERd	**3.15**	-
Tj=30℃	EERd	**4.75**	-
Tj=25℃	EERd	**8.62**	-
Tj=20℃	EERd	**7.38**	-

Declared capacity for heating / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**6.41**	kW
Tj=2℃	Pdh	**3.88**	kW
Tj=7℃	Pdh	**3.24**	kW
Tj=12℃	Pdh	**3.83**	kW
Tj=bivalent temperature	Pdh	**6.41**	kW
Tj=operating limit	Pdh	**6.82**	kW

Declared coefficient of performance / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**2.37**	-
Tj=2℃	COPd	**3.85**	-
Tj=7℃	COPd	**5.25**	-
Tj=12℃	COPd	**5.97**	-
Tj=bivalent temperature	COPd	**2.37**	-
Tj=operating limit	COPd	**2.30**	-

Declared capacity for heating / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW

Declared coefficient of performance / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-

Declared capacity for heating / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**-**	kW
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Tj=-15℃	Pdh	-	kW

Declared coefficient of performance / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**-**	-
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Tj=-15℃	COPd	-	-

Bivalent temperature			
heating / Average	Tbiv	**-7**	℃
heating / Warmer	Tbiv	**-**	℃
heating / Colder	Tbiv	**-**	℃

Operating limit temperature			
heating / Average	Tol	**-15**	℃
heating / Warmer	Tol	**-**	℃
heating / Colder	Tol	**-**	℃

Cycling interval capacity			
for cooling	Pcycc	-	kW
for heating	Pcych	-	kW

Cycling interval efficiency			
for cooling	EERcyc	-	-
for heating	COPcyc	-	-

Degradation coefficient			
cooling	Cdc	**0.25**	-

Degradation coefficient			
heating	Cdh	**0.25**	-

Electric power input in power modes other than 'active mode'			
off mode	Poff	**12**	W
standby mode	Psb	**12**	W
thermostat-off mode	Pto(cooling)	**25**	W
	Pto(heating)	**25**	W
crankcase heater mode	Pck	**0**	W

Annual electricity consumption			
cooling	Qce	**375**	kWh/a
heating / Average	Qhe	**2569**	kWh/a
heating / Warmer	Qhe	**-**	kWh/a
heating / colder	Qhe	**-**	kWh/a

Capacity control(indicate one of three options)	
fixed	**No**
staged	**No**
variable	**Yes**

Other items			
Sound power level(indoor)	Lwa	**58**	dB(A)
Sound power level(outdoor)	Lwa	**63**	dB(A)
Global warming potential	GWP	**1975**	kgCO2eq.
Rated air flow(indoor)	-	**786**	m3/h
Rated air flow(outdoor)	-	**2520**	m3/h

Contact details for obtaining more information	Name and address of the manufacturer or of its authorised representative. Mitsubishi Heavy Industries Air-Conditioning Europe, Ltd. 5 The Square, Stockley Park, Uxbridge, Middlesex,UB11 1ET, United kingdom

RWC000Z314

Information to identify the model(s) to which the information relates to:	
Indoor unit model name	**SRK20ZSX-S × 3**
Outdoor unit model name	**SCM60ZM-S1**

If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.

Function(indicate if present)	
cooling	**Yes**
heating	**Yes**

Average(mandatory)	**Yes**
Warmer(if designated)	**No**
Colder(if designated)	**No**

