



Manual No.'18•KX-T-281

updated December 14, 2018

TECHNICAL MANUAL

VRF INVERTER MULTI-SYSTEM AIR-CONDITIONERS **(INDOOR UNIT)**

KXZ series

Ceiling cassette - 4 way compact type

FDTC15KXZE1

FDTC22KXZE1

FDTC28KXZE1

FDTC36KXZE1

FDTC45KXZE1

FDTC56KXZE1

• Note:

(1) Regarding the outdoor unit KXZ series, refer to the No.'14•KX-T-223, No.'15•KX-T-227 and No.'17•KX-T-265.

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1. INFORMATION

1.1 1.5kW-indoor units connection

(1) 1.5kW-Indoor unit

Model
FDTc15KXZE1

(2) Connectable outdoor units

(a) Connectable

- KXZ series (KXZ, KXZX, KXZPE1, KXZR) are connectable.
- FDC224-335KXE6 (service code A and there after) and FDC400-1360KXE6 (service code F and there after) are connectable.

(b) Non-Connectable

- FDC112-155KXE6, KXR and refresh KX series are not connectable.
- In case of connection with not the connectable outdoor units, error display (E22) will be appeared on the remote control.

(3) Installation limitation on 1.5kW-indoor unit connection

(a) Connectable KX6 outdoor units

- (i) KX6 outdoor unit must have total indoor unit connection capacity ratio of 100% or more.

<Example>

FDC680KXE6 / service code F connecting with one or more 1.5kW-indoor units must have total indoor unit capacity 680 or more.

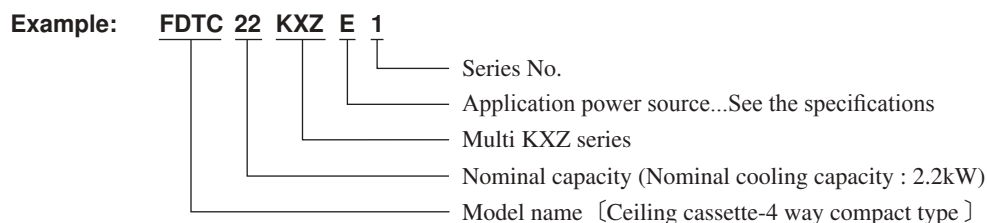
- (ii) Total piping length between outdoor unit and indoor units must be 150m or more, including both main and branch piping.

- (iii) When one or more 1.5kW-indoor units are in the system, outdoor temperature condition in the cooling operation must be 10°C or more. Without 1.5kW-indoor units connection in the system, the outdoor lowest temperature for FDC112-335KXE6 is -15°C and that for FDC400-1360KXE6 is -5°C.

(b) KXZ outdoor units

- KXZ series (KXZ, KXZX, KXZR) does not have installation limitation on 1.5kW-indoor unit connection.

1.2 How to read the model name



2. SPECIFICATIONS

Models **FDTC15KXZE1, 22KXZE1, 28KXZE1, 36KXZE1, 45KXZE1, 56KXZE1**

Model		FDTC15KXZE1	FDTC22KXZE1	FDTC28KXZE1	FDTC36KXZE1	FDTC45KXZE1	FDTC56KXZE1
Panel model (Option)	Standard: TC-PSA-5AW-E	Standard: TC-PSA-5AW-E	Standard: TC-PSA-5AW-E	Standard: TC-PSA-5AW-E	Standard: TC-PSA-5AW-E	Standard: TC-PSA-5AW-E	Standard: TC-PSA-5AW-E
	Draft prevention: TC-PSAE-5AW-E	Draft prevention: TC-PSAE-5AW-E	Draft prevention: TC-PSAE-5AW-E	Draft prevention: TC-PSAE-5AW-E	Draft prevention: TC-PSAE-5AW-E	Draft prevention: TC-PSAE-5AW-E	Draft prevention: TC-PSAE-5AW-E
Nominal cooling capacity*1	1.5	2.2	2.5	2.8	3.6	4.5	5.6
Nominal heating capacity*2	1.7	2.2	2.5	3.2	4.0	5.0	6.3
Power source		220-240V 50Hz / 220V 60Hz	220-240V 50Hz / 220V 60Hz	220-240V 50Hz / 220V 60Hz	220-240V 50Hz / 220V 60Hz	220-240V 50Hz / 220V 60Hz	220-240V 50Hz / 220V 60Hz
Power consumption	Cooling	0.03 - 0.03 / 0.03	0.03 - 0.03 / 0.03	0.03 - 0.03 / 0.03	0.04 - 0.04 / 0.04	0.05 - 0.05 / 0.05	0.06 - 0.06 / 0.06
	Heating	0.03 - 0.03 / 0.03	0.03 - 0.03 / 0.03	0.03 - 0.03 / 0.03	0.04 - 0.04 / 0.04	0.05 - 0.05 / 0.05	0.06 - 0.06 / 0.06
Running current	Cooling	0.25 - 0.22 / 0.25	0.25 - 0.22 / 0.25	0.25 - 0.22 / 0.25	0.38 - 0.35 / 0.38	0.43 - 0.40 / 0.43	0.54 - 0.50 / 0.54
	Heating	0.25 - 0.22 / 0.25	0.25 - 0.22 / 0.25	0.25 - 0.22 / 0.25	0.38 - 0.35 / 0.38	0.43 - 0.40 / 0.43	0.54 - 0.50 / 0.54
Sound Pressure Level	Cooling	P-Hi: 33 Hi: 30 Me: 28 Lo: 25	P-Hi: 35 Hi: 32 Me: 29 Lo: 25	P-Hi: 35 Hi: 32 Me: 29 Lo: 25	P-Hi: 39 Hi: 36 Me: 31 Lo: 26	P-Hi: 43 Hi: 39 Me: 36 Lo: 28	P-Hi: 47 Hi: 43 Me: 39 Lo: 31
	Heating	P-Hi: 33 Hi: 30 Me: 26 Lo: 22	P-Hi: 35 Hi: 32 Me: 29 Lo: 25	P-Hi: 35 Hi: 32 Me: 29 Lo: 25	P-Hi: 39 Hi: 36 Me: 31 Lo: 26	P-Hi: 43 Hi: 39 Me: 36 Lo: 28	P-Hi: 47 Hi: 43 Me: 39 Lo: 31
Sound Power Level	Cooling	47	49	49	54	58	60
	Heating	46	49	49	53	57	60
Exterior dimensions	Height x Width x Depth	Unit: 248 × 570 × 570 Panel: 10 × 620 × 620	Unit: 248 × 570 × 570 Panel: 10 × 620 × 620	Unit: 248 × 570 × 570 Panel: 10 × 620 × 620	Unit: 248 × 570 × 570 Panel: 10 × 620 × 620	Unit: 248 × 570 × 570 Panel: 10 × 620 × 620	Unit: 248 × 570 × 570 Panel: 10 × 620 × 620
	Exterior appearance (Munsell color) (RAL color)	Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent	Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent	Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent	Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent	Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent	Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent
Net weight*3	kg	Unit: 12.5 Standard panel: 2.5	Unit: 13 Standard panel: 2.5	Unit: 13 Standard panel: 2.5	Unit: 14 Standard panel: 2.5	Unit: 14 Standard panel: 2.5	Unit: 14 Standard panel: 2.5
Refrigerant equipment Heat exchanger		Louver fin & inner grooved tubing	Louver fin & inner grooved tubing	Louver fin & inner grooved tubing	Louver fin & inner grooved tubing	Louver fin & inner grooved tubing	Louver fin & inner grooved tubing
Refrigerant control		Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Air handling equipment Fan type & Q'ty		Turbo fan ×1	Turbo fan ×1	Turbo fan ×1	Turbo fan ×1	Turbo fan ×1	Turbo fan ×1
Motor	W	50	50	50	50	50	50
Starting method		Direct line start	Direct line start	Direct line start	Direct line start	Direct line start	Direct line start
Air flow(Standard)	Cooling	P-Hi: 8 Hi: 7 Me: 6 Lo: 5	P-Hi: 9 Hi: 8 Me: 7 Lo: 6	P-Hi: 9 Hi: 8 Me: 7 Lo: 6	P-Hi: 10 Hi: 9 Me: 8 Lo: 6	P-Hi: 12 Hi: 10 Me: 9 Lo: 7	P-Hi: 14 Hi: 12 Me: 10 Lo: 8
	Heating	P-Hi: 8 Hi: 7 Me: 6 Lo: 5	P-Hi: 9 Hi: 8 Me: 7 Lo: 6	P-Hi: 9 Hi: 8 Me: 7 Lo: 6	P-Hi: 10 Hi: 9 Me: 8 Lo: 6	P-Hi: 12 Hi: 10 Me: 9 Lo: 7	P-Hi: 14 Hi: 12 Me: 10 Lo: 8
Available static pressure	Pa	0	0	0	0	0	0
Outdoor air intake		Possible	Possible	Possible	Possible	Possible	Possible
Air filter, Q'ty		Pocket plastic net ×1(Washable)	Pocket plastic net ×1(Washable)	Pocket plastic net ×1(Washable)	Pocket plastic net ×1(Washable)	Pocket plastic net ×1(Washable)	Pocket plastic net ×1(Washable)
Shock & vibration absorber		Rubber sleeve(for fan motor)	Rubber sleeve(for fan motor)	Rubber sleeve(for fan motor)	Rubber sleeve(for fan motor)	Rubber sleeve(for fan motor)	Rubber sleeve(for fan motor)
Insulation (noise & heat)		Polyurethane form	Polyurethane form	Polyurethane form	Polyurethane form	Polyurethane form	Polyurethane form
Operation control		Wired : RC-E5, RC-EX3A, RCH-E3	Wired : RC-E5, RC-EX3A, RCH-E3	Wired : RC-E5, RC-EX3A, RCH-E3	Wired : RC-E5, RC-EX3A, RCH-E3	Wired : RC-E5, RC-EX3A, RCH-E3	Wired : RC-E5, RC-EX3A, RCH-E3
Remote control switch (option)		Wireless : RCN-TC-5AW-E2	Wireless : RCN-TC-5AW-E2	Wireless : RCN-TC-5AW-E2	Wireless : RCN-TC-5AW-E2	Wireless : RCN-TC-5AW-E2	Wireless : RCN-TC-5AW-E2
Room temperature control		Thermostat by electronics	Thermostat by electronics	Thermostat by electronics	Thermostat by electronics	Thermostat by electronics	Thermostat by electronics
Safety equipment		Overload protection for fan motor	Overload protection for fan motor	Overload protection for fan motor	Overload protection for fan motor	Overload protection for fan motor	Overload protection for fan motor
Installation data		Frost protection thermostat	Frost protection thermostat	Frost protection thermostat	Frost protection thermostat	Frost protection thermostat	Frost protection thermostat
Refrigerant piping size		Liquid line: φ6.35 (1/4") Gas line: φ9.52 (3/8")	Liquid line: φ6.35 (1/4") Gas line: φ9.52 (3/8")	Liquid line: φ6.35 (1/4") Gas line: φ9.52 (3/8")	Liquid line: φ6.35 (1/4") Gas line: φ9.52 (3/8")	Liquid line: φ6.35 (1/4") Gas line: φ12.7 (1/2")	Liquid line: φ6.35 (1/4") Gas line: φ12.7 (1/2")
Connecting method		Flare piping	Flare piping	Flare piping	Flare piping	Flare piping	Flare piping
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A
Drain pump		Built-in Drain pump	Built-in Drain pump	Built-in Drain pump	Built-in Drain pump	Built-in Drain pump	Built-in Drain pump
Drain hose		Connectable with VP25	Connectable with VP25	Connectable with VP25	Connectable with VP25	Connectable with VP25	Connectable with VP25
Insulation for piping		Necessary(both Liquid & Gas line)	Necessary(both Liquid & Gas line)	Necessary(both Liquid & Gas line)	Necessary(both Liquid & Gas line)	Necessary(both Liquid & Gas line)	Necessary(both Liquid & Gas line)
Accessories		Mounting kit, Drain hose	Mounting kit, Drain hose	Mounting kit, Drain hose	Mounting kit, Drain hose	Mounting kit, Drain hose	Mounting kit, Drain hose
Exterior dimensions		PJF000Z501	PJF000Z501	PJF000Z501	PJF000Z501	PJF000Z501	PJF000Z501
Electrical wiring		PJF000Z504	PJF000Z504	PJF000Z504	PJF000Z504	PJF000Z504	PJF000Z504

PJF000Z498

Notes (1) The data are measured at the following conditions. Adapted to **RoHS** directive

Item	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Operation	27°C	19°C	35°C	24°C	ISO-T1
Cooling*1					
Heating*2	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.

ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) Draft prevention panel weight*3 : 3.0kg

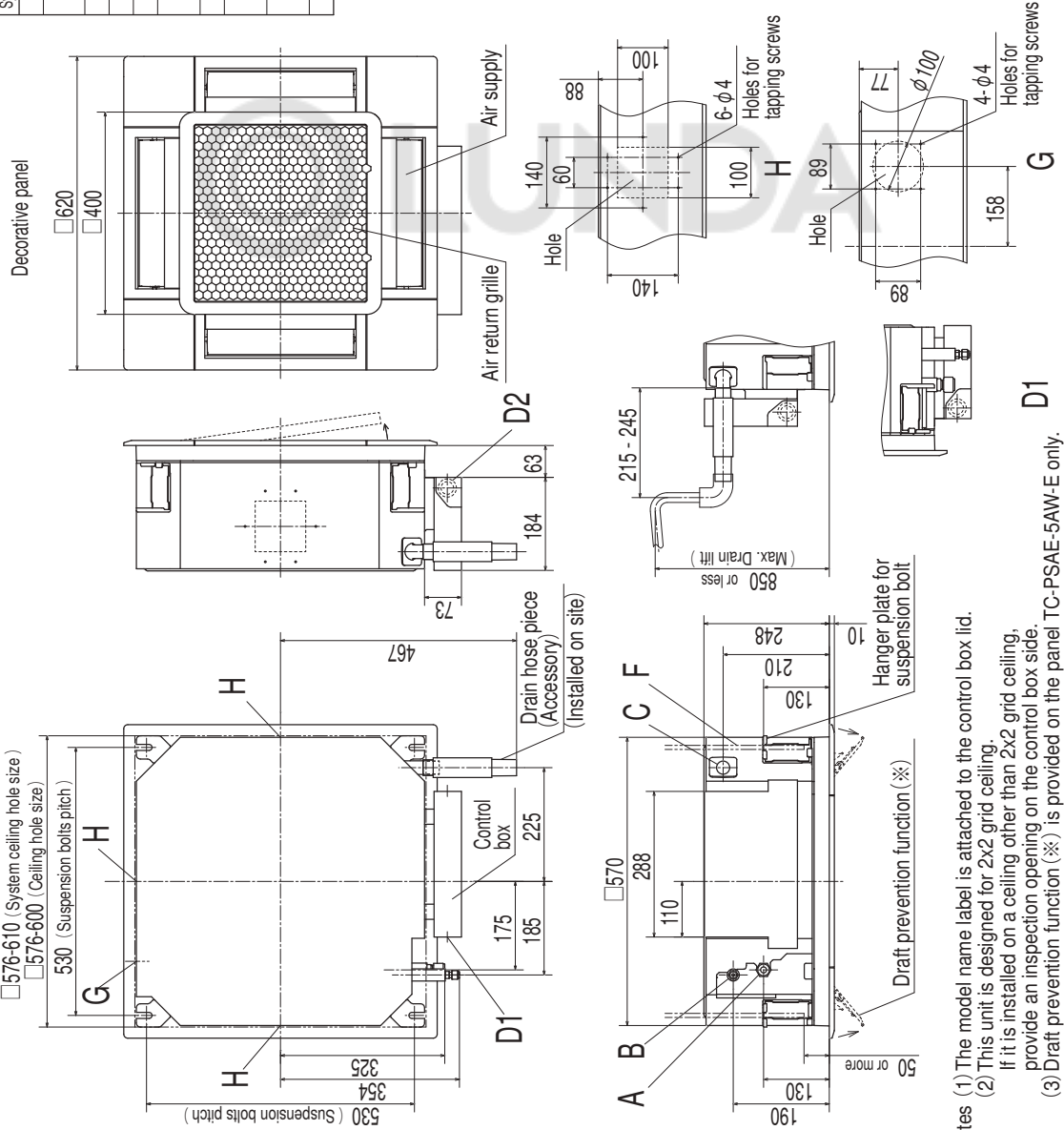
(4) Option : Motion sensor kit (LB-TC-5W-E)

3. EXTERIOR DIMENSIONS

(1) Indoor units

All models

Symbol	Model	Content
A	Gas piping	15,22.28 ø9.52 (3/8") (Flare) ø12.7 (1/2") (Flare)
B	Liquid piping	ø6.35 (1/4") (Flare)
C	Drain piping	VP25 (O.D. 32)
D1	Power source connection	
D2	Remote control code and signal wiring connection	
F	Suspension bolts	(M10 or M8)
G	Outside air opening for ducting	(Knock out)
H	Air outlet opening for ducting	ø 125 (Knock out)
J	Inspection opening	450X450



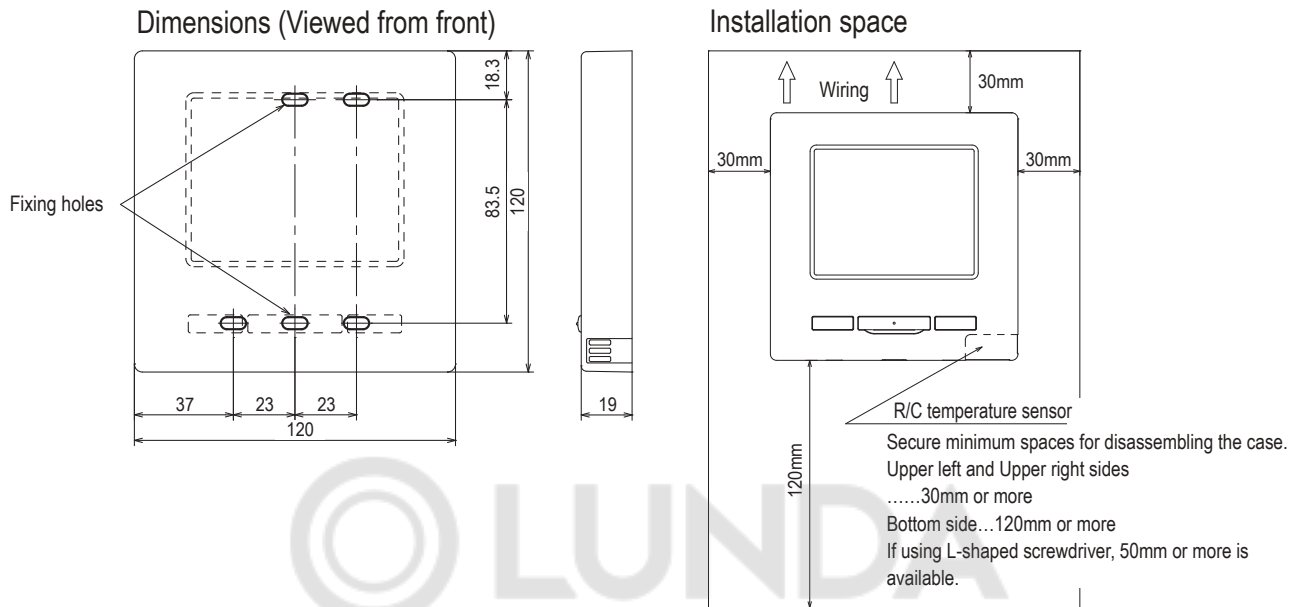
- Notes
- (1) The model name label is attached to the control box lid.
 - (2) This unit is designed for 2x2 grid ceiling. If it is installed on a ceiling other than 2x2 grid ceiling, provide an inspection opening on the control box side.
 - (3) Draft prevention function (※) is provided on the panel TC-PSAE-5AW-E only.

PJF000Z501

(2) Remote control (Option parts)

(a) Wired remote control

Model RC-EX3A



- 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
- (4) When you are using the automatic grille up and down panel in the IU, you may not be able to confirm the up and down motion.
 - Where the IU cannot be visually confirmed

- **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.

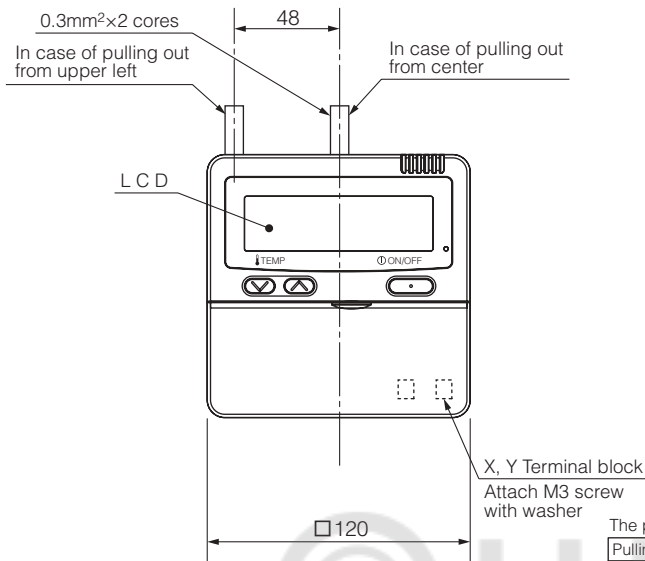
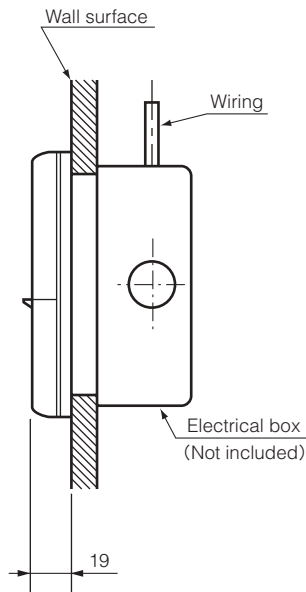
R/C cable:0.3mm²x2 cores

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.

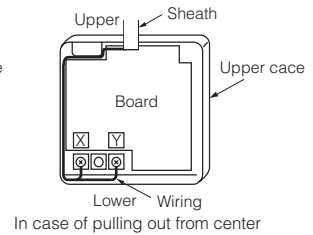
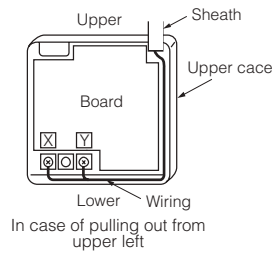
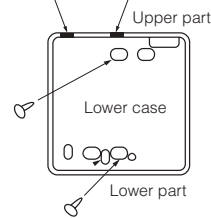
≤ 200 m	0.5 mm ² x 2 cores
≤ 300m	0.75 mm ² x 2 cores
≤ 400m	1.25 mm ² x 2 cores
≤ 600m	2.0 mm ² x 2 cores

Adapted RoHS directive

PJZ000Z333

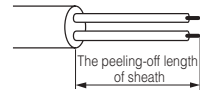
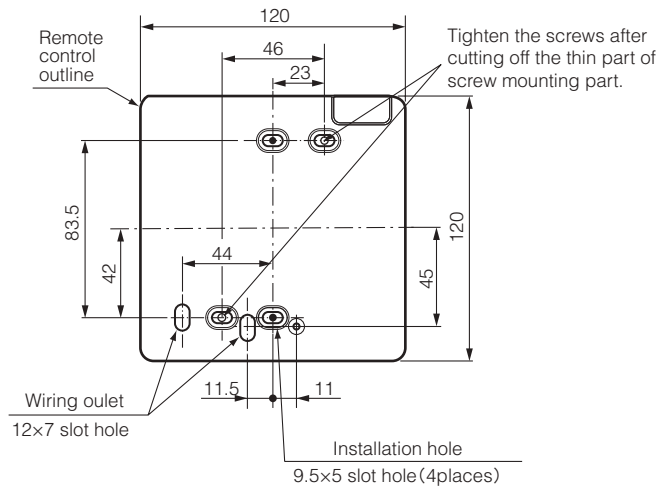
Model RC-E5**Exposed mounting**Exterior appearance
(Munsell color)Pearl white
(N8.5) near equivalent**Embedded mounting****Wiring outlet**

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

In case of pulling out
from upper leftIn case of pulling out
from center

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

**Remote control installation dimensions**(1) Installation screw for remote control
M4 screw (2 pieces)

Unit:mm

Wiring specifications

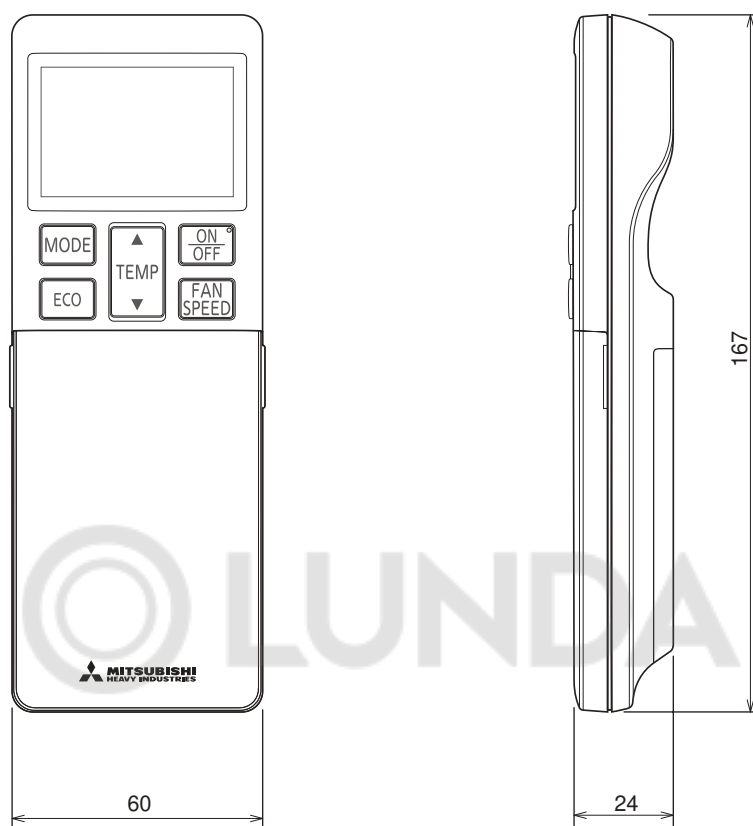
- (1) If the prolongation is over 100m, change to the size below.
But, wiring in the remote control case should be under 0.5mm². Change the wire size outside of the case according to wire connecting. Waterproof treatment is necessary at the wire connecting section. Be careful about contact failure.

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

(b) Wireless remote control (RCN-E2)

Unit: mm



4. ELECTRICAL WIRING

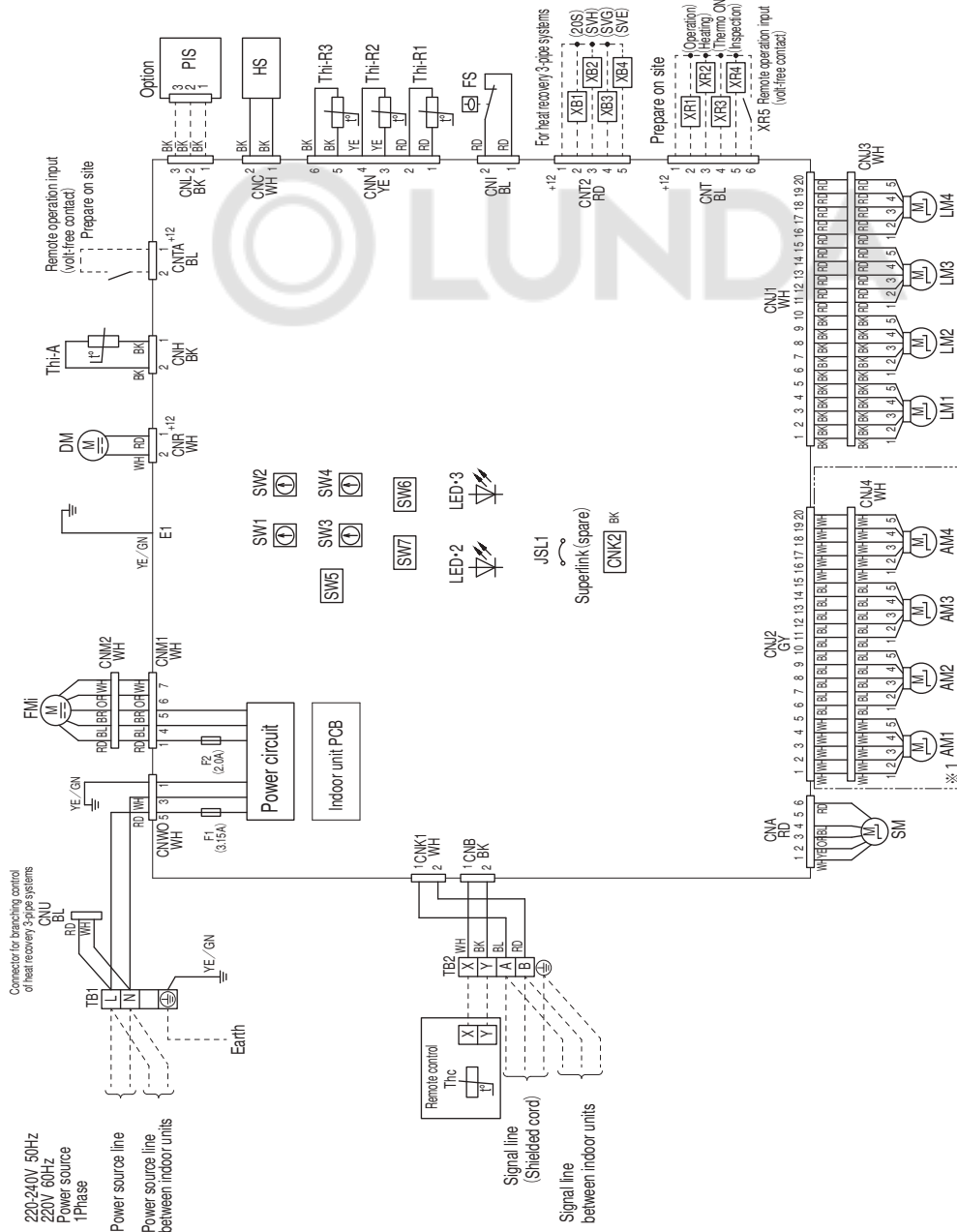
All models

Meaning of marks

Item	Description
AM1-4	Draft prevention function motor
CNA-Z	Connector
DM	Drain motor
F1.2	Fuse
FMI	Fan motor
FS	Float switch
HS	Humidity sensor
JSL1	Spare Superlink connector change
LED-2	Indication lamp (Green-Normal operation)
LED-3	Indication lamp (Red-Inspection)
LM1-4	Louver motor
PIS	Motion sensor
SM	Stepping motor (For electronic expansion valve)
SW1	Indoor unit address: tens place
SW2	Indoor unit address: ones place
SW3	Outdoor unit address: tens place
SW4	Outdoor unit address: ones place
SW5-1	Automatic adjustment / Fixed previous version of superlink protocol
SW5-2	Indoor unit address: hundreds place
SW6, SW7-2	Model capacity setting
SW7-1	Operation check, drain motor test run
TB1	Terminal block (Power source) (□mark)
TB2	Terminal block (Signal line) (□mark)
Thc	Thermistor (Remote control)
Thi-A	Thermistor (Return air)
Thi-R1,2,3	Thermistor (Heat exchanger)

Color marks

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



Notes

1. --- indicates wiring on site.
2. Use twin core shielded cord (0.75-1.25mm²) at signal line between indoor unit and outdoor unit, and signal line between indoor units.
3. Use twin core cord (0.3mm²) at remote control line.
4. See spec sheet of remote control in case that the total length is more than 100m.
5. Do not put signal line and remote control line alongside power source line.
6. Draft prevention function (※ 1) is provided on the panel TC-PSAE-5AW-E only.

PJF000Z504

5. NOISE LEVEL

Notes (1) The data are based on the following conditions.

Ambient air temperature: Indoor unit 27°C DB, 19°C WB. Outdoor unit 35°C DB

(2) The data in the chart are measured in an anechoic room.

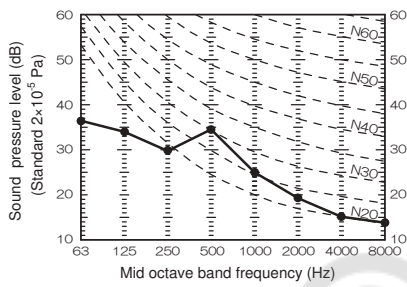
(3) The noise levels measured in the field are usually higher than the data because of reflection.

Measured based on JIS B 8616
Mike position as right



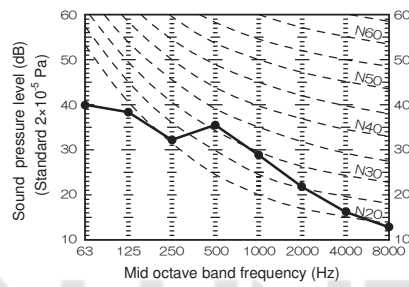
FDTC15KXZE1

Noise level 33dB(A) at P-Hi



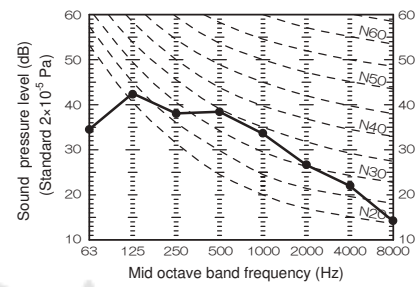
FDTC22,28KXZE1

Noise level 35dB(A) at P-Hi



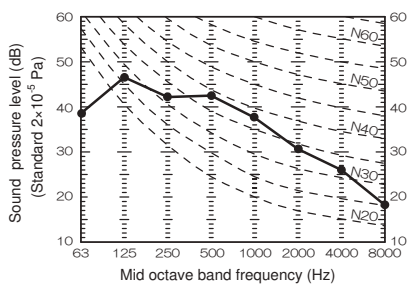
FDTC36KXZE1

Noise level 39dB(A) at P-Hi



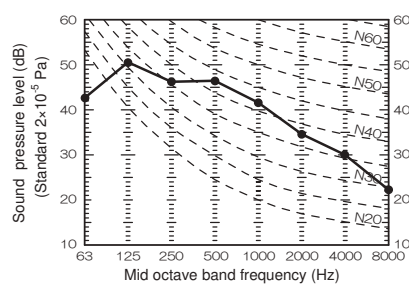
FDTC45KXZE1

Noise level 43dB(A) at P-Hi



FDTC56KXZE1

Noise level 47dB(A) at P-Hi



6. TEMPERATURE AND VELOCITY DISTRIBUTION

Indoor temperature

Cooling 27°CDB/19°CWB, Heating 20°CDB

[Note]

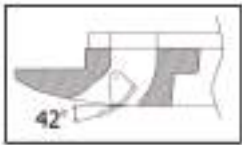
These figures represent the typical main range of temperature and velocity distribution at the center of air outlet within the published conditions.

In the actual installation, they may differ from the typical figures under the influence of air temperature conditions, ceiling height, operation conditions and obstacles.

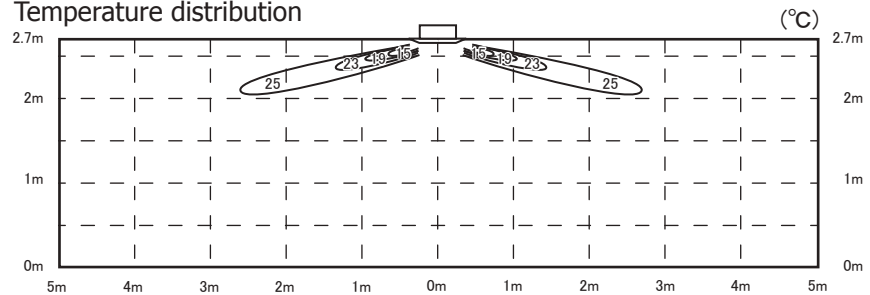
Model FDTC15KXZE1

Cooling Air flow: P-Hi

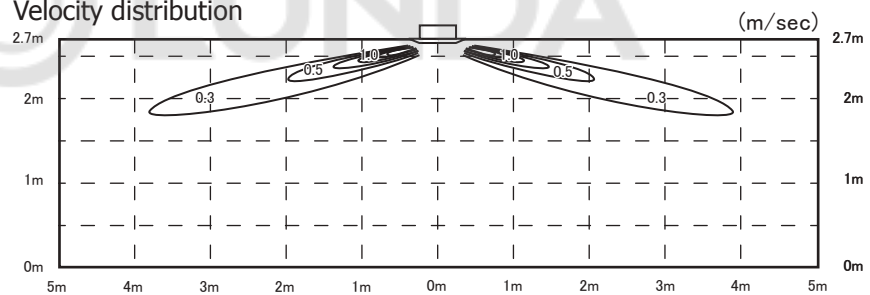
Louver position



Temperature distribution

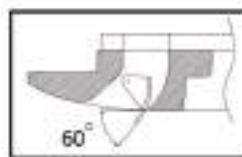


Velocity distribution

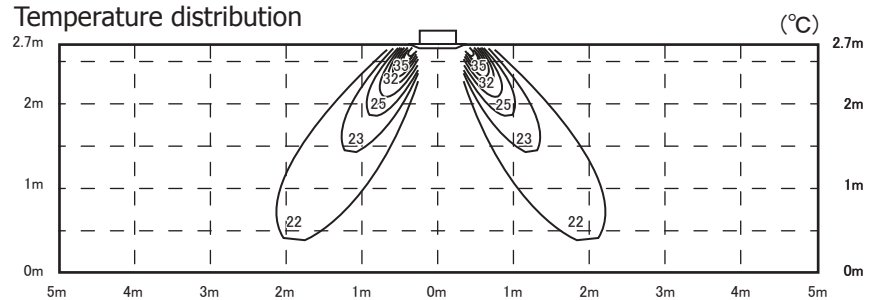


Heating Air flow: P-Hi

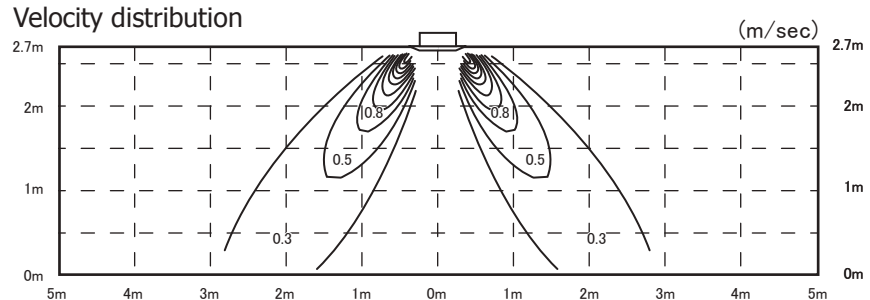
Louver position



Temperature distribution



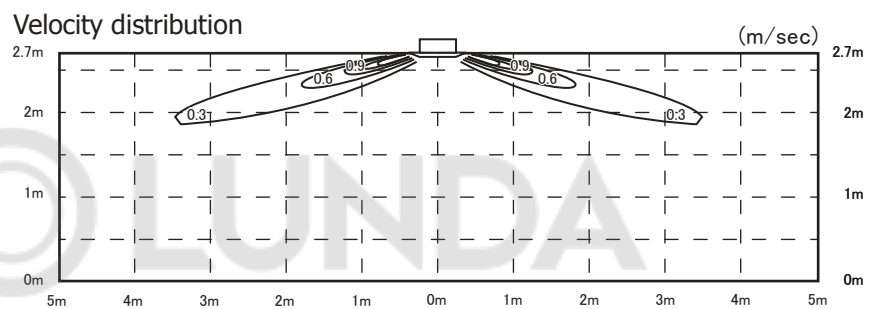
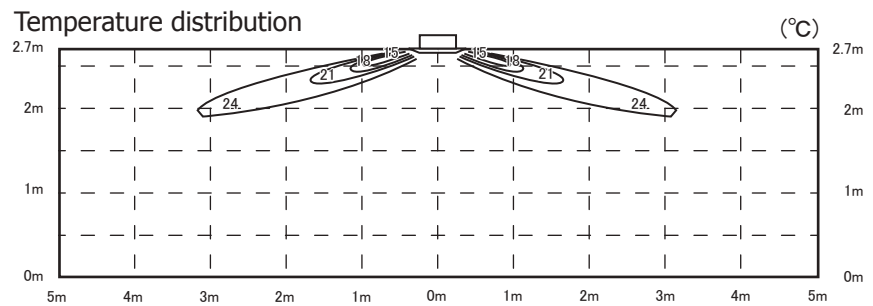
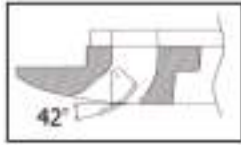
Velocity distribution



Models FDTC22, 28KXZE1

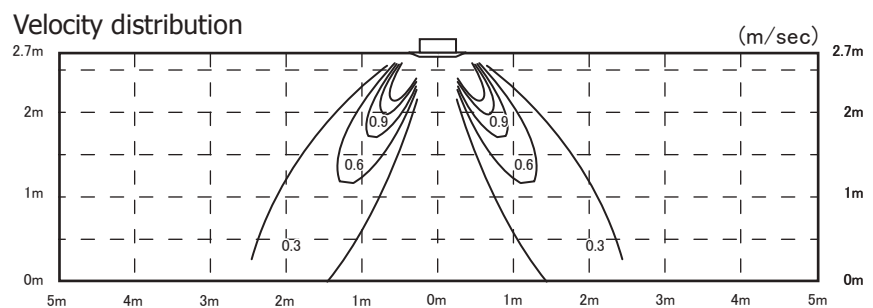
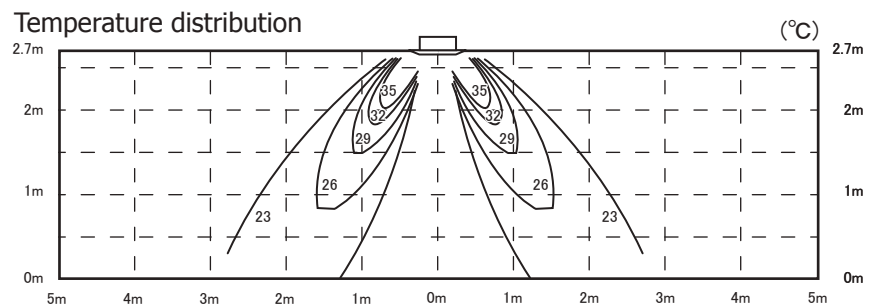
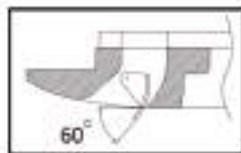
Cooling Air flow: P-Hi

Louver position



Heating Air flow: P-Hi

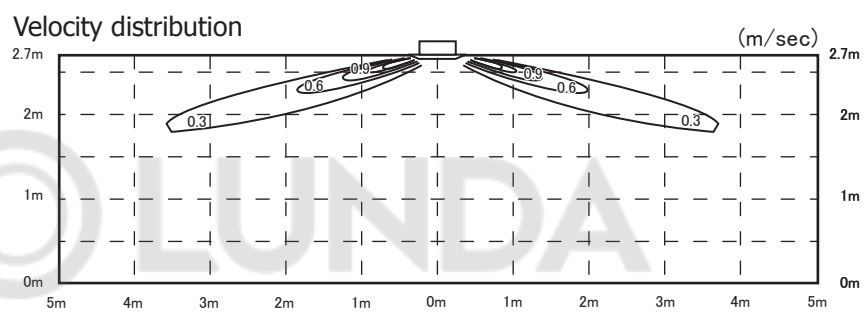
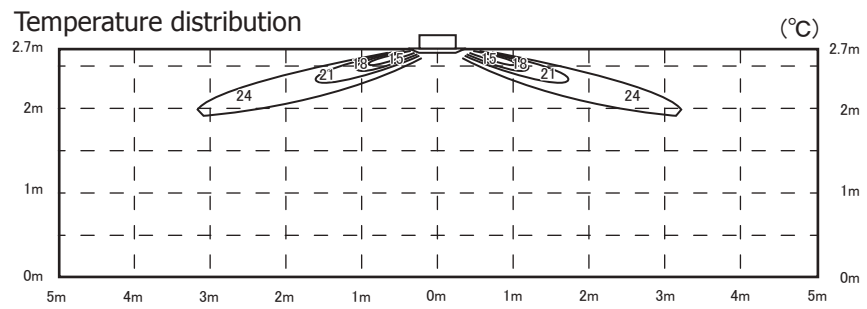
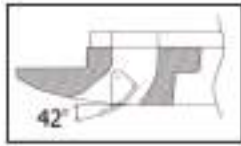
Louver position



Model FDTC36KXZE1

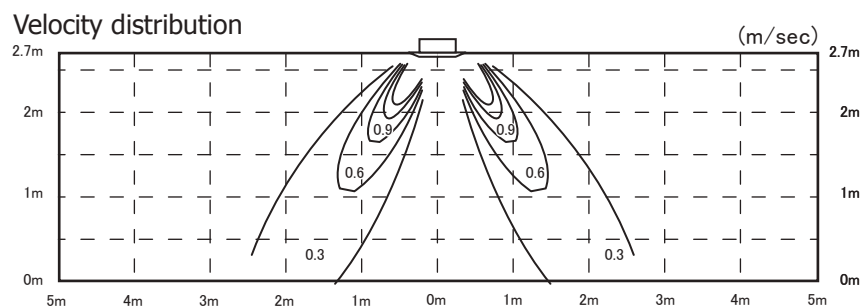
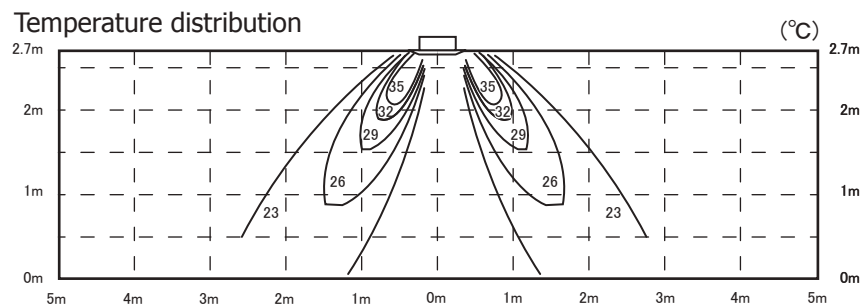
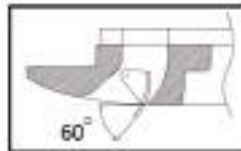
Cooling Air flow: P-Hi

