Refrigerant R410A INVERTER

AIRSTAGE™
Variable Refrigerant Flow System

OUTDOOR AIR UNIT

DTV_OAE034E_01--CHAPTER01
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CONTENTS

OUTDOOR AIR UNIT

CONTENTS

OUTDOOR AIR UNIT

OUTDOOR AIR UNIT

1. FEATURES

■ MODELS : ARXH054GTAH, ARXH072GTAH, ARXH096GTAH

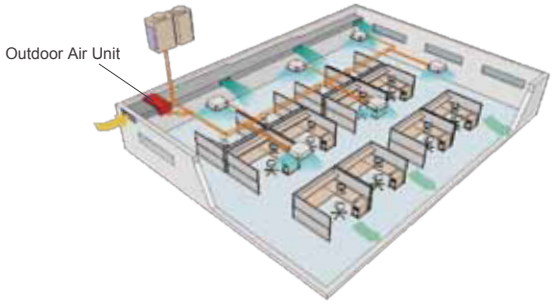
The heat pump method efficiently processes the outdoor air for cooling and heating and supplies 100% fresh air into a room.

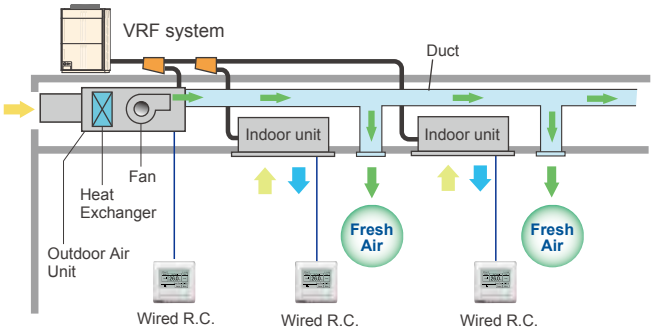


■ ONE VRF SYSTEM CAN PROVIDE AIR CONDITIONING AND AIR SUPPLY AT THE SAME TIME

Outdoor Air Unit can be connected in a same VRF*1 system as one of indoor unit series and can create fresh and comfortable air supply together from our high advanced technology.

*1 V-II, J-II, J-IIS, VR-II.

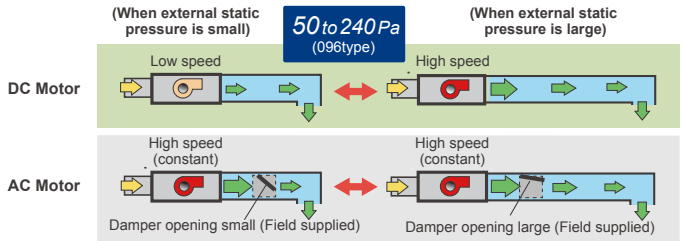




* Make sure the connected capacity is within the range of 50% to 100% of the outdoor unit capacity. In addition, if there are mixed connections with indoor units, make the Outdoor Air Unit connection capacity 30% or less of the outdoor unit capacity.

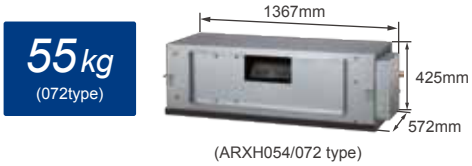
■ HIGH ENERGY SAVINGS AND FLEXIBLE DUCT DESIGN BY USING DC MOTOR

- Greatly reduces electricity consumption by adopting permanent magnet compared to when using an AC motor.
- Compared with AC motor, changing the speed makes it possible to respond flexibly to the external static pressure from 50Pa to 240Pa. Even if damper equipment is not used, static pressure can be adjusted and duct design is easy
- Static pressure can be set easily using wired remote controller.



■ TOP CLASS COMPACT DESIGN

- Top class lightweight compact design at just 425mm in height, 55kg in weight for ARXH072 type. This unit can be installed easily even at narrow space



(ARXH054/072 type)

OUTDOOR AIR UNIT

2. SPECIFICATIONS

Model name				ARXH054GTAH	ARXH072GTAH	ARXH096GTAH
Power source				230 V ~, 50Hz		
Available voltage range				198 to 264 V		
Capacity	Cooling		kW	14.0	22.4	28.0
	Heating			8.9	13.9	17.4
Input power			W	179	292	370
Static pressure range			Pa	50 - 185	50 - 200	50 - 240
Standard static pressure			Pa	185	200	200
Fan	Airflow rate		m^3 / h (l / s)	1080 (300)	1680 (467)	2100 (583)
	Type x Quantity			Sirocco × 1	Sirocco × 2	Sirocco × 1
	Motor output		W	197	197 × 2	700
Sound pressure level			dB(A)	42	44	47
Heat exchanger	Length		mm	1090		1250
	Fin pitch			1.3		1.45
	Rows x Stages			4 × 18		
	Face Area		m^2	0.41		0.47
	Pipe type (Material)			Grooved H-pin (Copper)		
	Fin	Type (Material)		Slit(Aluminium)		
		Surface treatment		Hydrophilic coating		
Air filter				-		
Enclosure	Material			Galvanized sheet iron		
Dimensions (H x W x D)	Net		mm	425 × 1367 × 572		450 × 1583 × 700
	Gross			496 × 1511 × 666		520 × 1745 × 823
Weight	Net		kg	48	55	71
	Gross			54	63	87
Connection pipe diameter	Liquid		mm	ø 9.52(Flare)	ø 12.70 (Brazing)	
	Gas			ø 19.05 (Flare)	ø 22.22 (Brazing)	
	Drain hose			VP25 [ø 25(I.D.) ; ø 32(O.D.)]		

Note: Specifications are based on the following conditions.
Cooling: Outdoor temperature of 33°CDB / 28°CWB.
Heating: Outdoor temperature of 0°CDB / -2.9°CWB.
Pipe length: 7.5 m; Height difference between outdoor unit and indoor unit: 0 m.

OUTDOOR AIR UNIT

3. ELECTRIC CHARACTERISTICS

Model	Power Supply				Indoor Rated	
	Voltage (V)	Frequency (Hz)	MCA (A)	MFA (A)	Input Power (kW)	Current (A)
ARXH054GTAH	230~	50	1.40	20	0.179	1.12
ARXH072GTAH			2.16		0.292	1.73
ARXH096GTAH			2.79		0.370	2.23

● Breaker requirements

Model	Recommended cable size (mm^2)	MFA (A)	Breaker for leakage current	Remarks
All models	2.5	20	Refer to Table B	230V~ 50Hz 2Wire + ground

Refer to the table for the breaker specifications of each installation condition. Perform the power crossover wiring within the range of the same refrigerant system.When the crossover wiring is done, make a connection for "Outdoor air units", "RB units" and "indoor units" to satisfy conditions Table A and Table B below.

Table A. Current breaker requirements

Model	MCA (A)	MFA (A)
All models	Refer to above	20

MCA : Minimum Circuit Ampacity

When the power crossover wiring is done, make it so that the total of the MCA of the connected "Outdoor air units", "RB units" and "indoor units" does not exceed the 15 A.

If the capacity of connected RB units and indoor units exceeds the upper limit, either add breakers or use a breaker with a greater capacity.

Table B. Earth leakage breaker requirements

Breaker capacity	Maximum connectable "Outdoor air units", "RB units" and "indoor units"
30 mA, 0.1 sec or less	44 or less
100 mA, 0.1 sec or less	45 to 128

NOTE: 1 outdoor air unit is equivalent to 2 indoor units.
Example: In combination of 1 outdoor air unit, 3 indoor units, and 3 RB units (equal to 2 [indoor units]+3+3), the number of connectable units is to be “8”.

If the total number of units connected to the breaker exceeds 44, either add a 30mA breaker, or use breakers with a greater capacity.

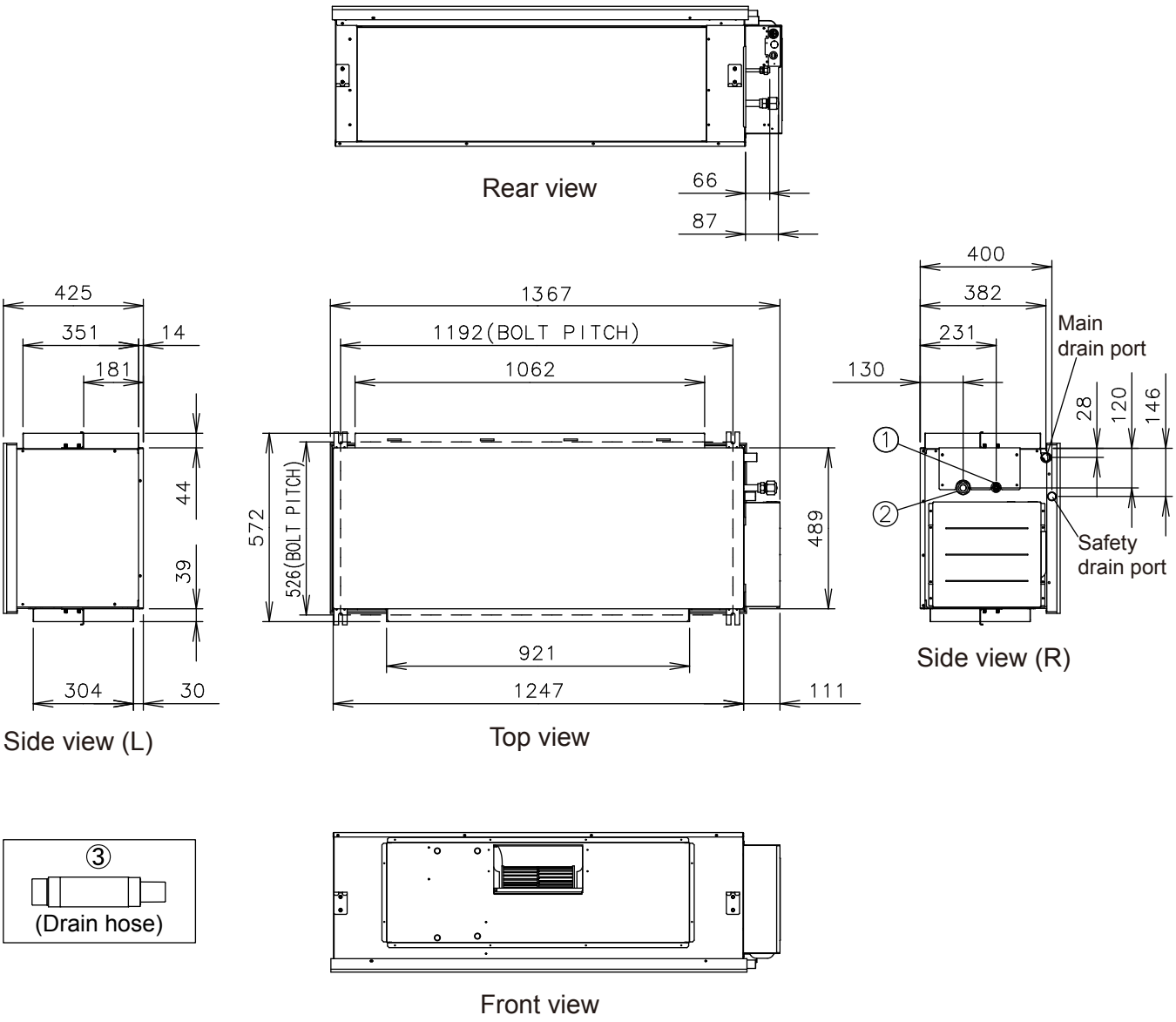
- Select cable size base on the value of total MCA of the indoor units connected. and if necessary divided the system which the total MCA of the indoor units connected must be smaller than 15 (A). The indoor units shall be connected up whthin refrigerant system.
- In order to be influenced of a breaker stop, please divide a power supply circuit for every refrigerant system.
- Please attach at least one breaker per refrigerant system.
- Please design the power supply circuit to keep the voltage drop within 2%.

OUTDOOR AIR UNIT

4. DIMENSIONS

■ MODEL : ARXH054GTAH

(Unit : mm)



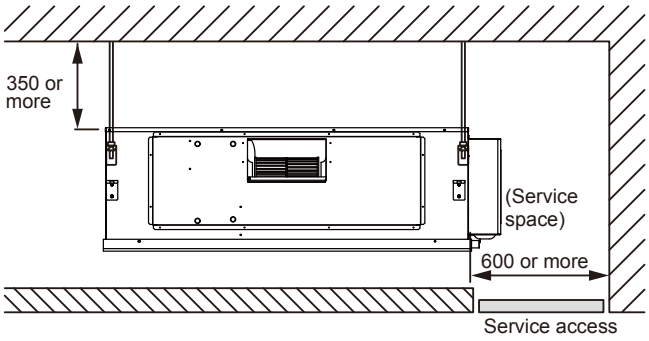
			ARXH054
①	Refrigerant pipe flare connection	Liquid	ø 9.52 mm
②		Gas	ø 19.05 mm
③	Drain hose		VP25 [ø 25mm(I.D.) ; ø 32mm(O.D.)]

OUTDOOR AIR UNIT

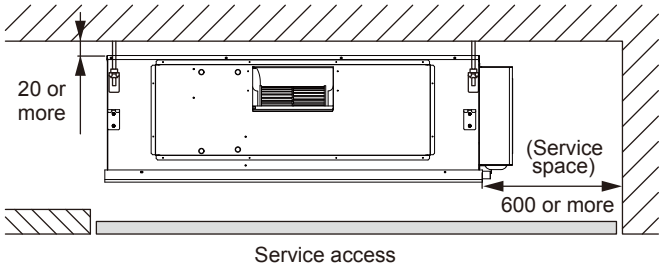
■ INSTALLATION PLACE

(Unit : mm)

Installation by which service space is made on top of the unit (recommended).



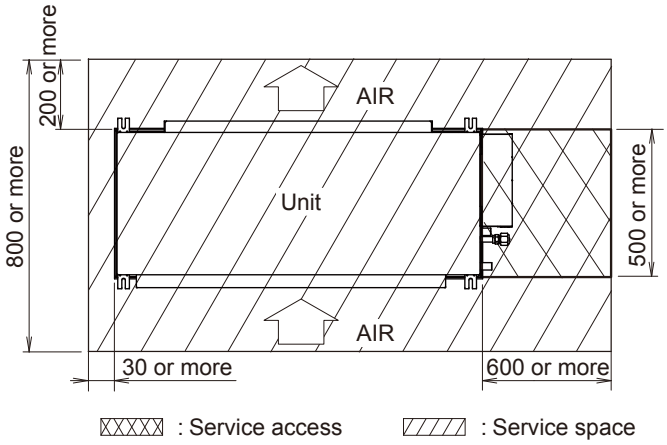
Installation by which service is carried out from the bottom of the unit.



■ MAINTENANCE SPACE

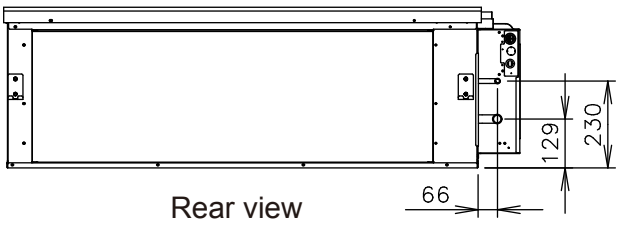
Provide a maintenance space for inspection purposes as shown below.
Do not place any wiring or illumination in the service space, as they will impede service.

(Unit : mm)

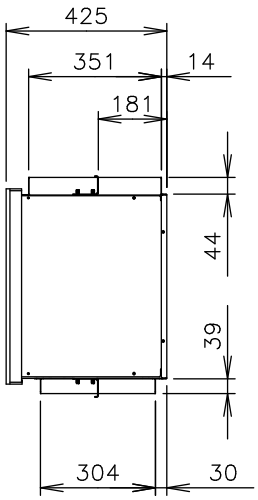


OUTDOOR AIR UNIT

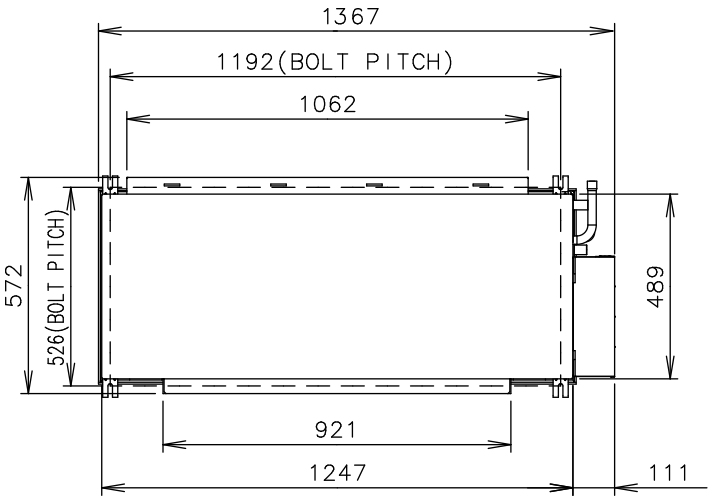
■ MODEL : ARXH072GTAH



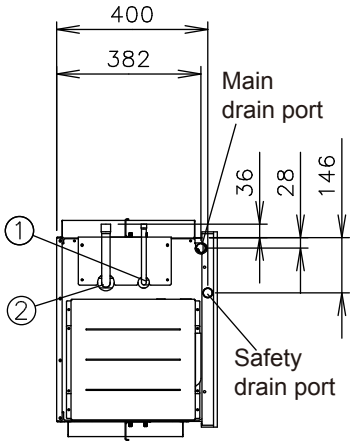
Rear view



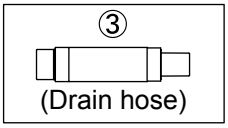
Side view (L)

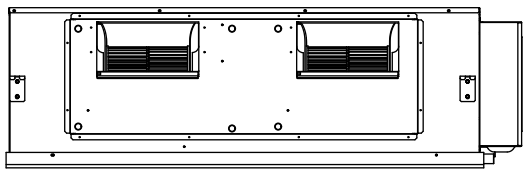


Top view



Side view (R)





Front view

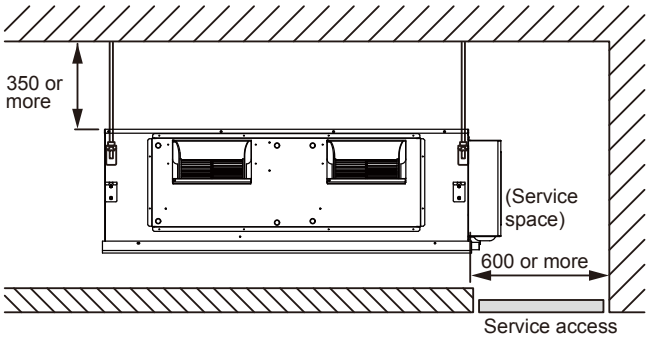
			ARXH072
①	Refrigerant pipe flare connection	Liquid	ø 12.70 mm
②		Gas	ø 22.22 mm
③	Drain hose		VP25 [ø 25mm(I.D.) ; ø 32mm(O.D.)]

OUTDOOR AIR UNIT

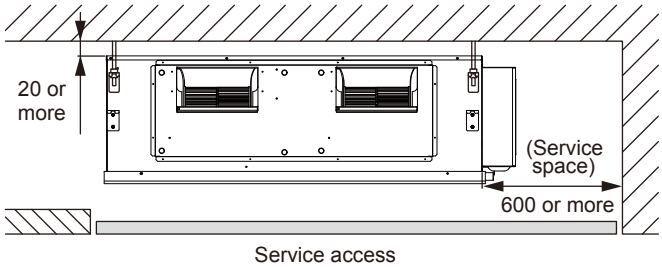
■ INSTALLATION PLACE

(Unit : mm)

Installation by which service space is made on top of the unit (recommended).



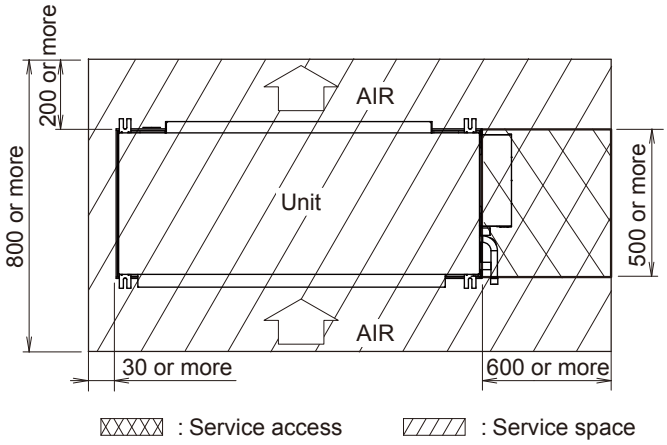
Installation by which service is carried out from the bottom of the unit.



■ MAINTENANCE SPACE

Provide a maintenance space for inspection purposes as shown below.
Do not place any wiring or illumination in the service space, as they will impede service.

