Refrigerant R410A

INVERTER

AIR CONDITIONER

1 phase type

Simultaneous multi system

DESIGN & TECHNICAL MANUAL

SIMULTANEOUS MULTI INDOOR

AU∗G18LVLB × 2
AU∗G22LVLA × 2
AU∗G24LVLA × 2
AU∗G18LVLB × 3

AR∗G18LLTB × 2
AR∗G18LLTB × 3

AR∗G22LMLA × 2
AR∗G24LMLA × 2

AB∗G18LVTB × 2
AB∗G22LVTA × 2
AB∗G24LVTA × 2
AB∗G18LVTB × 3

OUTDOOR

AO∗G36LBTB
AO∗G45LBTB
AO∗G54LBTB

FUJITSU GENERAL LIMITED

DTR_SSM002E_03
2016.07.08

CONTENTS

Refrigerant R410A
INVERTER

AIR CONDITIONER

1 phase type

Simultaneous multi system

1. GENERAL INFORMATION

DTR_SSM002E_01--CHAPTER01
2016.01.25

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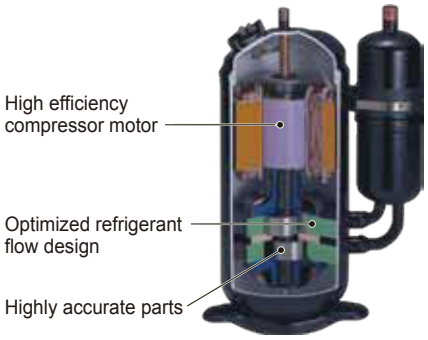
1. GENERAL INFORMATION

GENERAL INFORMATION

1. FEATURES OF SYSTEM

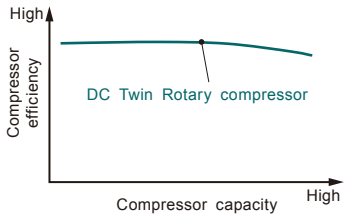
1-1. PERFORMANCE AND ENERGY SAVING

■ DC TWIN ROTARY COMPRESSOR



DC twin rotary compressor

Efficiency in all load regions is good. Especially good performance from low to medium at normal operation.



■ DC FAN MOTOR

Miniaturized, low noise, high efficiency, multi-stage DC fan motor is mounted.

■ PEAK CUT FUNCTION

Suppresses maximum capacity and performs energy-saving operation and can prevent breaker tripping.

This function performs operation by setting a peak current value and reducing the Input Power.

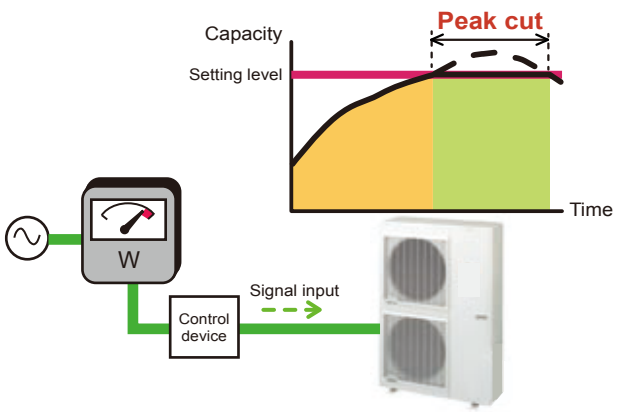
* Performance drops by reducing the Input Power preferentially.

Level 1 ... Performs operation which suppresses the Input Power to almost 0% by stopping the compressor.

Level 2 ... Performs operation which suppresses the Input Power to 50% of the rated Input Power value.

Level 3 ... Performs operation which suppresses the Input Power to 75% of the rated Input Power value.

Level 4 ... Performs operation which suppresses the Input Power to the rated Input Power value (100%).

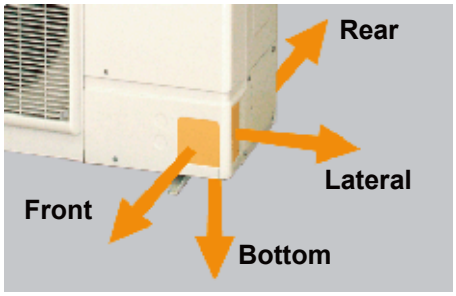


GENERAL INFORMATION

1-2. EASY INSTALLATION

■ 4-DIRECTIONS PIPING CONNECTION

Four directions piping connection is possible. The perfect route can be selected according to the installation.



■ LOW OUTDOOR AIR TEMPERATURE CORRESPONDENCE

Both cooling and heating operations can be performed when the outdoor air temperature is low.

Cooling		-15 °C
Heating	Dry-bulb	-15 °C
	Wet-bulb	-20 °C

■ EXTERNAL OUTPUT (OPTION)

● Compressor status output

This output indicates the outdoor unit operation status's On / Off.

● Error status output

This output indicates the outdoor unit and connected indoor unit's Normal / Error.

■ BLUE FIN HEAT EXCHANGER

Corrosion-resistance of the heat exchanger even in coastal areas has been improved by blue fin treatment of the outdoor unit heat exchanger.

■ SERVICE, MAINTENANCE

- "Error display" and "Operating information" can be explained by LED display.
- Pump down operation can be performed by one button when refrigerant recovery.

GENERAL INFORMATION

1-3. QUIET OPERATION

■ LOW NOISE FUNCTION

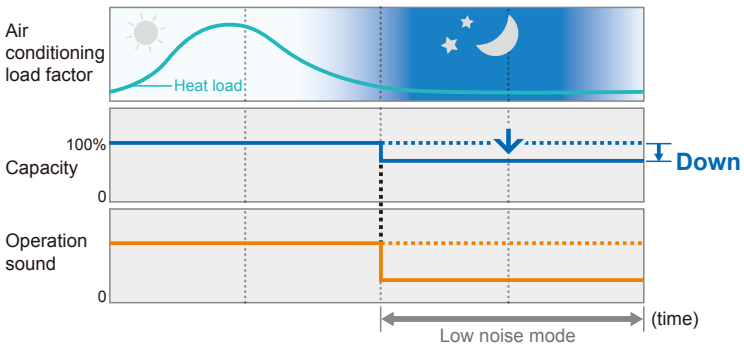
Suppresses operating sound.

This function suppresses the outdoor unit noise value to the following 2 level.

* Performance may drop depending on the outside air temperature condition, etc.

Level 1 ... Rated noise value -2dB

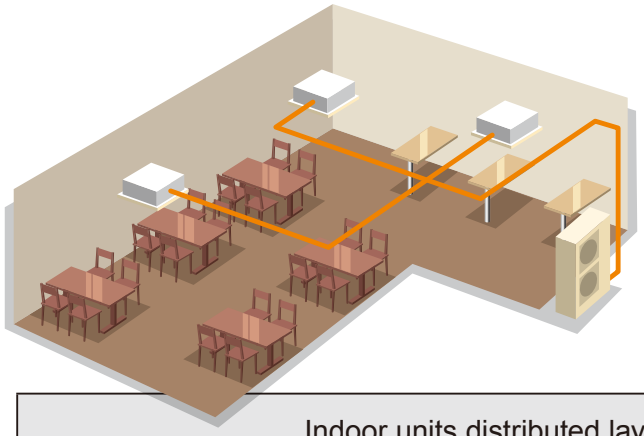
Level 2 ... Rated noise value -4dB



GENERAL INFORMATION

1-4. SIMULTANEOUS MULTI SYSTEM

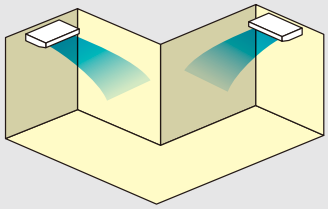
■ IDEAL COMFORTABLE AIRFLOW DISTRIBUTION



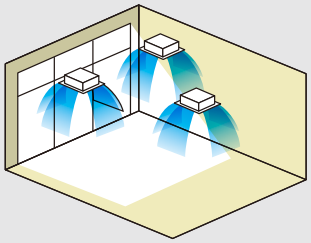
Can support various installation scenes from office to commercial space by same place multi connection of up to 3 units.

Indoor units distributed layout according to the shape and number of people and lighting conditions of the room even on wide floors and atypical floors. Ideal comfortable airflow distribution can be realized.

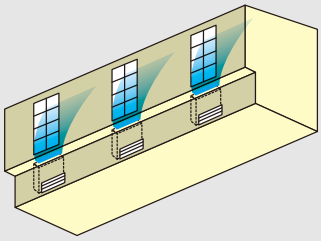
Installation according to floor layout



Installation according to lighting conditions



Installation according to layout and lighting conditions



■ ALL DC

● ALL DC saves energy throughout the year

By making all the motors DC, electricity loss is decreased and Input Power is substantially reduced. In addition, fan motor high speed rotation is increased and annual Input Power amount is saved by increasing the airflow.

ALL DC

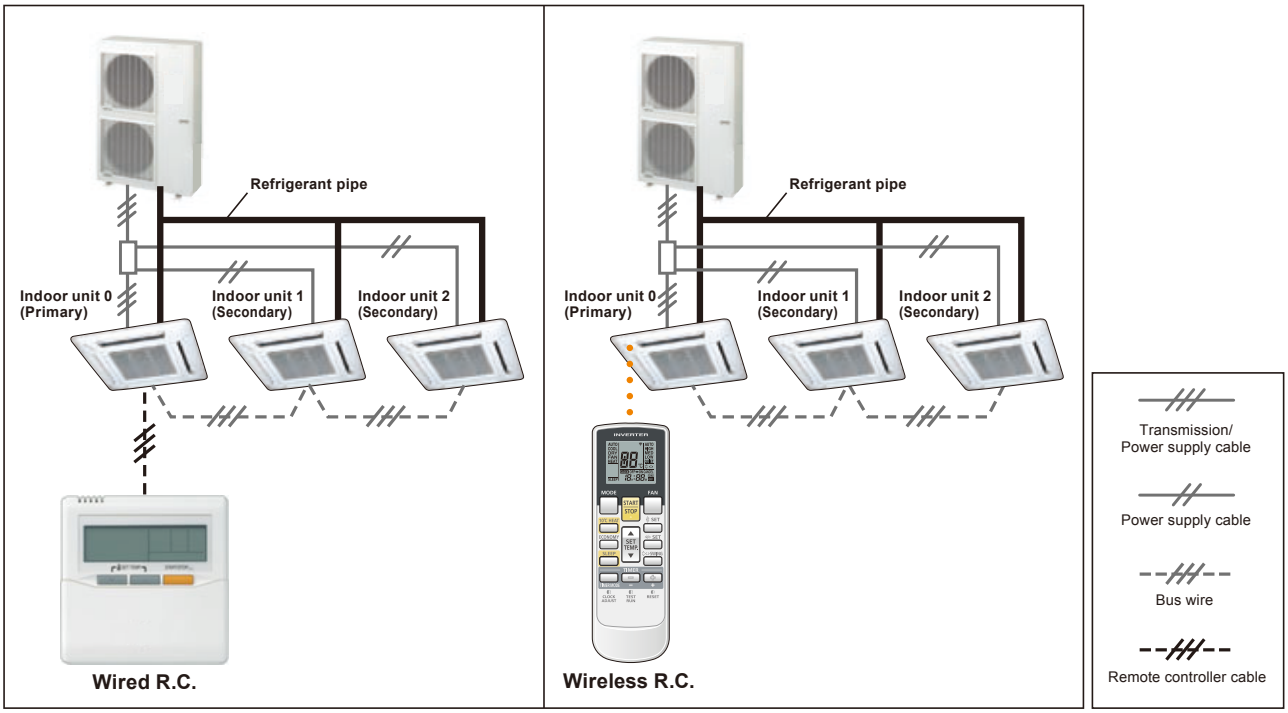
GENERAL INFORMATION

1-5. CONTROL SYSTEM

■ 1-REMOTE CONTROLLER CONTROL

This is the most basic system. Wired type or wireless type remote controller can be selected.

● Simultaneous multi system



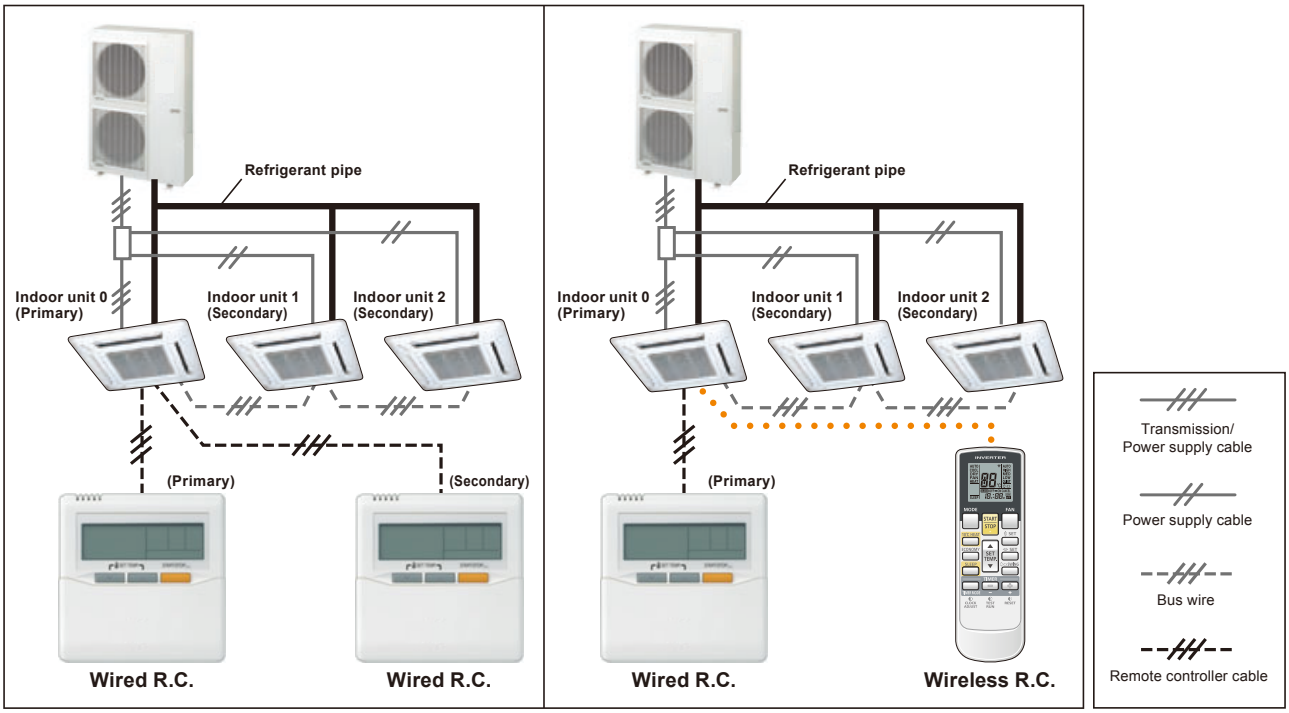
* When using a wireless type remote controller, install IR Receiver unit to the indoor units. (Slim duct type, Duct type)
* In simultaneous multi connection, the timer and 10°C HEAT functions by using the wireless remote controller cannot be used.

GENERAL INFORMATION

■ 2-REMOTE CONTROLLERS CONTROL

Control locally and from a remote point is possible using 2-remote controllers.

● Simultaneous multi system



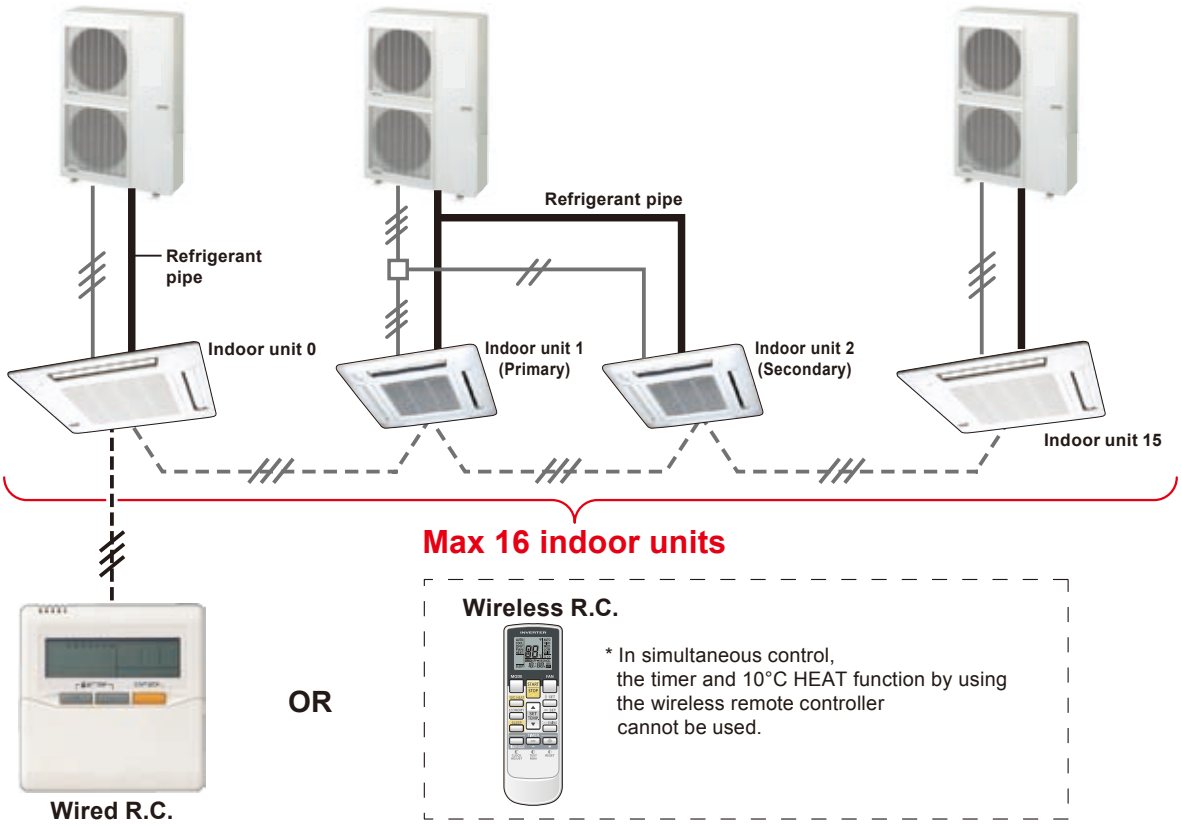
* For 2 wired-type remote controllers, specify a primary and a secondary remote controller.
* The timer and 10°C HEAT (Wireless R.C. only) functions of the remote controller specified as the secondary cannot be used.
* In simultaneous multi connection, the timer and 10°C HEAT functions by using the wireless remote controller cannot be used.
* When using a wireless type remote controller, install IR Receiver unit to the indoor units. (Slim duct type, Duct type)

GENERAL INFORMATION

■ GROUP CONTROL

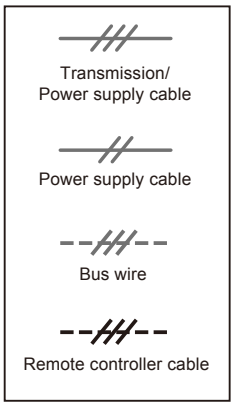
Max 16 indoor units are simultaneously controlled with a wired remote controller.

Example



Set the remote control address using DIP switch on indoor unit circuit board.

* In the group connection of different models, the functions which can be set by using the wired remote controller are limited.

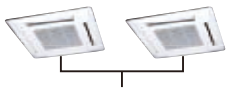
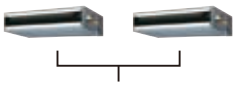
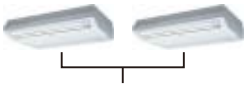
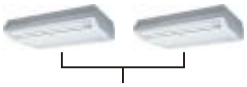


GENERAL INFORMATION

2. MODEL LINE UP

2-1. INDOOR UNITS

■ SIMULTANEOUS MULTI SYSTEM

	TWIN			TRIPLE
	18 model x2	22 model x2	24 model x2	18 model x3
COMPACT CASSETTE	AU∗G18LVLB x 2 	AU∗G22LVLA x 2 	AU∗G24LVLA x 2 	AU∗G18LVLB x 3 
DUCT 18: Slim duct 22, 24: Duct	AR∗G18LLTB x 2 	AR∗G22LMLA x 2 	AR∗G24LMLA x 2 	AR∗G18LLTB x 3 
FLOOR / CEILING	AB∗G18LVTB x 2 	AB∗G22LVTA x 2 	AB∗G24LVTA x 2 	AB∗G18LVTB x 2 

Note :
The combination other than above cannot be performed.
(For example, different indoor type combination such as AU∗G22LVLA + AR∗G22LMLA cannot be performed.)

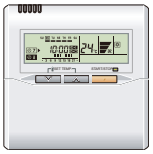
GENERAL INFORMATION

2-2. OUTDOOR UNIT

SIMULTANEOUS MULTI SYSTEM				
CONNECTION TYPE	Twin			Triple
INDOOR UNIT	18 model x 2	22 model x 2	24 model x 2	18 model x 3
OUTDOOR UNIT	 AO∗G36LBTB	 AO∗G45LBTB	 AO∗G54LBTB	

GENERAL INFORMATION

2-3. CONTROLLER

REMOTE CONTROLLER TYPE	Wired Remote Controller		Wireless Remote Controller	IR Receiver Unit	Simple Remote Controller
Note; ●: Accessory O: Optional Parts —: It is not possible to connect it.	 UTY-RVN∗M	 UTY-RNN∗M		 UTY - LRH∗M	 UTY-RSN∗M
SIMULTANEOUS MULTI SYSTEM					
COMPACT CASSETTE	O	O	●	—	O
SLIM DUCT	O	● O	—	O	O
DUCT	O	● O	—	O	O
FLOOR / CEILING	O	O	●	—	O

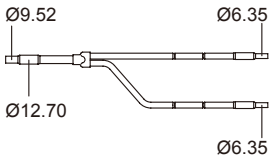
GENERAL INFORMATION

2-4. BRANCH PIPES

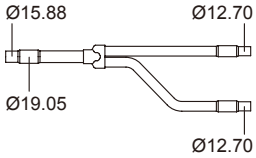
Twin connection type

Model : UTP - SX236□

Liquid pipe



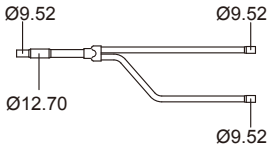
Gas pipe



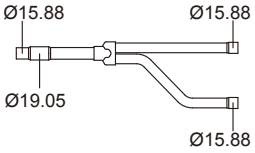
Twin connection type

Model : UTP - SX254□

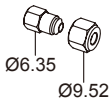
Liquid pipe



Gas pipe



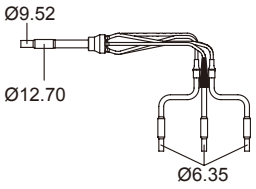
Adapter



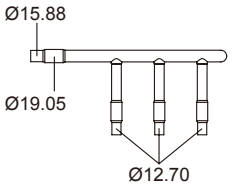
Triple connection type

Model : UTP - SX354□

Liquid pipe



Gas pipe



Cable tie

GENERAL INFORMATION

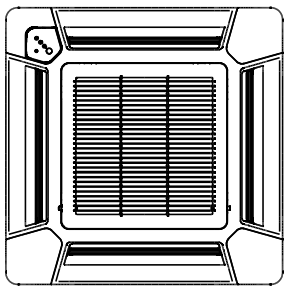
2-5. CASSETTE GRILLE

■ SIMULTANEOUS MULTI SYSTEM

TYPE	MODEL	INDOOR UNITS			
		COMPACT CASSETTE	SLIM DUCT	DUCT	FLOOR / CEILING
Cassette grille	UTG-UF∗D-W	O	—	—	—

● Parts

Cassette grille
Model: UTG-UF∗D-W



GENERAL INFORMATION

2-6. OTHERS (optional parts)

■ SIMULTANEOUS MULTI SYSTEM

TYPE	MODEL	INDOOR UNITS				OUTDOOR UNIT
		COMPACT CASSETTE	SLIM DUCT	DUCT	FLOOR / CEILING	
Air outlet shutter plate	UTR-YDZB	O	—	—	—	—
Insulation kit for high humidity	UTZ-KXGC	O	—	—	—	—
Fresh air intake kit	UTZ-VXAA	O	—	—	—	—
Square flange	UTD-SF045T	—	—	O	—	—
Round flange	UTD-RF204	—	—	O	—	—
Long-life filter	UTD-LF25NA	—	—	O	—	—
Remote sensor unit	UTY-XSZX	—	O	O	—	—
Auto louver grille kit	UTD-GXSB-W	—	O	—	—	—
External control set	UTD-ECS5A	—	O	O	—	—
Drain pump unit	UTZ-PX1NBA	—	—	O	—	—
External connect kit	UTY-XWZX	O	—	—	O	—
	UTY-XWZXZ3	—	—	—	—	O

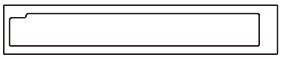
O: Optional, —: It is not possible to connect it.

GENERAL INFORMATION

■ SIMULTANEOUS MULTI SYSTEM

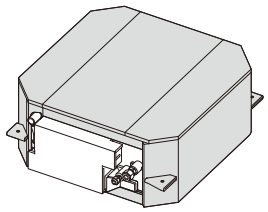
● Parts

Air outlet shutter plate
Model:UTR-YDZB



For
COMPACT CASSETTE
TYPE

Insulation kit for high humidity
Model:UTZ-KXGC

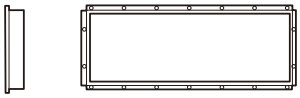


For
COMPACT CASSETTE
TYPE

Fresh air intake kit
Model:UTZ-VXAA

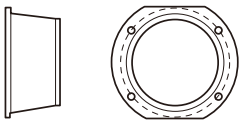
For
COMPACT CASSETTE
TYPE

Square flange
Model:UTD-SF045T



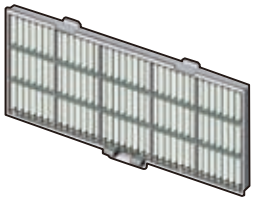
For
DUCT TYPE

Round flange
Model:UTD-RF204



For
DUCT TYPE

Long-life filter
Model:UTD-LF25NA



For
DUCT TYPE

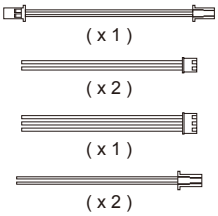
Remote sensor
Model:UTY-XSZX

For
DUCT TYPE,
SLIM DUCT TYPE

Auto louver grille kit
Model:UTD-GXSB-W

For
SLIM DUCT TYPE

External control set
Model:UTD-ECS5A



For
DUCT TYPE,
SLIM DUCT TYPE

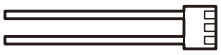
Drain Pump Unit
Model:UTZ - PX1NBA

For
DUCT TYPE

GENERAL INFORMATION

External connect kit

Model:UTY - XWZX



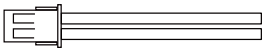
(x 1)

(x 1)

For
COMPACT CASSETTE
TYPE,
FLOOR / CEILING TYPE

External connect kit

Model:UTY - XWZXZ3



For
OUTDOOR UNIT

Refrigerant R410A
INVERTER

AIR CONDITIONER

1 phase type

Simultaneous multi system

2. INDOOR UNITS (SIMULTANEOUS MULTI)

DTR_SSM002E_01--CHAPTER02
2016.01.25

CONTENTS

2. INDOOR UNITS (SIMULTANEOUS MULTI)

CONTENTS

2. INDOOR UNITS (SIMULTANEOUS MULTI)

1. FEATURES

1-1. COMPACT CASSETTE TYPE

■ MODEL

INDOOR UNIT		OUTDOOR UNIT
TWIN	AU∗G18LVLB × 2	AO∗G36LBTB
	AU∗G22LVLA × 2	AO∗G45LBTB
	AU∗G24LVLA × 2	AO∗G54LBTB
TRIPLE	AU∗G18LVLB × 3	

■ FEATURES

● Energy efficiency class

	MODEL
	AU∗G18LVLB × 2
Cooling	A
Heating	A

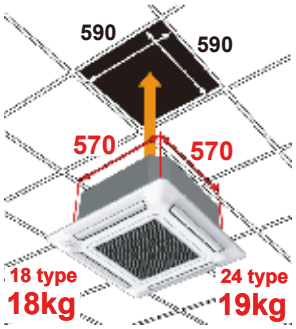
● Advancement in comfort

- Quiet operation was realized by adoption of new type turbo fan
- Improvement of air stream

● Improvement of installation & maintenance

- COMPACT DESIGN

Fits the European size ceiling.



INDOOR UNITS (SIMULTANEOUS MULTI)

INDOOR UNITS
(SIMULTANEOUS MULTI)

● Easy maintenance

①Maintenance of fan motor and fan

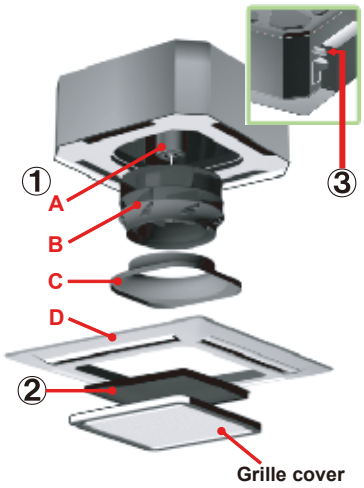
Maintenance of fan motor and fan can be done easily after taking off the panel, since bell-mouth can be removed easily

A : Fan motor

B : 2 stage turbo fan

C : Bell-mouth

D : Panel



②Long life filter

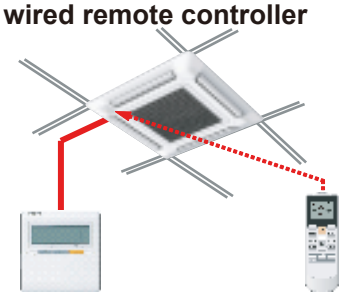
: standard equipment

③Adaptation of transparent drainage parts

Easy check of operation of drain-up kit when you install

● Easy installation

Easy setting by wireless or wired remote controller



● Economy operation

The Input Power can be reduced.

INDOOR UNITS (SIMULTANEOUS MULTI)

■ FUNCTION SETTING

● Outlet direction selection

• Performs operation matched to the number of outlets when 4 directions are unnecessary and outlets are blocked when the ceiling cassette is installed in a corner, etc.