Louver position



Heating Air flow: P-Hi

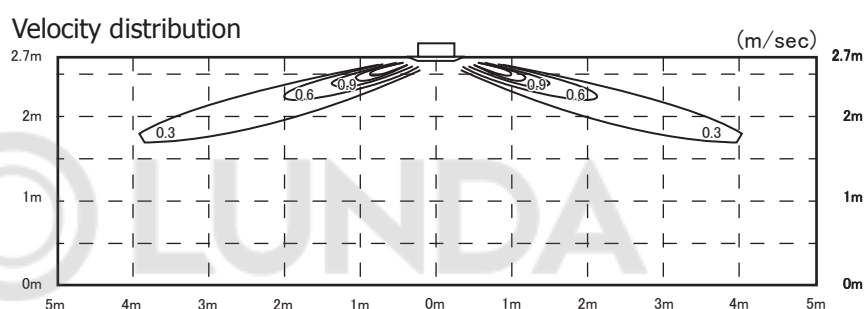
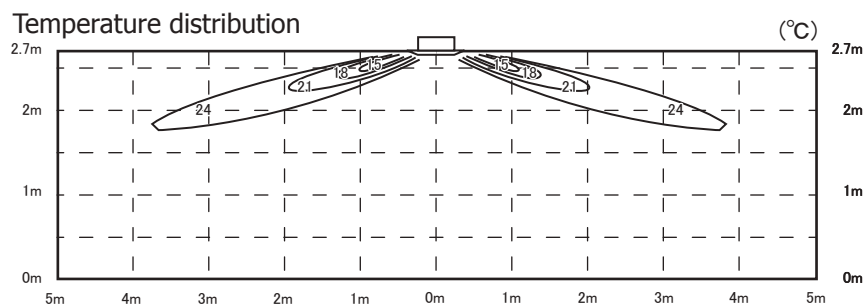
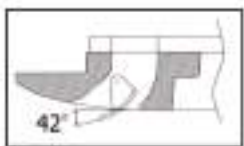
Louver position



Model FDTC45KXZE1

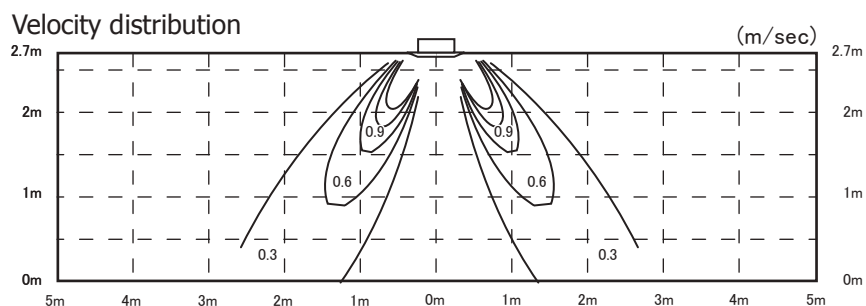
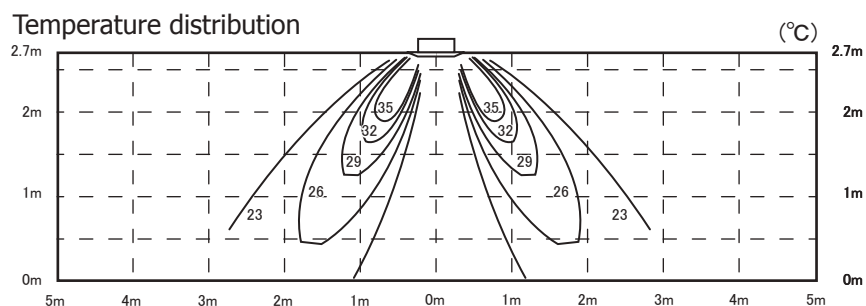
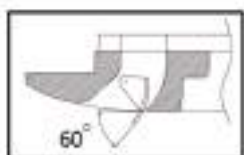
Cooling Air flow: P-Hi

Louver position



Heating Air flow: P-Hi

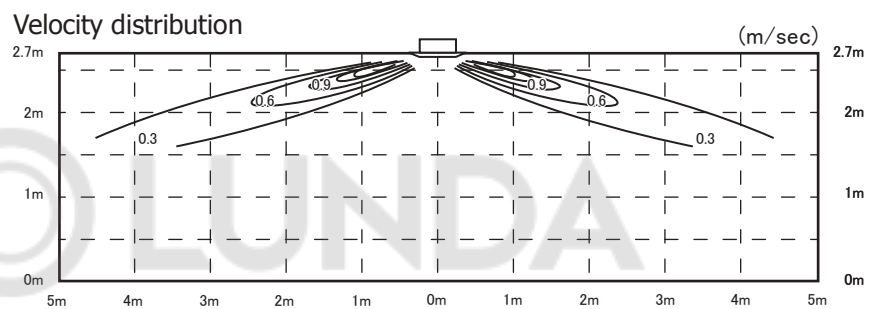
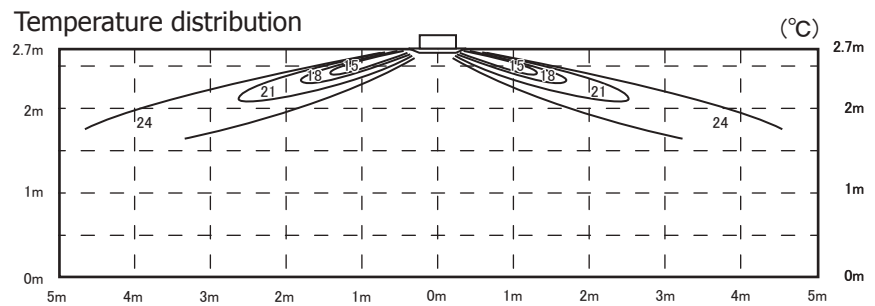
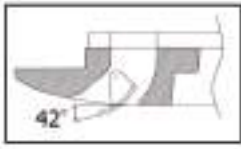
Louver position



Model FDTC56KXZE1

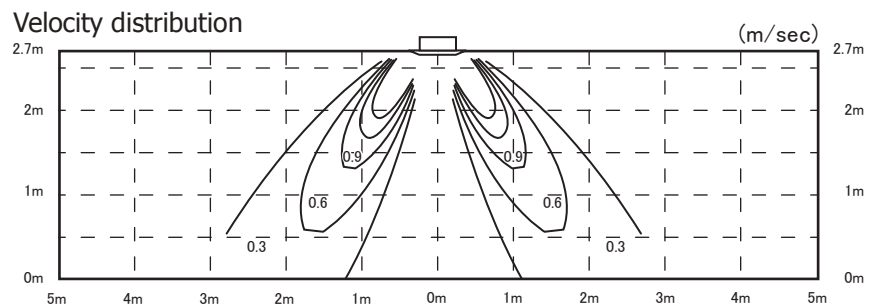
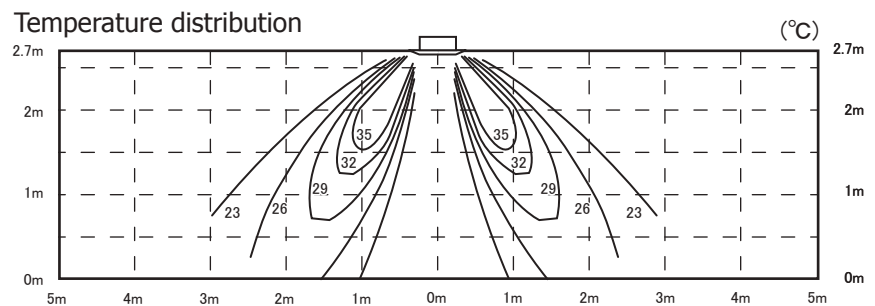
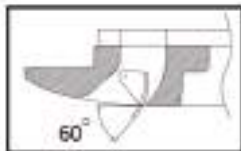
Cooling Air flow: P-Hi

Louver position



Heating Air flow: P-Hi

Louver position



Model FDT22KXZE1

Cooling mode

(kW)

Air flow	Outdoor air temperature (°CDB)	Indoor air temperature													
		21 °CDB 14 °CWB		23 °CDB 16 °CWB		26 °CDB 18 °CWB		27 °CDB 19 °CWB		28 °CDB 20 °CWB		31 °CDB 22 °CWB		33 °CDB 24 °CWB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
P-Hi	10			1.80	1.73	2.16	2.07	2.33	2.18	2.48	2.20	2.78	2.39	2.89	2.34
	12			1.80	1.73	2.16	2.07	2.33	2.18	2.48	2.20	2.77	2.39	2.87	2.34
	14			1.80	1.73	2.16	2.07	2.33	2.18	2.47	2.19	2.76	2.38	2.86	2.33
	16			1.80	1.73	2.16	2.07	2.33	2.18	2.47	2.19	2.75	2.38	2.85	2.33
	18			1.80	1.73	2.16	2.07	2.33	2.18	2.47	2.19	2.74	2.38	2.84	2.33
	20			1.80	1.73	2.16	2.07	2.33	2.18	2.46	2.19	2.73	2.37	2.82	2.32
	22			1.80	1.73	2.15	2.06	2.33	2.18	2.45	2.19	2.69	2.36	2.78	2.31
	24			1.80	1.73	2.15	2.06	2.33	2.18	2.44	2.18	2.66	2.35	2.75	2.30
9 (m³/min)	26			1.80	1.73	2.14	2.05	2.31	2.17	2.41	2.17	2.62	2.34	2.70	2.29
28	1.63	1.56	1.80	1.73	2.13	2.04	2.29	2.17	2.38	2.16	2.58	2.32	2.66	2.27	
30	1.63	1.56	1.79	1.72	2.12	2.04	2.27	2.16	2.36	2.16	2.54	2.31	2.62	2.26	
32	1.63	1.56	1.79	1.72	2.10	2.02	2.24	2.15	2.33	2.14	2.50	2.30	2.58	2.25	
34	1.63	1.56	1.78	1.71	2.09	2.01	2.21	2.12	2.29	2.13	2.44	2.28	2.53	2.24	
35	1.63	1.56	1.78	1.71	2.09	2.01	2.20	2.11	2.27	2.12	2.42	2.27	2.50	2.23	
36	1.63	1.56	1.78	1.71	2.07	1.99	2.19	2.10	2.25	2.12	2.37	2.26	2.45	2.21	
38	1.63	1.56	1.77	1.70	2.04	1.96	2.17	2.08	2.21	2.10	2.29	2.20	2.36	2.19	
39	1.63	1.56	1.77	1.70	2.03	1.95	2.16	2.07	2.19	2.10	2.24	2.15	2.31	2.17	
41	1.63	1.56	1.76	1.69	1.97	1.89	2.07	1.99	2.09	2.01	2.14	2.05	2.20	2.11	
43	1.63	1.56	1.76	1.69	1.91	1.83	1.98	1.90	2.00	1.92	2.05	1.97	2.09	2.01	

Heating mode

(kW)

Air flow	Outdoor temperature		Indoor temperature				
	DB	WB	16 °CDB	18 °CDB	20 °CDB	22 °CDB	24 °CDB
P-Hi	-19.8	-20	1.45	1.45	1.45	1.45	1.45
	-17.8	-18	1.54	1.54	1.54	1.54	1.54
	-15.7	-16	1.64	1.64	1.64	1.64	1.64
	-13.7	-14	1.73	1.73	1.73	1.73	1.73
	-11.7	-12	1.82	1.82	1.82	1.82	1.82
	-9.6	-10	1.92	1.92	1.92	1.92	1.92
	-7.5	-8	2.03	2.03	2.03	2.03	2.03
	-5.5	-6	2.15	2.15	2.15	2.15	2.15
	-3.4	-4	2.23	2.22	2.22	2.20	2.18
	-1.3	-2	2.30	2.29	2.29	2.24	2.20
9 (m³/min)	0.8	0	2.43	2.39	2.36	2.27	2.19
	3.9	3	2.63	2.54	2.44	2.31	2.17
	7.0	6	2.88	2.69	2.50	2.33	2.15
	10.1	9	2.86	2.67	2.49	2.31	2.13
	13.2	12	2.84	2.66	2.48	2.29	2.11
	16.9	15.5	2.82	2.63	2.45	2.27	2.09

Air flow	Outdoor air temperature (°CDB)	Indoor air temperature													
		21 °CDB 14 °CWB		23 °CDB 16 °CWB		26 °CDB 18 °CWB		27 °CDB 19 °CWB		28 °CDB 20 °CWB		31 °CDB 22 °CWB		33 °CDB 24 °CWB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
Hi	10			1.67	1.60	1.99	1.91	2.16	1.98	2.29	2.00	2.57	2.16	2.67	2.12
	12			1.67	1.60	1.99	1.91	2.16	1.98	2.29	2.00	2.56	2.16	2.66	2.11
	14			1.67	1.60	1.99	1.91	2.16	1.98	2.29	2.00	2.55	2.15	2.64	2.11
	16			1.67	1.60	1.99	1.91	2.16	1.98	2.28	1.99	2.54	2.15	2.63	2.11
	18			1.67	1.60	1.99	1.91	2.16	1.98	2.28	1.99	2.53	2.15	2.62	2.10
	20			1.67	1.60	1.99	1.91	2.16	1.98	2.28	1.99	2.52	2.14	2.61	2.10
	22			1.66	1.59	1.99	1.91	2.16	1.98	2.27	1.99	2.49	2.13	2.57	2.09
	24			1.66	1.59	1.99	1.91	2.16	1.98	2.26	1.99	2.46	2.12	2.54	2.08
	26			1.66	1.59	1.98	1.90	2.14	1.98	2.23	1.97	2.42	2.11	2.50	2.07
	28	1.50	1.44	1.66	1.59	1.97	1.89	2.11	1.96	2.20	1.96	2.38	2.10	2.46	2.05
8 (m³/min)	30	1.50	1.44	1.66	1.59	1.96	1.88	2.09	1.96	2.18	1.96	2.34	2.09	2.42	2.04
	32	1.50	1.44	1.65	1.58	1.94	1.86	2.07	1.95	2.15	1.95	2.31	2.08	2.39	2.03
	34	1.50	1.44	1.65	1.58	1.94	1.86	2.05	1.94	2.12	1.94	2.26	2.06	2.34	2.02
	35	1.50	1.44	1.64	1.57	1.93	1.85	2.03	1.94	2.10	1.93	2.24	2.05	2.31	2.01
	36	1.50	1.44	1.64	1.57	1.92	1.84	2.02	1.93	2.08	1.92	2.20	2.04	2.27	2.00
	38	1.50	1.44	1.64	1.57	1.89	1.81	2.00	1.92	2.04	1.91	2.12	2.01	2.18	1.97
	39	1.50	1.44	1.64	1.57	1.87	1.80	1.99	1.91	2.02	1.90	2.07	1.99	2.13	1.96
	41	1.50	1.44	1.63	1.56	1.82	1.75	1.91	1.83	1.94	1.86	1.98	1.90	2.03	1.93
	43	1.50	1.44	1.62	1.56	1.76	1.69	1.83	1.76	1.85	1.78	1.89	1.81	1.93	1.85

Air flow	Outdoor temperature		Indoor temperature				
	DB	WB	16 °CDB	18 °CDB	20 °CDB	22 °CDB	24 °CDB
Hi	-19.8	-20	1.33	1.33	1.33	1.33	1.33
	-17.8	-18	1.42	1.42	1.42	1.42	1.42
	-15.7	-16	1.51	1.51	1.51	1.51	1.51
	-13.7	-14	1.59	1.59	1.59	1.59	1.59
	-11.7	-12	1.68	1.68	1.68	1.68	1.68
	-9.6	-10	1.76	1.76	1.76	1.76	1.76
	-7.5	-8	1.87	1.87	1.87	1.87	1.87
	-5.5	-6	1.98	1.98	1.98	1.98	1.98
	-3.4	-4	2.05	2.04	2.04	2.02	2.00
	-1.3	-2	2.12	2.11	2.11	2.07	2.02
8 (m³/min)	0.8	0	2.23	2.20	2.17	2.09	2.01
	3.9	3	2.42	2.34	2.25	2.12	2.00
	7.0	6	2.65	2.47	2.30	2.14	1.98
	10.1	9	2.63	2.46	2.29	2.13	1.96
	13.2	12	2.61	2.44	2.28	2.11	1.94
	16.9	15.5	2.59	2.42	2.26	2.09	1.92

Air flow	Outdoor air temperature (°CDB)	Indoor air temperature													
		21 °CDB 14 °CWB		23 °CDB 16 °CWB		26 °CDB 18 °CWB		27 °CDB 19 °CWB		28 °CDB 20 °CWB		31 °CDB 22 °CWB		33 °CDB 24 °CWB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
Me	10			1.52	1.46	1.81	1.74	1.96	1.77	2.09	1.78	2.34	1.94	2.43	1.90
	12			1.52	1.46	1.81	1.74	1.96	1.77	2.08	1.78	2.33	1.93	2.42	1.90
	14			1.52	1.46	1.81	1.74	1.96	1.77	2.08	1.78	2.32	1.93	2.41	1.89
	16			1.52	1.46	1.81	1.74	1.96	1.77	2.08	1.78	2.31	1.93	2.40	1.89
	18			1.52	1.46	1.81	1.74	1.96	1.77	2.08	1.78	2.30	1.92	2.39	1.89
	20			1.52	1.46	1.81	1.74	1.96	1.77	2.07	1.78	2.30	1.92	2.38	1.88
	22			1.51	1.45	1.81	1.74	1.96	1.77	2.06	1.77	2.27	1.91	2.34	1.87
	24			1.51	1.45	1.81	1.74	1.96	1.77	2.05	1.77	2.24	1.90	2.31	1.86
	26			1.51	1.45	1.80	1.73	1.94	1.76	2.03	1.76	2.20	1.89	2.27	1.85
	28	1.37	1.32	1.51	1.45	1.80	1.73	1.92	1.75	2.01	1.75	2.17	1.88	2.24	1.84
7 (m³/min)	30	1.37	1.32	1.51	1.45	1.78	1.71	1.91	1.75	1.98	1.74	2.13	1.87	2.21	1.83
	32	1.37	1.32	1.50	1.44	1.77	1.70	1.89	1.74	1.96	1.74	2.10	1.86	2.17	1.82
	34	1.37	1.32	1.50	1.44	1.76	1.69	1.86	1.73	1.93	1.73	2.06	1.85	2.13	1.81
	35	1.37	1.32	1.50	1.44	1.76	1.69	1.85	1.73	1.91	1.72	2.03	1.84	2.11	1.80
	36	1.37	1.32	1.49	1.43	1.74	1.67	1.84	1.72	1.89	1.71	2.00	1.83	2.06	1.79
	38	1.37	1.32	1.49	1.43	1.72	1.65	1.82	1.72	1.86	1.70	1.92	1.80	1.98	1.76
	39	1.37	1.32	1.49	1.43	1.71	1.64	1.81	1.71	1.84	1.69	1.89	1.79	1.94	1.75
	41	1.37	1.32	1.48	1.42	1.65	1.58	1.74	1.67	1.76	1.67	1.80	1.73	1.85	1.72
	43	1.37	1.32	1.48	1.42	1.60	1.54	1.67	1.60	1.68	1.61	1.72	1.65	1.76	1.69

Model FDT28KXZE1

Cooling mode

(kW)

Air flow	Outdoor air temperature (°CDB)	Indoor air temperature													
		21 °CDB 14 °CWB		23 °CDB 16 °CWB		26 °CDB 18 °CWB		27 °CDB 19 °CWB		28 °CDB 20 °CWB		31 °CDB 22 °CWB		33 °CDB 24 °CWB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
P-Hi	10			2.30	2.11	2.74	2.38	2.97	2.42	3.16	2.45	3.54	2.65	3.67	2.59
	12			2.30	2.11	2.74	2.38	2.97	2.42	3.15	2.45	3.52	2.65	3.66	2.59
	14			2.30	2.11	2.74	2.38	2.97	2.42	3.15	2.45	3.51	2.64	3.64	2.58
	16			2.30	2.11	2.74	2.38	2.97	2.42	3.14	2.44	3.50	2.64	3.63	2.58
	18			2.30	2.11	2.74	2.38	2.97	2.42	3.14	2.44	3.49	2.64	3.61	2.57
	20			2.30	2.11	2.74	2.38	2.97	2.42	3.14	2.44	3.47	2.63	3.59	2.57
	22			2.29	2.11	2.74	2.38	2.97	2.42	3.12	2.44	3.43	2.62	3.54	2.55
9	24			2.29	2.11	2.74	2.38	2.97	2.42	3.11	2.43	3.39	2.60	3.50	2.54
(m³/min)	26			2.29	2.11	2.73	2.38	2.94	2.41	3.07	2.42	3.33	2.58	3.44	2.52
	28	2.07	1.99	2.28	2.11	2.72	2.37	2.91	2.40	3.03	2.40	3.28	2.56	3.39	2.50
	30	2.07	1.99	2.28	2.11	2.70	2.37	2.88	2.39	3.00	2.39	3.23	2.54	3.34	2.49
	32	2.07	1.99	2.27	2.10	2.67	2.35	2.86	2.38	2.96	2.37	3.18	2.53	3.29	2.47
	34	2.07	1.99	2.27	2.10	2.66	2.35	2.82	2.37	2.92	2.36	3.11	2.50	3.22	2.45
	35	2.07	1.99	2.26	2.10	2.66	2.35	2.80	2.36	2.89	2.35	3.08	2.49	3.18	2.44
	36	2.07	1.99	2.26	2.10	2.64	2.34	2.79	2.36	2.86	2.34	3.02	2.47	3.12	2.42
	38	2.07	1.99	2.25	2.09	2.60	2.33	2.76	2.34	2.81	2.32	2.91	2.44	3.00	2.38
	39	2.07	1.99	2.25	2.09	2.58	2.32	2.74	2.34	2.78	2.31	2.86	2.42	2.94	2.36
	41	2.07	1.99	2.24	2.09	2.50	2.29	2.63	2.30	2.66	2.27	2.73	2.37	2.80	2.32
	43	2.07	1.99	2.24	2.09	2.43	2.26	2.52	2.26	2.55	2.23	2.60	2.33	2.66	2.27

Heating mode

(kW)

Air flow	Outdoor temperature		Indoor temperature					
	DB	WB	16 °CDB	18 °CDB	20 °CDB	22 °CDB	24 °CDB	
P-Hi	-19.8	-20	1.86	1.86	1.86	1.86	1.86	
	-17.8	-18	1.98	1.98	1.98	1.98	1.98	
	-15.7	-16	2.09	2.09	2.09	2.09	2.09	
	-13.7	-14	2.21	2.21	2.21	2.21	2.21	
	-11.7	-12	2.33	2.33	2.33	2.33	2.33	
	-9.6	-10	2.45	2.45	2.45	2.45	2.45	
	-7.5	-8	2.60	2.60	2.60	2.60	2.60	
	-5.5	-6	2.75	2.75	2.75	2.75	2.75	
	-3.4	-4	2.85	2.84	2.84	2.81	2.78	
	-1.3	-2	2.94	2.94	2.93	2.87	2.82	
9 (m³/min)	0.8	0	3.10	3.06	3.02	2.91	2.80	
	3.9	3	3.37	3.25	3.13	2.95	2.78	
	7.0	6	3.68	3.44	3.20	2.98	2.75	
	10.1	9	3.66	3.42	3.19	2.96	2.73	
	13.2	12	3.63	3.40	3.17	2.94	2.70	
	16.9	15.5	3.60	3.37	3.14	2.91	2.68	

Air flow	Outdoor air temperature (°CDB)	Indoor air temperature													
		21 °CDB 14 °CWB		23 °CDB 16 °CWB		26 °CDB 18 °CWB		27 °CDB 19 °CWB		28 °CDB 20 °CWB		31 °CDB 22 °CWB		33 °CDB 24 °CWB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
Hi	10			2.12	1.92	2.54	2.17	2.74	2.21	2.92	2.23	3.27	2.42	3.39	2.36
	12			2.12	1.92	2.54	2.17	2.74	2.21	2.91	2.23	3.26	2.41	3.38	2.35
	14			2.12	1.92	2.54	2.17	2.74	2.21	2.91	2.23	3.25	2.41	3.37	2.35
	16			2.12	1.92	2.54	2.17	2.74	2.21	2.91	2.23	3.23	2.40	3.35	2.34
	18			2.12	1.92	2.54	2.17	2.74	2.21	2.90	2.22	3.22	2.40	3.34	2.34
	20			2.12	1.92	2.54	2.17	2.74	2.21	2.90	2.22	3.21	2.39	3.32	2.33
	22			2.12	1.92	2.54	2.17	2.74	2.21	2.89	2.22	3.17	2.38	3.28	2.32
	24			2.12	1.92	2.53	2.17	2.74	2.21	2.87	2.21	3.13	2.36	3.23	2.31
	26			2.11	1.92	2.52	2.16	2.72	2.20	2.84	2.20	3.08	2.35	3.18	2.29
	28	1.92	1.84	2.11	1.92	2.51	2.16	2.69	2.19	2.80	2.19	3.03	2.33	3.13	2.27
8 (m³/min)	30	1.92	1.84	2.11	1.92	2.49	2.15	2.67	2.18	2.77	2.17	2.98	2.31	3.08	2.26
	32	1.92	1.84	2.10	1.91	2.47	2.14	2.64	2.17	2.74	2.16	2.94	2.30	3.04	2.25
	34	1.92	1.84	2.09	1.91	2.46	2.14	2.61	2.16	2.70	2.15	2.88	2.28	2.98	2.21
	35	1.92	1.84	2.09	1.91	2.46	2.14	2.59	2.15	2.67	2.14	2.85	2.27	2.94	2.20
	36	1.92	1.84	2.09	1.91	2.44	2.13	2.58	2.14	2.65	2.13	2.79	2.23	2.89	2.19
	38	1.92	1.84	2.08	1.90	2.40	2.11	2.55	2.13	2.60	2.11	2.69	2.20	2.77	2.15
	39	1.92	1.84	2.08	1.90	2.38	2.11	2.54	2.13	2.57	2.10	2.64	2.18	2.72	2.13
	41	1.92	1.84	2.07	1.90	2.31	2.08	2.43	2.09	2.46	2.06	2.52	2.14	2.59	2.09
	43	1.92	1.84	2.07	1.90	2.24	2.05	2.33	2.05	2.36	2.02	2.41	2.11	2.46	2.05

Air flow	Outdoor temperature		Indoor temperature					
	DB	WB	16 °CDB	18 °CDB	20 °CDB	22 °CDB	24 °CDB	
Hi	-19.8	-20	1.71	1.71	1.71	1.71	1.71	
	-17.8	-18	1.82	1.82	1.82	1.82	1.82	
	-15.7	-16	1.93	1.93	1.93	1.93	1.93	
	-13.7	-14	2.04	2.04	2.04	2.04	2.04	
	-11.7	-12	2.15	2.15	2.15	2.15	2.15	
	-9.6	-10	2.26	2.26	2.26	2.26	2.26	
	-7.5	-8	2.40	2.40	2.40	2.40	2.40	
	-5.5	-6	2.53	2.53	2.53	2.53	2.53	
	-3.4	-4	2.62	2.62	2.61	2.59	2.56	
	-1.3	-2	2.71	2.70	2.69	2.64	2.59	
8 (m³/min)	0.8	0	2.86	2.82	2.78	2.68	2.58	
	3.9	3	3.10	2.99	2.88	2.72	2.56	
	7.0	6	3.39	3.17	2.95	2.74	2.53	
	10.1	9	3.36	3.15	2.93	2.72	2.51	
	13.2	12	3.34	3.13	2.92	2.70	2.49	
	16.9	15.5	3.32	3.10	2.89	2.68	2.46	

Air flow	Outdoor air temperature (°CDB)	Indoor air temperature													
		21 °CDB 14 °CWB		23 °CDB 16 °CWB		26 °CDB 18 °CWB		27 °CDB 19 °CWB		28 °CDB 20 °CWB		31 °CDB 22 °CWB		33 °CDB 24 °CWB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
Me	10			1.93	1.72	2.31	1.94	2.50	1.97	2.66	1.99	2.98	2.16	3.09	2.11
	12			1.93	1.72	2.31	1.94	2.50	1.97	2.65	1.99	2.96	2.16	3.08	2.11
	14			1.93	1.72	2.31	1.94	2.50	1.97	2.65	1.99	2.95	2.15	3.06	2.10
	16			1.93	1.72	2.31	1.94	2.50	1.97	2.65	1.99	2.94	2.15	3.05	2.10
	18			1.93	1.72	2.31	1.94	2.50	1.97	2.64	1.99	2.93	2.15	3.04	2.10
	20			1.93	1.72	2.31	1.94	2.50	1.97	2.64	1.99	2.92	2.14	3.02	2.09
	22			1.93	1.72	2.31	1.94	2.50	1.97	2.63	1.98	2.88	2.13	2.98	2.08
	24			1.93	1.72	2.31	1.94	2.50	1.97	2.61	1.98	2.85	2.12	2.94	2.06
	26			1.92	1.71	2.30	1.93	2.47	1.96	2.58	1.96	2.80	2.10	2.90	2.05
	28	1.74	1.67	1.92	1.71	2.28	1.93	2.45	1.95	2.55	1.95	2.76	2.09	2.85	2.03
7 (m³/min)	30	1.74	1.67	1.92	1.71	2.27	1.92	2.43	1.95	2.52	1.94	2.72	2.07	2.81	2.02
	32	1.74	1.67	1.91	1.71	2.25	1.91	2.40	1.93	2.49	1.93	2.67	2.05	2.76	2.01
	34	1.74	1.67	1.91	1.71	2.24	1.91	2.37	1.92	2.45	1.92	2.62	2.04	2.71	1.99
	35	1.74	1.67	1.90	1.70	2.24	1.91	2.36	1.92	2.43	1.91	2.59	2.03	2.68	1.98
	36	1.74	1.67	1.90	1.70	2.22	1.90	2.34	1.91	2.41	1.90	2.54	2.01	2.63	1.96
	38	1.74	1.67	1.90	1.70	2.19	1.89	2.32	1.90	2.36	1.88	2.45	1.98	2.52	1.93
	39	1.74	1.67	1.89	1.70	2.17	1.88	2.31	1.90	2.34	1.87	2.40	1.96	2.47	1.91
	41	1.74	1.67	1.89	1.70	2.11	1.86	2.21	1.86	2.24	1.84	2.30	1.92	2.36	1.88
	43	1.74	1.67	1.88	1.70	2.04	1.83	2.12	1.83	2.14	1.80	2.19	1.89	2.24	1.84

Model FDTC36KXZE1

Cooling mode

(kW)

Air flow	Outdoor air temperature (°CDB)	Indoor air temperature													
		21 °CDB 14 °CWB		23 °CDB 16 °CWB		26 °CDB 18 °CWB		27 °CDB 19 °CWB		28 °CDB 20 °CWB		31 °CDB 22 °CWB		33 °CDB 24 °CWB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
P-Hi	10			2.95	2.55	3.53	2.88	3.82	2.94	4.06	2.97	4.55	3.22	4.72	3.14
	12			2.95	2.55	3.53	2.88	3.82	2.94	4.05	2.97	4.53	3.21	4.70	3.13
	14			2.95	2.55	3.53	2.88	3.82	2.94	4.05	2.97	4.51	3.20	4.68	3.13
	16			2.95	2.55	3.53	2.88	3.82	2.94	4.04	2.96	4.50	3.20	4.66	3.12
	18			2.95	2.55	3.53	2.88	3.82	2.94	4.04	2.96	4.48	3.19	4.64	3.11
	20			2.95	2.55	3.53	2.88	3.82	2.94	4.03	2.96	4.47	3.19	4.62	3.11
	22			2.95	2.55	3.53	2.88	3.82	2.94	4.01	2.95	4.41	3.17	4.56	3.09
10			2.94	2.55	3.52	2.88	3.82	2.94	3.99	2.94	4.35	3.15	4.49	3.06	
(m³/min)	24			2.94	2.55	3.51	2.87	3.78	2.92	3.95	2.93	4.28	3.12	4.43	3.04
	26			2.94	2.55	3.49	2.86	3.74	2.91	3.90	2.91	4.22	3.10	4.36	3.02
	28	2.66	2.52	2.94	2.55	3.49	2.86	3.74	2.91	3.90	2.91	4.22	3.10	4.36	3.02
	30	2.66	2.52	2.93	2.55	3.47	2.86	3.71	2.89	3.86	2.89	4.15	3.07	4.29	3.00
	32	2.66	2.52	2.92	2.54	3.44	2.84	3.67	2.88	3.81	2.87	4.09	3.05	4.23	2.98
	34	2.66	2.52	2.91	2.54	3.43	2.84	3.62	2.86	3.75	2.85	4.00	3.02	4.14	2.95
	35	2.66	2.52	2.91	2.54	3.42	2.84	3.60	2.85	3.72	2.84	3.96	3.01	4.09	2.93
	36	2.66	2.52	2.91	2.54	3.39	2.82	3.58	2.84	3.68	2.82	3.89	2.98	4.02	2.91
	38	2.66	2.52	2.90	2.53	3.34	2.80	3.55	2.83	3.61	2.80	3.74	2.93	3.86	2.86
	39	2.66	2.52	2.89	2.53	3.32	2.80	3.53	2.82	3.58	2.79	3.67	2.91	3.78	2.83
	41	2.66	2.52	2.88	2.52	3.22	2.76	3.38	2.76	3.43	2.73	3.51	2.85	3.60	2.78
	43	2.66	2.52	2.87	2.52	3.12	2.71	3.24	2.71	3.28	2.67	3.35	2.80	3.42	2.72

Heating mode

(kW)

Air flow	Outdoor temperature		Indoor temperature					
	DB	WB	16 °CDB	18 °CDB	20 °CDB	22 °CDB	24 °CDB	
P-Hi	-19.8	-20	2.32	2.32	2.32	2.32	2.32	
	-17.8	-18	2.47	2.47	2.47	2.47	2.47	
	-15.7	-16	2.62	2.62	2.62	2.62	2.62	
	-13.7	-14	2.77	2.77	2.77	2.77	2.77	
	-11.7	-12	2.92	2.92	2.92	2.92	2.92	
	-9.6	-10	3.07	3.07	3.07	3.07	3.07	
	-7.5	-8	3.25	3.25	3.25	3.25	3.25	
	-5.5	-6	3.44	3.44	3.44	3.44	3.44	
	-3.4	-4	3.56	3.56	3.55	3.52	3.48	
	-1.3	-2	3.68	3.67	3.66	3.59	3.52	
10 (m³/min)	0.8	0	3.88	3.83	3.77	3.64	3.50	
	3.9	3	4.21	4.06	3.91	3.69	3.47	
	7.0	6	4.60	4.30	4.00	3.72	3.44	
	10.1	9	4.57	4.28	3.99	3.70	3.41	
	13.2	12	4.54	4.25	3.96	3.67	3.38	
	16.9	15.5	4.51	4.22	3.93	3.64	3.35	

Air flow	Outdoor air temperature (°CDB)	Indoor air temperature													
		21 °CDB 14 °CWB		23 °CDB 16 °CWB		26 °CDB 18 °CWB		27 °CDB 19 °CWB		28 °CDB 20 °CWB		31 °CDB 22 °CWB		33 °CDB 24 °CWB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
Hi	10			2.72	2.33	3.25	2.63	3.51	2.68	3.74	2.72	4.19	2.93	4.35	2.86
	12			2.72	2.33	3.25	2.63	3.51	2.68	3.73	2.71	4.17	2.92	4.33	2.85
	14			2.72	2.33	3.25	2.63	3.51	2.68	3.73	2.71	4.15	2.91	4.31	2.84
	16			2.72	2.33	3.25	2.63	3.51	2.68	3.72	2.71	4.14	2.91	4.29	2.83
	18			2.72	2.33	3.25	2.63	3.51	2.68	3.72	2.71	4.12	2.90	4.27	2.83
	20			2.72	2.33	3.25	2.63	3.51	2.68	3.71	2.71	4.11	2.90	4.25	2.82
	22			2.71	2.32	3.25	2.63	3.51	2.68	3.69	2.70	4.06	2.88	4.19	2.80
	24			2.71	2.32	3.24	2.63	3.51	2.68	3.68	2.69	4.01	2.86	4.14	2.78
	26			2.71	2.32	3.23	2.63	3.48	2.67	3.63	2.67	3.94	2.84	4.07	2.76
	28	2.45	2.30	2.70	2.32	3.21	2.62	3.45	2.66	3.59	2.66	3.88	2.81	4.01	2.74
9 (m³/min)	30	2.45	2.30	2.70	2.32	3.19	2.61	3.41	2.64	3.55	2.64	3.82	2.79	3.95	2.72
	32	2.45	2.30	2.69	2.32	3.16	2.60	3.38	2.63	3.51	2.63	3.76	2.77	3.89	2.70
	34	2.45	2.30	2.68	2.31	3.15	2.59	3.34	2.62	3.45	2.60	3.68	2.74	3.81	2.68
	35	2.45	2.30	2.68	2.31	3.15	2.59	3.31	2.60	3.42	2.59	3.64	2.73	3.77	2.66
	36	2.45	2.30	2.67	2.31	3.12	2.58	3.30	2.60	3.39	2.58	3.58	2.71	3.70	2.64
	38	2.45	2.30	2.67	2.31	3.08	2.56	3.26	2.58	3.32	2.55	3.45	2.66	3.55	2.59
	39	2.45	2.30	2.66	2.30	3.05	2.55	3.25	2.58	3.29	2.54	3.38	2.64	3.48	2.57
	41	2.45	2.30	2.65	2.30	2.96	2.51	3.11	2.52	3.15	2.49	3.23	2.58	3.31	2.52
	43	2.45	2.30	2.64	2.29	2.87	2.47	2.98	2.47	3.01	2.43	3.08	2.53	3.15	2.47

Air flow	Outdoor temperature		Indoor temperature				
	DB	WB	16 °CDB	18 °CDB	20 °CDB	22 °CDB	24 °CDB
Hi	-19.8	-20	2.11	2.11	2.11	2.11	2.11
	-17.8	-18	2.25	2.25	2.25	2.25	2.25
	-15.7	-16	2.39	2.39	2.39	2.39	2.39
	-13.7	-14	2.52	2.52	2.52	2.52	2.52
	-11.7	-12	2.66	2.66	2.66	2.66	2.66
	-9.6	-10	2.79	2.79	2.79	2.79	2.79
	-7.5	-8	2.96	2.96	2.96	2.96	2.96
	-5.5	-6	3.13	3.13	3.13	3.13	3.13
	-3.4	-4	3.24	3.24	3.23	3.20	3.17
	-1.3	-2	3.35	3.34	3.33	3.27	3.21
9 (m³/min)	0.8	0	3.53	3.48	3.43	3.31	3.19
	3.9	3	3.84	3.70	3.56	3.36	3.16
	7.0	6	4.19	3.92	3.64	3.39	3.13
	10.1	9	4.16	3.90	3.63	3.37	3.11
	13.2	12	4.14	3.87	3.61	3.34	3.08
	16.9	15.5	4.10	3.84	3.58	3.31	3.05

Air flow	Outdoor air temperature ("CDB)	Indoor air temperature													
		21 "CDB 14 "CWB		23 "CDB 16 "CWB		26 "CDB 18 "CWB		27 "CDB 19 "CWB		28 "CDB 20 "CWB		31 "CDB 22 "CWB		33 "CDB 24 "CWB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
Me	10			2.47	2.10	2.95	2.36	3.19	2.41	3.39	2.44	3.80	2.64	3.95	2.56
	12			2.47	2.10	2.95	2.36	3.19	2.41	3.39	2.44	3.79	2.63	3.93	2.56
	14			2.47	2.10	2.95	2.36	3.19	2.41	3.39	2.44	3.77	2.63	3.91	2.55
	16			2.47	2.10	2.95	2.36	3.19	2.41	3.38	2.44	3.76	2.62	3.90	2.55
	18			2.47	2.10	2.95	2.36	3.19	2.41	3.38	2.44	3.75	2.62	3.88	2.54
	20			2.47	2.10	2.95	2.36	3.19	2.41	3.37	2.43	3.73	2.61	3.86	2.53
	22			2.46	2.09	2.95	2.36	3.19	2.41	3.36	2.43	3.69	2.59	3.81	2.52
	24			2.46	2.09	2.95	2.36	3.19	2.41	3.34	2.42	3.64	2.57	3.76	2.50
	26			2.46	2.09	2.93	2.36	3.16	2.40	3.30	2.40	3.58	2.55	3.70	2.48
	28	2.23	2.07	2.46	2.09	2.92	2.35	3.13	2.39	3.26	2.39	3.52	2.53	3.64	2.46
8 (m³/min)	30	2.23	2.07	2.45	2.09	2.90	2.34	3.10	2.38	3.22	2.37	3.47	2.51	3.59	2.44
	32	2.23	2.07	2.44	2.08	2.87	2.33	3.07	2.36	3.19	2.36	3.42	2.49	3.53	2.42
	34	2.23	2.07	2.44	2.08	2.86	2.33	3.03	2.35	3.13	2.34	3.34	2.46	3.46	2.40
	35	2.23	2.07	2.43	2.08	2.86	2.33	3.01	2.34	3.11	2.33	3.31	2.45	3.42	2.39
	36	2.23	2.07	2.43	2.08	2.84	2.32	2.99	2.33	3.08	2.32	3.25	2.43	3.36	2.37
	38	2.23	2.07	2.42	2.07	2.79	2.30	2.96	2.32	3.02	2.30	3.13	2.39	3.32	2.32
	39	2.23	2.07	2.42	2.07	2.77	2.29	2.95	2.32	2.99	2.28	3.07	2.37	3.16	2.30
	41	2.23	2.07	2.41	2.07	2.69	2.26	2.83	2.27	2.86	2.24	2.93	2.32	3.01	2.26
	43	2.23	2.07	2.40	2.06	2.61	2.23	2.71	2.22	2.74	2.19	2.80	2.27	2.86	2.21

Model		Cooling mode														(kW)	
Air flow	Outdoor air temperature (°CDB)	Indoor air temperature															
		21 °CDB 14 °CWB		23 °CDB 16 °CWB		26 °CDB 18 °CWB		27 °CDB 19 °CWB		28 °CDB 20 °CWB		31 °CDB 22 °CWB		33 °CDB 24 °CWB			
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC		
P-Hi	10			3.69	3.13	4.41	3.53	4.77	3.60	5.07	3.64	5.68	3.94	5.90	3.85		
	12			3.69	3.13	4.41	3.53	4.77	3.60	5.07	3.64	5.66	3.93	5.88	3.84		
	14			3.69	3.13	4.41	3.53	4.77	3.60	5.06	3.64	5.64	3.93	5.85	3.83		
	16			3.69	3.13	4.41	3.53	4.77	3.60	5.05	3.64	5.62	3.92	5.83	3.82		
	18			3.69	3.13	4.41	3.53	4.77	3.60	5.05	3.64	5.60	3.91	5.80	3.81		
	20			3.69	3.13	4.41	3.53	4.77	3.60	5.04	3.63	5.58	3.90	5.78	3.81		
	22			3.68	3.12	4.41	3.53	4.77	3.60	5.02	3.63	5.51	3.88	5.70	3.78		
	24			3.68	3.12	4.41	3.53	4.77	3.60	4.99	3.61	5.44	3.85	5.62	3.75		
	26	3.33	3.09	3.68	3.12	4.39	3.52	4.73	3.59	4.93	3.59	5.35	3.82	5.53	3.72		
	28	3.33	3.09	3.67	3.12	4.37	3.52	4.68	3.57	4.88	3.57	5.27	3.79	5.44	3.69		
	30	3.33	3.09	3.66	3.11	4.33	3.50	4.64	3.55	4.82	3.55	5.19	3.76	5.36	3.66		
	32	3.33	3.09	3.65	3.11	4.30	3.49	4.59	3.53	4.76	3.52	5.11	3.73	5.28	3.63		
12 (m³/min)	34	3.33	3.09	3.64	3.10	4.28	3.48	4.53	3.51	4.69	3.50	5.00	3.69	5.17	3.60		
	35	3.33	3.09	3.64	3.10	4.28	3.48	4.50	3.50	4.65	3.48	4.95	3.67	5.12	3.58		
	36	3.33	3.09	3.63	3.10	4.24	3.46	4.48	3.49	4.60	3.46	4.86	3.64	5.02	3.55		
	38	3.33	3.09	3.62	3.10	4.18	3.44	4.43	3.47	4.52	3.43	4.68	3.58	4.82	3.48		
	39	3.33	3.09	3.62	3.10	4.15	3.43	4.41	3.46	4.47	3.41	4.59	3.54	4.72	3.45		
	41	3.33	3.09	3.61	3.09	4.02	3.37	4.23	3.39	4.28	3.34	4.39	3.48	4.50	3.38		
	43	3.33	3.09	3.59	3.08	3.90	3.32	4.05	3.31	4.09	3.26	4.18	3.40	4.28	3.31		

		Heating mode														(kW)	
Air flow	Outdoor temperature	Indoor temperature															
		DB		WB		16 °CDB		18 °CDB		20 °CDB		22 °CDB		24 °CDB			
		DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB		
P-Hi	-19.8	-20	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90		
	-17.8	-18	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09		
	-15.7	-16	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27		
	-13.7	-14	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46		
	-11.7	-12	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65		
	-9.6	-10	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83		
	-7.5	-8	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07		
	-5.5	-6	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30		
	-3.4	-4	4.45	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44		
	-1.3	-2	4.60	4.59	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58		
	0.8	0	4.85	4.78	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71		
	3.9	3	5.26	5.08	4.89	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61		
12 (m³/min)	7.0	6	5.75	5.38	5.00	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65		
	10.1	9	5.71	5.35	4.98	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62		
	13.2	12	5.68	5.31	4.95	4.59	4.59	4.59	4.59	4.59	4.59	4.59	4.59	4.59	4.59		
	16.9	15.5	5.63	5.27	4.91	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54		

Air flow	Outdoor air temperature (°CDB)	Indoor air temperature															
		21 °CDB 14 °CWB		23 °CDB 16 °CWB		26 °CDB 18 °CWB		27 °CDB 19 °CWB		28 °CDB 20 °CWB		31 °CDB 22 °CWB		33 °CDB 24 °CWB			
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC		
Hi	10			3.22	2.67	3.85	3.01	4.16	3.08	4.43	3.12	4.96	3.37	5.15	3.29		
	12			3.22	2.67	3.85	3.01	4.16	3.08	4.42	3.11	4.93	3.36	5.11	3.27		
	14			3.22	2.67	3.85	3.01	4.16	3.08	4.42	3.11	4.93	3.36	5.11	3.27		
	16			3.22	2.67	3.85	3.01	4.16	3.08	4.41	3.11	4.91	3.35	5.09	3.26		
	18			3.22	2.67	3.85	3.01	4.16	3.08	4.41	3.11	4.89	3.34	5.06	3.25		
	20			3.22	2.67	3.85	3.01	4.16	3.08	4.40	3.10	4.87	3.34	5.04	3.25		
	22			3.22	2.67	3.85	3.01	4.16	3.08	4.38	3.10	4.81	3.31	4.97	3.22		
	24			3.21	2.67	3.85	3.01	4.16	3.08	4.36	3.09	4.75	3.29	4.90	3.20		
	26			3.21	2.67	3.83	3.01	4.12	3.06	4.31	3.07	4.67	3.26	4.83	3.18		
	28	2.91	2.64	3.21	2.67	3.81	3.00	4.08	3.04	4.26	3.05	4.60	3.24	4.75	3.15		
	30	2.91	2.64	3.20	2.66	3.78	2.98	4.05	3.03	4.21	3.03	4.53	3.21	4.68	3.13		
	32	2.91	2.64	3.19	2.66	3.75	2.97	4.01	3.02	4.16	3.01	4.46	3.19	4.61	3.10		
10 (m³/min)	34	2.91	2.64	3.18	2.65	3.74	2.97	3.95	2.99	4.09	2.98	4.36	3.15	4.52	3.07		
	35	2.91	2.64	3.17	2.65	3.73	2.96	3.93	2.98	4.06	2.97	4.32	3.13	4.47	3.06		
	36	2.91	2.64	3.17	2.65	3.70	2.95	3.91	2.97	4.02	2.95	4.24	3.11	4.38	3.03		
	38	2.91	2.64	3.16	2.64	3.65	2.93	3.87	2.96	3.94	2.92	4.08	3.05	4.21	2.97		
	39	2.91	2.64	3.16	2.64	3.62	2.92	3.85	2.95	3.90	2.91	4.01	3.02	4.12	2.94		
	41	2.91	2.64	3.15	2.64	3.51	2.87	3.69	2.89	3.74	2.85	3.83	2.96	3.93	2.88		
	43	2.91	2.64	3.14	2.64	3.40	2.83	3.59	2.82	3.57	2.78	3.65	2.90	3.73	2.82		