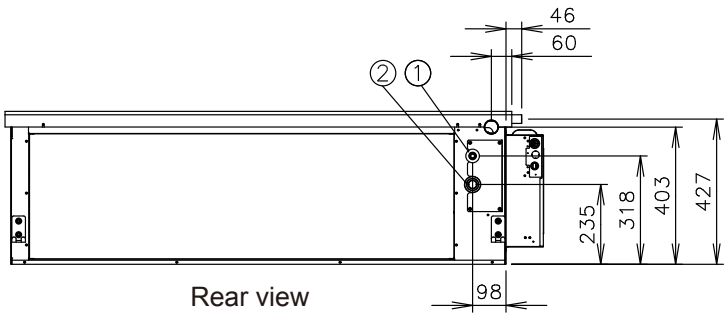
(Unit : mm)



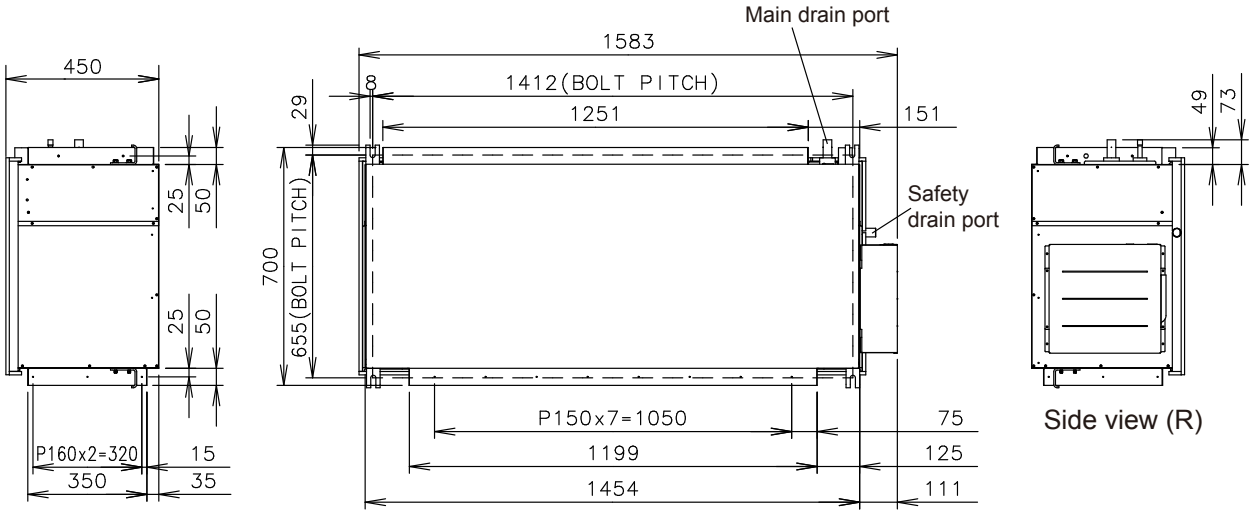
OUTDOOR AIR UNIT

■ MODEL : ARXH096GTAH

(Unit : mm)



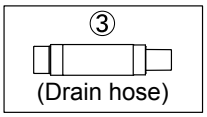
Rear view

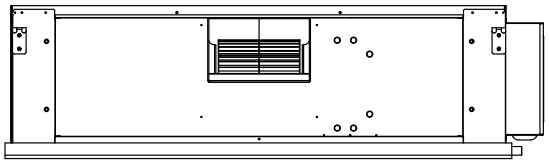


Side view (L)

Top view

Side view (R)





Front view

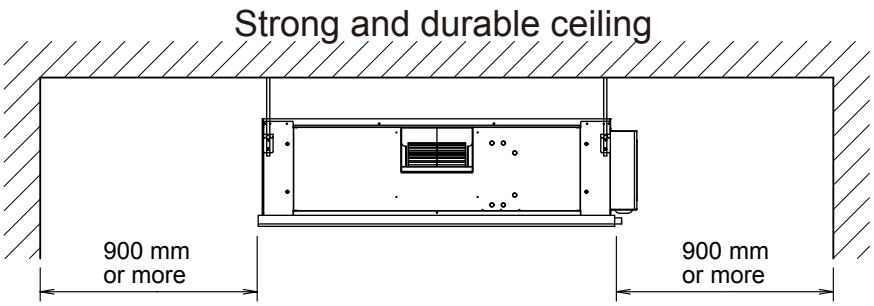
			ARXH096
①	Refrigerant pipe flare connection	Liquid	ø 12.70 mm
②		Gas	ø 22.22 mm
③	Drain hose		VP25 [ø 25mm(I.D.) ; ø 32mm(O.D.)]

OUTDOOR AIR UNIT

■ INSTALLATION PLACE

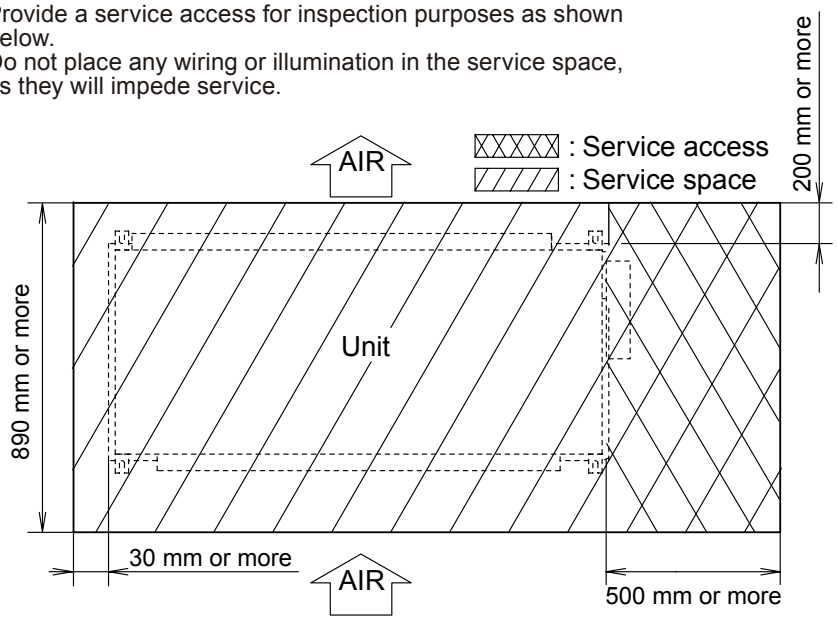
If the service space shown in the left is unavailable, provide a 900mm service space at either the left or right side of the unit.

(Unit : mm)



■ MAINTENANCE SPACE

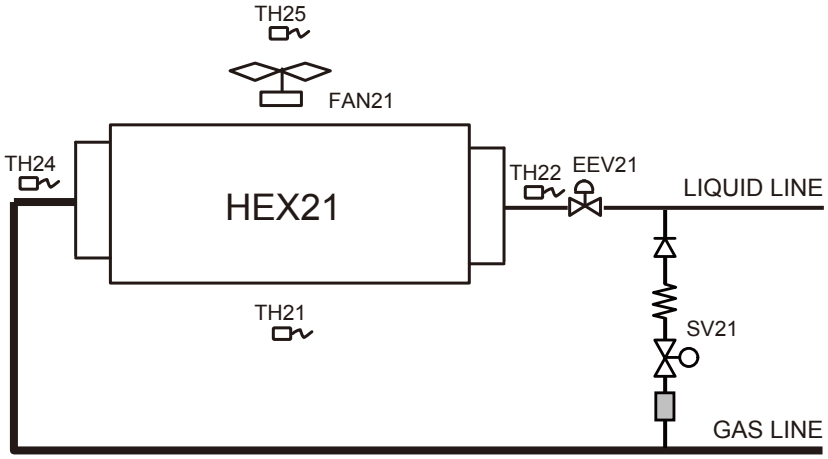
Provide a service access for inspection purposes as shown below.
Do not place any wiring or illumination in the service space, as they will impede service.



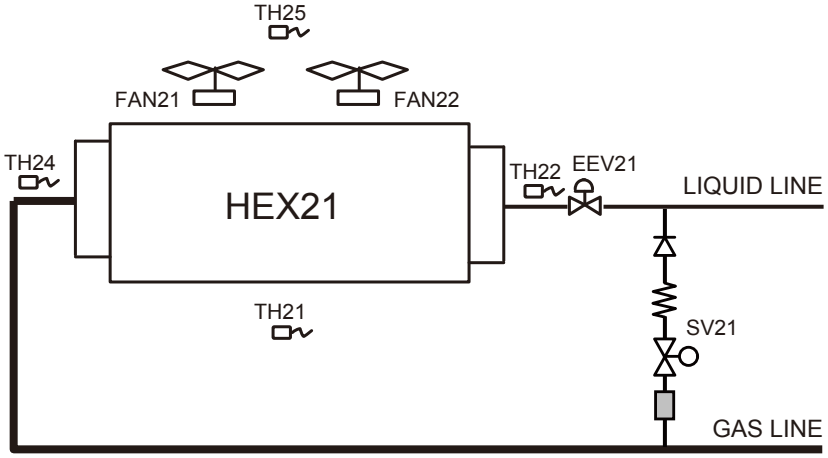
OUTDOOR AIR UNIT

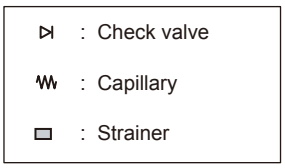
5. REFRIGERANT CIRCUIT

■ MODELS: ARXH054GTAH, ARXH096GTAH



■ MODELS: ARXH072GTAH





■ SYMBOL DESCRIPTION

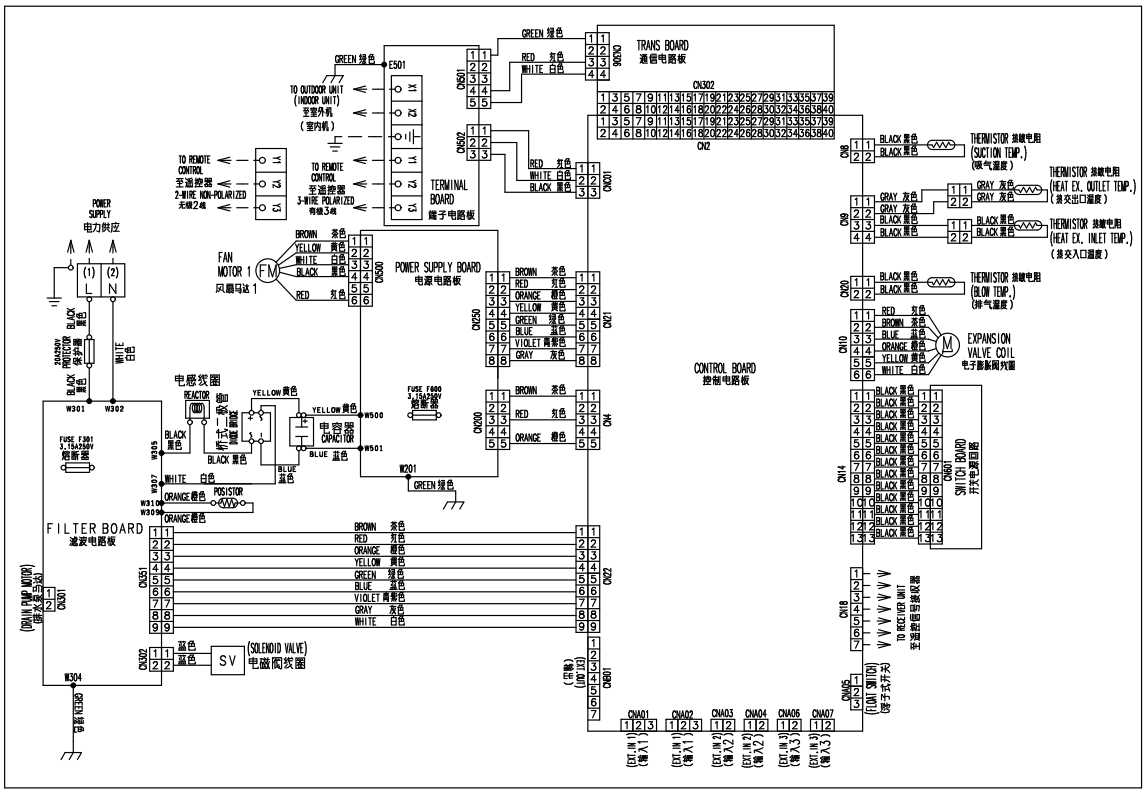
MARK	DESCRIPTION
HEX21	Heat exchanger
FAN21	Fan
FAN22	Fan
EEV21	Electric expansion valve
SV21	Solenoid valve (Bypass)
TH21	Suction airflow temperature thermistor
TH22	Heat exchanger (inlet) thermistor
TH24	Heat exchanger (outlet) thermistor
TH25	Discharge airflow temperature thermistor

OUTDOOR AIR UNIT

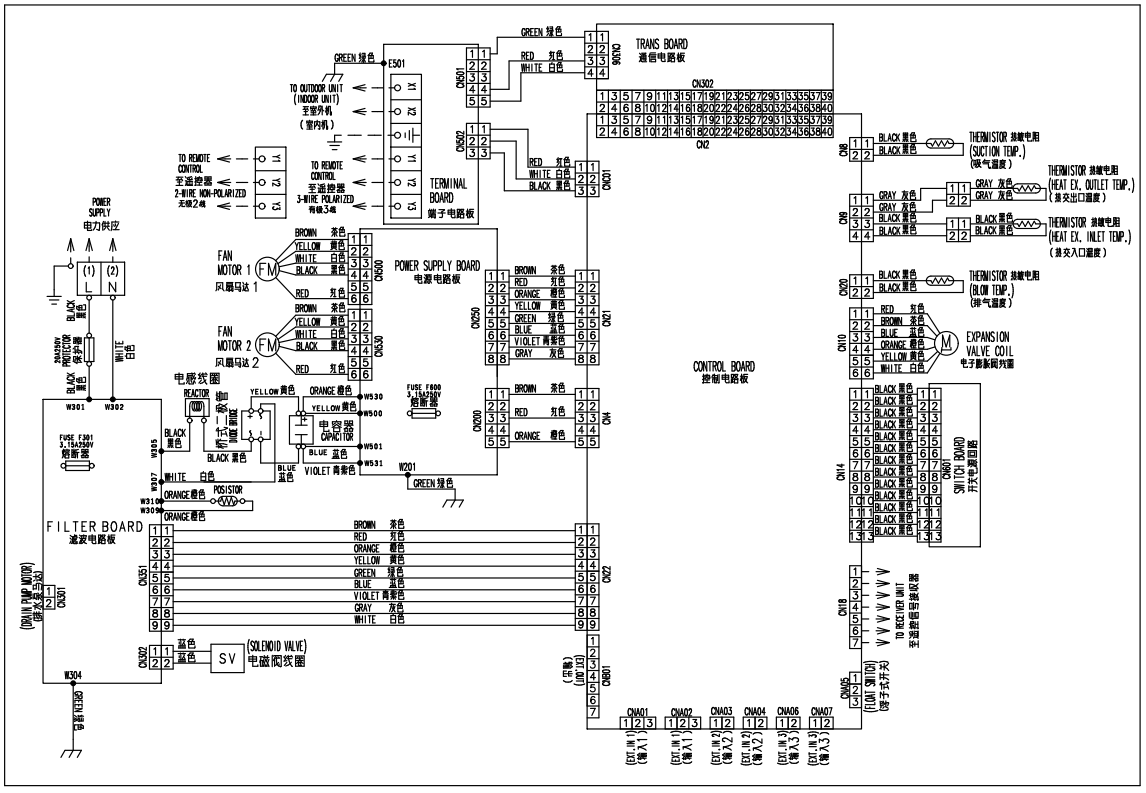
6. WIRING

6-1. WIRING DIAGRAMS

■ MODEL : ARXH054GTAH

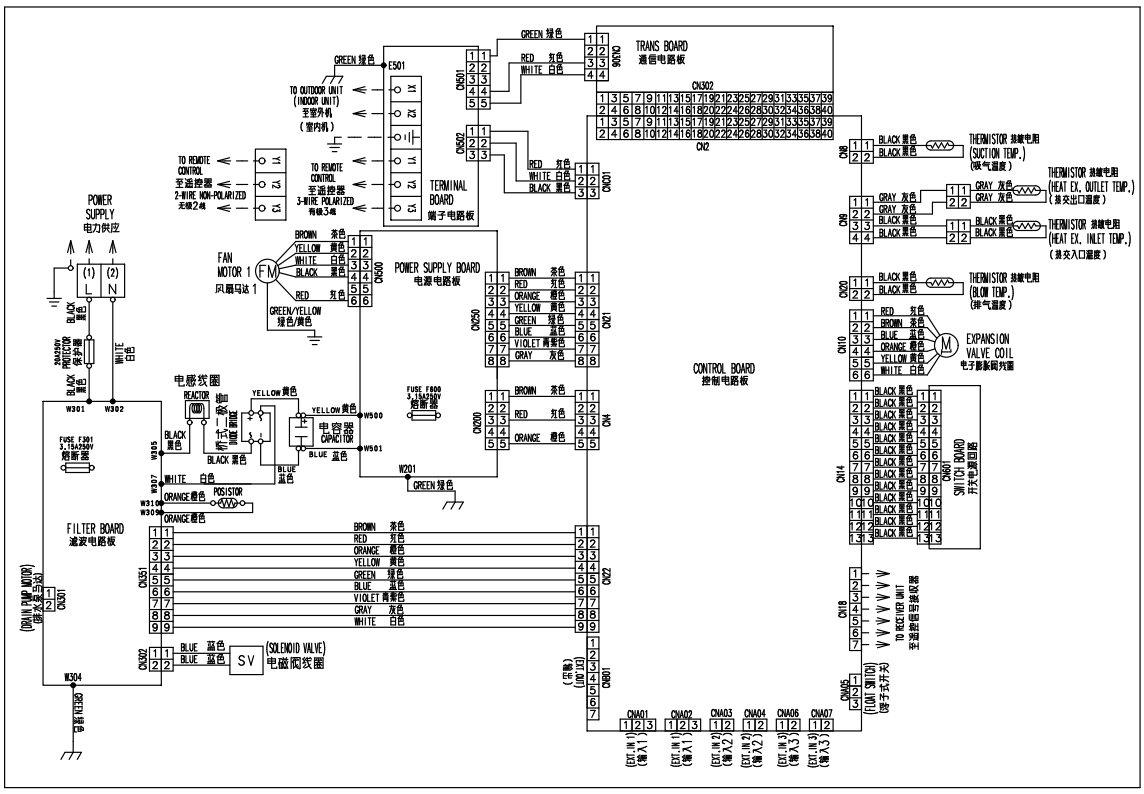


■ MODEL : ARXH072GTAH



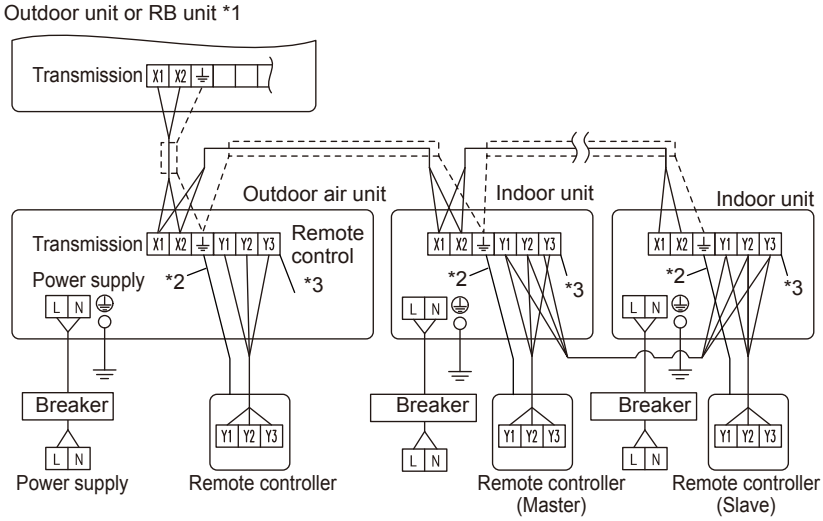
OUTDOOR AIR UNIT

■ MODEL : ARXH096GTAH



OUTDOOR AIR UNIT

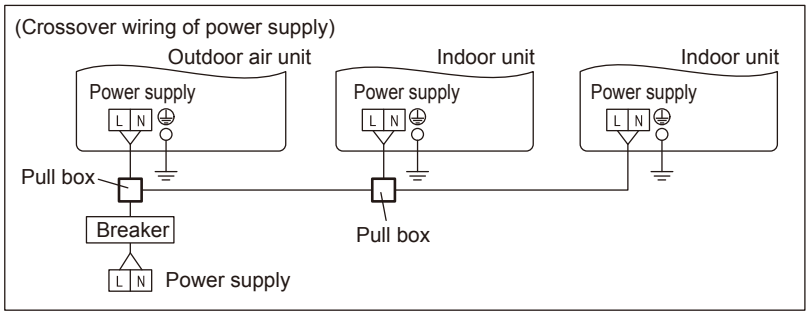
6-2. WIRING METHOD



*1: When connecting to the Heat Recovery System, refer to the installation manual of the RB unit.

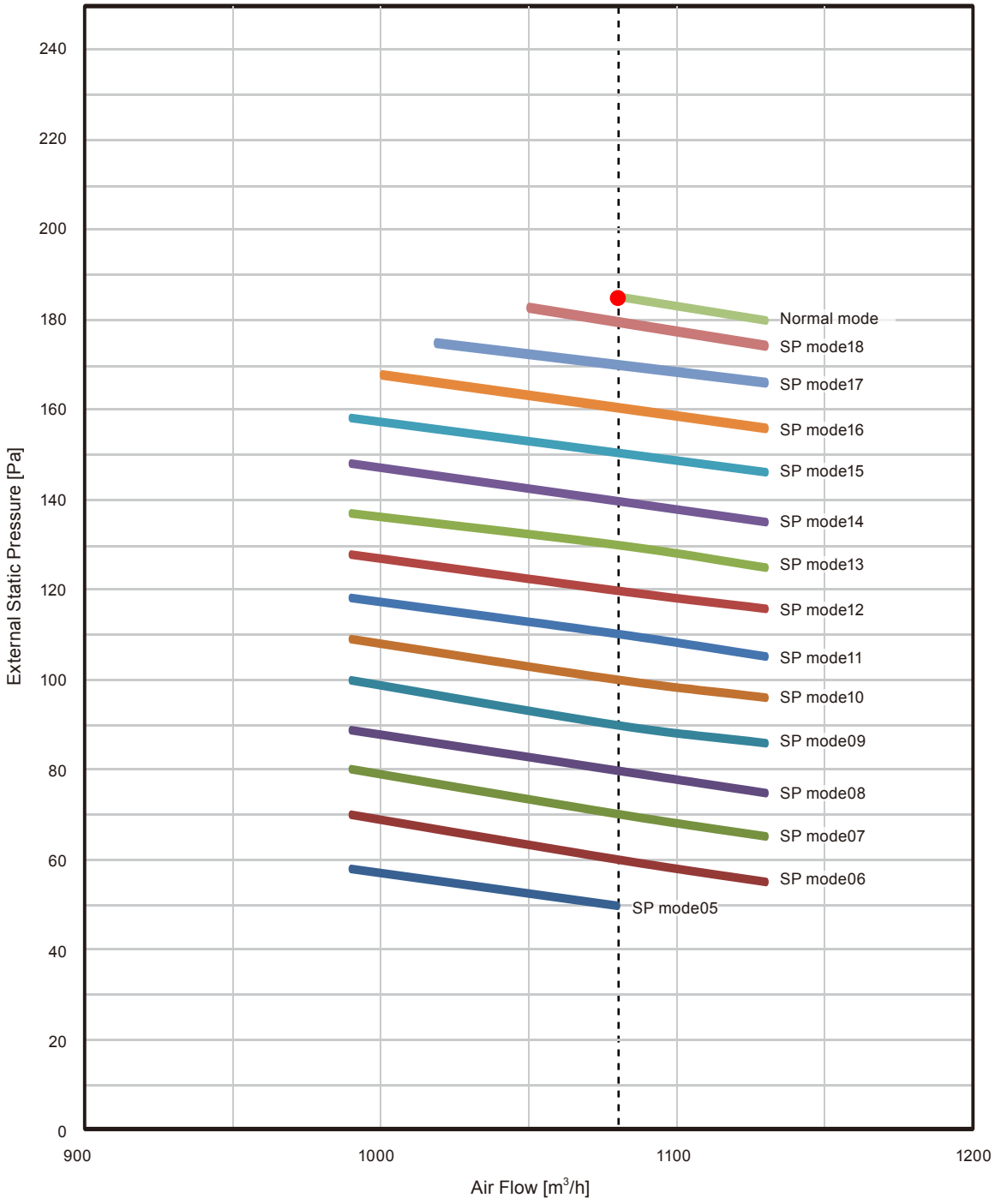
*2: Earth (Ground) the remote controller if it has a earth (ground) cable. Connect the earth (ground) cable of the remote controller to the earth (ground) terminal of transmission.