Item	symbol	value	unit
Design load			
cooling	Pdesignc	**6.00**	kW
heating / Average	Pdesignh	**7.30**	kW
heating / Warmer	Pdesignh	**-**	kW
heating / Colder	Pdesignh	**-**	kW
Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	Pdh	**6.53**	kW
heating / Warmer (2℃)	Pdh	**-**	kW
heating / Colder (-22℃)	Pdh	**-**	kW
Declared capacity for cooling, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	Pdc	**6.00**	kW
Tj=30℃	Pdc	**4.42**	kW
Tj=25℃	Pdc	**3.37**	kW
Tj=20℃	Pdc	**4.84**	kW
Declared capacity for heating / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**6.60**	kW
Tj=2℃	Pdh	**4.00**	kW
Tj=7℃	Pdh	**3.10**	kW
Tj=12℃	Pdh	**3.40**	kW
Tj=bivalent temperature	Pdh	**6.60**	kW
Tj=operating limit	Pdh	**6.40**	kW
Declared capacity for heating / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Declared capacity for heating / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**-**	kW
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Tj=-15℃	Pdh	-	kW
Bivalent temperature			
heating / Average	Tbiv	**-7**	℃
heating / Warmer	Tbiv	**-**	℃
heating / Colder	Tbiv	**-**	℃
Cycling interval capacity			
for cooling	Pcycc	-	kW
for heating	Pcych	-	kW
Degradation coefficient			
cooling	Cdc	**0.25**	-
Electric power input in power modes other than 'active mode'			
off mode	Poff	**12**	W
standby mode	Psb	**12**	W
thermostat-off mode	Pto(cooling)	**30**	W
	Pto(heating)	**30**	W
crankcase heater mode	Pck	**0**	W

Item	symbol	value	class
Seasonal efficiency and energy efficiency class			
cooling	SEER	**6.80**	A++
heating / Average	SCOP/A	**4.20**	A+
heating / Warmer	SCOP/W	**-**	-
heating / Colder	SCOP/C	**-**	-
			unit
Back up heating capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	elbu	**0.77**	kW
heating / Warmer (2℃)	elbu	**-**	kW
heating / Colder (-22℃)	elbu	**-**	kW
Declared energy efficiency ratio, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	EERd	**4.20**	-
Tj=30℃	EERd	**6.28**	-
Tj=25℃	EERd	**10.00**	-
Tj=20℃	EERd	**9.60**	-
Declared coefficient of performance / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**2.40**	-
Tj=2℃	COPd	**4.25**	-
Tj=7℃	COPd	**5.90**	-
Tj=12℃	COPd	**7.10**	-
Tj=bivalent temperature	COPd	**2.40**	-
Tj=operating limit	COPd	**2.30**	-
Declared coefficient of performance / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Declared coefficient of performance / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**-**	-
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Tj=-15℃	COPd	-	-
Operating limit temperature			
heating / Average	Tol	**-15**	℃
heating / Warmer	Tol	**-**	℃
heating / Colder	Tol	**-**	℃
Cycling interval efficiency			
for cooling	EERcyc	-	-
for heating	COPcyc	-	-
Degradation coefficient			
heating	Cdh	**0.25**	-
Annual electricity consumption			
cooling	Qce	**309**	kWh/a
heating / Average	Qhe	**2435**	kWh/a
heating / Warmer	Qhe	**-**	kWh/a
heating / colder	Qhe	**-**	kWh/a

Capacity control(indicate one of three options)	
fixed	**No**
staged	**No**
variable	**Yes**

Other items			
Sound power level(indoor)	Lwa	**53**	dB(A)
Sound power level(outdoor)	Lwa	**63**	dB(A)
Global warming potential	GWP	**1975**	kgCO2eq.
Rated air flow(indoor)	-	**678**	m3/h
Rated air flow(outdoor)	-	**2520**	m3/h

Contact details for obtaining more information	Name and address of the manufacturer or of its authorised representative. Mitsubishi Heavy Industries Air-Conditioning Europe, Ltd. 5 The Square, Stockley Park, Uxbridge, Middlesex,UB11 1ET, United kingdom

Information to identify the model(s) to which the information relates to:	
Indoor unit model name	**SRK25ZS-S+SRK35ZS-S**
Outdoor unit model name	**SCM60ZM-S1**

If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.