Air flow	Outdoor temperature		Indoor temperature							
	DB	WB	16 °CDB	18 °CDB	20 °CDB	22 °CDB	24 °CDB			
Hi	-19.8	-20	2.48	2.48	2.48	2.48	2.48	2.48		
	-17.8	-18	2.64	2.64	2.64	2.64	2.64	2.64		
	-15.7	-16	2.80	2.80	2.80	2.80	2.80	2.80		
	-13.7	-14	2.96	2.96	2.96	2.96	2.96	2.96		
	-11.7	-12	3.12	3.12	3.12	3.12	3.12	3.12		
	-9.6	-10	3.28	3.28	3.28	3.28	3.28	3.28		
	-7.5	-8	3.48	3.48	3.48	3.48	3.48	3.48		
	-5.5	-6	3.68	3.68	3.68	3.68	3.68	3.68		
	-3.4	-4	3.81	3.80	3.79	3.76	3.76	3.72		
10 (m³/min)	-1.3	-2	3.93	3.92	3.91	3.84	3.84	3.76		
	0.8	0	4.15	4.09	4.03	3.89	3.89	3.74		
	3.9	3	4.50	4.34	4.18	3.94	3.94	3.71		
	7.0	6	4.92	4.60	4.28	3.98	3.98	3.68		
	10.1	9	4.89	4.57	4.26	3.95	3.95	3.65		
	13.2	12	4.85	4.54	4.23	3.92	3.92	3.61		
	16.9	15.5	4.82	4.51	4.20	3.89	3.89	3.58		

Model FDTC56KXZE1

Cooling mode

(kW)

Air flow	Outdoor air temperature (°CDB)	Indoor air temperature													
		21 °CDB 14 °CWB		23 °CDB 16 °CWB		26 °CDB 18 °CWB		27 °CDB 19 °CWB		28 °CDB 20 °CWB		31 °CDB 22 °CWB		33 °CDB 24 °CWB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
P-Hi	10			4.59	3.76	5.49	4.26	5.94	4.35	6.32	4.41	7.07	4.76	7.35	4.64
	12			4.59	3.76	5.49	4.26	5.94	4.35	6.31	4.41	7.05	4.75	7.31	4.63
	14			4.59	3.76	5.49	4.26	5.94	4.35	6.30	4.40	7.02	4.74	7.28	4.62
	16			4.59	3.76	5.49	4.26	5.94	4.35	6.29	4.39	7.00	4.73	7.25	4.61
	18			4.59	3.76	5.49	4.26	5.94	4.35	6.28	4.39	6.97	4.72	7.22	4.60
	20			4.59	3.76	5.49	4.26	5.94	4.35	6.27	4.38	6.95	4.71	7.19	4.58
	22			4.58	3.76	5.49	4.26	5.94	4.35	6.24	4.37	6.86	4.68	7.09	4.55
	24			4.58	3.76	5.48	4.25	5.94	4.35	6.21	4.36	6.77	4.65	6.99	4.51
14 (m³/min)	26			4.57	3.75	5.46	4.25	5.88	4.33	6.14	4.33	6.66	4.60	6.88	4.47
	28	4.14	3.71	4.57	3.75	5.43	4.23	5.82	4.30	6.07	4.30	6.56	4.56	6.78	4.44
	30	4.14	3.71	4.56	3.75	5.39	4.22	5.77	4.28	6.00	4.28	6.46	4.52	6.67	4.40
	32	4.14	3.71	4.55	3.74	5.35	4.20	5.71	4.26	5.93	4.25	6.36	4.49	6.57	4.37
	34	4.14	3.71	4.53	3.74	5.33	4.19	5.64	4.23	5.83	4.21	6.22	4.44	6.44	4.33
	35	4.14	3.71	4.52	3.73	5.32	4.19	5.60	4.21	5.79	4.20	6.16	4.41	6.37	4.30
	36	4.14	3.71	4.52	3.73	5.28	4.17	5.57	4.20	5.73	4.17	6.05	4.37	6.25	4.26
	38	4.14	3.71	4.51	3.73	5.20	4.14	5.52	4.18	5.62	4.13	5.82	4.29	6.00	4.18
	39	4.14	3.71	4.50	3.72	5.16	4.12	5.49	4.17	5.56	4.11	5.71	4.25	5.87	4.14
	41	4.14	3.71	4.49	3.72	5.00	4.05	5.26	4.07	5.33	4.02	5.46	4.16	5.60	4.05
	43	4.14	3.71	4.47	3.71	4.85	3.99	5.04	3.98	5.10	3.92	5.21	4.07	5.32	3.96

Heating mode

(kW)

Air flow	Outdoor temperature		Indoor temperature				
	DB	WB	16 °CDB	18 °CDB	20 °CDB	22 °CDB	24 °CDB
P-Hi	-19.8	-20	3.65	3.65	3.65	3.65	3.65
	-17.8	-18	3.89	3.89	3.89	3.89	3.89
	-15.7	-16	4.12	4.12	4.12	4.12	4.12
	-13.7	-14	4.36	4.36	4.36	4.36	4.36
	-11.7	-12	4.59	4.59	4.59	4.59	4.59
	-9.6	-10	4.83	4.83	4.83	4.83	4.83
	-7.5	-8	5.12	5.12	5.12	5.12	5.12
	-5.5	-6	5.42	5.42	5.42	5.42	5.42
	-3.4	-4	5.61	5.60	5.59	5.54	5.48
	-1.3	-2	5.80	5.78	5.76	5.65	5.54
	0.8	0	6.11	6.02	5.94	5.73	5.51
	3.9	3	6.63	6.39	6.16	5.81	5.47
14 (m³/min)	7.0	6	7.25	6.77	6.30	5.86	5.42
	10.1	9	7.20	6.74	6.28	5.82	5.37
	13.2	12	7.15	6.69	6.24	5.78	5.32
	16.9	15.5	7.10	6.64	6.18	5.73	5.27

Air flow	Outdoor air temperature (°CDB)	Indoor air temperature													
		21 °CDB 14 °CWB		23 °CDB 16 °CWB		26 °CDB 18 °CWB		27 °CDB 19 °CWB		28 °CDB 20 °CWB		31 °CDB 22 °CWB		33 °CDB 24 °CWB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
Hi	10			4.12	3.31	4.92	3.75	5.33	3.84	5.67	3.89	6.35	4.20	6.59	4.08
	12			4.12	3.31	4.92	3.75	5.33	3.84	5.66	3.89	6.33	4.19	6.56	4.07
	14			4.12	3.31	4.92	3.75	5.33	3.84	5.65	3.88	6.30	4.18	6.53	4.06
	16			4.12	3.31	4.92	3.75	5.33	3.84	5.64	3.88	6.28	4.17	6.51	4.06
	18			4.12	3.31	4.92	3.75	5.33	3.84	5.64	3.88	6.26	4.16	6.48	4.05
	20			4.12	3.31	4.92	3.75	5.33	3.84	5.63	3.87	6.23	4.15	6.45	4.03
	22			4.11	3.31	4.92	3.75	5.33	3.84	5.60	3.86	6.15	4.12	6.36	4.00
	24			4.11	3.31	4.92	3.75	5.33	3.84	5.58	3.85	6.08	4.09	6.27	3.97
	26			4.10	3.31	4.90	3.74	5.28	3.81	5.51	3.83	5.98	4.05	6.18	3.94
	28	3.72	3.27	4.10	3.31	4.87	3.73	5.23	3.79	5.45	3.80	5.88	4.02	6.08	3.91
	30	3.72	3.27	4.09	3.30	4.84	3.71	5.18	3.77	5.38	3.77	5.79	3.98	5.99	3.88
	32	3.72	3.27	4.08	3.30	4.80	3.70	5.13	3.75	5.32	3.74	5.70	3.95	5.90	3.85
12 (m³/min)	34	3.72	3.27	4.07	3.29	4.78	3.69	5.06	3.72	5.23	3.71	5.58	3.90	5.78	3.81
	35	3.72	3.27	4.06	3.29	4.77	3.68	5.03	3.71	5.19	3.69	5.52	3.88	5.72	3.79
	36	3.72	3.27	4.06	3.29	4.74	3.67	5.00	3.70	5.14	3.67	5.42	3.85	5.60	3.75
	38	3.72	3.27	4.05	3.28	4.67	3.64	4.95	3.68	5.04	3.63	5.23	3.77	5.38	3.67
	39	3.72	3.27	4.04	3.28	4.63	3.62	4.92	3.67	4.99	3.61	5.13	3.73	5.27	3.63
	41	3.72	3.27	4.03	3.28	4.49	3.57	4.72	3.58	4.78	3.53	4.90	3.65	5.02	3.55
	43	3.72	3.27	4.01	3.27	4.35	3.51	4.52	3.50	4.57	3.45	4.67	3.57	4.78	3.47

Air flow	Outdoor temperature		Indoor temperature				
	DB	WB	16 °CDB	18 °CDB	20 °CDB	22 °CDB	24 °CDB
Hi	-19.8	-20	3.22	3.22	3.22	3.22	3.22
	-17.8	-18	3.43	3.43	3.43	3.43	3.43
	-15.7	-16	3.63	3.63	3.63	3.63	3.63
	-13.7	-14	3.84	3.84	3.84	3.84	3.84
	-11.7	-12	4.05	4.05	4.05	4.05	4.05
	-9.6	-10	4.26	4.26	4.26	4.26	4.26
	-7.5	-8	4.52	4.52	4.52	4.52	4.52
	-5.5	-6	4.77	4.77	4.77	4.77	4.77
	-3.4	-4	4.94	4.93	4.93	4.88	4.83
	-1.3	-2	5.11	5.09	5.08	4.98	4.89
	0.8	0	5.39	5.31	5.23	5.05	4.86
	3.9	3	5.84	5.63	5.43	5.12	4.82
12 (m³/min)	7.0	6	6.38	5.97	5.55	5.16	4.77
	10.1	9	6.34	5.94	5.53	5.13	4.73
	13.2	12	6.30	5.90	5.50	5.09	4.69
	16.9	15.5	6.25	5.85	5.45	5.05	4.64

Air flow	Outdoor air temperature (°CDB)	Indoor air temperature													
		21 °CDB 14 °CWB		23 °CDB 16 °CWB		26 °CDB 18 °CWB		27 °CDB 19 °CWB		28 °CDB 20 °CWB		31 °CDB 22 °CWB		33 °CDB 24 °CWB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
Me	10			3.60	2.84	4.30	3.21	4.65	3.29	4.95	3.34	5.54	3.59	5.75	3.50
	12			3.60	2.84	4.30	3.21	4.65	3.29	4.94	3.33	5.52	3.59	5.73	3.49
	14			3.60	2.84	4.30	3.21	4.65	3.29	4.93	3.33	5.50	3.58	5.70	3.48
	16			3.60	2.84	4.30	3.21	4.65	3.29	4.93	3.33	5.48	3.57	5.68	3.47
	18			3.60	2.84	4.30	3.21	4.65	3.29	4.92	3.33	5.46	3.56	5.65	3.46
	20			3.60	2.84	4.30	3.21	4.65	3.29	4.91	3.32	5.44	3.55	5.63	3.45
	22			3.59	2.84	4.30	3.21	4.65	3.29	4.89	3.31	5.37	3.53	5.55	3.43
	24			3.59	2.84	4.29	3.20	4.65	3.29	4.87	3.30	5.30	3.50	5.48	3.40
	26			3.58	2.84	4.27	3.19	4.61	3.27	4.81	3.28	5.22	3.47	5.39	3.37
	28	3.25	2.80	3.58	2.84	4.25	3.19	4.56	3.25	4.75	3.26	5.14	3.44	5.31	3.34
	30	3.25	2.80	3.57	2.83	4.22	3.17	4.52	3.24	4.70	3.23	5.06	3.41	5.23	3.31
	32	3.25	2.80	3.56	2.83	4.19	3.16	4.47	3.21	4.64	3.20	4.98	3.38	5.15	3.29
10 (m³/min)	34	3.25	2.80	3.55	2.82	4.17	3.15	4.42	3.18	4.57	3.17	4.87	3.34	5.04	3.25
	35	3.25	2.80	3.54	2.82	4.17	3.15	4.39	3.17	4.53	3.16	4.82	3.32	4.99	3.23
	36	3.25	2.80	3.54	2.82	4.14	3.14	4.36	3.16	4.49	3.14	4.74	3.29	4.89	3.20
	38	3.25	2.80	3.53	2.81	4.07	3.11	4.32	3.14	4.40	3.10	4.56	3.22	4.70	3.13
	39	3.25	2.80	3.53	2.81	4.04	3.09	4.30	3.13	4.36	3.09	4.48	3.19	4.60	3.10
	41	3.25	2.80	3.51	2.80	3.92	3.04	4.12	3.06	4.17	3.01	4.28	3.12	4.39	3.03
	43	3.25	2.80	3.50	2.80	3.80	2.99	3.95	2.99	3.99	2.94	4.08	3.05	4.17	2.96

8. APPLICATION DATA

8.1 Installation of indoor unit

This manual is for the installation of the indoor unit.

For electrical wiring work (Indoor unit), refer to page 29. For remote control installation, refer to page 33. For wireless kit installation, refer to page 104. For electrical wiring work (Outdoor unit) and refrigerant pipe work installation for outdoor unit, refer to the installation manual attached to the outdoor unit. For motion sensor kit installation, refer to page 118.

This unit must always be used with the panel refer to page 25.

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 referred by the formula (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 properly.** **[!]**
 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 sulfuric 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.** **[!]**
 Do not install the motion sensor mounting panel at following places.
 It could cause detection error, incapacity of detection, or characteristic degradation.
 • Places where flammable gas could leak.
 • Places where carbon fiber, metal powder or any powder is floated.
 • Places where the substances which affect the air-conditioner are generated such as sulfide gas, chloride gas, acid, alkali or ammoniac 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 install the motion sensor mounting panel at following places.
 It could cause detection error, incapacity of detection, or characteristic degradation.
 • Place where vibration is applied to it for a long period of time.
 • Place where static electricity or electromagnetic wave generates.
 • Place where it is exposed to high temperature or humidity for a long period of time.
 • Dusty place or where the lens face could be fouled or damaged.
- **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.
- **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 item

For unit hanging		For refrigerant pipe			For drain pipe			
Flat washer (M10)	Level gauge	Pipe cover(big)	Pipe cover (small)	Strap	Pipe cover(big)	Pipe cover (small)	Drain hose	Hose clamp
9	1	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	

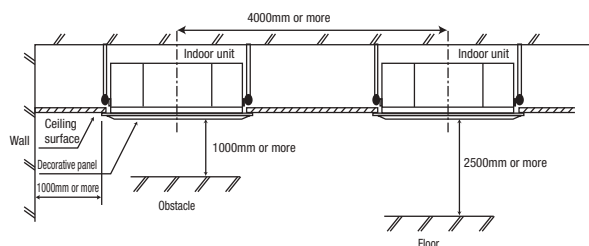
When moving the indoor unit, hold only the hanging hardware (4 places) only, with care not to apply forces to any other parts of the unit (particularly the refrigerant pipe, drain pipe, and resin parts).

② Selection of installation location for the indoor unit

- 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.
 - In case of the panel having the motion sensor, the installation height must be no higher than 4 m. It could reduce the sensitivity of motion sensor, disabling the detection.
 - 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 air flow 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.)
- 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.
- If there are 2 units of wireless type, keep them away for more than 6m to avoid malfunction due to cross communication.
- 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 air flow.
- Install the indoor unit at a height of more than 2.5m above the floor.



Set blow-out pattern

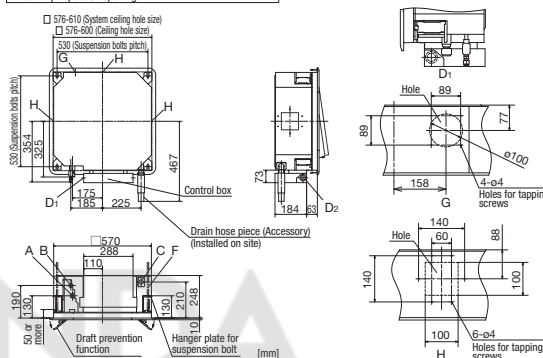
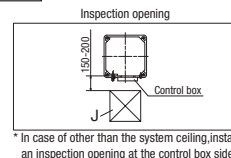
- Select the most proper number of blow-out air supply port direction from 4 way, 3 way or 2 way according to the shape of the room and installation position. (1 way is not available.)
- If it is necessary to change the number of air supply port, prepare the covering materials. (sold as accessory)
- Instruct the user not to use low fan speed when 2way or 3way air supply is used.
- Do not use 2way air supply port under high temperature and humidity environment. (Otherwise it could cause condensation and leakage of water.)
- It is possible to set the air flow direction port by port independently. Refer to the user's manual for details.

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

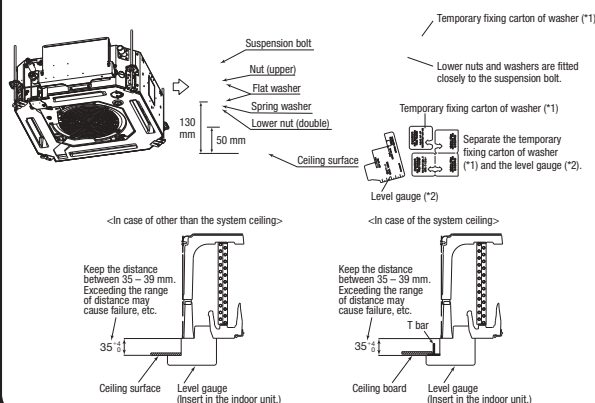
Symbol	Content
A	Gas piping
B	Liquid piping
C	Drain piping
D ₁	Power source connection
D ₂	Remote control code and signal wiring connection
F	Suspension bolts
G	Outside air opening for ducting
H	Air outlet opening for ducting
J	Inspection opening



④ Installation of indoor unit

Work procedure

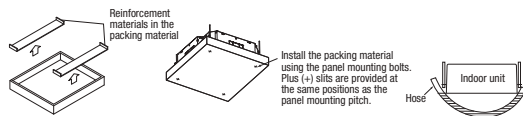
- This unit is designed to install on a system ceiling.
If necessary, remove T bars temporarily before installing the unit.
When it is installed on a ceiling other than the system ceiling, install an inspection port at the control box side.
- Determine the position of suspension bolts (530 mm × 530 mm).
- Use 4 suspension bolts, and fix them such that each bolt can withstand a pull-out load of 500 N.
- Set the suspension bolt length to about 50 mm from the ceiling.
- Temporarily locate the lower nuts of the suspension bolts (4 places) at a position approximately 130 mm from the ceiling.
- Temporarily locate the upper nuts of the suspension bolts (4 places) at positions sufficiently distance from the lower nuts so that they do not interfere with the suspension of the indoor unit and with its height adjustment.
- Set the upper nuts of the suspension bolts and upper washers (4 places) at positions sufficiently distance from the lower nuts. Then, push and insert the temporary fixing carton of washers (*) onto suspension bolts. Make sure that the upper washers do not slide down.
- Suspend the indoor unit.
- After suspending the indoor unit, mount the level gauge (*) to the air outlet of the indoor unit, and adjust the suspension height of the indoor unit. Loosen the upper nuts (4 places), and adjust the suspension height using the lower nuts (4 places). Confirm there is no slack between the lower nuts and flat washers of the indoor unit hanger plate (4 places).
- Remove the temporary fixing carton of washers (from all 4 places).
- Make sure that the indoor unit is installed horizontally. Confirm the levelness of the indoor unit using a level gauge or transparent hose filled with water.
(Keep the height difference at both ends of the indoor unit within 3 mm.)
- Tighten the upper nuts of the suspension bolts (4 places).



④ Installation of indoor unit (continued)

Protection of the indoor unit

- If it is not possible to install the panel for a while or if attaching the ceiling board after installing the indoor unit, protect the indoor unit by using upper carton.



Caution

- Do not adjust the unit height by adjusting the upper nuts. Doing so will cause unexpected stress on the indoor unit and cause the unit to become deformed, prevent the panel from being installed, and be generated fan interference noise.
- Make sure that the indoor unit is installed horizontally and set the appropriate gap between the underside of the unit and the ceiling plane. Improper installation may cause air leakage, dew condensation, water leakage and noise.
- Make sure there is no gap between the panel and the ceiling surface, and between the panel and the indoor unit. Any gap may cause air and/or water to leak, or condensation to form.

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 nut 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 R32 or R410A.

Flare die		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 R32 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 the designated refrigerant.

Using other refrigerant except the designated refrigerant, 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 R32 or 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.

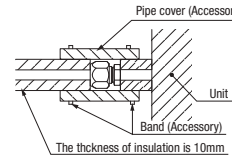
⑤ Refrigerant pipe (continued)

Caution:

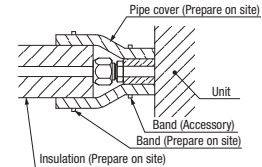
Refrigerating machine oil should not be applied to the threads of union or external surface of flare. It is because, even if the same tightening torque is applied, the oil is likely to decrease the slide friction force on the threads and increase, in turn, the axial component force so that it could crack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

Refrigerating machine oil may be applied to the internal surface of flare only.

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



<The case of using reinforced insulation>



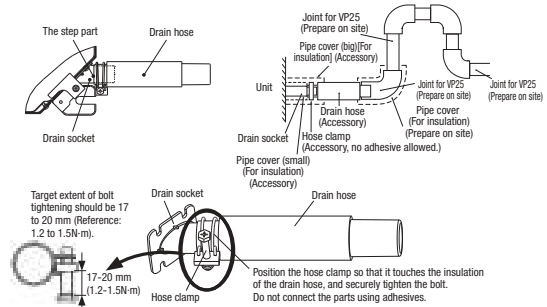
⑥ Drain pipe

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 that the drain hose (the soft PVC side) is inserted into the end of the step part of the drain socket.
 - Fix the hose clamp so that its bolt is located on the outside of the indoor unit, and the bolt are fastened in a vertical orientation.
 - Do not apply adhesives on this end.
2. Position the hose clamp so that it touches the insulation of the drain hose, and then tighten the bolt.
3. Turn the bolt several times until it is securely tightened, but do not tighten it excessively.



4. Prepare a joint for connecting VP25 pipe, adhere and connect the joint to the drain hose (the rigid PVC side), and adhere and connect VP25 pipe (prepare on site).
 - ※ As for drain pipe, apply VP25 made of rigid PVC which is on the market.

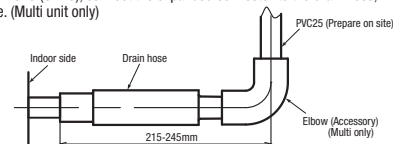
- Make sure that the adhesive will not get into the supplied drain hose.

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).

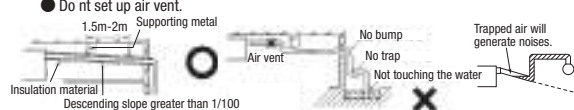
If apply PVC25 (OD25), connect the expanded connector to the drain hose, with adhesive. (Multi unit only)



5. 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.



⑥ Drain pipe (continued)

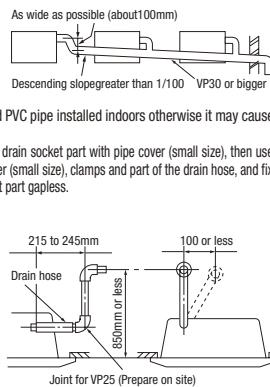
- When sharing a drain pipe for more than 1 unit, lay the main pipe 100mm below the drain outlet of the unit. In addition, select VP30 or bigger size for main drain pipe.

6. 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 850mm 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

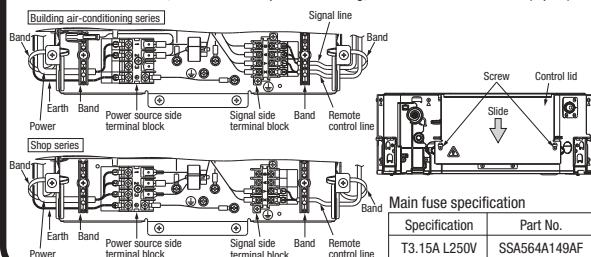
- After installing the drain pipe, make sure that drain system works correctly and that no water leaks from the joint and drain pan. Check whether the motor sound of the drain pump is normal.
 - Conduct a drain test when installing, even during the heating season.
 - In the case of new buildings, be sure to complete the test before fixing the ceiling.
1. Pour about 1,000 cc of test water into the drain pan of the indoor unit. Exercise care not to allow electrical equipment such as the drain pump and other components to become wet while filling water.
Pour test water through the pipe lid using a feed water pump or a similar device, or through the refrigerant pipe joint.
 - In case of pouring water from the air outlet
● In case of pouring water from the pipe lid
(1) Remove screws at 2 places.
(2) Release the claws, and remove the lid.
-
2. Make sure that water drains out completely and that no water leaks from any joints of the drain pipe during the test.
Test to confirm that the water drains out correctly while listening to the drain pump motor operating sound. At the drain socket (transparent), it is possible to check whether the water drains out correctly.
 3. Unplug the rubber plug on the indoor unit so that the remaining water drains from the drain pan after the draining test.
After checking the water drainage, fix the rubber plug correctly. Installation work for the drain pipe must be performed for the entire drain pipe up to the indoor unit.
If the pipe lid has been removed in order to pour water, mount the pipe lid again.

Drain pump operation

- In case electrical wiring work completed
Drain pump can be operated by the wired remote control.
For the operation method, refer to [Operation for drain pump] in the installation manual for wiring work.
- In case electrical wiring work not completed
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 (230VAC on the terminal block ① and ②) 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. Loosen screws (2 pcs.) on the control box of the unit.
 2. Remove the control lid by sliding it in the arrow direction in the figure.
 3. Introduce the wiring in the control box, and connect it securely to the terminal block.
 4. Fix the wiring with bands as shown below.
 5. Install the control lid, with care not to pinch the wiring, and fix the lid with screws (2 pcs.).



⑧ Panel installation

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

⑨ Check list after installation

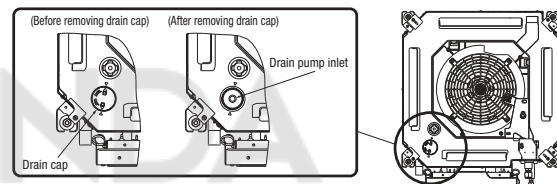
- Check the following items after all installation work completed.

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	

⑩ How to check the dirt of drain pan and cleaning the inlet of the drain pump. (Maintenance)

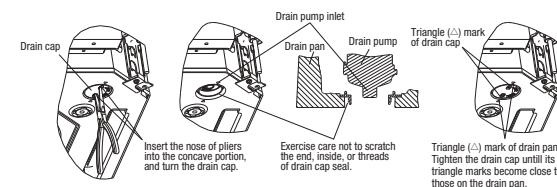
The method of checking the dirt of drain pan

1. Remove the panel according to the installation manual of the panel.
2. Check the dirt on the drain pan from the drain cap, and check the drain pump inlet. If the drain pan is very dirty, remove the drain pan and clean it.



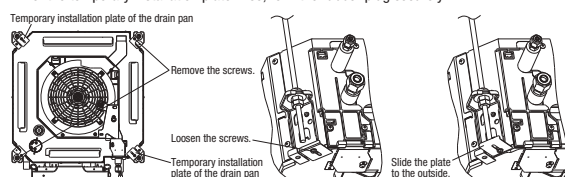
Cleaning of drain pump inlet

- It is possible to clean the drain pump inlet and surrounding area by removing the drain cap only; it is not necessary to remove the drain pan.
 - Before removing the drain cap, remove the rubber plug and drain water from the drain pan.
1. Insert the nose of the pliers into the concave portions (2 places) of the drain cap, and rotate the pliers about 1 turn in the CCW direction. The drain cap is removed.
 2. When cleaning the drain pump inlet, use a soft plastic tool. If a metallic tool is used, the drain cap mounting portion may be scratched and water may leak.
 3. Before mounting the drain cap, rinse it and **remove any foreign material from the inside of the cap**. If the drain cap is installed with foreign material inside it, it may cause water to leak.
 4. Insert the nose of the pliers into the concave portions of the drain cap and rotate the pliers to install the drain cap. Rotate the drain cap about 1 turn in the CW direction until it stops rotating. If the drain cap is not rotated for 1 or more turns, the cap will not have been installed correctly. Remove the drain cap, and then install it again correctly.
 5. After tightening the drain cap, make sure the triangle (△) mark of the drain cap comes close to the triangle mark on the drain pan. If these triangle marks are not close to each other, tighten the drain cap further.
 6. Refix the rubber plug securely. If the cover is not refixed correctly, it may cause condensation to form and/or water to leak.



Notes for removing the drain pan

- Before removing the drain pan, drain water from the drain pan. Remove the rubber plug and drain water.
- The drain pan is installed by the temporary installation plate. Remove the 2 drain pan fixing screws, and loosen the 2 screws of the temporary installation plate. Slide the temporary installation plate to the outside of the drain pan. And then, it is possible to remove the drain pan.
- When reinstalling the drain pan, slide the temporary installation plate to the inside and temporarily fix the drain pan. Then, tighten the 2 drain pan fixing screws and the 2 screws of the temporary installation plate. Also, refix the rubber plug securely.



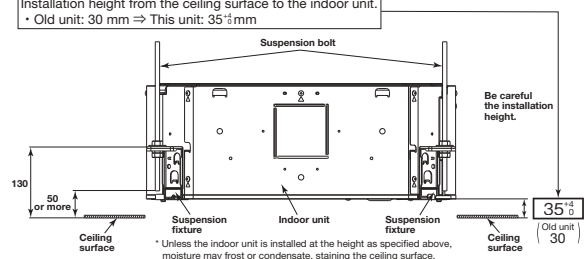
- **Panel installation**

PJF012D503

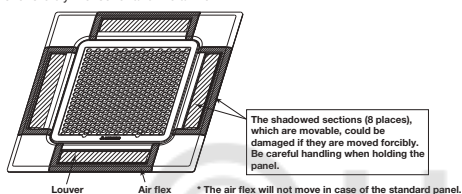
Read this manual together with the indoor unit's installation manual.

*** Caution before use**

- ① Be careful the installation height when installing the indoor unit.
Also note that the installation height of this indoor unit is different from that of current (old) unit.
- | |
|--|
| Installation height from the ceiling surface to the indoor unit. |
| • Old unit: 30 mm ⇒ This unit: 35 ¹ / ₂ mm |



- ② Do not attempt to move forcibly the louver and the air flex.



⚠ 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.

Function

The draft prevention panel has the draft prevention mechanism. If the draft prevention panel is installed and the draft prevention function is set, the draft prevention function will be operated and reduce the draft feeling. (Refer to **⑪ Panel setting** for details.)

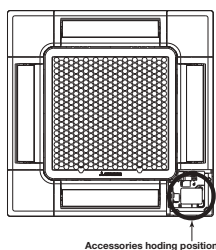
- Standard panel : without the draft prevention mechanism
- Draft prevention panel : with the draft prevention mechanism

① Before installation

- Follow installation manual carefully, and install the panel properly.
 - Check the following items.
- ☐ Accessories

Accessories			
Bolt		4 pieces	For panel installation
Strap		4 pieces	For avoiding the corner panel from falling
Grille hook		1 piece	For avoiding the grille from falling
Screw		4 pieces	For fixing the corner panel

Note: Accessories are laid in the position removing the corner lid.

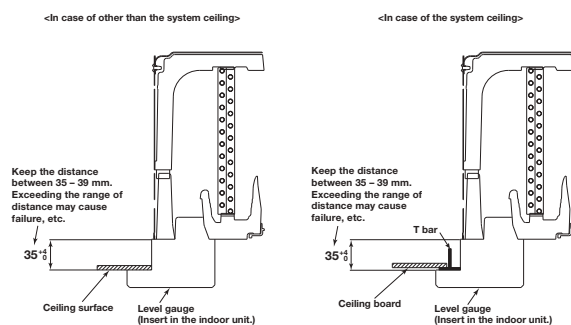


② Checking the indoor unit installation height

- Read this manual together with the air-conditioner installation manual carefully.
- Check if the opening size for the indoor unit is correct with the level gauge supplied in the indoor unit.
- Check if the gap between the 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 installing the panel.

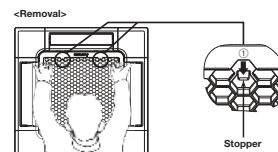
Caution

If there is a height difference beyond the design limit between the installation level of the indoor unit and the panel, the panel may be subject to excessive stress during installation and it may cause distortion and damage.



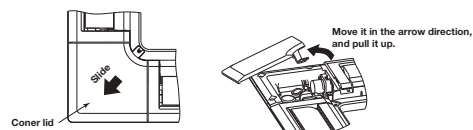
③ Removing the inlet grille

1. While placing a finger behind the stopper (2 places) and pressing it in the direction of arrow ①, pull the grille downward to open the grille.
2. Release the hooks of the inlet grille from the panel while it is in the open position.



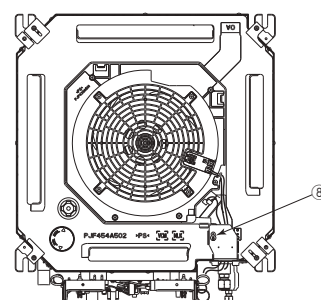
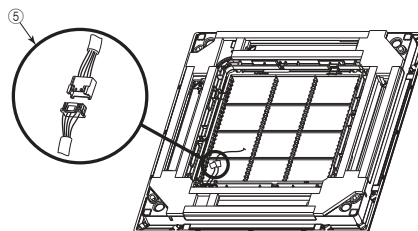
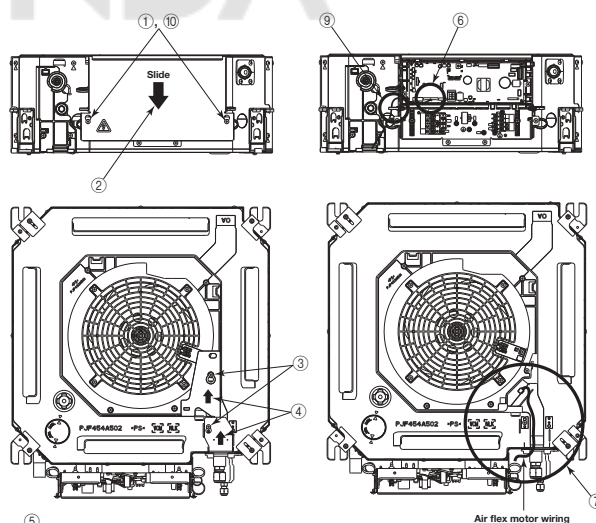
④ Removing the corner lid

- Pull the corner lid toward the direction indicated by the arrow and remove it. (Same way for all 4 corner lids)



⑤ Before installing the panel <Only draft prevention panel>

- ① Loosen screws (2 pcs.) on the control lid of the unit.
- ② Slide the control lid in the arrow direction in the figure, and remove it.
- ③ Loosen screws on the wiring cover (2 places).
- ④ Slide the wiring cover (2 places) in the arrow direction in the figure, and remove it.
- ⑤ Disconnect the relay connector of the air flex motor wiring attached to the panel.
- ⑥ Connect the air flex motor wiring to CNJ2 (20 P, gray) on PCB in the control box of the unit.
- ⑦ Pass the air flex motor wiring as shown in the figure.
- ⑧ Install the wiring cover (1 place with care not to pinch wiring, and fix it with a screw.
- ⑨ Fix the air flex motor wiring with a band as shown in the figure.
- ⑩ Install the control lid with care not to pinch wiring, and fix with screws (2 places.).

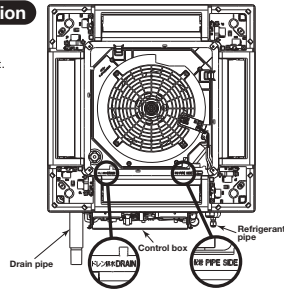


⑥ Orientation of the panel installation

- Take note that there is an orientation to install the panel.
- Install the panel with the orientation shown on the right.
 - Align the "PIPE SIDE" mark (on the panel) with the refrigerant pipes on the indoor unit.
 - Align the "DRAIN" mark (on the panel) with the drain pipe on the indoor unit.

CAUTION

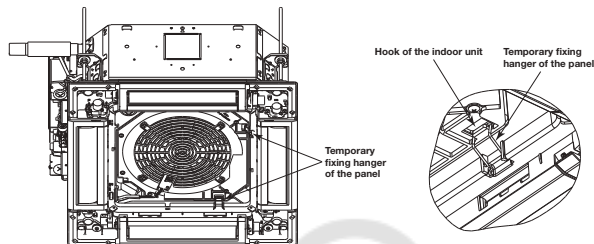
In case the orientation of the panel is not correct, it will lead to air leakage and also it is not possible to connect the motor wiring.



⑦ Installing the panel

1. Temporary hanging

- Lift up the hanger (2 places) on the panel for temporary support.
- Hang the panel on the hook on the indoor unit.



2. Fix the panel on the indoor unit

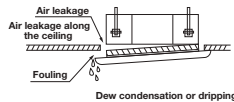
- Fasten the panel on the indoor unit with the 4 bolts supplied with the panel.

Caution

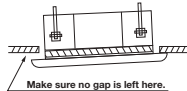
Be careful not to pinch the motion sensor wiring.

Caution

- Improperly tightened fixing bolts cause the problems listed below, so make sure that bolts are securely tightened.



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



Bolt for installing the panel

Caution

Do not give any stress 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 inlet grille, and the parts of the draft prevention mechanism.

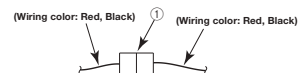
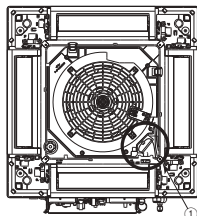
⑧ Electrical wiring

The wiring work varies depending on the panel type. Select the wiring work appropriate for the panel type.

<For the standard panel>

- ① Connect the connector of the lower motor wiring (Wiring color: Red, Black) at the panel side to the connector CnJ3 (20 P, White) of the lower motor wiring (Wiring color: Red, Black) at the unit side.

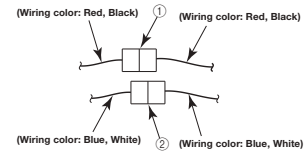
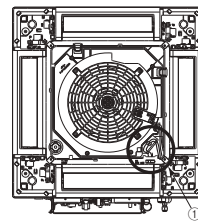
For the Standard panel



<For the draft prevention panel>

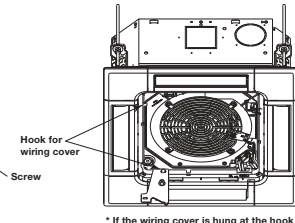
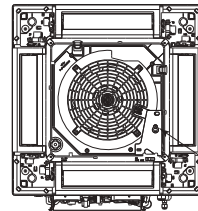
- ① Connect the connector of the lower motor wiring (Wiring color: Red, Black) at the panel side to the connector CnJ3 (20 P, White) of the lower motor wiring (Wiring color: Red, Black) at the unit side.
- ② Connect the connector of the air flex motor wiring (Wiring color: Blue, White) at the panel side to the connector CnJ4 (20 P, White) of the air flex motor wiring (Wiring color: Blue, White) at the unit side.

For the Draft prevention panel



Motor wiring connection - Detail view

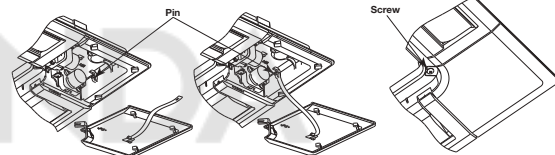
Install the wiring cover with care not to pinch wiring, and fix it with screws.



* If the wiring cover is hung at the hook on panel, it will become easier to work.

⑨ Installing a corner lid

1. To avoid unexpected falling of the corner lid, put the strap onto the corner lid's pin with turning the strap up.
2. Then hang the strap of a corner lid onto the panel's pin.
3. Hook the corner lid claws at 3 places, and fix the corner lid with attached screws.



⑩ Installing the inlet grille

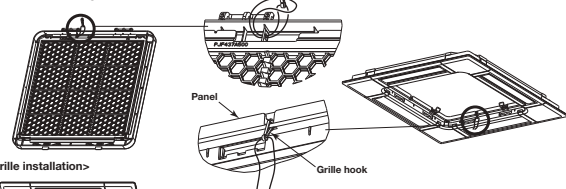
The panel and the inlet grille have no directional limitation to install. (Hinges of the inlet grille can be hooked at any side.)

Install the inlet grille in the reverse order of the steps described at ⑤ Removing the inlet grille.

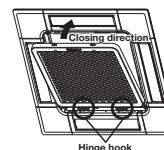
- ① Attach the fall grille hook to the panel.
- ② Insert the hinges of inlet grille in the insert holes on the panel.

Close then the inlet grille while pressing the stoppers (2 places). Confirm that both stoppers are inserted securely in the panel.

<① Installation of the grille hook>



<② Grille installation>



Caution

- Install the grille hook securely at the panel.
- The inlet grille must be installed starting from the hinge side.
- Install the inlet grille securely. It may drop if it is installed insecurely.
- When the stoppers have been deformed or damaged, repair them immediately. Unless they are repaired properly, the inlet grille may drop off.

⑪ Panel setting

<Louver swing range setting (Individual louver control setting)>

It is possible to change the swing range of the louver by the wired remote control. Once the upper and lower limit positions are set, the louver will swing within the set range. It is also possible to set the different range to each louver.

<Draft prevention setting>

The draft prevention function will not be operated if the draft prevention panel is installed and its wirings are only connected. To operate the draft prevention function, enable the draft prevention setting by using the wired or wireless remote control.

Note: It is not possible to set by the following remote control models or older.

Wired: RC-EX3, RC-E5, RCH-E3
Wireless: RCN-E1R

Once you have enabled the settings in this mode, the draft prevention function is operated when the air-conditioner is started, and the parts of the draft prevention mechanism are always open when the air-conditioner is operating. When the air-conditioner is stopped, they are closed. It is possible to enable or disabled the draft prevention function for each air outlet.

For the setting details, refer to the user's manual supplied with the remote control.

FRESH AIR INTAKE (Location for installation) FOR FDTC

At the time of installation use the duct hole (cut out) located at the positions shown in following diagram, as and when required.

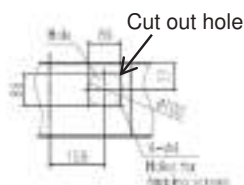
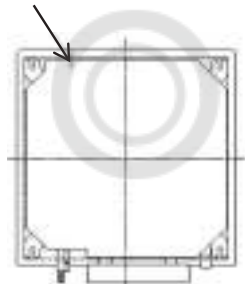
(1) Temperature conditions for OA spacer⁽¹⁾

- 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 satisfy, process the outdoor air before intaking.

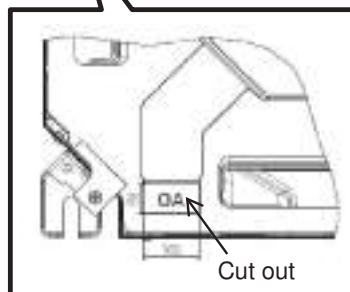
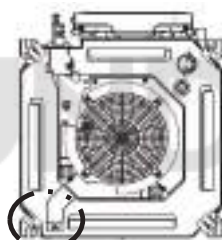
Operation mode	Usage temperature conditions	
	Intake outdoor air	Indoor air around the ducts
In heating	5°C DB or higher	18.5°C WB or lower and 60% RH or lower
In cooling	29°C DB or lower and 80% RH or lower	20°C DB or higher

Note(1) : For the OA spacer, refer to page 122.