*3: When connecting the 2-wire type remote controller, Y3 is not used.



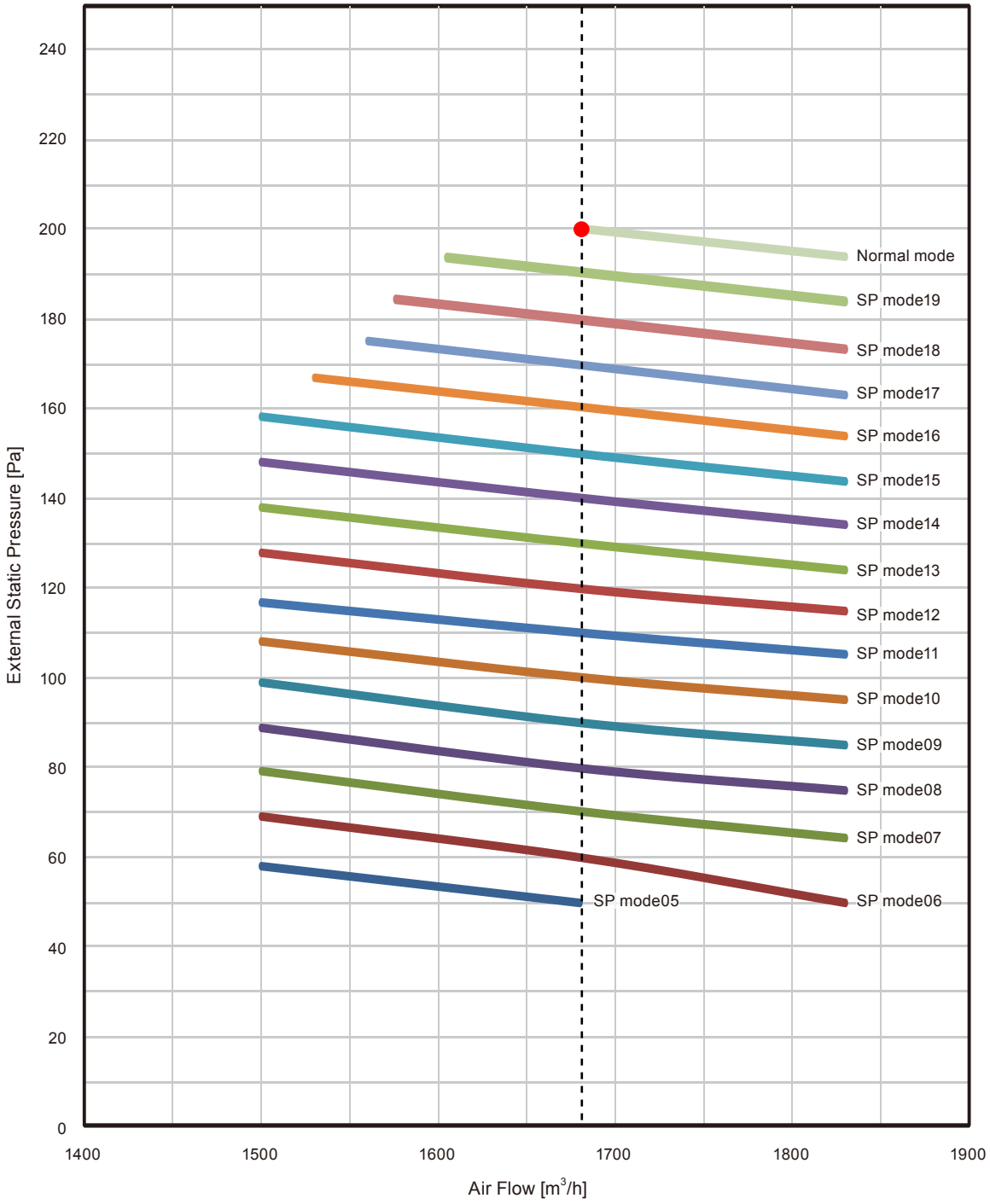
7. FAN PERFORMANCE CURVE

■ MODEL : ARXH054GTAH



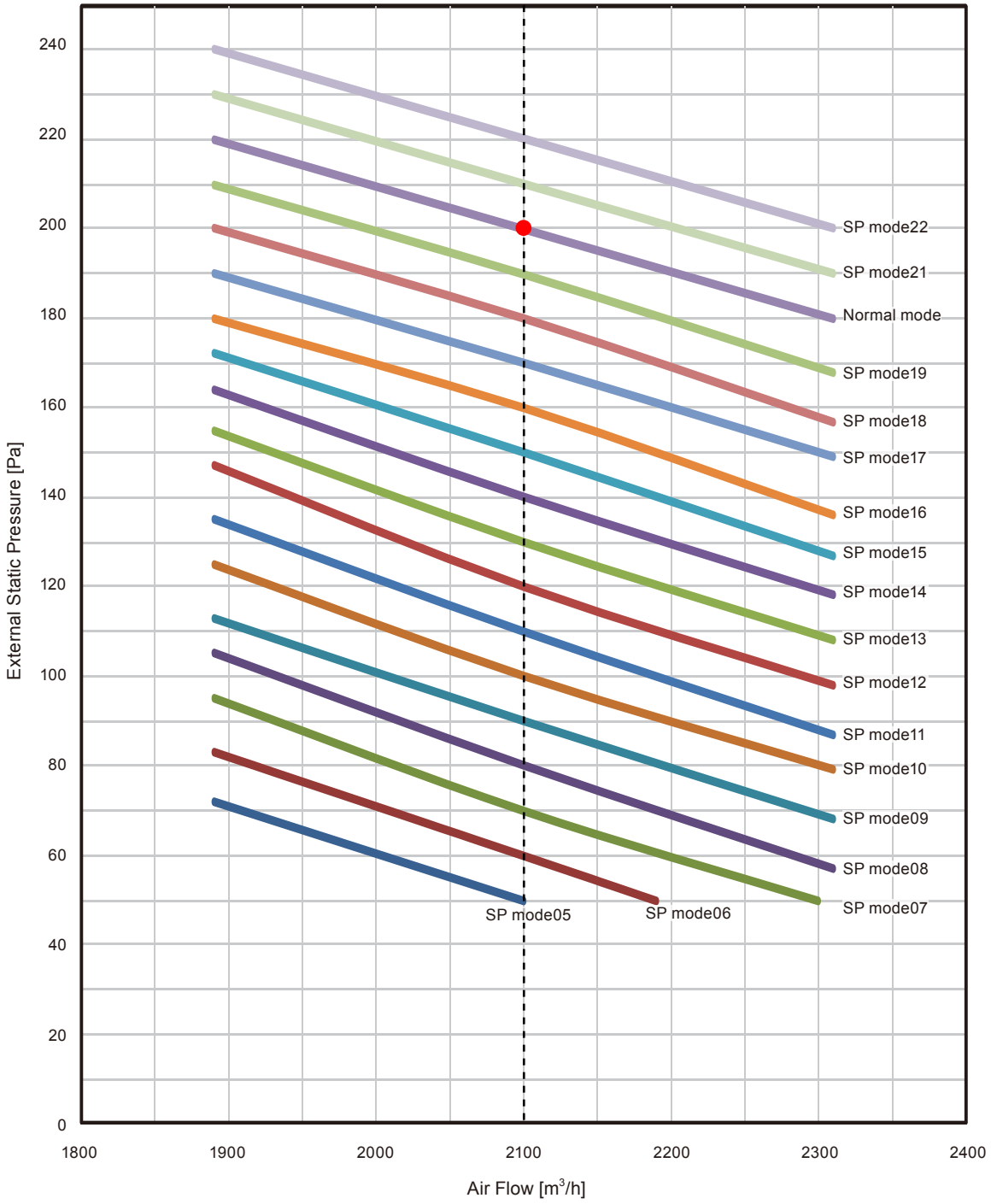
OUTDOOR AIR UNIT

■ MODEL : ARXH072GTAH



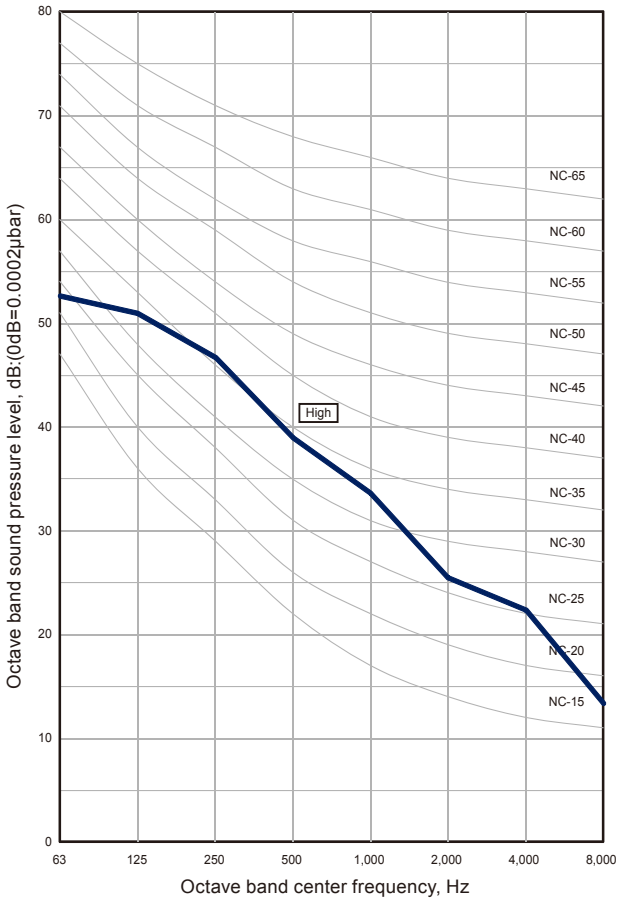
OUTDOOR AIR UNIT

■ MODEL : ARXH096GTAH

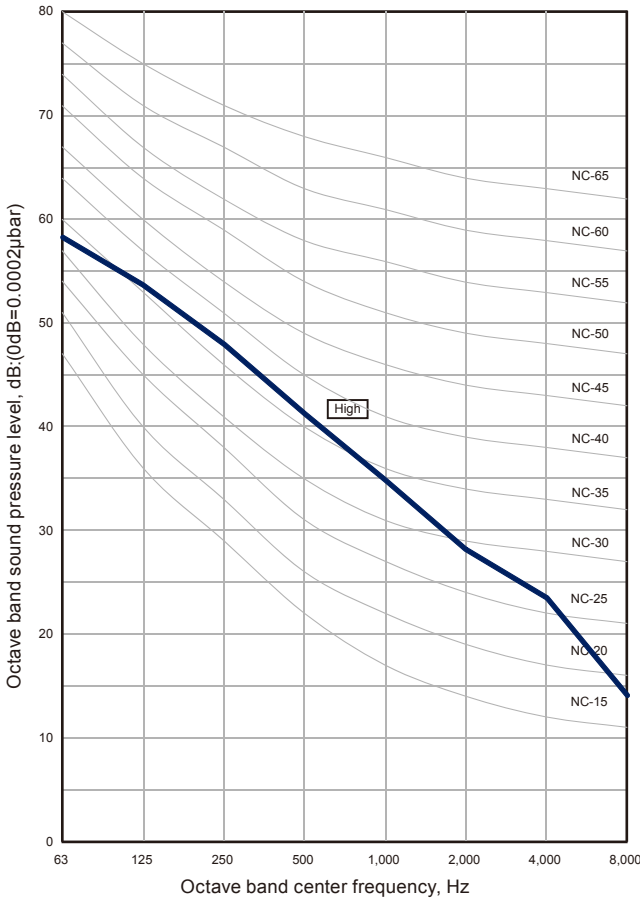


8. NOISE LEVEL CURVE

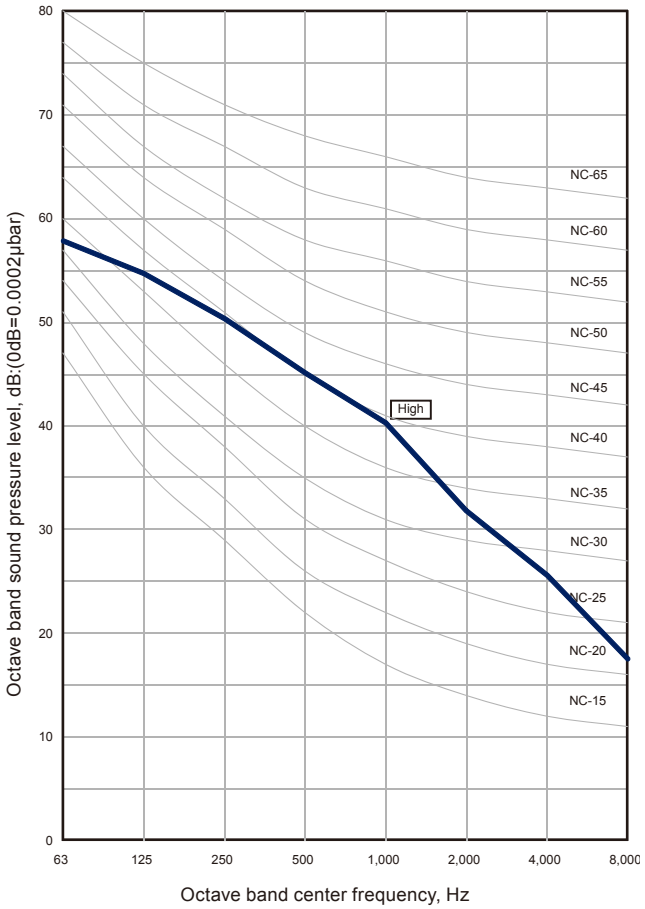
■ MODEL : ARXH054GTAH



■ MODEL : ARXH072GTAH

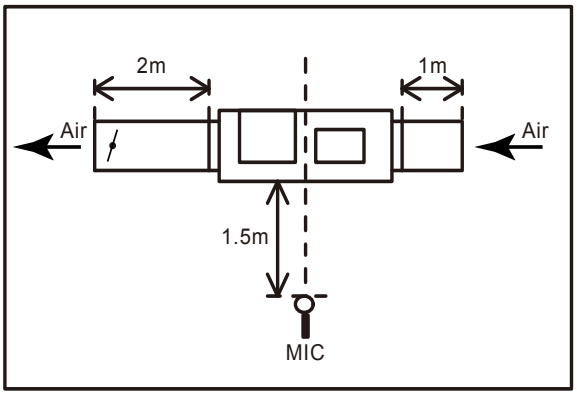


■ MODEL : ARXH096GTAH



OUTDOOR AIR UNIT

■ SOUND LEVEL CHECK POINT



OUTDOOR AIR UNIT

9. SAFETY DEVICES

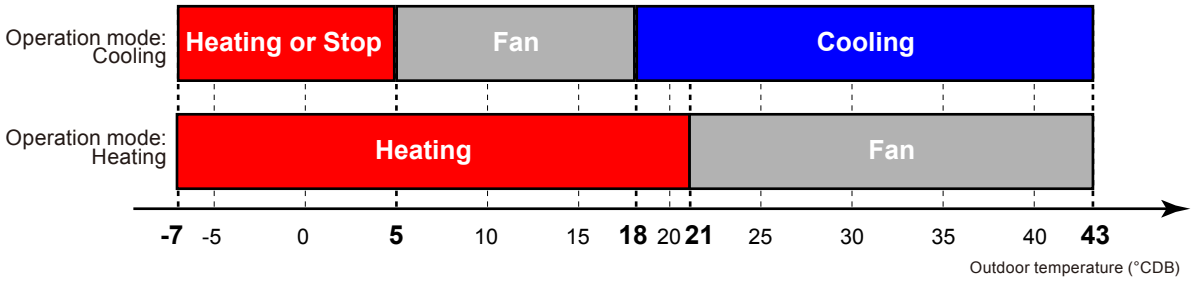
Model	Protector	Fuse	Fan motor thermal protector	Terminal thermal fuse	Float switch
ARXH054GTAH	250 V 20 A	250 V 3.15 A	115 ± 15 °C OFF 70 °C ON	—	—
ARXH072GTAH					
ARXH096GTAH			100 + 15 / - 10 °C OFF 95 + 15 / - 10 °C ON		

*1) Fuse for fan motor.

OUTDOOR AIR UNIT

10. OPERATION LIMIT

■ MODELS : ARXH054GTAH, ARXH072GTAH, ARXH096GTAH

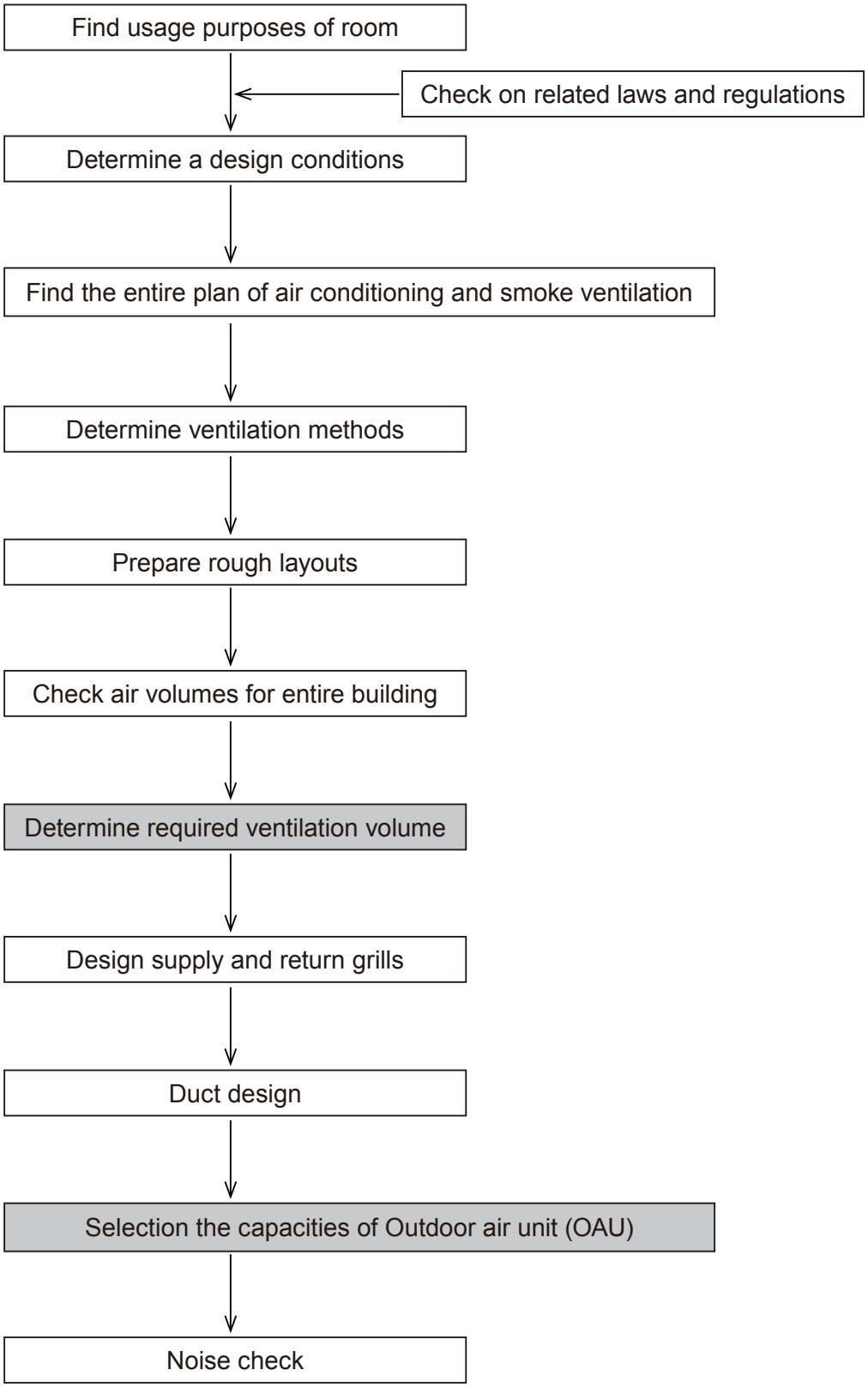


Operation mode	Details
Cooling	When the intake air temperature is under 18°C, the unit will turn the thermostat off. If the intake air temperature is under 5°C, the unit will force start heating operation. *If the heating operation cannot be started, the unit will conduct protective stop (Thermostat off, Fan off) to prevent frost and so on.
Heating	When the intake air temperature is over 21°C, the unit will turn the thermostat off. If the intake air temperature is under -7°C, the unit will conduct protective stop (Thermostat off, Fan off). *When operating conditions are under -7°C, pretreat the air by installing a heater in front of the air intake opening.
Fan	If the intake air temperature is under 5°C, the unit will force start heating operation. *If the heating operation cannot be started, the unit will conduct protective stop (Thermostat off, Fan off) to prevent frost and so on.