Function(indicate if present)	
cooling	**Yes**
heating	**Yes**

Average(mandatory)	**Yes**
Warmer(if designated)	**No**
Colder(if designated)	**No**

Item	symbol	value	unit
Design load			
cooling	Pdesignc	**6.00**	kW
heating / Average	Pdesignh	**7.20**	kW
heating / Warmer	Pdesignh	**-**	kW
heating / Colder	Pdesignh	**-**	kW

Item	symbol	value	class
Seasonal efficiency and energy efficiency class			
cooling	SEER	**5.55**	A
heating / Average	SCOP/A	**3.80**	A
heating / Warmer	SCOP/W	**-**	-
heating / Colder	SCOP/C	**-**	-

Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	Pdh	**6.56**	kW
heating / Warmer (2℃)	Pdh	**-**	kW
heating / Colder (-22℃)	Pdh	**-**	kW

Back up heating capacity at outdoor temperature Tdesignh			unit
heating / Average (-10℃)	elbu	**0.64**	kW
heating / Warmer (2℃)	elbu	**-**	kW
heating / Colder (-22℃)	elbu	**-**	kW

Declared capacity for cooling, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	Pdc	**6.00**	kW
Tj=30℃	Pdc	**4.42**	kW
Tj=25℃	Pdc	**3.19**	kW
Tj=20℃	Pdc	**4.20**	kW

Declared energy efficiency ratio, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	EERd	**3.03**	-
Tj=30℃	EERd	**4.72**	-
Tj=25℃	EERd	**8.62**	-
Tj=20℃	EERd	**7.38**	-

Declared capacity for heating / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**6.41**	kW
Tj=2℃	Pdh	**3.88**	kW
Tj=7℃	Pdh	**3.24**	kW
Tj=12℃	Pdh	**3.83**	kW
Tj=bivalent temperature	Pdh	**6.41**	kW
Tj=operating limit	Pdh	**6.82**	kW

Declared coefficient of performance / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**2.37**	-
Tj=2℃	COPd	**3.83**	-
Tj=7℃	COPd	**5.19**	-
Tj=12℃	COPd	**5.95**	-
Tj=bivalent temperature	COPd	**2.37**	-
Tj=operating limit	COPd	**2.14**	-

Declared capacity for heating / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW

Declared coefficient of performance / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-

Declared capacity for heating / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**-**	kW
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Tj=-15℃	Pdh	-	kW

Declared coefficient of performance / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**-**	-
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Tj=-15℃	COPd	-	-

Bivalent temperature			
heating / Average	Tbiv	**-7**	℃
heating / Warmer	Tbiv	**-**	℃
heating / Colder	Tbiv	**-**	℃

Operating limit temperature			
heating / Average	Tol	**-15**	℃
heating / Warmer	Tol	**-**	℃
heating / Colder	Tol	**-**	℃

Cycling interval capacity			
for cooling	Pcycc	-	kW
for heating	Pcych	-	kW

Cycling interval efficiency			
for cooling	EERcyc	-	-
for heating	COPcyc	-	-

Degradation coefficient			
cooling	Cdc	**0.25**	-

Degradation coefficient			
heating	Cdh	**0.25**	-

Electric power input in power modes other than 'active mode'			
off mode	Poff	**12**	W
standby mode	Psb	**12**	W
thermostat-off mode	Pto(cooling)	**35**	W
	Pto(heating)	**35**	W
crankcase heater mode	Pck	**0**	W

Annual electricity consumption			
cooling	Qce	**379**	kWh/a
heating / Average	Qhe	**2656**	kWh/a
heating / Warmer	Qhe	**-**	kWh/a
heating / colder	Qhe	**-**	kWh/a

Capacity control(indicate one of three options)	
fixed	**No**
staged	**No**
variable	**Yes**

Other items			
Sound power level(indoor)	Lwa	**56**	dB(A)
Sound power level(outdoor)	Lwa	**63**	dB(A)
Global warming potential	GWP	**1975**	kgCO2eq.
Rated air flow(indoor)	-	**678**	m3/h
Rated air flow(outdoor)	-	**2520**	m3/h

Contact details for obtaining more information	Name and address of the manufacturer or of its authorised representative. Mitsubishi Heavy Industries Air-Conditioning Europe, Ltd. 5 The Square, Stockley Park, Uxbridge, Middlesex,UB11 1ET, United kingdom

RWC000Z314

Information to identify the model(s) to which the information relates to:	
Indoor unit model name	**SRK20ZS-S×3**
Outdoor unit model name	**SCM60ZM-S1**

If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.