Fresh air intake



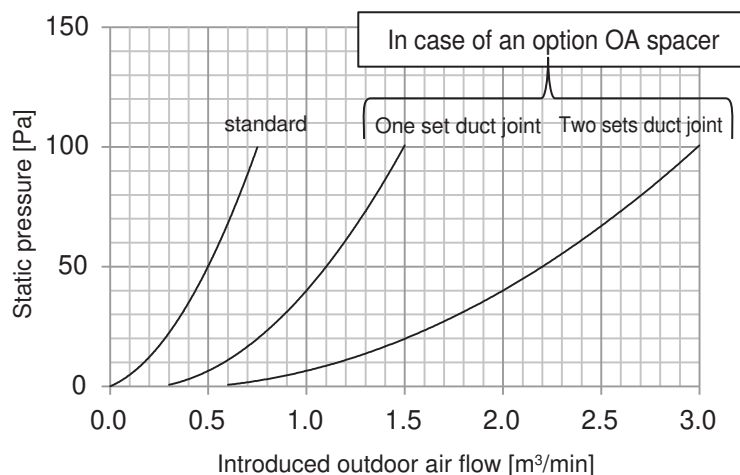
Detail drawing of fresh air intake



Detail of cut out

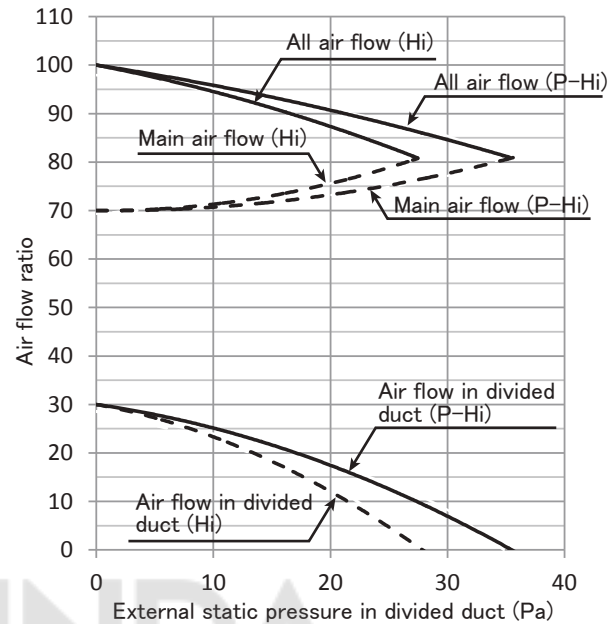
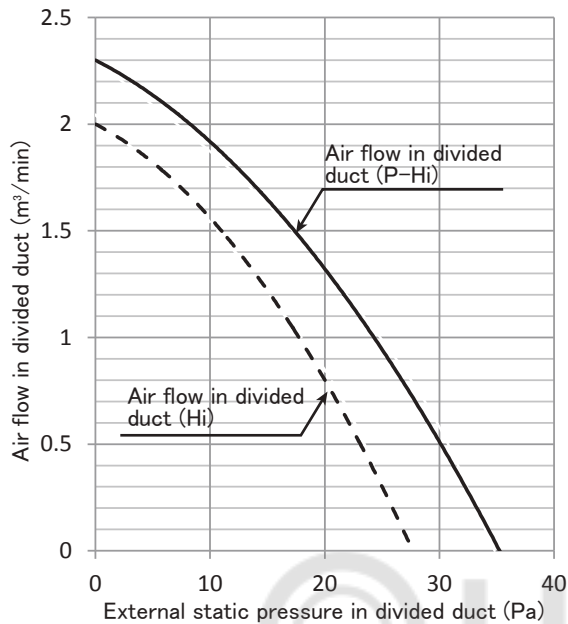
■ Fresh air intake amount & static pressure characteristics

All models

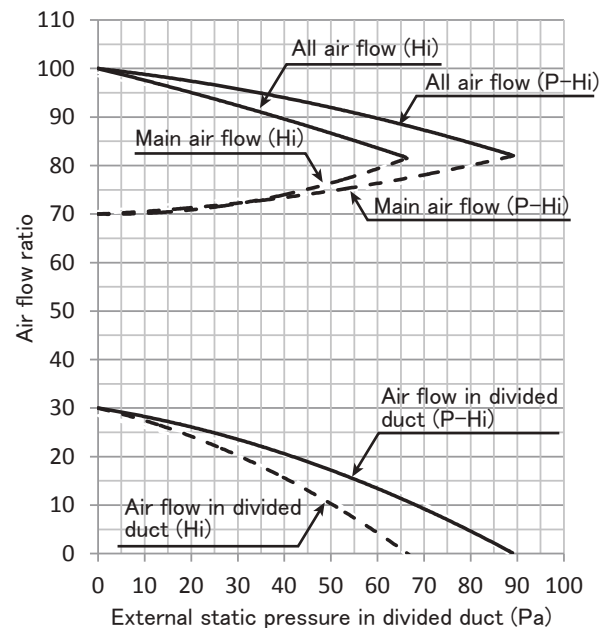
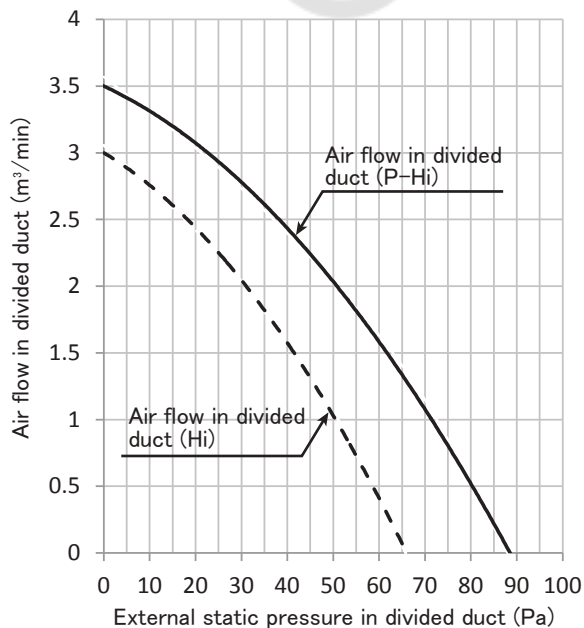


CHARACTERISTICS OF AIR FLOW IN DIVIDED DUCT FOR FDTC

Models FDTC15,22,28,36KXZE1



Models FDTC45,56KXZE1



■ Divided duct connection method

1. Open some one during 4 knockout holes, and please connect a divided duct.

It isn't possible to use more than one hole at the same time.

2. Please make the wind shielding a blowout vent on the side where a divided duct was connected.
3. The storage of the external static pressure by pressure loss for a connected divided duct and blowout unit is made up by a booster fan.
example : When 2.5m³/min of ventilation by divided duct is needed in model FDTC56KXZE1

(In case of connection duct ϕ 125 x 5m)

- ① Duct resistance : Pressure loss by a flexible duct = 35Pa (7Pa/mx5m)
- ② Blowout unit : Pressure loss by a blowout unit = 10Pa
- ③ External static pressure when being 2.5m³/min = 17Pa (See upper table.)

⇒ Correspondence by a booster fan = ① + ② + ③ = 28Pa

8.2 Electric wiring work instruction

Electrical wiring work must be performed by an electrician qualified by a local power provider according to the electrical installation technical standards and interior wiring regulations applicable to the installation site.

PSC012D087 

Security instructions

- 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.
- Accord with following items. Otherwise, there will be the risks of electric shock and fire caused by overheating or short-circuit.

WARNING

- 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 properly. 

Improper fitting may cause abnormal heat and fire.
- Use the genuine option parts. And installation should be performed by a specialist. 

If you install the unit by yourself, it could cause water leakage, electric shock and 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.
- 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.
- Make sure to install earth leakage breaker on power source line. (countermeasure thing to high harmonics.) 

Absence of breaker could cause electric shock.
- 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.
- Use power source line of correct capacity. 

Using incorrect capacity one could cause electric leak, abnormal heat generation and fire.
- Do not mingle solid cord and stranded cord on power source and signal side terminal block. 

In addition, do not mingle difference capacity solid or stranded cord. Inappropriate cord setting could cause losing screw on terminal block, bad electrical contact, smoke and fire.
- 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.

Control mode switching

- The control content of indoor units can be switched in following way. ( is the default setting)

Switch No.	Control content
SW1	Indoor unit address (tens place)
SW2	Indoor unit address (ones place)
SW3	Outdoor unit address (tens place)
SW4	Outdoor unit address (ones place)
SW5—1	ON Fixed previous version of Superlink protocol OFF Automatic adjustment of Superlink protocol
SW5—2	Indoor unit address (hundreds place)
SW6—1—4	Model capacity setting
SW7—1	ON Operation check, Drain motor test run OFF Normal operation

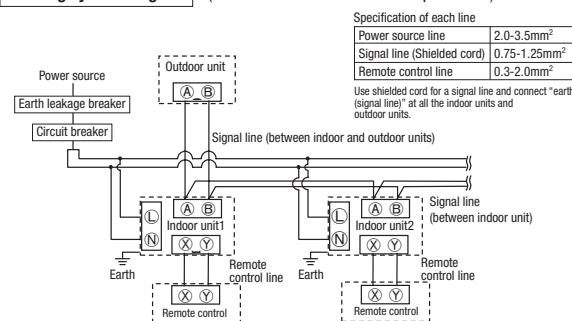
① Electrical Wiring Connection

- Electrical wiring work must be performed by an electrician an qualified by a local power provider. These wiring specifications are determined on the assumption that the following instructions are observed:

- Do not use cords other than copper ones.
 - Do not use any supply line lighter than one specified in parentheses for each type below.
 - braided cord (code designation 60245 IEC 51), if allowed in the relevant part 2;
 - ordinary tough rubber sheathed cord (code designation 60245 IEC 53);
 - flat twin tinsel cord (code designation 60227 IEC 41);
 - ordinary polyvinyl chloride sheathed cord (code designation 60227 IEC 53);
- Provide a separate power outlet for each outdoor or indoor unit.
- All indoor units grouped in one system must have power source that can be turned on or off simultaneously.
- Pay extra attention so as not to confuse signal line and power source line connection, because an error in their connection can be burn all the boards at once.
- Connect ground wires before connecting wires between the indoor and outdoor units and between indoor units. The ground wires need to be longer than the wires between the indoor and outdoor units, and protected from undue stress.
- Do not turn on the power source before completing the work.
- The ground wires must be connected by the Class D grounding connection.
- Use the round crimp terminals for connections to the terminal block.
- Use dedicated branch circuits, avoiding combination with other devices. Otherwise, it could trip the power source breaker, resulting in secondary accidents.
- Install the overcurrent and earth leakage breakers (sensitivity current: 30 mA) specified to respective models.
- Do not connect indoor and outdoor signal cables to extension cables on the way. If the joint is wetted with intruding water, it could cause a ground insulation failure or poor connection, resulting in communication errors. (If it is inevitable to connect cables on the way, make sure to prevent the water intrusion completely.)
- When running wires (wires for power source, remote control, connecting between indoor and outdoor units, or other) behind the ceiling, protect them using copper or other pipes against assault by rat, or other.
- It is up to 3.5 mm² the size of power source cables connected to indoor units. When using cables of 5.5 mm² or larger, provide a dedicated pull box for branching connection to indoor units.
- If signal and power source cables are connected mistakenly, it could burn down all PCBs.
 - Even if the power source of 220/240/380/415 V is connected mistakenly to A-B signal cable, it is protected at initial occasion only.
 - If the remote controller fails to detect the unit No. (address) at 15 minutes after turning the power on, check and repair all signal cables for misconnection.
 - Cut the jumper wire J10SL1 of burnt PCB, and reconnect connectors CnK (yellow) and CnK1 (white) to CnK2 (black).
 - If any anomaly is found on wires between the A-B terminal block and the PCB, replace them.
- At the outside of indoor and outdoor units, take care to avoid direct contacts between remote control and power source cables.
- In no event connect the power source of 220/240/380/415 V to the remote control terminal block. It could cause failures.
- Connections of wiring between units, ground wire and remote control cable
 - When connecting wires between units, ground wire or remote control wire, connect them according to the number of terminals on the power source terminal block or signal terminal block in the control box. Connect the ground wire to the ground terminal on the power source terminal block.
 - Make sure to install an earth leakage breaker for the power source. Select a breaker for inverter circuit.
 - When the earth leakage breaker is exclusive for the earth leakage protection, it is necessary to connect also an isolating switch (Switch + Class B fuse) or wiring circuit breaker in series to the earth leakage breaker.
 - Install the isolating switch close to the unit.
- Connect wires securing by tightening screws firmly. Confirm also no connector or wire (from terminal) is disconnected in the control box.
- When installing an auxiliary electric heater, consult the electric heater manual or technical data.



Cabling system diagram (Outdoor/indoor unit connection procedure)



Power source line specification

Wiring specification

Unit type	Earth leakage breaker		Circuit breaker		Wiring size					
			Switch breaker	Over-current protector rated capacity	Power source line	Wire length	Signal line	Remote control line	Earth line	
22-36	15A	30mA	0.1sec	30A	15A	2.0mm ² ×2	304m 216m 129m	0.75-1.25mm ² ×2	0.3mm ² ×2cores	2.0mm ²
45-90										
112-160										
In case of duct connected -High static pressure- type										
71-140	15A	30mA	0.1sec	30A	15A	2.0mm ² ×2	87m 48m	0.75-1.25mm ² ×2	0.3mm ² ×2cores	2.0mm ²
224-280										

- Note (1) The cord distances are calculated with a voltage drop of 2%. If the distance should exceed the above data, review the cord thickness to use in accordance with your extension cord regulations.
- (2) When total extension of remote control line is more than 100m, change the size of cord according to "③ Remote control, Wiring and functions".

In case of heat recovery 3-pipe systems

Branching control of heat recovery 3-pipe systems wiring

- When this unit is used as a "Heat Recovery 3-pipe Systems", refer to the installation manual of a branching control (option).

② Address setting

Address setting is done by (1) Manual address setting or (2) Automatic address setting. In the case of (2) "Automatic address setting", it is possible to change address setting by wired remote control after once complete setting. As for details of setting procedure, refer to instructions attached to the outdoor unit for details.

③ Remote Control, Wiring and functions

● Do not install it on the following places.

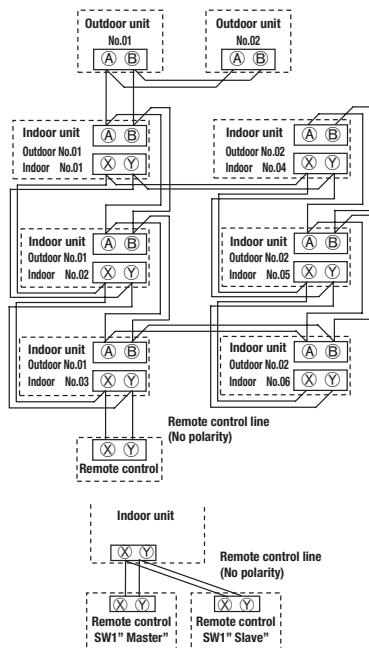
- (1) Place exposed to direct sunlight
- (2) Places near heat devices
- (3) High humidity places
- (4) Hot surface or cold surface enough to generate condensation
- (5) Place exposed to oil mist or steam directly.
- (6) Uneven surface

Installation and wiring of remote control

- ① Install remote control referring to the attached manual.
- ② Wiring of remote control should use 0.3mm² x2 cores wires or cables. The insulation thickness is 1mm or more. (on-site configuration)
- ③ 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 0.5mm². 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.
100-200m 0.5mm² x2 cores
Under 300m 0.75mm² x2 cores
Under 400m 1.25mm² x2 cores
Under 500m 2.0mm² x2 cores
- ④ Avoid using multi-core cables to prevent malfunction.
- ⑤ Keep remote control line away from earth (frame or any metal of building).
- ⑥ Make sure to connect remote control line to the remote control and terminal block of indoor unit. (No polarity)

Control plural indoor units by a single remote control

- ① A remote control can control plural indoor units (up to 16). In above setting, all plural indoor units will operate under same mode and temperature setting.
- ② Connect all indoor units with 2 cores remote control line for group control.
- ③ Use the function of manual address setting to set the indoor and outdoor address number.
○ Do not forget to set the number for the outdoor units.
- ④ As shown in the following figure, the remote control can be used to control multiple outdoor units.
- ⑤ One remote control is able to perform group control for multiple units (maximum 16 units).
○ Use the rotary SW1 and SW2 provided on the indoor unit PCB (Printed circuit board) to set unique remote control communication address avoiding duplication.



Switch	Setting	Contents
Wired remote control: SW1	Master	Master remote control
Wireless kit: SW1-2	Slave	Slave remote control

Master/slave setting when more than one remote control unit are used

A maximum of two remote control units can be connected to one indoor unit (or one group of indoor units.)

Latest "function setting" is superior than previous one.

Acceptable combination is "two (2) wired remote controls", "one (1) wired remote control and one (1) wireless kit" or "two (2) wireless kits".

Set one to "Master" and the other to "Slave".

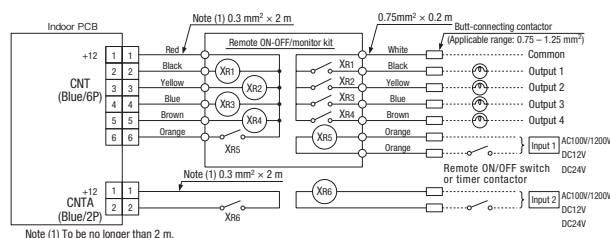
Note: The setting "Remote control unit sensor enabled" is only selectable with the master remote control unit in the position where you want to check room temperature.

③④ Operation and confirmation from remote control

No.	Item	Operation from the eco touch remote control (RC-EX3A)	Operation from the standard remote control (RC-E4, RC-E5)
1	Check the number of units connected in the multi remote control system.	[Menu] ⇒ [Service setting] ⇒ [Service & Maintenance] ⇒ [Service password] ⇒ [IU address]	① Press the [AIR CON NO.] button to display the IU address. ② Press the [▲] or [▼] button and check addresses of connected indoor units one by one.
2	Check if each unit is connected properly in the remote control system.	[Menu] ⇒ [Service setting] ⇒ [Service & Maintenance] ⇒ [Service password] ⇒ [IU address] ⇒ [Check run mode]	① Press the [AIR CON NO.] button to display the IU address. ② Press the [▲] or [▼] button and select one of IU addresses. ③ Press the [MODE] button. The unit starts to blow air.
3	Setting main/sub remote controls	[Menu] ⇒ [Service setting] ⇒ [R/C function settings] ⇒ [Service password] ⇒ [Main/Sub of R/C]	Set SW1 to "Sub" for the sub remote control unit.
4	Checking operation data	[Menu] ⇒ [Service setting] ⇒ [Service & Maintenance] ⇒ [Service password] ⇒ [Operation data]	Press the [CHECK] button. ⇒ "UPH DATA" is displayed. ⇒ Press the [SET] button. ⇒ "UPLUPLUPLU" is displayed. ⇒ Select one of addresses for connected indoor units by pressing the [▲] or [▼] button. ⇒ Press the [SET] button. ⇒ "UPLUPLUPLU" is displayed. ⇒ Select data by pressing the [▲] or [▼] button.
5	Checking inspection display	[Menu] ⇒ [Service setting] ⇒ [Service & Maintenance] ⇒ [Service password] ⇒ [Error display]	Press the [CHECK] button. ⇒ "UPH DATA" is displayed. ⇒ Press the [▼] button. ⇒ "ERRR DATA" is displayed. ⇒ Press the [SET] button. ⇒ "UPLUPLUPLU" is displayed. ⇒ Data is displayed.
6	Cooling test run from remote control	[Menu] ⇒ [Service setting] ⇒ [Installation settings] ⇒ [Service password] ⇒ [Test run] ⇒ [Cooling test run] ⇒ [Start]	① Start the system by pressing the [ON/OFF] button. ② Select "Cool" with the [MODE] button. ③ Press the [TEST] button for 3 seconds or longer. The screen display will switch to "TEST RUN". ④ Pressing the [SET] button, while the "TEST RUN" is displayed, starts the cooling test run. The screen display will switch to "TEST RUN".
7	Trial operation of drain pump from remote control	[Menu] ⇒ [Service setting] ⇒ [Installation settings] ⇒ [Service password] ⇒ [Test run] ⇒ [Drain pump test run] ⇒ [Run]	① Start the system by pressing the [ON/OFF] button. The display will change to "TEST RUN". ② Press the [▼] button once to display "DRAIN PUMP". ③ Pressing the [SET] button starts the drain pump operation. The display will show "DRAIN PUMP".

The menu configuration may vary depending on models of the remote control. If the model of your remote control is different, refer to the installation manual attached to the remote control.

⑤ Function of CnT connector of indoor printed circuit board



Note (1) To be no longer than 2 m.

● Xr1-4 are DC 12 V relays. (Equivalent to Omron's LY2F)

● Xr5 is a DC 12 V, 24 V or 100 V relay. (Equivalent to Omron's MY2F)

● Maker and model of CnT connector (Site side)

Connector : Molex 5264-06

Terminal : Molex 5263T

● CnTA connector is used on FDT, or other. <Check with the specifications.> (Site side) Maker and model

Connector : J.S.T. Mfg. XAP02V-1-E

Terminal : J.S.T. Mfg. SXA-01T-P0.6

● Output 1 - 4 and input 1/2 can be selected/set as required from following items.

Factory default is set as shown below.

Output

① RUN output	⑧ Fan ON output 3
② Heating output	⑨ Defrost/oil return output
③ Compressor ON output	⑩ Ventilation output
④ Inspection (error) output	⑪ Heater output
⑤ Cooling output	⑫ Free cleaning output
⑥ Fan ON output 1	⑬ Indoor overload error output
⑦ Fan ON output 2	

Input

① RUN/STOP	⑤ Setting temp. shift
② RUN permit prohibition	⑥ Compulsory thermostat OFF
③ Emergency stop	⑦ Temporary stop
④ Cooling/Heating	⑧ Silent mode

Factory default setting

CnT-2	Output 1	RUN output	CnT-5	Output 4	Inspection (error) output
CnT-3	Output 2	Heating output	CnT-6	Input 1	RUN/STOP
CnT-4	Output 3	Compressor ON output	CnT-6	Input 2	RUN/STOP

● For the setting method, refer to the technical data.

⑥ Operation and setting from remote control

A : Refer to the instruction manual for RC-EX series
 B : Refer to the installation manual for RC-EX series
 C : Loading a utility software via Internet

○ : Nearly same function setting and operations are possible.
 △ : Similar function setting and operations are possible.

Setting & display item			Description	RC-EX3A	RC-E5
1.Remote control network					
1	Control plural indoor units by a single remote control		A remote control can control plural indoor units up to 16 (in one group of remote control network). An address is set to each indoor unit.		○
2	Main/sub setting of remote controls		A pair of remote controls (including optional wireless remote control) can be connected within the remote control network. Set one to "Main" and the other to "Sub".	B	○
2.TOP screen, Switch manipulation					
1	Menu		"Control", "State", or "Details" can be selected. (3-8)	A	
2	Operation mode		"Cooling", "Heating", "Fan", "Dry" or "Auto" can be set.	A	○
3	Set temp.		"Set temperature" can be set by 0.5°C interval.	A	○
4	Air flow direction		"Air flow direction" [Individual flap control] can be set. Select Enable or Disable for the "3D AUTO" (in case of FDK). *1	A	△
5	Fan speed		"Fan speed" can be set.	A	○
6	Timer setting		"Timer operation" can be set.	A	○
7	ON/OFF		"On/Off operation of the system" can be done.	A	○
8	F1 SW		The system operates and is controlled according to the function specified to the F1 switch.	A	
9	F2 SW		The system operates and is controlled according to the function specified to the F2 switch.	A	
3.Useful functions					
1	Individual flap control		The moving range (the positions of upper limit and lower limit) of the flap for individual flap can be set. Set also the left and right limit positions for FDK.	A	△
2	Anti draft setting When the panel with the anti-draft function is assembled.		When the panel with the anti draft function is assembled, select to Enable or Disable the anti draft setting for each operation mode and for each blow outlet.	A	
3	Timer settings	Set On timer by hour	The period of time to start operation after stopping can be set. • The period of set time can be set within range of 1hour-12hours (1hr interval). • The operation mode, set temp. and fan speed at starting operation can be set.	A	△
		Set Off timer by hour	The period of time to stop operation after starting can be set. • The period of set time can be set within range of 1hour-12hours (1hr interval).	A	△
		Set On timer by clock	The clock time to start operation can be set. • The set clock time can be set by 5 minutes interval. • [Once (one time only)] or [Everyday] operation can be switched. • The operation mode, set temp. and fan speed at starting operation can be set.	A	△
		Set Off timer by clock	The clock time to stop operation can be set. • The set clock time can be set by 5 minutes interval. • [Once (one time only)] or [Everyday] operation can be switched.	A	△
		Confirmation of timer settings	Status of timer settings can be seen.	A	
4	Favorite setting [Administrator password]		Set the operation mode, setting temperature, air flow capacity and air flow direction for the choice setting operations. Set them for the Favorite set 1 and the Favorite set 2 respectively.	A	
5	Weekly timer		On timer and Off timer on weekly basis can be set. • 8-operation patterns per day can be set at a maximum. • The setting clock time can be set by 5 minutes interval. • Holiday setting is available. • The operation mode, set temp. and fan speed at starting operation can be set.	A	△
6	Home leave mode [Administrator password]		When leaving home for a long period like a vacation leave, the unit can be operated to maintain the room temperature not to be hotter in summer or not to be colder in winter. • The judgment to switch the operation mode (Cooling ⇄ Heating) is done by the both factors of the set temp. and outdoor air temp. • The set temp. and fan speed can be set.	A	
7	External Ventilation When the ventilator is combined.		On/Off operation of the external ventilator can be done. It is necessary to set from [Menu] ⇒ [Service setting] ⇒ [RVC function settings] ⇒ [Ventilation setting]. • If the "Independent" is selected for the ventilation setting, the ventilator can be operated or stopped.	A	○
8	Select the language		Select the language to display on the remote control. • Select from English, German, French, Spanish, Italian, Dutch, Turkish, Portuguese, Russian, Polish, Japanese and Chinese.	A	
4.Energy-saving setting					
			Administrator password		
1	Sleep timer		To prevent the timer from keeping ON, set hours to stop operation automatically with this timer. • The selectable range of setting time is from 30 to 240 minutes. (10 minutes interval) • When setting is "Enable", this timer will activate whenever the ON timer is set.	A	△
2	Peak-cut timer		Power consumption can be reduced by restructuring 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.	A	
3	Automatic temp. set back		After the elapse of the set time period, the current set temp. will be set back to the [Set back time]. • The setting can be done in cooling and heating mode respectively. • Selectable range of the set time is from 20 min. to 120 min. (10 min. interval). • Set the [Set back temp.] by 1°C interval.	A	△
4	Infrared sensor control (Motion sensor control) When the panel with the infrared sensor (motion sensor) is assembled.		When the infrared sensor (motion sensor) is used, it is necessary to set Enable or Disable for the "Power control" and the "Auto-off".	A	
5.Filter					
1	Filter sign reset	Filter sign reset	The filter sign can be reset.	A	
		Setting next cleaning date	The next cleaning date can be set.	A	
6.User setting					
1	Internal settings	Clock setting	The current date and time can be set or revised. • If a power failure continues no longer than 80 hours, the clock continues to tick by the built-in power source.	A	△
		Date and time display	[Display] or [Hide] the date and/or time can be set, and [12H] or [24H] display can be set.	A	
		Summer time	When select [Enable], the +1hour adjustment of current time can be set. When select [Disable], the [Summer time] adjustment can be reset.	A	
		Contrast	The contrast of LCD can be adjusted higher or lower.	A	
		Backlight	Switching on/off a light can be set and period of the lighting time can be set within the range of 5sec-90 sec (5sec interval).	A	
		Control sound	It can set with or without [Control sound (beep sound)] at touch panel.	A	
		Operation lamp luminance	This is used to adjust the luminance of operation lamp.	A	
2	Administrator settings [Administrator password]	Permission/Prohibition setting	• Permission/Prohibition setting of operation can be set. [On/Off] [Change set temp] [Change operation mode] [Change flap direction] [Change fan speed] [High power operation] [Energy-saving operation] [Timer] Request for administrator can be set. [Individual flap control] [Weekly timer] [Select the language] [Anti draft setting]	A	△
		Outdoor unit silent mode timer	The period of time to operate the outdoor unit by prioritizing the quietness can be set. • The [Start time] and the [End time] for operating outdoor unit in silent mode can be set. • The period of the operation time can be set once aday by 5 minutes interal.	A	△
		Setting temp. range	The upper/lower limit of temp. setting range can be set. • The limitation of indoor temp. setting range can be set for each operation mode in cooling and heating.	A	△
		Temp. increment setting	The temp. increment setting can be changed by 0.5°C or 1.0°C.	A	
	Set temp. display	Ways of displaying setting temperatures can be selected.	A		

⑥ Operation and setting from remote control (continued)

Setting & display item		Description	RC-EX3A	RC-E5
2 Administrator settings [Administrator password]	R/C display setting	Register [Room name] [Name of I/U] Display [Indoor temp. display] or not. Display [Error code display] or not. Display [Heating stand-by display] [Defrost operation display] [Auto cooling/heating display] [Display temp. of R/C, Room, Outdoor] or not	A	△
	Change administrator password	The administrator password can be changed. (Default setting is "0000") The administrator password can be reset.	A B	
	F1/F2 function setting	Functions can be set for F1 and F2. Selectable functions: [High power operation], [Energy-saving operation], [Silent mode cont.], [Home leave mode], [Favorite set 1], [Favorite set 2] and [Filter sign reset].	A	
7. Service setting				
1 Installer settings [Service password]	Installation date	The [Installation date] can be registered. • When registering the [Installation date], the [Next service date] is displayed automatically. (For changing the [Next service date], please refer the item of [Service & Maintenance])	B	
	Company information	The [Company information] can be registered and can be displayed on the R/C. • The [Company] can be registered within 26 characters. • The [Phone No.] can be registered within 13 digits.	B	
	Test run	On/Off operation of the test run can be done.		
	Cooling test run	The [Cooling test run] can be done at 5°C of set temp. for 30 minutes.	B	○
	Drain pump test run	Only drain pump can be operated.		
	Static pressure adjustment	In case of combination with only the ducted indoor unit which has a function of static pressure adjustment, the static pressure is adjustable. • It can be set for each indoor unit individually.	B	
	Change auto-address	The set address of each indoor unit decided by auto-address setting method can be changed to any other address. (For multiple KX units only)	B	△
	Address setting of main IU	Main indoor unit address can be set. • Only the Main indoor unit can change operation mode and the Sub indoor units dominated by the Main indoor shall follow. • The Main indoor unit can domain 10 indoor units at a maximum.	B	△
	IU back-up function	When a pair of indoor units (2 groups) is connected to one unit of remote control, it can be set Enable or Disable for the [IU rotation], [IU capacity back-up] and [IU fault back-up]	B	
	Infrared sensor setting (Motion sensor setting) When the panel with the infrared sensor (motion sensor) is assembled.	Set Enable or Disable for the infrared sensor detectors of indoor units connected to the remote control. If Disable is selected, it cannot be control the infrared sensor control for the energy-saving setting.	B	
2 R/C function setting [Service password]	Main/Sub R/C	The R/C setting of [Main/Sub] can be changed.	B	○
	Return air temp.	When two or more indoor units are connected to one unit of remote control, suction sensors, which are used for the judgement by thermostat, can be selected. • It can be selected from [Individual], [Master IU] and [Average temp.].	B	
	R/C sensor	It can be set the mode to switch to the remote control sensor. It can be selected from cooling and heating.	B	△
	R/C sensor adjustment	The offset value of [R/C sensor] sensing temp. can be set respectively in heating and cooling.	B	△
	Operation mode	Enable or Disable can be set for each operation mode.	B	△
	°C / °F	Set the unit for setting temperatures. • °C or °F can be selected.	B	
	Fan speed	Fan speeds can be selected.	B	○
	External input	When two or more indoor units are connected to one unit of remote control, the range to apply CnT inputs can be set.	B	○
	Upper/lower flap control	[Stop at fixed position] or [Stop at any position] can be selected for the upper and lower louvers.	B	○
	Left/right flap control	[Fixed position stop] or [Stop at any position] can be selected for the right and left louvers.	B	
	Ventilation setting	Combination control for ventilator can be set.	B	○
	Auto-restart	The operation control method after recovery of power failure happened during operation can be set.	B	○
	Auto temp. setting	[Enable] or [Disable] of [Auto temp. setting] can be selected.	B	
	Auto fan speed	[Enable] or [Disable] of [Auto fan speed] can be selected.	B	
	Fan speed setting	The fan speed for indoor units can be set.	B	○
	Filter sign	The setting of filter sign display timer can be done from following patterns.	B	○
	External input 1	The connect of control by external input 1 can be changed.	B	○
3 IU settings [Service password]	External input 1 signal	The type of external input 1 signal can be changed.	B	○
	External input 2	The connect of control by external input 2 can be changed.	B	
	External input 2 signal	The type of external input 2 signal can be changed.	B	
	Heating thermo-OFF temp. adjustment	The judgement temp. of heating thermo-off can be adjusted within the range from 0 to +3°C (1°C interval)	B	△
	Return temperature adjustment	The sensing temp. of return air temp. sensor built in the indoor unit can be adjusted within the range of ±2°C.	B	△
	Fan control in cooling thermo-OFF	Fan control, when the cooling thermostat is turned OFF, can be changed.	B	○
	Fan control in heating thermo-OFF	Fan control, when the heating thermostat is turned OFF, can be changed.	B	○
	Anti-frost temp.	Judgment temperature for the anti-frost control during cooling can be changed.	B	○
	Anti-frost control	When the anti-frost control of indoor unit in cooling is activated, the fan speed can be changed.	B	○
	Drain pump operation	In any operation mode in addition to cooling and dry mode, the setting of drain pump operation can be done.	B	○
	Keep fan operating after cooling is stopped	The time period residual fan operation after stopping or thermo-off in cooling mode can be set.	B	○
	Keep fan operating after heating is stopped	The time period residual fan operation after stopping or thermo-off in heating mode can be set.	B	○
	Intermittent fan operation in heating	The fan operation rule following the residual fan operation after stopping or thermo-off in heating mode can be set.	B	○
	Fan circulator operation	In case that the fan is operated as the circulator, the fan control rule can be set.	B	
	Control pressure adjust	When only the OA processing units are operated, control pressure value can be changed.	B	
	Auto operation mode	The [Auto rule selection] for switching the operation mode automatically can be selected from 3 patterns.	B	
	Thermo. rule setting	When selecting [Outdoor air temp. control], the judgment temp. can be offset by outdoor temp..	B	
	Auto fan speed control	Auto switching range for the auto fan speed control can be set.	B	
	IU overload alarm	If the difference between the setting temperature and the section temperature becomes larger than the temperature difference set for the overload alarm, at 30 minutes after the start of operation, the overload alarm signal is transmitted from the external output (CnT-5).	B	
4 Service & Maintenance [Service password]	External output setting	Functions assigned to the external outputs 1 to 4 can be changed.	B	
	IU address	Max 16 indoor units can be connected to one remote control, and all address No. of the connected indoor units can be displayed. • The indoor unit conforming to the address No. can be identified by selecting the address No. and tapping [Check] to operate the indoor fan.	B	○
	Next service date	The [Next service date] can be registered. • The [Next service date] and [Company information] is displayed on the message screen.	A B	○
	Operation data	The [Operation data] for indoor unit and outdoor unit can be displayed.	B	○
	Error display			
	Error history	The error history can be displayed.		
	Display anomaly data	The operation data just before the latest error stop can be displayed.	B	△
	Erase anomaly data	Anomaly operation data can be erased.		
	Reset periodical check	The timer for the periodical check can be reset.		
	Saving IU settings	The I/U settings memorized in the indoor PCB connected to the remote control can be saved in the memory of the remote control.	B	
8 Contact company	Special settings	[Erase IU address] [CPU reset] [Restore of default setting] [Touch panel calibration]	B	△
	Indoor unit capacity display	Address No. and capacities of indoor units connected to the remote control are displayed.	B	
9. Inspection				
Confirmation of Inspection		This is displayed when any error occurs.	A	△
10. PC connection				
USB connection		Weekly timer setting and etc., can be set from PC.	C	

◆ Listed items may not function depending on the specifications of indoor and outdoor units which are combined.

8.3 Installation of wired remote control (Option parts)

PJZ012A171

(1) Model RC-EX3A

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.
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- 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 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 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

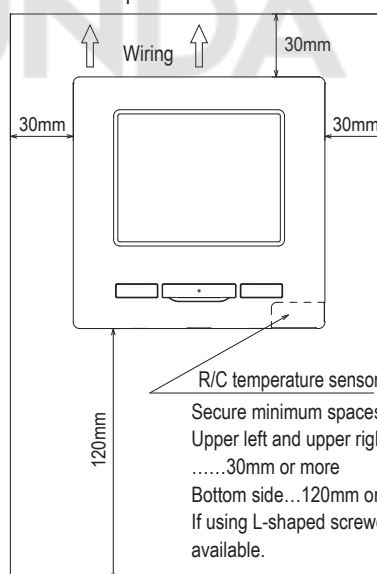
Secure the installation space shown in the figure.

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

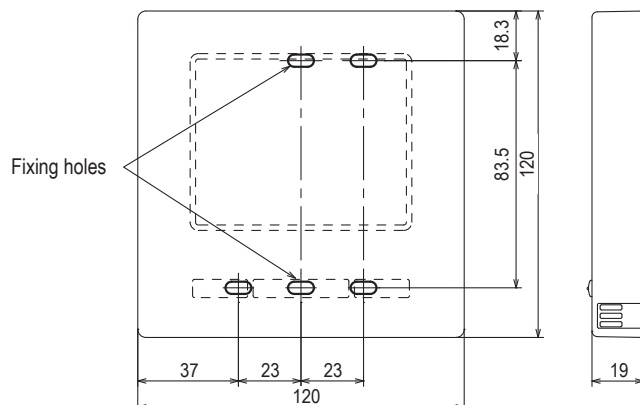


Secure minimum spaces for disassembling the case.
Upper left and upper right sides
.....30mm or more
Bottom side...120mm or more
If using L-shaped screwdriver, 50mm or more is available.

4 . Installation procedure

Perform installation and wiring work for the remote control according to the following procedure.

Dimensions (Viewed from front)



To disassemble the R/C case into the upper and lower pieces after assembling them once

· 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.

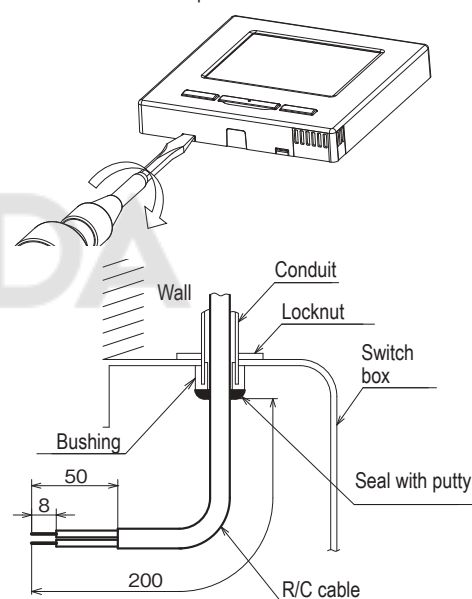
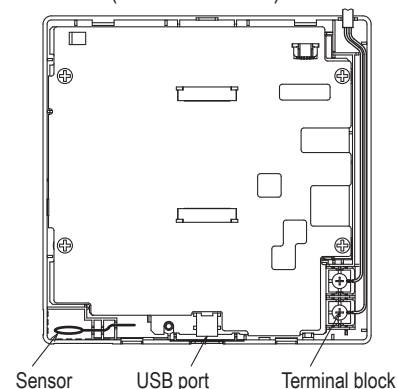
In case of embedding wiring

(When the wiring is retrieved "Backward")

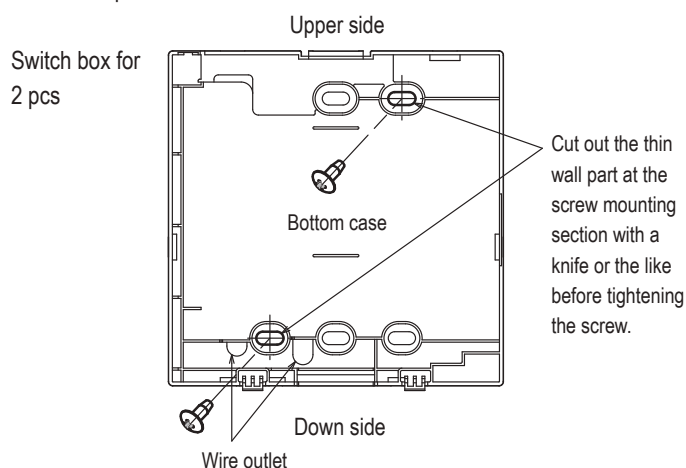
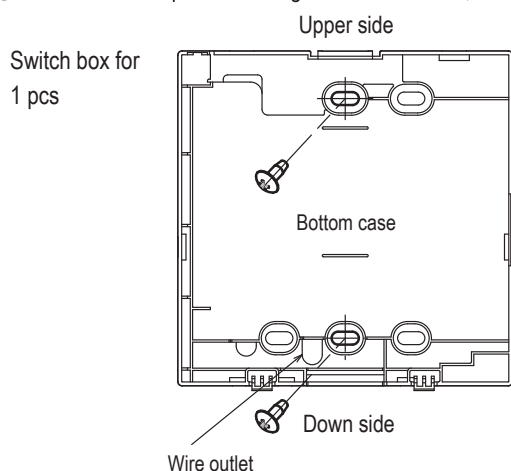
① Embed the switch box and the R/C wires beforehand.

Seal the inlet hole for the R/C wiring with putty.

PCB side (Viewed from rear)



② When wires are passed through the bottom case, fix the bottom case at 2 places on the switch box.



- 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

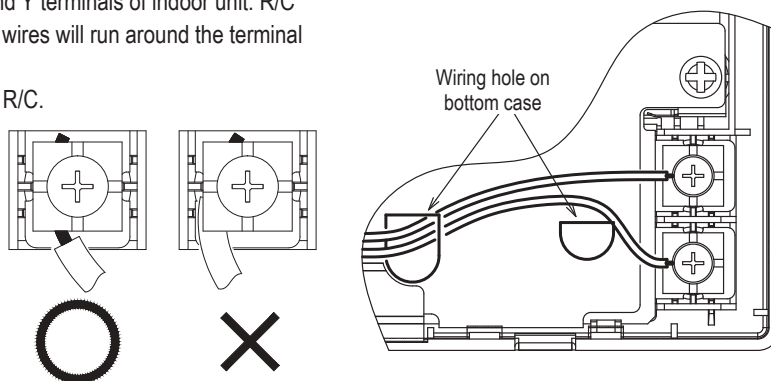
Use wires of no larger than 0.5 mm^2 for wiring running through the remote control case. Take care not to pinch the sheath.

Tighten by hand ($0.7 \text{ N}\cdot\text{m}$ 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

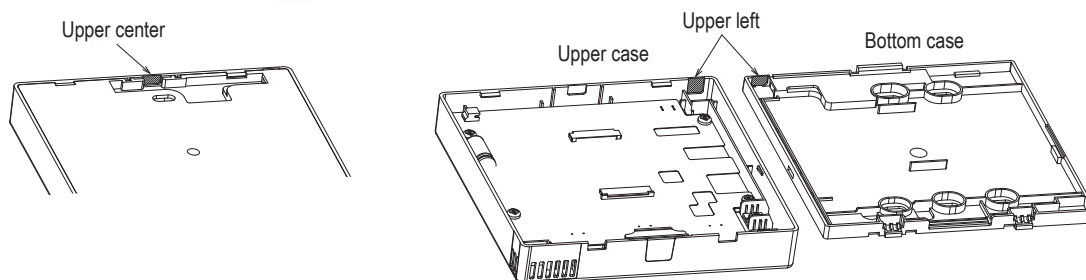
(When the wiring is taken out from the "upper center" or "upper left" of R/C)

- ① Cut out the thin wall sections on the cases for the size of wire.

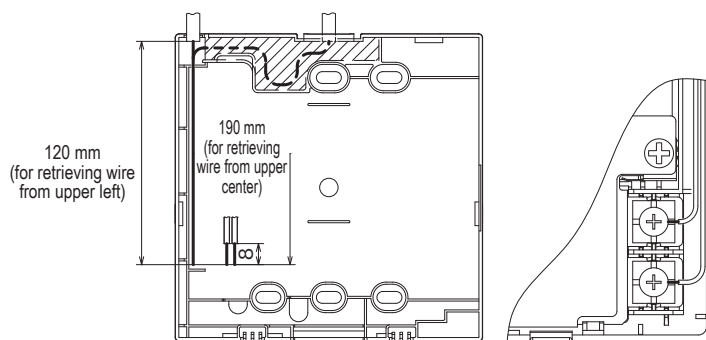


When taking the wiring out from the upper center, open a hole before separating the upper and bottom cases. This will reduce risk of damaging the PCB and facilitate subsequent work.

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.

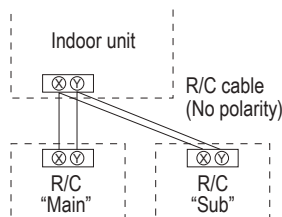


5 . Main/Sub setting when more than one remote control are used

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.



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	○	○	
Silent mode control		○	×	
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	○	×	
		Motion sensor setting	○	×	
	R/C function settings	Main/Sub of R/C	○	○	
		Return air temp.	○	×	
		R/C sensor	○	×	
		R/C sensor adjustment	○	×	
		Operation mode	○	×	
		°C / °F	○	×	
		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

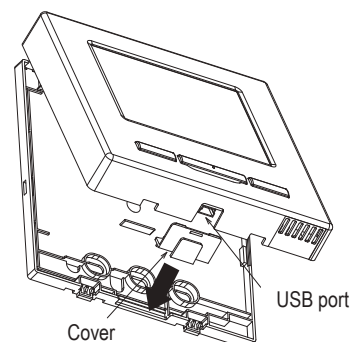
It can be set from a personal computer via the USB port (mini-B).

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.



Advice: Initializing of password

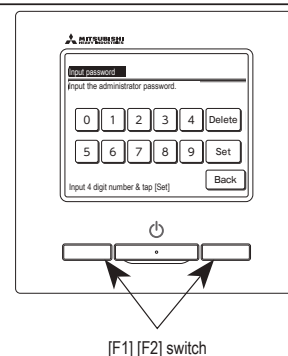
Administrator password (for daily setting items) and service password (for installation, test run and maintenance) are used.

- 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.



Advice

When connecting two or more FDT/FDTC to one R/C, unify the panel type either to a panel with anti draft function or a standard panel.

(2) Model RC-E5

PJA012D730 

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.

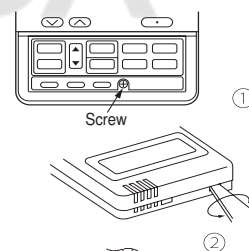
(1) Places exposed to direct sunlight	(4) Hot surface or cold surface enough to generate condensation
(2) Places near heat devices	(5) Places exposed to oil mist or steam directly
(3) High humidity places	(6) Uneven surface


- Do not leave the remote control without the upper case.
In case the upper case needs to be detached, protect the remote control with a packaging box or bag in order to keep it away from water and dust. 

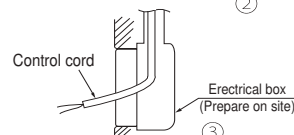
Accessories	Remote control, wood screw (ø3.5×16) 2 pieces
Prepare on site	Remote control cord (2 cores) the insulated thickness in 1mm or more. [In case of embedding cord] Electrical box, M4 screw (2 pieces) [In case of exposing cord] Cord clamp (if needed)

Installation procedure

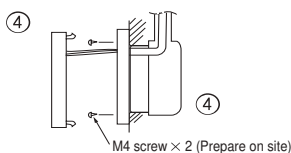
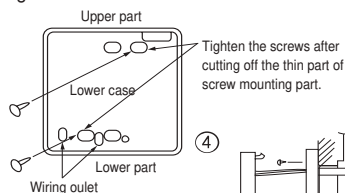
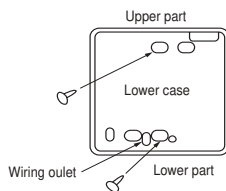
- ① Open the cover of remote control, and remove the screw under the buttons without fail.
- ② Remove the upper case of remote control.
Insert a flat-blade screwdriver into the dented part of the upper part of the remote control, and wrench slightly.

**[In case of embedding cord]**

- ③ Embed the electrical box and remote control cord beforehand.



- ④ Prepare two M4 screws (recommended length is 12-16mm) on site, and install the lower case to electrical box. Choose either of the following two positions in fixing it with screws.