NOTE: intake air temperature = outdoor temperature.
When connecting J-II series, the upper-limit temperature of cooling operation becomes 40°C.

OUTDOOR AIR UNIT

11. MODEL SELECTION



OUTDOOR AIR UNIT

11-1. CALCULATION METHOD ON REQUIRED VENTILATION VOLUME

The method to find the required ventilation volume differs depending on the room type and use. It can be, however, largely divided as follows.

(1) Method based on the Building Code

(2) Method calculated from the required ventilation numbers of room

(3) Method calculated from the room capacity (people)

etc.

The largest air volume among the these methods above is determined as" Required Ventilation Volume".

(1) Method based on the Building Code
(When the number of people in the room is undetermined)

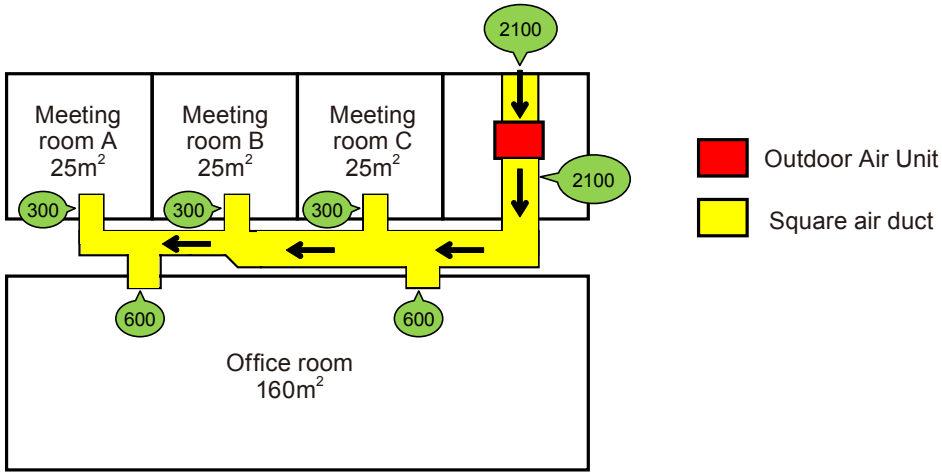
•Ventilation amount required per person: 30m^3/h

•Area occupied per person: Office room : 4m^2
Meeting room : 2.5m^2

$$\text{Required ventilation volume}(m^3/h) = \frac{30m^3/h \times \text{Room floor space } (m^2)}{\text{Area occupied per person } (m^2)}$$

ASHRAE standard ;
Standard 62.1 – Ventilation for Acceptable Indoor Air Quality
Standard 62.2 - Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings
Standard 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings

E.g.)



$$\text{Required ventilation volume of Meeting room A-C} = \frac{30\ (m^3/h) \times 25\ (m^2)}{2.5\ (m^2)} = 300\ (m^3/h)$$

$$\text{Required ventilation volume of Office room} = \frac{30\ (m^3/h) \times 160\ (m^2)}{4\ (m^2)} = 1200\ (m^3/h)$$

Total required ventilation volume: 300 X 3 + 1200 = 2100 (m^3/h)

OUTDOOR AIR UNIT

(2) Method calculated from the required ventilation numbers of room

Required ventilation volume(m^3/h) = Required ventilation numbers per hour (Times/h) x Room volume (m^3)

E.g.

-Location : libraries

-Required ventilation numbers (Time/h): 5time/h

-Room size : Floor space 30 m^2

Ceiling height : 2.5 m

Room volume : 30×2.5=75 m^3

-Required ventilation volume : 5×75=375 m^3/h

(3) Method calculated from the room capacity (people)
(When the number of people in the room is determined)

Required ventilation volume(m^3/h) = 30(m^3/h) x Number of people

E.g.

-Location : Meeting room

-Capacity (people) : 30 people

-Required ventilation volume : 30×30=900 m^3/h

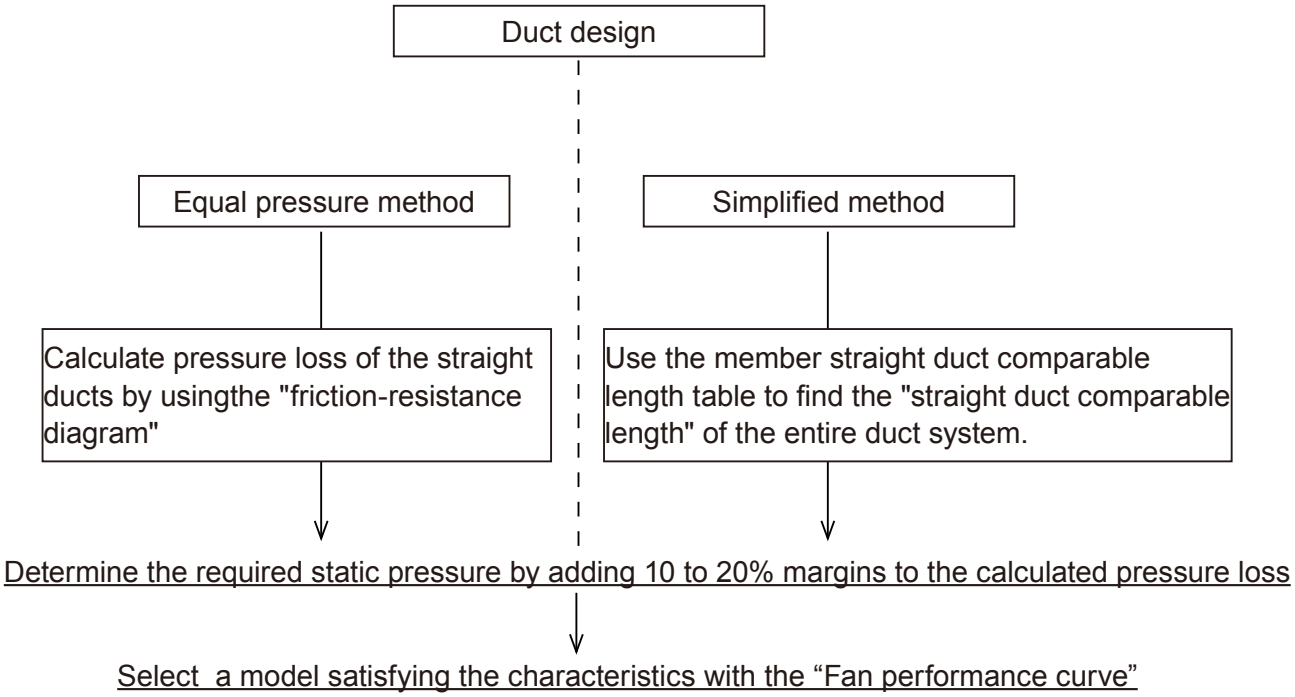
OUTDOOR AIR UNIT

11-2. SELECTION PROCEDURE ON OUTDOOR AIR UNIT (OAU)

■ THE CALCULATION FOR EXTERNAL STATIC PRESSURE

There are two methods for duct design: equal pressure method and simplified method.

Accurately calculate the duct length, number of bends, and outside installed member pressure loss.

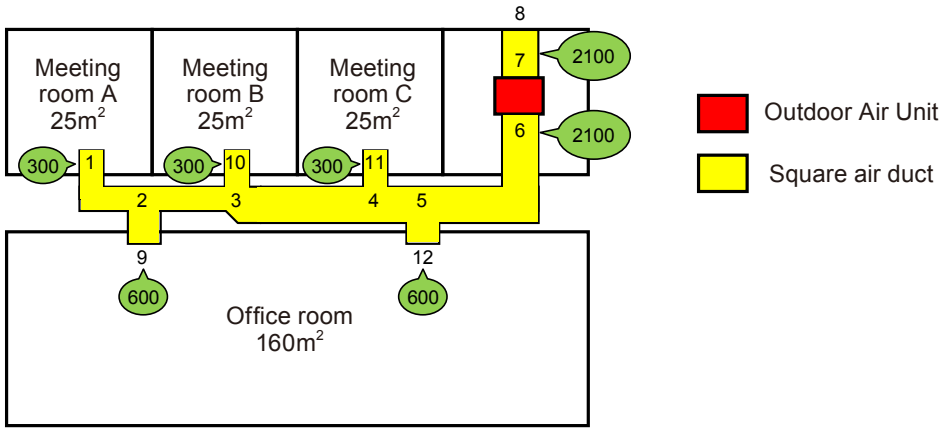


OUTDOOR AIR UNIT

Calculate the duct's resistance value and determines the required static pressure.

(Use the equal pressure method)

E.g.)



1-2: air volume = 300m^3/h, air velocity =3.4 m/s, cross section = 0.028m^2 (100cm×280cm)

2-9: air volume = 600m^3/h, air velocity =3.0 m/s, cross section = 0.056m^2 (160cm×350cm)

2-3: air volume = 900m^3/h, air velocity =4.9 m/s, cross section = 0.056m^2 (160cm×350cm)

3-4: air volume =1200m^3/h, air velocity =4.8 m/s, cross section = 0.08m^2 (160cm×500cm)

4-5: air volume =1500m^3/h, air velocity =6.0 m/s, cross section = 0.08m^2 (160cm×500cm)

5-6: air volume =2100m^3/h, air velocity =6.5 m/s, cross section = 0.1m^2 (200cm×500cm)

7-8: air volume =2100m^3/h, air velocity =1.9 m/s , cross section = 0.35m^2 (350cm×1000cm)

Conduct the duct static pressure calculation for the area with the largest pressure loss.

For the example, calculate it using the path 1-2-3-4-5-6-7-8.

The duct resistance differs depending on whether or not it is close to the fan, so a damper, etc., must be used to adjust the air volume.

OUTDOOR AIR UNIT

1. Straight duct (round) pressure loss

$$\text{Duct resistance } \Delta P \text{ (Pa)} = \lambda \times \frac{L}{d} \times \frac{\rho v^2}{2} \text{ [Pa/m]}$$

λ: Duct pipe coefficient of friction (0.01-0.25)
d: Duct diameter [m]
P: Air density ≒ 1.2 [kg/m^3@20℃]
L: Duct length [m]
v: Air velocity in duct [m/s]
Zinc plated steel pipe λ=0.016 to 0.025 (Reference value)

2. Round duct ↔ Square duct conversion

$$d=1.3\{((a \times b)^5 (a + b)^2)\}^{1/8} \text{ [m/cm/mm]}$$

d: Comparable diameter
a: Length of one side of rectangle
b: Length of other side of rectangle

3. Duct local pressure loss

(1) Local coefficient of loss

$$\Delta P = \zeta \times \frac{\rho v^2}{2} = \zeta \cdot Pv \text{ [Pa]}$$

ζ: Bend coefficient of loss
v: Air velocity [m/s]
P: Air density ≒ 1.2 [kg/m^3@20℃]
Pv: Dynamic pressure [pa]

(2) Duct local pressure loss calculation

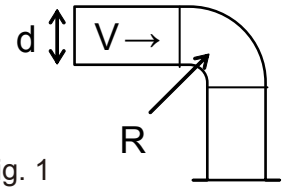


Fig. 1

Condition: $\frac{R}{d}$ = 1.5, v=5 [m/s]

ζ = 0.15
Pv = 15
ΔP = 0.15 x 15 = 2.25 [Pa]

The static pressure between 1-2-3-4-5-6-7-8 is about 60 Pa

OUTDOOR AIR UNIT

4. Pressure loss at supply and inlet grilles

Check the pressure loss value in the product specifications as it differs depending on shapes.

External static pressure = (60 + 10 + 10 + 10) x 1.1 ≒ 100 Pa

[External static pressure = (Static pressure + Inlet grille + Outlet grille + Filter) x Safety ratio]

Required condition for OAU

- ●Required ventilation volume: 2100 m^3/h
- ●External static pressure : 100 Pa

FGL Outdoor Air Unit line up

ARXH054GTAH	ARXH072GTAH	ARXH096GTAH
1080 m^3/h	1680 m^3/h	2100 m^3/h
50 - 185 Pa	50 - 200 Pa	50 - 240 Pa

Refer to the fan performance curve to determine a capacity of OAU.

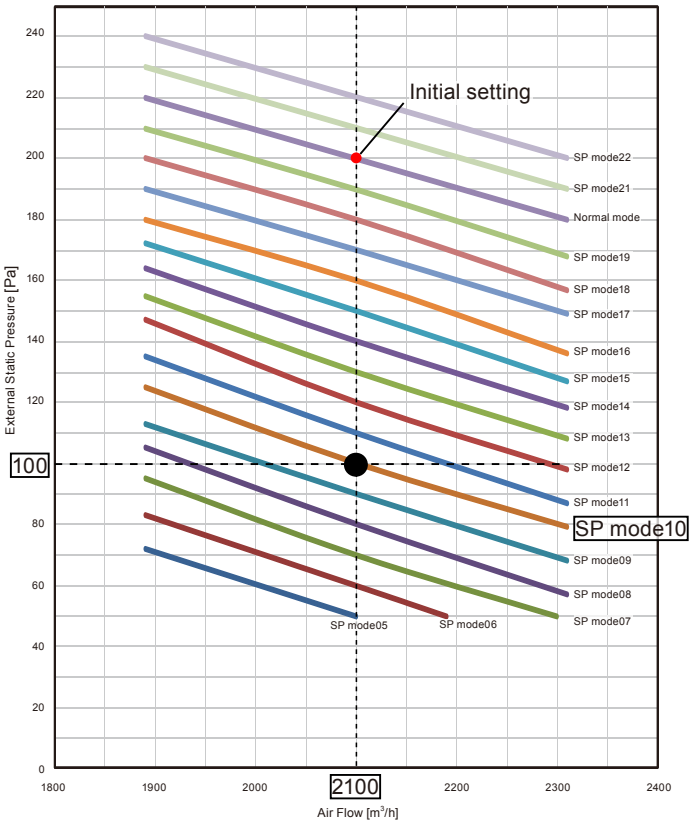
OUTDOOR AIR UNIT

●Required ventilation volume: 2100 m^3/h
●External static pressure : 100 Pa

Select “ARXH096GTAH”
And set “SP mode 10”

Set the static pressure setting (F26) to “10 for the indoor unit local setting."

*When set to SP mode:00 - 04,
it becomes the static pressure setting of 05.
*When set to SP mode:23,
it becomes the static pressure setting of 22.



■ CONCLUSION

●The required ventilation volume differs depending on the number of people in the room even if the room is used for the same purpose.

●Refer to the related regulations, because the method for finding the ventilation volume differs depending on the room application.

●The remote controller must be used to set the static pressure after the OAU is installed. Do not forget to set this.

OUTDOOR AIR UNIT

12. CAPACITY TABLE

■ MODEL : ARXH054GTAH

[Unit: kW]

● Cooling

Outdoor temperature	°C WB							
°C DB	15.0	17.0	20.0	23.0	26.0	28.0	30.0	32.0
20.0	3.6	3.8						
22.0	3.6	3.8	5.1					
25.0	3.6	3.8	5.1	6.8				
27.0		3.8	5.1	6.7				
29.0			5.1	6.7	11.0			
31.0			5.0	6.6	10.9	14.1		
33.0			5.0	6.5	10.8	14.0	17.6	
35.0				6.4	10.7	13.9	17.5	21.5

● Heating

Outdoor temperature	°C WB									
°C DB	-8.0	-5.2	-2.9	0.0	2.0	4.0	6.0	10.0	14.0	20.0
-7.0	11.6	11.6								
0.0			8.9							
3.0			7.9	7.9	7.9					
7.0					6.4	6.4	6.4			
11.0						5.0	5.0	5.0		
15.0							3.6	3.6	3.6	
21.0								1.4	1.4	1.4

■ MODEL : ARXH072GTAH

[Unit: kW]

● Cooling

Outdoor temperature	°C WB							
°C DB	15.0	17.0	20.0	23.0	26.0	28.0	30.0	32.0
20.0	5.7	6.1						
22.0	5.7	6.1	8.2					
25.0	5.7	6.1	8.2	10.8				
27.0		6.1	8.1	10.7				
29.0			8.1	10.6	17.6			
31.0			8.0	10.5	17.4	22.6		
33.0			8.0	10.3	17.3	22.4	28.1	
35.0				10.2	17.1	22.2	28.0	34.2

● Heating

Outdoor temperature	°C WB									
°C DB	-8.0	-5.2	-2.9	0.0	2.0	4.0	6.0	10.0	14.0	20.0
-7.0	18.0	18.0								
0.0			13.9							
3.0			12.2	12.2	12.2					
7.0					10.0	10.0	10.0			
11.0						7.8	7.8	7.8		
15.0							5.6	5.6	5.6	
21.0								2.3	2.3	2.3

NOTES: 1) The data is based on the following conditions:
Air discharge temperature setting: 18 °C for cooling operation / 25 °C for heating operation.
Pipe length: 7.5 m, Height difference: 0 m.

2) According to the combination with the outdoor unit or the operating condition, the capacity varies in cooling operation at high outdoor temperature or in heating operation at low outdoor temperature.

3) Value written in shaded row indicates the rated capacity.

OUTDOOR AIR UNIT

■ MODEL : ARXH096GTAH

[Unit: kW]

● Cooling

Outdoor temperature	°C WB							
°C DB	15.0	17.0	20.0	23.0	26.0	28.0	30.0	32.0
20.0	7.1	7.6						
22.0	7.1	7.6	10.2					
25.0	7.1	7.6	10.2	13.5				
27.0		7.6	10.1	13.4				
29.0			10.1	13.3	22.0			
31.0			10.0	13.1	21.8	28.2		
33.0			10.0	12.9	21.6	28.0	35.1	
35.0				12.8	21.4	27.8	35.0	42.7

● Heating

Outdoor temperature	°C WB									
°C DB	-8.0	-5.2	-2.9	0.0	2.0	4.0	6.0	10.0	14.0	20.0
-7.0	22.5	22.5								
0.0			17.4							
3.0			15.4	15.4	15.4					
7.0					12.6	12.6	12.6			
11.0						9.8	9.8	9.8		
15.0							7.0	7.0	7.0	
21.0								2.8	2.8	2.8

NOTES: 1) The data is based on the following conditions:
Air discharge temperature setting: 18 °C for cooling operation / 25 °C for heating operation.
Pipe length: 7.5 m, Height difference: 0 m.

2) According to the combination with the outdoor unit or the operating condition, the capacity varies in cooling operation at high outdoor temperature or in heating operation at low outdoor temperature.

3) Value written in shaded row indicates the rated capacity.

OUTDOOR AIR UNIT

13. SYSTEM DESIGN

13-1. REFRIGERANT SYSTEM

■ CONNECTABLE OUTDOOR UNIT LINE UP

Outdoor unit	Outdoor air unit			Remarks
	ARXH054	ARXH072	ARXH096	
VR-II series	○	○	○	Connection is possible.
V-II series	○	○	○	Connection is possible.
J-II series *1	○ *2	×	×	Connection is possible.(Only ARXH054)
J-IIS series	○ *3	×	×	Connection is possible.(Only ARXH054)

*1: When connecting J-II series, the upper-limit temperature of cooling operation becomes 40°C.
*2: The Outdoor unit “AJ*A36 (11.2kW) model” and “AJ*A40 (12.1kW) model” can not be connected.
*3: The Outdoor unit “AJ*040 (12.1kW) model” can not be connected.

■ CONNECTABLE UNIT WITHIN 1 REFRIGERANT SYSTEM

Unit	Connectable cooling capacity range	Remarks
Only Outdoor air unit	50% to 100%	-
Outdoor air unit + Indoor unit	50% to 100%	The capacity of "Outdoor air unit" should be **less than 30%** of the outdoor unit capacity.

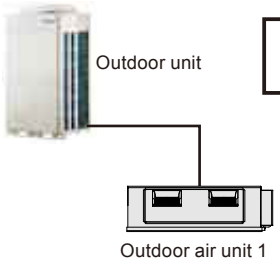
- The total capacity of “Outdoor air unit” + “Indoor unit” should be 50% to 100% of outdoor unit cooling capacity. (In case of using only “Outdoor air unit”, it is same.)
- The capacity of “Outdoor air unit” should be less than 30% of the outdoor unit capacity.
- Only Outdoor air unit is available to up to 48HP in VR-II and V-II.