4-way direction **3-way direction**

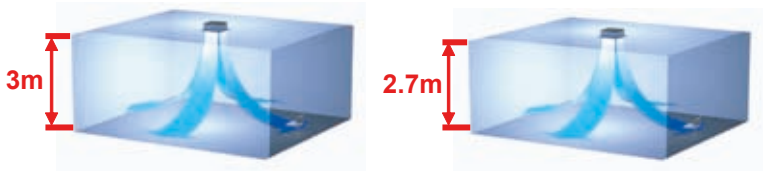
4-way direction mode: Set when there are 4 outlets (shipped state).
3-way direction mode: Set when there are 3 outlets.

● Ceiling switching function

Air reaches sufficiently up to 3m height, even it is compact cassette type.

Also delivers air to high ceilings by selecting the mode and raising the airflow according to the height of the ceiling.

High ceiling (Mode 1) **Standard ceiling (Standard)**



Standard...Operates at normal airflow.

Mode 1 ...Airflow becomes greater than normal.

● Cooling room temperature correction

● Heating room temperature correction

● Auto restart

The units restart automatically when the current was returned even when there was a power interruption during operation.

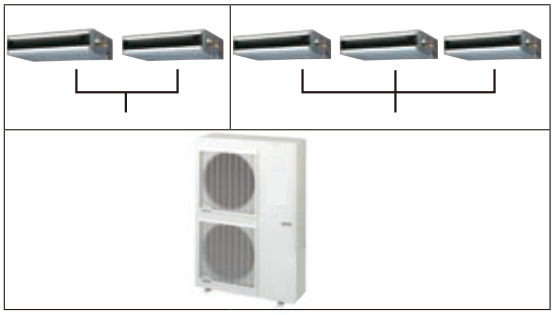
● Room temperature sensor switching

Switches from room temperature judgment by room temperature sensor attached to indoor unit body to room temperature judgment by room temperature sensor attached to wired remote controller.

1-2. SLIM DUCT TYPE

■ MODEL

INDOOR UNIT		OUTDOOR UNIT
TWIN	**AR∗G18LLTB × 2**	**AO∗G36LBTB**
TRIPLE	**AR∗G18LLTB × 3**	**AO∗G54LBTB**



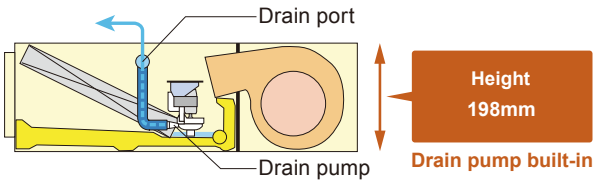
■ FEATURES

● Energy efficiency class

	MODEL
	AR∗G18LLTB × 2
Cooling	A
Heating	A

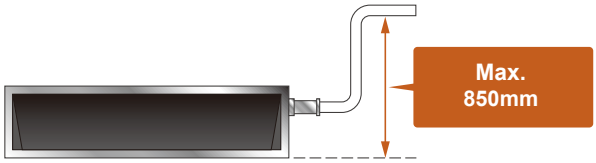
● Slim design

This model is slim design, it can install at the place where a ceiling is narrow.



● Compact design

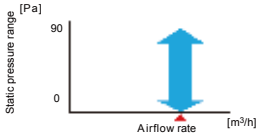
Condensate lift-up to 850mm.



Drain hose is standard accessory

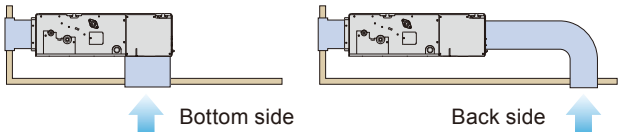
● Selectable with a wide range of static pressure

By using DC fan motor, it is possible to change of static pressure range 0 to 90Pa. The change of static pressure range is possible by remote controller.

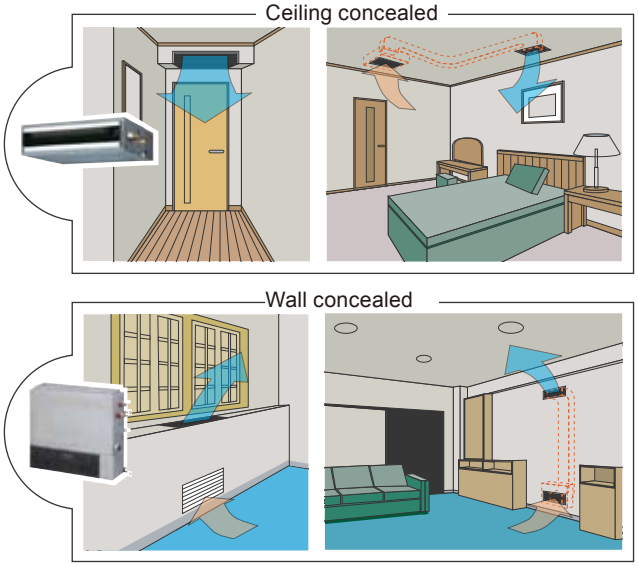


● Air - intake

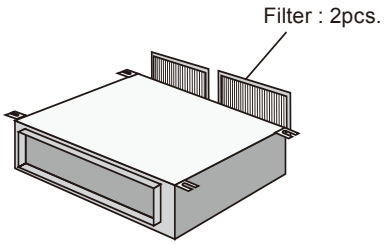
Air intake direction can be selected to match the installation site.



● Flexible installation



● Filter (Accessory)



● Economy operation

The Input Power can be reduced.

INDOOR UNITS (SIMULTANEOUS MULTI)

■ FUNCTION SETTING

● Static pressure mode setting

Airflow, noise, etc. can be used under the optimum conditions by selecting the static pressure mode matched to the installation conditions.

● Room temperature sensor switching

Switches from room temperature judgment by room temperature sensor attached to indoor unit body to room temperature judgment by room temperature sensor attached to wired remote controller.

● Auto restart

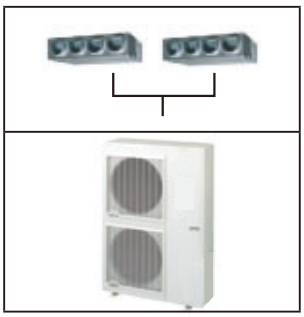
The units restart automatically when the current was returned even when there was a power interruption during operation.

● Cooling room temperature correction

● Heating room temperature correction

INDOOR UNITS
(SIMULTANEOUS MULTI)

1-3. DUCT TYPE



■ MODEL

INDOOR UNIT		OUTDOOR UNIT
TWIN	AR∗G22LMLA × 2	AO∗G45LBTB
	AR∗G24LMLA × 2	AO∗G54LBTB

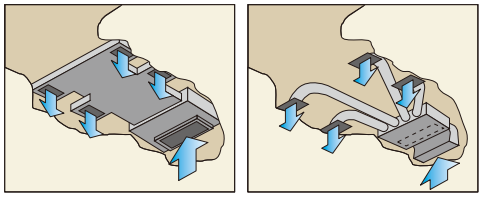
■ FEATURES

● Energy saving

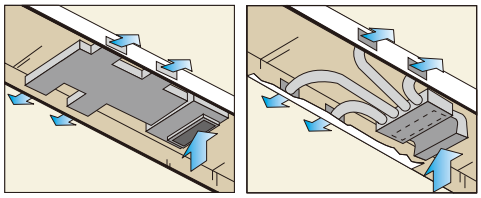
High energy saving was realized by making the indoor unit and outdoor unit fan motor and compressor all DC and optimal design of the refrigerant cycle.

● Installation styles

Embedded in Ceiling

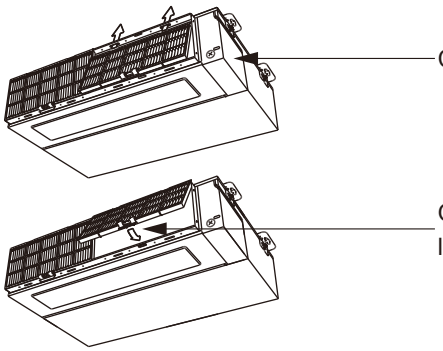


Hanging from Ceiling



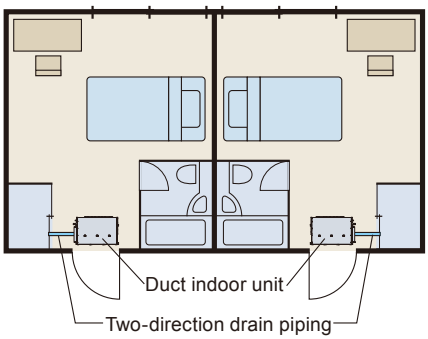
● Slim & compact design

In the case of bottom suction type, as seen from lower rear part.



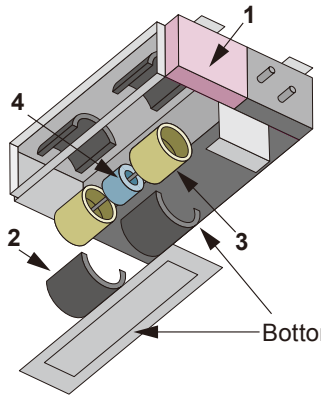
In addition to the slim height of 270 mm which is our sales point, further compactification is attained by reducing 65 mm from the width with the flanking control box embedded inside the chassis.

● Two-direction drain piping



● Easy maintenance

It can easily access the fan and the motor by the divided panel structure.



1. Control box
2. Fan casing
3. Fan
4. Motor

Structural improvement is attained by making the bottom panel two pieces, front and rear.

The internal fan casing is also manufactured in two pieces, namely upper and lower. The maintenance of the motor and fan can be easily carried out by removing the rear panel and the lower part of the casing while leaving the main chassis installed.

INDOOR UNITS (SIMULTANEOUS MULTI)

● Quiet operation

Quiet operation can be performed in quiet mode.

● Economy operation

The Input Power can be reduced.

■ FUNCTION SETTING

● Static pressure mode setting

Airflow, noise, etc. can be used under the optimum conditions by selecting the static pressure mode matched to the installation conditions.

● Room temperature sensor switching

Switches from room temperature judgment by room temperature sensor attached to indoor unit body to room temperature judgment by room temperature sensor attached to wired remote controller.

● Auto restart

The units restart automatically when the current was returned even when there was a power interruption during operation.

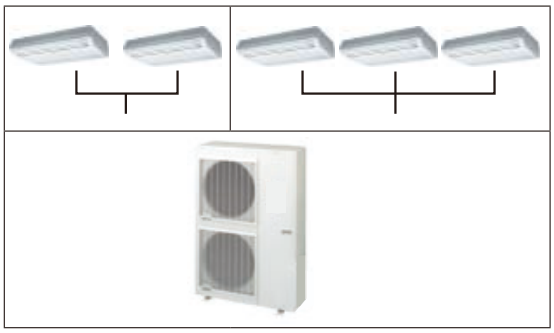
● Cooling room temperature correction

● Heating room temperature correction

1-4. FLOOR / CEILING TYPE

■ MODEL

INDOOR UNIT		OUTDOOR UNIT
TWIN	**AB∗G18LVTB × 2**	**AO∗G36LBTB**
	AB∗G22LVTA × 2	**AO∗G45LBTB**
	AB∗G24LVTA × 2	**AO∗G54LBTB**
TRIPLE	**AB∗G18LVTB × 3**	



■ FEATURES

● Energy efficiency class

	MODEL
	AB∗G18LVTB × 2
Cooling	A
Heating	A

● Quiet operation

Airflow mode can be set in 4 steps and more detailed airflow setting is possible.

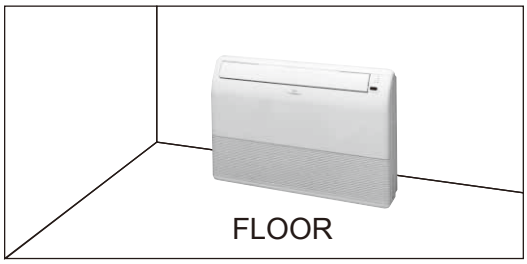
● Economy operation

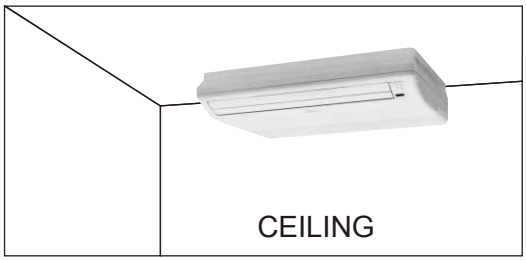
The Input Power can be reduced.

● Wired/wireless simultaneous use possible

Wired remote controller and wireless remote controller can be simultaneously used.

● Flexible installation

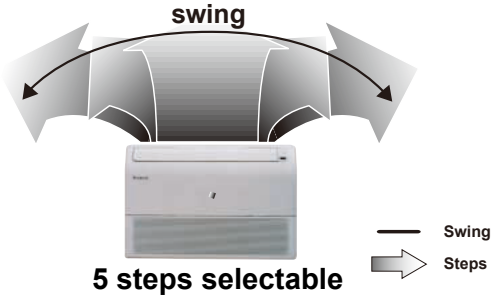




● Double auto swing

Combination of up/down and right/left air direction swing allows three-dimensional air direction Since up/down air direction flaps operate automatically, according to the operating mode of the unit, it is possible to set the air direction based on the operating mode. control.

RIGHT and LEFT



5 steps selectable

UP and DOWN

7 steps selectable

■ FUNCTION SETTING

● Ceiling switching function (standard/high ceiling)

Also delivers air to high ceilings by selecting the mode and raising the airflow according to the height of the ceiling.

Standard ...Operates at normal airflow.

Mode 1 ...Airflow becomes greater than normal.

● Auto restart

The units restart automatically when the current was returned even when there was a power interruption during operation.

● Room temperature sensor switching

Switches from room temperature judgment by room temperature sensor attached to indoor unit body to room temperature judgment by room temperature sensor attached to wired remote controller.

● Cooling room temperature correction

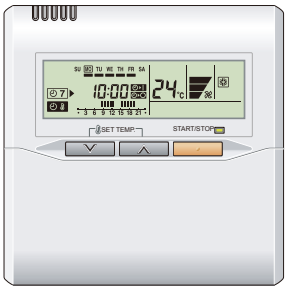
● Heating room temperature correction

INDOOR UNITS (SIMULTANEOUS MULTI)

2. REMOTE CONTROLLER

2-1. WIRED REMOTE CONTROLLER

■ FEATURES



- Various timer setup (ON/OFF/WEEKLY) are possible.
- Equipped with weekly timer as standard function. (Start/Stop function is twice per day for a week)
- When setting up a timer, start/stop and a temperature setup can be changed.
- When a failure occurs,the error code is displayed.
- Error history.(Last 16 error codes can be accessed.)
- Up to 16 indoor units can be simultaneously controlled.
- The room temperature can be controlled by being detective the temperature accurately with Built-in thermo sensor.

● Simple function setting

Setting of the air conditioner selection function is performed by remote controller.

● Powerful features and compact size

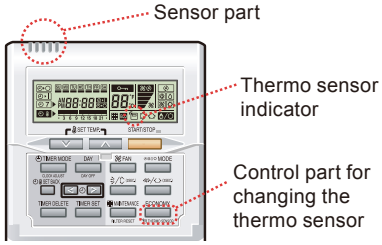
Individual control + Thermo sensor + Weekly timer + Setback timer = Wired remote controller

● Accurate and comfortable

Indoor temperature can be detected accurately by the inclusion of a thermo sensor in the body of the wired controller.

Our system can correspond to various scenes.

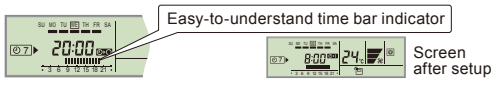
This wired remote controller and the optional remote sensor allows flexibility in sensor location, and suitable for all requirements.



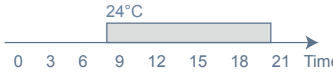
● Built-in timers

Weekly timer

Possible to set ON/OFF time to operate twice each day of the week.



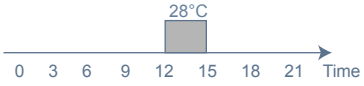
Example : setup screen
(Set to Wednesday: 8:00 to 20:00.)



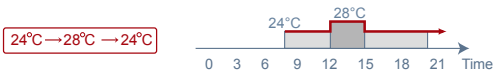
Set back timer

Possible to set temperature for two time spans and for each day of the week.

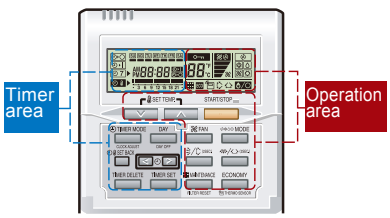
Example : setup screen
(Set from Sunday to Saturday: 12:00 to 15:00, 28 °C.)



At "Weekly timer" + "Set back timer" setup



● Easy-to-understand operation

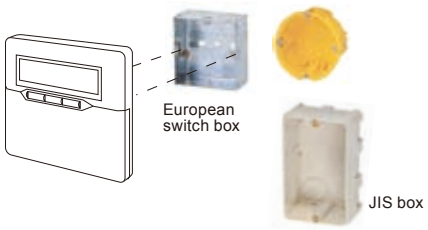


[Variable timer control]

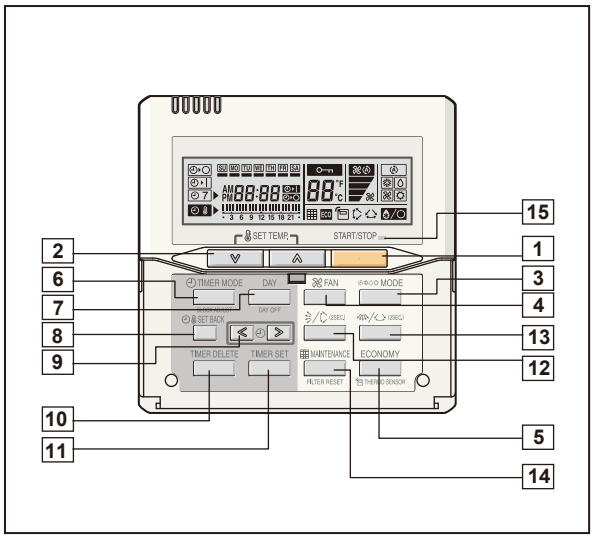
The operation/display sections are zoned according to time and operation, enabling variable programming to match application.

● Simple installation

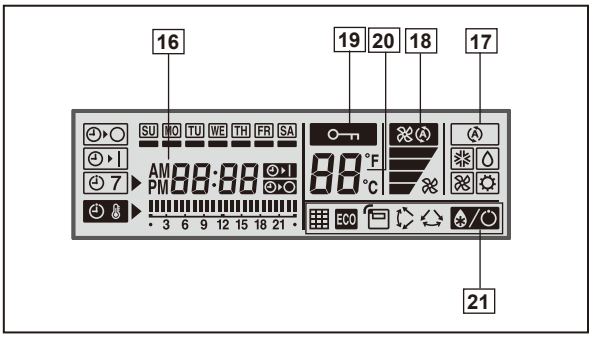
Components are compatible with standard switch boxes. Flat back surface allows equipment to be installed wherever it is needed.



■ FUNCTIONS



Display panel



1 START/STOP button
Pressed to start and stop operation.

2 SET TEMP. button
Selects the setting temperature.

3 MODE button
Selects the operating mode(AUTO, HEAT, FAN, COOL, DRY).

4 FAN button
Selects the fan speed (AUTO, QUIET, LOW, MED, HIGH).

5 ECONOMY (THERMO SENSOR) button
Turns the economy efficient mode on and off.

6 TIMER MODE (CLOCK ADJUST) button
Selects the timer mode (OFF TIMER, ON TIMER, WEEKLY TIMER). Set the current time.

7 DAY (DAY OFF) button
Temporarily cancels of one day timer.

8 SET BACK button
Pressed to select the set back timer.

9 Set time button
Pressed to set time.

10 TIMER DELETE button
The schedule of a weekly timer is deleted.

11 TIMER SET button
Sets the date, hour, minute and on-off time.

12 Vertical airflow direction and swing button
Push for two seconds to change the swing mode.

13 Horizontal airflow direction and swing button
Push for two seconds to change the swing mode.

14 FILTER RESET button

15 Operation lamp
Lights during operation and when the timer is on.

16 Timer and clock indicator

17 Operation mode indicator

18 Fan speed indicatorv

19 Operation lock indicator

20 Temperature indicator

21 Function indicator

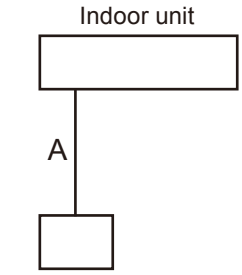
- Defrost indicator
- Thermo sensor indicator
- Economy indicator
- Vertical swing indicator
- Horizontal swing indicator
- Filter indicator

Note: Functions will be different due to type of indoor unit.
For details, please see operation manual.

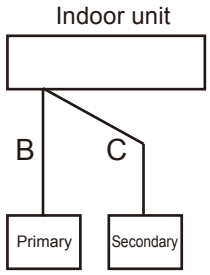
INDOOR UNITS
(SIMULTANEOUS MULTI)

■ SYSTEM DIAGRAM

● 1-remote controller



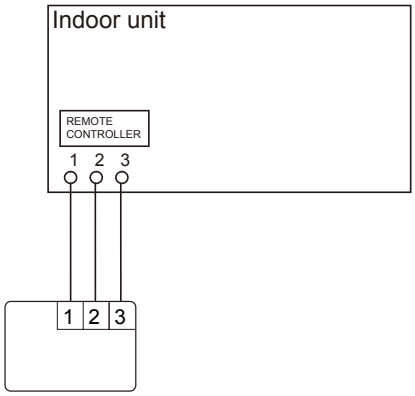
● 2-remote controllers



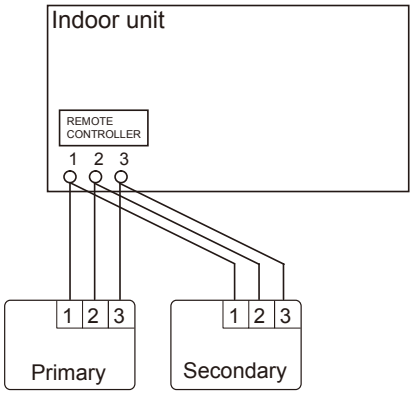
A , B , C : Remote controller cable.
Refer to next page
for detail specifications.
A ≦500m ; B+C ≦500m

■ ELECTRICAL WIRING

● 1-remote controller



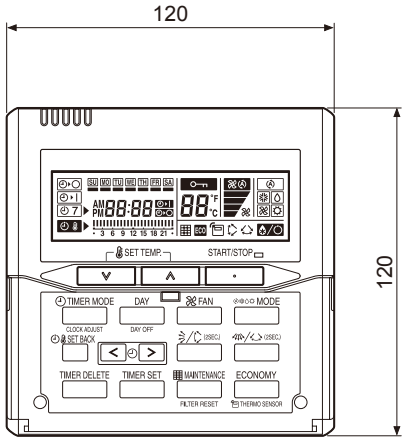
● 2-remote controllers



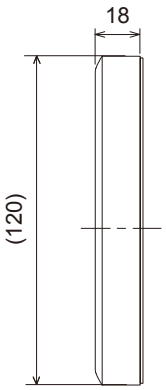
1 (RED) : 12V
2 (WHITE) : Signal
3 (BLACK) : COM

■ DIMENSION

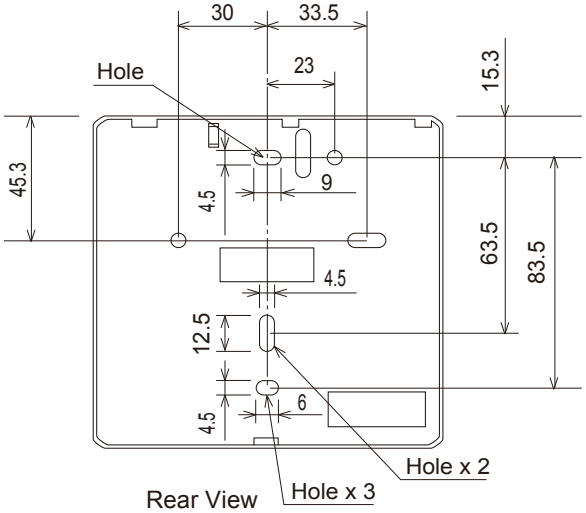
[Unit : mm]



Front View



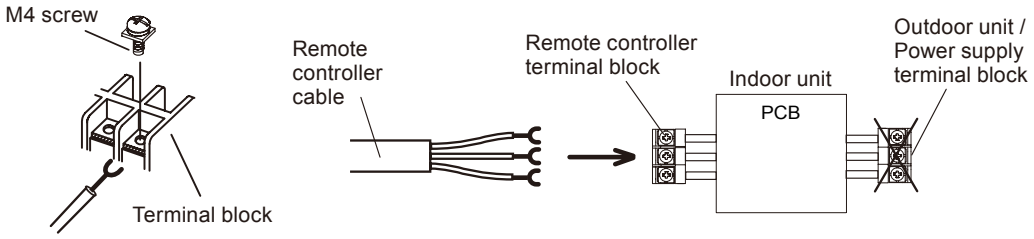
Side View



Rear View

■ INSTALLATION

Connect the end of remote controller cable directly to the exclusive terminal block.



Note: It may be failed if it is connected to the outdoor unit or the terminal block for power supply.

■ PACKING LIST (ACCESSORIES)

Name and shape	Quantity	Application
Remote controller cable (10 m)*	1	For connecting the remote controller
Tapping screw (M4 x 16mm)	2	For installing the remote controller
Cable tie	1	For remote controller and remote controller cable binding
Installation manual	1	
Operation manual	1	

* : If necessary , use shielded cable (Locally purchased) in accordance with the standard of the country.

■ WIRING SPECIFICATIONS

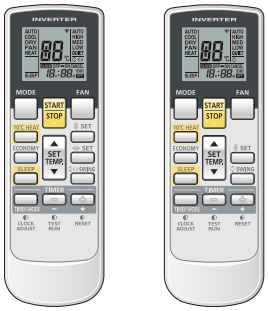
Use	Size	Wire type	Remarks
Remote controller cable	0.33mm^2 (22 AWG)	Polar 3 core	Use sheathed PVC cable

■ SPECIFICATIONS

SIZE	(H x W x D mm)	120 x 120 x 18
WEIGHT	(g)	160

2-2. WIRELESS REMOTE CONTROLLER

■ FEATURES



- Four kinds of timer setup (ON / OFF / PROGRAM / SLEEP) are possible.
- Can be used jointly with wired remote controllers.
- Easy to change custom code (4 patterns).

● Built-in timers

Select from four different timer programs (ON / OFF / PROGRAM / SLEEP).

● Program timer

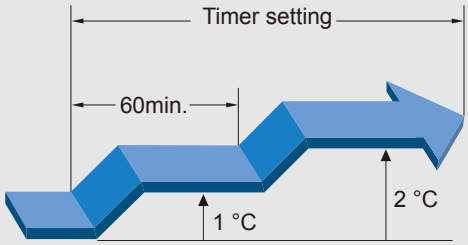
The program timer operates the ON and OFF timer once within a 24 hour period.

● Sleep timer

The sleep timer function automatically corrects the temperature thermostat setting according to the time setting to prevent excessive cooling and heating while sleeping.

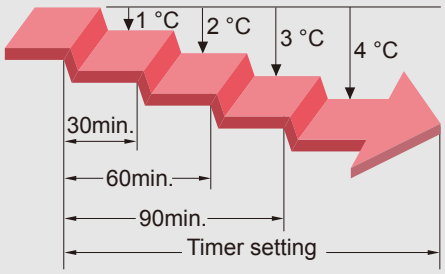
Cooling operation/dry operation

When the sleep timer is set, the set temperature automatically rises 1 °C every hour. The set temperature can rise up to a maximum of 2 °C.



Heating operation

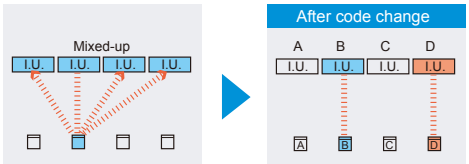
When the sleep timer is set, the set temperature automatically drops 1 °C every 30 minutes. The set temperature can drop to a maximum of 4 °C.



● Simple function setting

Setting of the air conditioner selection function is performed by remote controller.

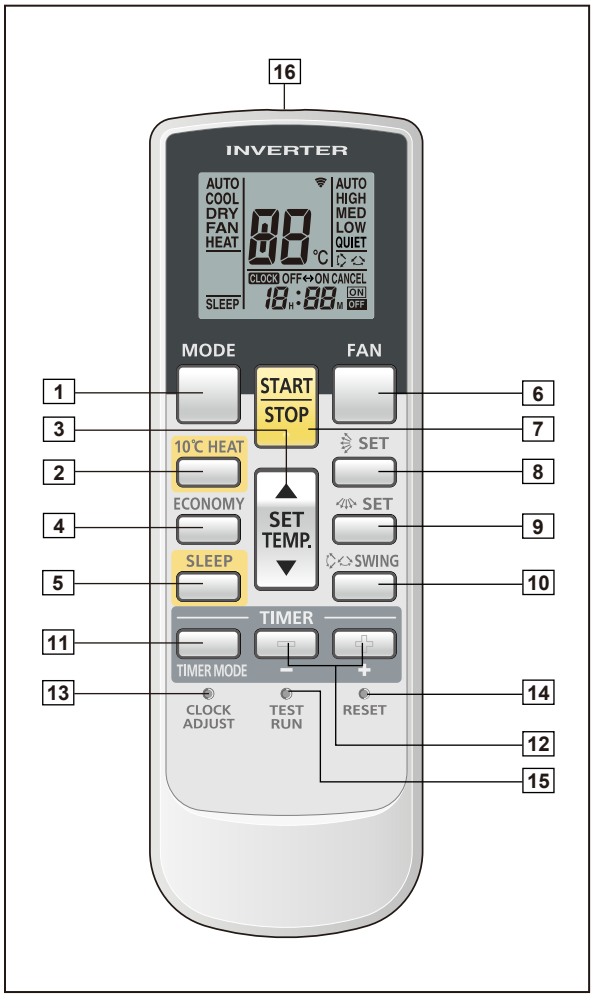
● Switching remote controller custom code



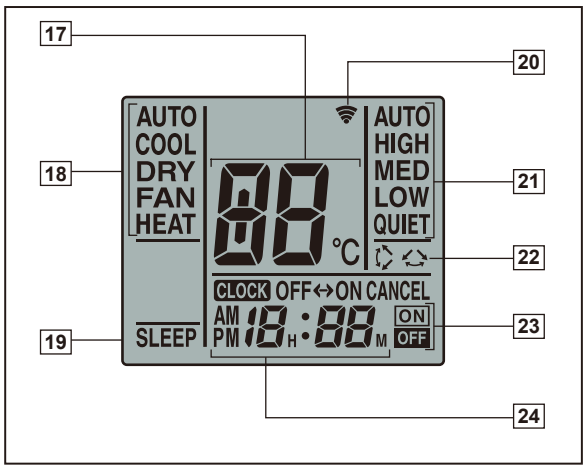
- Code selector switch eliminates unit being wrongly switched. (Up to 4 codes can be set.)