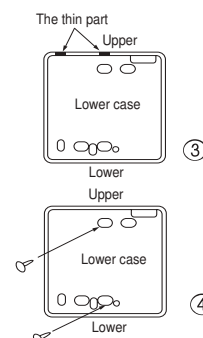


- ⑤ Connect the remote control cord to the terminal block.
Connect the terminal of remote control (X,Y) with the terminal of indoor unit (X,Y). (X and Y are no polarity)

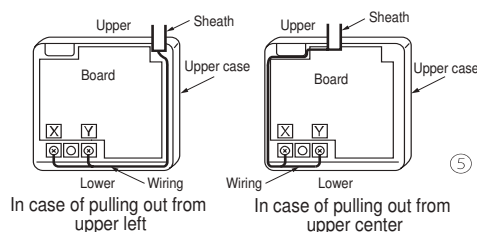
- ⑥ Install the upper case as before so as not to catch up the remote control cord, and tighten with the screws.

[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.

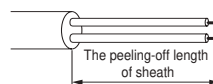


The wiring inside the remote control case should be within 0.3mm^2 (recommended) to 0.5mm^2 .

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	X wiring : 170mm
Y wiring : 195mm	Y wiring : 190mm



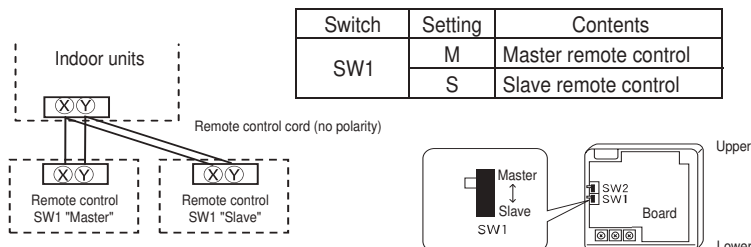
- ⑥ Install the upper case as before so as not to catch up the remote control cord, and tighten with the screws.
- ⑦ In case of exposing cord, fix the cord on the wall with cord clamp so as not to slack.

Installation and wiring of remote control

- ① Wiring of remote control should use $0.3\text{mm}^2 \times 2$ 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..... $0.5\text{mm}^2 \times 2$ cores
Under 300m..... $0.75\text{mm}^2 \times 2$ cores
Under 400m..... $1.25\text{mm}^2 \times 2$ cores
Under 600m..... $2.0\text{mm}^2 \times 2$ 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.)



Set SW1 to "Slave" for the slave remote control. It was factory set to "Master" for shipment.

Note: The setting "Remote control sensor 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

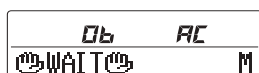
When power source is turned on, the following is displayed on the remote control until the communication between the remote control and indoor unit settled.

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).

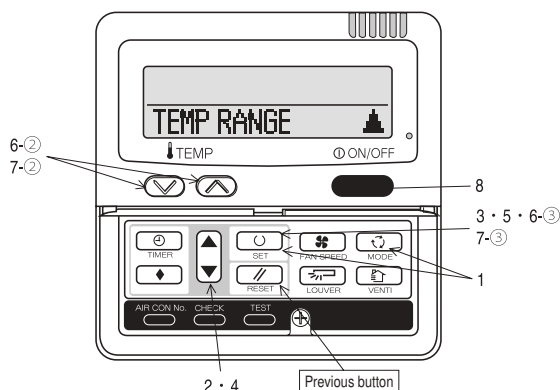
When you set upper and lower limit by this function, control as below.

- When ⑫ TEMP 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.
- When ⑫ TEMP 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

- Stop the air-conditioner, and press (SET) and (MODE) button at the same time for over three seconds.
 The indication changes to "FUNCTION SET ▼".
- Press button once, and change to the "TEMP RANGE ▲" indication.
- Press (SET) button, and enter the temperature range setting mode.
- Select "UPPER LIMIT ▼" or "LOWER LIMIT ▲" by using button.
- Press (SET) button to fix.
- 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 ▼".
- 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 ▼".
- Press button to finish.

- It is possible to finish by pressing 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 " " 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

FUNCTION (Remote control function) (Indoor unit function) (Indoor unit No. are indicated only when plural indoor units are connected.)

Function	setting	Function	setting
01 ESP SET	VALID ○ INVALID ※	02 FAN SPEED SET	STANDARD ※ HIGH SPEED 1 ※ HIGH SPEED 2 ※
02 AUTO RUN SET	AUTO RUN ON ※ AUTO RUN OFF ※	03 FILTER SIGN SET	INDICATION OFF ○ TYPE 1 ○ TYPE 2 ○ TYPE 3 ○ TYPE 4 ○
03 TEMP SW	VALID ○ INVALID ○	04 POSITION	POSITION STOP ○ FREE STOP ○
04 MODE SW	VALID ○ INVALID ○	05 EXTERNAL INPUT	LEVEL INPUT ○ PULSE INPUT ○
05 ON/OFF SW	VALID ○ INVALID ○	06 PROHIBITION	INVALID ○ VALID ○
06 FAN SPEED SW	VALID ※ INVALID ※	07 EMERGENCY STOP	INVALID ○ VALID ○
07 LOUVER SW	VALID ※ INVALID ※	08 SP OFF SET	OFFSET +3.0℃ ○ OFFSET +2.0℃ ○ OFFSET +1.0℃ ○ NO OFFSET ○
08 TIMER SW	VALID ○ INVALID ○	09 RETURN AIR TEMP	OFFSET +2.0℃ ○ OFFSET +1.5℃ ○ OFFSET +1.0℃ ○ OFFSET -1.0℃ ○ OFFSET -1.5℃ ○ OFFSET -2.0℃ ○
09 SENSOR SET	SENSOR OFF ○ SENSOR ON ○ SENSOR +3.0℃ ○ SENSOR +2.0℃ ○ SENSOR +1.0℃ ○ SENSOR -1.0℃ ○ SENSOR -2.0℃ ○ SENSOR -3.0℃ ○	10 FAN CONTROL	LOW FAN SPEED ○ SET FAN SPEED ○ INTERMITTENCE ○ FAN OFF ○
10 AUTO RESTART	INVALID ○ VALID ○	11 FROST PREVENTION TEMP	TEMP HIGH ○ TEMP LOW ○
11 VENT LINK SET	NO VENT ○ VENT LINK ○ NO VENT LINK ○	12 FROST PREVENTION CONTROL	FAN CONTROL ON ○ FAN CONTROL OFF ○
12 TEMP RANGE SET	INDEN CHANGE ○ INDIEN CHANGE ○	13 DRAIN PUMP LINK	ON AND OFF ○ ON AND OFF ○ ON AND OFF ○
13 1/2 FAN	HI-MID-LO ※ HI-LO ※ HI-MID ※ 1 FAN SPEED ※	14 FAN REMAINING	NO REMAINING ○ 0.5 HOUR ○ 1 HOUR ○ 2 HOUR ○ 3 HOUR ○
14 POSITION	POSITION STOP ○ FREE STOP ○	15 FAN REMAINING	NO REMAINING ○ 0.5 HOUR ○ 1 HOUR ○ 2 HOUR ○ 3 HOUR ○
15 MODEL TYPE	HEAT PUMP ※ COOLING ONLY ※	16 5MIN INTERMITTENCE	NO REMAINING ○ 5min OFF minON ○ 5min OFF minON ○
16 EXTERNAL CONTROL SET	INDIVIDUAL ○ FOR ALL UNITS ○	17 PRESSURE CONTROL	STANDARD ※ TYPE1 ※
17 ROOM TEMP INDICATION SET	INDICATION OFF ○ INDICATION ON ○		
18 5MIN INDICATION	INDICATION ON ○ INDICATION OFF ○		
19 1/2 SET	℃ ○ ℉ ○		

Validate setting of ESP/External Static Pressure
Invalidate setting of ESP

Automatic operation is impossible

Temperature setting button is not working

Mode button is not working

On/Off button is not working

Fan speed button is not working

Louver button is not working

Timer button is not working

Remote thermostat is not working.
Remote thermostat is working.
Remote thermostat is working, and to be set for producing +3.0℃ increase in temperature.
Remote thermostat is working, and to be set for producing +2.0℃ increase in temperature.
Remote thermostat is working, and to be set for producing +1.0℃ increase in temperature.
Remote thermostat is working, and to be set for producing -1.0℃ increase in temperature.
Remote thermostat is working, and to be set for producing -2.0℃ increase in temperature.
Remote thermostat is working, and to be set for producing -3.0℃ increase in temperature.

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.
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.

If you change the range of set temperature, the indication of set temperature will vary following the control.
If you change the range of set temperature, the indication of set temperature will not vary following the control, and keep the set temperature.

Air flow of fan becomes the three speed of $H_{set} - H_{set} - H_{set}$ or $H_{set} - H_{set} - H_{set}$.
Air flow of fan becomes the two speed of $H_{set} - H_{set}$.
Air flow of fan becomes the two speed of $H_{set} - H_{set}$.
Air flow of fan is fixed at one speed.

If you change the remote control function "14 POSITION", you must change the indoor function "14 POSITION" accordingly.
You can select the lower stop position in the four.
The lower can stop at any position.

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.
If you input into CND of the indoor printed circuit board from external, all units which connected to the same remote control are operated according to the input from external.

In normal working indication, indoor unit temperature is indicated instead of air flow.
(Only the master remote control can be indicated.)

Heating preparation indication should not be indicated.

Temperature indication is by degree C.
Temperature indication is by degree F.

Stop "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.
Remote control function06	FAN SPEED SW	VALID	Indoor unit without "Auto-RUN" mode
Remote control function07	LOUVER SW	VALID	Indoor unit with two or three step of air flow setting
Remote control function13	1/2 FAN	HI-MID-LO	Indoor unit with only one of air flow setting
Remote control function15	MODEL TYPE	HEAT PUMP	Indoor unit with automatically swing louver
		COOLING ONLY	Indoor unit without automatically swing louver
			Indoor unit with three step of air flow setting
			Indoor unit with two step of air flow setting
			Indoor unit with only one of air flow setting
			Heat pump unit
			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 / PROHIBITION".

Note 2: Fan setting of "HIGH SPEED"

Fan tap	Indoor unit air flow setting
STANDARD	UH - Hi - Me - Lo
HI - Me - Lo	Hi - Me - Lo
HI - Lo	Hi - Lo
HI - Me	Hi - Me
UH - UH - Hi - Me	UH - Hi - Me
UH - Me	UH - Me
UH - Hi	UH - Hi

Initial function setting of some indoor unit is "HIGH SPEED".

The filter sign is indicated after running for 180 hours.
The filter sign is indicated after running for 600 hours.
The filter sign is indicated after running for 1000 hours.
The filter sign is indicated after running for 1000 hours, then the indoor unit will be stopped by completion after 24 hours.

If you change the indoor function "04 POSITION", you must change the remote control function "14 POSITION" accordingly.
You can select the lower stop position in the four.
The lower can stop at any position.

Permission/prohibition control of operation will be valid.

With the VRF series, it is used to stop all indoor units connected with the same outdoor unit immediately.
When stop signal is input from remote on-off terminal "CNT-5", all indoor units are stopped immediately.

To be reset for producing +3.0℃ increase in temperature during heating.
To be reset for producing +2.0℃ increase in temperature during heating.
To be reset for producing +1.0℃ increase in temperature during heating.

To be reset producing +2.0℃ increase in return air temperature of indoor unit.
To be reset producing +1.5℃ increase in return air temperature of indoor unit.
To be reset producing +1.0℃ increase in return air temperature of indoor unit.

To be reset producing -1.0℃ increase in return air temperature of indoor unit.
To be reset producing -1.5℃ increase in return air temperature of indoor unit.
To be reset producing -2.0℃ increase in return air temperature of indoor unit.

When heating thermostat is OFF, fan speed is low speed.
When heating thermostat is OFF, fan speed is set speed.

When heating thermostat is OFF, fan speed is operated intermittently.
When heating thermostat is OFF, the fan is stopped.
When the remote thermostat is working, "FAN OFF" is set automatically.
Do not set "FAN OFF" when the indoor unit's thermostat is working.

Change of indoor heat exchanger temperature to start frost prevention control.

Working only with the Single split series.
To control frost prevention, the indoor fan tap is raised.

Drain pump is run during cooling and dry.
Drain pump is run during cooling, dry and heating.
Drain pump is run during cooling, dry, heating and fan.
Drain pump is run during cooling, dry and fan.

After cooling is stopped is OFF, the fan does not perform extra operation.
After cooling is stopped is OFF, the fan perform extra operation for half an hour.
After cooling is stopped is OFF, the fan perform extra operation for an hour.
After cooling is stopped is OFF, the fan perform extra operation for six hours.

After heating is stopped or heating thermostat is OFF, the fan does not perform extra operation.
After heating is stopped or heating thermostat is OFF, the fan perform extra operation for half an hour.
After heating is stopped or heating thermostat is OFF, the fan perform extra operation for two hours.
After heating is stopped or heating thermostat is OFF, the fan perform extra operation for six hours.

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.
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.

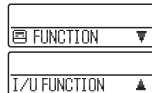
Connected "OA Processing" type indoor unit, and is automatically defined.

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.
Select "FUNCTION ▼" (remote control function) or "I/U FUNCTION ▲" (indoor unit function).



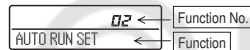
5. Press (SET) button.

6. 【On the occasion of remote control function selection】

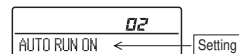
- ① "DATA LOADING" (Indication with blinking)

↓
Display is changed to "01 - . - . - .".

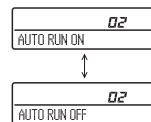
- ② Press or button.
"No. and function" are indicated by turns on the remote control function table, then you can select from them.
(For example)



- ③ Press (SET) button.
The current setting of selected function is indicated.
(for example) "AUTO RUN ON" ← If "02 AUTO RUN SET" is selected



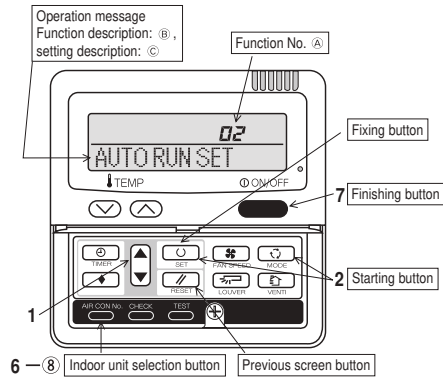
- ④ Press or button.
Select the setting.



- ⑤ Press (SET) 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.



7. Press (ON/OFF) button.
Setting is finished.

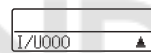
**【On the occasion of indoor unit function selection】**

- 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】

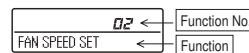
- (1) If plural indoor units are connected to a remote control, the indication is "I/U 000" (blinking) ← The lowest number of the indoor unit connected is indicated.



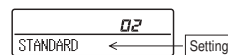
- (2) Press or button.
Select the number of the indoor unit you are to set
If you select "ALL UNIT ▼", you can set the same setting with all units.

- (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】

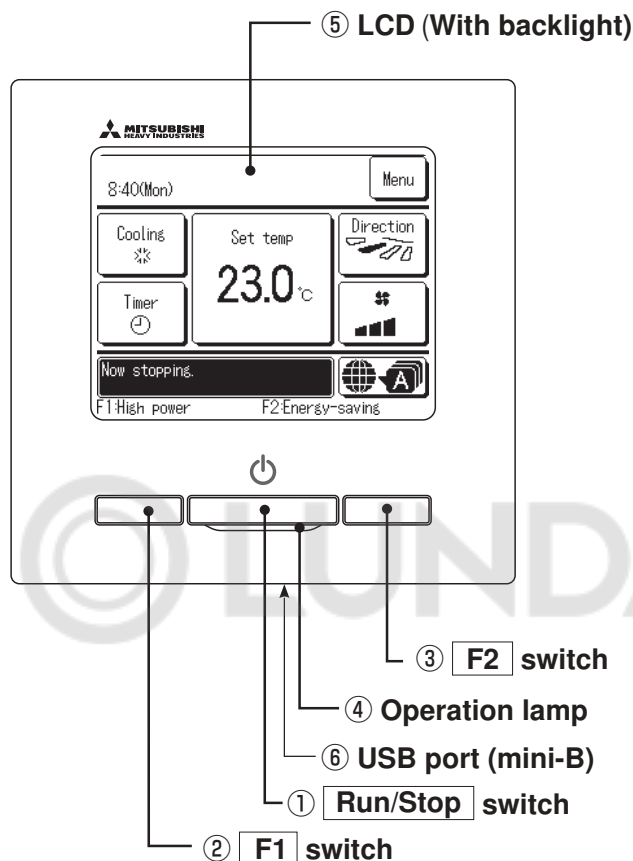
When you select "No. and function" and press set button by the previous operation, the "Setting" displayed first is the current setting.
(But, if you select "ALL UNIT ▼", the setting of the lowest number indoor unit is displayed.)

9. OUTLINE OF OPERATION CONTROL BY MICROCOMPUTER

9.1 Remote control (Option parts)

(1) Wired remote control

Model RC-EX3A



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.

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 ③ are excluded.)

② F1 switch ③ F2 switch

This switch starts operation that is set in F1/F2 function change.

⑥ USB port

USB connector (mini-B) allows connecting to a personal computer.

④ Operation lamp

This lamp lights in green (yellow-green) during operation. It changes to red (orange) if any error occurs.
Operation lamp luminance can be changed.

For operating methods, refer to the instruction manual attached to the software for personal computer (remote control utility software).

⑤ LCD (With backlight)

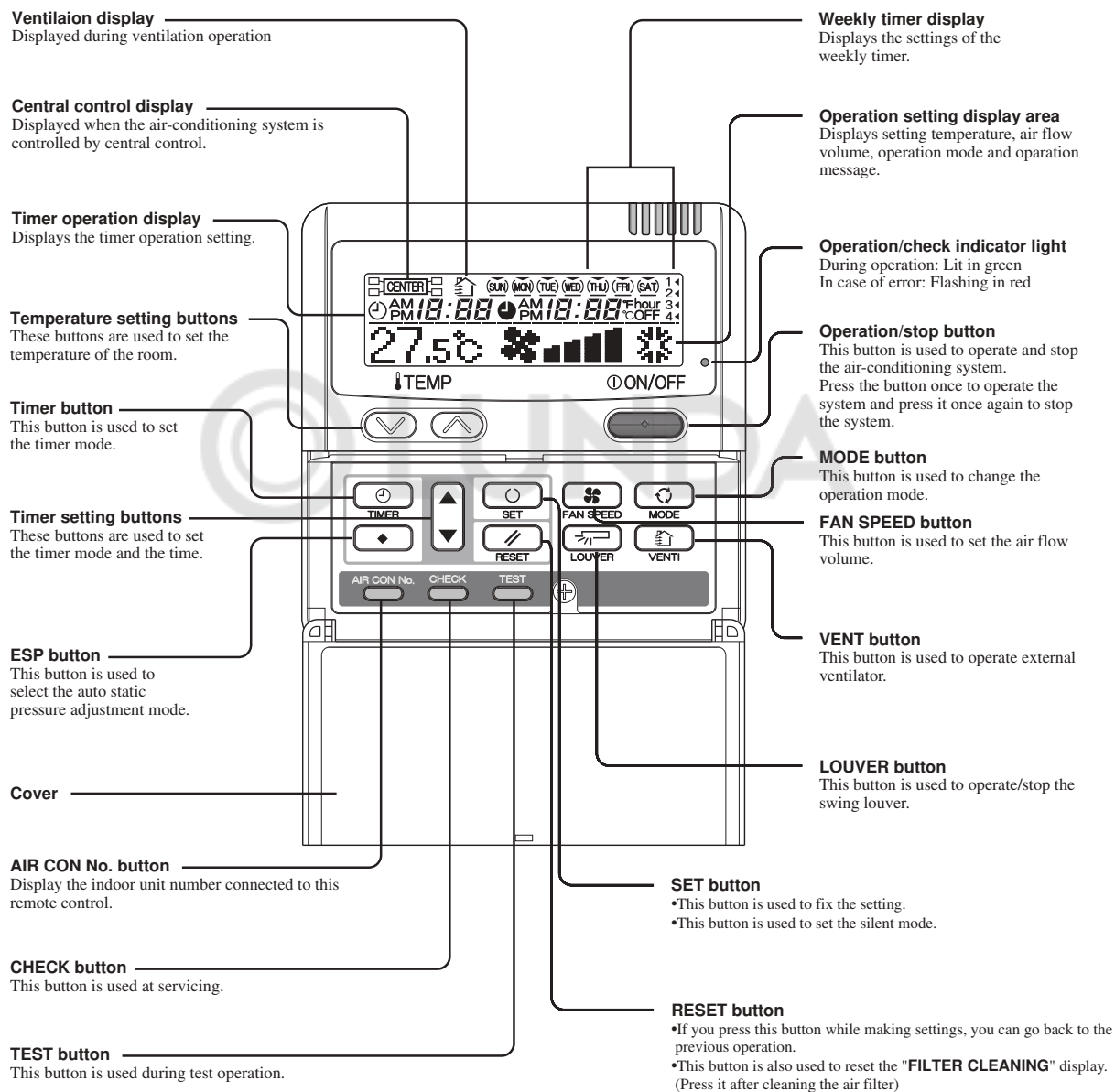
A tap on the LCD lights the backlight.
The backlight turns off automatically if there is no operation for certain period of time.
Lighting period of the backlight lighting can be changed.

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.

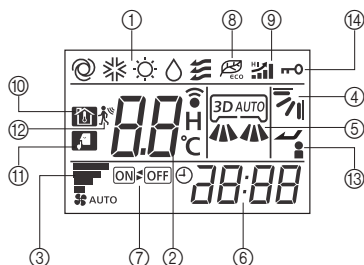


* All displays are described in the liquid crystal display for explanation.

(2) Wireless remote control

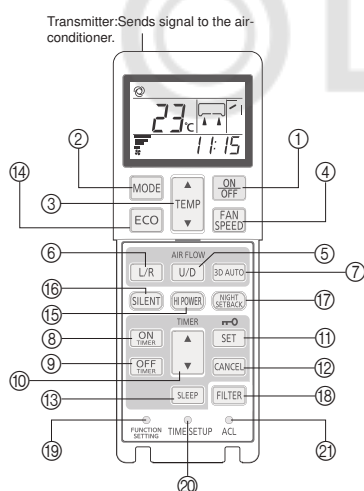
Model RCN-E2

Indication section



①	OPERATION MODE display	Indicates selected operation mode.
②	SET TEMP display	Indicates set temperature.
③	SLEEP TIMER time display	Indicates the amount of time remaining on the sleep timer.
④	Indoor function setting number display	Indicates the setting number of the indoor function setting.
⑤	FAN SPEED display	Indicates the selected air flow volume.
⑥	UP/DOWN AIR FLOW display	Indicates the up/down louver position.
⑦	LEFT/RIGHT AIR FLOW display	Indicates the left/right louver position.
⑧	Clock display	Indicates the current time. If the timer is set, the ON TIMER and OFF TIMER setting times are indicated.
⑨	ON/OFF TIMER display	Displayed when the timer is set.
⑩	ECO mode display	Displayed when the energy-saving operation is active.
⑪	HI POWER display	Displayed when the high power operation is active.
⑫	NIGHT SETBACK display	Displayed when the home leave mode is active.
⑬	SILENT display	Displayed when the silent mode control is active.
⑭	Motion sensor display	Displayed when the infrared sensor control(motion sensor control) is enabled.
⑮	Anti draft setting display	Displayed when anti draft setting is enabled.
⑯	Child lock display	Displayed when child lock is enabled.

Operation section



①	ON/OFF button	When this is pressed once, the air-conditioner starts to operate and when this is pressed once again, it stops operating.
②	MODE button	Every time this button is pressed, displays switch as below
③	TEMP button	Change the set temperature by pressing ▲ or ▼ button.
④	FAN SPEED button	The fan speed is switched in the following order: 1-speed → 2-speed → 3-speed → 4-speed → AUTO → 1-speed.
⑤	U/D button	Used to determine the up/down louver position.
⑥	L/R button	Used to determine the left/right louver position.
⑦	3D AUTO button	Used to switch whether or not to enable or disable 3D AUTO mode.
⑧	ON TIMER button	Used to set the ON TIMER.
⑨	OFF TIMER button	Used to set the OFF TIMER.
⑩	SELECT button	Used to switch the time when setting the timer or adjusting the time. Used to switch the settings of the indoor function.
⑪	SET button	Used to determine the setting when setting the timer or adjusting the time. Used to determine the settings of the indoor function. When press and hold SET button ,Child Lock is enabled.
⑫	CANCEL button	Used to cancel the timer setting.
⑬	SLEEP button	Used to set the sleep timer.
⑭	ECO button	Pressing this button starts the energy-saving operation. Pressing this button again cancels it.
⑮	HI POWER button	Pressing this button starts the high power operation. Pressing this button again cancels it.
⑯	SILENT button	Pressing this button starts the silent mode control. Pressing this button again cancels it.
⑰	NIGHT SETBACK button	Pressing this button starts the home leave mode. Pressing this button again cancels it.
⑱	FILTER button	Pressing this button resets FILTER SIGN.
⑲	FUNCTION SETTING switch	Used to set the indoor function.
⑳	TIME SETUP switch	Used to set the current time.
㉑	ACL switch	Used to reset the microcomputer.

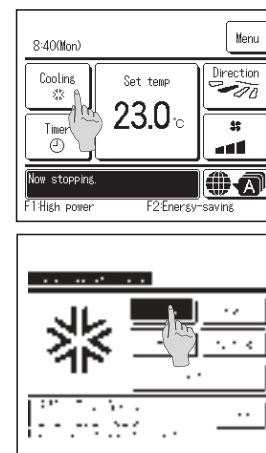
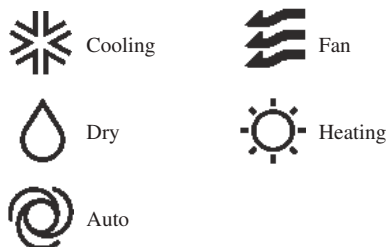
9.2 Operation control function by the wired remote control

● Model RC-EX3A

(1) Switching sequence of the operation mode switches of remote control

- Tap the change operation mode button on the TOP screen.
- When the change operation mode screen is displayed, tap the button of desired mode.
- When the operation mode is selected, the display returns to the TOP screen.

Icons displayed have the following meanings.



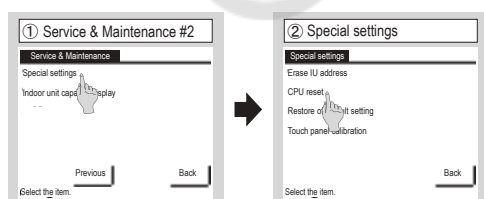
Notes(1) Operation modes which cannot be selected depending on combinations of indoor unit and outdoor unit are not displayed.

- 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.

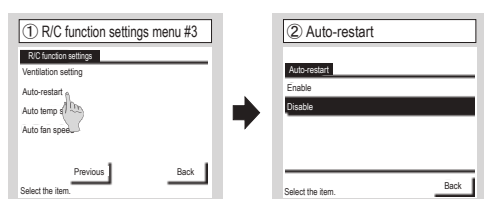
CPU reset

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.)

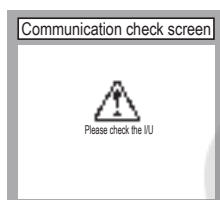
(g) Weekly timer, peak-cut timer or silent mode timer settings

(h) Remote control function setting

(4) Alert displays

If the following (a) to (c) appear, check and repair as follows.

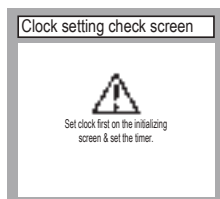
(a) Communication check between indoor unit and remote control



- 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.

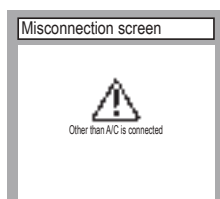
(b) Clock setting check



- This appears when the timer settings are done without clock setting.

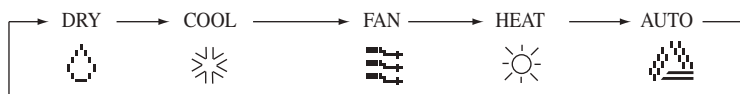
Set the clock setting before the timer settings.

(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

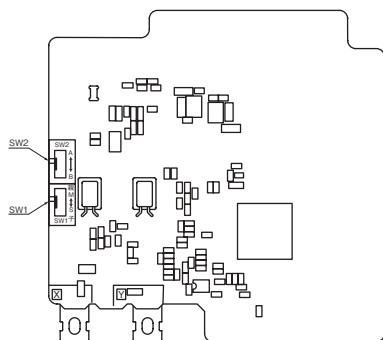
(e) Louver auto swing/stop

However, the stop position (4-position) is cancelled so that it returns to Position (1).

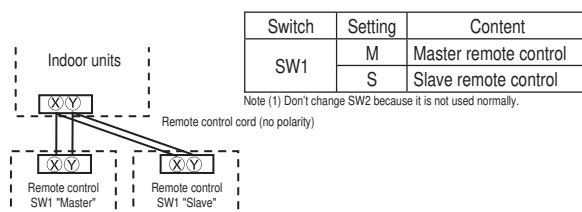
(f) “Remote control function items” which have been set with the remote control function setting (“Indoor function items” are saved in the memory of indoor unit.)

(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.)

**Caution**

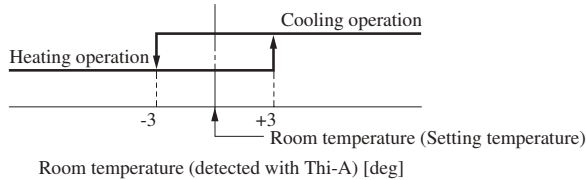
When using multiple remote controls, the following displays or settings cannot be done with the slave remote control. It is available only with the master remote control.

- ① Louver position setting (set upper or lower limit of swinging range)
- ② Setting indoor unit functions
- ③ Setting temperature range
- ④ Operation data display
- ⑤ Error data display
- ⑥ Silent mode setting
- ⑦ Test operation of drain pump
- ⑧ Remote control sensor setting

9.3 Operation control function by the indoor control

(1) Auto operation (Heat recovery 3-pipe combination systems only)

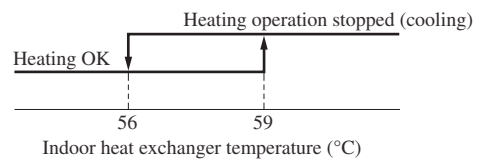
- (a) If "Auto" mode is selected by the remote control, the heating and the cooling are automatically switched according to the difference between outdoor air temperature and setting temperature and the difference between setting temperature and return air temperature. (When the switching of cooling 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-EX3A from $\pm 1.0 \sim \pm 4.0$.

- (2) Room temperature control during auto cooling/auto heating is performed according to the room temperature setting temperature. (DIFF: ± 1 deg)

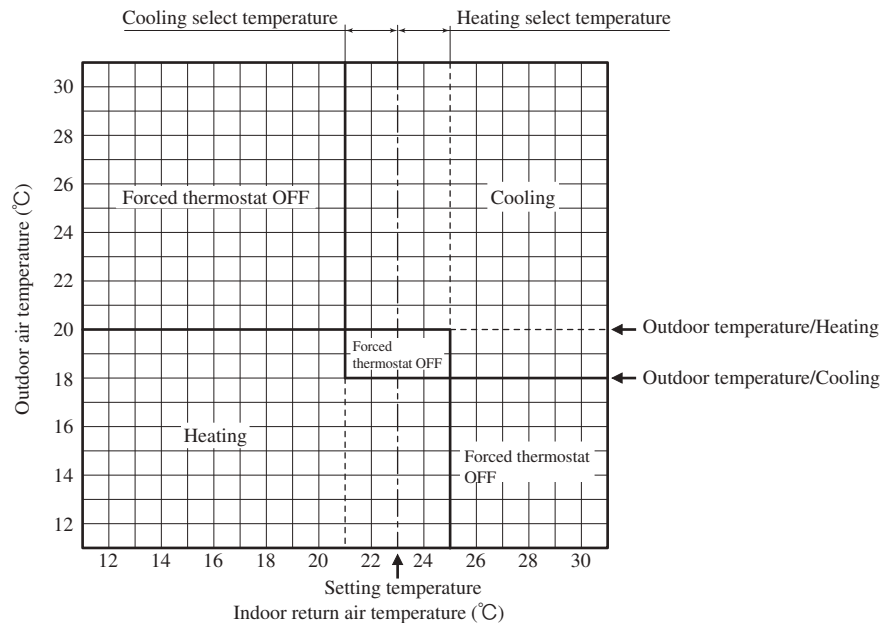
- (3) If the indoor heat exchanger temperature rises to 59°C or higher during heating operation, it is switched automatically to cooling operation. In addition, for 1 hour after this switching, the heating operation is not performed, regardless of the temperature shown at right.



- (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 "Setting temperature - Cooling select temperature < Indoor return air temperature" and "Outdoor temperature/Cooling < Outdoor return air temperature" ⇒ Operation mode: Cooling
- 2) "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



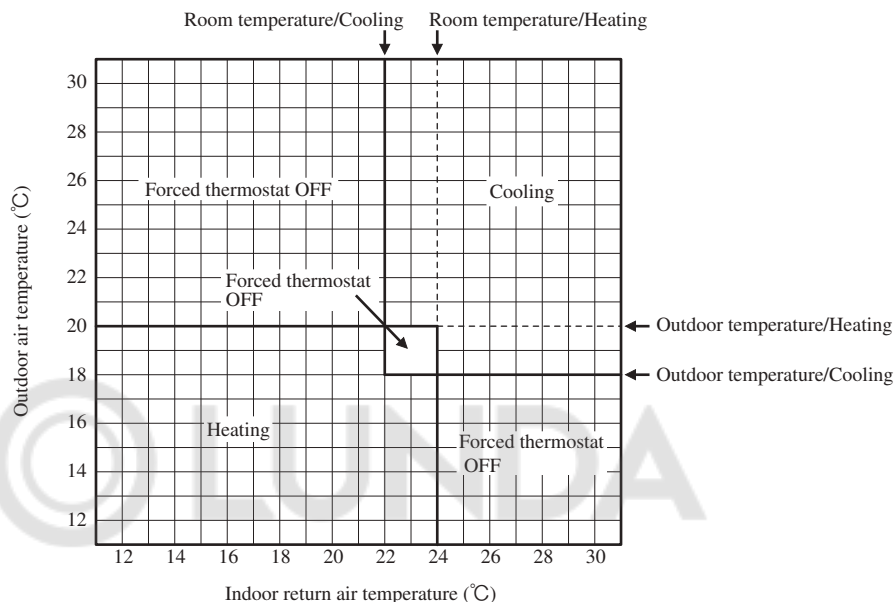
(ii) Regardless of the setting temperature, the cooling or heating operation mode is judged according to the "Judgment based on Room temperature/Cooling or Heating and Outdoor temperature/Cooling or Heating".

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

Indoor ambient temperatures and humidity are controlled simultaneously with the relative humidity sensor (HS) and the suction temperature sensor [Thi-A (or the remote control sensor when it is activated)], which are installed at the suction inlet.

(a) When the operation has been started with cooling, if there is a difference of 2°C or less between the suction and setting temperatures, the tap of indoor fan is lowered by one tap. This tap is retained for 3 minutes after changing the tap.

(b) After the above condition, when a difference between suction and setting temperature is lower than 3°C, and the relative humidity is high, the tap of indoor unit fan is lowered by one tap.
When the difference between suction and setting temperature is larger than 3°C, the fan of indoor unit fan is raised by one tap. This tap is retained for 3 minutes after changing the tap.

(c) When relative humidity becomes lower, the indoor unit fan tap is retained.

(d) In case of the thermostat OFF, the indoor unit fan tap at the thermostat ON is retained.

(4) Timer operation**(a) RC-EX3A****(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 low 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	Timer	OFF timer	ON timer	Weekly timer
Timer		×	○	×
OFF timer	×		○	×
ON timer	○	○		×
Weekly timer	×	×	×	

Note (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 air-conditioner are duplicated, the setting of the OFF timer has priority.

(5) 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) From 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 thermistor (Thi-R1 or R2, whichever higher) detects 35°C or higher.
 - iii) When the heat exchanger thermistor (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 thermistor (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 thermistor (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 thermistor (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 thermistor detects lower than 25°C.

Note (1) When the defrost operation 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 thermistor 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 defrost operation, the fan motor is turned ON regardless of the temperatures detected with the indoor heat exchanger thermistors (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 thermistor (Thi-R1 or R2, whichever higher) detects 35°C or higher.
 - 2) It has elapsed 7 minutes after starting the hot start control.

(6) 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 less than 35°C the speed of indoor fan follows fan setting at the time of thermostat OFF.
- (ii) During the hot keep, the louver is kept at the horizontal position.

(7) Auto swing control

Note Even if [Auto Swing] is selected, the louver position with anti draft function is fixed to position 1.

(a) RC-EX3A**(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 louver will move up and down. To fix the swing louver at a position, touch one of [1] - [4] buttons. The swing louver 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” → “Service setting” → “R/C function settings” buttons one after another on the TOP screen of remote control, the “Upper/lower 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 seconds. 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.

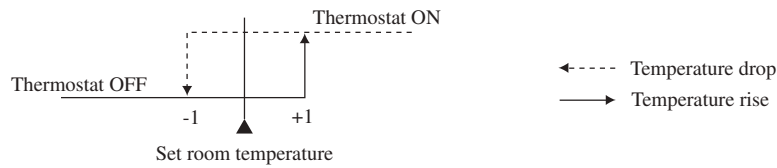
(iii) Louver-free stop control

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.

(8) Thermostat operation**(a) Cooling**

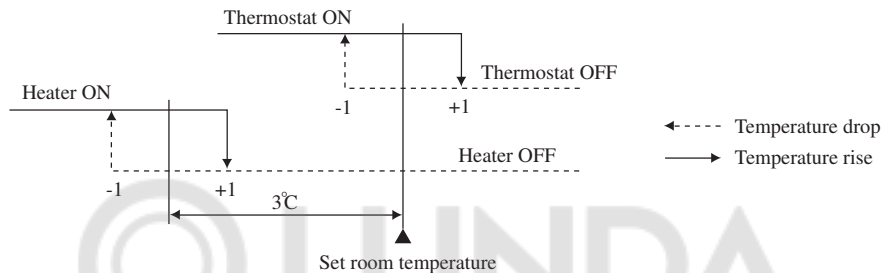
- (i) Thermostat is operated with the room temperature control.
- (ii) Thermostat is turned ON or OFF relative to the set room temperature as shown below.



- (iii) Thermostat is turned ON when the room temperature is in the range of $-1 < \text{Set temperature} < +1$ 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 $-1 < \text{Set point} < +1$ 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 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 fan stops.
 - 2) Indoor fan OFF is fixed for 5 minutes. After the 5 minutes, the indoor fan is operated at ULo for 2 minutes. In the meantime the louver is controlled at level.
 - 3) After operating at 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 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 defrost operation, 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 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 fan stops.
- 2) Indoor fan OFF is fixed for 5 minutes. After the 5 minutes, the indoor fan is operated at ULo for 2 minutes.
- 3) After operating at 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 ULo to stop.

By using operation data display function at wireless remote control, the temperature 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.

(9) 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 central control, regardless of ON/OFF)

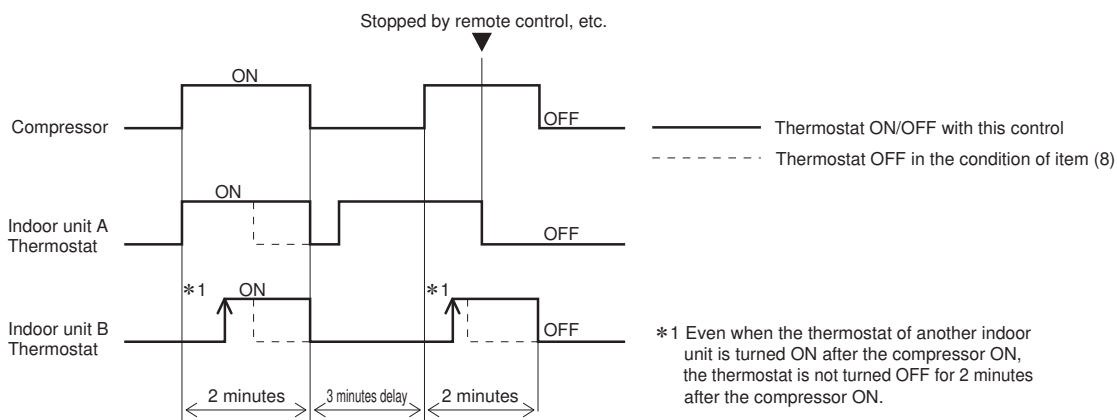
Notes (1) Time setting for the filter sign can be made as shown below using the indoor function of wired remote control “Filter sign”. (It is set at Setting 1 at the shipping from factory.)

Filter sign setting	Function
Setting 1	Setting time: 180 h (Factory default)
Setting 2	Setting time: 600 h
Setting 3	Setting time: 1,000 h
Setting 4	Setting time: 1,000 h (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.

(10) Compressor inching prevention control

- (a) Once the indoor unit thermostat has been turned ON, the thermostat is not turned OFF for 2 minutes (*1) after the compressor ON even if the thermostat is turned OFF at the state of item (8).



- (b) When the oil return control has started while the thermostat is turned ON, the thermostat is not turned OFF even if the thermostat OFF condition is satisfied during the oil return control.

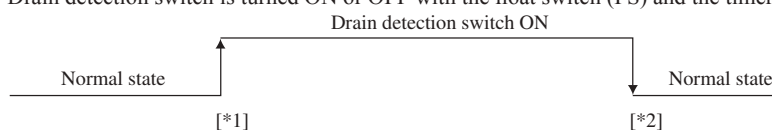
(11) Drain pump control

- (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) ❸❹ [Standard (in cooling & dry)] : Drain pump is run during cooling and dry.
 - (ii) ❸❹AND❸ [Operate in standard & heating] : Drain pump is run during cooling, dry and heating.
 - (iii) ❸❹AND❸AND❹ [Operate in heating & fan] : Drain pump is run during cooling, dry, heating and fan.
 - (iv) ❸❹AND❹ [Operate in standard & fan] : Drain pump is run during cooling, dry and fan.

Note (1) Values in [] are for the RC-EX3A model.

(12) Drain pump abnormalities detection

- (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				

Note (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.)

(13) Operation check/drain pump test run operation mode

- (a) If the power is turned on by the dip switch (SW7-1) on the indoor unit control 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 control 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

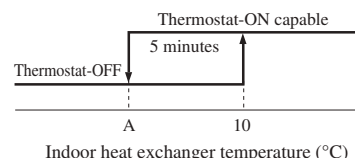
As the drain pump test run is established, the drain pump only operates and during the operation protective functions by the microcomputer of indoor unit become ineffective.

(14) Cooling, dehumidifying frost protection

- (a) To prevent frosting during cooling mode or dehumidifying mode operation, the thermostat-OFF if the indoor heat exchanger temperature (detected with Thi-R) drops to 1.0 °C or lower at 4 minutes after the thermostat-ON. If the indoor unit heat exchanger temperature is 1.0 °C or lower after 5 minutes, the indoor unit is controlled thermostat-OFF. If it becomes 10°C or higher, the control terminates. When the indoor heat exchanger temperature has become as show, the indoor unit send outdoor unit the “Anti-frost” signal.

- Frost prevention temperature setting can be selected with the indoor unit function setting of the wired remote control.

Item	Symbol	A
Temperature - Low (Factory default)		1.0
Temperature - High		2.5



(b) Selection of indoor fan speed

If it enters the frost prevention control during cooling operation (excluding dehumidifying), the indoor fan speed is switched.

- 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 fan speed is increased by 20min⁻¹.
- If the phenomenon of (i) above is detected again after the acceleration of indoor fan, indoor fan speed is increased further by 20min⁻¹.

Note (1) Indoor fan speed can be increased by up to 2 taps.

- Compressor frequency drop start temperature

Hs > 50%

Item	Low	High
Symbol A	1.0	2.5
Symbol B	2.5	4.0

Hs ≤ 50%

Item	Low	High
Symbol A	-0.5	1.0
Symbol B	1.0	2.5

Note (1) Frost prevention temperature setting can be selected with the indoor unit function setting of the wired remote control.

(15) Anomalous fan motor

- After starting the fan motor, if the fan motor speed is 200min⁻¹ or less is detected for 30 seconds continuously and 4 times within 60 minutes, then fan motor stops with the anomalous stop (E16).
- If the fan motor fails to reach at -50 min⁻¹ less than the required speed, it stops with the anomalous stop (E20).

(16) Plural unit control – Control of 16 units group by one remote control

(a) Function

One remote control can control a group of multiple number of unit (Max. 16 indoor units). “Operation mode” which is set by the remote control 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 SW1, SW2, and SW5-2 on the indoor control PCB.

- (b) Display to the remote control
- Central or each remote control basis, heating preparation: the smallest unit No. among the operating units in the remote mode (or the center mode unless the remote mode is available) is displayed.
 - Inspection display, filter sign: Any of unit that starts initially is displayed.
- (c) Confirmation of connected units
- In case of RC-EX3A remote control
If you touch the buttons in the order of “Menu” → “Service setting” → “Service & Maintenance” → “Service password” → “IU address” on the TOP screen of remote control, the indoor units which are connected are displayed.
 - 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 smallest No.
- (d) In case of anomaly
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.
- (e) 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, connect the remote control wiring to each indoor unit via terminal block for the remote control.
Connect the remote control wiring separately from the power source cable or wires of other electric devices (AC220V or higher).

(17) 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 air flow setting			
		   	  	 	 
FAN SPEED SET	STANDARD	P-Hi1 - Hi - Me - Lo	Hi - Me - Lo	Hi - Lo	Hi - Me
	HIGH SPEED1	P-Hi2 - P-Hi1 - Hi - Me	P-Hi1 - Hi - Me	P-Hi1 - Me	P-Hi1 - Hi
	HIGH SPEED2	P-Hi2 - Hi - Me - Lo	Hi - Me - Lo	Hi - Lo	Hi - Me

Notes (1) Factory default is STANDARD.

(2) At the hot-start and heating thermostat OFF, or other, the indoor fan is operated at the low speed tap of each setting.

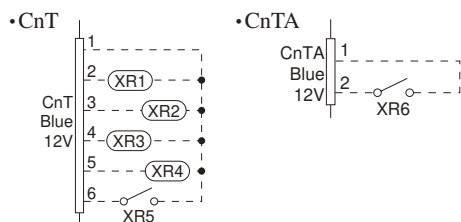
(3) This function is not able to be set with wireless remote controls or simple remote control (RCH-E3)

(18) Abnormal temperature thermistor (return air/indoor heat exchanger) broken wire/short-circuit detection

- (a) Broken wire detection
If the return air temperature thermistor detects broken wire for 5 seconds continuously, the compressor stops (E7). If the heat exchanger temperature thermistor detects broken wire for 5 seconds continuously at 2 minutes and 20 seconds after the compressor ON, the compressor stops (E6).
- (b) Short-circuit detection
If the heat exchanger temperature thermistor detects short-circuit for 5 seconds continuously at 2 minutes and 20 seconds after the compressor ON during cooling operation, the compressor stops (E6).