OUTDOOR AIR UNIT

13-1-1. EXAMPLE OF REFRIGERANT SYSTEM

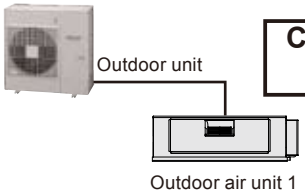
■ HEAT PUMP TYPE

● Example 1 (OK)



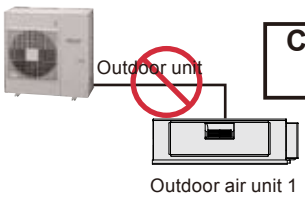
	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*A72L	22.4	22.4	② 50% 11.2	③ 100% 22.4	②≤ ①≤ ③ 11.2 < 22.4 ≤ 22.4 → OK
Outdoor air unit 1	ARXH072	22.4	① 22.4			

● Example 2 (OK)



	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit (J-IIS)	AJ*045L	14.0	14.0	② 50% 7.0	③ 100% 14.0	②≤ ①≤ ③ 7.0 < 14.0 ≤ 14.0 → OK
Outdoor air unit 1	ARXH054	14.0	① 14.0			

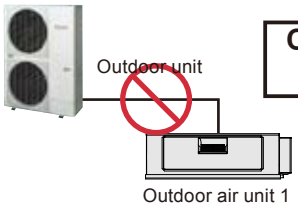
● Example 3 (Prohibited)



	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit (J-IIS)	AJ*040L	12.1	12.1	② 50% 6.1	③ 100% 12.1	③<① 12.1 < 14.0 → Prohibited
Outdoor air unit 1	ARXH054	14.0	① 14.0			

OUTDOOR AIR UNIT

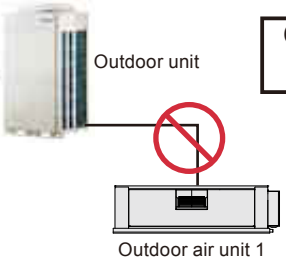
● Example 3 (Prohibited)



Capacity ratio 116%

	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit (J-II)	AJ*A40L	12.1	12.1	② 50% 6.1	③ 100% 12.1	③<① 12.1 < 14.0 → Prohibited
Outdoor air unit 1	ARXH054	14.0	① 14.0			

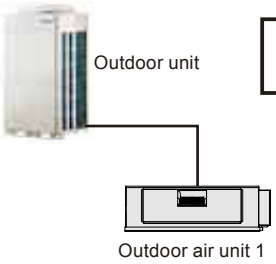
● Example 4 (Prohibited)



Capacity ratio 125%

	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*A72L	22.4	22.4	② 50% 11.2	③ 100% 22.4	③<① 22.4 < 28.0 → Prohibited
Outdoor air unit 1	ARXH096	28.0	① 28.0			

● Example 5 (OK)

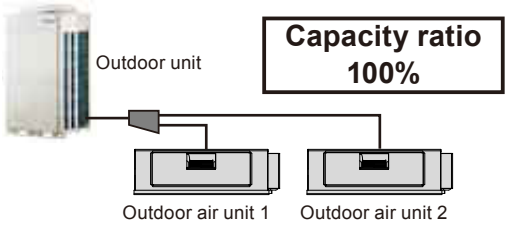


Capacity ratio 63%

	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*A72L	22.4	22.4	② 50% 11.2	③ 100% 22.4	②≤ ①≤ ③ 11.2 < 14.0 < 22.4 → OK
Outdoor air unit 1	ARXH054	14.0	① 14.0			

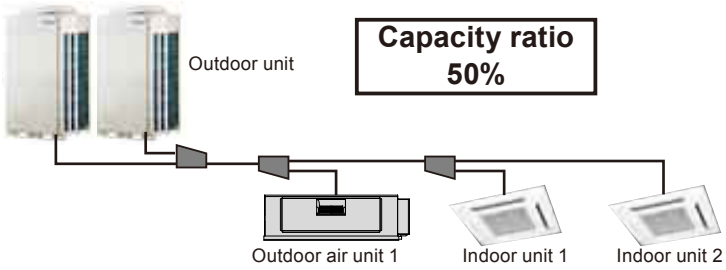
OUTDOOR AIR UNIT

● Example 6 (OK)



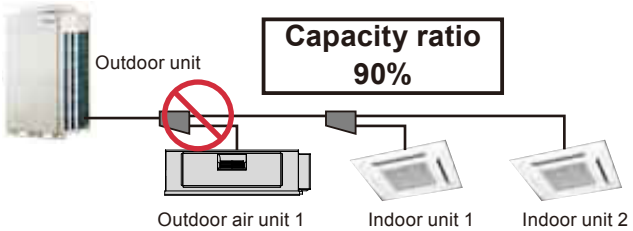
	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*A90L	28.0	28.0	② 50% 14.0	③ 100% 28.0	②≤ ①≤ ③ 14.0 < 28.0 ≤ 28.0 → OK
Outdoor air unit 1	ARXH054	14.0	① 28.0			
Outdoor air unit 2	ARXH054	14.0				

● Example 7 (OK)



	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*162L	50.4	50.4	② 50% 25.2	③ 100% 50.4	②≤ ①≤ ③ 25.2 ≤ 25.2 < 50.4 → OK Capacity ratio of O.A.U. is 14.0/50.4=28% ≤ 30%→ OK
Outdoor air unit 1	ARXH054	14.0	① 25.2			
Indoor unit 1	AUXB18	5.6				
Indoor unit 2	AUXB18	5.6				

● Example 8 (Prohibited)

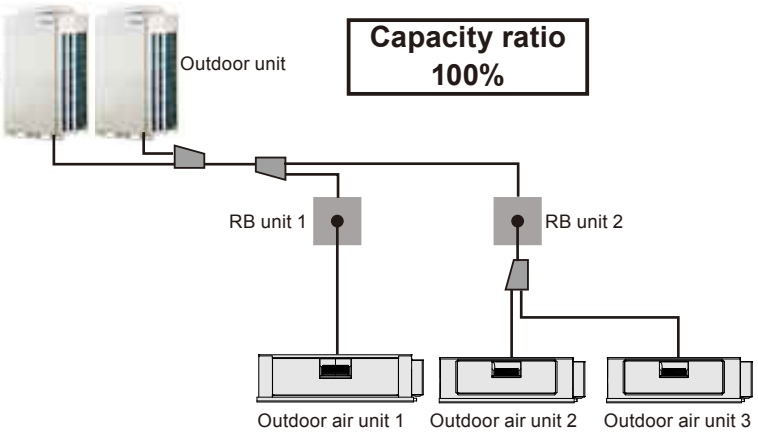


	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*A90L	28.0	28.0	② 50% 14.0	③ 100% 28.0	②≤ ①≤ ③ 14.0 < 25.2 < 28.0 → OK Capacity ratio of O.A.U. is 14.0/28.0=50% > 30%→ Prohibited
Outdoor air unit 1	ARXH054	14.0	① 25.2			
Indoor unit 1	AUXB18	5.6				
Indoor unit 2	AUXB18	5.6				

OUTDOOR AIR UNIT

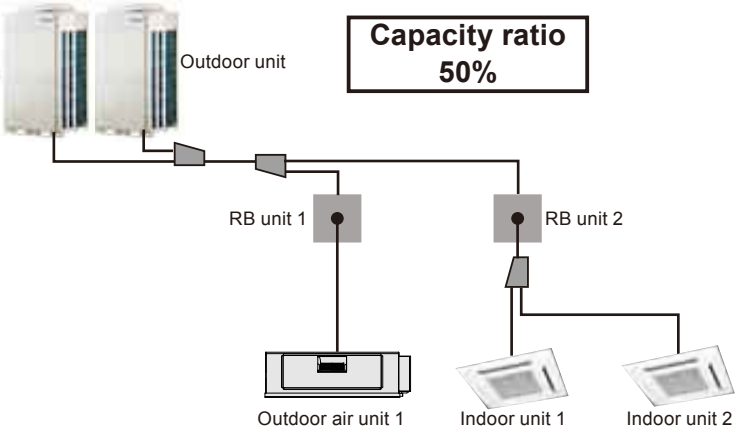
■ HEAT RECOVERY TYPE

● Example 9 (OK)



	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50% 28.0	③ 100% 56.0	②≤ ①≤ ③ 28.0 < 56.0 ≤ 56.0→ OK
Outdoor air unit 1	ARXH096	28.0	① 56.0			
Outdoor air unit 2	ARXH054	14.0				
Outdoor air unit 3	ARXH054	14.0				
RB unit 1	RX01CH	-	①28.0	②2.2	③28.0	②≤ ①≤ ③ 2.2 < 28.0 ≤ 28.0→ OK
RB unit 2	RX01CH	-	①28.0	②2.2	③28.0	②≤ ①≤ ③ 2.2 < 28.0 ≤ 28.0→ OK

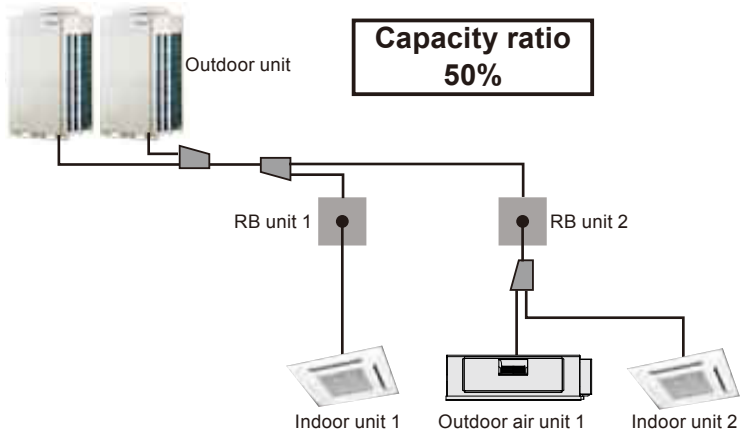
● Example 10 (OK)



	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50% 28.0	③ 100% 56.0	②≤ ①≤ ③ 28.0 < 28.2 < 56.0→ OK Capacity ratio of O.A.U. is 14.0/56.0=25% < 30%→ OK
Outdoor air unit 1	ARXH054	14.0	① 28.2			
Indoor unit 1	AUXB24	7.1				
Indoor unit 2	AUXB24	7.1				
RB unit 1	RX01BH	-	①14.0	②2.2	③18.0	②≤ ①≤ ③ 2.2 < 14.0 < 18.0→ OK
RB unit 2	RX01BH	-	①14.2	②2.2	③18.0	②≤ ①≤ ③ 2.2 < 14.2 < 18.0→ OK

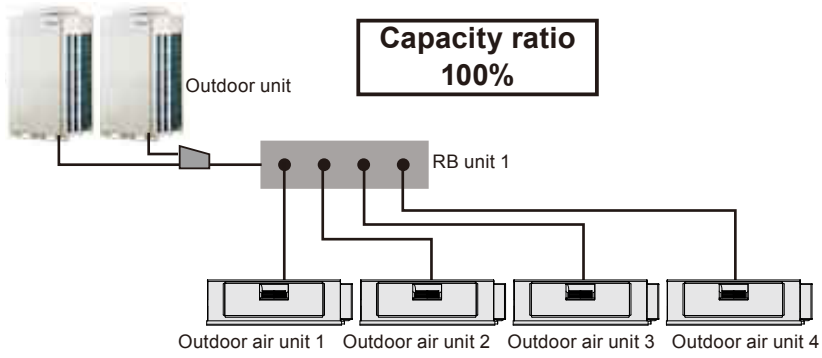
OUTDOOR AIR UNIT

● Example 11 (OK)



	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50% 28.0	③ 100% 56.0	②≤ ①≤ ③ 28.0 < 28.2 < 56.0→ OK Capacity ratio of O.A.U. is 14.0/56.0=25% < 30%→ OK
Indoor unit 1	AUXB24	7.1	① 28.2			
Outdoor air unit 1	ARXH054	14.0				
Indoor unit 2	AUXB24	7.1				
RB unit 1	RX01AH	-	①7.1	②2.2	③8.0	②≤ ①≤ ③ 2.2 < 7.1 < 8.0→ OK
RB unit 2	RX01CH	-	①21.1	②2.2	③28.0	②≤ ①≤ ③ 2.2 < 21.1 < 28.0→ OK

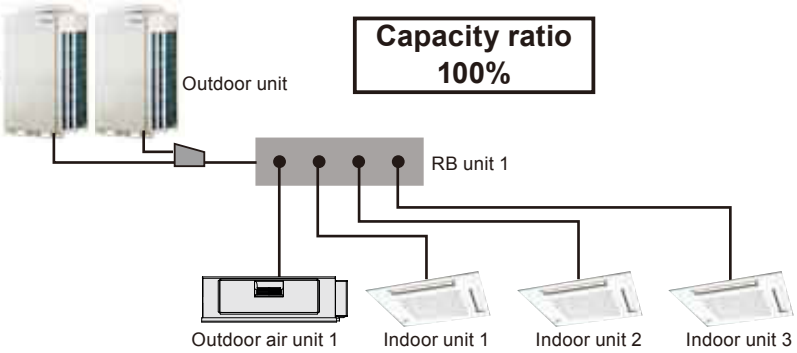
● Example 12 (OK)



	Model	Cooling Capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50% 28.0	③ 100% 56.0	②≤ ①≤ ③ 28.0 < 56.0 ≤ 56.0 → OK
Outdoor air unit 1	ARXH054	14.0	① 56.0			
Outdoor air unit 2	ARXH054	14.0				
Outdoor air unit 3	ARXH054	14.0				
Outdoor air unit 4	ARXH054	14.0				
RB unit 1	RX04BH	-	①56.0	②6.6	③56.0	②≤ ①≤ ③ 6.6 < 56.0 ≤ 56.0 → OK
			①14.0	②2.2	③18.0	②≤ ①≤ ③ 2.2 < 14.0 < 18.0 → OK
			①14.0	②2.2	③18.0	
			①14.0	②2.2	③18.0	
			①14.0	②2.2	③18.0	

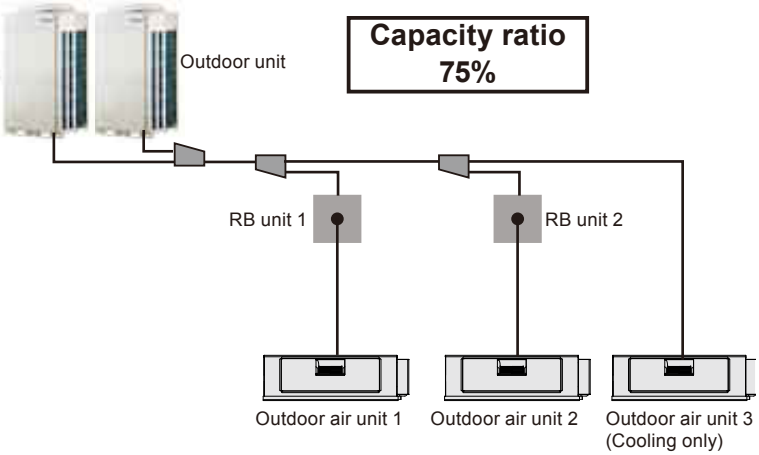
OUTDOOR AIR UNIT

● Example 13 (OK)



	Model	Cooling Capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50% 28.0	③ 100% 56.0	②≤ ①≤ ③ 28.0 < 56.0 ≤ 56.0 → OK Capacity ratio of O.A.U. is 14.0/56.0=25% < 30%→ OK
Outdoor air unit 1	ARXH054	14.0	① 56.0			
Indoor unit 1	AUXA54	14.0				
Indoor unit 2	AUXA54	14.0				
Indoor unit 3	AUXA54	14.0				
RB unit 1	RX04BH	-	①56.0	②6.6	③56.0	②≤ ①≤ ③ 6.6 < 56.0 ≤ 56.0 → OK
			①14.0	②2.2	③18.0	②≤ ①≤ ③ 2.2 < 14.0 < 18.0 → OK
			①14.0	②2.2	③18.0	
			①14.0	②2.2	③18.0	
			①14.0	②2.2	③18.0	

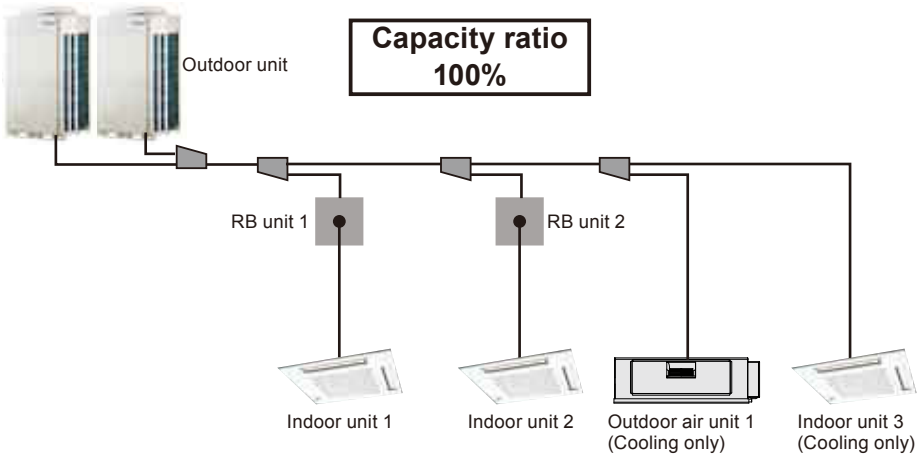
● Example 14 (OK)



	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50% 28.0	③ 100% 56.0	②≤ ①≤ ③ 28.0 < 42.0 < 56.0→ OK Capacity ratio of Cooling only type is 14.0/42.0=33% < 50%→ OK
Outdoor air unit 1	ARXH054	14.0	① 42.0			
Outdoor air unit 2	ARXH054	14.0				
Outdoor air unit 3	ARXH054	14.0				
RB unit 1	RX01BH	-	①14.0	②2.2	③18.0	②≤ ①≤ ③ 2.2 < 14.0 < 18.0→ OK
RB unit 2	RX01BH	-	①14.0	②2.2	③18.0	②≤ ①≤ ③ 2.2 < 14.0 < 18.0→ OK

OUTDOOR AIR UNIT

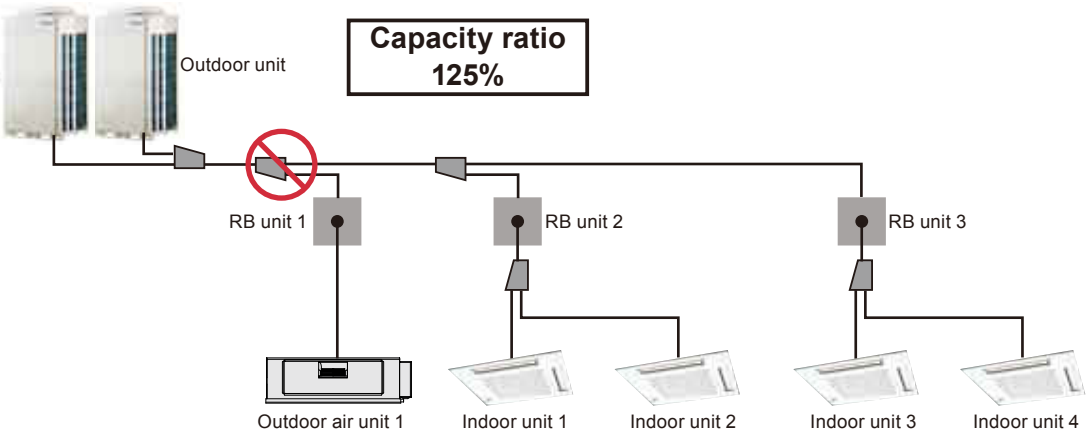
● Example 15 (OK)



	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50% 28.0	③ 100% 56.0	②≤ ①≤ ③ 28.0 < 56.0 ≤ 56.0→ OK Capacity ratio of O.A.U. is 14.0/56.0=25% < 30%→ OK Capacity ratio of Cooling only type is 28.0/56.0=50% ≤ 50%→ OK
Indoor unit 1	AUXA54	14.0	① 56.0			
Indoor unit 2	AUXA54	14.0				
Outdoor air unit 1	ARXH054	14.0				
Indoor unit 3	AUXA54	14.0				
RB unit 1	RX01BH	-	①14.0	②2.2	③18.0	②≤ ①≤ ③ 2.2 < 14.0 < 18.0→ OK
RB unit 2	RX01BH	-	①14.0	②2.2	③18.0	②≤ ①≤ ③ 2.2 < 14.0 < 18.0→ OK

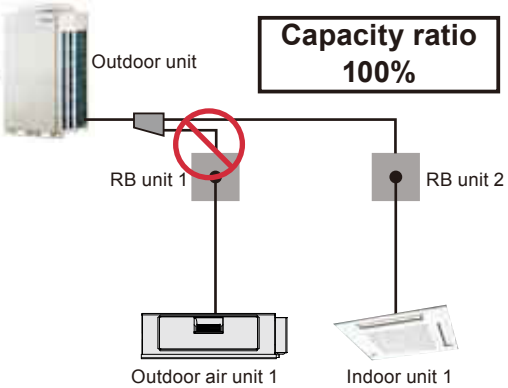
OUTDOOR AIR UNIT

● Example 16 (Prohibited)



	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*180G	56.0	56.0	② 50% 28.0	③ 100% 56.0	③<① 56.0 < 70.0 → Prohibited Capacity ratio of O.A.U. is 14.0/56.0=25% < 30%→ OK
Outdoor air unit 1	ARXH054	14.0	① 70.0			
Indoor unit 1	AUXA54	14.0				
Indoor unit 2	AUXA54	14.0				
Indoor unit 3	AUXA54	14.0				
Indoor unit 4	AUXA54	14.0				
RB unit 1	RX01BH	-	①14.0	②2.2	③18.0	②≤ ①≤ ③ 2.2 < 14.0 < 18.0→ OK
RB unit 2	RX01CH	-	①28.0	②2.2	③28.0	②≤ ①≤ ③ 2.2 < 28.0 ≤ 28.0→ OK
RB unit 3	RX01CH	-	①28.0	②2.2	③28.0	②≤ ①≤ ③ 2.2 < 28.0 ≤ 28.0→ OK

● Example 17 (Prohibited)



	Model	Cooling capacity (kW)	Total capacity (kW)	Connectable indoor unit capacity		Judgement
				Min.	Max.	
Outdoor unit	AJ*A90G	28.0	28.0	② 50% 14.0	③ 100% 28.0	②≤ ①≤ ③ 14.0 < 28.0 ≤ 28.0→ OK Capacity ratio of O.A.U. is 14.0/28.0=50% > 30%→ Prohibited
Outdoor air unit 1	ARXH054	14.0	① 28.0			
Indoor unit 1	AUXA54	14.0				
RB unit 1	RX01BH	-	①14.0	②2.2	③18.0	②≤ ①≤ ③ 2.2 < 14.0 < 18.0→ OK
RB unit 2	RX01BH	-	①14.0	②2.2	③18.0	②≤ ①≤ ③ 2.2 < 14.0 < 18.0→ OK

OUTDOOR AIR UNIT

13-2. VRF NETWORK SYSTEM

■ MAXIMUM WIRING LENGTH OF VRF NETWORK SYSTEM

Transmission line	Maximum wiring length
Total wiring length of transmission	3600m
Maximum wiring length between units	400m
Total wiring length in 1 segment	500m

	VRF network system	segment
Wiring length	3600m	500m
Number of unit	400	64

■ THE MAXIMUM CONNECTABLE UNIT

● Outdoor unit, Indoor unit and Outdoor air unit

	Maximum connectable units in one VRF network system
Outdoor unit	100
Indoor unit & Outdoor air unit	400

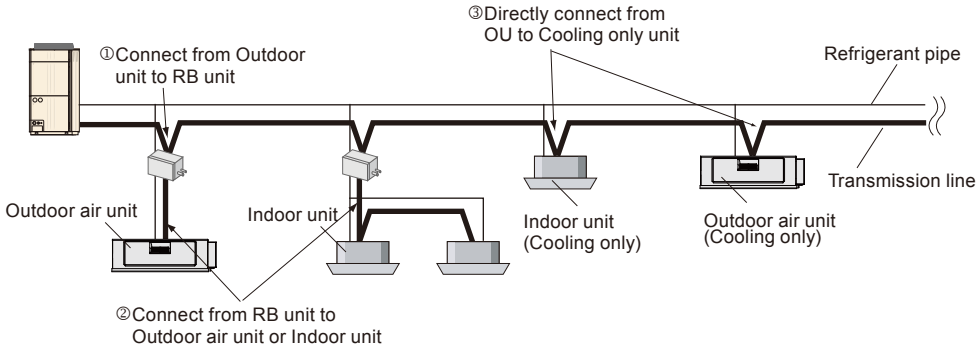
OUTDOOR AIR UNIT

13-3. TRANSMISSION LINE

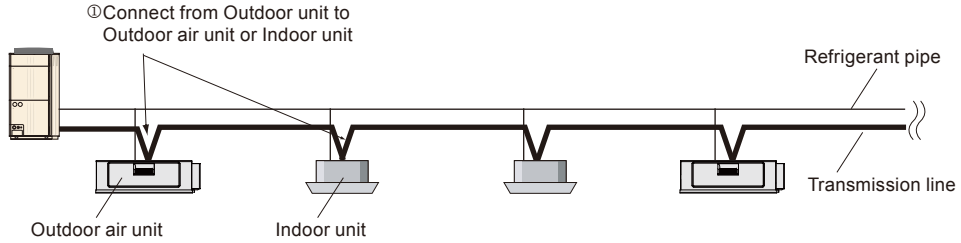
■ WIRING RULES

The Outdoor air unit connection method of transmission line is completely the same as other indoor unit.