*I.U.=Indoor unit

■ FUNCTIONS



Display panel



1 MODE button
Selects the operating mode (AUTO, COOL, DRY, FAN, HEAT).
/Start / end R.C. custom code change. (Max 4 types)

2 10°C HEAT button
* In Simultaneous multi system, does not function.

3 SET TEMP. button (▲ / ▼)
Sets the indoor temp./ Sets R.C. custom code.

4 ECONOMY button

5 SLEEP button
Pressed to select sleep timer.

6 FAN button
Selects the fan speed (AUTO, HIGH, MED, LOW, QUIET).

7 START/STOP button
Pressed to start and stop operation.

8 SET button (Vertical)
Airflow direction vertical set button.

9 SET button (Horizontal)
Airflow direction horizontal set button.

10 SWING button
Airflow direction swing button.

11 TIMER MODE button
Pressed to select the timer mode. (OFF TIMER, ON TIMER, PROGRAM TIMER, TIMER RESET)
* In Simultaneous multi system, does not function.

12 TIMER SET (⊕ / ⊖) button
Sets the current time and on-off time.
* In Simultaneous multi system, does not function.

13 CLOCK ADJUST button
Sets the current time.

14 RESET button
Used when replacing batteries.

15 TEST RUN button
Used when testing the air conditioner after installation.

16 Signal transmitter

17 Temperature set indicator

18 Operating mode indicator

19 Sleep indicator

20 Transmit indicator

21 Fan speed indicator

22 Swing indicator

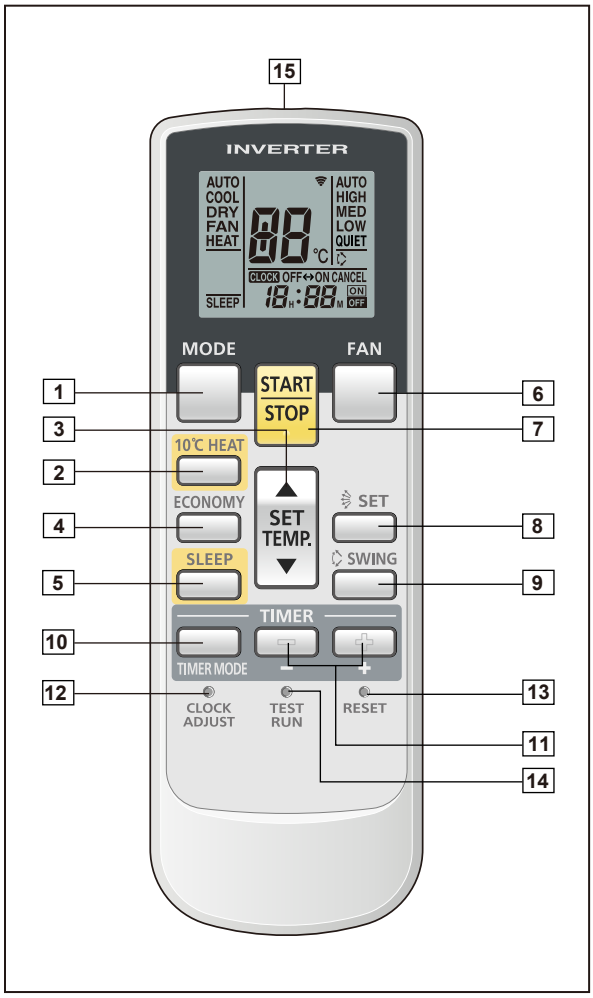
23 Timer mode indicator

24 Clock indicator

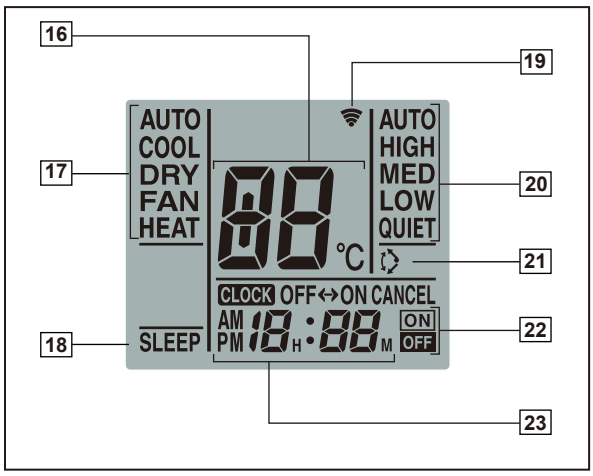
Note: Functions will be different due to type of indoor unit.
For details, please see operation manual.

INDOOR UNITS (SIMULTANEOUS MULTI)

■ FUNCTIONS (COMPACT CASSETTE TYPE ONLY)



Display panel



1 **MODE button**
Selects the operating mode (AUTO, COOL, DRY, FAN, HEAT).
/Start / end R.C. custom code change. (Max 4 types)

2 **10°C HEAT button**

3 **Set temp. button (▲ / ▼)**
Sets the indoor temp./ Sets R.C. custom code.

4 **ECONOMY button**

5 **SLEEP button**
Pressed to select sleep timer.

6 **FAN button**
Selects the fan speed (AUTO, HIGH, MED, LOW, QUIET).

7 **START/STOP button**
Pressed to start and stop operation.

8 **SET button (Vertical)**
Airflow direction vertical set button.

9 **SWING button**
Airflow direction swing button.

10 **TIMER MODE button**
Pressed to select the timer mode. (OFF TIMER, ON TIMER, PROGRAM TIMER, TIMER RESET)

11 **TIMER SET (+ / -) button**
Sets the current time and on-off time.

12 **CLOCK ADJUST button**
Sets the current time.

13 **RESET button**
Used when replacing batteries.

14 **TEST RUN button**
Used when testing the air conditioner after installation.

15 **Signal transmitter**

16 **Temperature set indicator**

17 **Operating mode indicator**

18 **Sleep indicator**

19 **Transmit indicator**

20 **Fan speed indicator**

21 **Swing indicator**

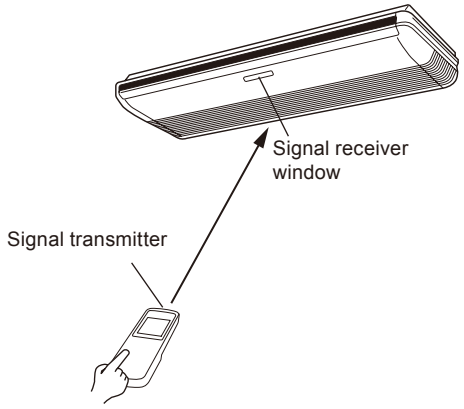
22 **Timer mode indicator**

23 **Clock indicator**

Note: Functions will be different due to type of indoor unit.
For details, please see operation manual.

INDOOR UNITS (SIMULTANEOUS MULTI)

■ SYSTEM DIAGRAM

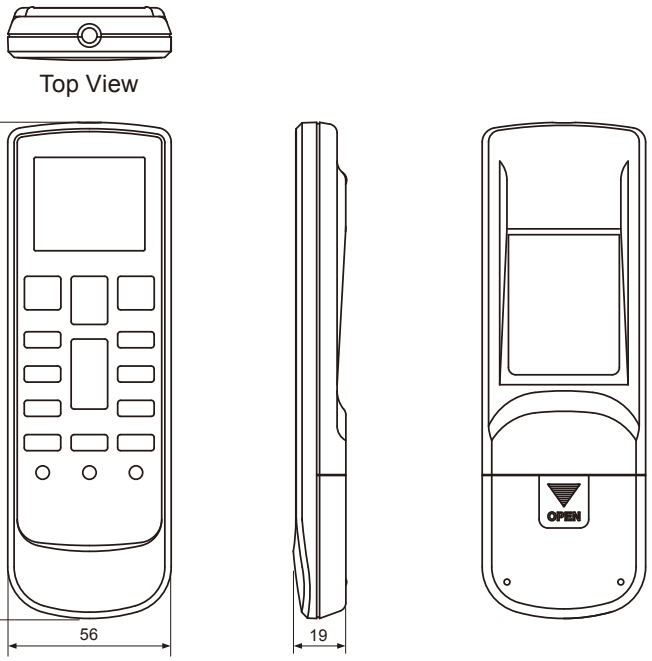


- Control signal might not be recognized in following cases:
  (i) A curtain or a wall, etc. exists between transmitter and receiver.
  (ii) There is an instant-start type (inverter type, etc.) fluorescent lamp in the room.
- Air conditioner might not work correctly when strong light hits the signal receiver window. Shut off the direct sunlight and also make illuminator far away from the receiver window.

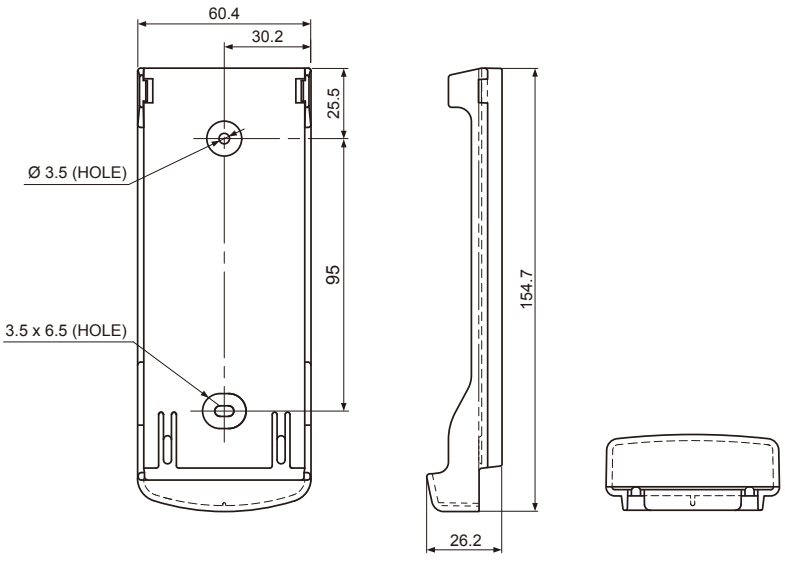
■ DIMENSIONS

● Controller

(Unit : mm)

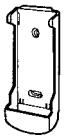
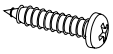
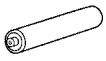


● Holder



INDOOR UNITS (SIMULTANEOUS MULTI)

■ PACKING LIST (ACCESSORIES)

Name and shape	Quantity	Application
Remote controller holder 	1	Use as remote controller holder
Tapping screw (M3 x 12 mm) 	2	For remote controller holder installation
Battery [1.5V (R03 / AAA)] 	2	For remote controller

■ SPECIFICATIONS

SIZE	(H x W x D mm)	170 x 56 x 19
WEIGHT	(g)	85 (w/o batteries)

INDOOR UNITS
(SIMULTANEOUS MULTI)

3. SPECIFICATIONS

3-1. COMPACT CASSETTE TYPE

Type					CASSETTE MODEL		
					INVERTER HEATPUMP		
Model name					AU✳G18LVLB	AU✳G22LVLA	AU✳G24LVLA
Power source					230V ~ 50Hz		
Available voltage range					198V - 264V		
Fan	Airflow rate	Cooling	High	m^3/h	680	930	
			Med		580	830	
			Low		490	600	
			Quiet		410	450	
		Heating	High		800	930	
			Med		680	860	
			Low		580	700	
			Quiet		450	530	
	Type × Q'ty				Turbo × 1		
	Motor output			W	54		
Sound pressure level *1		Cooling	High	dB (A)	38	49	
			Med		34	44	
			Low		30	36	
			Quiet		26	30	
		Heating	High		43	49	
			Med		38	45	
			Low		34	40	
			Quiet		30	33	
Sound power level		Cooling			50	59	
		Heating			55	61	
Heat exchanger type		Dimensions (H × W × D)		mm	210 × 1310 × 13.3 210 × 1250 × 13.3	210 × 1375 × 13.3 210 × 1310 × 13.3 210 × 1250 × 13.3	
		Fin pitch			1.20	1.45	
		Rows x Stages			2 × 10	3 × 10	
		Pipe type			Copper		
		Fin type			Aluminium		
Dimensions (H × W × D)		Net		mm	245 × 570 × 570		
		Gross			265 × 730 × 625		
Weight		Net		kg	15	16	
		Gross			18	19	
Connection pipe		Size	Liquid	mm	Ø 6.35 (Ø 1 / 4 in.)		
			Gas		Ø12.70 (Ø1/2 in.)	Ø15.88 (Ø5/8 in.)	
		Method			Flare		
Drain hose		Material			PVC		
		Size		mm	VP25 [Ø25 (I.D.), Ø32 (O.D.)]		
Operation range		Cooling		°C	18 to 32		
				%RH	80 or less		
		Heating		°C	16 to 30		
Cassette grille		Model name			UTG-UF✳D-W		
		Material			PS		
		Colour			WHITE (Approximate colour of MUNSELL N 9.25/)		
		Dimensions (H × W × D)	Net	mm	49 × 700 × 700		
			Gross		120 × 765 × 755		
		Weight	Net	kg	2.6		
			Gross		4.5		
Remote controller type					Wireless [Wired (option)]		

NOTE :
The protective function might work when using it outside the operation range.
*1: Sound pressure level
- Measured values in manufacturer's anechoic chamber.
- Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS (SIMULTANEOUS MULTI)

3-2. SLIM DUCT TYPE

Type					DUCTED MODEL
					INVERTER HEATPUMP
Model name					AR✳G18LLTB
Power source					230V ~ 50Hz
Available voltage range					198V - 264V
Fan	Airflow rate	Cooling	High	m^3/h	940
			Med		880
			Low		820
			Quiet		750
		Heating	High		940
			Med		880
			Low		820
			Quiet		750
	Type × Q'ty				Sirocco × 3
	Motor output			W	81
Recommended static pressure				Pa	0 to 90
Sound pressure level *1		Cooling	High	dB (A)	32
			Med		30
			Low		29
			Quiet		27
		Heating	High		32
			Med		30
			Low		29
			Quiet		27
Sound power level		Cooling			58
		Heating			58
Heat exchanger type		Dimensions (H × W × D)		mm	294 × 700 × 39.9
		Fin pitch			1.3
		Rows x Stages			3 × 14
		Pipe type			Copper
		Fin type			Aluminium
Enclosure		Material			GALVANIZED STEEL SHEET
		Color			-
Dimensions (H × W × D)		Net		mm	198 × 900 × 620
		Gross			276 × 1168 ×772
Weight		Net		kg	23
		Gross			30
Connection pipe		Size	Liquid	mm	Ø 6.35 (Ø 1/4 in.)
			Gas		Ø12.7 (Ø1/2in.)
		Method			Flare
Drain hose		Material			HARD PVC
		Size		mm	Φ25 (I.D.), Φ32 (O.D.)
Operation range		Cooling		°C	18 to 32
				%RH	80 or less
		Heating		°C	16 to 30
Remote controller type					Wired [Wireless (option)]

NOTE :
Specifications are based on the following conditions.
- Static Pressure : 25Pa

The protective function might work when using it outside the operation range.
*1: Sound pressure level
- Measured values in manufacturer's anechoic chamber.
- Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

3-3. DUCT TYPE

Type					DUCTED MODEL	
					INVERTER HEATPUMP	
Model name					AR∗G22LMLA	AR∗G24LMLA
Power source					230V ~ 50Hz	
Available voltage range					198V - 264V	
Fan	Airflow rate	Cooling	High	m^3/h	1100	
			Med		910	
			Low		750	
			Quiet		580	
		Heating	High		1100	
			Med		910	
			Low		750	
			Quiet		580	
	Type × Q'ty				Sirocco × 2	
	Motor output			W	106	
Recommended static pressure				Pa	30 to 150	
Sound pressure level *1		Cooling	High	dB (A)	31	
			Med		29	
			Low		27	
			Quiet		25	
		Heating	High		31	
			Med		29	
			Low		27	
			Quiet		25	
Sound power level		Cooling			60	
		Heating			62	
Heat exchanger type		Dimensions (H × W × D)		mm	294 × 1000 × 39.9	
		Fin pitch			1.40	
		Rows x Stages			3 × 14	
		Pipe type			Copper	
		Fin type			Aluminium	
Enclosure		Material			Steel	
		Color			-	
Dimensions (H × W × D)		Net		mm	270 × 1,135 × 700	
		Gross			300 × 1,320 × 790	
Weight		Net		kg	38	
		Gross			44	
Connection pipe		Size	Liquid	mm	Ø 6.35 (Ø 1/4 in.)	
			Gas		Ø 15.88 (Ø 5/8 in.)	
		Method			Flare	
Drain port		Material			Steel	
		Size		mm	Ø35.7 (I.D.), Ø38.1 (O.D.)	
Operation range		Cooling		°C	18 to 32	
				%RH	80 or less	
		Heating		°C	16 to 30	
Remote controller type					Wired [Wireless (option)]	

NOTE :
Specifications are based on the following conditions.
- Static Pressure : 35Pa

The protective function might work when using it outside the operation range.
*1: Sound pressure level
- Measured values in manufacturer's anechoic chamber.
- Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

3-4. FLOOR / CEILING TYPE

Type					FLOOR / CEILING MODEL		
					INVERTER HEATPUMP		
Model name					AB∗G18LVTB	AB∗G22LVTA	AB∗G24LVTA
Power source					230V ~ 50Hz		
Available voltage range					198V - 264V		
Fan	Airflow rate	Cooling	High	m^3/h	780	980	
			Med		700	820	
			Low		560	680	
			Quiet		500	540	
		Heating	High		780	980	
			Med		700	820	
			Low		560	680	
			Quiet		500	540	
	Type × Q'ty				Sirocco x 2		
	Motor output			W	80		
Sound pressure level *1		Cooling	High	dB (A)	44 (Floor console) 43 (Under ceiling)	49 (Floor console), 48 (Under ceiling)	
			Med		41 (Floor console) 40 (Under ceiling)	45 (Floor console), 44 (Under ceiling)	
			Low		35 (Floor console) 34 (Under ceiling)	41 (Floor console), 40 (Under ceiling)	
			Quiet		32 (Floor console) 31 (Under ceiling)	36 (Floor console), 35 (Under ceiling)	
		Heating	High		44 (Floor console) 43 (Under ceiling)	49 (Floor console), 48 (Under ceiling)	
			Med		41 (Floor console) 40 (Under ceiling)	45 (Floor console), 44 (Under ceiling)	
			Low		35 (Floor console) 34 (Under ceiling)	41 (Floor console), 40 (Under ceiling)	
			Quiet		32 (Floor console) 31 (Under ceiling)	36 (Floor console), 35 (Under ceiling)	
Sound power level		Cooling			57	61	
		Heating			57	61	
Heat exchanger type		Dimensions (H × W × D)		mm	252 × 800 × 39.9	252 × 800 × 53.2	
		Fin pitch			1.3	1.45	
		Rows x Stages			3 × 12	4 × 12	
		Pipe type			Copper tube		
		Fin type			Aluminium		
Enclosure		Material			ABS		
		Color			WHITE (Approximate color of MUNSELL N9.25)		
Dimensions (H × W × D)		Net		mm	199 × 990 × 655		
		Gross			320 × 1150 × 790		
Weight		Net		kg	27		
		Gross			36		
Connection pipe		Size	Liquid	mm	Ø 6.35 (Ø 1 / 4 in.)		
			Gas		Ø12.70 (Ø1/2 in.)	Ø15.88 (Ø5/8 in.)	
		Method			Flare		
Drain hose		Material			Hard PVC		
		Size		mm	VP25 [Ø25 (I.D.), Ø32 (O.D.)]		
Operation range		Cooling		°C	18 to 32		
				%RH	80 or less		
		Heating		°C	16 to 30		
Remote controller type					Wireless [Wired (option)]		

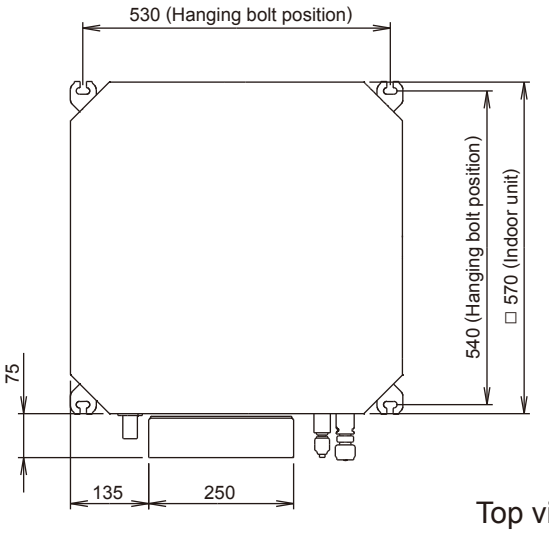
NOTE :
The protective function might work when using it outside the operation range.
*1: Sound pressure level
- Measured values in manufacturer's anechoic chamber.
- Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

4. DIMENSIONS

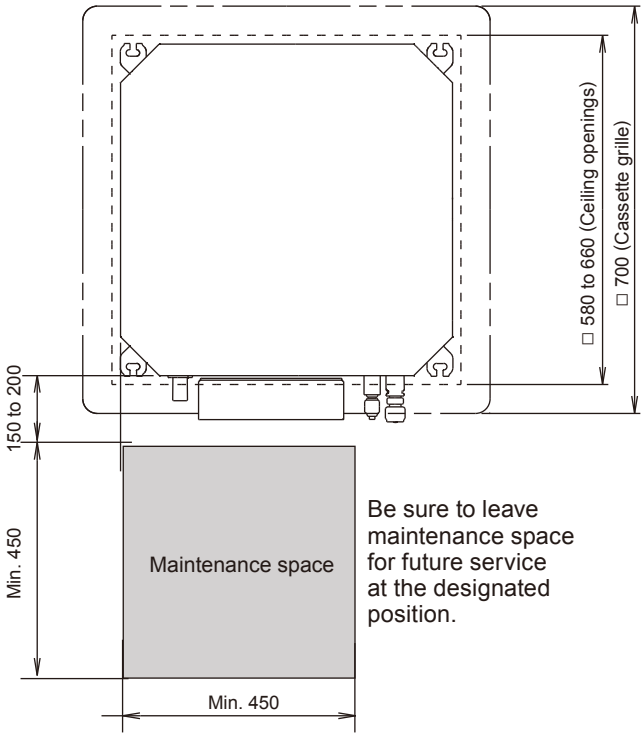
4-1. COMPACT CASSETTE TYPE

■ MODELS (UNIT) : AU∗G18LV, AU∗G22LV, AU∗G24LV

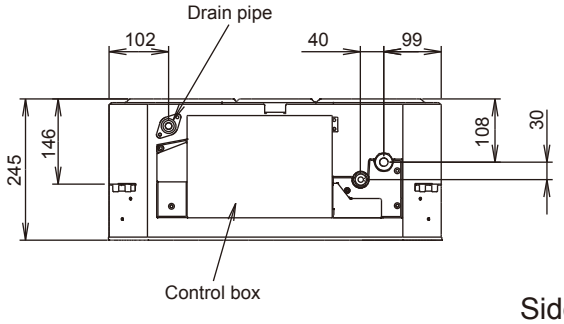
(Unit : mm)

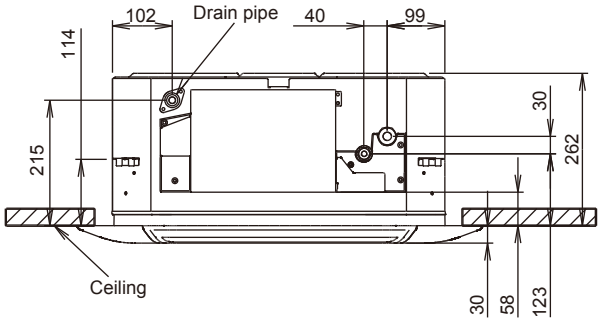


• Cassette grille mounting state



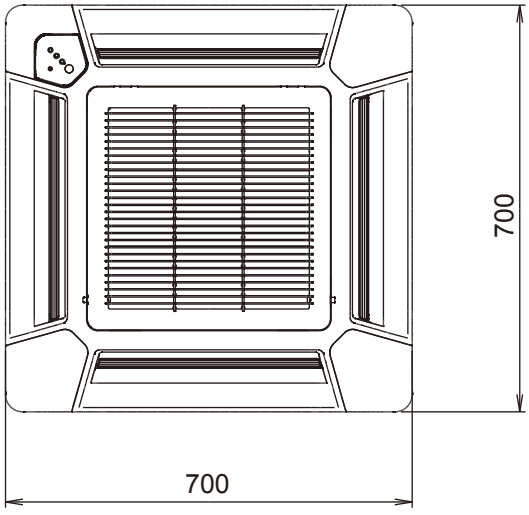
Top view



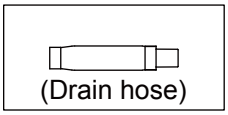


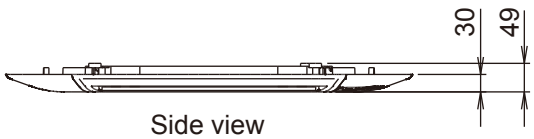
Side view

■ MODEL (GRILLE) : UTG-UF∗D-W



Bottom view

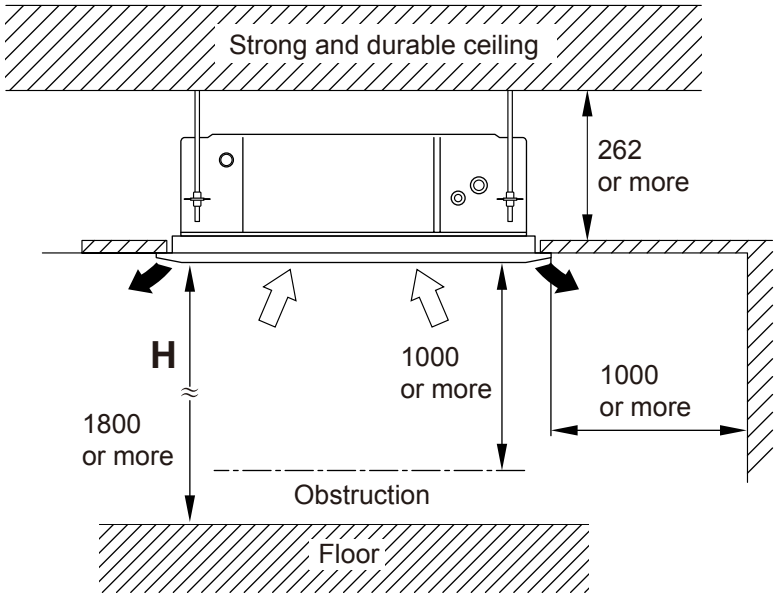




Side view

■ INSTALLATION PLACE

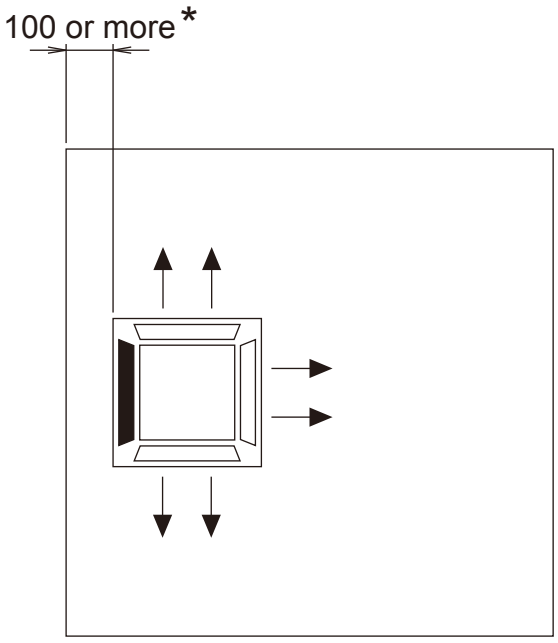
(Unit : mm)



	Maximum height from floor to ceiling (Unit: mm)		
Model name	AU∗G18LV	AU∗G22LV	AU∗G24LV
Standard mode	2700	2700	2700
High Ceiling mode	3000	3000	3000

● 3-way directions setting

(Unit : mm)



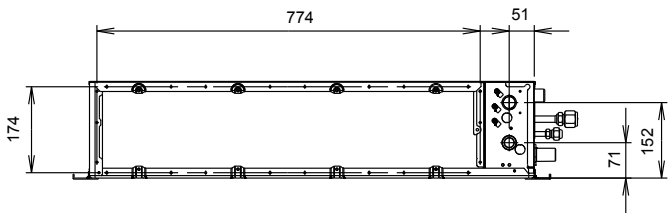
To set “3-way directions”, the air outlet shutter plate (UTR-YDZB) sold separately must be installed and “outlet-direction” switched to “3-way” by remote controller.

*When installing the indoor unit, be careful about the maintenance space.