(19) 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-EX3A. 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-EX3A function name
Output	CnT-2 (XR1)	Operation output	External output 1
	CnT-3 (XR2)	Heating output	External output 2
	CnT-4 (XR3)	Thermostat ON output	External output 3
	CnT-5 (XR4)	Inspection (Error) output	External output 4
Input (Volt-free contact)	CnT-6 (XR5)	Remote operation input	External input 1
	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	⑦ Emergency stop
CnT	① Operation stop level	CnT ①	CnT ①	CnT ① + CnTA ②	CnT ①	CnT ① / CnTA ⑤	CnT ① / CnTA ⑥	CnT ① < CnTA ⑦
	② Operation stop pulse	CnT ②	CnT ②	CnT ② + CnTA ③	CnT ②	CnT ② / CnTA ⑤	CnT ② / CnTA ⑥	CnT ② < CnTA ⑦
	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	CnT ③ < CnTA ⑦
	④ Operation permission/prohibition pulse	CnT ④	CnT ④	CnT ④ + CnTA ③※	CnT ④	CnT ④ / CnTA ⑤	CnT ④ / CnTA ⑥	CnT ④ < CnTA ⑦
	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	CnT ⑤ / CnTA ⑦
	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	CnT ⑥ / CnTA ⑦
	⑦ Emergency stop	CnT ⑦ > CnTA ①	CnT ⑦ > CnTA ②	CnT ⑦ > CnTA ③	CnT ⑦ > CnTA ④	CnT ⑦ / CnTA ⑤	CnT ⑦ / CnTA ⑥	CnT ⑦ + CnTA ⑦

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	Thermostat 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 alarm output	Refer to "IU overload alarm"
13	Heater output	Refer to "(8) Thermostat operation (b) Heating"

(b) Input for external control

The external input for the indoor unit can be selected from the following input by the wired remote control.

The input connectors (CnT-6 and CnTA) are equipped on the indoor unit control PCB.

“LEVEL INPUT(Factory default)” or “PULSE INPUT” is selectable from the wired remote control.

	Input name	Content
1	Run/Stop (Factory default)	Refer to [(19) (c) Remote operation input]
2	Permission/Prohibition	Refer to [(20) Operation permission/prohibition]
3	Cooling/Heating	Refer to [(22) Selection of cooling/heating external input function]
4	Emergency stop	Refer to [(23) Emergency stop input]
5	Setting temperature shift	Set temperature is shifted by +2/-2°C in cooling/heating.
6	Forced thermo-OFF	Unit goes thermo off.
7	Temporary stop	Refer to [(21) Temporary stop input]
8	Silent mode	Outdoor unit silent mode is activated.

(c) Remote operation input

The indoor unit operation can be controlled by external input.

However it is not effective when “Center mode” is selected by central control.

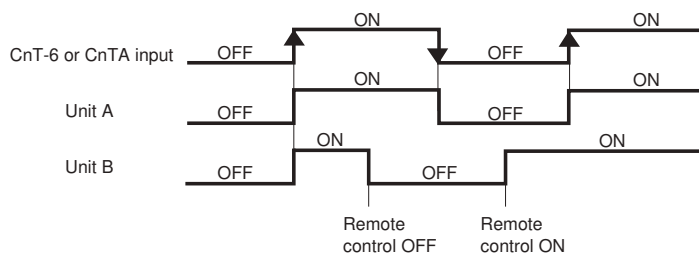
Only the “LEVEL INPUT” is recommended for this input, and operation status is changed as follows.

(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.

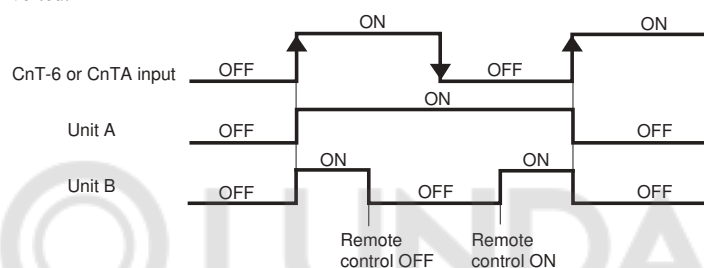


Note: The latest operation has priority

It is available to operate/stop by remote control or central 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.

**(iii) In case of multiple units (Max. 16 indoor units group) are connected to one wired remote control**

When the R/C 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.

(20) Operation permission/prohibition**(In case of adopting card key switches or commercially available timers)**

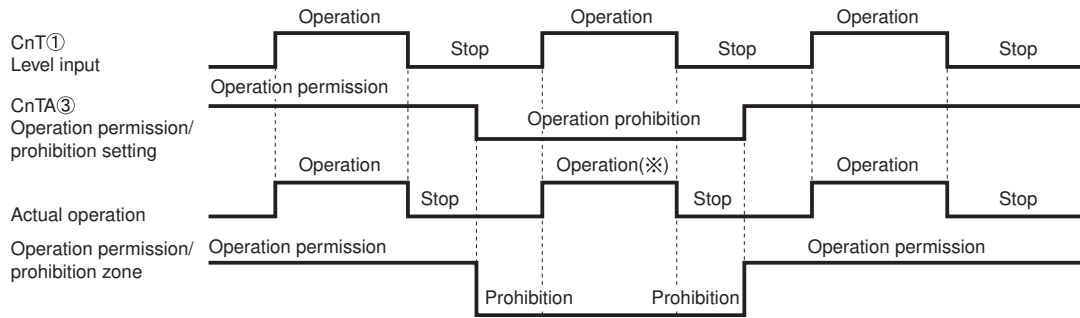
When the external input is selected to “Permission/Prohibition”, this control becomes effective.

However it is not effective when “Center mode” is selected by central control.

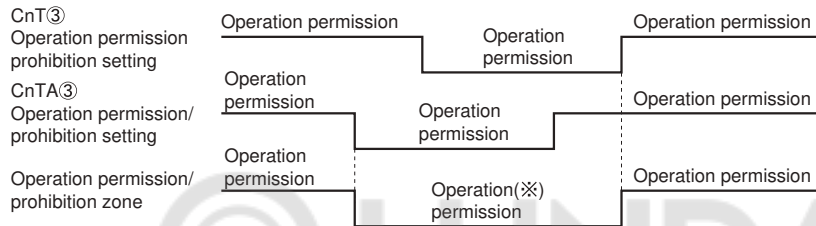
Connector	Indoor function	
	RC-EX3A	RC-E5
CnT	External input 1 : Permission/Prohibition	Operation permission/Prohibition : Valid
CnTA	External input 2 : Permission/Prohibition	No function

Only the “LEVEL INPUT” is recommended for this input, and operation status is changed as follows.

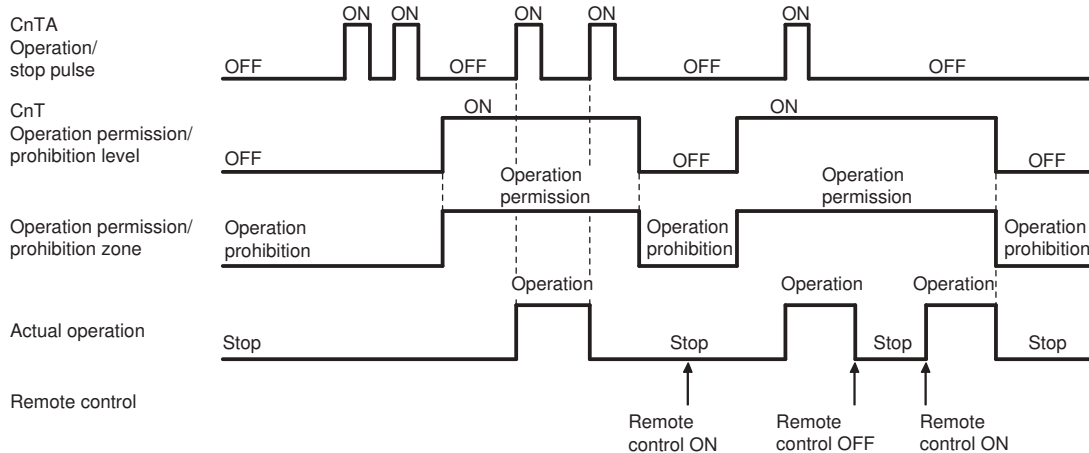
- (a) In case of “Level input” setting (Factory default)
 - (i) When card key switch is ON (CnT-6 or CnTA ON: Operation permission), start/stop operation of the unit from the wired remote control becomes available.
 - (ii) When card key switch is OFF (CnT-6 or CnTA OFF: Operation prohibition), the unit stops operation in conjunction with OFF signal, and start/stop operation of the unit from the wired remote control becomes not available.
- (b) In case of “Pulse input” setting (Local setting)
 - (i) 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.
 - (ii) 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 not available.

(c) In case of CnT ① operation stop level > CnTA ③ operation permission/prohibition level

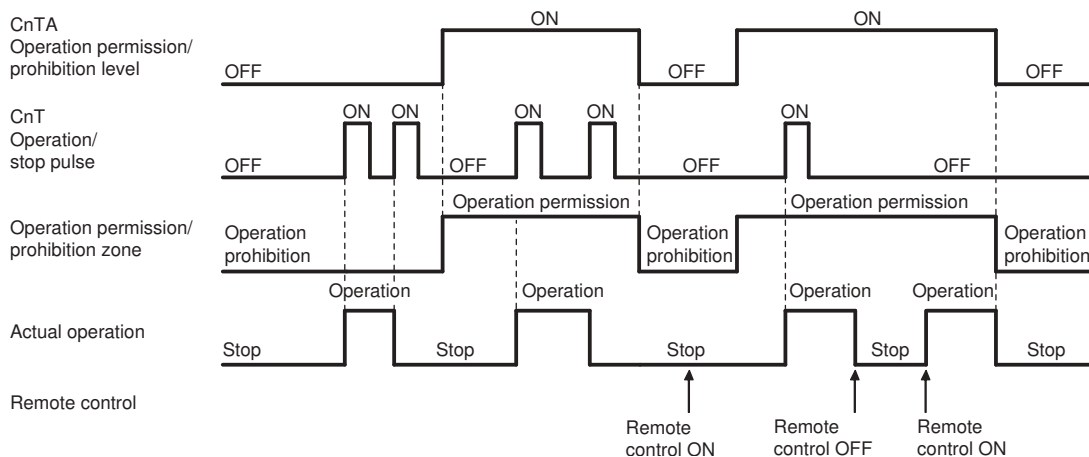
(※) CnT level input supersedes CnTA operation prohibition.

(d) 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.

(e) 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.

(f) In case of CnT ② operation/stop pulse + CnTA ③ operation permission/prohibition level

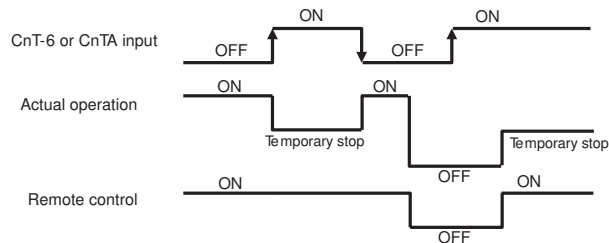
(21) Temporary stop input

In case of temporary stop, operation lamp of remote control lights, but indoor unit stop the operation.

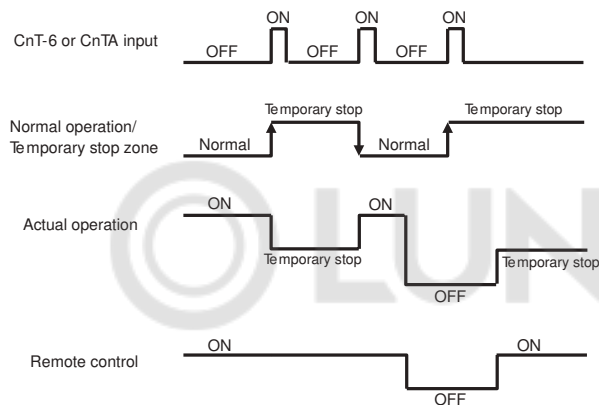
(a) In case of “Level input” setting (Factory default)

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.

**(22) Selection of cooling/heating external input function**

When “External input 1 or 2 setting: Cooling/heating” is set by the indoor unit function from remote control, the cooling or heating is selected with CnT-6 or CnTA.

(a) In case of “Level input” setting (Factory default)

- CnT-6 or CnTA: OPEN → Cooling operation mode
- CnT-6 or CnTA: CLOSE → Heating operation mode

(b) In case of “Pulse input” setting (Local setting)

If the external input is changed OPEN → CLOSE, operation modes are inverted (Cooling → Heating or Heating → Cooling).

- (c) 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	
Cooling/heating selection	Level	External input (CnT or CnTA)	
		Cooling/heating	
		Cooling/heating (Competitive)	
	Pulse	External input (CnT or CnTA)	
		Cooling/heating	
		Cooling/heating (Competitive)	

(23) Emergency stop input

When the external input is selected to “Emergency stop”, it is possible to stop the outdoor unit operation by the external input to the indoor unit.

(a) Function setting

Emergency stop input can be selected by the indoor function of wired remote control.

Connector	Indoor function	
	RC-EX3A	RC-E5
CnT	External input 1 : Emergency stop	Emergency stop : Valid
CnTA	External input 2 : Emergency stop	No function

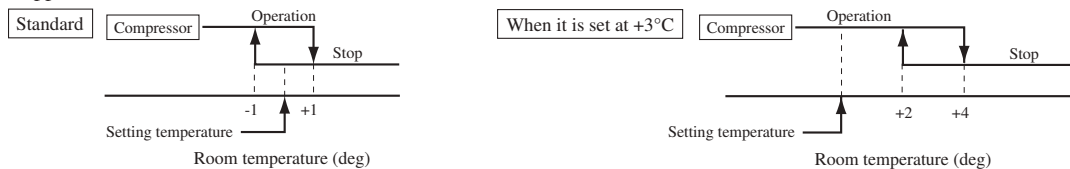
(b) Emergency stop control

When the external input is OFF, the indoor and outdoor units stop.

The indoor unit receive the external input stops the operation, and the outdoor unit which the stopped indoor unit are connected stops with [E-63].

(24) 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 “ Σ 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.



(25) Return air temperature compensation

This is the function to compensate the deviation between the detection temperature by the return air temperature thermistor 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

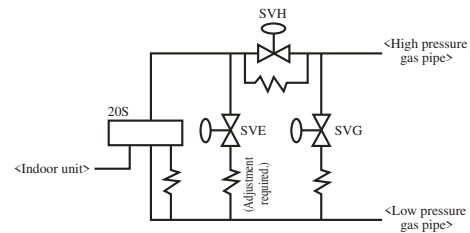
(b) Compensated temperature is transmitted to the remote control and the outdoor unit.

Note (1) The detection temperature compensation is effective on the indoor unit thermistor only.

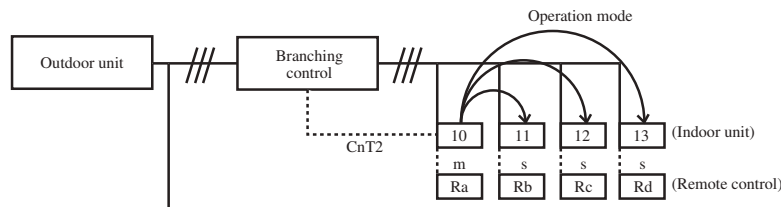
(26) Branching control (Heat recovery 3-pipe combination systems only)

- (a) New control with new branching control (New Superlink control)
Control by means of CnT2 (The compressor does not stop at the switching of heating/cooling.)
CnT outputs – XR2: Heating output, XR3: Compressor ON thermostat output
- (b) Old control with new branching control (Old Superlink control)
Control by means of CnT2 (The compressor stops at the switching of heating/cooling.)
- (c) Control of the branching control when the heating/cooling is switched with the CnT2 output
- ① 20S control (CnT2-2: XB1)
 - ② SVH control (CnT2-3: XB2)
 - ③ SVG control (CnT2-4: XB3)
 - ④ SVE control (CnT2-5: XB4)
- Combination of XB1 – XB4 outputs (The branching control is controlled in the state of operations (I) – (V).)

State of operation	XB1	XB2	XB3	XB4
(I) Cooling (Full stop, defrosting)	×	×	×	×
(II) Heating	○	○	×	×
(III) Oil return	×	○	○	×
(IV) Equalizing 1 (Cooling→Heating, etc.)	○	×	×	×
(V) Equalizing 2 (Heating→Cooling)	○	×	×	○

**(27) Multiple indoor units control (Heat recovery 3-pipe combination systems only)**

- (a) The indoor unit that controls the branching control directly is named as the master unit.
- (i) Other indoor units that are connected to the same branching control are named as the slave unit.
 - (ii) Specify the “Main” or “Sub” for the indoor units from the remote control.
- (b) Change of operation modes from the remote control, option control or other external device can be made for the master unit only. It cannot be made for slave units.
- (c) Operation mode of slave units is always same as that of the master unit.
- (d) Any setting other than the operation mode can be made individually for the main and sub units.



- (i) Set main indoor unit address 10 to sub units 11-13 by “Address setting of main IU” setting of the wired remote controls Rb-Rd.
- (ii) Set the operation mode at cooling for the indoor unit 10 from the remote control Ra.
⇒ The indoor unit 10 commands the cooling for the operation mode of “Sub” indoor units. It commands the cooling in the same way also for the operation mode of “Sub” indoor units which are stopped.
When an operation mode change command for the indoor unit 10 is received from the central control device, the command is released to the “Sub” indoor units in the same way.
- (iii) Even if an operation mode change is commanded to the “Sub” indoor units 11, 12 and 13 from the remote control Rb, Rc, Rd or the central control device, the operation mode is not changed.

(28) High power operation (RC-EX3A only)

It operates at with the setting 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-EX3A 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-EX3A 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-EX3A only)

When the unit is not used for a long period of time, the room temperature is maintained at a moderate level, 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-EX3A.

(32) Auto temperature setting (RC-EX3A 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-EX3A 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. (normal 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-EX3A only)

Setting temperature T_s is changed according to outdoor temperature.

This control is valid with cooling and heating mode. (Not auto mode)

- (a) Operate 5 minutes forcibly.
- (b) Setting temperature is adjusted every 10 minutes.
 - (i) Cooling mode.
 $T_s = \text{outdoor temperature} - \text{offset value}$
 - (ii) Heating mode.
 $T_s = \text{outdoor temperature} - \text{offset value}$
- (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-EX3A 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 automatically.

- 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 P-Hi ↔ Hi ↔ Me ↔ Lo.

(36) Indoor unit overload alarm (RC-EX3A only)

If the following condition is satisfied at 30 minutes after starting operation, RC-EX3A shows maintenance code "M07" and the signal is transmitted to the external output (CnT-2-5).

It is necessary to select "Indoor unit overload alarm output" by the external output setting.

- 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-EX3A 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.

(38) Motion sensor control (RC-EX3A only)

The sensor determines the presence of people and the amount of activity, and the following controls are done by the motion sensor.

Following settings are necessary to activate motion sensor control.

- (a) Infrared (motion) sensor setting: Installation setting of remote control
The indoor unit which is set to "Enable" become valid.
- (b) Infrared (motion) sensor control: Energy-saving setting of remote control
The function which is set to "Enable" become valid.
 - (i) Power saving control
The set temperature is adjusted according to the presence of people and their amount of activity detected by the infrared sensor.
 - (ii) Auto-off control
When no activity is detected for 1 hour, unit will go stand-by mode. Unit will re-start operation automatically by activity detection during the stand-by mode.



10. SYSTEM TROUBLESHOOTING PROCEDURE

10.1 Basics of troubleshooting

Basic troubleshooting is to check/analyze/save data by connecting the Mente PC.

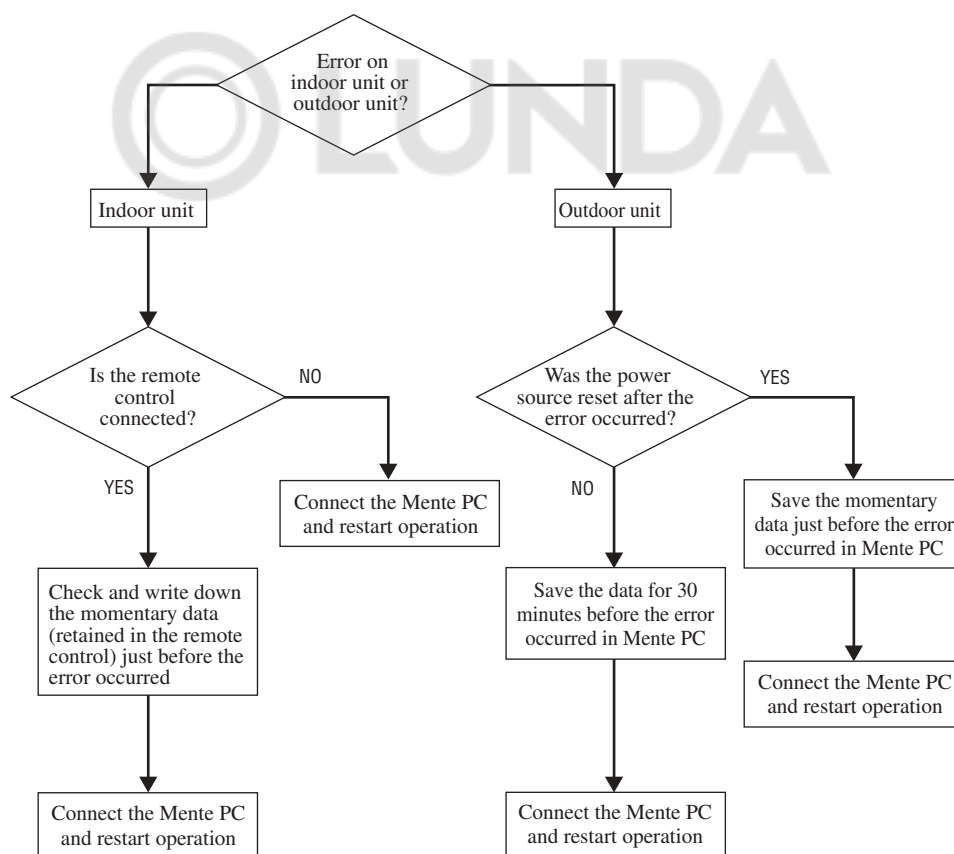
Whenever arriving at the site, always connect the Mente PC before starting work.

Method of error data analysis (Basic procedure)

- Identify whether particular error occurred during operation or stopping.
- Is it caused by the installation conditions of outdoor/indoor unit? (Refrigerant quantity, pipe length, short-circuit, clogged filter, etc.)
- Isn't there any beginner's mistake at the installation? (Wrong address, mistake in piping or wiring, etc.)
- Is the failure related to any hardware (parts)? (SV main body, coil, capillary, check valve, sensor, etc.)
- Is it a major component?

Compressor, inverter PCB and outdoor DC fan motor

- Is it a failure of electrical component



(Refer to outdoor unit service manual.)

10.2 Contents of troubleshooting

(1) List of inspection displays (indoor units)

Remote control error code	Name of inspection	Classification	Page
None	Operates but does not cool	System error	71
None	Operates but does not heat	System error	72
None	Excessive noise/vibration	System error	73-75
None	Louver motor failure	System error	76
None	Power source system anomaly (Power source to indoor unit PCB)	System error	77
None	Power source system error (Power source to remote control)	System error	78
🔊 WAIT 🔊	🔊 WAIT 🔊 (1)	System error	79
🔊 WAIT 🔊	🔊 WAIT 🔊 (2)	System error	80
🔊 WAIT 🔊	🔊 WAIT 🔊 (3)	System error	81
🔊 WAIT 🔊	🔊 WAIT 🔊 (4)	System error	82
🔊 WAIT 🔊	🔊 WAIT 🔊 (5)	System error	83
🔊 WAIT 🔊	🔊 WAIT 🔊 (6)	System error	84
[No display]	[No display]	System error	85
E1	Remote control communication error	Communication error	86
E2	Duplicated indoor unit address	Address setting error	87
E3	Outdoor unit signal line error	Address pairing setting error	88
E5	Communication error during operation	Communication error	89
E6	Indoor heat exchanger temperature thermistor anomaly (Thi-R)	Thermistor wire breakage	90
E7	Indoor return air temperature thermistor anomaly (Thi-A)	Thermistor wire breakage	91
E9	Drain trouble	System error	92
E10	Excessive number of indoor units (more than 17 units) by controlling one remote control	Communication error	93
E11	Address setting error between master and slave indoor units	Address setting error	94
E12	Address setting error by mixed setting method	Address setting error	95
E16	Indoor DC fan motor anomaly	DC fan motor error	96
E18	Address setting error of master and slave indoor units	Address setting error	97
E19	Indoor unit operation check, drain motor check mode anomaly	Setting error	98
E20	Indoor DC fan motor rotation speed anomaly	DC fan motor error	99
E28	Remote control temperature thermistor anomaly (Thc)	Thermistor wire breakage	100
E63	Emergency stop	Site setting error	101

(2) Troubleshooting

Error code	LED	Green	Red	Content
Remote control:None	Indoor	Keeps flashing	Stays OFF	Operates but does not cool
	Outdoor	Keeps flashing	Stays OFF	

1. Applicable model	5. Troubleshooting
All models	Diagnosis
2. Error detection method	Countermeasure
	Check the indoor fan operation. Check the temperature difference between return and suction air of indoor unit. Is the temperature difference between return and suction air 10-20°C at cooling? YES → Does the heat load increase after installation? NO → It is normal. (This unit is designed to start in the soft start mode by detecting the compressor under-dome temperature when it restart after power reset.) YES → Mistake in model selection. Calculate heat load once more. → It is necessary to replace to higher capacity unit or to install additional unit. Is the compressor operating? NO → "WAIT" message is displayed [for 3 seconds] when performing cooling, dehumidifying or heating operation from remote control? YES → Compressor refrigerant oil protective control at starting is activated. For the contents of control, refer to the compressor start control. NO → Compressor may be stopped by the error detection control. For the contents of control, refer to anomalous stop control by controlling compressor rotation speed of microcomputer control function. YES → Is the compressor rotation speed low? NO → Check the followings. • Minor clogging of filter • Minor fouling of heat exchanger • Minor short-circuit of air flow • Slightly insufficient or excessive refrigerant amount • Poor compression of compressor YES → Check suspicious points considering appropriate operation control. Check the followings for reference. • Severe clogging of filter • Severe clogging of heat exchanger • Severe short-circuit of air flow • Severely insufficient or excessive refrigerant amount • Under protective control of compressor • Indoor unit fan tap setting • Valid setting of silent mode Check following operation control function. • Control for determine compressor rotation speed • Protective control by controlling compressor rotation speed Which control is appropriate to this phenomenon. Is the operating conditions of indoor/outdoor unit under rated condition? YES → Note (1) Outdoor: 35°C Indoor : 27°CDB/19°CWB NO → The unit is operating normally, but is operating under the protective control of compressor or other respective components.
3. Condition of error displayed	
4. Presumable cause	
- Poor compression of compressor - Expansion valve operation anomaly	

Note:

Error code	LED	Green	Red	Content
Remote control:None	Indoor	Keeps flashing	Stays OFF	Operates but does not heat
	Outdoor	Keeps flashing	Stays OFF	

1.Applicable model	5.Troubleshooting				
All models	<table border="1"> <thead> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> </thead> <tbody> <tr> <td> Check the indoor fan operation. Check the temperature difference between return and suction air of indoor unit. Is the temperature difference between return and suction air 10-30°C at heating? YES → Does the heat load increase after installation? NO → It is normal. (This unit is designed to start in the soft start mode by detecting the compressor under-dome temperature when it restart after power reset.) YES → Mistake in model selection. Calculate heat load once more. → It is necessary to replace to higher capacity unit or to install additional unit. Is the compressor operating? NO → message is displayed [for 3 seconds] when performing cooling, dehumidifying or heating operation from remote control? YES → Compressor refrigerant oil protective control at starting is activated. For the contents of control, refer to the compressor start control. NO → Compressor may be stopped by the error detection control. For the contents of control, refer to anomalous stop control by controlling compressor rotation speed of microcomputer control function. Is the compressor rotation speed low? NO → Check the followings. • Minor clogging of filter • Minor fouling of heat exchanger • Minor short-circuit of air flow • Slightly insufficient or excessive refrigerant amount • Poor compression of compressor YES → Check following operation control function. • Control for determine compressor rotation speed • Protective control by controlling compressor rotation speed Which control is appropriate to this phenomenon. Is the operating conditions of indoor/outdoor unit under rated condition? YES → Check suspicious points considering appropriate operation control. Check the followings for reference. • Severe clogging of filter • Severe clogging of heat exchanger • Severe short-circuit of air flow • Severely insufficient or excessive refrigerant amount • Under protective control of compressor • Indoor unit fan tap setting • Valid setting of silent mode NO → The unit is operating normally, but is operating under the protective control of compressor or other respective components. Note (1) Outdoor: 7°C Indoor : 20°CDB </td><td></td></tr> </tbody> </table>	Diagnosis	Countermeasure	Check the indoor fan operation. Check the temperature difference between return and suction air of indoor unit. Is the temperature difference between return and suction air 10-30°C at heating? YES → Does the heat load increase after installation? NO → It is normal. (This unit is designed to start in the soft start mode by detecting the compressor under-dome temperature when it restart after power reset.) YES → Mistake in model selection. Calculate heat load once more. → It is necessary to replace to higher capacity unit or to install additional unit. Is the compressor operating? NO → message is displayed [for 3 seconds] when performing cooling, dehumidifying or heating operation from remote control? YES → Compressor refrigerant oil protective control at starting is activated. For the contents of control, refer to the compressor start control. NO → Compressor may be stopped by the error detection control. For the contents of control, refer to anomalous stop control by controlling compressor rotation speed of microcomputer control function. Is the compressor rotation speed low? NO → Check the followings. • Minor clogging of filter • Minor fouling of heat exchanger • Minor short-circuit of air flow • Slightly insufficient or excessive refrigerant amount • Poor compression of compressor YES → Check following operation control function. • Control for determine compressor rotation speed • Protective control by controlling compressor rotation speed Which control is appropriate to this phenomenon. Is the operating conditions of indoor/outdoor unit under rated condition? YES → Check suspicious points considering appropriate operation control. Check the followings for reference. • Severe clogging of filter • Severe clogging of heat exchanger • Severe short-circuit of air flow • Severely insufficient or excessive refrigerant amount • Under protective control of compressor • Indoor unit fan tap setting • Valid setting of silent mode NO → The unit is operating normally, but is operating under the protective control of compressor or other respective components. Note (1) Outdoor: 7°C Indoor : 20°CDB	
Diagnosis	Countermeasure				
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2.Error detection method					
3. Condition of error displayed					
4.Presumable cause	• 4-way valve anomaly • Poor compression of compressor • Expansion valve anomaly operation				

Note:

Error code	LED	Green	Red	Content
Remote control:None	Indoor	—	—	Excessive noise/vibration (1/3)
	Outdoor	—	—	

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
2.Error detection method	<pre> graph TD Q1{Does noise/vibration occur during or soon after stopping operation of air-conditioner?} Q2{[Installation work] Does the noise/vibration occur not only from the air-conditioner but also from entire building?} Q3{Does the installation of indoor/outdoor unit have looseness?} Q4{Are pipes touching the wall and etc?} Q5{[Units] Does noise/vibration occur when only the fan is operating?} Q6{Is fan or louver touching other components?} Q1 -- NO --> CM1 Q1 -- YES --> Q2 Q2 -- YES --> Q3 Q2 -- NO --> Q4 Q3 -- YES --> CM2 Q3 -- NO --> Q4 Q4 -- YES --> CM3 Q4 -- NO --> CM4 Q5 -- YES --> Q6 Q5 -- NO --> CM5 Q6 -- YES --> CM6 Q6 -- NO --> CM7 CM1[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.] CM2[Check the installed condition carefully, and correct the installed position or insert rubber cushions into the gap or take other measure in order to eliminate looseness.] CM3[Prevent the vibration from transmitting to wall and etc by fixing pipes on the wall tightly or wrapping rubber cushion around the pipe which goes through the hole in the wall or applying other appropriate means.] CM4[Strength of ceiling wall, floor, etc. may be insufficient. Review the installation place or apply reinforcement to increase the strength.] CM5[Check for leaning of installed unit or incorrect mounting of fan, louver or motor, and then specify the contacting point and correct it.] CM6[When the heat exchanger or filter is clogged, clean them.] CM7[In case that the unit is installed at the site where background noise is very low, even the low level noise from indoor unit like as refrigerant flow noise can be heard, but it is normal. Before installation, check for background noise. If background noise is very low, convince client prior to installation.] </pre>	
3. Condition of error displayed		
4.Presumable cause	① Improper installation work • Improper vibration-proof work at installation • Insufficient strength of mounting surface ② Anomaly of product • Before/after shipment from factory ③ Improper adjustment during commissioning • Excessive/insufficient refrigerant.	

Note:

Error code	LED	Green	Red	Content
Remote control:None	Indoor	—	—	Excessive noise/vibration (2/3)
	Outdoor	—	—	

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
2.Error detection method	<pre> graph TD Start([From previous page]) --> D1{[Unit] Does noise/vibration occur when the cooling/ heating operation is performing normally?} D1 -- YES --> D2{Are the pipes contacting with the casing?} D1 -- NO --> D3{Is continuous hissing or roaring sound occurred?} D2 -- YES --> C1[Rearrange the piping to avoid contact with the casing.] D2 -- NO --> D3 D3 -- YES --> C2[Noise/vibration is generated when the refrigerant gas or liquid flows 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.] D3 -- NO --> D4{Is hissing sounds occurred at the startup or stopping?} D4 -- YES --> C3[The noise/vibration occurs when the refrigerant starts or stops flowing. It is normal.] D4 -- NO --> D5{Is blowing sound occurred at the start/stop of defrost operation during heating mode?} D5 -- YES --> C4[When the defrost operation starts or stops during heating mode, 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 also accompany the hissing sound as mentioned above. This is normal.] D5 -- NO --> D6{Is cracking noise occurred during heating operation?} D6 -- YES --> C5[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.] D6 -- NO --> D7{Is hissing noise occurred during cooling operation or after operation stopped?} D7 -- YES --> C6[It is the sound produced by the drain pump that discharges drain from indoor unit. The pump continues to run for 5 minutes after stopping the cooling operation. This is normal.] D7 -- NO --> C7[Apply the damper sealant at the place considered to be the sources such as the pressure reducing mechanism. (Expansion valve, capillary tube, etc.)] </pre>	
3. Condition of error displayed		
4.Presumable cause		

Note:

Error code	LED	Green	Red	Content
Remote control:None	Indoor	—	—	Excessive noise/vibration (3/3)
	Outdoor	—	—	

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
	From previous page <pre> graph TD A[From previous page] --> B{[Adjustment during commissioning] Does noise/vibration occur when the cooling/heating operation is performed under anomalous condition?} B -- YES --> C[Countermeasure] </pre>	If insufficient cooling/heating problem happens due to anomalous operating conditions at cooling / heating, followings are suspicious. • Excessive charged amount of refrigerant • Insufficient charge amount of refrigerant • Intrusion of air, nitrogen, etc. In such case, it is necessary to recover refrigerant, vacuum-dry and recharge refrigerant. * Since there could be many causes of noise/vibration, the above may not cover all. In such case, check the conditions when, where, how the noise/vibration occurs according to following check points and ask our consultation. • Indoor/outdoor unit • Cooling/heating/fan mode • Startup/stop/during operation • Operating condition (Indoor/outdoor temperatures and pressures) • Time it occurred • Operation data retained by remote control or Mente PC such as compressor rotation speed, heat exchanger temperature, EEV opening degree and etc. • Tone (If available, record the noise) • Any other anomalies.
2.Error detection method		
3. Condition of error displayed		
4.Presumable cause		

Note:

Error code	LED	Green	Red	Content
Remote control: None	Indoor	Keeps flashing	Stays OFF	Louver motor failure
	Outdoor	Keeps flashing	Stays OFF	

1. Applicable model	5. Troubleshooting	
All models	Diagnosis	Countermeasure
2. Error detection method	▲ Check at the indoor unit side. <pre> graph TD Start([Operate after waiting for more than 1 minute.]) --> Q1{Does the louver operate at the power on?} Q1 -- NO --> Q2{Is LM wiring broken?} Q2 -- YES --> C1[Repair wiring.] Q2 -- NO --> Q3{Is LM locked?} Q3 -- YES --> C2[Replace LM.] Q3 -- NO --> C3[Indoor unit PCB anomaly → Replace it.] Q1 -- YES --> Q4{Is the louver operable with the remote control?} Q4 -- YES --> C4[Normal] Q4 -- NO --> C5[Replace louver motor. (If errors persist even after replacing the louver motor, replace the indoor unit PCB.)] </pre> LM: louver motor	
3. Condition of error displayed		
4. Presumable cause	• Defective LM • LM wire breakage • Indoor unit PCB anomaly	

Note:

Error code Remote control:None	LED	Green	Red	Content Power source system anomaly (Power source to indoor unit PCB)
	Indoor	Stays OFF	Stays OFF	
	Outdoor	Stays OFF	2-time flash	

1.Applicable model	5.Troubleshooting				
All models	<table border="1"> <thead> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> </thead> <tbody> <tr> <td> Is AC 220-240V detected between L-N on the indoor terminal block? NO → Is AC 380/415 V for 3-phase unit detected between L1, L2, and L3 on the outdoor terminal block respectively? NO → Outdoor noise filter PCB anomaly → Replace it. YES → Wrong wiring or broken wires between outdoor and indoor units. YES → Note (1) Check the fuse at the power source side. Are fuses OK? NO → Is resistance between ①-③ of CNW0 OK? NO → Indoor unit PCB anomaly → Replace it. YES → Is resistance to FM, LM and etc. OK? (2) YES → Replace FM, LM and etc. NO → Replace fuse. Note (2) LM: Louver motor FM: Fan motor Is DC280V detected between CNM1 ①-④? NO → Indoor unit PCB anomaly → Replace it. YES → Is DC8V detected between CNP ①-②? NO → None of actuator, etc. is short-circuited? NO → Replace related parts. YES → Defective indoor unit PCB → Replace. Is JX1 open? NO → Open JX1 Defective indoor unit PCB → Replace. </td><td></td></tr> </tbody> </table>	Diagnosis	Countermeasure	Is AC 220-240V detected between L-N on the indoor terminal block? NO → Is AC 380/415 V for 3-phase unit detected between L1, L2, and L3 on the outdoor terminal block respectively? NO → Outdoor noise filter PCB anomaly → Replace it. YES → Wrong wiring or broken wires between outdoor and indoor units. YES → Note (1) Check the fuse at the power source side. Are fuses OK? NO → Is resistance between ①-③ of CNW0 OK? NO → Indoor unit PCB anomaly → Replace it. YES → Is resistance to FM, LM and etc. OK? (2) YES → Replace FM, LM and etc. NO → Replace fuse. Note (2) LM: Louver motor FM: Fan motor Is DC280V detected between CNM1 ①-④? NO → Indoor unit PCB anomaly → Replace it. YES → Is DC8V detected between CNP ①-②? NO → None of actuator, etc. is short-circuited? NO → Replace related parts. YES → Defective indoor unit PCB → Replace. Is JX1 open? NO → Open JX1 Defective indoor unit PCB → Replace.	
Diagnosis	Countermeasure				
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2.Error detection method					
3. Condition of error displayed					
4.Presumable cause	• Wrong connection or breakage of connecting wires • Blown fuse • Transformer anomaly • Indoor unit PCB anomaly • Broken harness				

Note:

Error code	LED	Green	Red	Content
Remote control:None	Indoor	Keeps flashing	Stays OFF	Power source system error (Power source to remote control)
	Outdoor	Keeps flashing	2-time flash	

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
2.Error detection method	<pre> graph TD Q1{Is the connection of the remote control's wiring OK? X (white), Y (black)} -- NO --> C1[Correct.] Q1 -- YES --> Q2{Does the voltage between X and Y in the indoor terminal block exceed 15 VDC?} Q2 -- NO --> A1[Remove wire for the remote control] A1 --> Q3{Does the re-measured voltage between X and Y in the indoor terminal block exceed 15 VDC?} Q3 -- YES --> C2[Remote control wire breakage? Replace remote control.] Q3 -- NO --> C3[Defective indoor unit PCB → Replace.] Q2 -- YES --> A2[Power source reset] A2 --> Q4{Does resetting the power source return it to normal?} Q4 -- YES --> C4[Malfunction by temporary noise.] Q4 -- NO --> C5[Remote control wire breakage? Replace remote control.] </pre>	
3. Condition of error displayed		
4.Presumable cause	• Remote control wire breakage/short-circuit • Defective remote control • Malfunction by noise • Broken harness • Faulty indoor unit PCB	

Note:

Error code	LED	Green	Red	Content
Remote control: 🏠 WAIT 🏠	Indoor	Keeps flashing	Stays OFF	🏠 WAIT 🏠 (1)
	Outdoor	Keeps flashing	Keeps flashing	

1.Applicable model All models (In case that 🏠 WAIT 🏠 is kept on displaying on the remote control for more than 2 minutes after power ON.)	5.Troubleshooting <table border="1"> <thead> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> </thead> <tbody> <tr> <td> 🏠 WAIT 🏠 is kept on displaying on the remote control for more than 2 minutes after power ON. Once turn OFF the breaker and turn ON it again at 3 minutes after power OFF. Does it become normal? NO (1) Is the power fuse (5A) on the outdoor control PCB blown? YES Is AC380-415V detected at the secondary side of noise filter PCB terminal? YES Is the connection of wire between noise filter and inverter PCBs OK? YES Does indoor green LED keep flashing? YES Does indoor green LED flash 2 times? YES Are the wires between indoor and outdoor units connected properly? YES Is AC380-415V detected between L1-L2, L2-L3, L3-L1 respectively at outdoor terminal block? YES Is AC220-240V detected between L-N at indoor terminal block? NO YES </td><td> Replace fuse (Refer next page) Replace noise filter PCB. Connect wires correctly. Indoor unit PCB anomaly → Replace it. Indoor/outdoor unit control PCB anomaly → Replace it. Remote control anomaly → Replace it. Breakage of wires for remote control → Replace it. Correct the connecting wires between indoor and outdoor units. Outdoor unit control PCB anomaly → Replace it. Breakage of connecting wire Noise Indoor unit PCB anomaly → Replace it. </td></tr> </tbody> </table>	Diagnosis	Countermeasure	🏠 WAIT 🏠 is kept on displaying on the remote control for more than 2 minutes after power ON. Once turn OFF the breaker and turn ON it again at 3 minutes after power OFF. Does it become normal? NO (1) Is the power fuse (5A) on the outdoor control PCB blown? YES Is AC380-415V detected at the secondary side of noise filter PCB terminal? YES Is the connection of wire between noise filter and inverter PCBs OK? YES Does indoor green LED keep flashing? YES Does indoor green LED flash 2 times? YES Are the wires between indoor and outdoor units connected properly? YES Is AC380-415V detected between L1-L2, L2-L3, L3-L1 respectively at outdoor terminal block? YES Is AC220-240V detected between L-N at indoor terminal block? NO YES	Replace fuse (Refer next page) Replace noise filter PCB. Connect wires correctly. Indoor unit PCB anomaly → Replace it. Indoor/outdoor unit control PCB anomaly → Replace it. Remote control anomaly → Replace it. Breakage of wires for remote control → Replace it. Correct the connecting wires between indoor and outdoor units. Outdoor unit control PCB anomaly → Replace it. Breakage of connecting wire Noise Indoor unit PCB anomaly → Replace it.
Diagnosis	Countermeasure				
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2.Error detection method					
3. Condition of error displayed					
4.Presumable cause • Fuse blown • Noise filter anomaly • Anomalous connection of wire between PCBs • Indoor unit PCB anomaly • Remote control anomaly • Breakage of connecting wires of remote control • Outdoor unit control PCB anomaly					

Note: (1) When anomaly occurs during establishing communication between indoor and outdoor unit, error code E5 is displayed (outdoor red LED flash 2-times).
In case of E5, the way of troubleshooting is same as above mentioned (except for checking of connecting wire).
When reset the power after E5 occurs, if this anomaly recurs, 🏠 WAIT 🏠 is displayed on remote control. If power ON/OFF is repeated in a short period (within 1 minute), 🏠 WAIT 🏠 may be displayed. In such case, please wait for 3 minutes after the power breaker OFF.
(2) 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	WAIT (2)
	Outdoor	Keeps flashing	Keeps flashing	

1.Applicable model	5.Troubleshooting	
FDC224, 280KXZPE1 only (In case of fuse blown, how to check the unit before replacement of fuse.)	Diagnosis	Countermeasure
2.Error detection method	<pre> graph TD D1{Is there any short-circuit between phases of noise filter?} -- YES --> A1[Replace noise filter] D1 -- NO --> D2{Is there any crack or damage on power transistor module or diode stack?} D2 -- YES --> A2[Replace inverter PCB] D2 -- NO --> D3{Is there any anomaly on reactor?} D3 -- YES --> A3[Replace reactor] D3 -- NO --> A4[Replace fuse.] </pre>	
3. Condition of error displayed		
4.Presumable cause	• Fuse blown • Noise filter anomaly • Anomalous connection of wire between PCBs • Indoor unit PCB anomaly • Remote control anomaly • Breakage of connecting wires of remote control • Outdoor unit control PCB anomaly	

Note:

Error code	LED	Green	Red	Content
Remote control: WAIT	Indoor	Keeps flashing	Stays OFF	WAIT (3)
	Outdoor	Keeps flashing	Keeps flashing	

1.Applicable model	5.Troubleshooting	
All models (No display on the remote control after power ON.)	Diagnosis	Countermeasure
2.Error detection method	<pre> graph TD Start[No display on the remote control after power ON.] --> D1{Does indoor green LED keep flashing?} D1 -- NO --> D2{Is the fuse on indoor unit control PCB OK?} D2 -- NO --> C1[Fuse blown → Replace fuse.] D2 -- YES --> D3{Is DC10-11V between X-Y at indoor unit control PCB side when removing remote control?} D3 -- NO --> C2[Remote control wire short-circuited.] D3 -- YES --> C3[Remote control anomaly] D1 -- YES --> D4{Does outdoor red LED flash 2 times?} D4 -- NO --> C4[Indoor unit PCB anomaly Remote control anomaly Breakage of connecting wires of remote control] D4 -- YES --> D5{Is the connecting wires between indoor and outdoor units connected properly?} D5 -- NO --> C5[Correct the connecting wires properly.] D5 -- YES --> D6{Is AC380-415V detected between L1-L2, L2-L3, L3-L1 respectively at outdoor terminal block?} D6 -- NO --> C6[Outdoor unit control PCB anomaly → Replace it.] D6 -- YES --> D7{Is AC220-240V detected between L-N at indoor terminal block?} D7 -- NO --> C7[Breakage of connecting wire Noise.] D7 -- YES --> C8[Indoor unit PCB anomaly → Replace it.] </pre>	
3. Condition of error displayed		
4.Presumable cause	• Fuse blown • Noise filter anomaly • Anomalous connection of wire between PCBs • Indoor unit PCB anomaly • Remote control anomaly • Breakage of connecting wires of remote control • Outdoor unit control PCB anomaly	