Function(indicate if present)	
cooling	**Yes**
heating	**Yes**

Average(mandatory)	**Yes**
Warmer(if designated)	**No**
Colder(if designated)	**No**

Item	symbol	value	unit
Design load			
cooling	Pdesignc	**6.00**	kW
heating / Average	Pdesignh	**7.10**	kW
heating / Warmer	Pdesignh	**-**	kW
heating / Colder	Pdesignh	**-**	kW

Item	symbol	value	class
Seasonal efficiency and energy efficiency class			
cooling	SEER	**6.21**	A++
heating / Average	SCOP/A	**3.91**	A
heating / Warmer	SCOP/W	**-**	-
heating / Colder	SCOP/C	**-**	-

Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	Pdh	**6.46**	kW
heating / Warmer (2℃)	Pdh	**-**	kW
heating / Colder (-22℃)	Pdh	**-**	kW

Back up heating capacity at outdoor temperature Tdesignh			unit
heating / Average (-10℃)	elbu	**0.64**	kW
heating / Warmer (2℃)	elbu	**-**	kW
heating / Colder (-22℃)	elbu	**-**	kW

Declared capacity for cooling, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	Pdc	**6.00**	kW
Tj=30℃	Pdc	**4.47**	kW
Tj=25℃	Pdc	**3.27**	kW
Tj=20℃	Pdc	**4.55**	kW

Declared energy efficiency ratio, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	EERd	**3.98**	-
Tj=30℃	EERd	**6.10**	-
Tj=25℃	EERd	**9.10**	-
Tj=20℃	EERd	**8.50**	-

Declared capacity for heating / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**6.65**	kW
Tj=2℃	Pdh	**4.04**	kW
Tj=7℃	Pdh	**2.65**	kW
Tj=12℃	Pdh	**2.93**	kW
Tj=bivalent temperature	Pdh	**6.65**	kW
Tj=operating limit	Pdh	**6.14**	kW

Declared coefficient of performance / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**2.37**	-
Tj=2℃	COPd	**3.90**	-
Tj=7℃	COPd	**5.25**	-
Tj=12℃	COPd	**6.11**	-
Tj=bivalent temperature	COPd	**2.37**	-
Tj=operating limit	COPd	**2.56**	-

Declared capacity for heating / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW

Declared coefficient of performance / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-

Declared capacity for heating / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**-**	kW
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Tj=-15℃	Pdh	-	kW

Declared coefficient of performance / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**-**	-
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Tj=-15℃	COPd	-	-

Bivalent temperature			
heating / Average	Tbiv	**-7**	℃
heating / Warmer	Tbiv	**-**	℃
heating / Colder	Tbiv	**-**	℃

Operating limit temperature			
heating / Average	Tol	**-15**	℃
heating / Warmer	Tol	**-**	℃
heating / Colder	Tol	**-**	℃

Cycling interval capacity			
for cooling	Pcycc	-	kW
for heating	Pcych	-	kW

Cycling interval efficiency			
for cooling	EERcyc	-	-
for heating	COPcyc	-	-

Degradation coefficient			
cooling	Cdc	**0.25**	-

Degradation coefficient			
heating	Cdh	**0.25**	-

Electric power input in power modes other than 'active mode'			
off mode	Poff	**14**	W
standby mode	Psb	**14**	W
thermostat-off mode	Pto(cooling)	**40**	W
	Pto(heating)	**40**	W
crankcase heater mode	Pck	**0**	W

Annual electricity consumption			
cooling	Qce	**338**	kWh/a
heating / Average	Qhe	**2544**	kWh/a
heating / Warmer	Qhe	**-**	kWh/a
heating / colder	Qhe	**-**	kWh/a

Capacity control(indicate one of three options)	
fixed	**No**
staged	**No**
variable	**Yes**

Other items			
Sound power level(indoor)	Lwa	**50**	dB(A)
Sound power level(outdoor)	Lwa	**63**	dB(A)
Global warming potential	GWP	**1975**	kgCO2eq.
Rated air flow(indoor)	-	**558**	m3/h
Rated air flow(outdoor)	-	**2520**	m3/h

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