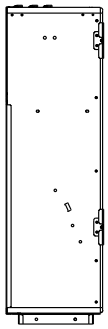
4-2. SLIM DUCT TYPE

Unit : mm

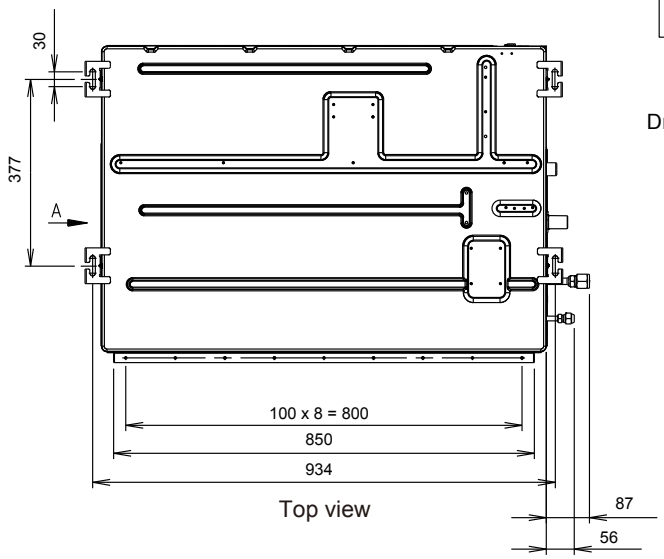
■MODEL : AR∗G18LL



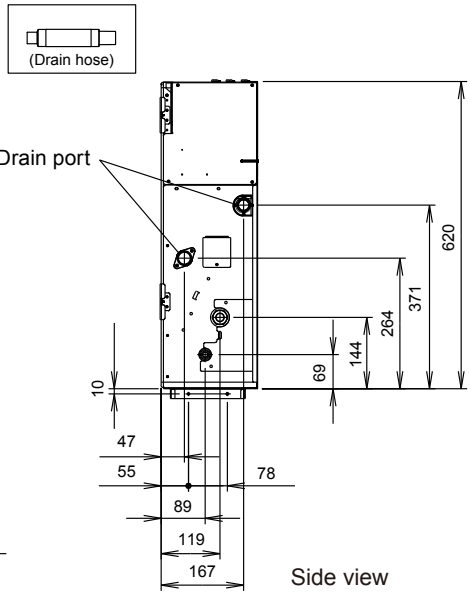
Rear view



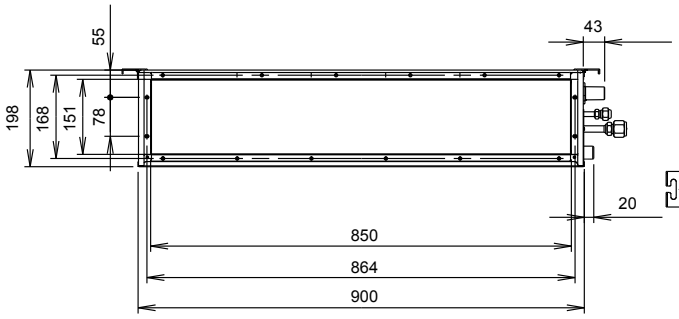
View A



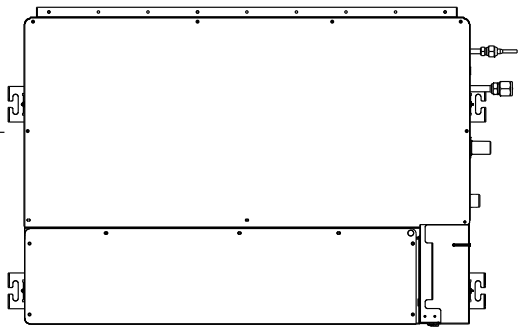
Top view



Side view



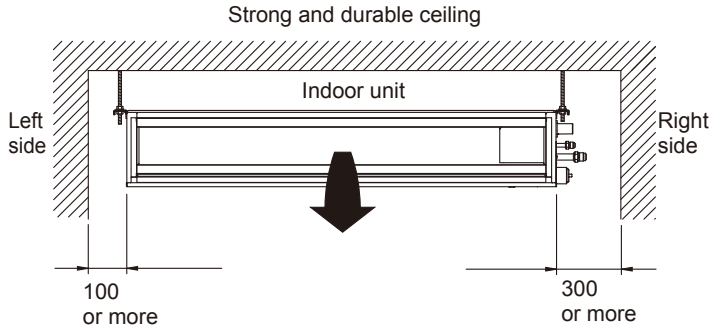
Front view

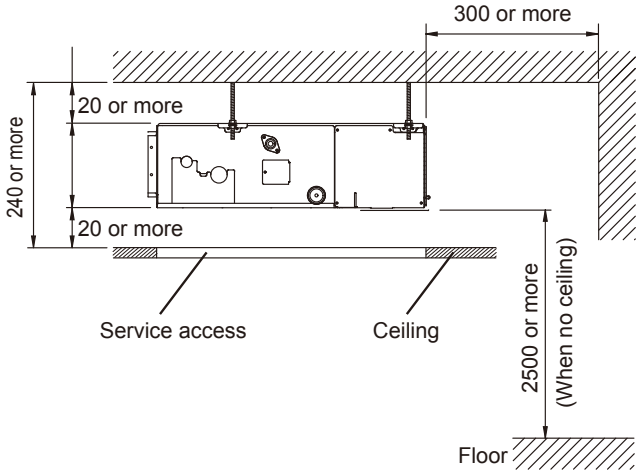


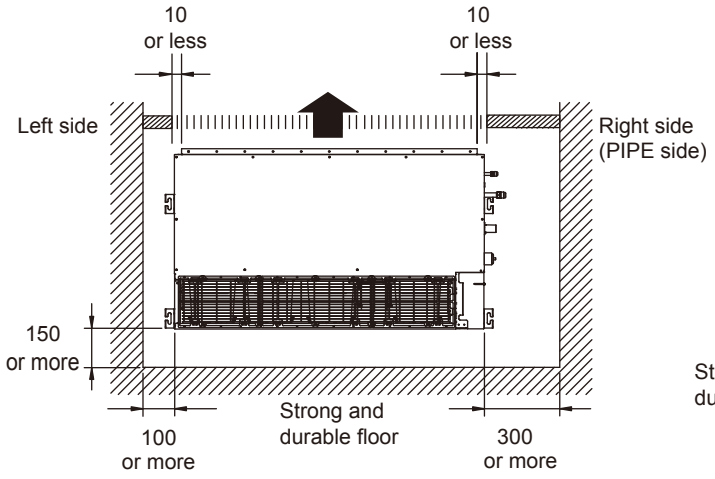
Bottom view

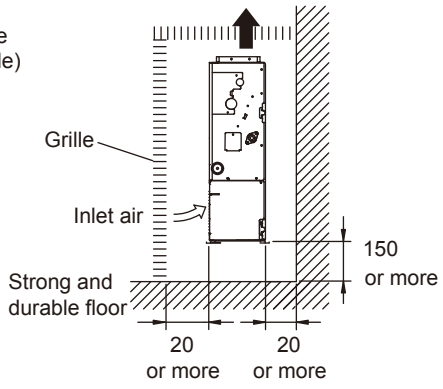
Unit : mm

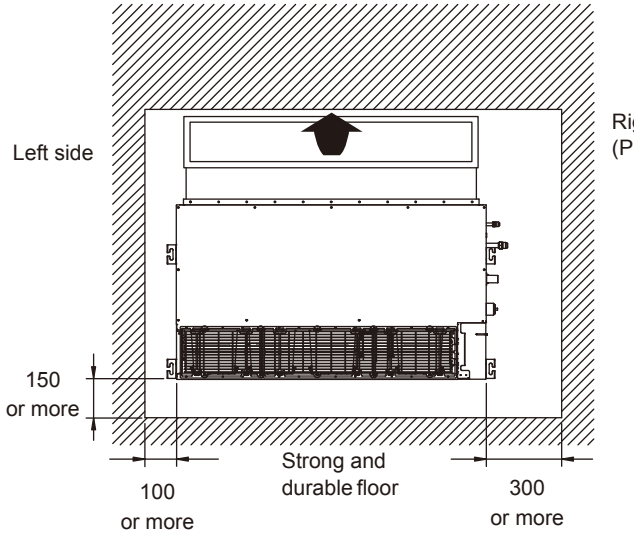
■ INSTALLATION PLACE

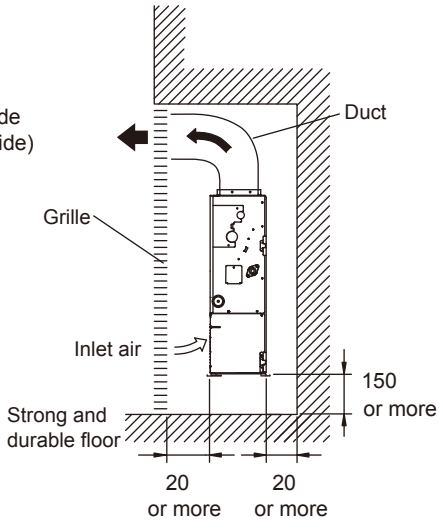










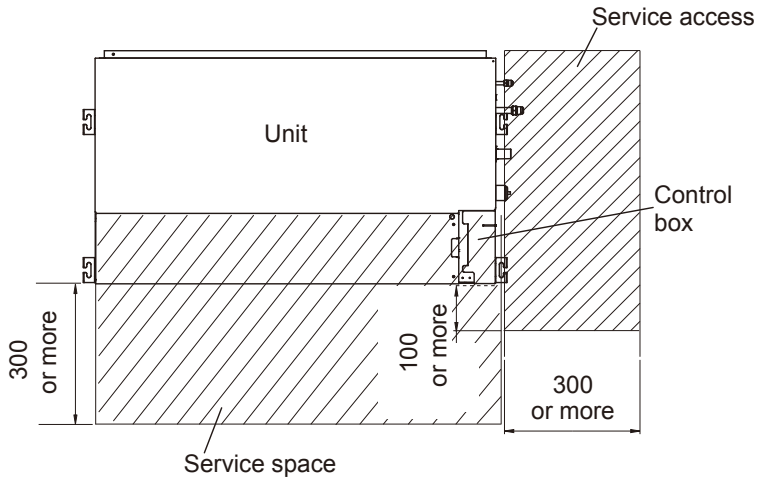


INDOOR UNITS
(SIMULTANEOUS MULTI)

■ 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.

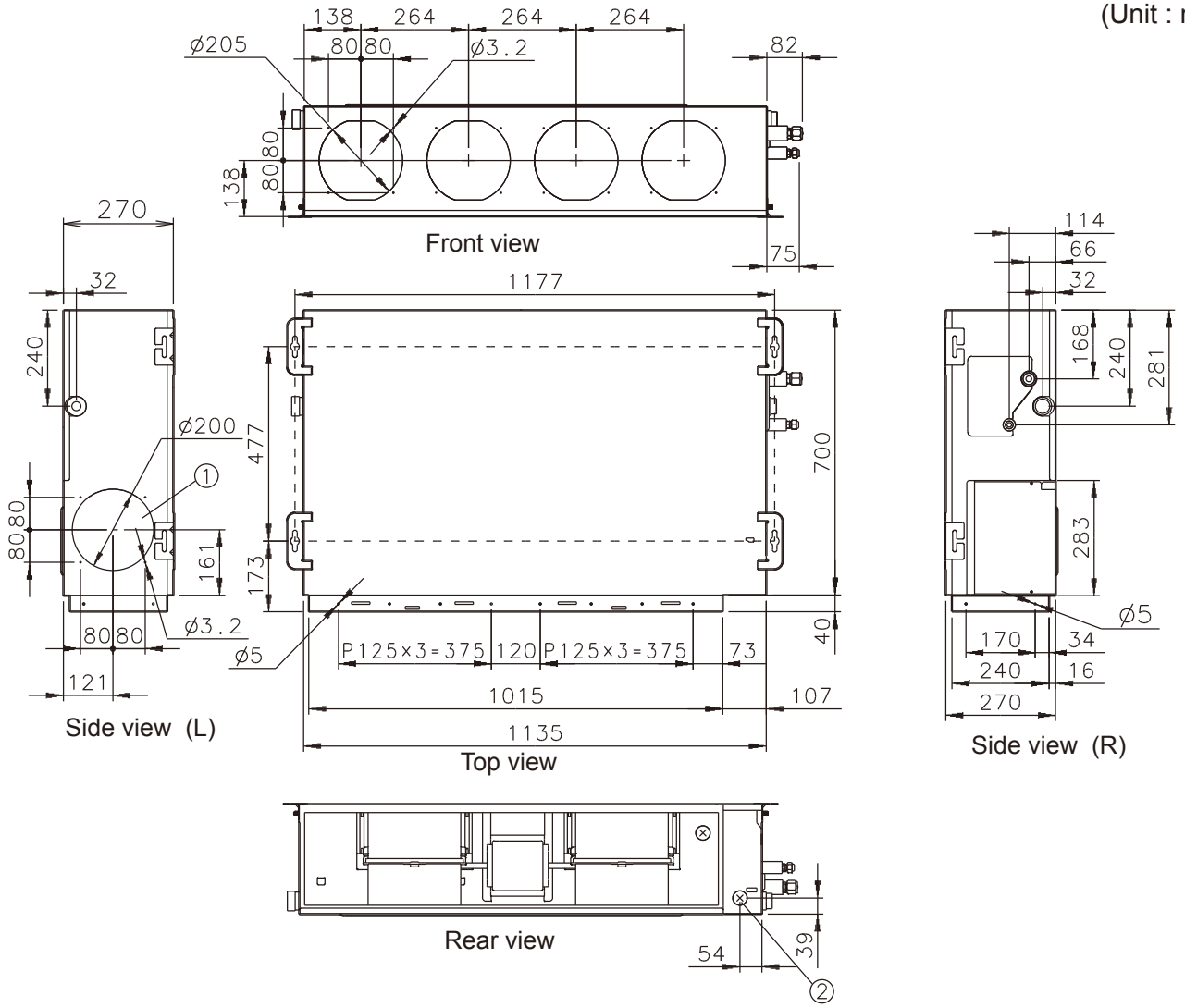


INDOOR UNITS
(SIMULTANEOUS MULTI)

4-3. DUCT TYPE

■ MODELS: AR∗G22LM, AR∗G24LM

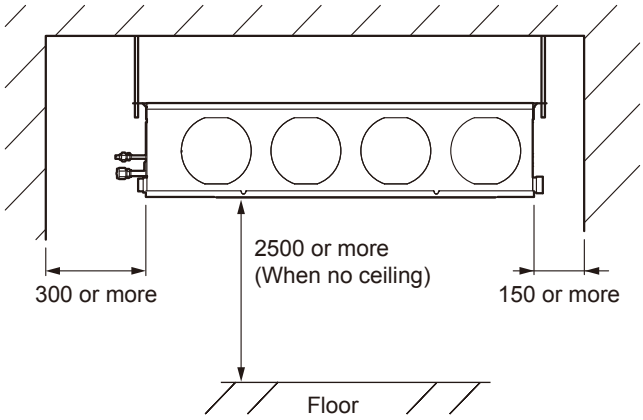
(Unit : mm)



		AR∗G22LM, AR∗G24LM
①	Knock out hole (fresh air)	200
②	Hole for power cable	23

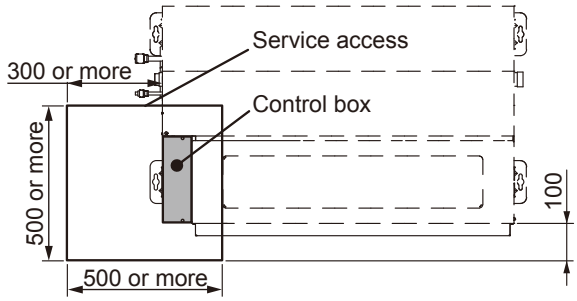
■ INSTALLATION PLACE

(Unit : mm)

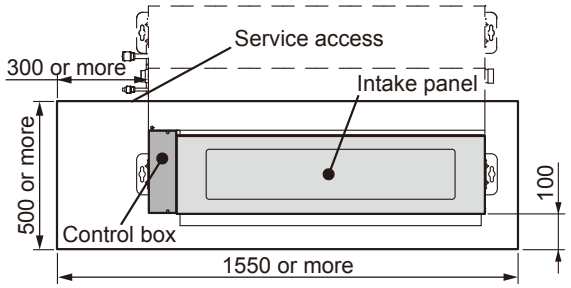


■ MAINTENANCE SPACE

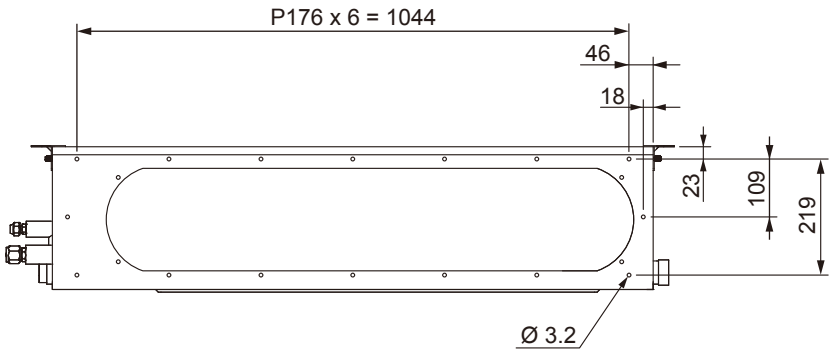
It shall be possible to install and remove the control box.



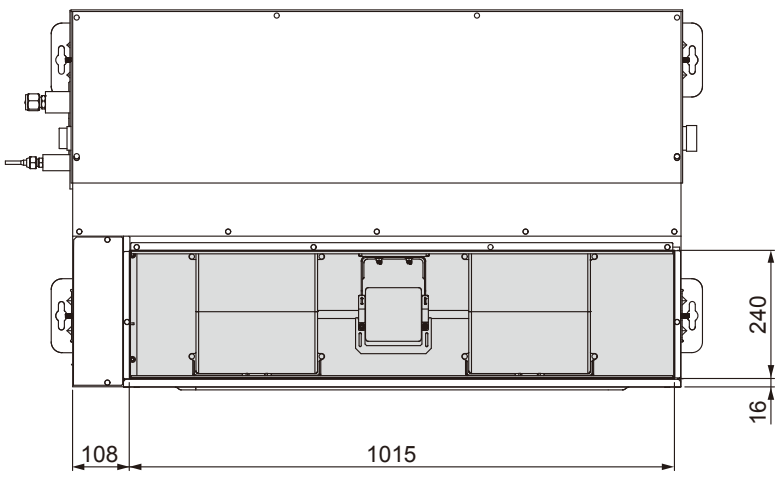
It shall be possible to install and remove the control box, fan units and filter.



■ WHEN USING A SQUARE DUCT



■ BOTTOM AIR INTAKE HOLE

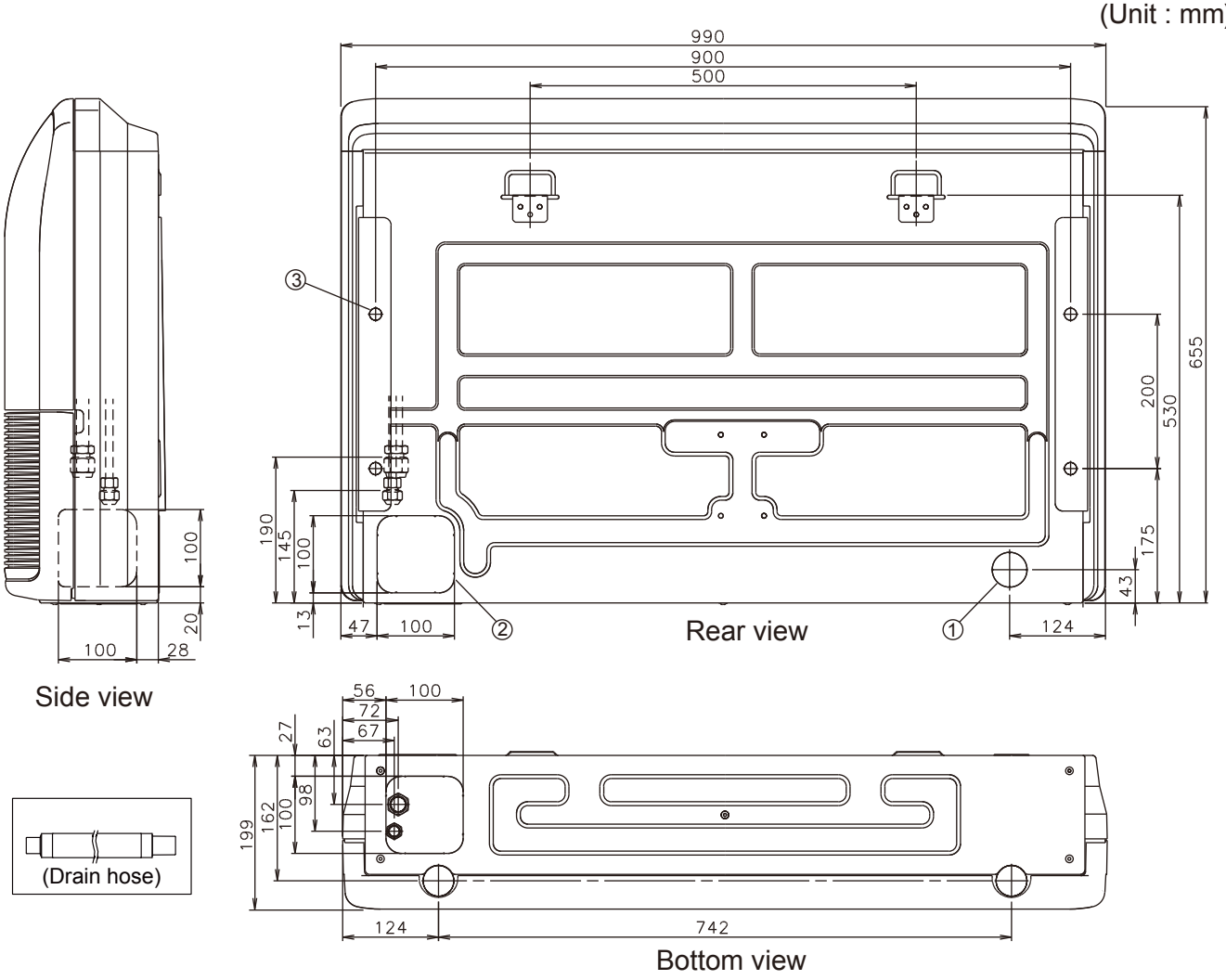


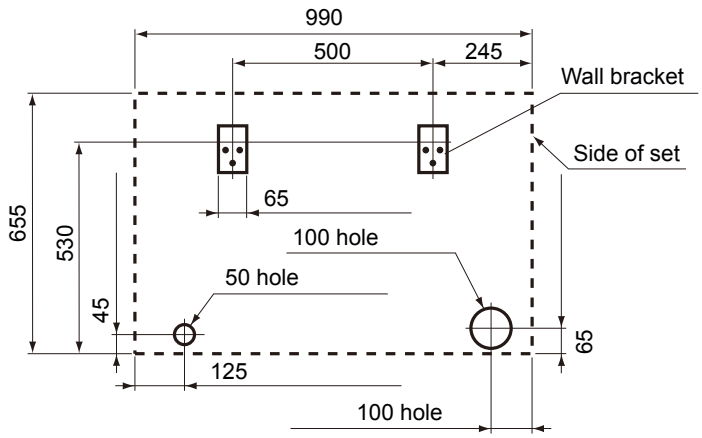
INDOOR UNITS
(SIMULTANEOUS MULTI)

4-4. FLOOR / CEILING TYPE

■ MODELS: AB∗G18LV, AB∗G22LV, AB∗G24LV

(Unit : mm)

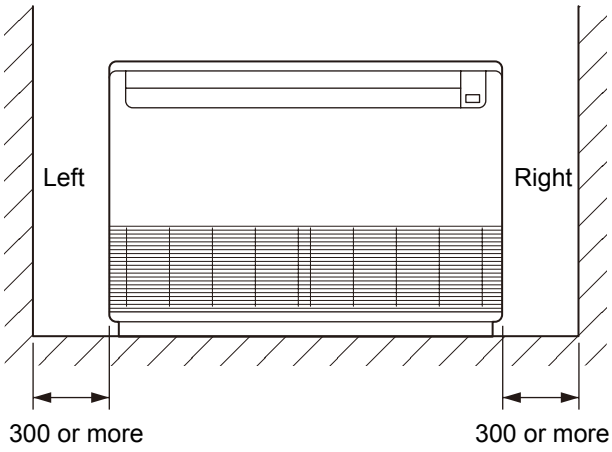


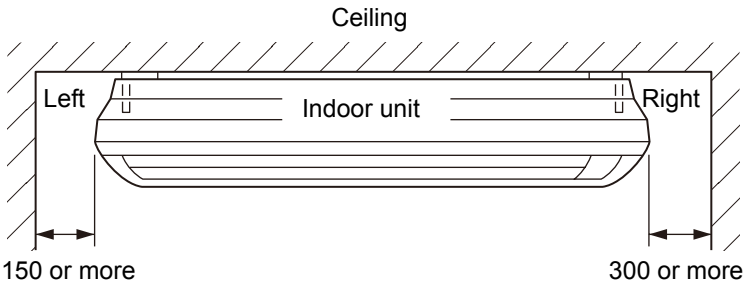


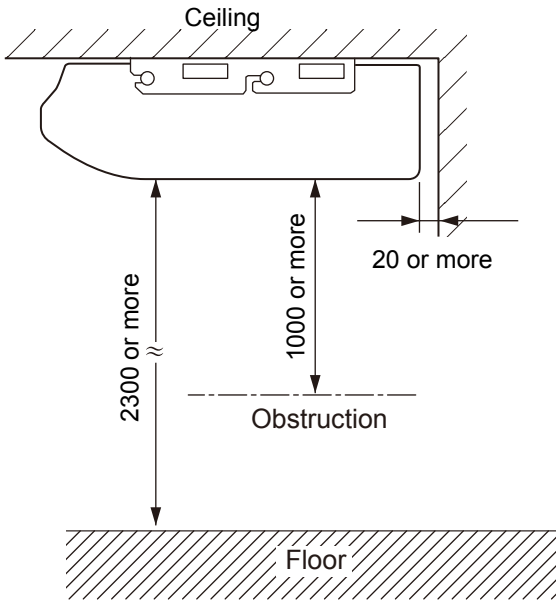
			AB∗G18LV	AB∗G22LV, AB∗G24LV
①	Knock out hole (fresh air)	Drain outlet	ø 45	
②		-	100 × 100	
③	Hole for lifting bolt	-	Use M10 screw bolt	

■ INSTALLATION PLACE

(Unit : mm)



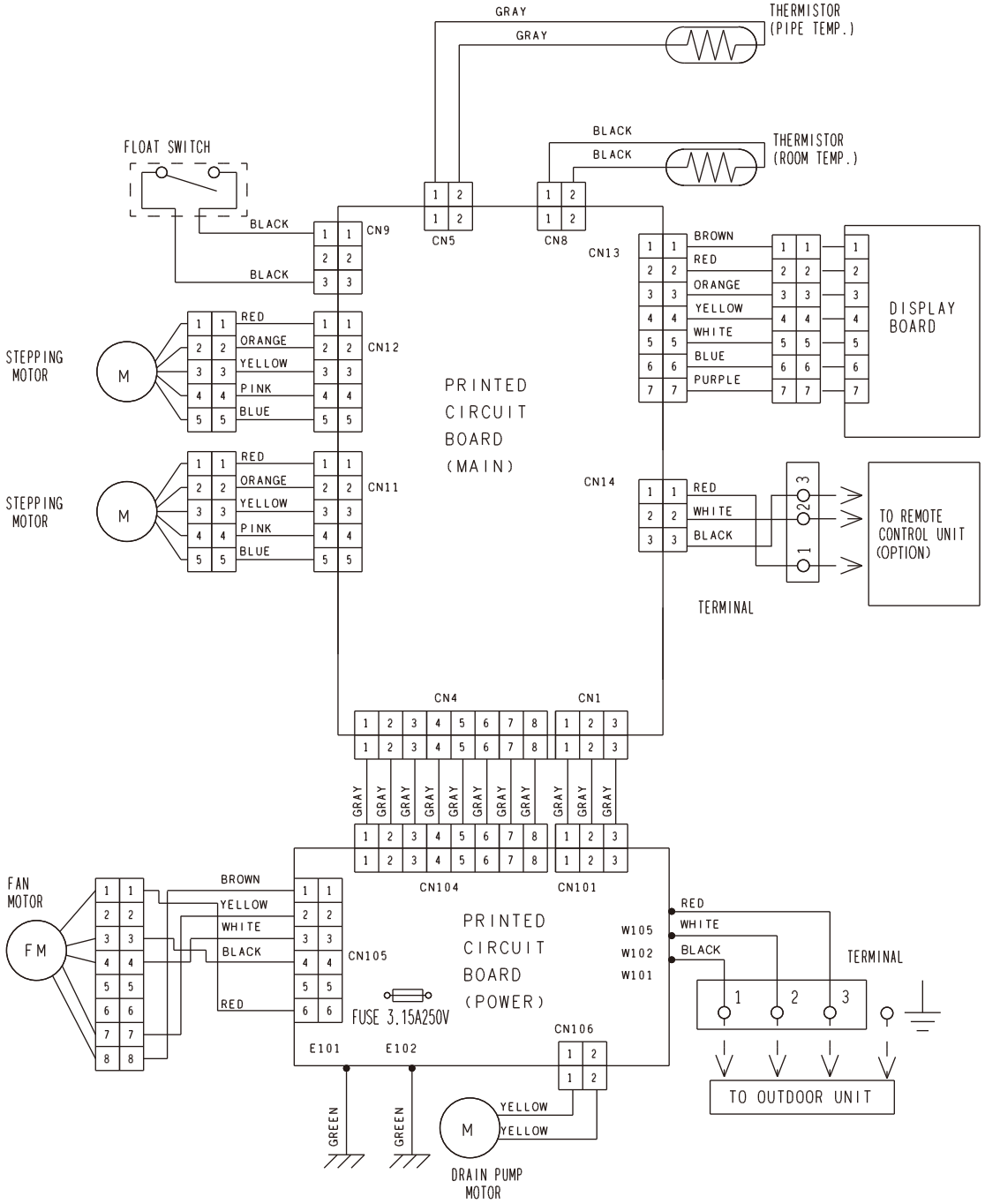




5. WIRING DIAGRAMS

5-1. COMPACT CASSETTE TYPE

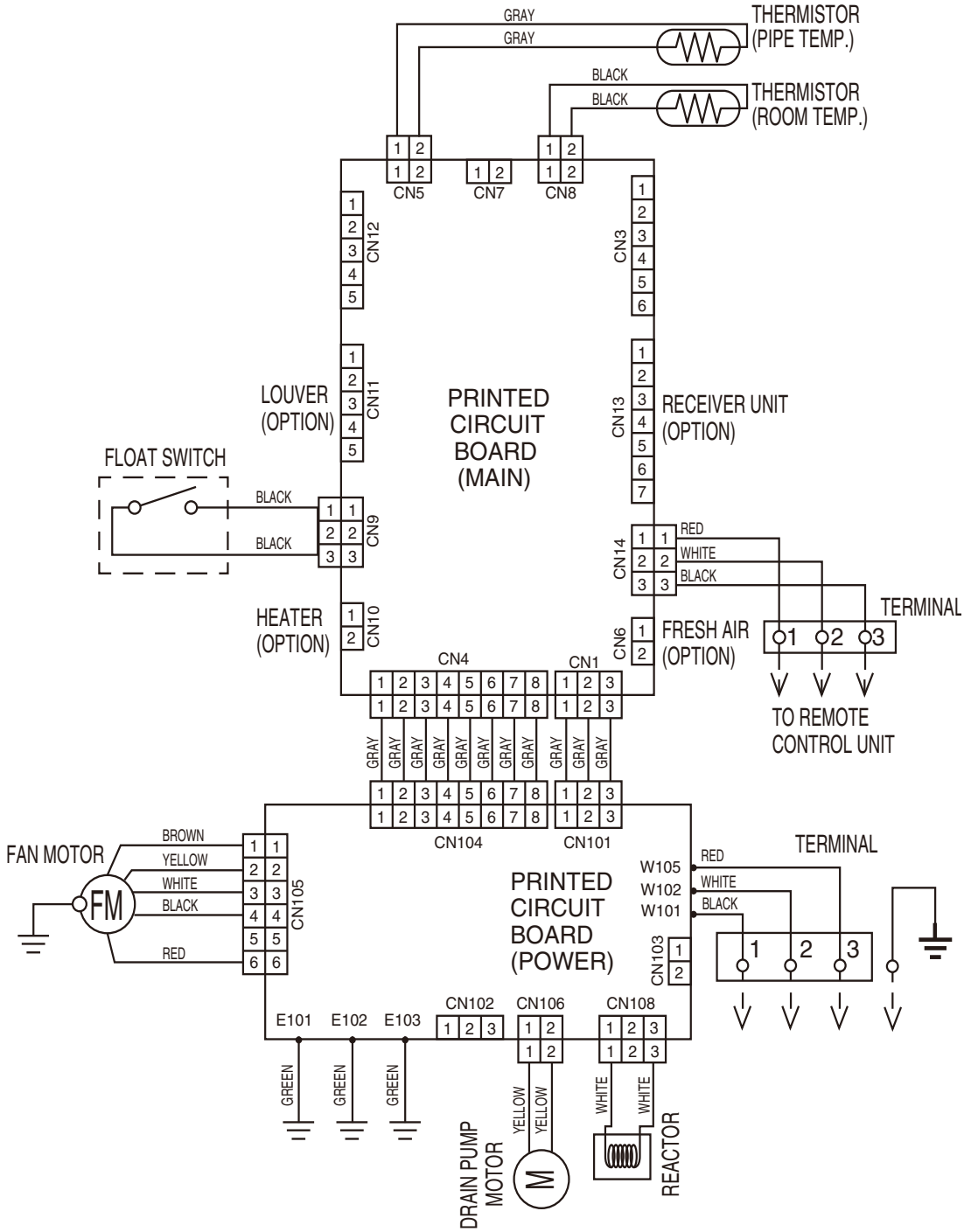
■ MODELS: AU∗G18LV, AU∗G22LV, AU∗G24LV



INDOOR UNITS (SIMULTANEOUS MULTI)