Note:

Error code	LED	Green	Red	Content
Remote control: WAIT	Indoor	Keeps flashing	Stays OFF	WAIT (4)
	Outdoor	Keeps flashing	Keeps flashing	

1.Applicable model	5.Troubleshooting				
All models (In case that WAIT is kept on displaying on the remote control for more than 2 minutes after power ON.)	<table> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> <tr> <td> <pre> graph TD Start[WAIT is kept on displaying on the remote control for more than 2 minutes after power ON.] --> D1{Does outdoor green LED keep flashing?} D1 -- NO --> A[Refer next page. A] D1 -- YES --> D2{Does indoor green LED keep flashing?} D2 -- NO --> C1[Indoor unit PCB anomaly → Replace it.] D2 -- YES --> D3{Does outdoor red LED flash 2 times?} D3 -- NO --> C2[Indoor unit PCB anomaly → Replace it. Remote control anomaly → Replace it. Breakage of wires for remote control → Replace it.] D3 -- YES --> D4{Are the wires between indoor and outdoor units connected properly?} D4 -- NO --> C3[Correct the connecting wires between indoor and outdoor units.] D4 -- YES --> D5{Is AC380-415V detected between L1-L2, L2-L3, L3-L1 respectively at outdoor terminal block?} D5 -- NO --> C4[Outdoor unit control PCB anomaly → Replace it.] D5 -- YES --> D6{Is AC220-240V detected between L-N at indoor terminal block?} D6 -- NO --> C5[Breakage of connecting wire Noise] D6 -- YES --> C6[Indoor unit PCB anomaly → Replace it.] </pre> </td><td></td></tr> </table>	Diagnosis	Countermeasure	<pre> graph TD Start[WAIT is kept on displaying on the remote control for more than 2 minutes after power ON.] --> D1{Does outdoor green LED keep flashing?} D1 -- NO --> A[Refer next page. A] D1 -- YES --> D2{Does indoor green LED keep flashing?} D2 -- NO --> C1[Indoor unit PCB anomaly → Replace it.] D2 -- YES --> D3{Does outdoor red LED flash 2 times?} D3 -- NO --> C2[Indoor unit PCB anomaly → Replace it. Remote control anomaly → Replace it. Breakage of wires for remote control → Replace it.] D3 -- YES --> D4{Are the wires between indoor and outdoor units connected properly?} D4 -- NO --> C3[Correct the connecting wires between indoor and outdoor units.] D4 -- YES --> D5{Is AC380-415V detected between L1-L2, L2-L3, L3-L1 respectively at outdoor terminal block?} D5 -- NO --> C4[Outdoor unit control PCB anomaly → Replace it.] D5 -- YES --> D6{Is AC220-240V detected between L-N at indoor terminal block?} D6 -- NO --> C5[Breakage of connecting wire Noise] D6 -- YES --> C6[Indoor unit PCB anomaly → Replace it.] </pre>	
Diagnosis	Countermeasure				
<pre> graph TD Start[WAIT is kept on displaying on the remote control for more than 2 minutes after power ON.] --> D1{Does outdoor green LED keep flashing?} D1 -- NO --> A[Refer next page. A] D1 -- YES --> D2{Does indoor green LED keep flashing?} D2 -- NO --> C1[Indoor unit PCB anomaly → Replace it.] D2 -- YES --> D3{Does outdoor red LED flash 2 times?} D3 -- NO --> C2[Indoor unit PCB anomaly → Replace it. Remote control anomaly → Replace it. Breakage of wires for remote control → Replace it.] D3 -- YES --> D4{Are the wires between indoor and outdoor units connected properly?} D4 -- NO --> C3[Correct the connecting wires between indoor and outdoor units.] D4 -- YES --> D5{Is AC380-415V detected between L1-L2, L2-L3, L3-L1 respectively at outdoor terminal block?} D5 -- NO --> C4[Outdoor unit control PCB anomaly → Replace it.] D5 -- YES --> D6{Is AC220-240V detected between L-N at indoor terminal block?} D6 -- NO --> C5[Breakage of connecting wire Noise] D6 -- YES --> C6[Indoor unit PCB anomaly → Replace it.] </pre>					
2.Error detection method					
3. Condition of error displayed					
4.Presumable cause	• Fuse blown • Noise filter anomaly • Anomalous connection of wire between PCBs • Indoor unit PCB anomaly • Remote control anomaly • Breakage of connecting wires of remote control • Outdoor unit control PCB anomaly				

Note:

Error code	LED	Green	Red	Content
Remote control: WAIT	Indoor	Stays OFF	Stays OFF	WAIT (5)
	Outdoor	Stays OFF	Stays OFF	

1.Applicable model	5.Troubleshooting				
All models (In case that LED on outdoor unit control PCB stays OFF)	<table border="1"> <thead> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> </thead> <tbody> <tr> <td> In case that LED on outdoor unit control PCB stays OFF From previous page. A Once turn OFF the breaker and turn ON it again at 3 minutes after power OFF. Does it become normal? NO YES Normal (Malfunction by temporary noise) (1) Is power fuse (5A) on the outdoor unit control PCB blown? Note (1) Model FDC224, 280KXZPE1 only NO Check inverter before replacement of 52C. B Refer next page. Is AC380-415V detected at secondary side of noise filter? NO Replace noise filter. YES Are connecting wires between noise filter and inverter PCB connected properly? NO Connect the connecting wire properly. YES Is the connection of connecting wire of reactor OK? NO Correct connection. (In case of breakage of wire replace it.) YES Is there any anomaly on outdoor fan motor? NO Outdoor unit control PCB anomaly → Replace it. YES Outdoor fan motor anomaly → Replace it. </td><td></td></tr> </tbody> </table>	Diagnosis	Countermeasure	In case that LED on outdoor unit control PCB stays OFF From previous page. A Once turn OFF the breaker and turn ON it again at 3 minutes after power OFF. Does it become normal? NO YES Normal (Malfunction by temporary noise) (1) Is power fuse (5A) on the outdoor unit control PCB blown? Note (1) Model FDC224, 280KXZPE1 only NO Check inverter before replacement of 52C. B Refer next page. Is AC380-415V detected at secondary side of noise filter? NO Replace noise filter. YES Are connecting wires between noise filter and inverter PCB connected properly? NO Connect the connecting wire properly. YES Is the connection of connecting wire of reactor OK? NO Correct connection. (In case of breakage of wire replace it.) YES Is there any anomaly on outdoor fan motor? NO Outdoor unit control PCB anomaly → Replace it. YES Outdoor fan motor anomaly → Replace it.	
Diagnosis	Countermeasure				
In case that LED on outdoor unit control PCB stays OFF From previous page. A Once turn OFF the breaker and turn ON it again at 3 minutes after power OFF. Does it become normal? NO YES Normal (Malfunction by temporary noise) (1) Is power fuse (5A) on the outdoor unit control PCB blown? Note (1) Model FDC224, 280KXZPE1 only NO Check inverter before replacement of 52C. B Refer next page. Is AC380-415V detected at secondary side of noise filter? NO Replace noise filter. YES Are connecting wires between noise filter and inverter PCB connected properly? NO Connect the connecting wire properly. YES Is the connection of connecting wire of reactor OK? NO Correct connection. (In case of breakage of wire replace it.) YES Is there any anomaly on outdoor fan motor? NO Outdoor unit control PCB anomaly → Replace it. YES Outdoor fan motor anomaly → Replace it.					
2.Error detection method					
3. Condition of error displayed					
4.Presumable cause					

- Fuse blown
- Noise filter anomaly
- Anomalous connection of wire between PCBs
- Indoor unit PCB anomaly
- Remote control anomaly
- Breakage of connecting wires of remote control
- Outdoor unit control PCB anomaly

Note:

Error code	LED	Green	Red	Content
Remote control: WAIT	Indoor	Stays OFF	Stays OFF	WAIT (6)
	Outdoor	Stays OFF	Stays OFF	

1.Applicable model	5.Troubleshooting	
FDC224, 280KXZPE1 only (In case of fuse blown, how to check the unit before replacement of fuse)	Diagnosis	Countermeasure
2.Error detection method	From previous page. <pre> graph TD B[B] --> D1{Is there any short-circuit between phases of noise filter?} D1 -- YES --> A1[Replace noise filter.] D1 -- NO --> D2{Is there any short-circuit between phases at input terminal of inverter PCB?} D2 -- YES --> A2[Replace inverter PCB.] D2 -- NO --> D3{Is there any crack or damage on power transistor module or diode stack?} D3 -- YES --> A2 D3 -- NO --> D4{Is there any anomaly on reactor?} D4 -- YES --> A3[Replace reactor.] D4 -- NO --> D5{Is there any anomaly on electrolytic capacitor?} D5 -- YES --> A4[Replace electrolytic capacitor.] D5 -- NO --> A5[Replace fuse.] </pre>	
3. Condition of error displayed		
4.Presumable cause		
• Fuse blown • Noise filter anomaly • Anomalous connection of wire between PCBs • Indoor unit PCB anomaly • Remote control anomaly • Breakage of connecting wires of remote control • Outdoor unit control PCB anomaly		

Note:

Error code	LED	Green	Red	Content
Remote control:[No display]	Indoor	Stays OFF	Stays OFF	[No display]
	Outdoor	Stays OFF	Stays OFF	

1.Applicable model	5.Troubleshooting				
All models (No display on the remote control after power ON)	<table> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> <tr> <td> No display on the remote control after power ON Is DC10V or higher between X-Y detected at remote control terminal? NO → Remote control anomaly YES Is DC10V or higher between X-Y wires detected when removing remote control? NO → Remote control anomaly YES Are connecting wires between indoor and outdoor units connected properly? NO → Correct connecting wire. YES → Indoor unit PCB anomaly </td><td></td></tr> </table>	Diagnosis	Countermeasure	No display on the remote control after power ON Is DC10V or higher between X-Y detected at remote control terminal? NO → Remote control anomaly YES Is DC10V or higher between X-Y wires detected when removing remote control? NO → Remote control anomaly YES Are connecting wires between indoor and outdoor units connected properly? NO → Correct connecting wire. YES → Indoor unit PCB anomaly	
Diagnosis	Countermeasure				
No display on the remote control after power ON Is DC10V or higher between X-Y detected at remote control terminal? NO → Remote control anomaly YES Is DC10V or higher between X-Y wires detected when removing remote control? NO → Remote control anomaly YES Are connecting wires between indoor and outdoor units connected properly? NO → Correct connecting wire. YES → Indoor unit PCB anomaly					
2.Error detection method					
3. Condition of error displayed					
4.Presumable cause					
• Fuse blown • Noise filter anomaly • Anomalous connection of wire between PCBs • Indoor unit PCB anomaly • Remote control anomaly • Breakage of connecting wires of remote control • Outdoor unit control PCB anomaly					

Note:

Error code	LED	Green	Red	Content
Remote control:E1	Indoor	Keeps flashing	Stays OFF	Remote control communication error
	Outdoor	Keeps flashing	Stays OFF	

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
2.Error detection method	<pre> graph TD D1{Is it possible to reset normally by the power source reset? (1)} -- YES --> C1[Malfunction by temporary noise. Check peripheral environment.] D1 -- NO --> P1[Turn SW7-1 OFF -> ON Disconnect the wire (3) between indoor and outdoor units.] P1 --> P2[Reset power source] P2 --> D2{Does the drain pump restart automatically 1 minute later?} D2 -- YES --> C2[Indoor unit PCB anomaly -> Replace it.] D2 -- NO --> P3[Connect the wire (3) between indoor and outdoor units.] P3 --> D3{Note (1) Does the remote control displays "WAIT (1)" even after 3 minutes?} D3 --> C3[Move to E5 (Communication error during operation) diagnosis.] </pre>	
3. Condition of error displayed	Same as above	
4.Presumable cause	- Anomalous communication circuit between remote control and indoor unit. - Noise	

Note: If the indoor unit cannot communicate normally with the remote control for 180 seconds, the indoor unit PCB starts to reset automatically.

Error code	LED	Green	Red	Content
Remote control: E2	Indoor	Keeps flashing	Keeps flashing	Duplicated indoor unit address
	Outdoor	Keeps flashing	Stays OFF	

1. Applicable model	5. Troubleshooting	
All models	Diagnosis	Countermeasure
2. Error detection method	<pre> graph TD Q1{Is the number of connected indoor units up to 128 units?} Q2{Is the different address No. assigned to each indoor unit?} R1[Reset the power source and restart.] C1[Caution: Unless the power source is reset, addresses will not be confirmed.] Q3{Is E2 displayed?} C2["* Before replacement, confirm whether the rotary switch for address setting is not damaged. (It was experienced that No. 5 on rotary switch was not recognized.)"] Q1 -- NO --> CM1[Review number of connected units.] Q1 -- YES --> Q2 Q2 -- NO --> CM2[Correct indoor unit address setting.] Q2 -- YES --> R1 R1 --> C1 C1 --> Q3 Q3 -- NO --> CM3[Implement test run.] Q3 -- YES --> CM4[Replace indoor unit PCB. *] CM4 --> C2 </pre>	
3. Condition of error displayed	Same as above	
4. Presumable cause	• Number of connected indoor units exceeds the limitation. • Duplicated indoor unit address • Indoor unit PCB anomaly	

Note:

Error code	LED	Green	Red	Content
Remote control: E3/5	Indoor	Keeps flashing	2-time flash	Outdoor unit signal line error
	Outdoor	Keeps flashing	Stays OFF	

1. Applicable model	5. Troubleshooting				
All models	<table border="1"> <thead> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> </thead> <tbody> <tr> <td colspan="2"> E3 is a communication error that occurs when communication between indoor and outdoor units is not established at all. Once the communication between indoor and outdoor units is established, it changes to E5. In both cases, check signal line wired locally. Reset the power source and restart. <pre> graph TD Start([Reset the power source and restart.]) --> D1{Does E3/E5 occurs?} D1 -- NO --> C1[Temporary malfunction by noise. Identify the source of noise and correct it.] D1 -- YES --> D2{Is protective fuse for the Superlink circuit blown?} D2 -- YES --> C2[Change to spare circuit.] D2 -- NO --> D3{Is the LED on indoor unit control PCB OK?} D3 -- NO --> C3[Indoor unit PCB anomaly → Replace it.] D3 -- YES --> D4{Is the power source to outdoor unit OK?} D4 -- NO --> C4[Correct it.] D4 -- YES --> D5{Is the outdoor unit address set on the indoor unit OK?} D5 -- NO --> C5[Correct it.] D5 -- YES --> D6{Is the Superlink communication wire connection OK?} D6 -- NO --> C6[Correct it.] D6 -- YES --> C7[Outdoor unit control PCB anomaly → Replace it.] </pre> </td></tr> </tbody> </table>	Diagnosis	Countermeasure	E3 is a communication error that occurs when communication between indoor and outdoor units is not established at all. Once the communication between indoor and outdoor units is established, it changes to E5. In both cases, check signal line wired locally. Reset the power source and restart. <pre> graph TD Start([Reset the power source and restart.]) --> D1{Does E3/E5 occurs?} D1 -- NO --> C1[Temporary malfunction by noise. Identify the source of noise and correct it.] D1 -- YES --> D2{Is protective fuse for the Superlink circuit blown?} D2 -- YES --> C2[Change to spare circuit.] D2 -- NO --> D3{Is the LED on indoor unit control PCB OK?} D3 -- NO --> C3[Indoor unit PCB anomaly → Replace it.] D3 -- YES --> D4{Is the power source to outdoor unit OK?} D4 -- NO --> C4[Correct it.] D4 -- YES --> D5{Is the outdoor unit address set on the indoor unit OK?} D5 -- NO --> C5[Correct it.] D5 -- YES --> D6{Is the Superlink communication wire connection OK?} D6 -- NO --> C6[Correct it.] D6 -- YES --> C7[Outdoor unit control PCB anomaly → Replace it.] </pre>	
Diagnosis	Countermeasure				
E3 is a communication error that occurs when communication between indoor and outdoor units is not established at all. Once the communication between indoor and outdoor units is established, it changes to E5. In both cases, check signal line wired locally. Reset the power source and restart. <pre> graph TD Start([Reset the power source and restart.]) --> D1{Does E3/E5 occurs?} D1 -- NO --> C1[Temporary malfunction by noise. Identify the source of noise and correct it.] D1 -- YES --> D2{Is protective fuse for the Superlink circuit blown?} D2 -- YES --> C2[Change to spare circuit.] D2 -- NO --> D3{Is the LED on indoor unit control PCB OK?} D3 -- NO --> C3[Indoor unit PCB anomaly → Replace it.] D3 -- YES --> D4{Is the power source to outdoor unit OK?} D4 -- NO --> C4[Correct it.] D4 -- YES --> D5{Is the outdoor unit address set on the indoor unit OK?} D5 -- NO --> C5[Correct it.] D5 -- YES --> D6{Is the Superlink communication wire connection OK?} D6 -- NO --> C6[Correct it.] D6 -- YES --> C7[Outdoor unit control PCB anomaly → Replace it.] </pre>					
2. Error detection method					
No outdoor unit exists in the same Superlink system.					
3. Condition of error displayed					
Same as above					
4. Presumable cause					
- Power is not supplied to the outdoor unit - Unmatch of pairing between indoor and outdoor units - Indoor unit PCB anomaly - Outdoor unit control PCB anomaly - Missing local wiring					

Note:

Error code	LED	Green	Red	Content
Remote control: E5	Indoor	Keeps flashing	*See below	Communication error during operation
	Outdoor	Keeps flashing	2-time flash	

1. Applicable model	5. Troubleshooting
All models	
2. Error detection method	Diagnosis
When the communication between indoor and outdoor units is interrupted for more than 2 minutes	* In case that indoor red LED flashes 2 times Note (1) Check the connection (disconnection, looseness) of signal wires at outdoor terminal block. Is the connection of signal wires at the outdoor unit side OK? NO → Repair signal wires. YES → Note (2) Check the connection (disconnection, looseness, breakage) of signal wires between indoor and outdoor units. Is the connection of signal wires between indoor and outdoor units OK? NO → Repair signal wires. YES → Reset the power source and restart. Does the remote control LCD becomes normal? NO → Go to the diagnosis of WAIT (1) YES → Unit is normal. (Malfunction by temporary noise, etc.) * In case that indoor red LED stays OFF Reset the power source and restart. Does the remote control LCD becomes normal? NO → Outdoor unit control PCB anomaly (Network communication circuit anomaly) → Replace it. YES → Unit is normal. (Malfunction by temporary noise, etc.)
3. Condition of error displayed	Countermeasure
When this anomaly is detected during operation	
4. Presumable cause	
• Unit address No. setting error • Remote control wires broken • Poor connection/disconnection of remote control wires • Indoor unit PCB anomaly	

Note: When the pump down switch is turned on, communication between indoor and outdoor units is cancelled so that "Communication error E5" will be displayed on the remote control and indoor unit control PCB, but this is normal.

Error code Remote control: E6	LED	Green	Red	Content Indoor heat exchanger temperature thermistor anomaly (Thi-R)
	Indoor	Keeps flashing	1-time flash	
	Outdoor	Keeps flashing	Stays OFF	

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
2.Error detection method	Is the connector of thermistor connected properly ? NO Insert the connector securely. YES Regarding the characteristics of the thermistor, see the following chart. Are the characteristics of thermistor OK? *1 NO Replace thermistor. (Thi-R) YES Replace indoor unit PCB. *1 Check several times to prove any poor connection	
3. Condition of error displayed	Temperature-resistance characteristics of indoor heat exchanger temperature thermistor (Thi-R1, R2, R3) Temperature thermistor resistance (kΩ)	

Note:

Error code Remote control:E7	LED	Green	Red	Content Indoor return air temperature thermistor anomaly (Thi-A)
	Indoor	Keeps flashing	1-time flash	
	Outdoor	Keeps flashing	Stays OFF	

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
2.Error detection method	Is the connector of thermistor connected properly ? NO Insert the connector securely. YES Are the characteristics of thermistor OK? *1 NO Replace thermistor (Thi-A). YES Replace indoor unit PCB. Regarding the characteristics of the thermistor, see the following chart. *1 Check several times to prove any poor connection	
3. Condition of error displayed	Temperature-resistance characteristics of indoor return air temperature thermistor (Thi-A) Temperature thermistor resistance (kΩ) 15 10 5 0 10 20 30 40 50 5kΩ at 25°C	
4.Presumable cause		

Note:

Error code	LED	Green	Red	Content
Remote control: E9	Indoor	Keeps flashing	1-time flash	Drain trouble
	Outdoor	Keeps flashing	Stays OFF	

1.Applicable model	5.Troubleshooting
All models	Diagnosis
2.Error detection method	Countermeasure
Float switch is activated.	Check the error data in the remote control. Is there any overflow? NO → Is DC 12V detected at CNI connector? YES → Check float switch. NO → Is the CNI connected firmly? NO → Check the connection of CNI. If it is loose, connect it securely. YES → Is there any anomaly on the option equipment? NO → Replace indoor unit PCB. YES → Check option equipment Is the humidifier connected? NO → YES → Is the humidifier drain motor interlocked by the indoor unit function setting of remote control? NO → Correct setting to "Humidifier drain motor interlock". YES → Drain motor ON from the remote control. Does the drain motor operate? NO → Is AC220/240V or DC12V detected at CNR? NO → Indoor unit PCB anomaly → Replace it. YES → Check the wiring of drain motor. YES → Is the drain piping unclogged? Is the drain pipe slop OK? NO → Correct it. YES → Check drain motor.
3. Condition of error displayed	
If the float switch OPEN is detected for 3 seconds continuously or if float switch connector is disconnected or wire broken.	
4.Presumable cause	
- Indoor unit PCB anomaly - Mistake in setting of float switch - Mistake in setting of humidifier drain motor interlock - Mistake in setting of option equipment - Mistake in drain piping - Drain motor anomaly - Disconnection/breakage of drain motor wires	

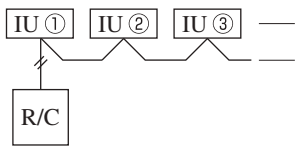
Note: When this anomaly occurs at power ON, disconnection of connector or breakage of wire of float switch is suspected. Check and correct it (or replace it, if necessary).

Error code	LED	Green	Red	Content
Remote control: E10	Indoor	Keeps flashing	Stays OFF	Excessive number of indoor units (more than 17 units) by controlling one remote control
	Outdoor	Keeps flashing	Stays OFF	

1. Applicable model	5. Troubleshooting	
All models	Diagnosis	Countermeasure
	<pre> graph LR A{Are more than 17 indoor units connected to one remote control?} -- NO --> B[Remote control anomaly → Replace it.] A -- YES --> C[Reduce to 16 or less units.] </pre>	
2. Error detection method		
When it detects more than 17 of indoor units connected to one remote control.		
3. Condition of error displayed		
Same as above		
4. Presumable cause		
- Excessive number of indoor units connected. - Remote control anomaly		

Note:

Error code	LED	Green	Red	Content
Remote control: E11	Indoor	Keeps flashing	Stays OFF	Address setting error between master and slave indoor units
	Outdoor	Keeps flashing	Stays OFF	

1. Applicable model	5. Troubleshooting	
All models	Diagnosis	Countermeasure
2. Error detection method	E11 occurs Is "Master IU address set" function of remote control used? YES → In case the wiring is below and "Master IU address set" is used, E11 is appeared. 	
3. Condition of error displayed	• In cases of RC-EX3A Menu → Service setting → IU settings → Service password → IU Select • In cases of RC-E5 Return address No. to "IU ..." using [▲] or [▼] button.	
4. Presumable cause		
Same as above		

Note:

Error code Remote control:E12	LED	Green	Red	Content Address setting error by mixed setting method
	Indoor	Keeps flashing	Keeps flashing	
	Outdoor	Keeps flashing	Stays OFF	

1.Applicable model	5.Troubleshooting						
All models	Diagnosis					Countermeasure	
	Is the automatic setting and manual setting mixed in the address setting method for indoor units? YES NO					Review address setting. <	

Note:

Error code	LED	Green	Red	Content
Remote control: E16	Indoor	Keeps flashing	1-time flash	Indoor DC fan motor anomaly
	Outdoor	Keeps flashing	Stays OFF	

1.Applicable model	5.Troubleshooting
All models	Diagnosis
2.Error detection method	Countermeasure
Detected by rotation speed of indoor fan motor	<pre> graph TD Q1{Does any foreign material intervene in rotational area of fan propeller?} -- YES --> C1[Remove foreign material.] Q1 -- NO --> Q2{Does the fan rotate smoothly when turned by hand?} Q2 -- NO --> C2[Replace the fan motor.] Q2 -- YES --> Q3{Is DC280V detected between ①-④ of fan motor connector CNMI?} Q3 -- NO --> Q4{Is the fuse F1 or F2 blown?} Q4 -- NO --> C3[Check power voltage.] Q4 -- YES --> C4[Replace faulty fan motor and PCB.] Q3 -- YES --> Q5{Is DC15V detected between connector CNMI ④-⑤ when the fan motor on command is released?} Q5 -- YES --> R1[Power source reset] R1 --> Q6{Is it normalized?} Q6 -- YES --> C5[Malfunction by temporary noise] Q6 -- NO --> C6[Replace fan motor. (If the error persists after replacing the fan motor, replace the indoor unit PCB.)] Q5 -- NO --> Q7{Is DC15V detected between CNMI ④-⑤ when the connector is disconnected at the fan motor side and the fan motor on command is released?} Q7 -- YES --> C7[Replace fan motor.] Q7 -- NO --> C8[Replace the indoor unit PCB.] </pre>
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 seconds, it starts again automatically, but if this error occurs 4 times within 60 minutes after the initial detection.	
4.Presumable cause	
- Defective indoor unit PCB - Foreign material at rotational area of fan propeller - Defective fan motor - Dust on PCB - Blown fuse - External noise, surge	

Note:

Error code	LED	Green	Red	Content
Remote control:E18	Indoor	Keeps flashing	1-time flash	Address setting error of master and slave indoor units
	Outdoor	Keeps flashing	Stays OFF	

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
2.Error detection method	Is the address setting for the master indoor unit correct? NO Correct the address setting of the master indoor unit. YES Is the power source to the master indoor unit ? NO Power source to the master indoor unit YES Are the Superlink signal wires connected between master and slave indoor units? NO Connect the Superlink signal wires correctly. YES Indoor unit PCB anomaly → Replace it. (Firstly replace PCB on the slave indoor unit. If it is not recovered, replace PCB on the master indoor unit as well.)	
3.Condition of error displayed		
Same as above		
4.Presumable cause		
▪ Address setting error of the master indoor unit ▪ No power source to the master indoor unit ▪ No connection of Superlink signal wires between master and slave indoor unit		

Note:

Error code	LED	Green	Red	Content
Remote control:E19	Indoor	Keeps flashing	1-time flash	Indoor unit operation check, drain motor check mode anomaly
	Outdoor	Keeps flashing	Stays OFF	

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
2.Error detection method	<pre> graph TD Start[E19 occurs when the power ON] --> Decision{Is SW7-1 on the indoor control PCB ON?} Decision -- NO --> Countermeasure1[Indoor control PCB anomaly (Anomalous SW7) -> Replace.] Decision -- YES --> Countermeasure2[Turn SW7-1 on the indoor control PCB OFF and reset the power.] </pre>	
E19 occurs		
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)		

Note: Indoor operation check/drain pump check mode

If the power is ON after SW7-1ON, indoor operation check/drain pump check mode can be established.

- 1) When the communication between remote control and indoor PCB is established 15 seconds after power ON, it goes to indoor operation check.
- 2) When the communication between remote control and indoor PCB is not established, it goes to drain pump check.
(CnB connector should be open before power ON.)

Error code	LED	Green	Red	Content
Remote control: E20	Indoor	Keeps flashing	1-time flash	Indoor DC fan motor rotation speed anomaly
	Outdoor	Keeps flashing	Stays OFF	

1.Applicable model	5.Troubleshooting				
All models	<table border="1"> <thead> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> </thead> <tbody> <tr> <td> Does any foreign material intervene in rotational area of fan propeller? YES → Remove foreign material. NO → Does the fan rotate smoothly when turned by hand? NO → Replace the fan motor. YES → Is DC280V detected between ①-④ of fan motor connector CNM1? NO → Is the fuse F1 or F2 blown? NO → Check power voltage. YES → Replace faulty fan motor and PCB. YES → Is DC15V detected between connector CNM1 ④-⑤ when the fan motor on command is released? NO → Is DC15V detected between CNM1 ④-⑤ when the connector is disconnected at the fan motor side and the fan motor on command is released? NO → Replace the indoor unit PCB. YES → Replace fan motor. YES → Power source reset Is it normalized? NO → Replace fan motor. (If the error persists after replacing the fan motor, replace the indoor unit PCB.) YES → Malfunction by temporary noise </td><td></td></tr> </tbody> </table>	Diagnosis	Countermeasure	Does any foreign material intervene in rotational area of fan propeller? YES → Remove foreign material. NO → Does the fan rotate smoothly when turned by hand? NO → Replace the fan motor. YES → Is DC280V detected between ①-④ of fan motor connector CNM1? NO → Is the fuse F1 or F2 blown? NO → Check power voltage. YES → Replace faulty fan motor and PCB. YES → Is DC15V detected between connector CNM1 ④-⑤ when the fan motor on command is released? NO → Is DC15V detected between CNM1 ④-⑤ when the connector is disconnected at the fan motor side and the fan motor on command is released? NO → Replace the indoor unit PCB. YES → Replace fan motor. YES → Power source reset Is it normalized? NO → Replace fan motor. (If the error persists after replacing the fan motor, replace the indoor unit PCB.) YES → Malfunction by temporary noise	
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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 $\sim 50 \text{ min}^{-1}$] 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 unit PCB - Foreign material at rotational area of fan propeller - Defective fan motor - Dust on PCB - Blown fuse - External noise, surge					

Note:

Error code	LED	Green	Red	Content
Remote control: E28	Indoor	Keeps flashing	Stays OFF	Remote control temperature thermistor anomaly (Thc)
	Outdoor	Keeps flashing	Stays OFF	

1.Applicable model	5.Troubleshooting																																																																								
All models	<table><tr><th>Diagnosis</th><th>Countermeasure</th></tr><tr><td> Is the connector of thermistor connected properly ? NO Insert the connector securely. YES Regarding the characteristics of the thermistor, see the following table. Are the characteristics of thermistor OK? Is the thermistor wire OK ? *1 NO Replace thermistor (Thc). YES Replace indoor unit PCB. </td></tr></table>	Diagnosis	Countermeasure	Is the connector of thermistor connected properly ? NO Insert the connector securely. YES Regarding the characteristics of the thermistor, see the following table. Are the characteristics of thermistor OK? Is the thermistor wire OK ? *1 NO Replace thermistor (Thc). YES Replace indoor unit PCB.																																																																					
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Detection of anomalously low temperature (resistance) of Thc.																																																																									
3. Condition of error displayed																																																																									
If -50°C or lower is detected for 5 seconds continuously, compressor stops. After 3-minute delay, the compressor is restarted automatically, but if this anomaly occurs again within 60 minutes after the initial detection.																																																																									
4.Presumable cause																																																																									
- Anomalous connection of remote control temperature thermistor - Remote control temperature thermistor anomaly - Remote control PCB anomaly	*1 Check several times to prove any poor connection. Temperature-resistance characteristics of remote control temperature thermistor (Thc). <table><tr><th>Temperature (°C)</th><th>Resistance (kΩ)</th><th>Temperature (°C)</th><th>Resistance (kΩ)</th><th>Temperature (°C)</th><th>Resistance (kΩ)</th><th>Temperature (°C)</th><th>Resistance (kΩ)</th></tr><tr><td>0</td><td>65</td><td>14</td><td>33</td><td>30</td><td>16</td><td>46</td><td>8.5</td></tr><tr><td>1</td><td>62</td><td>16</td><td>30</td><td>32</td><td>15</td><td>48</td><td>7.8</td></tr><tr><td>2</td><td>59</td><td>18</td><td>27</td><td>34</td><td>14</td><td>50</td><td>7.3</td></tr><tr><td>4</td><td>53</td><td>20</td><td>25</td><td>36</td><td>13</td><td>52</td><td>6.7</td></tr><tr><td>6</td><td>48</td><td>22</td><td>23</td><td>38</td><td>12</td><td>54</td><td>6.3</td></tr><tr><td>8</td><td>44</td><td>24</td><td>21</td><td>40</td><td>11</td><td>56</td><td>5.8</td></tr><tr><td>10</td><td>40</td><td>26</td><td>19</td><td>42</td><td>9.9</td><td>58</td><td>5.4</td></tr><tr><td>12</td><td>36</td><td>28</td><td>18</td><td>44</td><td>9.2</td><td>60</td><td>5.0</td></tr></table>	Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)	0	65	14	33	30	16	46	8.5	1	62	16	30	32	15	48	7.8	2	59	18	27	34	14	50	7.3	4	53	20	25	36	13	52	6.7	6	48	22	23	38	12	54	6.3	8	44	24	21	40	11	56	5.8	10	40	26	19	42	9.9	58	5.4	12	36	28	18	44	9.2	60	5.0
Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)																																																																		
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2	59	18	27	34	14	50	7.3																																																																		
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6	48	22	23	38	12	54	6.3																																																																		
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10	40	26	19	42	9.9	58	5.4																																																																		
12	36	28	18	44	9.2	60	5.0																																																																		

Note: After 10 seconds has elapsed since remote control temperature thermistor was switched from invalid to valid, E28 will not be displayed even if the thermistor harness is disconnected or broken. However, in such case, the indoor return air temperature thermistor (Thi-A) will be valid instantly instead of the remote control temperature thermistor (Thc). Please note that even though the remote control temperature thermistor (Thc) is valid, the displayed return air temperature on the remote control LCD shows the value detected by the indoor return air temperature thermistor (Thi-A), not by the remote control temperature thermistor (Thc).

Error code	LED	Green	Red	Content
Remote control: E63 7-segment display: E63	Indoor	Keeps flashing	Stays OFF	Emergency stop
	Outdoor	Keeps flashing	1-time flash	

1. Applicable model	5. Troubleshooting	
All models	Diagnosis	Countermeasure
2. Error detection method	Save data for 30 minutes before stopping in Mente PC. <pre> graph TD A{Is the remote control setting of Emergency Stop "Valid"?} -- NO --> B[Replace remote control PCB.] A -- YES --> C{Is ON signal inputted to the CnT terminal of indoor unit control PCB?} C -- NO --> D[Replace indoor unit PCB.] C -- YES --> E[Check the cause of emergency stop. (It is better to have the data for 30 minutes before stopping, when instructing the installer.)] </pre>	
3. Condition of error displayed		
Same as above		
4. Presumable cause		
Factors for emergency stop		

Note: Indoor unit detected emergency stop signal gives command "all stop"

10.3 Instruction of how to replace PCB

PSC012D050B 

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 abnormalities.	
 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. Start the work after elapsing 1 minute or more from power off. 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 connector 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.	

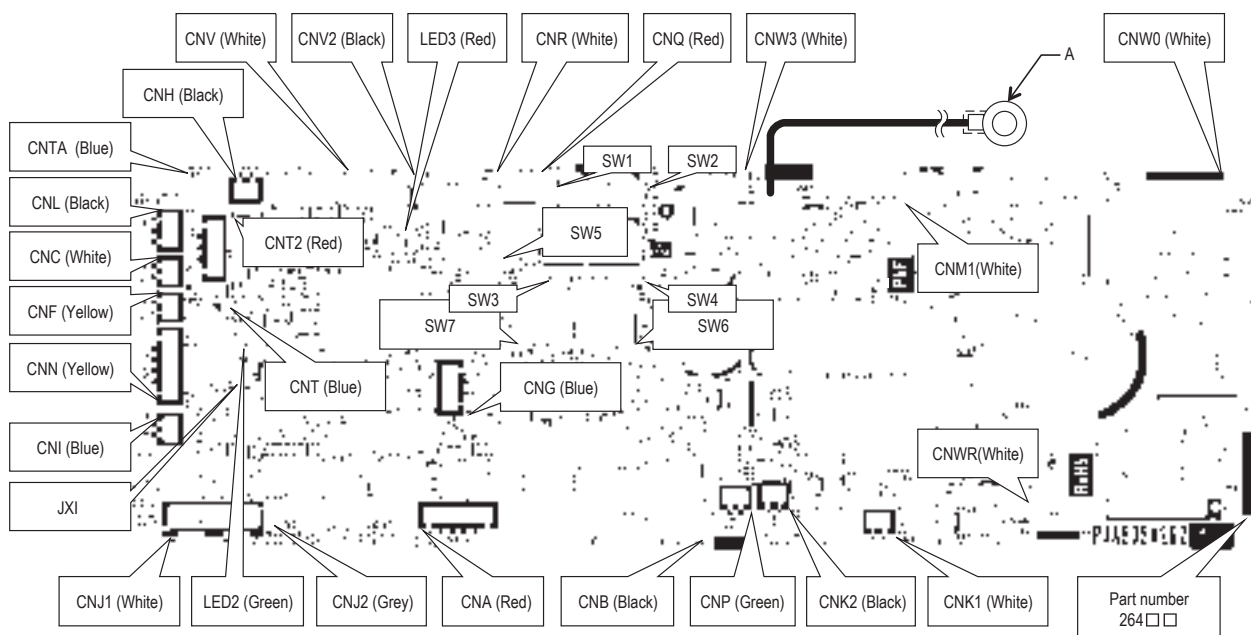
This pwb is a general PCB. Replace the PCB according to this instruction.

(1) Replace the PCB

- ① Unscrew terminal(Arrow A) of the "E1" wiring(yellow/green) that is connected to PCB.
- ② Replace the PCB only after all the wirings connected to the connector are removed.
- ③ Fix the board such that it will not pinch any of the wires.
- ④ Switch setting must be same setting as that of the removed PCB.
- ⑤ Reconnect the wirings to the PCB. Wiring connector color should match with the color of connector of the PCB.
- ⑥ Screw back the terminal(Arrow A) of the "E1" wiring, that was removed in ①.

(2) Control PCB

Parts mounting are different by the kind of PCB.



10.4 Indoor PCB setting

Code	Input	Default setting		Remark
SW1	Indoor unit address No.(Order of 10)	0		0-9
SW2	Indoor unit address No.(Order of 1)	0		0-9
SW3	Outdoor unit address No.(Order of 10)	4		0-9
SW4	Outdoor unit address No.(Order of 1)	9		0-9
SW5-1	Superlink selection	Automatic*/Previous SL	OFF	Automatic
SW5-2	Indoor unit address No.(Order of 100)	OFF	0	OFF : 0, ON : 1
SW6-1	Model selection	As per model		See table 1
SW6-2				
SW6-3				
SW6-4				
SW7-2				
SW7-1	Test run, Drain motor	Normal*/Test run	OFF	Normal
SW7-3	Spare		OFF	Keep OFF
SW7-4	Spare		OFF	Keep OFF
JSL1	Superlink terminal spare	Normal*/switch to spare	With	Normal

*Default setting

Table 1

■Model selection with SW6-1 - SW6-4 and SW7-2

	P15	P22	P28	P36	P45	P56
SW6-1	OFF	OFF	ON	OFF	OFF	OFF
SW6-2	OFF	OFF	OFF	ON	OFF	ON
SW6-3	OFF	OFF	OFF	OFF	ON	ON
SW6-4	OFF	OFF	OFF	OFF	OFF	OFF
SW7-2	ON	OFF	OFF	OFF	OFF	OFF

11. OPTION PARTS

PJF012D506

11.1 Wireless kit (RCN-TC-5AW-E2)

Safety precautions

• Please read this manual carefully before starting installation work to install the unit properly. All of the following are 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 symbols 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 the new owner.

WARNING

- | | |
|---|---|
|  | <ul style="list-style-type: none"> • 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. |
|  | <ul style="list-style-type: none"> • Installation work should be performed properly according to this installation manual.
Improper installation work may result in electric shocks, fire or break-down. |
|  | <ul style="list-style-type: none"> • Be sure to use accessories and specified parts for installation work.
Use of unspecified parts may result in drop, fire or electric shocks. |
|  | <ul style="list-style-type: none"> • 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. |
|  | <ul style="list-style-type: none"> • 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. |
|  | <ul style="list-style-type: none"> • Shut OFF the main power source before starting electrical work.
Otherwise, it could result in electric shocks, break-down or malfunction. |
|  | <ul style="list-style-type: none"> • Do not modify the unit.
It could cause electric shocks, fire, or break-down. |
|  | <ul style="list-style-type: none"> • 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. |
|  | <ul style="list-style-type: none"> • 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. |
|  | <ul style="list-style-type: none"> • Do not install the unit where water vapor is generated excessively or condensation occurs.
It could cause electric shocks, fire, or break-down. |
|  | <ul style="list-style-type: none"> • 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. |
|  | <ul style="list-style-type: none"> • 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. enter 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 | (8) Places where the receiver is influenced by fluorescent lamp (especially inverter type) or sunlight |
| (2) Places near heat-generating devices | (9) Places where the receiver is affected by infrared rays of any other communication devices |
| (3) High humidity places | (10) Places where some object may obstruct the communication with the remote control |
| (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 | |

① Accessories

Please make sure that you have all of the following accessories.

① Receiver		1
② PCB		1
③ PCB mounting support		2
④ Bracket (Sheet metal)		1

⑤ Bracket mounting screw		1
⑥ Wiring (For communication)		1
⑦ Wiring (For receiving)		1
⑧ Installation manual		1
⑨ Parts set		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

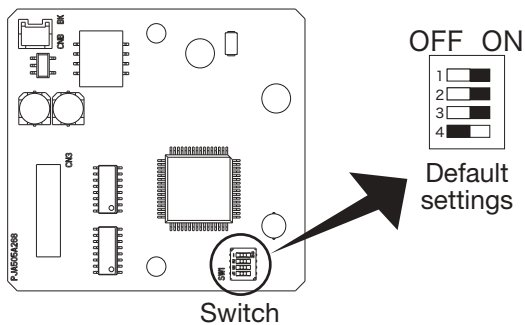
② Preparation before installation**Setting of PCB**Accessory PCB has the following switches to set the functions. Default setting is shown with ☐ mark.

SW1	Prevents interference during multiple setting	☐ ON : Normal	☐ OFF : Remote
SW2	Receiver master/slave setting	☐ ON : Master	☐ OFF : Slave
SW3	Buzzer	☐ ON : Valid	☐ OFF : Invalid
SW4	Auto restart	☐ ON : Valid	☐ OFF : Invalid

② Preparation before installation (continued)

To change setting

1. Change the setting of switches on the accessory PCB.



Master/Slave setting when using multiple remote controls

Up to two receivers or wired remote controls can be installed on one indoor unit group. In such occasion, it is necessary to change the setting to slave on either one.

To change the setting on the receiver, refer to the instruction manual of the receiver.

2. When SW1 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.

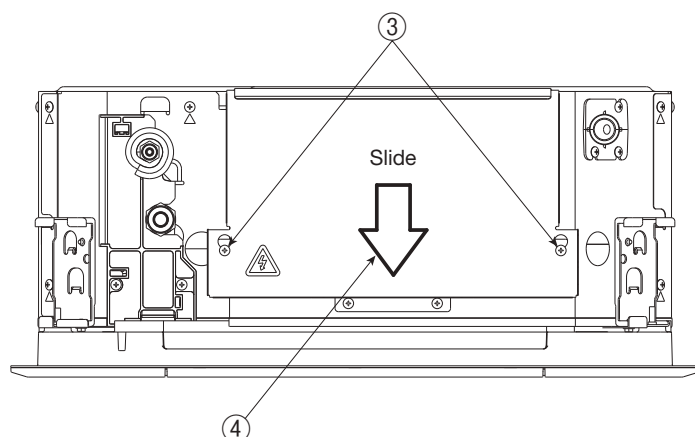
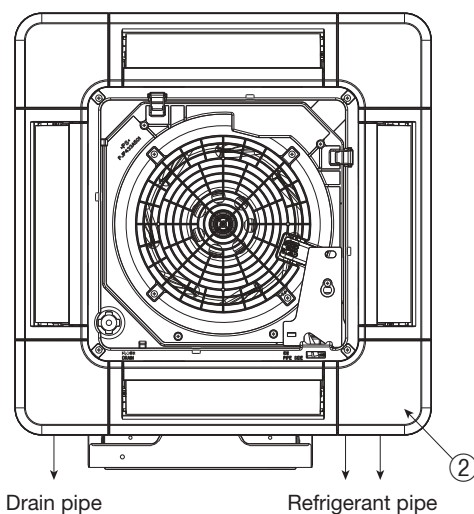
*For the receivable area of the signal, refer to **⑤ Receiver**.

③ How to install the receiver

It is possible to install the receiver by replacing the corner lid on the panel.

Preparation before installation

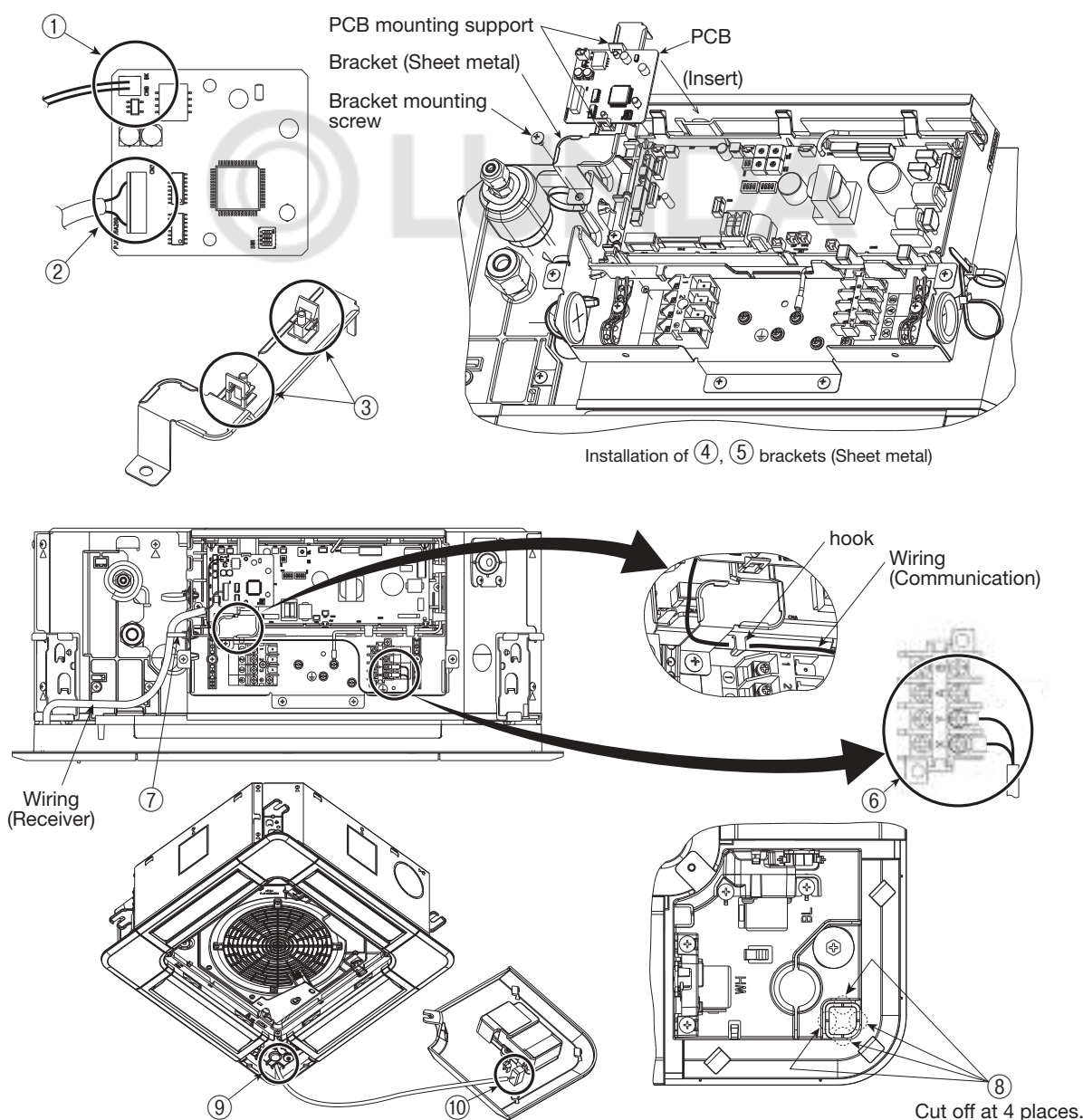
- ① Remove the inlet grille according to the installation manual of the panel.
- ② Remove the corner lid at the refrigerant pipe side.
- ③ Loosen screws (2 pcs) on the control box of the unit.
- ④ Slide the control lid in the arrow direction, and remove it.