● Heat recovery type



● Heat pump type



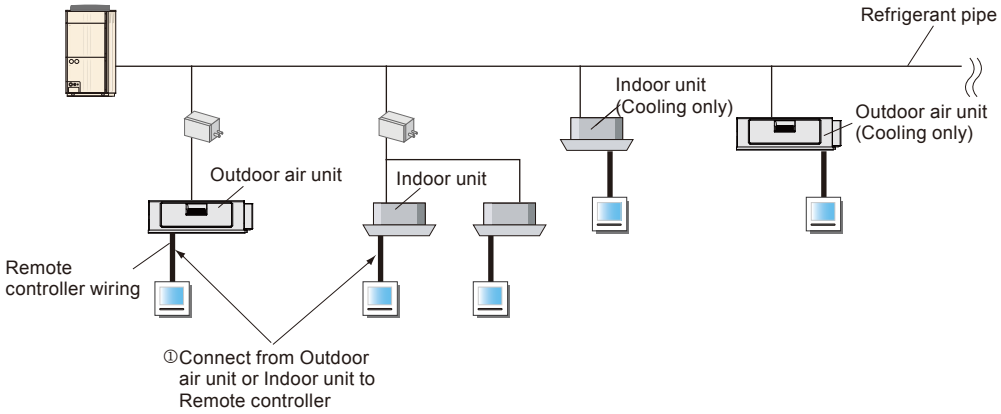
OUTDOOR AIR UNIT

13-4. REMOTE CONTROLLER WIRING

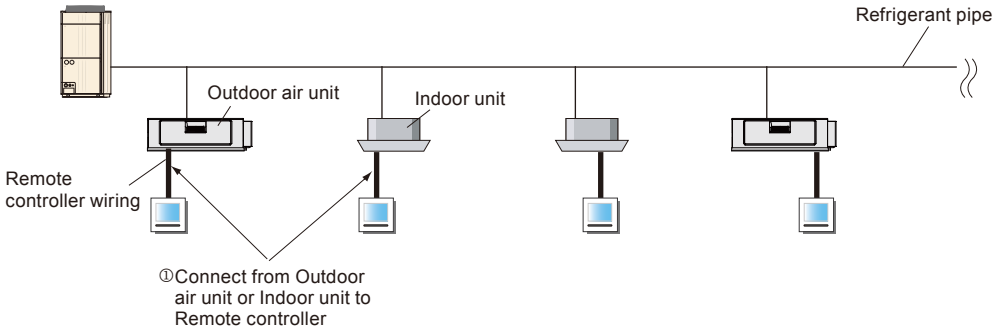
■ WIRING RULES

The Outdoor air unit connection method of remote controller wiring is completely the same as other indoor unit.

● Heat recovery type



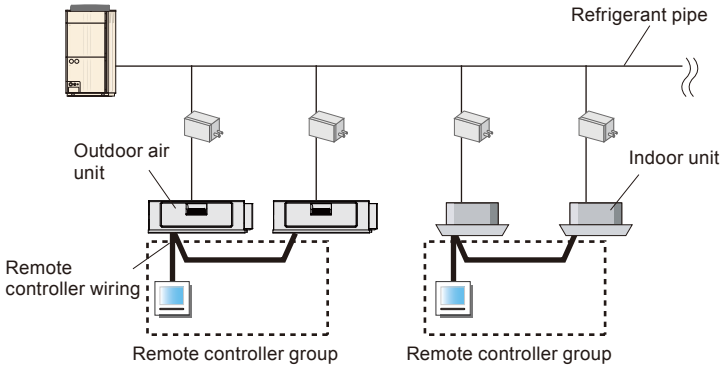
● Heat pump type



OUTDOOR AIR UNIT

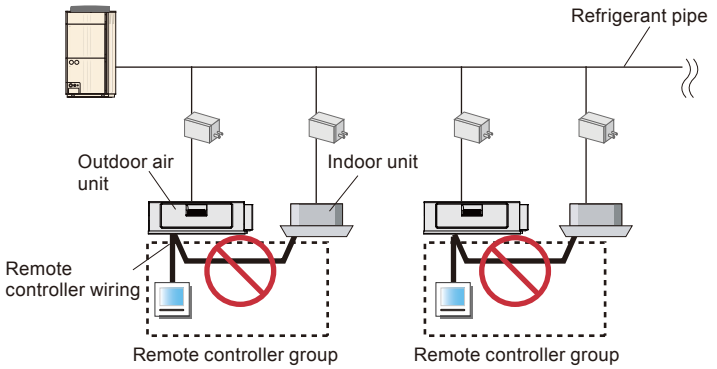
■ REMOTE CONTROLLER GROUP

The remote controller group can be constructed by only the Outdoor air units or only the Indoor units.



● Prohibited

The remote controller group can not be constructed, when the Outdoor air unit and Indoor unit is mixed.

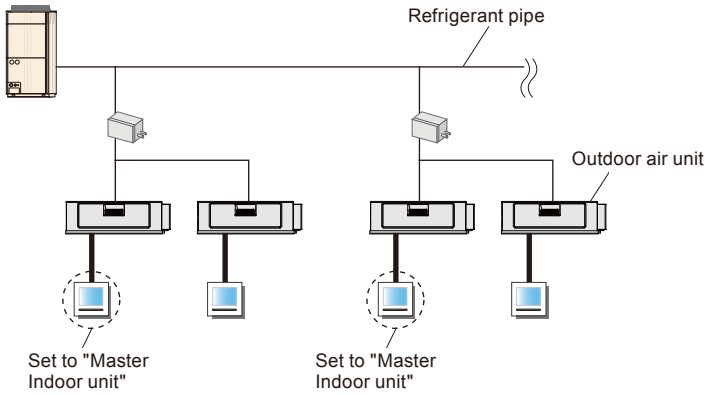


OUTDOOR AIR UNIT

■ MASTER INDOOR UNIT SETTING

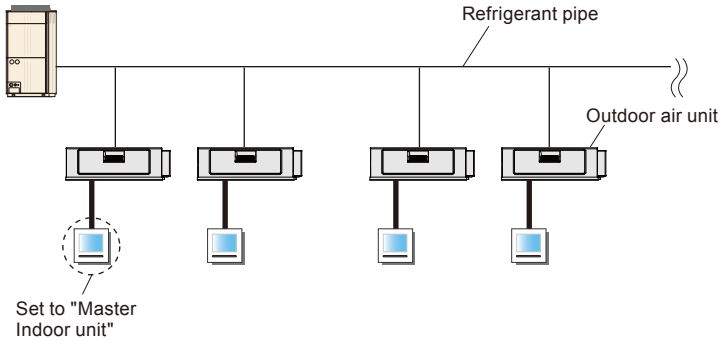
● Heat recovery type

Only 1 master indoor unit can be set up in 1 RB group.



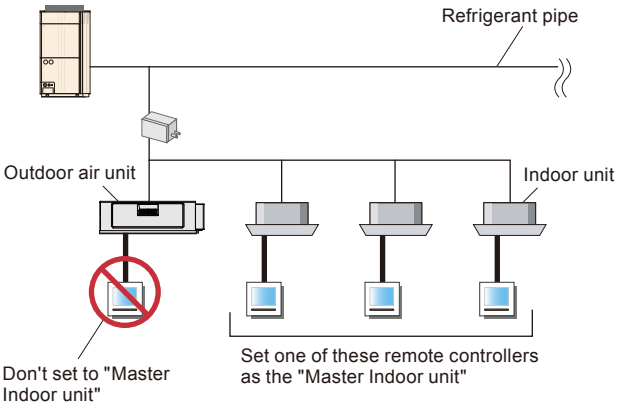
● Heat pump type

Only 1 master indoor unit can be set up in 1 refrigerant system.



● Prohibited

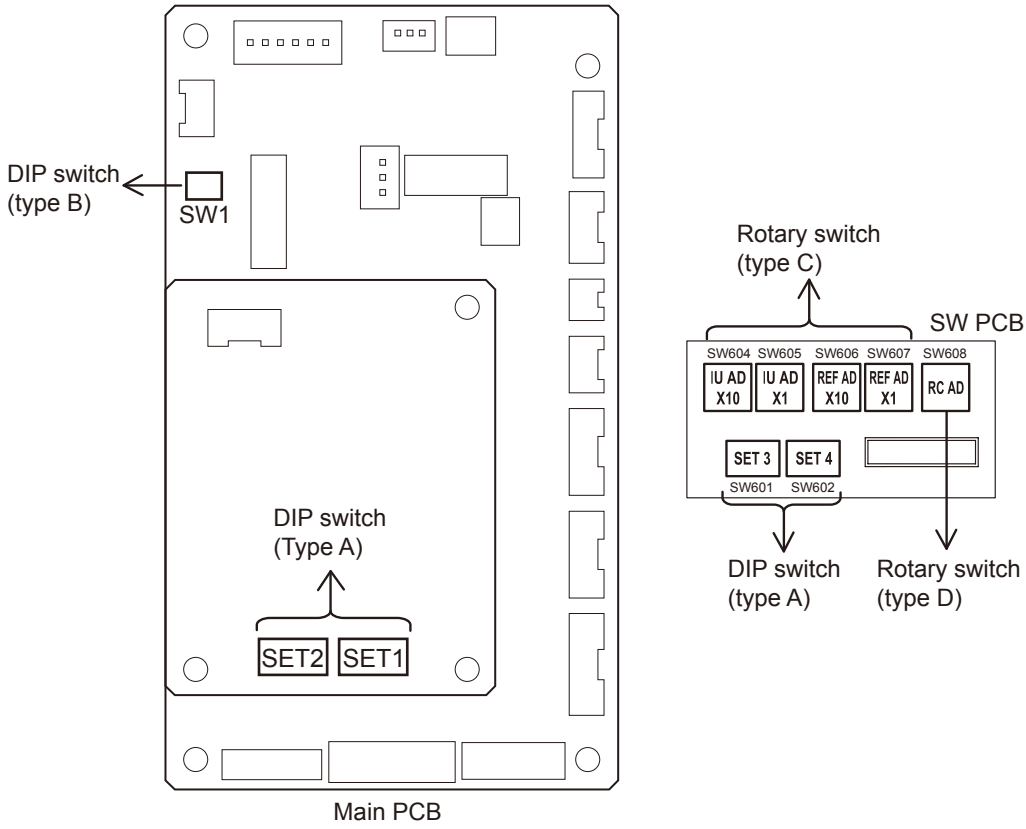
When the Outdoor air unit and indoor unit is mixed, do not set the R.C. of Outdoor air unit as the "Master indoor unit".



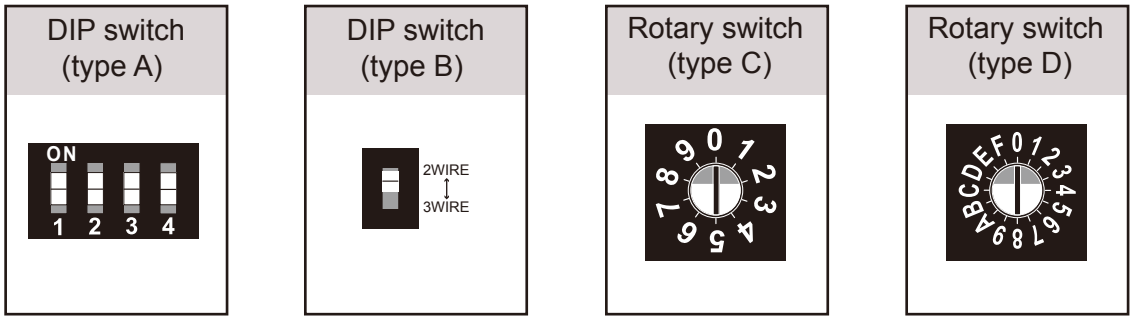
OUTDOOR AIR UNIT

14. FUNCTION SETTINGS

■ SWITCH POSITION



■ SWITCH TYPE



OUTDOOR AIR UNIT

■ SWITCH TABLE

DIP-SW	type A	SET1	1	Prohibited (Outdoor air unit capacity)
			2	Prohibited (Outdoor air unit capacity)
			3	Prohibited (Outdoor air unit capacity)
			4	Prohibited (Outdoor air unit capacity)
		SET2	1	Prohibited (Outdoor air unit capacity)
			2	External input select "edge/pulse"
			3	Fan delay switch
			4	Prohibited
		SET3	1	Prohibited
			2	Prohibited
			3	Prohibited
			4	Prohibited
		SET4	1	Prohibited
			2	Prohibited
			3	Prohibited
			4	Prohibited
	type B	SW1		Remote controller wire type switch
Rotary SW	type C	IU AD x 1		Indoor unit address switch 1
		IU AD x 10		Indoor unit address switch 2
		REF AD x1		Refrigerant circuit address switch 1
		REF AD x10		Refrigerant circuit address switch 2
	type D	RC AD		Remote controller address switch

OUTDOOR AIR UNIT

■ DIP SWITCH SETTING

● SET1 and SET2-1 setting (Never change at the site)

●Outdoor air unit capacity (Setting prohibited)

SET1-1	SET1-2	SET1-3	SET1-4	SET2-1	Outdoor air unit capacity
ON	ON	OFF	ON	OFF	14.0kW
ON	OFF	ON	ON	OFF	22.4kW
ON	ON	ON	ON	OFF	28.0kW

● SET2 setting

●External input select “edge/pulse”

(◆...Factory setting)

	SET2-2	External input select
◆	OFF	Edge
	ON	pulse

●Fan delay switch

It is a function to delay the stop of cooling fan when the air conditioner is stopped.
When auxiliary heater is connected, please turn "ON" this switch.
When you connect auxiliary heater, be careful enough.

(◆...Factory setting)

	SET2-3	Fan delay
◆	OFF	Invalid
	ON	Valid

●SET2-4 setting prohibited

(◆...Factory setting)

	SET2-4	
◆	OFF	Fixed at OFF
	ON	Setting prohibited

OUTDOOR AIR UNIT

● SET3 setting

●SET3-1, SET3-2, SET3-3, SET3-4 setting prohibited

(◆...Factory setting)

	SET3-1	SET3-2	SET3-3	SET3-4	
◆	OFF	OFF	OFF	OFF	Fixed at OFF
	ON	ON	ON	ON	Setting prohibited

● SET4 setting

●SET4-1, SET4-2, SET4-3, SET4-4 setting prohibited

(◆...Factory setting)

	SET4-1	SET4-2	SET4-3	SET4-4	
◆	OFF	OFF	OFF	OFF	Fixed at OFF
	ON	ON	ON	ON	Setting prohibited

● SW1 setting

●Remote controller wire type setting switch

(◆...Factory setting)

	SW1	Remote controller wire type
◆	2WIRE	2-Wire type
	3WIRE	3-Wire type

OUTDOOR AIR UNIT

■ ROTARY SWITCH SETTING

● IU AD setting

●Indoor unit address switch

Sets the indoor unit addresses.

Please see "1-3 address setting" for indoor unit address conversion table.

INDOOR UNIT ADDRESS SWITCH (Factory setting IU AD x 1: 0, IU AD x 10: 0)

Rotary SW	Description	Remarks
IU AD x 1	Indoor unit address Switch 1	Indoor unit address (the first digit)
IU AD x 10	Indoor unit address Switch 2	Indoor unit address (the second digit)

● REF AD setting

●Refrigerant circuit address switch

Sets the refrigerant circuit address.

Please see "1-3 address setting" for refrigerant circuit address conversion table.

REFRIGERANT CIRCUIT ADDRESS SWITCH (Factory setting REF AD x 1: 0, REF AD x 10: 0)

Rotary SW	Description	Remarks
REF AD x 1	Refrigerant circuit address Switch 1	Refrigerant circuit address (the first digit)
REF AD x 10	Refrigerant circuit address Switch 2	Refrigerant circuit address (the second digit)

● RC AD setting

●Remote controller address switch

When the Outdoor air unit is wired by remote controller group, to identity the Outdoor air unit in the remote controller group, the number (remote controller address) in the remote controller group is set. The remote controller group can not be constructed, when the Outdoor air unit and Indoor unit is mixed.

i) 3 wire type

Only for manual address setting

Set the remote controller address in the 0.1.2,~,15 order (Blank is not allowed)

REMOTE CONTROLLER ADDRESS SWITCH (Factory setting : 0)

Rotary SW	Description	Remarks
RC AD	Remote controller address	Remote controller address

ii) 2 wire type

It can choose either automatic address setting or manual address setting.

① When setting the automatic address.

Set the remote controller address in the "0" only. (Factory setting is "0")

② When setting the manual address.

Set the remote controller address in the 1.2,~,15

REMOTE CONTROLLER ADDRESS SWITCH (Factory setting : 0)

Rotary SW	Description	Remarks
RC AD	Remote controller address	Remote controller address

Note: When setting the manual address, can not be set the "0".

OUTDOOR AIR UNIT

14-1. FUNCTION DETAILS

<table>
<tr><th>Function</th><th>Function number</th><th colspan="2">Setting number</th><th>Default</th><th>Details</th></tr>
<tr><td rowspan="3">Filter indicator interval</td><td rowspan="3">11</td><td>00</td><td>Standard</td><td>●</td><td rowspan="3">Adjust the filter cleaning interval notification. If the notification is too early, change to setting 01. If the notification is too late, change to setting 02.</td></tr>
<tr><td>01</td><td>Longer</td><td></td></tr>
<tr><td>02</td><td>Shorter</td><td></td></tr>
<tr><td rowspan="3">Filter indicator action</td><td rowspan="3">13</td><td>00</td><td>Enable</td><td></td><td rowspan="3">Enable or disable the filter indicator. Setting 02 is for use with a central remote control.</td></tr>
<tr><td>01</td><td>Disable</td><td>●</td></tr>
<tr><td>02</td><td>Display only on central remote control</td><td></td></tr>
<tr><td rowspan="23">Static pressure</td><td rowspan="23">26</td><td>05</td><td>SP mode 05</td><td></td><td rowspan="23"><table><tr><th>Model name</th><th>Range of static pressure</th><th>Normal static pressure</th></tr><tr><td>ARXH054GTAH</td><td>SP mode 05 to 19 (50 to 185 Pa)</td><td>185Pa</td></tr><tr><td>ARXH072GTAH</td><td>SP mode 05 to 20 (50 to 200 Pa)</td><td>200Pa</td></tr><tr><td>ARXH096GTAH</td><td>SP mode 05 to 22 (50 to 220 Pa)</td><td>200Pa</td></tr></table></td></tr>
<tr><td>06</td><td>SP mode 06</td><td></td></tr>
<tr><td>07</td><td>SP mode 07</td><td></td></tr>
<tr><td>08</td><td>SP mode 08</td><td></td></tr>
<tr><td>09</td><td>SP mode 09</td><td></td></tr>
<tr><td>10</td><td>SP mode 10</td><td></td></tr>
<tr><td>11</td><td>SP mode 11</td><td></td></tr>
<tr><td>12</td><td>SP mode 12</td><td></td></tr>
<tr><td>13</td><td>SP mode 13</td><td></td></tr>
<tr><td>14</td><td>SP mode 14</td><td></td></tr>
<tr><td>15</td><td>SP mode 15</td><td></td></tr>
<tr><td>16</td><td>SP mode 16</td><td></td></tr>
<tr><td>17</td><td>SP mode 17</td><td></td></tr>
<tr><td>18</td><td>SP mode 18</td><td></td></tr>
<tr><td>19</td><td>SP mode 19</td><td></td></tr>
<tr><td>20</td><td>SP mode 20</td><td></td></tr>
<tr><td>21</td><td>SP mode 21</td><td></td></tr>
<tr><td>22</td><td>SP mode 22</td><td></td></tr>
<tr><td>31</td><td>Normal SP</td><td>●</td></tr>
<tr><td rowspan="2">*1 Auto restart</td><td rowspan="2">40</td><td>00</td><td>Enable</td><td></td><td rowspan="2">Enable or disable automatic system restart after a power outage.</td></tr>
<tr><td>01</td><td>Disable</td><td>●</td></tr>
<tr><td rowspan="2">Cool Air Prevention</td><td rowspan="2">43</td><td>00</td><td>Prohibited</td><td></td><td rowspan="2">Setting change prohibited.</td></tr>
<tr><td>01</td><td>Follow the setting on the remote controller</td><td>●</td></tr>
<tr><td rowspan="3">External control</td><td rowspan="3">46</td><td>00</td><td>Start/Stop</td><td>●</td><td rowspan="3">Allow an external controller to start or stop the system, or to perform an emergency stop, or to perform a forced stop.
* If an emergency stop is performed from an external controller, same refrigerant system will be disabled.
*If forced stop is set,indoor unit stops by the input to the external input terminals,and Start/Stop by a remote controller is restricted.</td></tr>
<tr><td>01</td><td>Emergency stop</td><td></td></tr>
<tr><td>02</td><td>Forced stop</td><td></td></tr>
<tr><td rowspan="2">Error report target</td><td rowspan="2">47</td><td>00</td><td>All</td><td>●</td><td rowspan="2">Change the target for reporting errors. Errors can either be reported in all locations, or only on the wired remote.</td></tr>
<tr><td>01</td><td>Display only on central remote control</td><td></td></tr>
<tr><td rowspan="3">Humidifier control</td><td rowspan="3">63</td><td>00</td><td>mode 00</td><td>●</td><td rowspan="3">Select control conditions of external output.
"Mode 00" is output when heating thermostat is ON, "Mode 01" is output in heating operation, "Mode 02" is output in heating operation and in fan operation.</td></tr>
<tr><td>01</td><td>mode 01</td><td></td></tr>
<tr><td>02</td><td>mode 02</td><td></td></tr>
</table>