5-2. SLIM DUCT TYPE

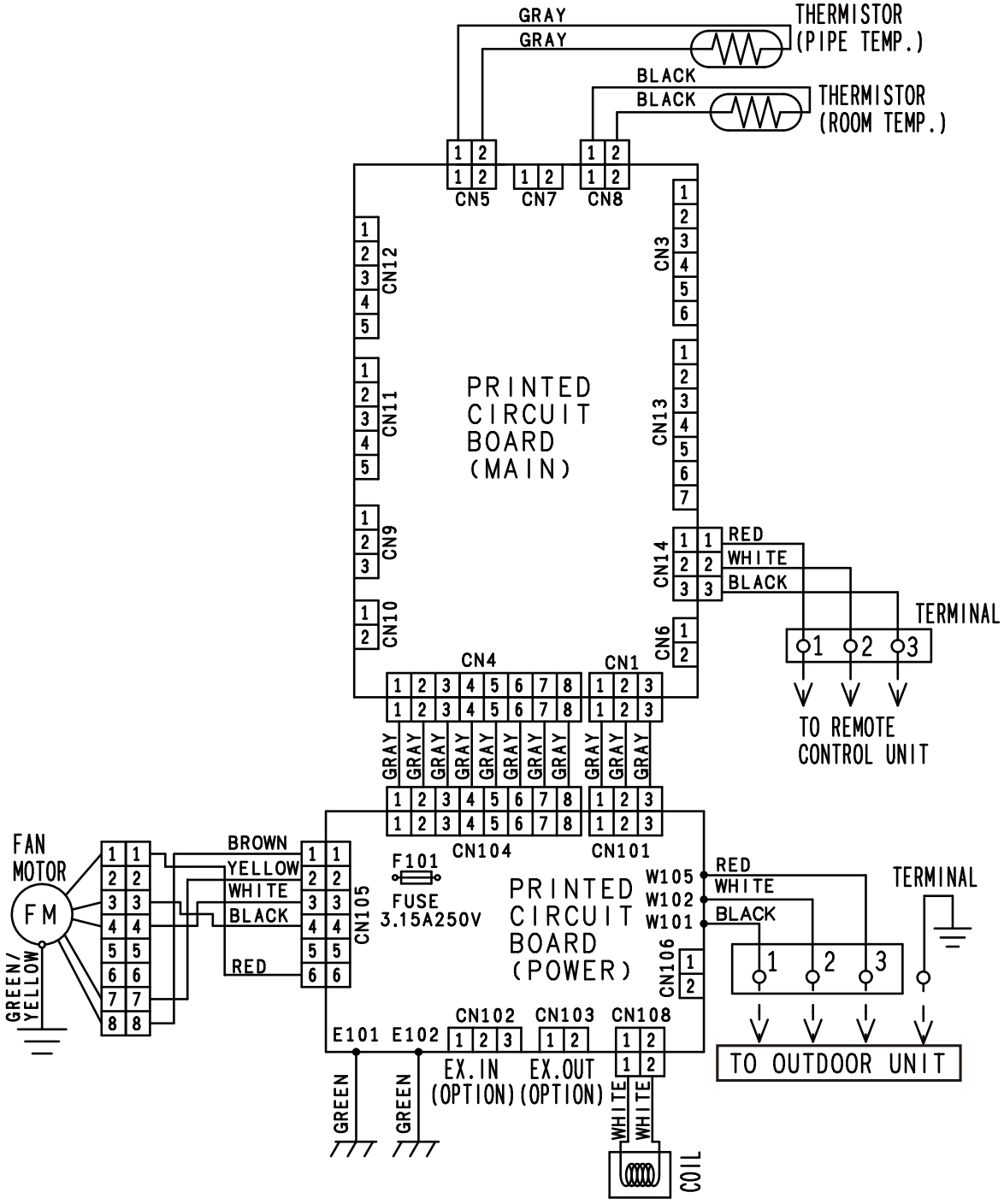
■ MODEL : AR∗G18LL



INDOOR UNITS
(SIMULTANEOUS MULTI)

5-3. DUCT TYPE

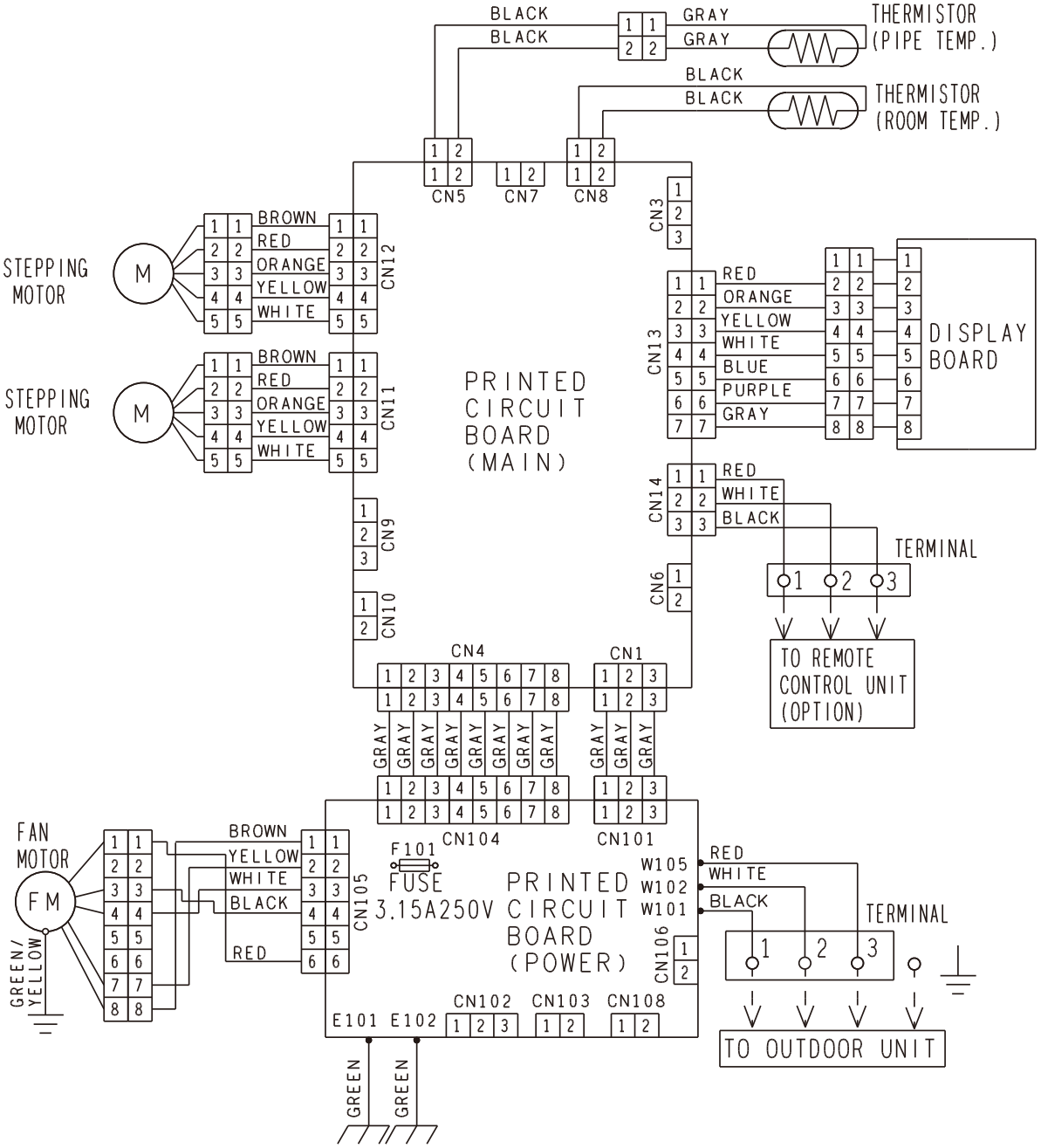
■ MODELS : AR∗G22LM, AR∗G24LM



INDOOR UNITS
(SIMULTANEOUS MULTI)

5-4. FLOOR / CEILING TYPE

■ MODELS : AB∗G18LV, AB∗G22LV, AB∗G24LV



INDOOR UNITS (SIMULTANEOUS MULTI)

6. CAPACITY TABLE

6-1. COOLING CAPACITY OF SIMULTANEOUS MULTI (TWIN)

6-1-1. COMPACT CASSETTE TYPE

This table is created using the maximum capacity.

■ MODEL: AU∗G18LV × 2

AFR	22.7

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-15	8.75	6.44	1.46	9.74	6.48	1.48	10.08	7.04	1.49	10.74	7.06	1.51	11.07	7.63	1.51	11.74	7.60	1.53	12.40	8.09	1.54
	-10	8.68	6.25	1.50	9.67	6.29	1.52	10.00	6.83	1.53	10.66	6.86	1.54	10.99	7.40	1.55	11.65	7.37	1.57	12.31	7.86	1.58
	0	8.58	6.20	1.59	9.56	6.24	1.61	9.88	6.78	1.62	10.53	6.80	1.64	10.86	7.34	1.65	11.51	7.31	1.66	12.16	7.79	1.68
	5	8.52	6.22	1.69	9.49	6.26	1.72	9.81	6.81	1.73	10.46	6.83	1.75	10.78	7.37	1.76	11.43	7.34	1.77	12.08	7.82	1.79
	10	8.47	6.28	1.82	9.44	6.31	1.85	9.76	6.86	1.86	10.41	6.88	1.88	10.73	7.43	1.89	11.37	7.41	1.91	12.01	7.89	1.93
	15	8.42	6.25	2.03	9.38	6.29	2.06	9.70	6.84	2.07	10.34	6.86	2.09	10.66	7.41	2.10	11.30	7.38	2.13	11.94	7.86	2.15
	20	8.63	6.09	2.49	9.61	6.12	2.53	9.94	6.66	2.55	10.59	6.68	2.57	10.92	7.21	2.58	11.58	7.18	2.61	12.23	7.65	2.64
	25	8.93	6.34	2.95	9.95	6.38	3.00	10.28	6.93	3.02	10.96	6.95	3.05	11.30	7.51	3.06	11.98	7.48	3.09	12.66	7.97	3.12
	30	9.07	6.40	3.48	10.10	6.43	3.54	10.45	7.00	3.56	11.14	7.02	3.59	11.48	7.58	3.61	12.17	7.55	3.65	12.86	8.04	3.68
	35	9.01	6.46	3.80	10.03	6.50	3.86	10.37	7.06	3.88	11.06	7.09	3.92	11.40	7.65	3.94	12.08	7.62	3.98	12.77	8.12	4.02
	40	8.14	6.04	3.96	9.06	6.08	4.02	9.37	6.61	4.04	9.99	6.63	4.08	10.30	7.16	4.10	10.92	7.13	4.14	11.54	7.60	4.18
	46	6.48	4.84	3.18	7.22	4.87	3.23	7.46	5.30	3.25	7.95	5.32	3.28	8.20	5.74	3.30	8.69	5.72	3.33	9.18	6.09	3.37

■ MODEL: AU∗G22LV × 2

AFR	31.0

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-15	10.57	7.87	1.51	11.77	7.92	1.53	12.18	8.61	1.54	12.98	8.64	1.55	13.38	9.33	1.56	14.18	9.29	1.58	14.98	9.89	1.59
	-10	10.46	7.85	1.59	11.65	7.89	1.62	12.05	8.58	1.62	12.85	8.61	1.64	13.24	9.30	1.65	14.04	9.26	1.67	14.83	9.87	1.68
	0	10.38	7.73	1.68	11.56	7.77	1.71	11.95	8.45	1.72	12.74	8.48	1.73	13.14	9.16	1.74	13.92	9.12	1.76	14.71	9.71	1.78
	5	10.28	7.75	1.78	11.45	7.80	1.81	11.84	8.47	1.82	12.62	8.50	1.84	13.01	9.18	1.85	13.79	9.15	1.87	14.58	9.74	1.89
	10	10.22	7.82	1.87	11.38	7.86	1.90	11.77	8.55	1.91	12.54	8.58	1.93	12.93	9.26	1.94	13.71	9.22	1.96	14.48	9.83	1.98
	15	10.13	7.89	2.15	11.29	7.94	2.18	11.67	8.63	2.19	12.44	8.66	2.21	12.83	9.35	2.23	13.60	9.31	2.25	14.37	9.92	2.27
	20	10.34	7.59	2.56	11.52	7.63	2.60	11.91	8.30	2.62	12.70	8.33	2.64	13.09	8.99	2.66	13.87	8.96	2.68	14.66	9.54	2.71
	25	10.87	8.01	3.00	12.10	8.06	3.04	12.52	8.76	3.06	13.34	8.79	3.09	13.76	9.49	3.11	14.58	9.45	3.14	15.41	10.07	3.17
	30	10.49	7.40	4.00	11.69	7.44	4.06	12.09	8.09	4.08	12.88	8.12	4.12	13.28	8.77	4.14	14.08	8.73	4.19	14.88	9.30	4.23
	35	10.27	7.35	4.22	11.44	7.39	4.28	11.83	8.04	4.30	12.61	8.07	4.35	13.00	8.71	4.37	13.78	8.68	4.41	14.56	9.24	4.46
	40	8.43	6.22	4.06	9.40	6.25	4.13	9.72	6.80	4.15	10.36	6.82	4.19	10.68	7.37	4.21	11.32	7.34	4.25	11.96	7.82	4.29
	46	6.83	5.47	3.18	7.61	5.51	3.23	7.87	5.99	3.25	8.39	6.01	3.28	8.65	6.49	3.30	9.17	6.46	3.33	9.68	6.88	3.37

■ MODEL: AU∗G24LV × 2

AFR	31.0

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-15	11.87	8.60	2.17	13.22	8.65	2.20	13.68	9.41	2.21	14.58	9.44	2.23	15.03	10.19	2.24	15.93	10.15	2.27	16.83	10.82	2.29
	-10	11.75	8.58	2.26	13.09	8.63	2.29	13.54	9.38	2.30	14.43	9.41	2.33	14.88	10.16	2.34	15.77	10.12	2.36	16.66	10.78	2.39
	0	11.69	8.45	2.35	13.03	8.50	2.38	13.47	9.24	2.40	14.36	9.27	2.42	14.80	10.01	2.43	15.69	9.97	2.46	16.58	10.62	2.48
	5	11.59	8.47	2.40	12.91	8.52	2.44	13.35	9.26	2.45	14.24	9.29	2.47	14.68	10.04	2.49	15.56	10.00	2.51	16.44	10.65	2.54
	10	11.51	8.53	2.43	12.83	8.58	2.47	13.26	9.33	2.48	14.14	9.36	2.51	14.58	10.11	2.52	15.45	10.07	2.55	16.32	10.72	2.57
	15	11.53	8.52	2.58	12.85	8.57	2.62	13.29	9.32	2.64	14.16	9.35	2.66	14.60	10.10	2.68	15.48	10.06	2.70	16.35	10.72	2.73
	20	11.90	8.52	3.18	13.26	8.57	3.23	13.71	9.32	3.25	14.61	9.35	3.28	15.07	10.09	3.30	15.97	10.05	3.33	16.87	10.71	3.37
	25	12.40	8.89	3.65	13.81	8.94	3.71	14.28	9.72	3.73	15.23	9.75	3.76	15.70	10.53	3.78	16.64	10.49	3.82	17.58	11.18	3.86
	30	11.02	7.65	4.21	12.27	7.70	4.28	12.69	8.37	4.30	13.53	8.40	4.34	13.95	9.07	4.37	14.79	9.03	4.41	15.62	9.62	4.45
	35	10.90	7.69	4.49	12.14	7.73	4.56	12.56	8.41	4.58	13.39	8.43	4.63	13.80	9.11	4.65	14.63	9.07	4.70	15.46	9.66	4.74
	40	8.43	6.22	4.06	9.40	6.25	4.13	9.72	6.80	4.15	10.36	6.82	4.19	10.68	7.37	4.21	11.32	7.34	4.25	11.96	7.82	4.29
	46	6.83	5.47	3.18	7.61	5.51	3.23	7.87	5.99	3.25	8.39	6.01	3.28	8.65	6.49	3.30	9.17	6.46	3.33	9.68	6.88	3.37

AFR : Airflow Rate (m³/min.)
TC : Total Capacity (kW)
SHC : Sensible Heat Capacity (kW)
IP : Input Power (kW)

6-1-2. SLIM DUCT TYPE

This table is created using the maximum capacity.

■ MODEL: AR∗G18LL × 2

AFR	31.3

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-15	8.75	6.44	1.46	9.74	6.48	1.48	10.08	7.04	1.49	10.74	7.06	1.51	11.07	7.63	1.51	11.74	7.60	1.53	12.40	8.09	1.54
	-10	8.68	6.25	1.50	9.67	6.29	1.52	10.00	6.83	1.53	10.66	6.86	1.54	10.99	7.40	1.55	11.65	7.37	1.57	12.31	7.86	1.58
	0	8.58	6.20	1.59	9.56	6.24	1.61	9.88	6.78	1.62	10.53	6.80	1.64	10.86	7.34	1.65	11.51	7.31	1.66	12.16	7.79	1.68
	5	8.52	6.22	1.69	9.49	6.26	1.72	9.81	6.81	1.73	10.46	6.83	1.75	10.78	7.37	1.76	11.43	7.34	1.77	12.08	7.82	1.79
	10	8.47	6.28	1.82	9.44	6.31	1.85	9.76	6.86	1.86	10.41	6.88	1.88	10.73	7.43	1.89	11.37	7.41	1.91	12.01	7.89	1.93
	15	8.42	6.25	2.03	9.38	6.29	2.06	9.70	6.84	2.07	10.34	6.86	2.09	10.66	7.41	2.10	11.30	7.38	2.13	11.94	7.86	2.15
	20	8.63	6.09	2.49	9.61	6.12	2.53	9.94	6.66	2.55	10.59	6.68	2.57	10.92	7.21	2.58	11.58	7.18	2.61	12.23	7.65	2.64
	25	8.93	6.34	2.95	9.95	6.38	3.00	10.28	6.93	3.02	10.96	6.95	3.05	11.30	7.51	3.06	11.98	7.48	3.09	12.66	7.97	3.12
	30	9.07	6.40	3.48	10.10	6.43	3.54	10.45	7.00	3.56	11.14	7.02	3.59	11.48	7.58	3.61	12.17	7.55	3.65	12.86	8.04	3.68
	35	9.01	6.46	3.80	10.03	6.50	3.86	10.37	7.06	3.88	11.06	7.09	3.92	11.40	7.65	3.94	12.08	7.62	3.98	12.77	8.12	4.02
	40	8.14	6.04	3.96	9.06	6.08	4.02	9.37	6.61	4.04	9.99	6.63	4.08	10.30	7.16	4.10	10.92	7.13	4.14	11.54	7.60	4.18
	46	6.48	4.84	3.18	7.22	4.87	3.23	7.46	5.30	3.25	7.95	5.32	3.28	8.20	5.74	3.30	8.69	5.72	3.33	9.18	6.09	3.37

AFR : Airflow Rate (m³/min.)
TC : Total Capacity (kW)
SHC : Sensible Heat Capacity (kW)
IP : Input Power (kW)

INDOOR UNITS (SIMULTANEOUS MULTI)

6-1-3. DUCT TYPE

This table is created using the maximum capacity.

■ MODEL: AR∗G22LM × 2

AFR	36.7

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-15	10.62	8.27	1.63	11.83	8.32	1.66	12.24	9.04	1.67	13.04	9.07	1.68	13.45	9.80	1.69	14.26	9.76	1.71	15.06	10.39	1.73
	-10	10.54	8.27	1.73	11.74	8.31	1.75	12.14	9.04	1.76	12.94	9.07	1.78	13.34	9.79	1.79	14.14	9.75	1.81	14.94	10.39	1.83
	0	10.45	8.13	1.80	11.64	8.18	1.83	12.03	8.89	1.84	12.83	8.92	1.85	13.22	9.64	1.86	14.02	9.60	1.88	14.81	10.22	1.90
	5	10.34	8.16	1.90	11.52	8.21	1.93	11.91	8.93	1.94	12.69	8.95	1.96	13.09	9.67	1.97	13.87	9.63	1.99	14.66	10.26	2.01
	10	10.27	8.24	2.09	11.44	8.29	2.12	11.83	9.02	2.13	12.61	9.05	2.15	13.00	9.77	2.16	13.78	9.73	2.18	14.56	10.36	2.20
	15	10.19	8.34	2.28	11.35	8.39	2.32	11.74	9.12	2.33	12.51	9.15	2.35	12.90	9.88	2.36	13.67	9.84	2.39	14.44	10.48	2.41
	20	10.42	7.98	2.78	11.61	8.02	2.82	12.00	8.72	2.84	12.80	8.75	2.87	13.19	9.45	2.88	13.98	9.41	2.91	14.77	10.03	2.94
	25	10.95	8.43	3.22	12.19	8.48	3.27	12.61	9.22	3.28	13.44	9.25	3.32	13.86	9.98	3.33	14.69	9.94	3.37	15.52	10.59	3.40
	30	10.54	7.66	4.17	11.74	7.70	4.23	12.14	8.38	4.25	12.94	8.40	4.30	13.34	9.07	4.32	14.14	9.04	4.36	14.95	9.63	4.40
	35	10.27	7.57	4.22	11.44	7.62	4.28	11.83	8.28	4.30	12.61	8.31	4.35	13.00	8.97	4.37	13.78	8.93	4.41	14.56	9.52	4.46
	40	8.47	6.61	4.15	9.44	6.65	4.21	9.76	7.23	4.24	10.41	7.25	4.28	10.73	7.83	4.30	11.37	7.80	4.34	12.01	8.31	4.39
	46	6.87	5.65	3.27	7.65	5.68	3.32	7.91	6.18	3.34	8.43	6.20	3.37	8.69	6.69	3.39	9.21	6.67	3.42	9.74	7.10	3.46

■ MODEL: AR∗G24LM × 2

AFR	36.7

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-15	12.09	9.11	2.36	13.47	9.17	2.40	13.93	9.97	2.41	14.85	10.00	2.43	15.30	10.80	2.44	16.22	10.76	2.47	17.14	11.46	2.49
	-10	12.02	9.13	2.44	13.39	9.18	2.48	13.84	9.98	2.49	14.76	10.02	2.52	15.21	10.82	2.53	16.12	10.77	2.55	17.04	11.48	2.58
	0	11.95	8.98	2.50	13.32	9.04	2.54	13.77	9.82	2.55	14.68	9.85	2.58	15.13	10.64	2.59	16.04	10.60	2.62	16.95	11.29	2.64
	5	11.82	9.00	2.58	13.17	9.06	2.62	13.62	9.84	2.64	14.52	9.88	2.66	14.97	10.67	2.68	15.86	10.62	2.70	16.76	11.32	2.73
	10	11.63	8.99	2.61	12.95	9.05	2.65	13.39	9.83	2.67	14.28	9.87	2.69	14.72	10.66	2.71	15.60	10.61	2.73	16.48	11.31	2.76
	15	11.67	9.01	2.74	13.00	9.06	2.78	13.45	9.85	2.80	14.33	9.89	2.83	14.78	10.68	2.84	15.66	10.63	2.87	16.55	11.33	2.90
	20	11.95	8.88	3.41	13.31	8.93	3.46	13.77	9.71	3.48	14.67	9.75	3.51	15.13	10.52	3.53	16.03	10.48	3.56	16.94	11.17	3.60
	25	12.50	9.31	3.86	13.92	9.37	3.92	14.40	10.19	3.94	15.35	10.22	3.98	15.82	11.04	4.00	16.77	10.99	4.04	17.72	11.71	4.08
	30	11.03	8.01	4.36	12.28	8.06	4.43	12.70	8.76	4.45	13.54	8.79	4.50	13.96	9.49	4.52	14.79	9.45	4.57	15.63	10.07	4.61
	35	10.90	8.04	4.49	12.14	8.08	4.56	12.56	8.79	4.58	13.39	8.82	4.63	13.80	9.52	4.65	14.63	9.48	4.70	15.46	10.10	4.74
	40	8.47	6.61	4.15	9.44	6.65	4.21	9.76	7.23	4.24	10.41	7.25	4.28	10.73	7.83	4.30	11.37	7.80	4.34	12.01	8.31	4.39
	46	6.87	5.65	3.27	7.65	5.68	3.32	7.91	6.18	3.34	8.43	6.20	3.37	8.69	6.69	3.39	9.21	6.67	3.42	9.74	7.10	3.46

AFR : Airflow Rate (m^3/min.)
TC : Total Capacity (kW)
SHC : Sensible Heat Capacity (kW)
IP : Input Power (kW)

6-1-4. FLOOR / CEILING TYPE

This table is created using the maximum capacity.