③ How to install the receiver(continued)

Installation of the receiver

- ① Connect the wire connector (Communication) to CNB on PCB.
- ② Connect the wire connector (Receiver) to CN3 on PCB.
- ③ Install the PCB mounting supports on the bracket (Sheet metal).
- ④ Install PCB on the PCB mounting supports.
- ⑤ Insert the bracket (Sheet metal) in one side of control box, and fix the other side with screws as shown in the figure.
- ⑥ Connect round terminals of wires (Communication) to the terminal block (X, Y) in the control box. The wires have no polarity.
- ⑦ Fix wires with bands as shown in the figure.
- ⑧ Cut off the half-blanks on the panel (at 4 places) as shown in the figure.
- ⑨ Pass the wiring (Communication) through the opening on the panel.
- ⑩ Connect connectors of the wiring (Communication) and the receiver.
- ⑪ Install the receiver on the panel according to the installation manual of the panel.
- ⑫ Install the control box lid with care not to pinch wires, and fix with screws (2 pcs).



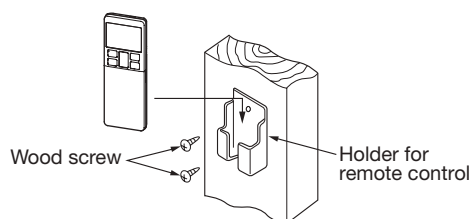
④ Wireless remote control

Installation tips for the remote control holder

Fix the remote control holder using the screws supplied with this product.

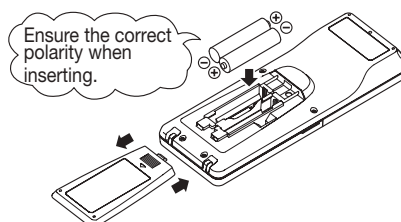
* Precautions for installing the holder

- Adjust the position so that it is upright.
- Ensure that the screw heads are not protruding.
- Do not attach the holder on plaster wall.



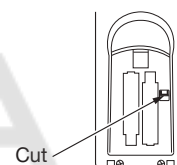
How to insert batteries

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 remote control setting

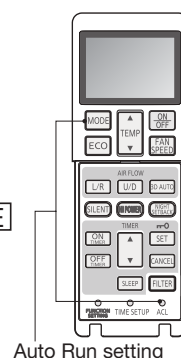
How to change the Auto Run setting

The Auto Run mode is not available on the building air-conditioning and gas heat pump series (excluding the cooling/heating free multi system).

When using the remote control to operate those models, set the 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.

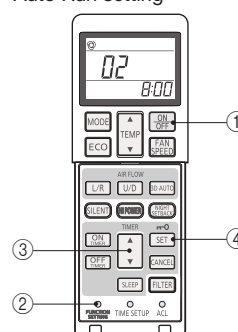
* Note: Once the batteries are removed, the setting is reset to the factory default.
When the batteries are removed, repeat the steps described above.



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 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 multiple indoor units with one remote control

Up to 16 indoor units can be connected.

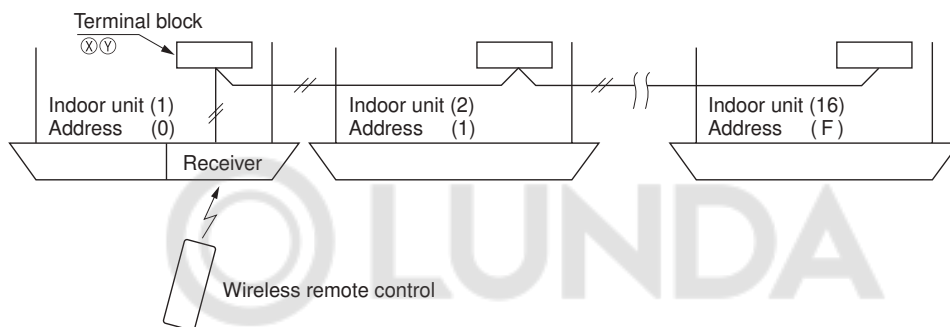
1. Connect the XY terminal with 2 cores wire. As for the size, refer to the note on the right.
2. For Packaged air-conditioner series, set the indoor unit address with SW2 on the indoor unit PCB from [1] to [F] so as not to duplicate.

Restrictions on the thickness and length of wire
(Maximum length is 600m.)

Standard	Within	0.3 mm ² × 100m
	Within	0.5 mm ² × 200m
	Within	0.75mm ² × 300m
	Within	1.25mm ² × 400m
	Within	2.0 mm ² × 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.



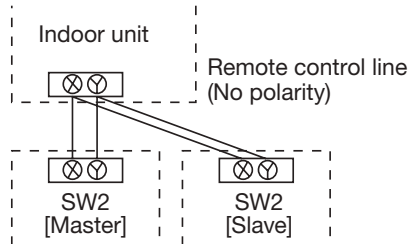
For the building air-conditioning and gas heat pump series

Set the indoor unit and outdoor unit numbers by manually specifying the addresses.

Use the rotary switches 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 multiple remote control

Up to two receivers can be installed in one indoor unit group.



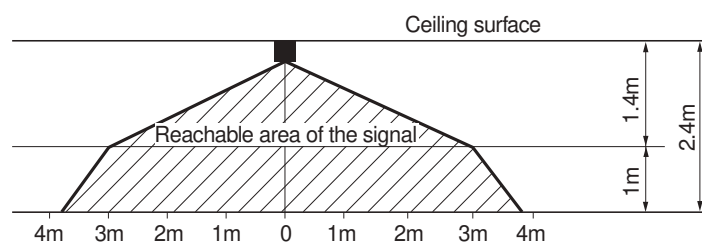
Switch	Setting	Function
SW2	ON	Master
	OFF	Slave

Wireless remote control's operable area

1. Standard reachable area of the signal

[Condition] Illuminance at the receiver: 300lux

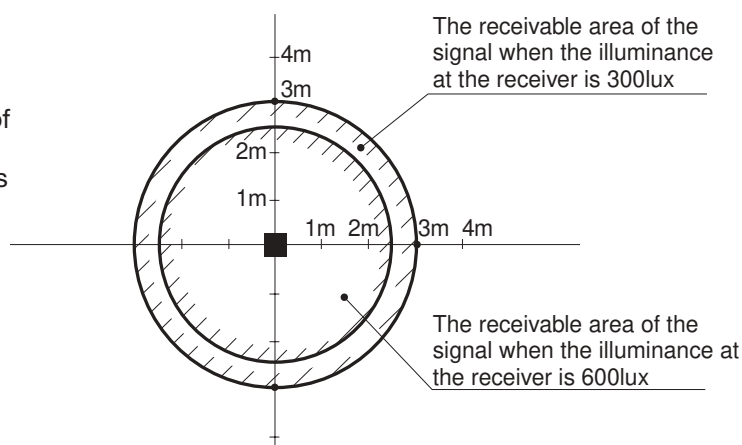
(When no lighting is installed within 1m of the receiver in an ordinary office)



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 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 thirds.



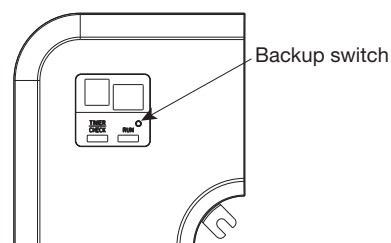
3. Installation tips when several receivers are installed close to one another.
Minimum distance between the indoor units which can avoid cross communication is 5m under the condition of 300lux of illuminance at the receiver.
(When no lighting is installed within 1m of the receiver in an ordinary office)

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 case of cooling only, it is 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 pressed.
- 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

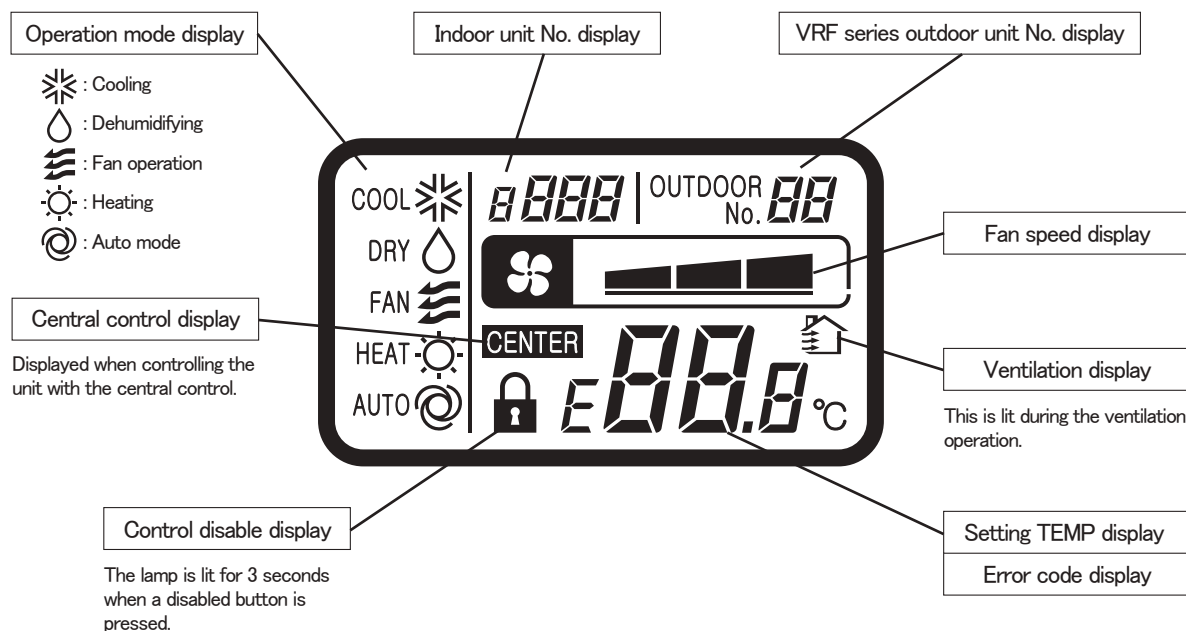
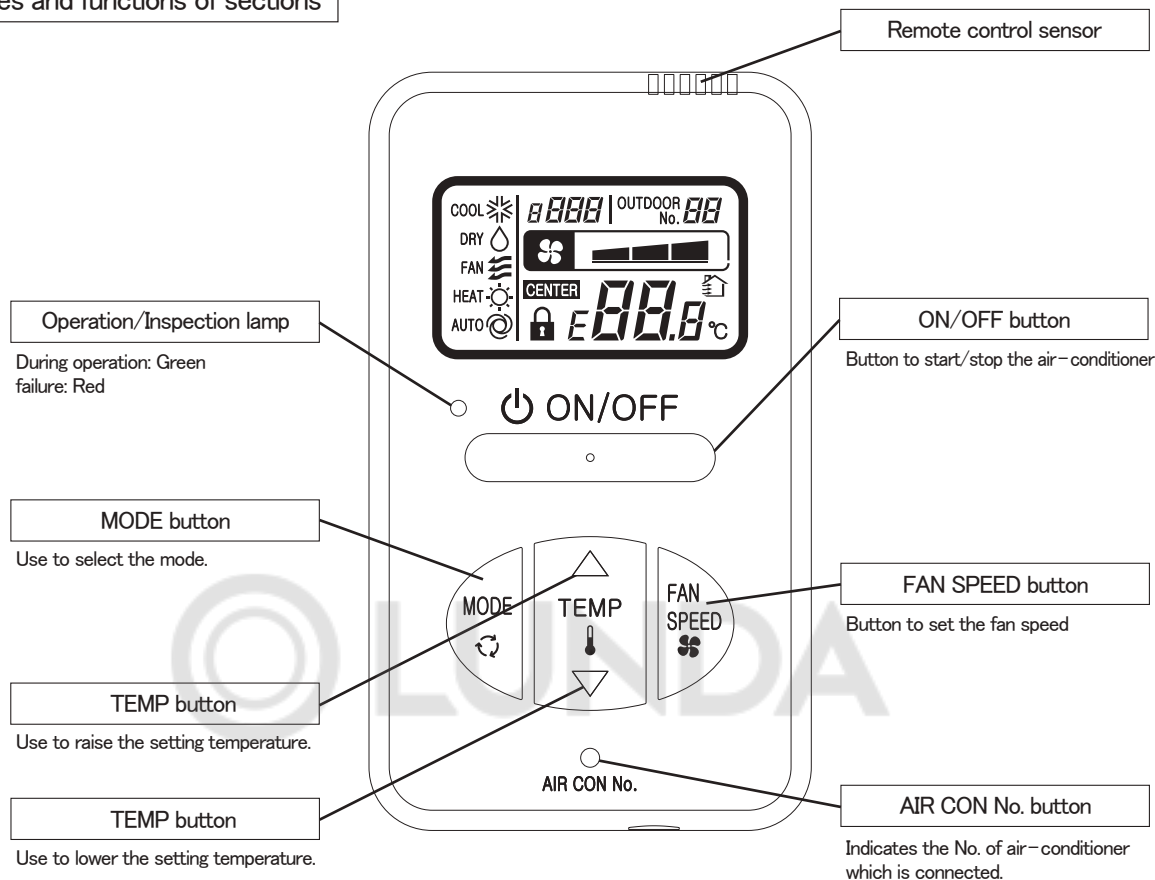
On the receiver of a wireless kit, a two-digit (7-segment) display is provided.

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.

11.2 Simple wired remote control (RCH-E3)

PJZ000Z272

Names and functions of sections

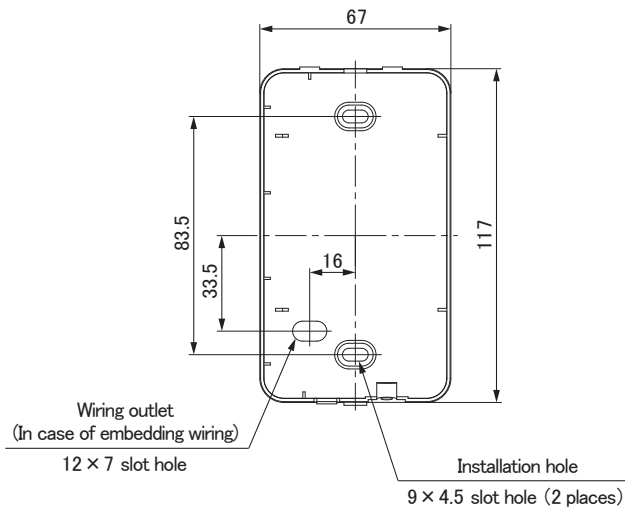


Installation of remote control

Do not install the remote control at the following places in order to avoid malfunction.

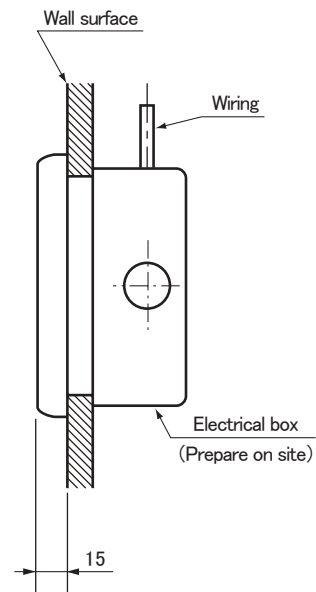
- (1) Places exposed to direct sunlight
- (2) Places near heat devices
- (3) High humidity places
- (4) Hot surface or cold surface enough to generate condensation
- (5) Places exposed to oil mist or steam directly
- (6) Uneven surface

Remote control installation dimensions

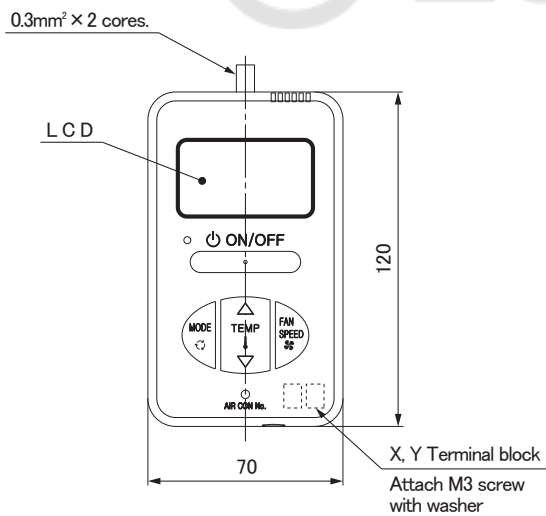


Note: Installation screw for remote control
M4 screw (2 pieces)

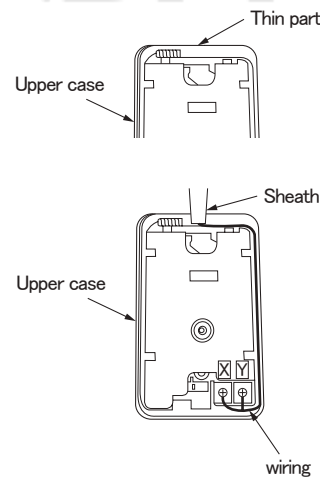
In case of embedding wiring



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.

Length	Wiring thickness
100 to 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

Unit:mm

Adapted to **RoHS** directive

Simple Remote Control Installation Manual

PJZ012D069

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 case 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 (φ 3.5 × 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 mm² (recommended) to 0.5 mm² 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.

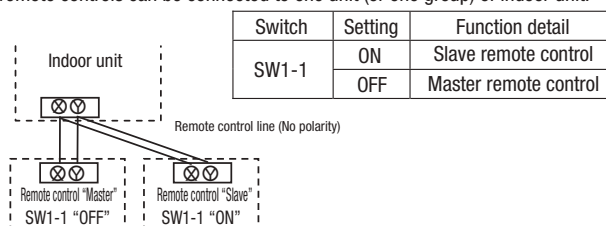
2. Installation and wiring of remote control

- (1) Wiring of remote control should use 0.3mm² × 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 0.3mm² (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.

100 - 200m ······ 0.5mm² × 2 cores
Under 300m ······ 0.75mm² × 2 cores
Under 400m ······ 1.25mm² × 2 cores
Under 600m ······ 2.0mm² × 2 cores

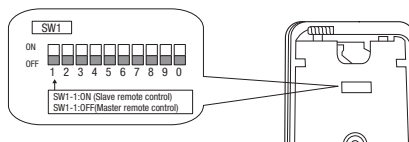
3. Master/ slave setting when more than one remote control are used

- (1) Up to two remote controls can be connected to one unit (or one group) of indoor unit.



- (2) Set the switch SW1-1 of the slave remote control is "Slave" (ON). The factory default is set as "Master" (OFF).

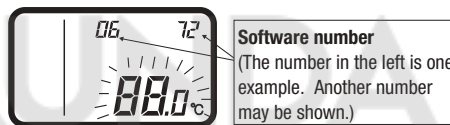
- (Note) • The remote control thermistor enabled setting can be set only to the master remote control.
• Install the master remote control at the position to detect room temperature.
• The air-conditioner operation follows the last operation of the remote control in case of the master / slave setting.



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.



- (2) Then, "88.0 °C" 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 thermistor is effective, detected temperature by the remote control thermistor is displayed.



- (2) Press **ON/OFF** button.
End.

[In the case that the remote thermistor 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.
Decider 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 are 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.



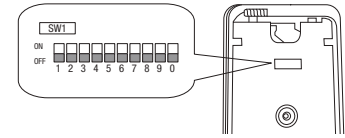
6. Function setting

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 would 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 thermistor enabled	
	OFF	Remote control thermistor 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	Not used	



- 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 thermistor at the time of cooling	01	Remote control thermistor: no offset	○	
			02	Remote control thermistor: +3.0 °C		At the time of cooling, in the case of remote control thermistor enabled, offset temperature at +3.0°C.
			03	Remote control thermistor: +2.0 °C		At the time of cooling, in the case of remote control thermistor enabled, offset temperature at +2.0°C.
			04	Remote control thermistor: +1.0 °C		At the time of cooling, in the case of remote control thermistor enabled, offset temperature at +1.0°C.
			05	Remote control thermistor: -1.0 °C		At the time of cooling, in the case of remote control thermistor enabled, offset temperature at -1.0°C.
			06	Remote control thermistor: -2.0 °C		At the time of cooling, in the case of remote control thermistor enabled, offset temperature at -2.0°C.
			07	Remote control thermistor: -3.0 °C		At the time of cooling, in the case of remote control thermistor enabled, offset temperature at -3.0°C.
	04	Remote control thermistor at the time of heating	01	Remote control thermistor: no offset	○	
			02	Remote control thermistor: +3.0 °C		At the time of heating, in the case of remote control thermistor enabled, offset temperature at +3.0°C.
			03	Remote control thermistor: +2.0 °C		At the time of heating, in the case of remote control thermistor enabled, offset temperature at +2.0°C.
			04	Remote control thermistor: +1.0 °C		At the time of heating, in the case of remote control thermistor enabled, offset temperature at +1.0°C.
			05	Remote control thermistor: -1.0 °C		At the time of heating, in the case of remote control thermistor enabled, offset temperature at -1.0°C.
			06	Remote control thermistor: -2.0 °C		At the time of heating, in the case of remote control thermistor enabled, offset temperature at -2.0°C.
			07	Remote control thermistor: -3.0 °C		At the time of heating, in the case of remote control thermistor 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 heating thermostat OFF, intermittently operate.
			04	Fan off		At the time of heating thermostat OFF, a fan will be stopped. When the remote control thermistor is enabled, automatically set to "Fan off". Do not set at the time of the indoor unit thermistor.
	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.

Switch 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: 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".

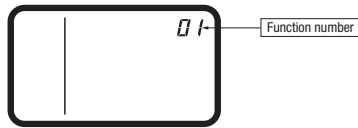
Note 3: As for plural indoor unit, set indoor functions to each master and slave indoor unit.

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-conditioning, 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.

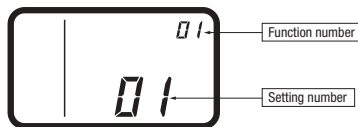


- (2) Press **TEMP▲** or **TEMP▼** button.
Select the function number.

- (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.

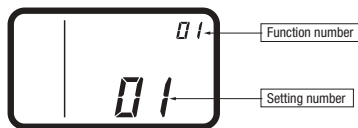
The setting is completed.

Light is on for approximately 3 to 20 seconds while data of the decided function No. and setting No. is transmitted.

(Example)

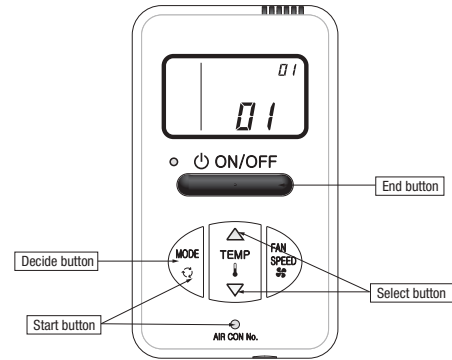
Function number: "01" (lighting for 3 to 20 seconds)

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)

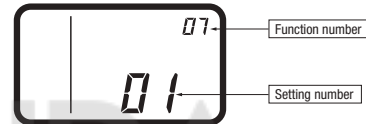


After that, the current setting number of the selected function number blinks.

(Example)

Function number: "07" (lighting)

Setting number: "01" (blinking)



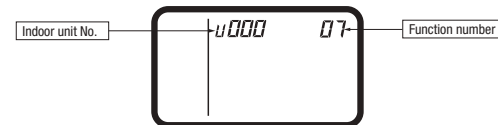
Proceed to ②.

[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.

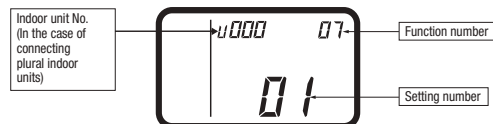
Light is on for approximately 3 to 20 seconds while data of the decided function No. and setting No. is transmitted.

(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.)

11.3 Motion sensor kit (LB-TC-5W-E)

PJF012D504

⚠ WARNING

- Connect the wiring to the PCB in the control box on the indoor unit and fix the wiring securely so as not to apply unexpected stress on the PCB.
Loose connection or fixing will cause abnormal heat generation or fire. 
- Make sure the power source is turned off during electrical wiring work.
Otherwise, electric shock, malfunction and abnormal operation may occur. 

⚠ CAUTION

- Do not install the motion sensor kit at the following places in order to avoid malfunction.

(1) Places exposed to direct sunlight (2) Places near heat-generating devices (3) High humidity places (4) Hot surface or cold surface enough to generate condensation (5) Places directly exposed to oil mist or steam (6) Places affected by the direct air flow of the indoor unit (7) Places where the motion sensor may be influenced by fluorescent lamp or sunlight	(8) Places where the motion sensor may be affected by infrared rays of any other communication devices (9) Places where some object may obstruct the motion sensor (10) Places where there may be impact on the motion sensor (11) Places with strong radio wave or static electricity (12) Dusty place where the motion sensor lens may become tainted or be damaged
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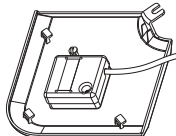

- Do not leave the motion sensor without the cover.
In case the cover needs to be detached, protect the motion sensor with a packaging or bag in order to keep it away from water and dust. 

Attention

- Instruct the customer how to operate the motion sensor kit correctly by referring to the instruction manual.
- For the installation method of the air-conditioner itself, refer to the installation manual enclosed in the package.

① Accessories

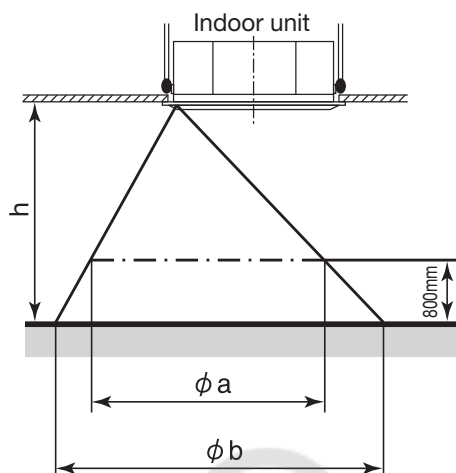
Please make sure that all components are in the package.

Motion sensor		1
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② Installing the motion sensor

It is possible to install the motion sensor by replacing the corner lid on the panel.

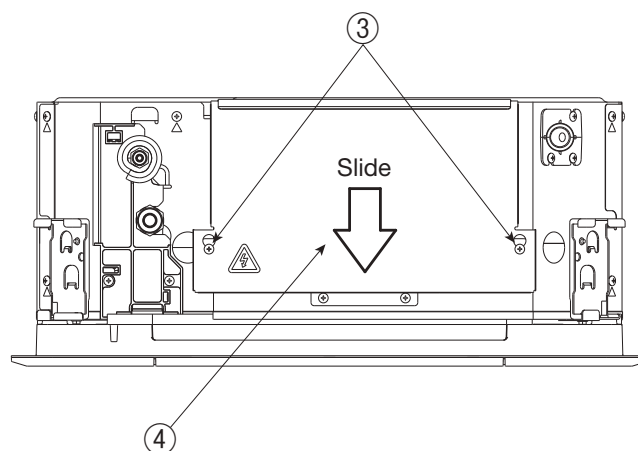
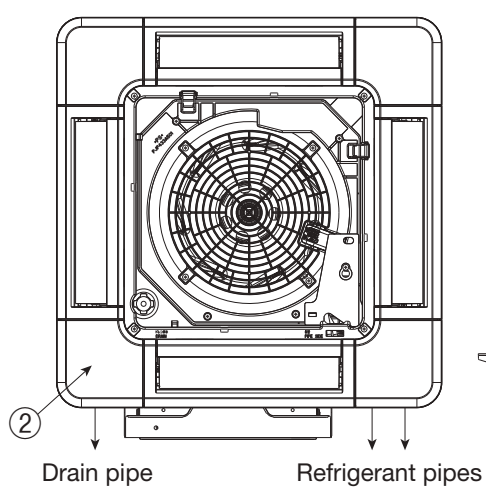
The detectable area



Height of the ceiling	$h[m]$	2.7	3.5	4.0
Detectable area①	$\phi a[m]$	about 4.5	about 6.4	about 7.6
Detectable area②	$\phi b[m]$	about 6.4	about 8.3	about 9.5

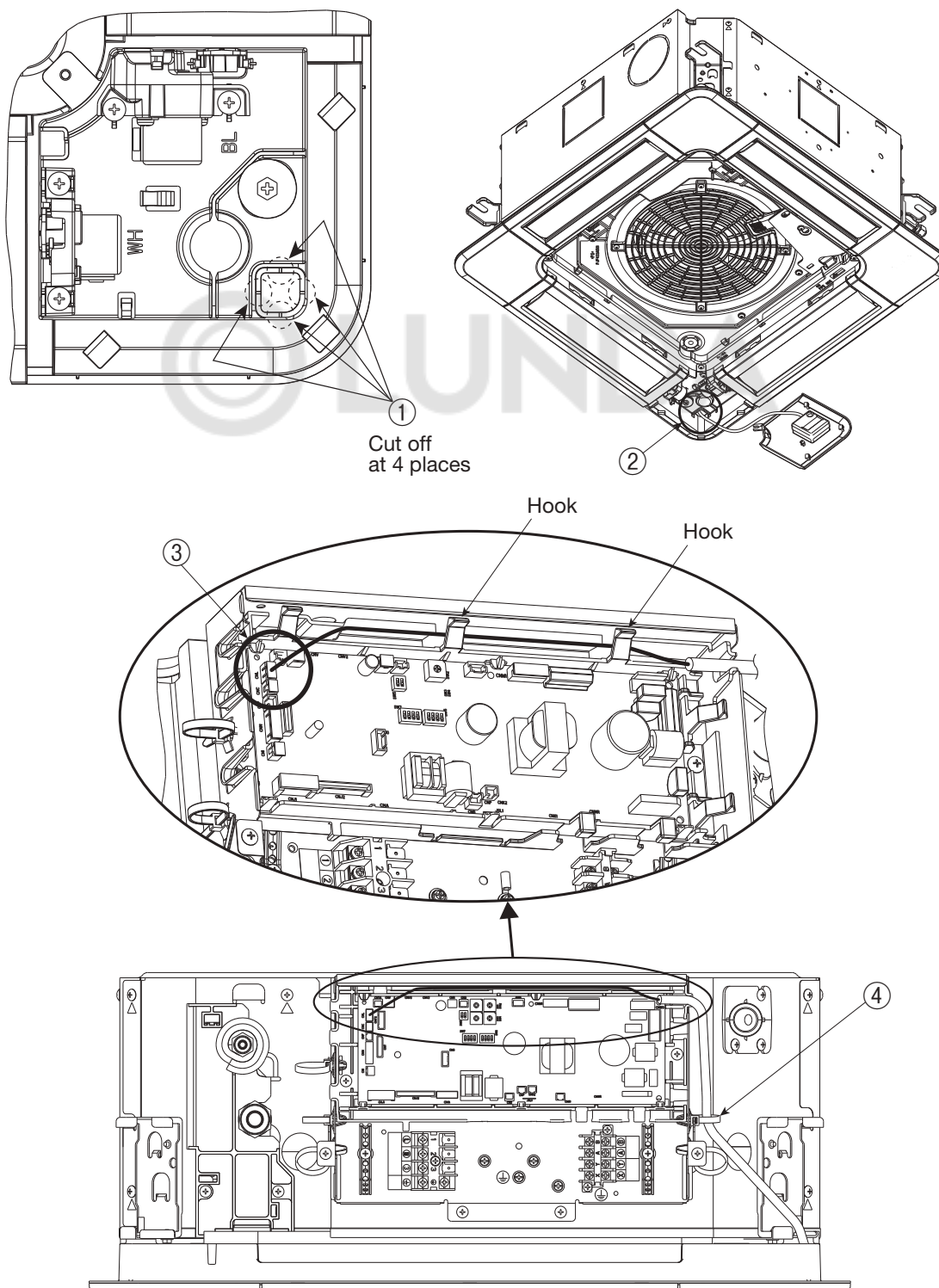
Preparation before installation

- ① Remove the inlet grille according to the installation manual of the panel.
- ② Remove the corner lid at the drain pipe side.
- ③ Loosen screws (2 pcs) on the control box of the unit. (It is not necessary to remove the screws.)
- ④ Slide the control lid in the arrow direction, and remove it.



Installation of the motion sensor

- ① Cut the half blanking (4 sections) of the panel as shown in the following figure.
- ② Pass the motion sensor wiring through the opening of the panel.
- ③ Connect the wiring connector to CNL (3P, black) on the PCB in the control box.
- ④ Fix the wiring with a band as shown below.
- ⑤ Install the motion sensor on the panel according to the installation manual of the panel.
- ⑥ Install the control lid with care not to pinch the wiring, and reinstall the control lid with screws (2 pcs.).



③ Setting the motion sensor

The motion sensor will not function if it is only installed.

Set the function of the motion sensor by the wired or wireless remote control.

Refer to the manual instruction of each remote control for the setting procedure.

Note: It is not possible to set by the following remote control models or older ones.

Wired: RC-EX1A, RC-E5, RCH-E3

Wireless: RCN-E1R



11.4 OA spacer (FDTC series)

This manual describes the installation methods for OA spacer (TC-OAS-E2) 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.

PJZ012D125

Application model	FDTC15-56KXZE1 FDTC25-60VG
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◎ 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 sulfuric 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-E2)

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	5°C DB or higher	18.5°C WB or lower and 60% RH or lower
In cooling	29°C DB or lower and 80% RH or lower	20°C DB or higher

(2) Intake outdoor air volume

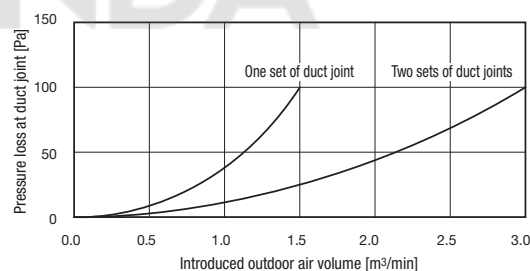
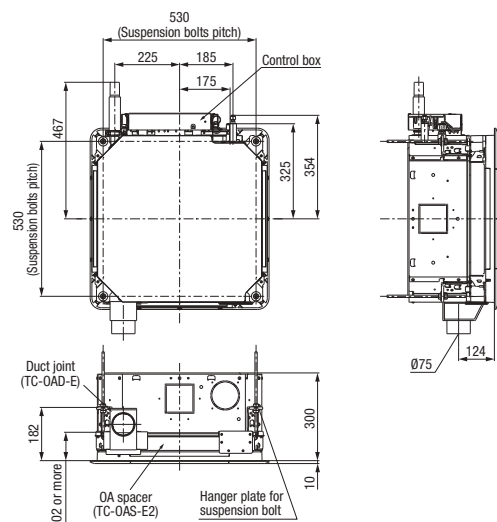
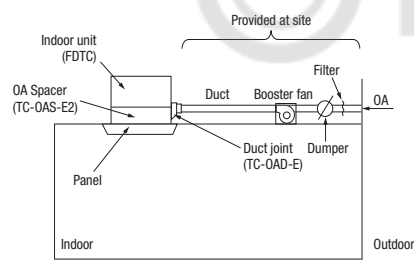
- Intake outdoor air volume is 3.0 m³/min at the maximum (when two sets of duct joints are used). Up to two sets of duct joint can be installed on OA spacer.
- In case one set of duct joint is installed: 1.5 m³/min max.
- In case two sets of duct joint is installed: 3.0 m³/min max.

(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-conditioning load including the heat load of intake outdoor air.
- Install the filter for the intake outdoor air and the reverse flow prevention damper 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.)

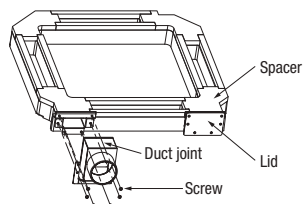


③ Installation of duct joint (TC-OAD-E) onto OA spacer

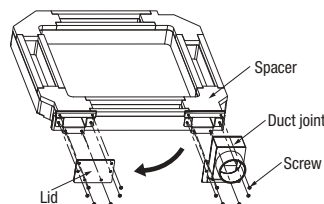
- There are two places where the duct joint can be installed.

When installing one duct joint

Install OA spacer at either one of two installation places on the duct joint.

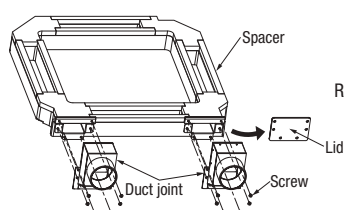


To install the duct joint, screw it in as shown at left.



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



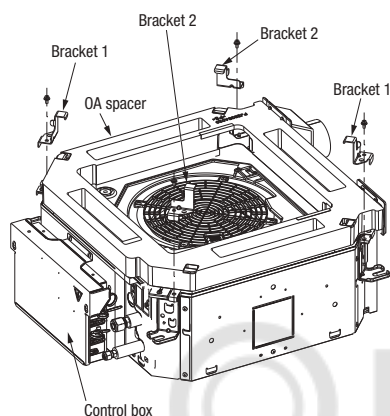
Remove the lid and then install two pieces of duct joint.

④ Installation of OA spacer on the indoor unit

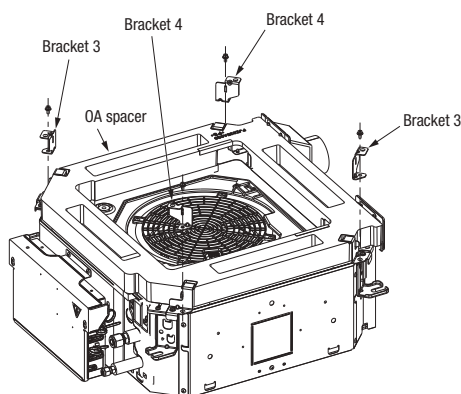
OA spacer can be installed regardless whether the indoor unit has already been hanged or not.
(It is recommended to install before hanging the unit for convenience of installation.)

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 (FDTC).



- ② Fix the brackets 3 and 4 (2 pieces each) with bolts.

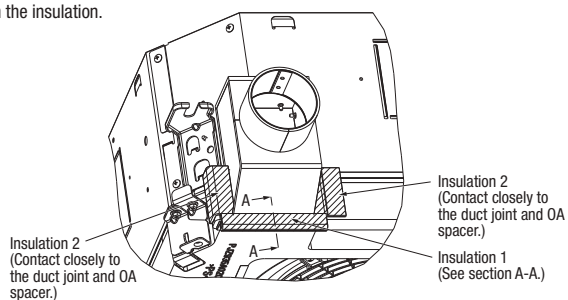
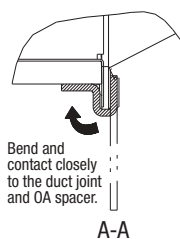


2. Applying insulation

Applying the insulation attached to duct joint set (TC-OAD-E)

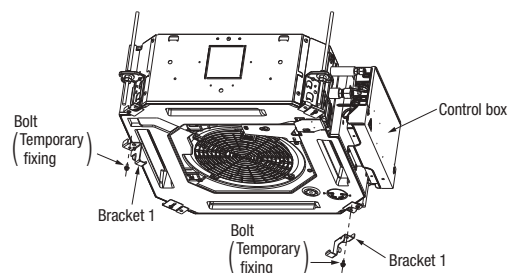
- ① Applying the insulation 1 as shown in the figure.
- ② Applying the insulation 2 as shown in the figure.

* Be sure to cover the entire surface of sheet metal of the duct joint with the insulation.

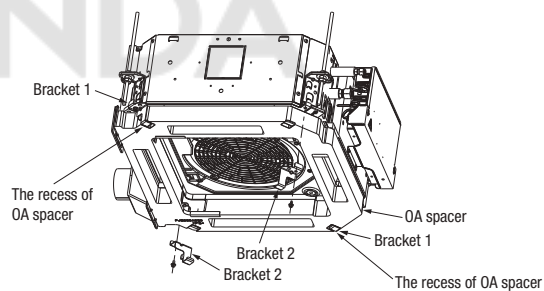


1-2. When installing OA spacer after hanging the indoor unit

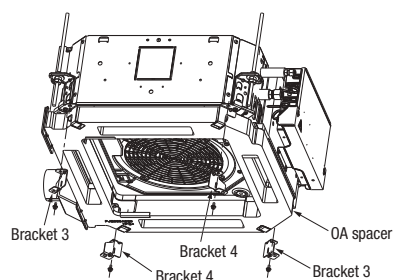
- ① After hanging the indoor unit (*), fix the bracket 1 (2 pieces) temporarily with bolt by 2 turns as shown in the figure.
* For the height (position) of hanging the indoor unit, refer to Section 5.



- 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)



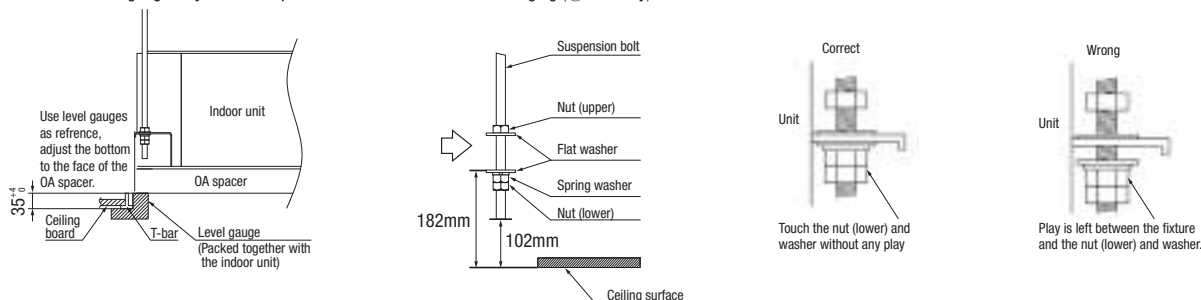
- ③ Fix the brackets 3 and 4 (2 pieces each) with bolts.



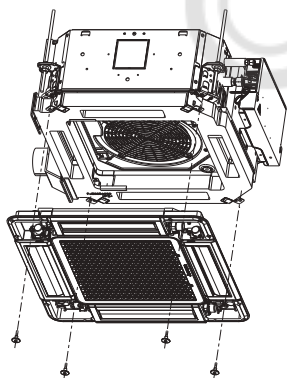
⑤ Installation of indoor unit

Work procedure

- This unit is designed for 2×2 grid ceiling.
If necessary, please detach the T bar temporarily before you install it.
If it is installed on a ceiling other than 2×2 grid ceiling, provide an inspection port on the control box side.
 - Arrange the suspension bolt at the right position (530mm/530mm).
 - Make sure to use four suspension bolts and fix them so as to be able to hold 500N load.
 - Ensure that the lower end of the suspension bolt should be 102mm above the ceiling plane. Temporarily put the four lower nuts 182mm 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.
 - 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).



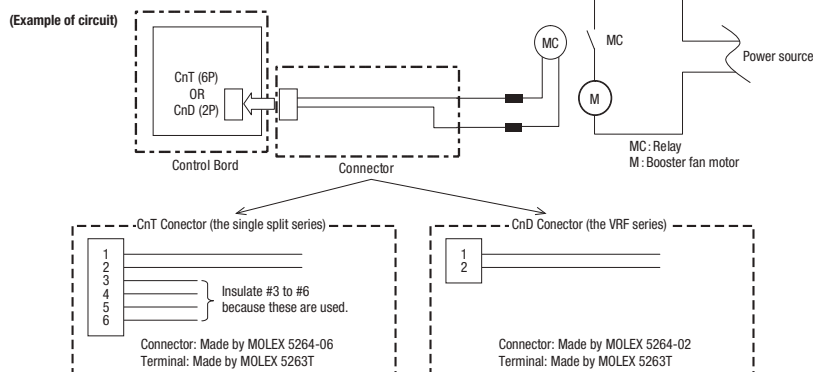
⑥ Installation of panel



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 lower motor within the control box.

⑦ Interlocking with the indoor unit fan

- ① 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.
- ② 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 WIRING 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.

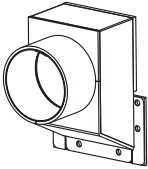
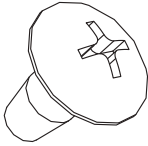
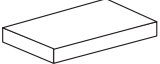
11.5 Duct joint (FDTC series)

PJZ012D073

● This product is used by assembling on the spacer (TC-OAS-E2)

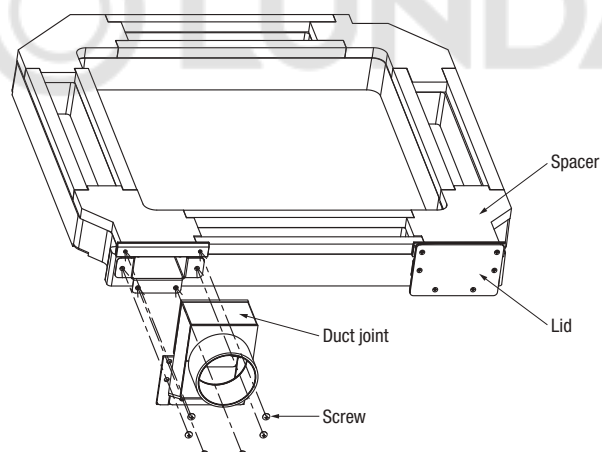
1. Before installation

- 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-E2) as shown below.
- For the installation method, refer to the installation manual of the spacer.



VRF INVERTER MULTI-SYSTEM AIR-CONDITIONERS



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