OUTDOOR AIR UNIT

15. EXTERNAL INPUT & OUTPUT

External input	External output	Input select	Connector	External connect kit (Optional parts)
Control input	-	Apply voltage	CNA01	UTY-XWZXZB
		Dry contact	CNA02	UTY-XWZXZD
Forced thermostat off	-	Apply voltage	CNA03	UTY-XWZXZ7
		Dry contact	CNA04	UTY-XWZXZE
Prohibited	-	-	CNA06 or CNA07	-
-	Operation status	-	CNB01	UTY-XWZXZC
	Error status			
	Indoor unit status			
	Auxiliary heater output			
	Humidifier output			

15-1. EXTERNAL INPUT

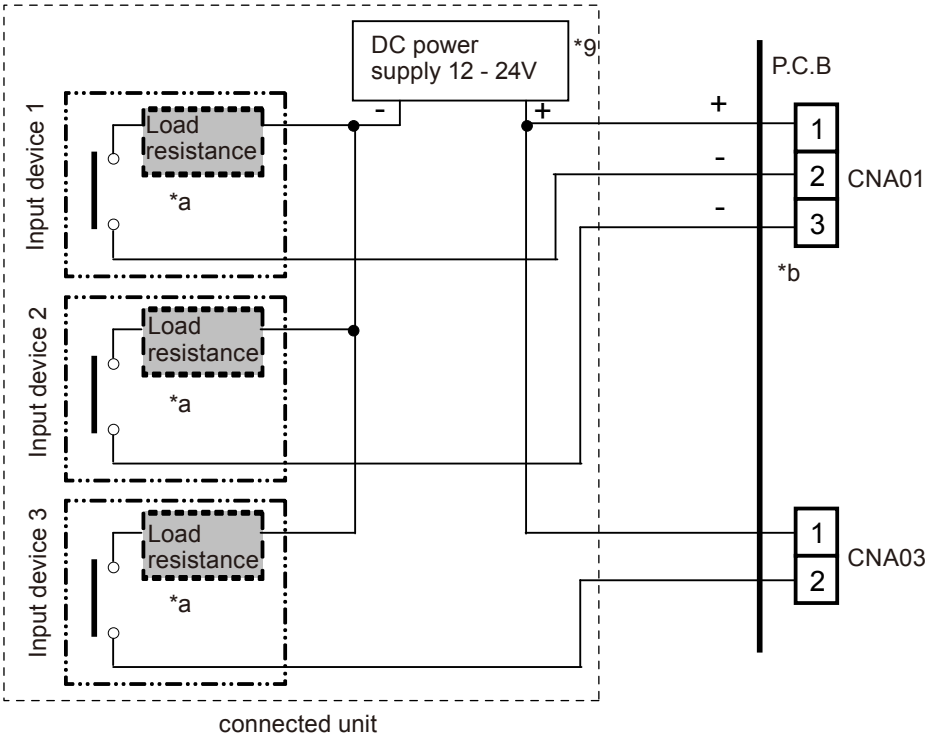
- Indoor unit can be Operation/Stop or Emergency stop or Forced stop by using indoor unit PCB CNA01 or CNA02.
- "Start/Stop" mode or "Emergency stop" mode or "Forced stop" mode can be selected with function setting of indoor unit.
- Indoor unit can be Forced thermostat off by using indoor unit PCB CNA03 or CNA04.
- A twisted pair cable (22AWG) shoud be used. Maximum length of cable is 150m.
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- The wire connection should be separate from the power cable line.

■ INPUT SELECT

Use either one of these types of terminal according to the application. (Both types of terminals cannot be used simultaneously.)

● Apply voltage terminal ([CNA01], [CNA03])

When a power supply must be provided at the input device you want to connect, use the Apply voltage terminal ([CNA01], [CNA03])



*9: Make the power supply DC12 to 24V. Select a power supply capacity with an ample surplus for the connected load.

Do not impress a voltage exceeding 24V across pins 1-2, and 1-3.

*a: The allowable current is DC 5mA to 10mA. (Recommended: DC5mA)

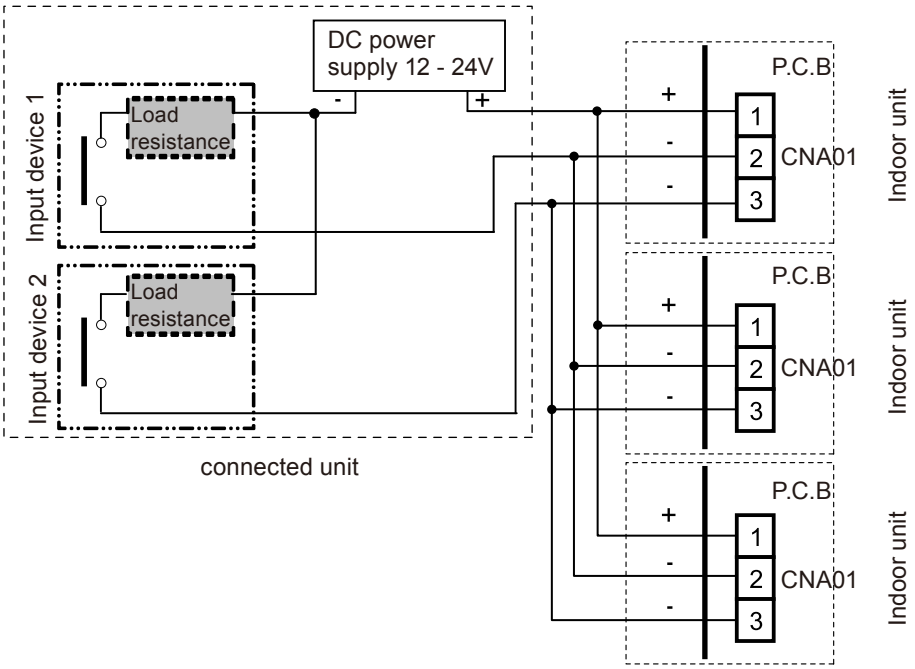
Provide a load resistance such that the current becomes DC10mA or less.

Select very low current use contacts (usable at DC12V, DC1mA or less).

*b: The polarity is [+] for pin 1 and [-] for pin 2 and 3. Connect correctly.

OUTDOOR AIR UNIT

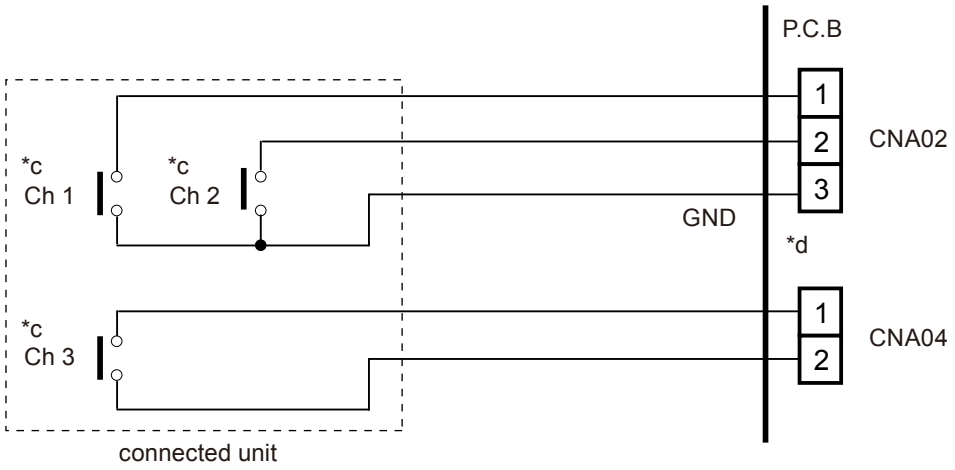
When connected to Apply voltage terminals of multiple indoor units with a connected unit, be sure to make a branch outside the indoor unit using a pull box, etc. as shown on below example.



OUTDOOR AIR UNIT

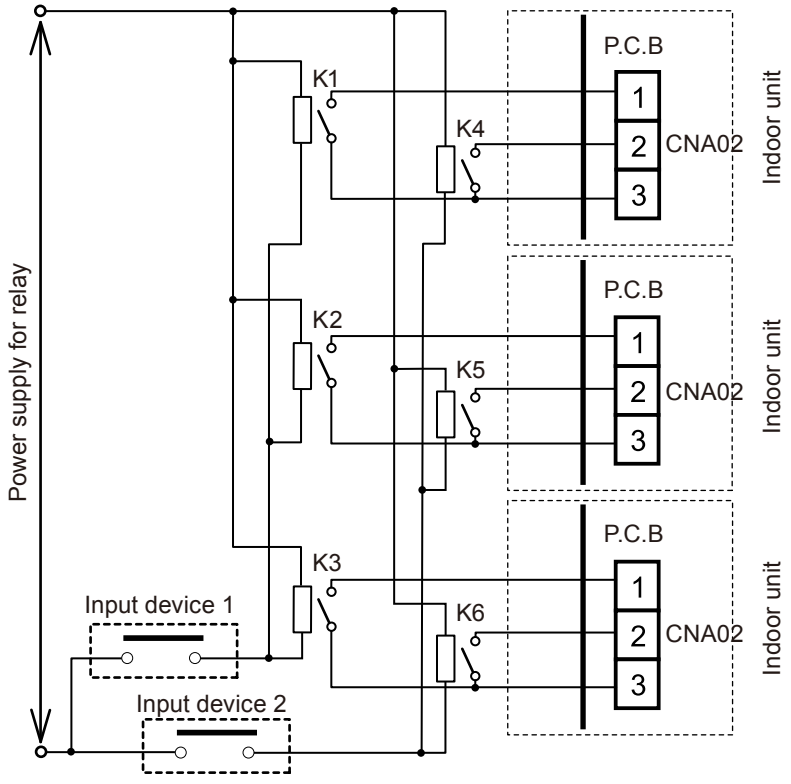
● Dry contact terminal ([CNA02], [CNA04])

When a power supply is unnecessary at the input device you want to connect, use the Dry contact terminal ([CNA02], [CNA04]).



*c: Select very low current use contacts (usable at DC12V, DC1mA or less).
*d: The wiring is different from Apply voltage terminals. Be sufficiently careful when wiring.

When connected to Dry contact terminals of multiple indoor units with a connected unit, insulate each indoor unit with relay, etc. as shown on below example.



K1 - K6 : Relay
(Device for DC Current)

NOTE :

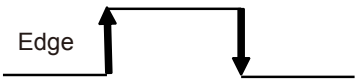
● When connected to multiple indoor units directly, it will cause breakdown.

OUTDOOR AIR UNIT

■ INPUT SIGNAL TYPE

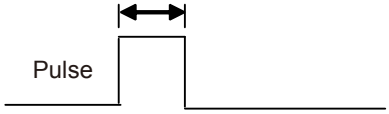
The input signal type can be selected.

It is switched by Dip-Sw on the indoor unit PCB.



(◆...Factory setting)

	Dip-sw [Set 2-2]	Input signal type
◆	OFF	Edge
	ON	Pulse



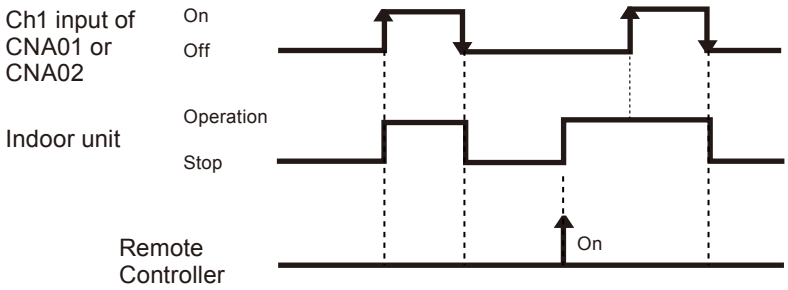
Note: input signal type of Ch3 (Forced thermostat off) is only "Edge".

■ CONTROL INPUT FUNCTION

● When function setting is "Operation/Stop" mode

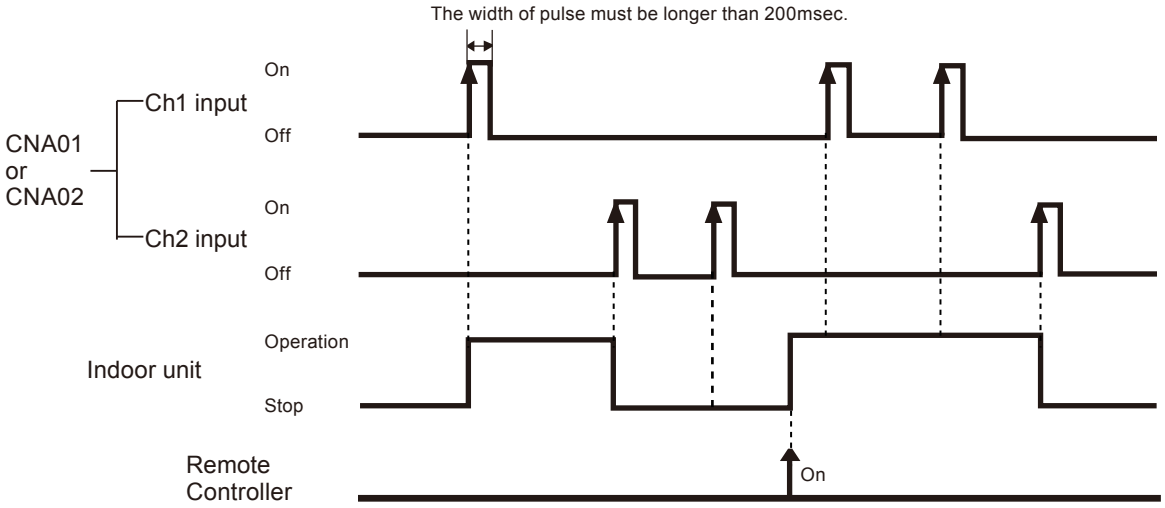
●In the case of "Edge" input

Connector	Input signal	Command
Ch1 of CNA01 or CNA02	OFF → ON	Operation
	ON → OFF	Stop



●In the case of "Pulse" input

Connector		Input signal	Command
CNA01 or CNA02	Ch1	OFF → ON	Operation
	Ch2	OFF → ON	Stop



NOTE :

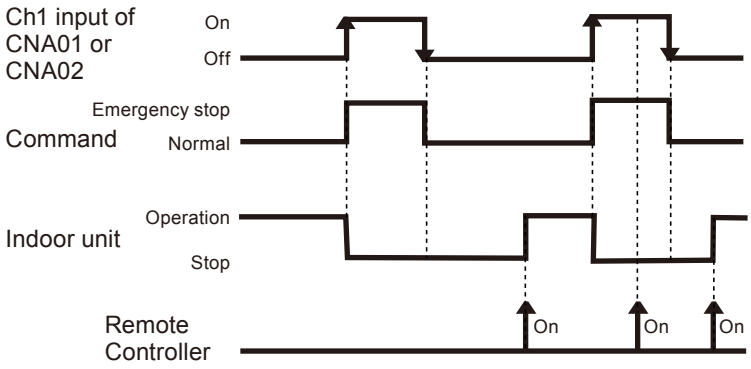
- The last command has priority.
- The indoor units within the same remote controller group operates in the same mode.

OUTDOOR AIR UNIT

● When function setting is "Emergency stop" mode

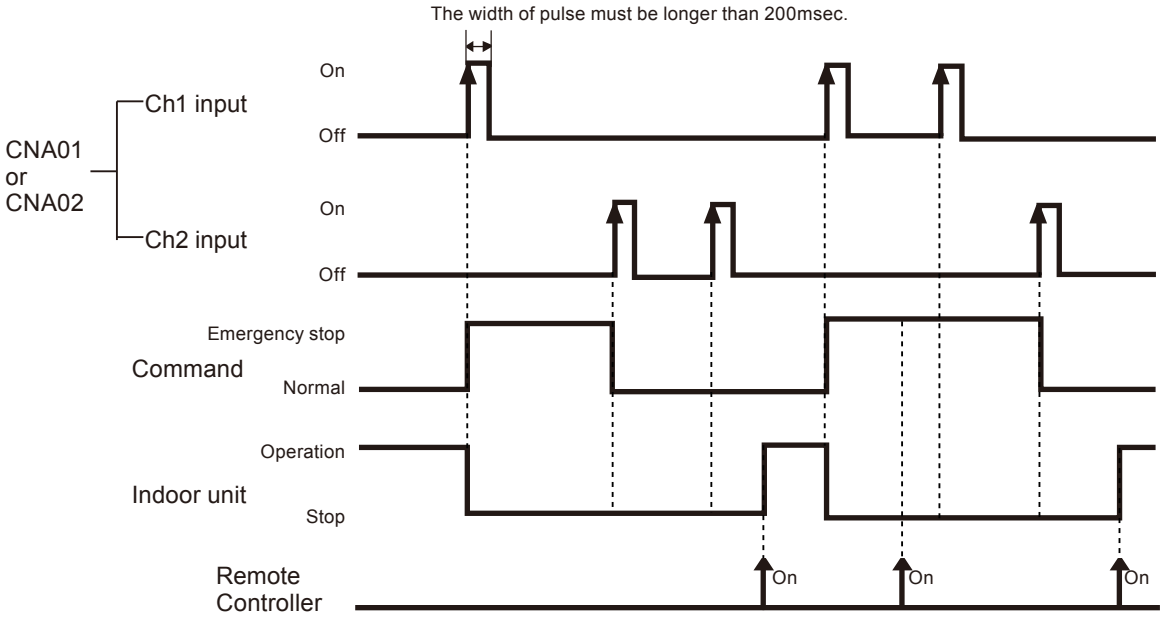
●In the case of "Edge" input

Connector	Input signal	Command
Ch1 of CNA01 or CNA02	OFF → ON	Emergency stop
	ON → OFF	Normal



●In the case of "Pulse" input

Connector		Input signal	Command
CNA01 or CNA02	Ch1	OFF → ON	Emergency stop
	Ch2	OFF → ON	Normal



NOTE :

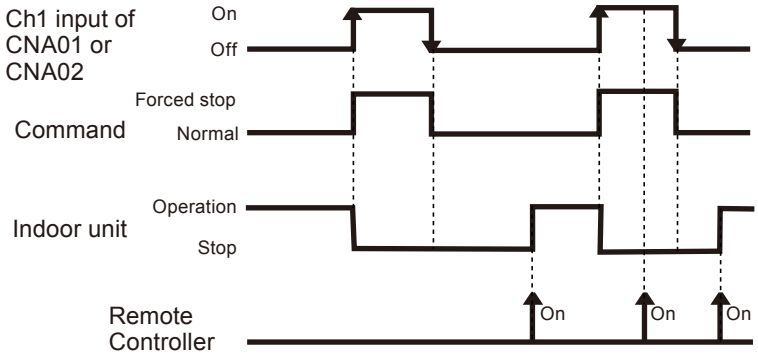
● All indoor units of same refrigerant system stops when Emergency stop operates.