■ MODEL: AB∗G18LV x 2

AFR	26.0

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-15	8.75	6.44	1.46	9.74	6.48	1.48	10.08	7.04	1.49	10.74	7.06	1.51	11.07	7.63	1.51	11.74	7.60	1.53	12.40	8.09	1.54
	-10	8.68	6.25	1.50	9.67	6.29	1.52	10.00	6.83	1.53	10.66	6.86	1.54	10.99	7.40	1.55	11.65	7.37	1.57	12.31	7.86	1.58
	0	8.58	6.20	1.59	9.56	6.24	1.61	9.88	6.78	1.62	10.53	6.80	1.64	10.86	7.34	1.65	11.51	7.31	1.66	12.16	7.79	1.68
	5	8.52	6.22	1.69	9.49	6.26	1.72	9.81	6.81	1.73	10.46	6.83	1.75	10.78	7.37	1.76	11.43	7.34	1.77	12.08	7.82	1.79
	10	8.47	6.28	1.82	9.44	6.31	1.85	9.76	6.86	1.86	10.41	6.88	1.88	10.73	7.43	1.89	11.37	7.41	1.91	12.01	7.89	1.93
	15	8.42	6.25	2.03	9.38	6.29	2.06	9.70	6.84	2.07	10.34	6.86	2.09	10.66	7.41	2.10	11.30	7.38	2.13	11.94	7.86	2.15
	20	8.63	6.09	2.49	9.61	6.12	2.53	9.94	6.66	2.55	10.59	6.68	2.57	10.92	7.21	2.58	11.58	7.18	2.61	12.23	7.65	2.64
	25	8.93	6.34	2.95	9.95	6.38	3.00	10.28	6.93	3.02	10.96	6.95	3.05	11.30	7.51	3.06	11.98	7.48	3.09	12.66	7.97	3.12
	30	9.07	6.40	3.48	10.10	6.43	3.54	10.45	7.00	3.56	11.14	7.02	3.59	11.48	7.58	3.61	12.17	7.55	3.65	12.86	8.04	3.68
	35	9.01	6.46	3.80	10.03	6.50	3.86	10.37	7.06	3.88	11.06	7.09	3.92	11.40	7.65	3.94	12.08	7.62	3.98	12.77	8.12	4.02
	40	8.14	6.04	3.96	9.06	6.08	4.02	9.37	6.61	4.04	9.99	6.63	4.08	10.30	7.16	4.10	10.92	7.13	4.14	11.54	7.60	4.18
	46	6.48	4.84	3.18	7.22	4.87	3.23	7.46	5.30	3.25	7.95	5.32	3.28	8.20	5.74	3.30	8.69	5.72	3.33	9.18	6.09	3.37

■ MODEL: AB∗G22LV x 2

AFR	32.7

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-15	10.57	7.87	1.51	11.77	7.92	1.53	12.18	8.61	1.54	12.98	8.64	1.55	13.38	9.33	1.56	14.18	9.29	1.58	14.98	9.89	1.59
	-10	10.46	7.85	1.59	11.65	7.89	1.62	12.05	8.58	1.62	12.85	8.61	1.64	13.24	9.30	1.65	14.04	9.26	1.67	14.83	9.87	1.68
	0	10.38	7.73	1.68	11.56	7.77	1.71	11.95	8.45	1.72	12.74	8.48	1.73	13.14	9.16	1.74	13.92	9.12	1.76	14.71	9.71	1.78
	5	10.28	7.75	1.78	11.45	7.80	1.81	11.84	8.47	1.82	12.62	8.50	1.84	13.01	9.18	1.85	13.79	9.15	1.87	14.58	9.74	1.89
	10	10.22	7.82	1.87	11.38	7.86	1.90	11.77	8.55	1.91	12.54	8.58	1.93	12.93	9.26	1.94	13.71	9.22	1.96	14.48	9.83	1.98
	15	10.13	7.89	2.15	11.29	7.94	2.18	11.67	8.63	2.19	12.44	8.66	2.21	12.83	9.35	2.23	13.60	9.31	2.25	14.37	9.92	2.27
	20	10.34	7.59	2.56	11.52	7.63	2.60	11.91	8.30	2.62	12.70	8.33	2.64	13.09	8.99	2.66	13.87	8.96	2.68	14.66	9.54	2.71
	25	10.87	8.01	3.00	12.10	8.06	3.04	12.52	8.76	3.06	13.34	8.79	3.09	13.76	9.49	3.11	14.58	9.45	3.14	15.41	10.07	3.17
	30	10.49	7.40	4.00	11.69	7.44	4.06	12.09	8.09	4.08	12.88	8.12	4.12	13.28	8.77	4.14	14.08	8.73	4.19	14.88	9.30	4.23
	35	10.27	7.35	4.22	11.44	7.39	4.28	11.83	8.04	4.30	12.61	8.07	4.35	13.00	8.71	4.37	13.78	8.68	4.41	14.56	9.24	4.46
	40	8.43	6.22	4.06	9.40	6.25	4.13	9.72	6.80	4.15	10.36	6.82	4.19	10.68	7.37	4.21	11.32	7.34	4.25	11.96	7.82	4.29
	46	6.83	5.47	3.18	7.61	5.51	3.23	7.87	5.99	3.25	8.39	6.01	3.28	8.65	6.49	3.30	9.17	6.46	3.33	9.68	6.88	3.37

■ MODEL: AB∗G24LV x 2

AFR	32.7

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-15	11.87	8.60	2.17	13.22	8.65	2.20	13.68	9.41	2.21	14.58	9.44	2.23	15.03	10.19	2.24	15.93	10.15	2.27	16.83	10.82	2.29
	-10	11.75	8.58	2.26	13.09	8.63	2.29	13.54	9.38	2.30	14.43	9.41	2.33	14.88	10.16	2.34	15.77	10.12	2.36	16.66	10.78	2.39
	0	11.69	8.45	2.35	13.03	8.50	2.38	13.47	9.24	2.40	14.36	9.27	2.42	14.80	10.01	2.43	15.69	9.97	2.46	16.58	10.62	2.48
	5	11.59	8.47	2.40	12.91	8.52	2.44	13.35	9.26	2.45	14.24	9.29	2.47	14.68	10.04	2.49	15.56	10.00	2.51	16.44	10.65	2.54
	10	11.51	8.53	2.43	12.83	8.58	2.47	13.26	9.33	2.48	14.14	9.36	2.51	14.58	10.11	2.52	15.45	10.07	2.55	16.32	10.72	2.57
	15	11.53	8.52	2.58	12.85	8.57	2.62	13.29	9.32	2.64	14.16	9.35	2.66	14.60	10.10	2.68	15.48	10.06	2.70	16.35	10.72	2.73
	20	11.90	8.52	3.18	13.26	8.57	3.23	13.71	9.32	3.25	14.61	9.35	3.28	15.07	10.09	3.30	15.97	10.05	3.33	16.87	10.71	3.37
	25	12.40	8.89	3.65	13.81	8.94	3.71	14.28	9.72	3.73	15.23	9.75	3.76	15.70	10.53	3.78	16.64	10.49	3.82	17.58	11.18	3.86
	30	11.02	7.65	4.21	12.27	7.70	4.28	12.69	8.37	4.30	13.53	8.40	4.34	13.95	9.07	4.37	14.79	9.03	4.41	15.62	9.62	4.45
	35	10.90	7.69	4.49	12.14	7.73	4.56	12.56	8.41	4.58	13.39	8.43	4.63	13.80	9.11	4.65	14.63	9.07	4.70	15.46	9.66	4.74
	40	8.43	6.22	4.06	9.40	6.25	4.13	9.72	6.80	4.15	10.36	6.82	4.19	10.68	7.37	4.21	11.32	7.34	4.25	11.96	7.82	4.29
	46	6.83	5.47	3.18	7.61	5.51	3.23	7.87	5.99	3.25	8.39	6.01	3.28	8.65	6.49	3.30	9.17	6.46	3.33	9.68	6.88	3.37

AFR : Airflow Rate (m³/min.)
TC : Total Capacity (kW)
SHC : Sensible Heat Capacity (kW)
IP : Input Power (kW)

6-2. HEATING CAPACITY OF SIMULTANEOUS MULTI (TWIN)

6-2-1. COMPACT CASSETTE TYPE

This table is created using the maximum capacity.

■ MODEL: AU∗G18LV x 2

AFR	26.7

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-15	-16	9.73	4.04	9.50	4.13	9.27	4.21	9.04	4.29	8.81	4.38
	-10	-11	10.74	4.04	10.49	4.13	10.23	4.21	9.98	4.29	9.72	4.38
	-5	-7	11.75	4.04	11.47	4.13	11.19	4.21	10.91	4.29	10.63	4.38
	0	-2	12.76	4.04	12.46	4.13	12.15	4.21	11.85	4.29	11.55	4.38
	5	3	13.77	4.04	13.44	4.13	13.12	4.21	12.79	4.29	12.46	4.38
	7	6	14.18	4.04	13.84	4.13	13.50	4.21	13.16	4.29	12.83	4.38
	10	8	14.78	3.86	14.43	3.95	14.08	4.03	13.73	4.11	13.37	4.19
	15	10	14.87	3.83	14.51	3.91	14.16	3.98	13.81	4.06	13.45	4.12
	20	15	15.22	3.79	14.86	3.87	14.50	3.94	14.14	4.02	13.77	4.08
	24	18	15.56	3.39	15.19	3.46	14.82	3.53	14.45	3.60	14.08	3.65

■ MODEL: AU∗G22LV x 2

AFR	31.0

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-15	-16	10.71	4.35	10.46	4.44	10.20	4.53	9.95	4.62	9.69	4.71
	-10	-11	11.86	4.35	11.57	4.44	11.29	4.53	11.01	4.62	10.73	4.71
	-5	-7	13.00	4.35	12.69	4.44	12.38	4.53	12.07	4.62	11.76	4.71
	0	-2	14.15	4.35	13.81	4.44	13.47	4.53	13.14	4.62	12.80	4.71
	5	3	15.29	4.35	14.93	4.44	14.56	4.53	14.20	4.62	13.84	4.71
	7	6	15.75	4.35	15.38	4.44	15.00	4.53	14.63	4.62	14.25	4.71
	10	8	15.91	4.35	15.53	4.44	15.15	4.53	14.77	4.62	14.39	4.71
	15	10	16.18	3.92	15.79	4.00	15.41	4.08	15.02	4.16	14.63	4.22
	20	15	16.44	3.84	16.05	3.92	15.66	4.00	15.27	4.08	14.88	4.14
	24	18	16.65	3.48	16.25	3.55	15.86	3.62	15.46	3.69	15.06	3.75

■ MODEL: AU∗G24LV x 2

AFR	31.0

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-15	-16	11.06	4.57	10.79	4.66	10.53	4.76	10.27	4.86	10.00	4.95
	-10	-11	12.27	4.57	11.97	4.66	11.68	4.76	11.39	4.86	11.10	4.95
	-5	-7	13.48	4.57	13.16	4.66	12.83	4.76	12.51	4.86	12.19	4.95
	0	-2	14.69	4.57	14.34	4.66	13.99	4.76	13.64	4.86	13.29	4.95
	5	3	15.90	4.57	15.52	4.66	15.14	4.76	14.76	4.86	14.38	4.95
	7	6	16.38	4.57	15.99	4.66	15.60	4.76	15.21	4.86	14.82	4.95
	10	8	16.46	4.57	16.07	4.66	15.67	4.76	15.28	4.86	14.89	4.95
	15	10	16.59	3.92	16.19	4.00	15.80	4.08	15.40	4.16	15.01	4.22
	20	15	16.72	3.84	16.32	3.92	15.92	4.00	15.52	4.08	15.12	4.14
	24	18	16.82	3.48	16.42	3.55	16.02	3.62	15.62	3.69	15.22	3.75

AFR: Airflow Rate (m^3/min.)
TC: Total Capacity (kW)
IP: Input Power (kW)

6-2-2. SLIM DUCT TYPE

This table is created using the maximum capacity.

■ MODEL: AR∗G18LL x 2

AFR	31.3

			Indoor temperature									
		°CDB	16		18		20		22		24	
Outdoor temperature	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
	-15	-16	9.73	4.04	9.50	4.13	9.27	4.21	9.04	4.29	8.81	4.38
	-10	-11	10.74	4.04	10.49	4.13	10.23	4.21	9.98	4.29	9.72	4.38
	-5	-7	11.75	4.04	11.47	4.13	11.19	4.21	10.91	4.29	10.63	4.38
	0	-2	12.76	4.04	12.46	4.13	12.15	4.21	11.85	4.29	11.55	4.38
	5	3	13.77	4.04	13.44	4.13	13.12	4.21	12.79	4.29	12.46	4.38
	7	6	14.18	4.04	13.84	4.13	13.50	4.21	13.16	4.29	12.83	4.38
	10	8	14.78	3.86	14.43	3.95	14.08	4.03	13.73	4.11	13.37	4.19
	15	10	14.87	3.83	14.51	3.91	14.16	3.98	13.81	4.06	13.45	4.12
	20	15	15.22	3.79	14.86	3.87	14.50	3.94	14.14	4.02	13.77	4.08
	24	18	15.56	3.39	15.19	3.46	14.82	3.53	14.45	3.60	14.08	3.65

AFR: Airflow Rate (m³/min.)
TC: Total Capacity (kW)
IP: Input Power (kW)

INDOOR UNITS (SIMULTANEOUS MULTI)

6-2-3. DUCT TYPE

This table is created using the maximum capacity.

■ MODEL: AR∗G22LM x 2

AFR	36.7

		Indoor temperature									
	°CDB	16		18		20		22		24	
Outdoor temperature °CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
-15	-16	10.50	4.35	10.25	4.44	10.00	4.53	9.75	4.62	9.50	4.71
-10	-11	11.69	4.35	11.41	4.44	11.14	4.53	10.86	4.62	10.58	4.71
-5	-7	12.89	4.35	12.58	4.44	12.27	4.53	11.97	4.62	11.66	4.71
0	-2	14.08	4.35	13.74	4.44	13.41	4.53	13.07	4.62	12.74	4.71
5	3	15.27	4.35	14.91	4.44	14.55	4.53	14.18	4.62	13.82	4.71
7	6	15.75	4.35	15.38	4.44	15.00	4.53	14.63	4.62	14.25	4.71
10	8	15.88	4.35	15.50	4.44	15.12	4.53	14.75	4.62	14.37	4.71
15	10	16.10	3.92	15.71	4.00	15.33	4.08	14.95	4.16	14.56	4.22
20	15	16.31	3.84	15.92	3.92	15.54	4.00	15.15	4.08	14.76	4.14
24	18	16.49	3.48	16.10	3.55	15.70	3.62	15.31	3.69	14.92	3.75

■ MODEL: AR∗G24LM x 2

AFR	36.7

		Indoor temperature									
	°CDB	16		18		20		22		24	
Outdoor temperature °CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
-15	-16	10.89	4.57	10.63	4.66	10.37	4.76	10.11	4.86	9.85	4.95
-10	-11	12.14	4.57	11.85	4.66	11.56	4.76	11.27	4.86	10.98	4.95
-5	-7	13.38	4.57	13.07	4.66	12.75	4.76	12.43	4.86	12.11	4.95
0	-2	14.63	4.57	14.28	4.66	13.94	4.76	13.59	4.86	13.24	4.95
5	3	15.88	4.57	15.50	4.66	15.12	4.76	14.75	4.86	14.37	4.95
7	6	16.38	4.57	15.99	4.66	15.60	4.76	15.21	4.86	14.82	4.95
10	8	16.43	4.57	16.04	4.66	15.65	4.76	15.25	4.86	14.86	4.95
15	10	16.51	3.92	16.12	4.00	15.72	4.08	15.33	4.16	14.94	4.22
20	15	16.59	3.84	16.19	3.92	15.80	4.00	15.40	4.08	15.01	4.14
24	18	16.65	3.48	16.26	3.55	15.86	3.62	15.46	3.69	15.07	3.75

AFR: Airflow Rate (m^3/min.)
TC: Total Capacity (kW)
IP: Input Power (kW)

6-2-4. FLOOR / CEILING TYPE

This table is created using the maximum capacity.

■ MODEL: AB∗G18LV x 2

AFR	26.0

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-15	-16	9.73	4.04	9.50	4.13	9.27	4.21	9.04	4.29	8.81	4.38
	-10	-11	10.74	4.04	10.49	4.13	10.23	4.21	9.98	4.29	9.72	4.38
	-5	-7	11.75	4.04	11.47	4.13	11.19	4.21	10.91	4.29	10.63	4.38
	0	-2	12.76	4.04	12.46	4.13	12.15	4.21	11.85	4.29	11.55	4.38
	5	3	13.77	4.04	13.44	4.13	13.12	4.21	12.79	4.29	12.46	4.38
	7	6	14.18	4.04	13.84	4.13	13.50	4.21	13.16	4.29	12.83	4.38
	10	8	14.78	3.86	14.43	3.95	14.08	4.03	13.73	4.11	13.37	4.19
	15	10	14.87	3.83	14.51	3.91	14.16	3.98	13.81	4.06	13.45	4.12
	20	15	15.22	3.79	14.86	3.87	14.50	3.94	14.14	4.02	13.77	4.08
	24	18	15.56	3.39	15.19	3.46	14.82	3.53	14.45	3.60	14.08	3.65

■ MODEL: AB∗G22LV x 2

AFR	32.7

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-15	-16	10.71	4.35	10.46	4.44	10.20	4.53	9.95	4.62	9.69	4.71
	-10	-11	11.86	4.35	11.57	4.44	11.29	4.53	11.01	4.62	10.73	4.71
	-5	-7	13.00	4.35	12.69	4.44	12.38	4.53	12.07	4.62	11.76	4.71
	0	-2	14.15	4.35	13.81	4.44	13.47	4.53	13.14	4.62	12.80	4.71
	5	3	15.29	4.35	14.93	4.44	14.56	4.53	14.20	4.62	13.84	4.71
	7	6	15.75	4.35	15.38	4.44	15.00	4.53	14.63	4.62	14.25	4.71
	10	8	15.91	4.35	15.53	4.44	15.15	4.53	14.77	4.62	14.39	4.71
	15	10	16.18	3.92	15.79	4.00	15.41	4.08	15.02	4.16	14.63	4.22
	20	15	16.44	3.84	16.05	3.92	15.66	4.00	15.27	4.08	14.88	4.14
	24	18	16.65	3.48	16.25	3.55	15.86	3.62	15.46	3.69	15.06	3.75

■ MODEL: AB∗G24LV x 2

AFR	32.7

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-15	-16	11.06	4.57	10.79	4.66	10.53	4.76	10.27	4.86	10.00	4.95
	-10	-11	12.27	4.57	11.97	4.66	11.68	4.76	11.39	4.86	11.10	4.95
	-5	-7	13.48	4.57	13.16	4.66	12.83	4.76	12.51	4.86	12.19	4.95
	0	-2	14.69	4.57	14.34	4.66	13.99	4.76	13.64	4.86	13.29	4.95
	5	3	15.90	4.57	15.52	4.66	15.14	4.76	14.76	4.86	14.38	4.95
	7	6	16.38	4.57	15.99	4.66	15.60	4.76	15.21	4.86	14.82	4.95
	10	8	16.46	4.57	16.07	4.66	15.67	4.76	15.28	4.86	14.89	4.95
	15	10	16.59	3.92	16.19	4.00	15.80	4.08	15.40	4.16	15.01	4.22
	20	15	16.72	3.84	16.32	3.92	15.92	4.00	15.52	4.08	15.12	4.14
	24	18	16.82	3.48	16.42	3.55	16.02	3.62	15.62	3.69	15.22	3.75

AFR: Airflow Rate (m^3/min.)
TC: Total Capacity (kW)
IP: Input Power (kW)

6-3. COOLING CAPACITY OF SIMULTANEOUS MULTI (TRIPLE)

6-3-1. COMPACT CASSETTE TYPE

This table is created using the maximum capacity.

■ MODEL: AU∗G18LV x 3

AFR	34.0

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-15	12.20	9.30	2.20	13.59	9.36	2.23	14.05	10.17	2.25	14.98	10.21	2.27	15.44	11.02	2.28	16.37	10.98	2.30	17.30	11.69	2.32
	-10	12.13	9.32	2.28	13.52	9.38	2.32	13.98	10.20	2.33	14.90	10.23	2.35	15.36	11.05	2.37	16.28	11.00	2.39	17.20	11.72	2.41
	0	12.08	9.16	2.39	13.46	9.21	2.43	13.92	10.02	2.44	14.84	10.05	2.47	15.29	10.85	2.48	16.21	10.81	2.50	17.13	11.51	2.53
	5	11.96	9.19	2.44	13.32	9.25	2.48	13.78	10.05	2.49	14.69	10.08	2.52	15.14	10.89	2.53	16.05	10.85	2.56	16.96	11.55	2.58
	10	11.72	9.15	2.48	13.05	9.21	2.52	13.50	10.01	2.54	14.39	10.04	2.56	14.83	10.84	2.57	15.72	10.80	2.60	16.61	11.50	2.63
	15	11.81	9.20	2.60	13.16	9.25	2.64	13.61	10.06	2.65	14.51	10.09	2.68	14.95	10.90	2.69	15.85	10.85	2.72	16.75	11.56	2.75
	20	12.08	9.04	3.25	13.46	9.09	3.30	13.92	9.88	3.32	14.84	9.92	3.35	15.30	10.71	3.37	16.21	10.67	3.40	17.13	11.36	3.43
	25	12.64	9.47	3.74	14.08	9.53	3.80	14.56	10.36	3.82	15.52	10.39	3.86	16.00	11.22	3.88	16.96	11.18	3.91	17.92	11.90	3.95
	30	11.20	8.14	4.21	12.48	8.19	4.28	12.90	8.90	4.30	13.75	8.93	4.34	14.18	9.64	4.36	15.03	9.60	4.41	15.88	10.23	4.45
	35	11.06	8.15	4.51	12.32	8.20	4.58	12.74	8.92	4.60	13.58	8.95	4.65	14.00	9.66	4.67	14.84	9.62	4.72	15.68	10.25	4.76
	40	8.79	6.67	4.18	9.79	6.71	4.24	10.13	7.29	4.27	10.80	7.32	4.31	11.13	7.90	4.33	11.80	7.87	4.37	12.47	8.38	4.42
	46	7.13	6.09	3.30	7.94	6.13	3.35	8.21	6.66	3.37	8.75	6.68	3.40	9.02	7.22	3.42	9.56	7.19	3.45	10.10	7.66	3.49

AFR: Airflow Rate (m³/min.)
TC: Total Capacity (kW)
SHC: Sensible Heat Capacity (kW)
IP: Input Power (kW)

INDOOR UNITS (SIMULTANEOUS MULTI)

6-3-2. SLIM DUCT TYPE

This table is created using the maximum capacity.

■ MODEL: AR∗G18LL x 3

AFR	47.0

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-15	12.20	9.30	2.20	13.59	9.36	2.23	14.05	10.17	2.25	14.98	10.21	2.27	15.44	11.02	2.28	16.37	10.98	2.30	17.30	11.69	2.32
	-10	12.13	9.32	2.28	13.52	9.38	2.32	13.98	10.20	2.33	14.90	10.23	2.35	15.36	11.05	2.37	16.28	11.00	2.39	17.20	11.72	2.41
	0	12.08	9.16	2.39	13.46	9.21	2.43	13.92	10.02	2.44	14.84	10.05	2.47	15.29	10.85	2.48	16.21	10.81	2.50	17.13	11.51	2.53
	5	11.96	9.19	2.44	13.32	9.25	2.48	13.78	10.05	2.49	14.69	10.08	2.52	15.14	10.89	2.53	16.05	10.85	2.56	16.96	11.55	2.58
	10	11.72	9.15	2.48	13.05	9.21	2.52	13.50	10.01	2.54	14.39	10.04	2.56	14.83	10.84	2.57	15.72	10.80	2.60	16.61	11.50	2.63
	15	11.81	9.20	2.60	13.16	9.25	2.64	13.61	10.06	2.65	14.51	10.09	2.68	14.95	10.90	2.69	15.85	10.85	2.72	16.75	11.56	2.75
	20	12.08	9.04	3.25	13.46	9.09	3.30	13.92	9.88	3.32	14.84	9.92	3.35	15.30	10.71	3.37	16.21	10.67	3.40	17.13	11.36	3.43
	25	12.64	9.47	3.74	14.08	9.53	3.80	14.56	10.36	3.82	15.52	10.39	3.86	16.00	11.22	3.88	16.96	11.18	3.91	17.92	11.90	3.95
	30	11.20	8.14	4.21	12.48	8.19	4.28	12.90	8.90	4.30	13.75	8.93	4.34	14.18	9.64	4.36	15.03	9.60	4.41	15.88	10.23	4.45
	35	11.06	8.15	4.51	12.32	8.20	4.58	12.74	8.92	4.60	13.58	8.95	4.65	14.00	9.66	4.67	14.84	9.62	4.72	15.68	10.25	4.76
	40	8.79	6.67	4.18	9.79	6.71	4.24	10.13	7.29	4.27	10.80	7.32	4.31	11.13	7.90	4.33	11.80	7.87	4.37	12.47	8.38	4.42
	46	7.13	6.09	3.30	7.94	6.13	3.35	8.21	6.66	3.37	8.75	6.68	3.40	9.02	7.22	3.42	9.56	7.19	3.45	10.10	7.66	3.49

AFR: Airflow Rate (m³/min.)
TC: Total Capacity (kW)
SHC: Sensible Heat Capacity (kW)
IP: Input Power (kW)

INDOOR UNITS (SIMULTANEOUS MULTI)

6-3-3. FLOOR / CEILING TYPE

This table is created using the maximum capacity.

■ MODEL: AB∗G18LV x 3

AFR	39.0

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-15	12.20	9.30	2.20	13.59	9.36	2.23	14.05	10.17	2.25	14.98	10.21	2.27	15.44	11.02	2.28	16.37	10.98	2.30	17.30	11.69	2.32
	-10	12.13	9.32	2.28	13.52	9.38	2.32	13.98	10.20	2.33	14.90	10.23	2.35	15.36	11.05	2.37	16.28	11.00	2.39	17.20	11.72	2.41
	0	12.08	9.16	2.39	13.46	9.21	2.43	13.92	10.02	2.44	14.84	10.05	2.47	15.29	10.85	2.48	16.21	10.81	2.50	17.13	11.51	2.53
	5	11.96	9.19	2.44	13.32	9.25	2.48	13.78	10.05	2.49	14.69	10.08	2.52	15.14	10.89	2.53	16.05	10.85	2.56	16.96	11.55	2.58
	10	11.72	9.15	2.48	13.05	9.21	2.52	13.50	10.01	2.54	14.39	10.04	2.56	14.83	10.84	2.57	15.72	10.80	2.60	16.61	11.50	2.63
	15	11.81	9.20	2.60	13.16	9.25	2.64	13.61	10.06	2.65	14.51	10.09	2.68	14.95	10.90	2.69	15.85	10.85	2.72	16.75	11.56	2.75
	20	12.08	9.04	3.25	13.46	9.09	3.30	13.92	9.88	3.32	14.84	9.92	3.35	15.30	10.71	3.37	16.21	10.67	3.40	17.13	11.36	3.43
	25	12.64	9.47	3.74	14.08	9.53	3.80	14.56	10.36	3.82	15.52	10.39	3.86	16.00	11.22	3.88	16.96	11.18	3.91	17.92	11.90	3.95
	30	11.20	8.14	4.21	12.48	8.19	4.28	12.90	8.90	4.30	13.75	8.93	4.34	14.18	9.64	4.36	15.03	9.60	4.41	15.88	10.23	4.45
	35	11.06	8.15	4.51	12.32	8.20	4.58	12.74	8.92	4.60	13.58	8.95	4.65	14.00	9.66	4.67	14.84	9.62	4.72	15.68	10.25	4.76
	40	8.79	6.67	4.18	9.79	6.71	4.24	10.13	7.29	4.27	10.80	7.32	4.31	11.13	7.90	4.33	11.80	7.87	4.37	12.47	8.38	4.42
	46	7.13	6.09	3.30	7.94	6.13	3.35	8.21	6.66	3.37	8.75	6.68	3.40	9.02	7.22	3.42	9.56	7.19	3.45	10.10	7.66	3.49

AFR: Airflow Rate (m³/min.)
TC: Total Capacity (kW)
SHC: Sensible Heat Capacity (kW)
IP: Input Power (kW)

INDOOR UNITS (SIMULTANEOUS MULTI)

6-4. HEATING CAPACITY OF SIMULTANEOUS MULTI (TRIPLE)

6-4-1. COMPACT CASSETTE TYPE

This table is created using the maximum capacity.

■ MODEL: AU∗G18LV x 3

AFR	40.0

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-15	-16	11.12	4.59	10.85	4.68	10.59	4.78	10.33	4.88	10.06	4.97
	-10	-11	12.58	4.59	12.28	4.68	11.98	4.78	11.68	4.88	11.38	4.97
	-5	-7	14.04	4.59	13.70	4.68	13.37	4.78	13.03	4.88	12.70	4.97
	0	-2	15.49	4.59	15.12	4.68	14.76	4.78	14.39	4.88	14.02	4.97
	5	3	16.95	4.59	16.55	4.68	16.14	4.78	15.74	4.88	15.34	4.97
	7	6	17.54	4.59	17.12	4.68	16.70	4.78	16.28	4.88	15.87	4.97
	10	8	17.59	4.59	17.17	4.68	16.75	4.78	16.33	4.88	15.91	4.97
	15	10	17.67	3.94	17.25	4.02	16.83	4.10	16.41	4.18	15.99	4.24
	20	15	17.75	3.90	17.33	3.98	16.91	4.06	16.48	4.14	16.06	4.20
	24	18	17.82	3.49	17.39	3.57	16.97	3.64	16.55	3.71	16.12	3.77

AFR: Airflow Rate (m^3/min.)
TC: Total Capacity (kW)
IP: Input Power (kW)

INDOOR UNITS (SIMULTANEOUS MULTI)

6-4-2.SLIM DUCT TYPE

This table is created using the maximum capacity.

■ MODEL: AR∗G18LL x 3

AFR	47.0

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-15	-16	11.12	4.59	10.85	4.68	10.59	4.78	10.33	4.88	10.06	4.97
	-10	-11	12.58	4.59	12.28	4.68	11.98	4.78	11.68	4.88	11.38	4.97
	-5	-7	14.04	4.59	13.70	4.68	13.37	4.78	13.03	4.88	12.70	4.97
	0	-2	15.49	4.59	15.12	4.68	14.76	4.78	14.39	4.88	14.02	4.97
	5	3	16.95	4.59	16.55	4.68	16.14	4.78	15.74	4.88	15.34	4.97
	7	6	17.54	4.59	17.12	4.68	16.70	4.78	16.28	4.88	15.87	4.97
	10	8	17.59	4.59	17.17	4.68	16.75	4.78	16.33	4.88	15.91	4.97
	15	10	17.67	3.94	17.25	4.02	16.83	4.10	16.41	4.18	15.99	4.24
	20	15	17.75	3.90	17.33	3.98	16.91	4.06	16.48	4.14	16.06	4.20
	24	18	17.82	3.49	17.39	3.57	16.97	3.64	16.55	3.71	16.12	3.77

AFR: Airflow Rate (m^3/min.)
TC: Total Capacity (kW)
IP: Input Power (kW)

INDOOR UNITS (SIMULTANEOUS MULTI)

6-4-3.FLOOR / CEILING TYPE

This table is created using the maximum capacity.

■ MODEL: AB∗G18LV x 3

AFR	39.0

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-15	-16	11.12	4.59	10.85	4.68	10.59	4.78	10.33	4.88	10.06	4.97
	-10	-11	12.58	4.59	12.28	4.68	11.98	4.78	11.68	4.88	11.38	4.97
	-5	-7	14.04	4.59	13.70	4.68	13.37	4.78	13.03	4.88	12.70	4.97
	0	-2	15.49	4.59	15.12	4.68	14.76	4.78	14.39	4.88	14.02	4.97
	5	3	16.95	4.59	16.55	4.68	16.14	4.78	15.74	4.88	15.34	4.97
	7	6	17.54	4.59	17.12	4.68	16.70	4.78	16.28	4.88	15.87	4.97
	10	8	17.59	4.59	17.17	4.68	16.75	4.78	16.33	4.88	15.91	4.97
	15	10	17.67	3.94	17.25	4.02	16.83	4.10	16.41	4.18	15.99	4.24
	20	15	17.75	3.90	17.33	3.98	16.91	4.06	16.48	4.14	16.06	4.20
	24	18	17.82	3.49	17.39	3.57	16.97	3.64	16.55	3.71	16.12	3.77

AFR: Airflow Rate (m^3/min.)
TC: Total Capacity (kW)
IP: Input Power (kW)

INDOOR UNITS (SIMULTANEOUS MULTI)

7. FAN PERFORMANCE

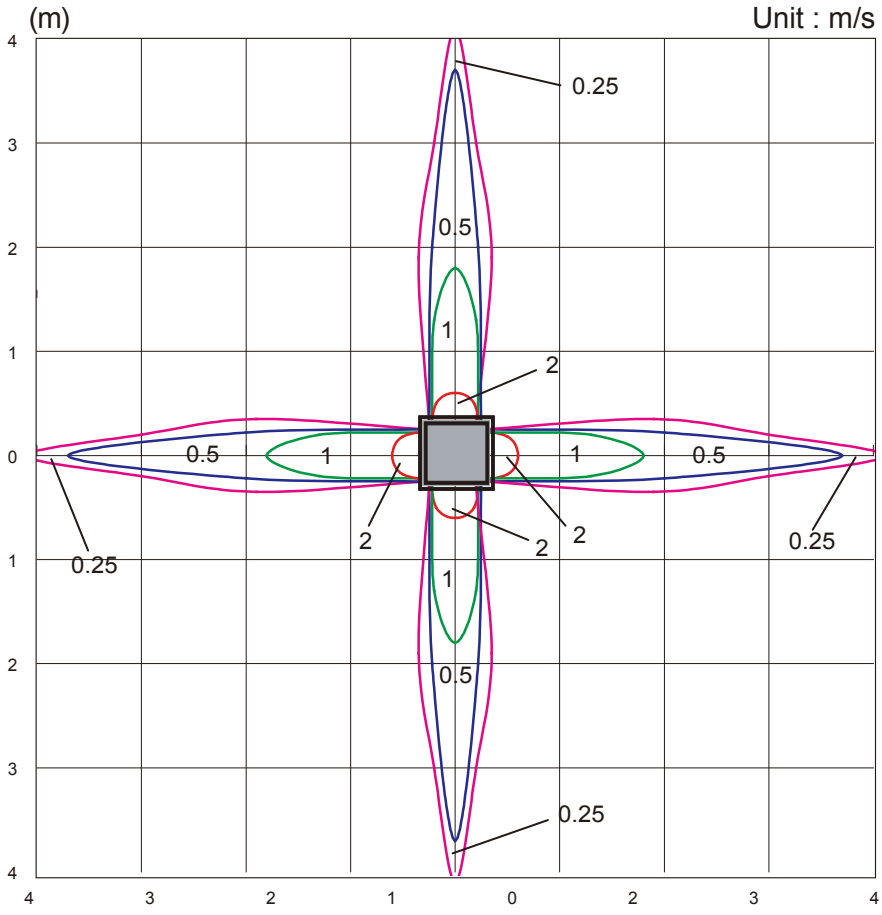
7-1. COMPACT CASSETTE TYPE

7-1-1. AIR VELOCITY DISTRIBUTION

Note:
Condition
Fan speed : High
Operation mode : FAN
Ceiling mode : Standard

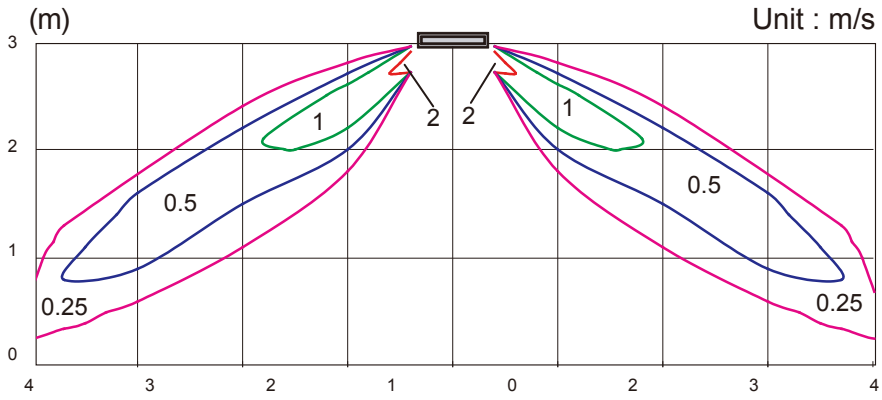
■ MODEL: AU∗G18LV

● 4-way air outlet



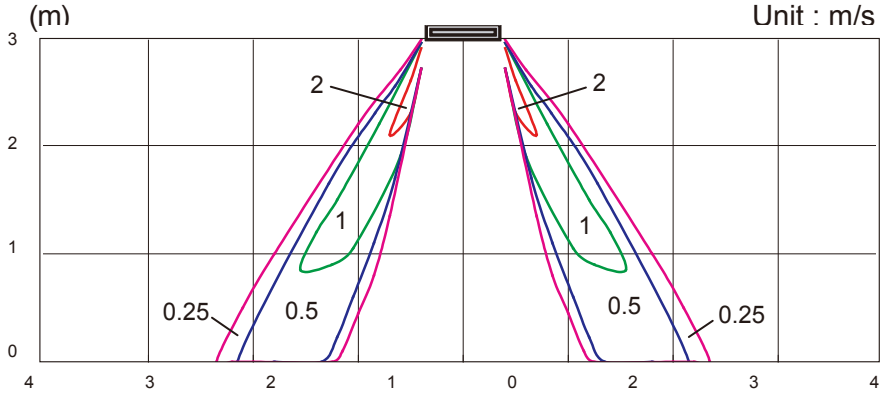
TOP VIEW
Vertical airflow direction louver
: Upward

(m)



SIDE VIEW
Vertical airflow direction louver
: Upward

(m)



SIDE VIEW
Vertical airflow direction louver
: Downward

(m)

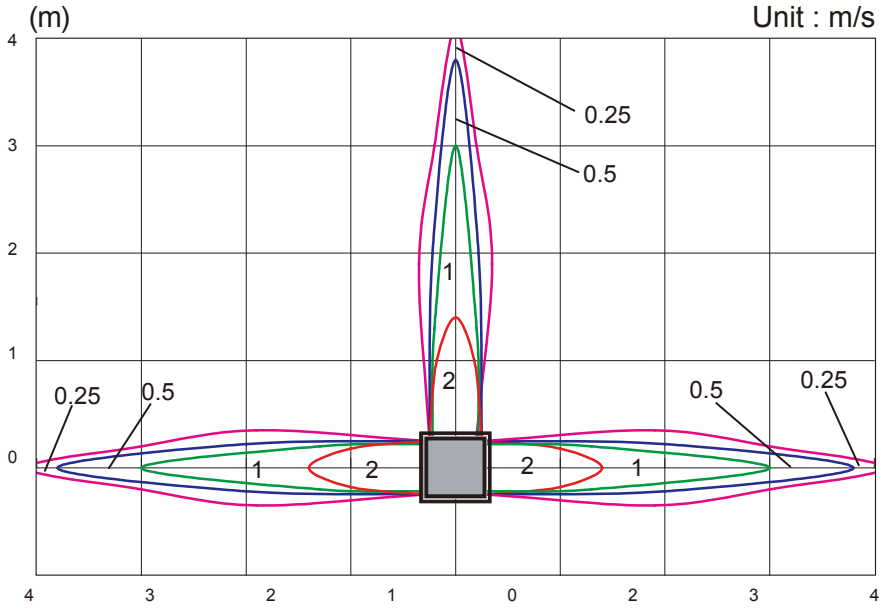
INDOOR UNITS (SIMULTANEOUS MULTI)

INDOOR UNITS
(SIMULTANEOUS MULTI)

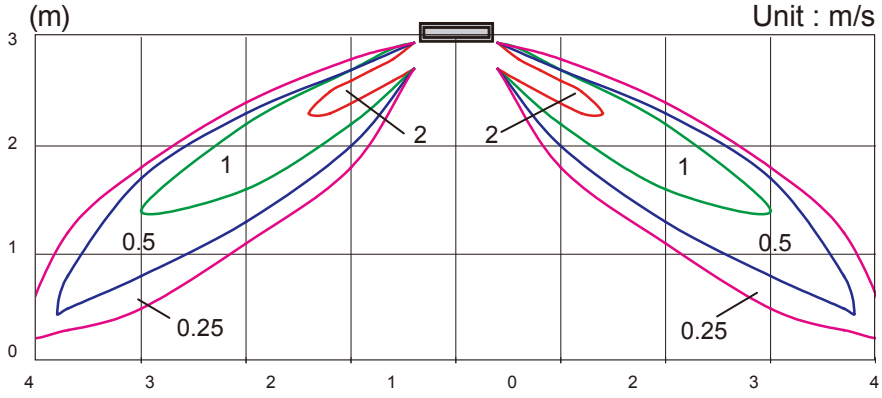
Note:
Condition
Fan speed : High
Operation mode : FAN
Ceiling mode : Standard

■ MODEL: AU∗G18LV

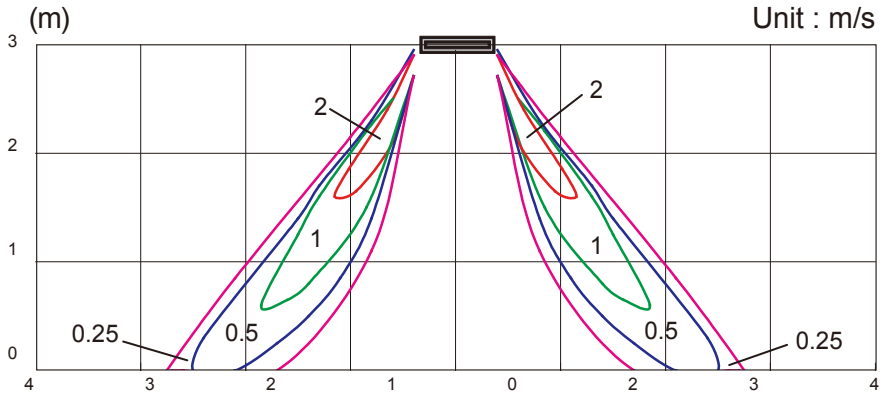
● 3-way air outlet



TOP VIEW
Vertical airflow direction louver
: Upward



SIDE VIEW
Vertical airflow direction louver
: Upward



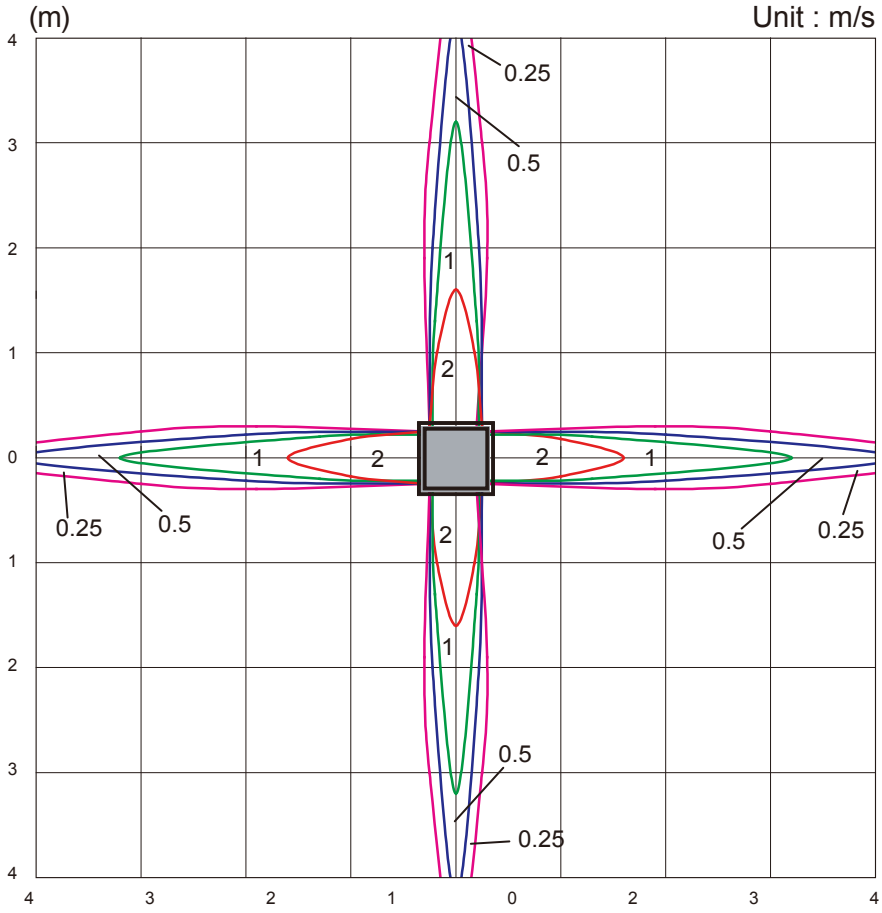
SIDE VIEW
Vertical airflow direction louver
: Downward

INDOOR UNITS
(SIMULTANEOUS MULTI)

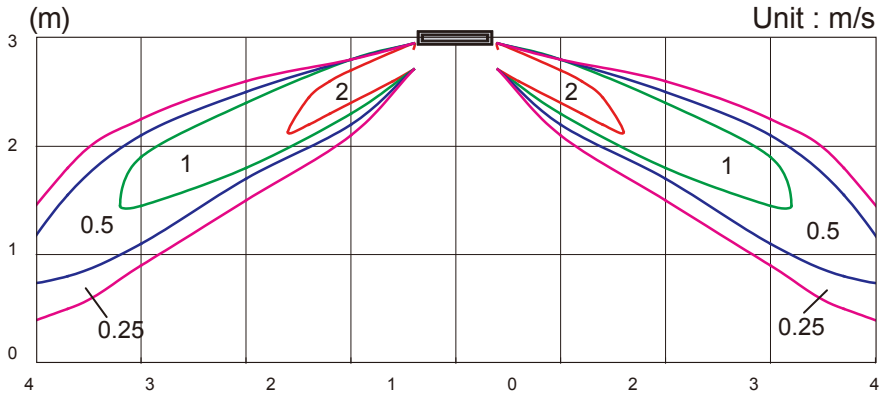
Note:
Condition
Fan speed : High
Operation mode : FAN
Ceiling mode : Standard

■MODEL: AU∗G22LV

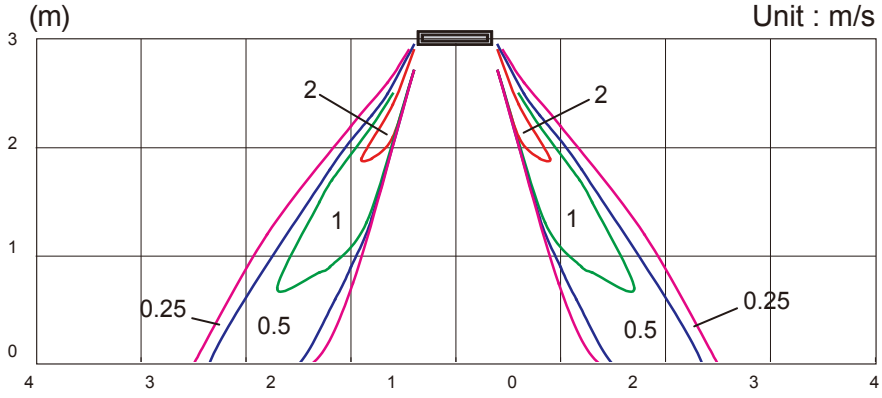
●4-way air outlet



TOP VIEW
Vertical airflow direction louver
: Upward



SIDE VIEW
Vertical airflow direction louver
: Upward



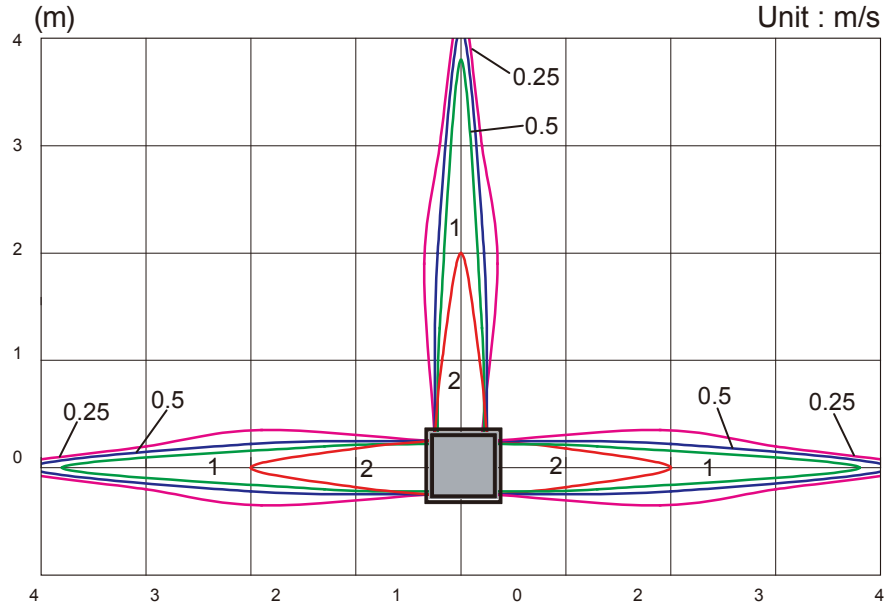
SIDE VIEW
Vertical airflow direction louver
: Downward

INDOOR UNITS
(SIMULTANEOUS MULTI)

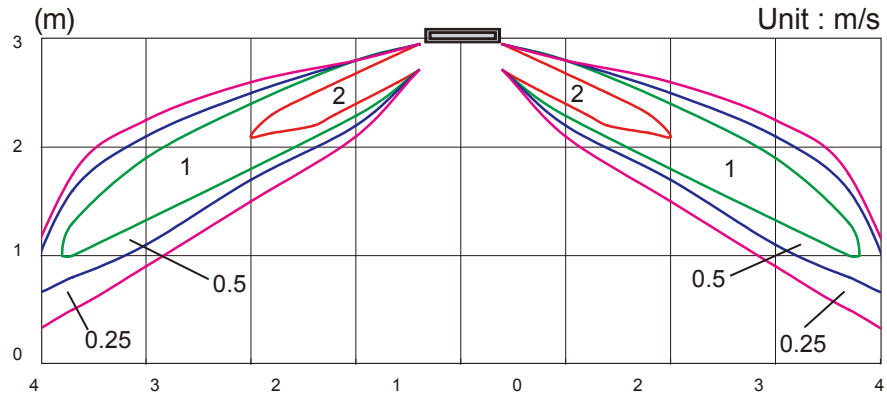
Note:
Condition
Fan speed : High
Operation mode : FAN
Ceiling mode : Standard

■ MODEL: AU∗G22LV

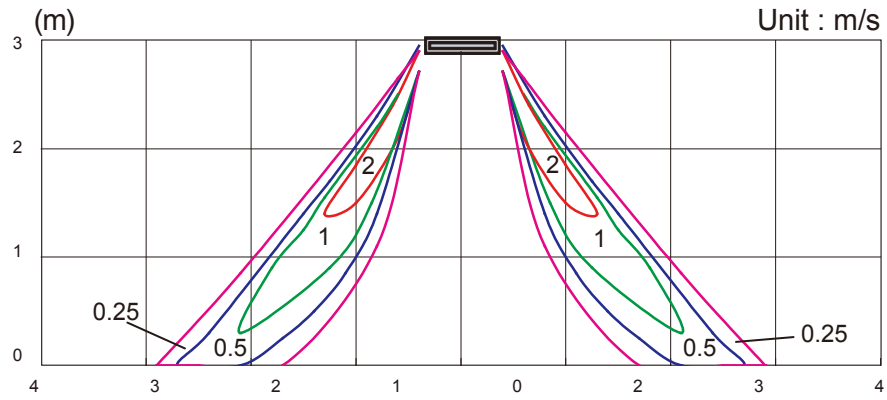
● 3-way air outlet



TOP VIEW
Vertical airflow direction louver
: Upward



SIDE VIEW
Vertical airflow direction louver
: Upward



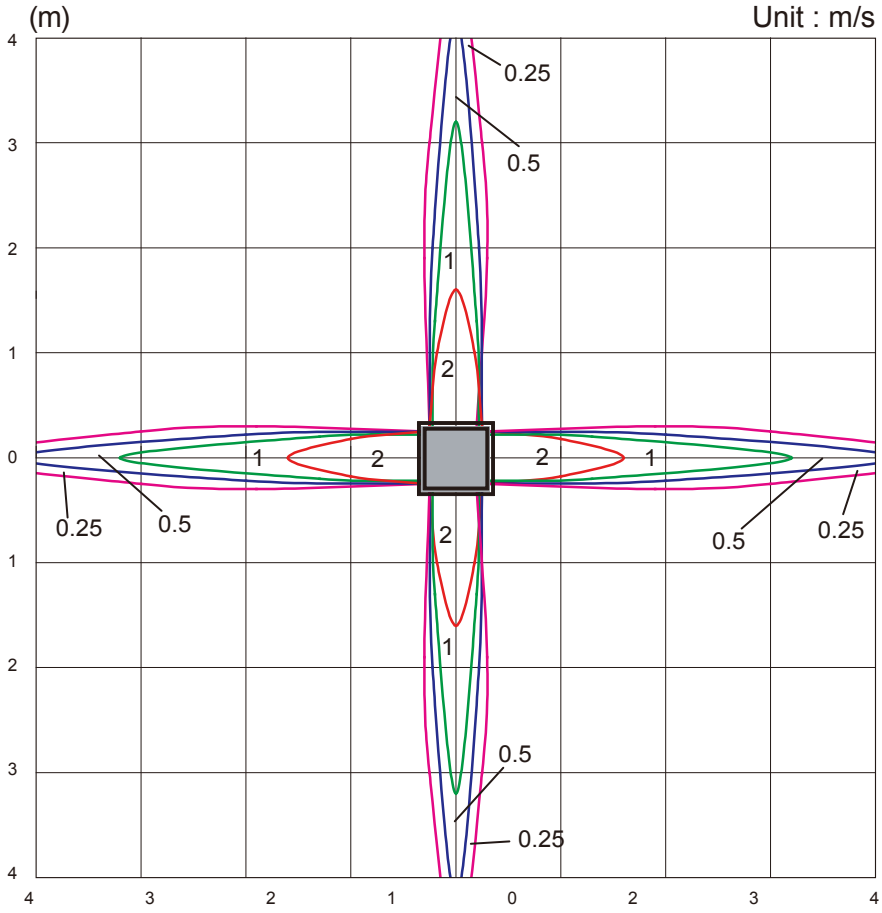
SIDE VIEW
Vertical airflow direction louver
: Downward

INDOOR UNITS
(SIMULTANEOUS MULTI)

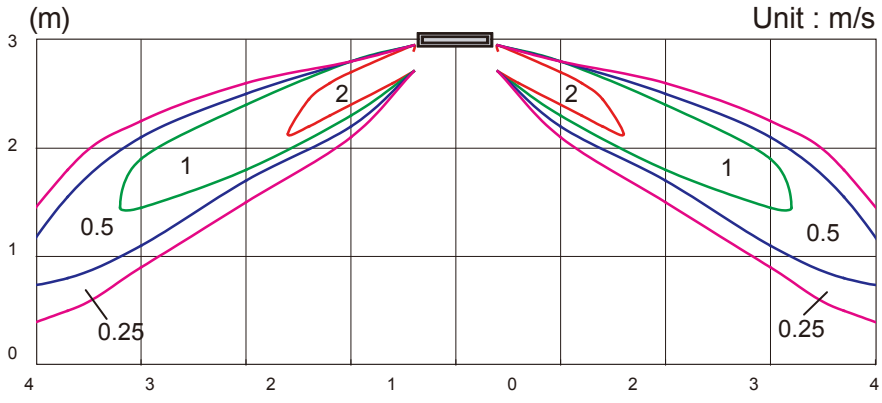
Note:
Condition
Fan speed : High
Operation mode : FAN
Ceiling mode : Standard

■ MODEL: AU∗G24LV

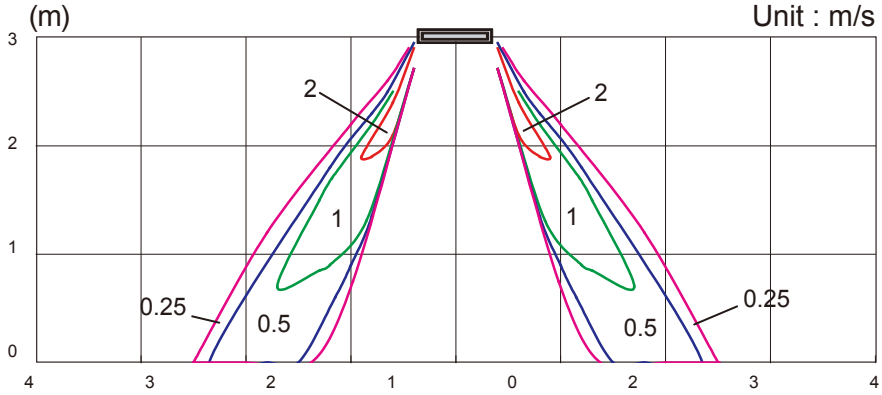
● 4-way air outlet



TOP VIEW
Vertical airflow direction louver
: Upward



SIDE VIEW
Vertical airflow direction louver
: Upward



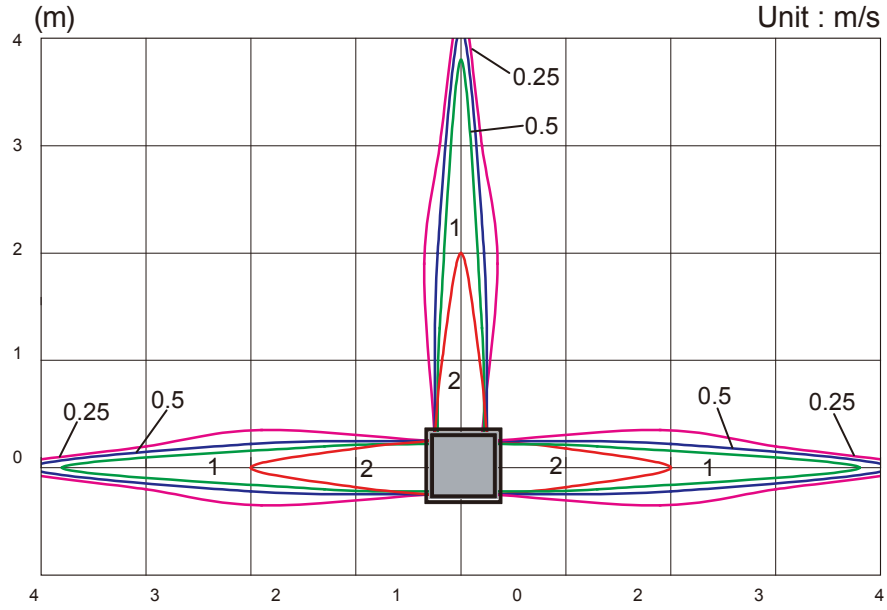
SIDE VIEW
Vertical airflow direction louver
: Downward

INDOOR UNITS
(SIMULTANEOUS MULTI)

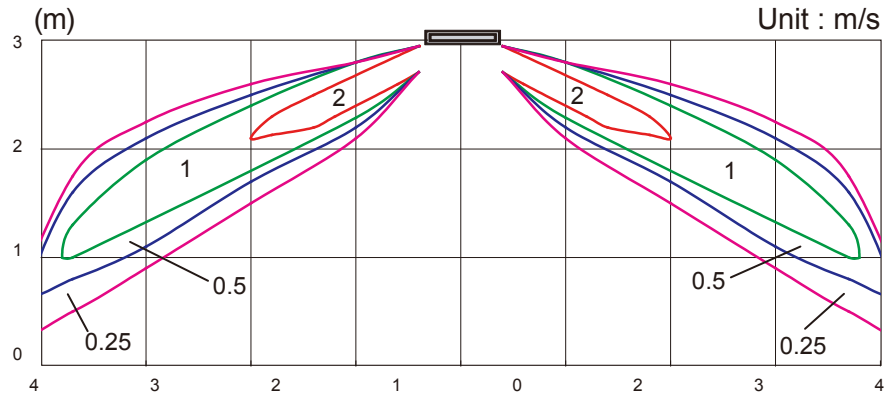
Note:
Condition
Fan speed : High
Operation mode : FAN
Ceiling mode : Standard

■ MODEL: AU∗G24LV

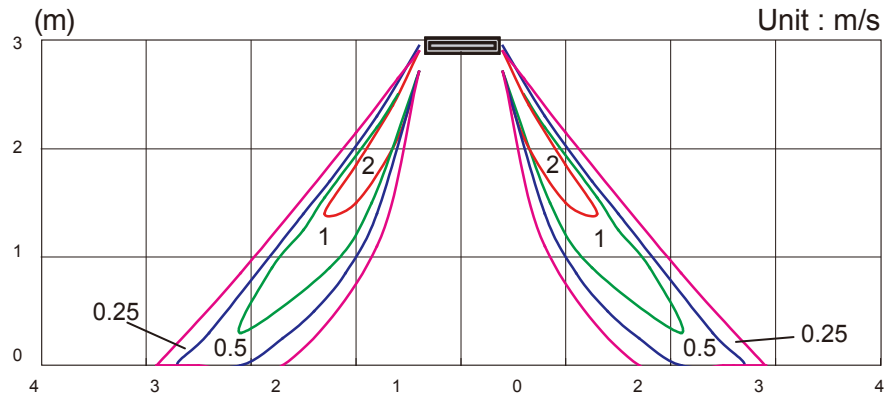
● 3-way air outlet



TOP VIEW
Vertical airflow direction louver
: Upward



SIDE VIEW
Vertical airflow direction louver
: Upward



SIDE VIEW
Vertical airflow direction louver
: Downward

7-1-2. AIRFLOW

■ MODEL: AU∗G18LV (STANDARD CEILING MODE)

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	680
	l/s	189
	CFM	400
MED	m^3/h	580
	l/s	161
	CFM	341
LOW	m^3/h	490
	l/s	136
	CFM	288
QUIET	m^3/h	410
	l/s	114
	CFM	241

● Heating

Fan speed	Airflow	
HIGH	m^3/h	800
	l/s	222
	CFM	471
MED	m^3/h	680
	l/s	189
	CFM	400
LOW	m^3/h	580
	l/s	161
	CFM	341
QUIET	m^3/h	450
	l/s	125
	CFM	265

INDOOR UNITS
(SIMULTANEOUS MULTI)

■ MODEL: AU∗G22LV (STANDARD CEILING MODE)

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	930
	l/s	258
	CFM	547
MED	m^3/h	830
	l/s	231
	CFM	488
LOW	m^3/h	600
	l/s	167
	CFM	353
QUIET	m^3/h	450
	l/s	125
	CFM	265

● Heating

Fan speed	Airflow	
HIGH	m^3/h	930
	l/s	258
	CFM	547
MED	m^3/h	860
	l/s	239
	CFM	506
LOW	m^3/h	700
	l/s	194
	CFM	412
QUIET	m^3/h	530
	l/s	147
	CFM	312

INDOOR UNITS
(SIMULTANEOUS MULTI)

■ MODEL: AU∗G24LV (STANDARD CEILING MODE)

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	930
	l/s	258
	CFM	547
MED	m^3/h	830
	l/s	231
	CFM	488
LOW	m^3/h	600
	l/s	167
	CFM	353
QUIET	m^3/h	450
	l/s	125
	CFM	265

● Heating

Fan speed	Airflow	
HIGH	m^3/h	930
	l/s	258
	CFM	547
MED	m^3/h	860
	l/s	239
	CFM	506
LOW	m^3/h	700
	l/s	194
	CFM	412
QUIET	m^3/h	530
	l/s	147
	CFM	312

INDOOR UNITS
(SIMULTANEOUS MULTI)

■ MODEL: AU∗G18LV (HIGH CEILING MODE)

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	800
	l/s	222
	CFM	471
MED	m^3/h	680
	l/s	189
	CFM	400
LOW	m^3/h	590
	l/s	164
	CFM	347
QUIET	m^3/h	410
	l/s	114
	CFM	241

● Heating

Fan speed	Airflow	
HIGH	m^3/h	900
	l/s	250
	CFM	530
MED	m^3/h	800
	l/s	222
	CFM	471
LOW	m^3/h	680
	l/s	189
	CFM	400
QUIET	m^3/h	450
	l/s	125
	CFM	265

INDOOR UNITS
(SIMULTANEOUS MULTI)

■ MODEL: AU∗G22LV (HIGH CEILING MODE)

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	1030
	l/s	286
	CFM	606
MED	m^3/h	930
	l/s	258
	CFM	547
LOW	m^3/h	710
	l/s	197
	CFM	418
QUIET	m^3/h	450
	l/s	125
	CFM	265

● Heating

Fan speed	Airflow	
HIGH	m^3/h	1000
	l/s	278
	CFM	589
MED	m^3/h	960
	l/s	267
	CFM	565
LOW	m^3/h	820
	l/s	228
	CFM	483
QUIET	m^3/h	530
	l/s	147
	CFM	312

INDOOR UNITS
(SIMULTANEOUS MULTI)

■ MODEL: AU∗G24LV (HIGH CEILING MODE)

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	1030
	l/s	286
	CFM	606
MED	m^3/h	930
	l/s	258
	CFM	547
LOW	m^3/h	710
	l/s	197
	CFM	418
QUIET	m^3/h	450
	l/s	125
	CFM	265

● Heating

Fan speed	Airflow	
HIGH	m^3/h	1000
	l/s	278
	CFM	589
MED	m^3/h	960
	l/s	267
	CFM	565
LOW	m^3/h	820
	l/s	228
	CFM	483
QUIET	m^3/h	530
	l/s	147
	CFM	312

7-2. SLIM DUCT TYPE with Auto louver grille kit

7-2-1. AIR VELOCITY AND TEMPERATURE DISTRIBUTION

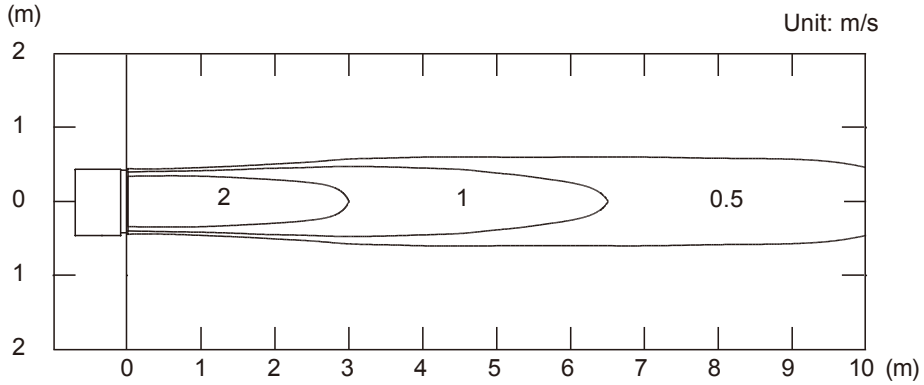
■ MODEL : AR∗G18LL (UTD-GXSB-W)

Note: This data is a measurement of Auto louver grille kit(option) by installing it.