OUTDOOR AIR UNIT

● When function setting is "Forced stop" mode

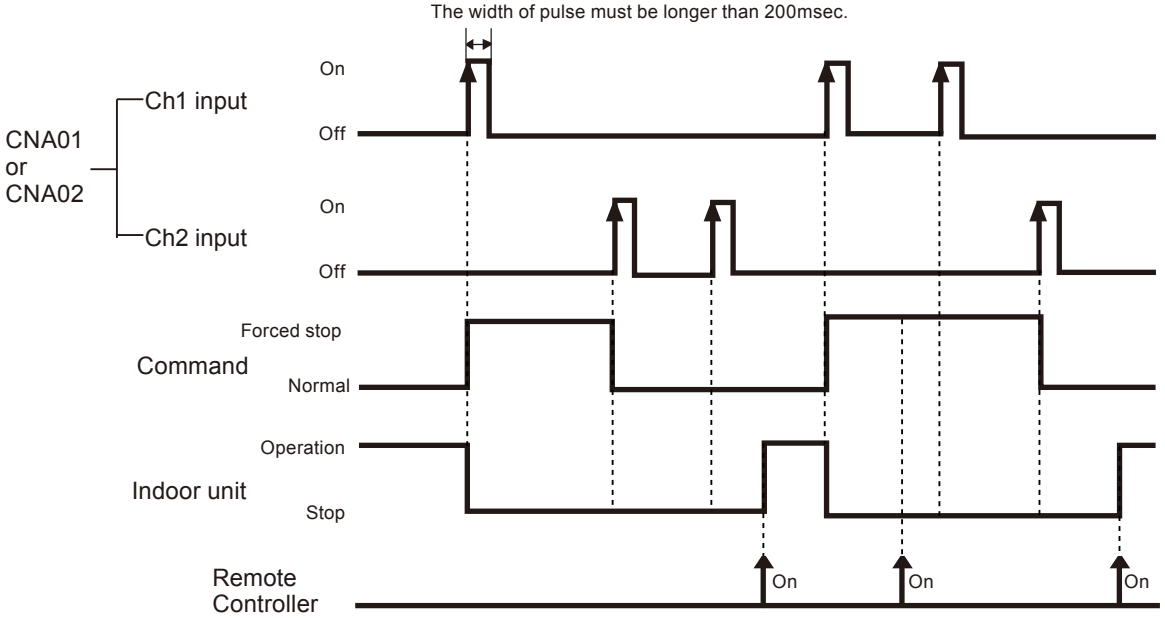
●In the case of "Edge" input

Connector	Input signal	Command
Ch1 of CNA01 or CNA02	OFF → ON	Forced stop
	ON → OFF	Normal



●In the case of "Pulse" input

Connector		Input signal	Command
CNA01 or CNA02	Ch1	OFF → ON	Forced stop
	Ch2	OFF → ON	Normal



NOTE :

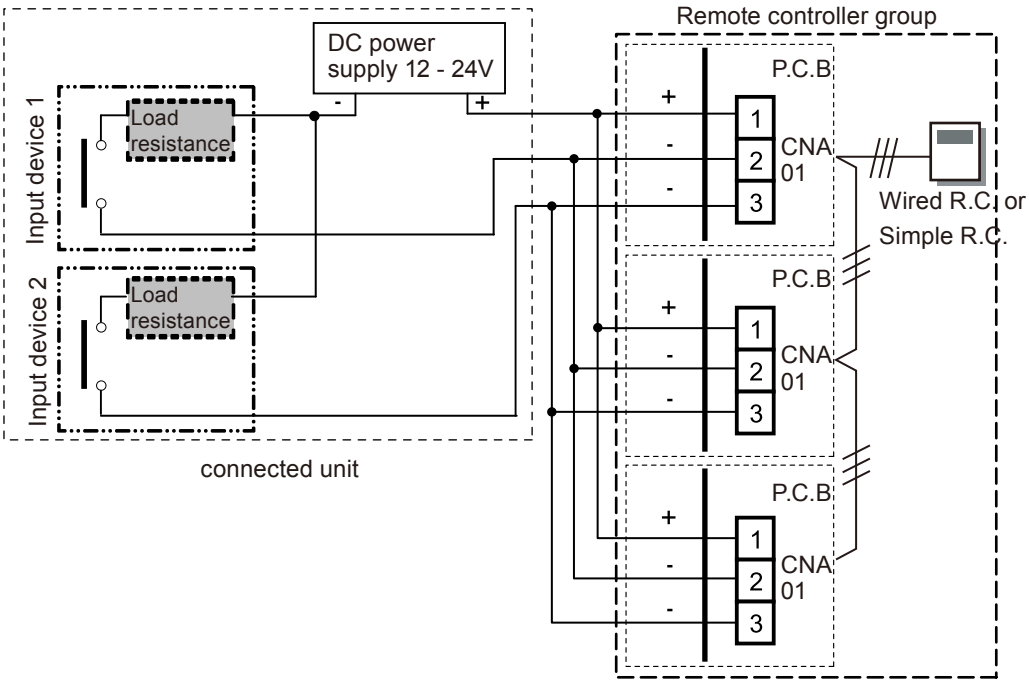
- When the forced stop is triggered, indoor unit stops and Operation/Stop operation by a remote controller is restricted.

OUTDOOR AIR UNIT

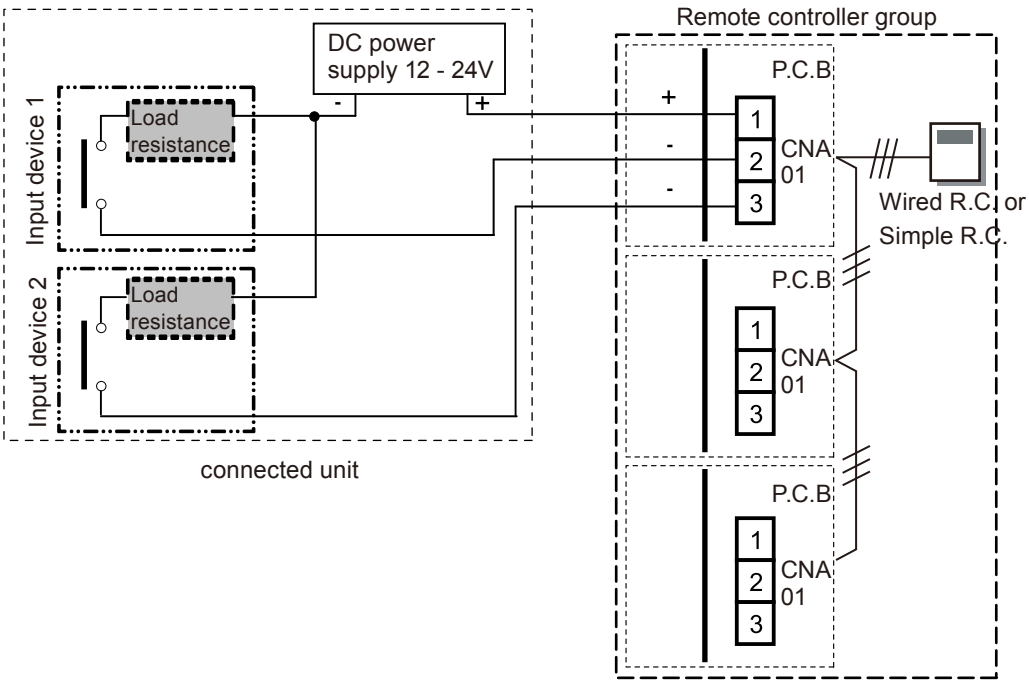
●Considerations when setting forced stop

⚠CAUTION
When forced stop function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

Example 1 : OK



Example 2 : Prohibited



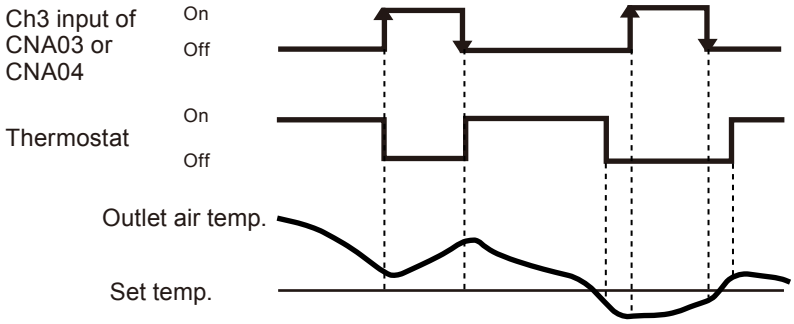
OUTDOOR AIR UNIT

■ FORCED THERMOSTAT OFF FUNCTION

●"Edge" input only

Connector	Input signal	Command
Ch3 of	OFF → ON	Thermostat off
CNA03 or CNA04	ON → OFF	Normal

Example of cooling mode



NOTE :

● Indoor unit may not do thermostat off promptly even if receive signal by operating conditions of other indoor unit of same refrigerant system.

OUTDOOR AIR UNIT

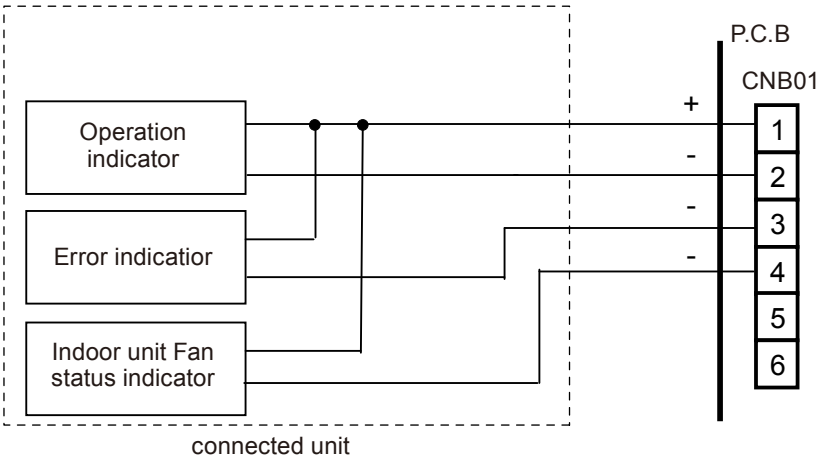
15-2. EXTERNAL OUTPUT

- A twisted pair cable (22AWG) shoud be used. Maximum length of cable is 25 m.
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- Output voltage: Hi DC12 V ± 2 V, Lo 0 V.
- Permissible current: 50 mA

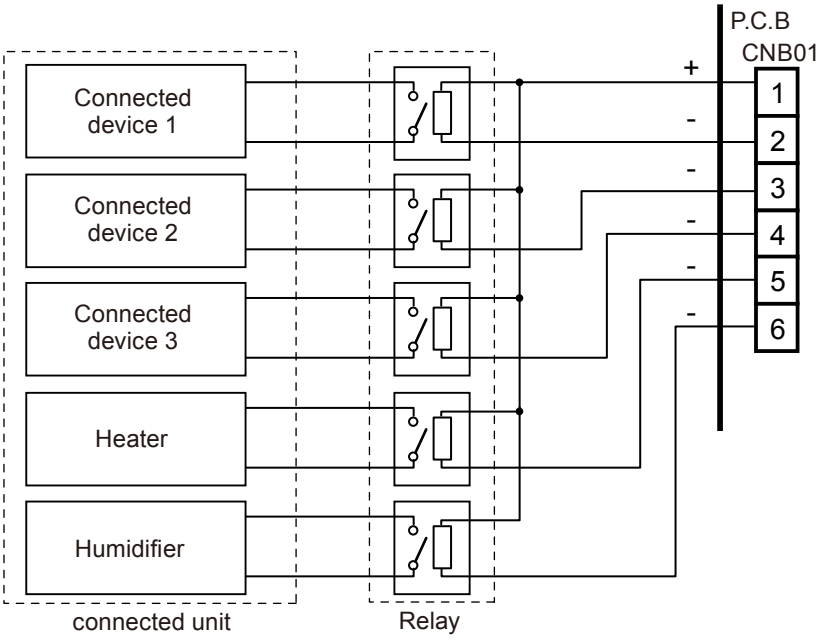
Connector		Output voltage	Status
CNB01	External output1	0 V	Stop
	Pins 1-2	DC 12 V	Operation
	External output2	0 V	Normal
	Pins 1-3	DC 12 V	Error
	External output3	0 V	Indoor unit fan stop
	Pins 1-4	DC 12 V	Indoor unit fan operation
	External output4	0 V	Auxiliary heater OFF
	Pins 1-5	DC 12 V	Auxiliary heater ON
	External output5	0 V	Humidifier OFF
	Pins 1-6	DC 12 V	Humidifier ON

■ OUTPUT SELECT

● When indicator etc. are connected directly



● When connecting with unit equipped with a power supply

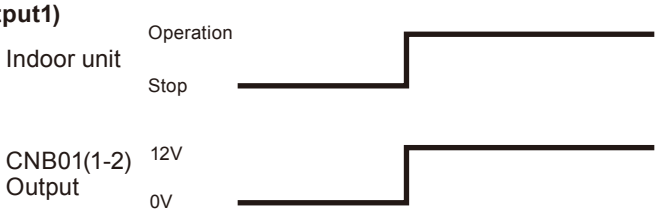


OUTDOOR AIR UNIT

■ OPERATION STATUS (External output1)

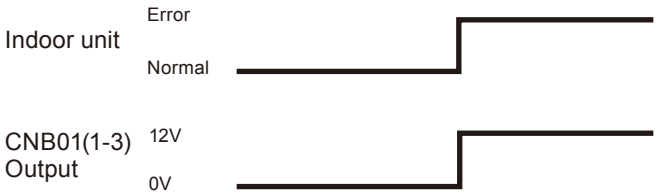
The output for CNB01 (1-2) is ON when the indoor unit is operating.

The output is off when the unit is stopped.



■ ERROR STATUS (External output2)

The output for CNB01 (1-3) is ON when an error is generated for the indoor unit.



■ INDOOR UNIT STATUS (External output3)

The output for CNB01 (1-4) is ON when the indoor unit fan is operating.

The output is off when the fan is stopped or during cold air prevention.

The output for CNB01 (1-4) is OFF during thermostat OFF when DRY mode operation.

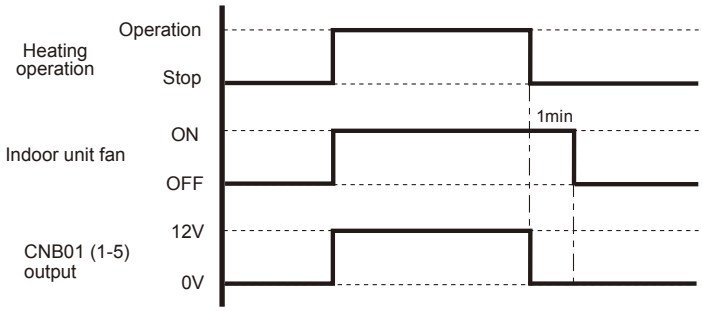
Ex) Used for inter lock energize for exhaust fan.

■ AUXILIARY HEATER OUTPUT (External output4)

The output for CNB01 (1-5) is output when the fan is rotating during the Outdoor Air Unit is in heating operation.

To cool the heater when the heating operation is stopped, set the SET2-3 Fan Delay Switch is ON.

This is the output control of assuming the auxiliary heater used when performing heating operation in low outdoor-temperature environment.

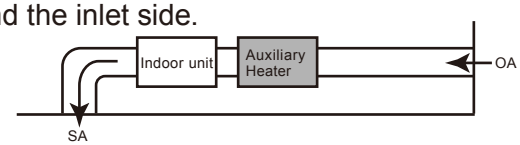


⚠CAUTION

Please install auxiliary heater between the indoor unit and the inlet side.

Please be sure to use delay control of a fan.

Please design and install auxiliary properly considering protection by auxiliary itself.



If auxiliary does not design and install properly, it may cause fire by auxiliary's heat.

In case of auxiliary does not design and install properly, our company cannot take responsibility.

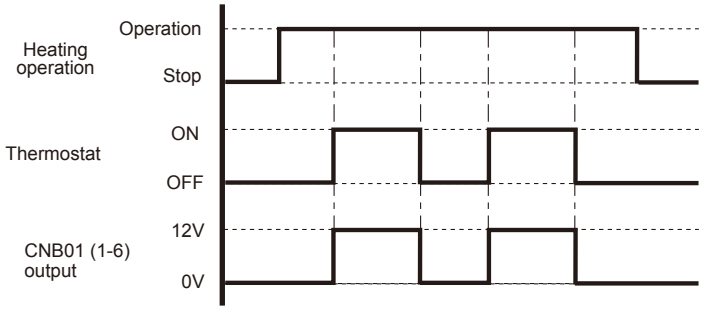
OUTDOOR AIR UNIT

■ HUMIDIFIER OUTPUT (External output5)

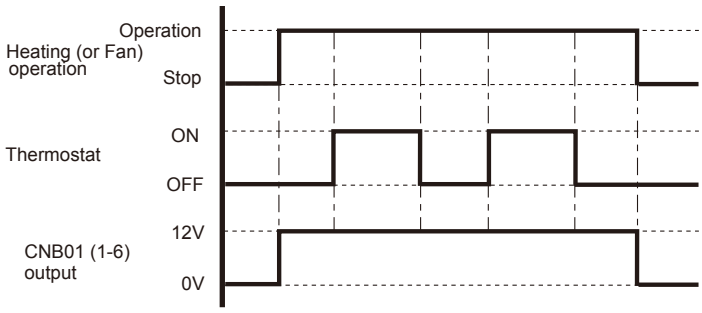
The output for CNB01 (1-6) is output when the Outdoor Air Unit is operating, according to the setting in function number 63 "Humidifier control".

Function	Function number	Setting number	Default	
Humidifier control	63	00 (mode 00)	●	Outputs when heating thermostat is ON
		01 (mode 01)		Outputs in heating operation (regardless of the thermostat ON or OFF)
		02 (mode 02)		Outputs in heating operation (regardless of the thermostat ON or OFF) and in FAN operation

● When the function is set to "00" (mode 00):



● When the function is set to "01" (mode 01) or "02" (mode 02):



OUTDOOR AIR UNIT

15-3. OPTIONAL PARTS

Usage	Name and shapes	Q'ty	Models
For output port	EXTERNAL CONNECT KIT 	1	UTY-XWZXZC
For control input port (Apply voltage terminal)	EXTERNAL CONNECT KIT 	1	UTY-XWZXZB
For control input port (Dry contact terminal)	EXTERNAL CONNECT KIT 	1	UTY-XWZXZD
For forced thermostat off port (Apply voltage terminal)	EXTERNAL CONNECT KIT 	1	UTY-XWZXZ7
For forced thermostat off port (Dry contact terminal)	EXTERNAL CONNECT KIT 	1	UTY-XWZXZE

OUTDOOR AIR UNIT

15-4. EXTERNAL INPUT / OUTPUT FUNCTION SUMMARY

■ EXTERNAL INPUT FUNCTION

Item	Dry contact/ Apply voltage	Function				Specifications				
		Operation / Stop	Emergency stop	Forced Stop	Forced thermostat off	Terminal	Signal type	External power supply		Wire size / length
								Allowable voltage	Allowable current	
Input function specification	Dry contact DC12[V]	● (46-00)	● (46-01)	● (46-02)	-	CNA02 (PIN1-3)	Edge	-	-	AWG22 Twist / Max. Cable length 150 [m]
						CNA02 (Ch1:PIN1-3) (Ch2:PIN2-3)	Pulse *1			
		-	-	-	●	CNA04 (PIN1-2)	Edge			
	Apply voltage	● (46-00)	● (46-01)	● (46-02)	-	CNA01 (PIN1-2)	Edge	DC12-24 [V]	10 [mA] or less	
						CNA01 (Ch1:PIN1-2) (Ch2:PIN1-3)	Pulse *1			
		-	-	-	●	CNA03 (PIN1-2)	Edge			

*1 : Default setting is Edge signal, if you use pulse signal, must be set Dip SW2-2 to ON position.

■ EXTERNAL OUTPUT FUNCTION

Item	Dry contact / Apply voltage	Function					Specifications			
		Operation status	Error status	Indoor unit fan operation status	Auxiliary heater output	Humidifier output	Terminal	Terminal output voltage	Wire size	Maximum length of cable
Output function specification	Dry contact	●	-	-	-	-	CNB01 (PIN1-2)	DC12 [V]	AWG22 Twist	25 [m]
		-	●	-	-	-	CNB01 (PIN1-3)			
		-	-	●	-	-	CNB01 (PIN1-4)			
		-	-	-	● *	-	CNB01 (PIN1-5)			
		-	-	-	-	●	CNB01 (PIN1-6)			

* : If you use Auxiliary heater output, must be set Dip SW2-3 to ON position.

OUTDOOR AIR UNIT

16. IMPORTANT NOTICES

- Though the discharge-air temperature is configurable, there are cases that the temperature does not become to the set temperature under influence of the air-conditioning load or the mechanical protection control.
- Outdoor air unit is for handling outdoor air loads only, and cannot control the room temperature. Consider the position of the outlet in the installation as the discharge-air temperature is different from the one in the general indoor unit.
- According to the outdoor temperature or the operating condition, there are cases that the discharge-air temperature is not stable. When the outdoor temperature is close to the set temperature, the thermostat may keep turning on and off frequently
- If the estimated temperature and humidity in the space above the ceiling will be higher than 30℃ 80% RH, put the heat insulator (10 mm or more) on the unit.

■ SAFETY PRECAUTIONS

⚠WARNING

- Request your dealer or a professional installer to install the indoor unit in accordance with the Installation Manual. An improperly installed unit can cause serious accidents such as water leakage, electric shock, or fire. If the indoor unit is installed in disregard of the instructions in the Installation Manual, it will void the manufacturer's warranty.
- Do not turn ON the power until all work has been completed. Turning ON the power before the work is completed can cause serious accidents such as electric shock or fire.
- If refrigerant leaks while work is being carried out, ventilate the area. If the refrigerant comes in contact with a flame, it produces a toxic gas.
- Installation work must be performed in accordance with national wiring standards by authorized personnel only.
- Except for EMERGENCY, never turn off main as well as sub breaker of the indoor units during operation. It will cause compressor failure as well as water leakage. First, stop the indoor unit by operating the control unit, converter or external input device and then cut the breaker. Make sure to operate through the control unit, converter or external input device. When the breaker is designed, locate it at a place where the users cannot start and stop in the daily work.

⚠CAUTION

- Read carefully all security information before use or install the air conditioner.
- Do not attempt to install the air conditioner or a part of the air conditioner by yourself.
- This unit must be installed by qualifi ed personnel with a capacity certificate for handling refrigerant fluids. Refer to regulation and laws in use on installation place.
- The installation must be carried out in compliance with regulations in force in the place of installation and the installation instructions of the manufacturer.
- This unit is part of a set constituting an air conditioner. It must not be installed alone or with non-authorized by the manufacturer.
- Always use a separate power supply line protected by a circuit breaker operating on all wires with a distance between contact of 3mm for this unit.
- The unit must be correctly grounded and the supply line must be equipped with a differential breaker in order to protect the persons.
- The units are not explosion proof and therefore should not be installed in explosive atmosphere.
- Never touch electrical components immediately after the power supply has been turned off. Electric shock may occur. After turning off the power, always wait 5 minutes before touching electrical components.
- This unit contains no user-serviceable parts. Always consult authorized service personnel to repairs.
- When moving, consult authorized service personnel for disconnection and installation of the unit.

OUTDOOR AIR UNIT

17. OPTIONAL PARTS

17-1. CONTROLLERS

Type	Model	
System Controller	UTY-APGX	Option: UTY-PEGX
System Controller Lite	UTY-ALGX	Option: UTY-PLGXA1, UTY-PLGXR1, UTY-PLGXE1
Touch Panel Controller	UTY-DTG∗	
Central Remote Controller	UTY-DCG∗	
Group Remote Controller	UTY-CGG∗	
Wired Remote Controller (Touch panel)	UTY-RNR∗	
Wired Remote Controller	UTY-RLR∗	
Wired Remote Controller	UTY-RNK∗	
Simple Remote Controller (With operation mode)	UTY-RSK∗	
Simple Remote Controller (Without operation mode)	UTY-RHK∗	
Wireless Remote Controller	UTY-LNH∗	

17-2. OTHERS

	IR receiver unit
Model name	UTB-∗WC
ARXH054GTAH	o
ARXH072GTAH	o
ARXH096GTAH	o