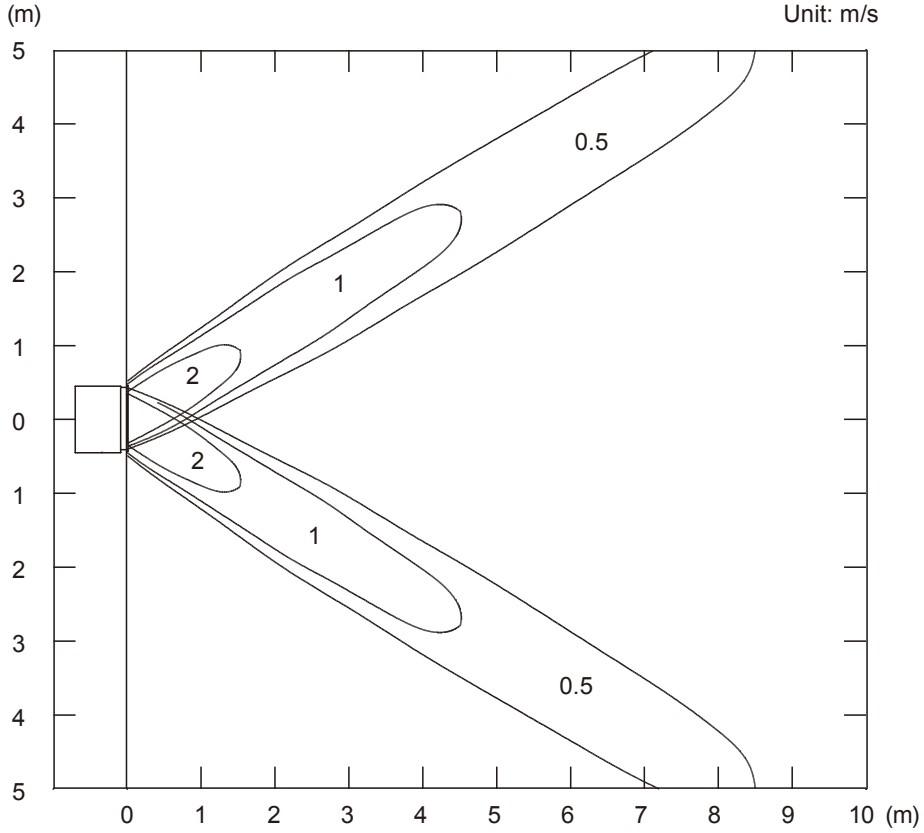
Conditions	
Fan speed	: High
Operation mode	: Fan
Voltage	: 230V

● Air velocity distribution

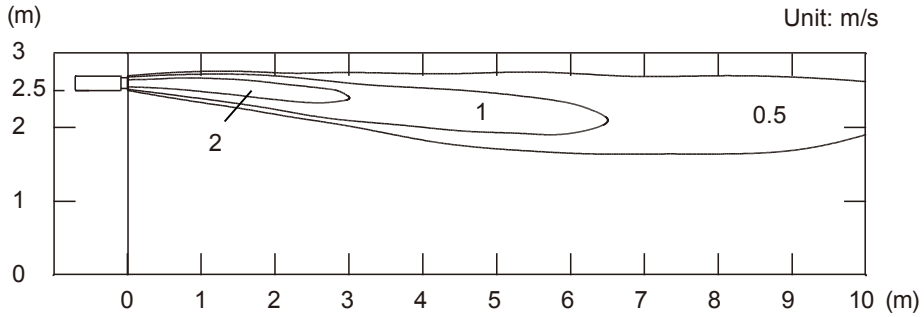
Top view
Vertical airflow direction louver : Up
Horizontal airflow direction louver : Center



Top view
Vertical airflow direction louver : Up
Horizontal airflow direction louver : Right & Left



Side view
Vertical airflow direction louver : Up
Horizontal airflow direction louver : Center

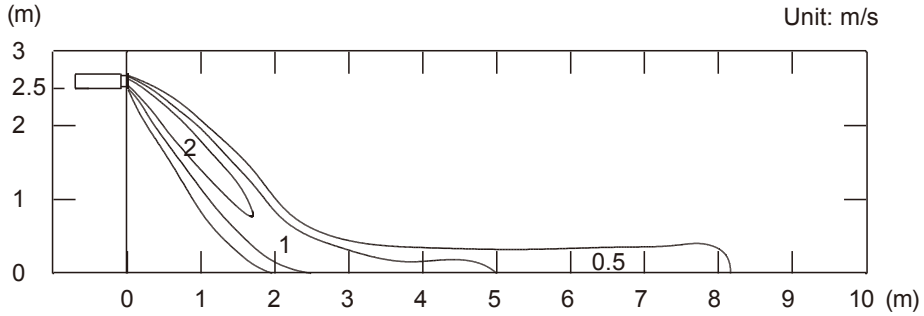


Note: This data is a measurement of Auto louver grille kit(option) by installing it.

Conditions
Fan speed : High
Operation mode : Heat
Voltage : 230V
Reference Data

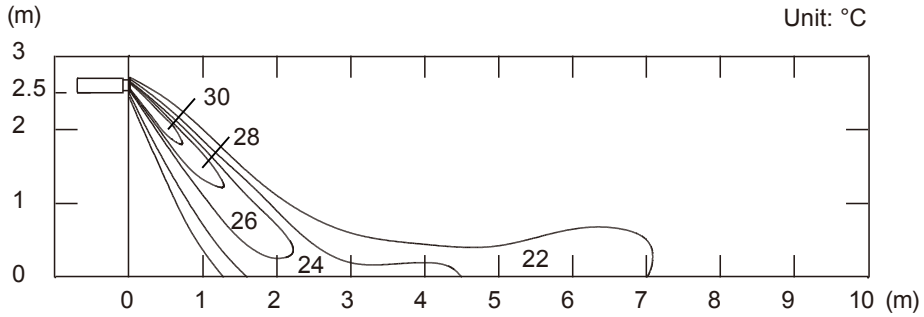
● Air velocity distribution

Side view
Vertical airflow direction
louver : Down
Horizontal airflow direction
louver : Center



● Air temperature distribution

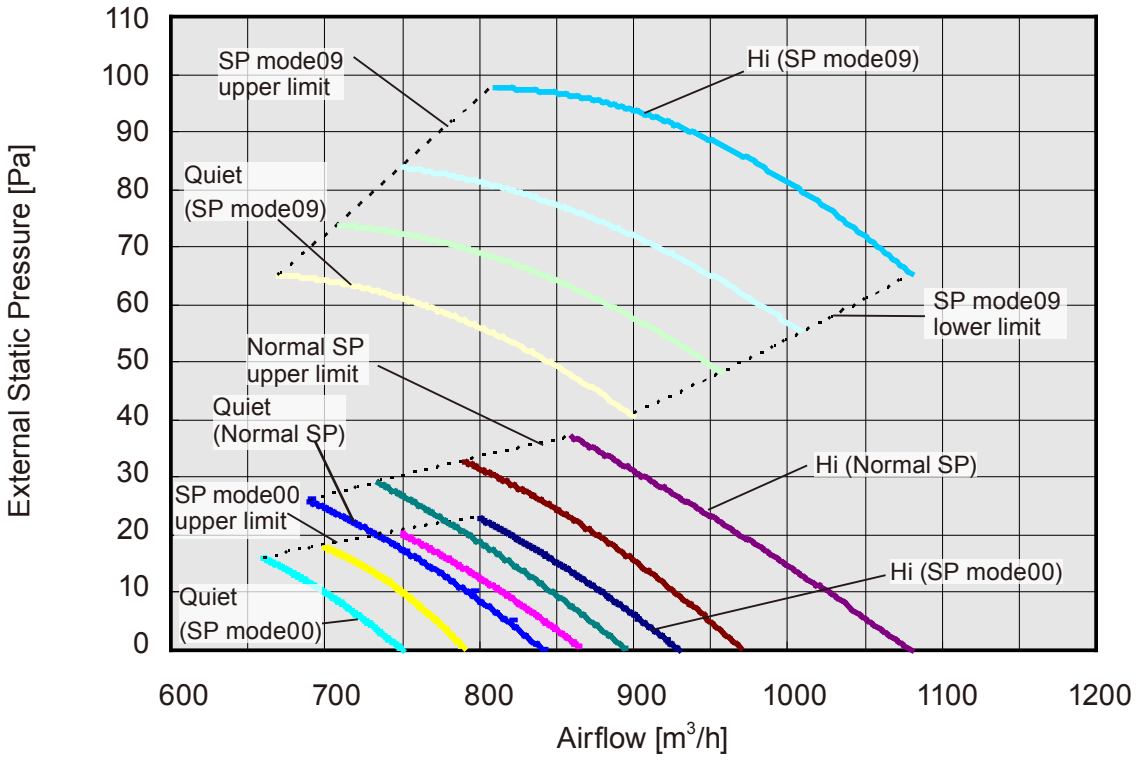
Side view
Vertical airflow direction
louver : Down
Horizontal airflow direction
louver : Center

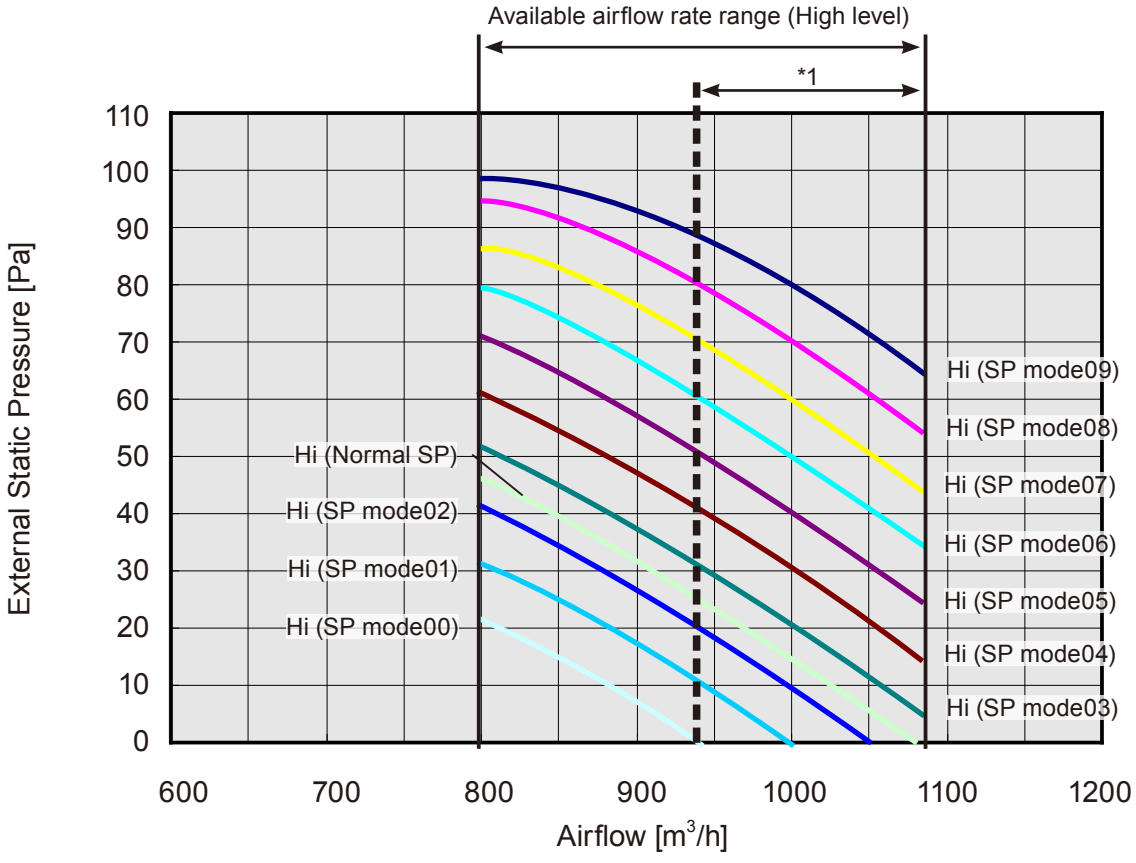


INDOOR UNITS
(SIMULTANEOUS MULTI)

7-2-2. FAN PERFORMANCE CURVE

■ MODEL : AR∗G18LL

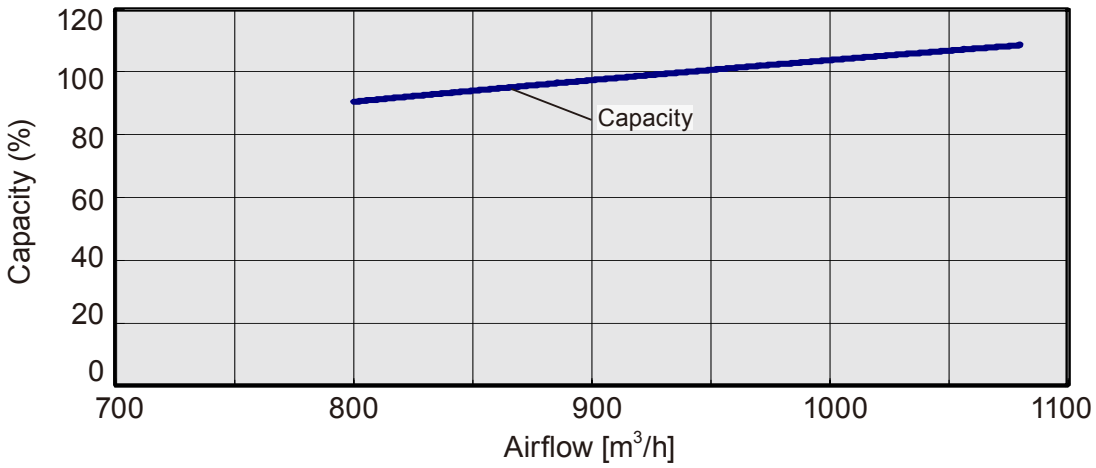




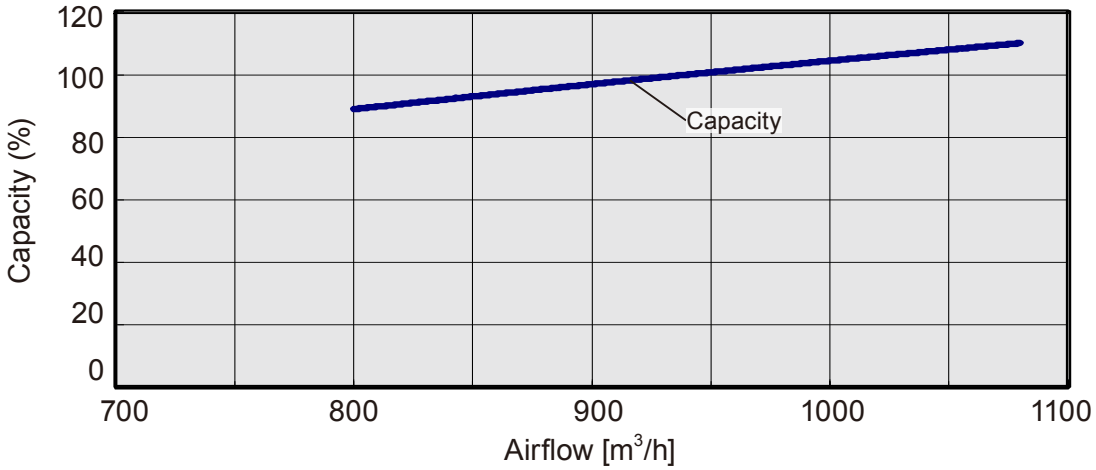
*1: Available airflow rate range when Auto louver grille (option) is installed.
Fan speed : High
Vertical airflow direction louver : Up

INDOOR UNITS
(SIMULTANEOUS MULTI)

● Cooling



● Heating



7-2-3. AIRFLOW

■ MODEL: AR*G18LL

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	940
	l/s	261
	CFM	553
MED	m^3/h	880
	l/s	244
	CFM	518
LOW	m^3/h	820
	l/s	227
	CFM	483
QUIET	m^3/h	750
	l/s	208
	CFM	441

● Heating

Fan speed	Airflow	
HIGH	m^3/h	940
	l/s	261
	CFM	553
MED	m^3/h	880
	l/s	244
	CFM	518
LOW	m^3/h	820
	l/s	227
	CFM	483
QUIET	m^3/h	750
	l/s	208
	CFM	441

INDOOR UNITS
(SIMULTANEOUS MULTI)

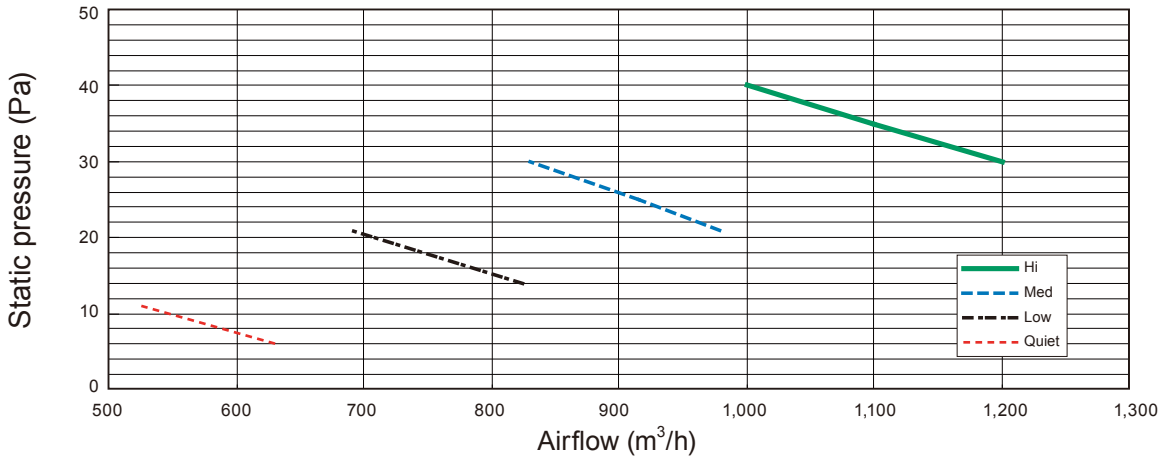
7-3. DUCT TYPE

7-3-1. FAN PERFORMANCE AND CAPACITY

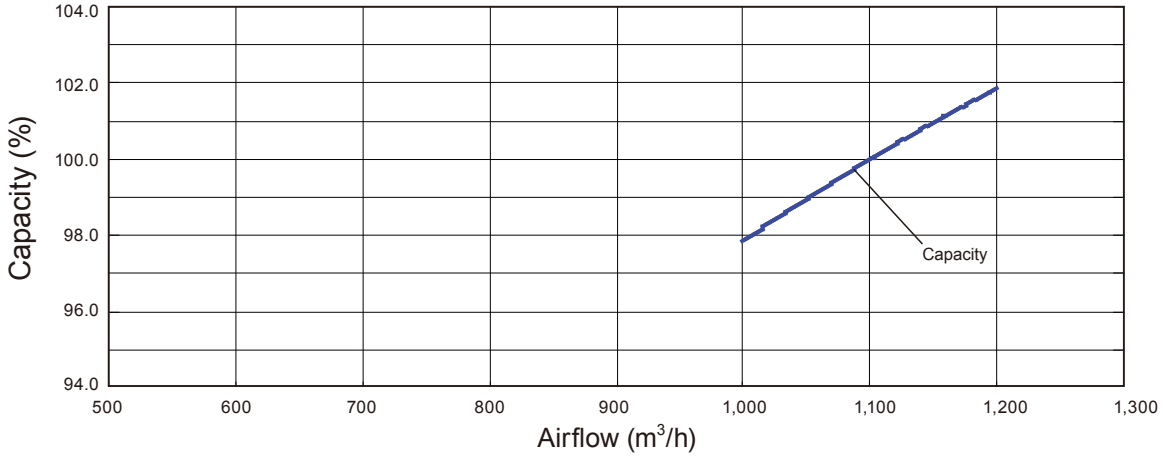
■ MODEL: AR∗G22LM (NORMAL MODE)

			Static pressure (Pa)							
			6	11	14	21	25	30	35	40
FAN SPEED	Hi	m^3/h	-	-	-	-	-	1200	1100	1000
		l/s	-	-	-	-	-	333	306	278
		CFM	-	-	-	-	-	706	647	589
	Med	m^3/h	-	-	-	980	915	830	-	-
		l/s	-	-	-	272	254	231	-	-
		CFM	-	-	-	577	539	489	-	-
	Low	m^3/h	-	-	825	690	-	-	-	-
		l/s	-	-	229	192	-	-	-	-
		CFM	-	-	486	406	-	-	-	-
	Quiet	m^3/h	630	525	-	-	-	-	-	-
		l/s	175	146	-	-	-	-	-	-
		CFM	371	309	-	-	-	-	-	-

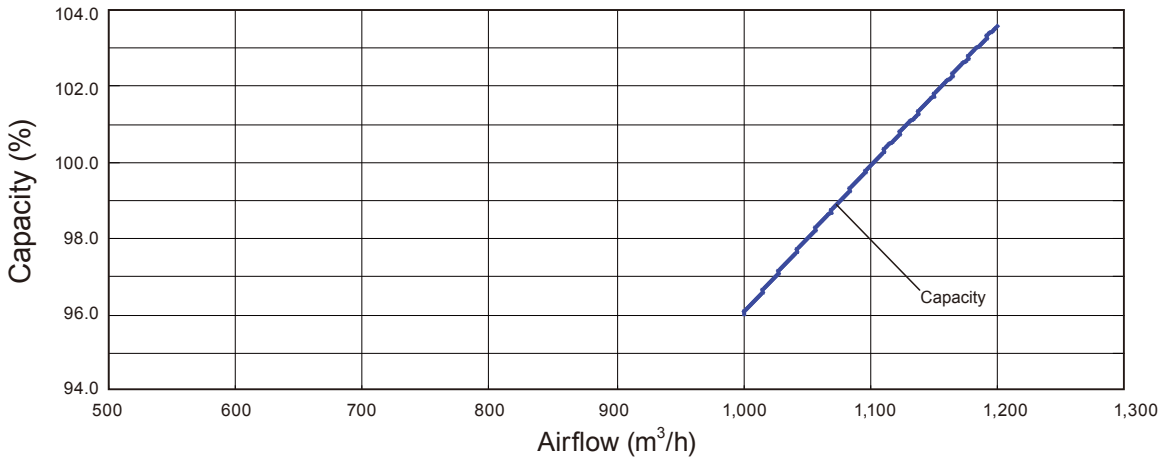
Q-h Characteristic curve



COOLING



HEATING

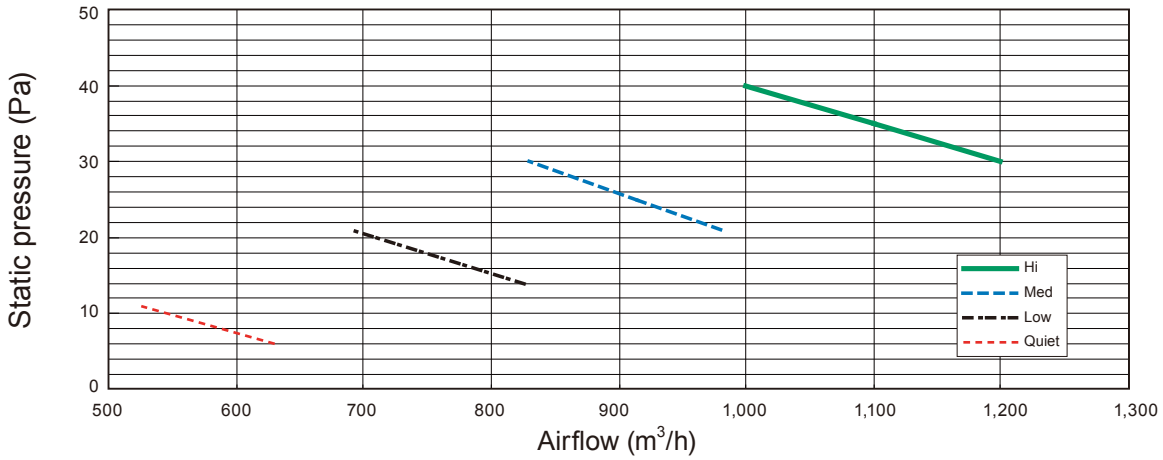


INDOOR UNITS (SIMULTANEOUS MULTI)

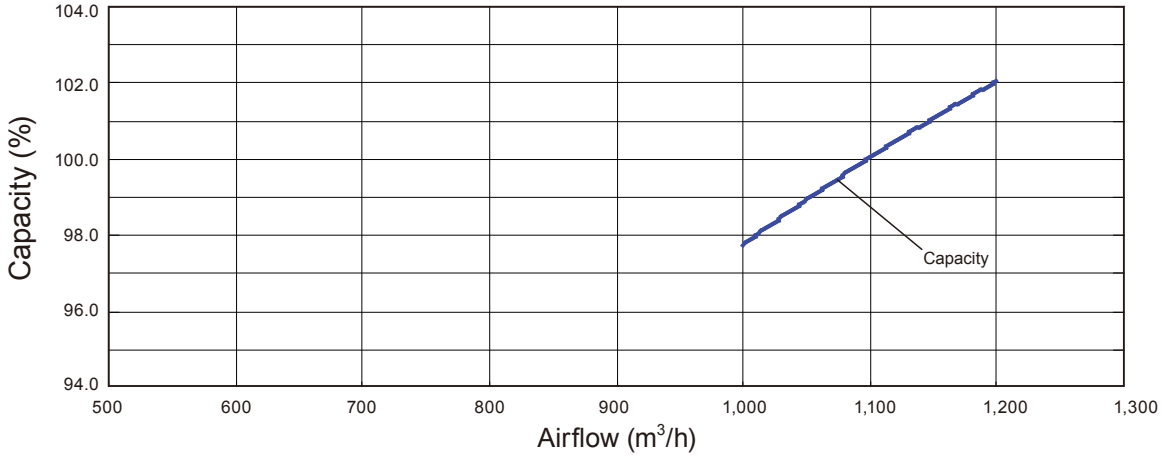
■ MODEL: AR∗G24LM (NORMAL MODE)

			Static pressure (Pa)							
			6	11	14	21	25	30	35	40
FAN SPEED	Hi	m^3/h	-	-	-	-	-	1200	1100	1000
		l/s	-	-	-	-	-	333	306	278
		CFM	-	-	-	-	-	706	647	589
	Med	m^3/h	-	-	-	980	915	830	-	-
		l/s	-	-	-	272	254	231	-	-
		CFM	-	-	-	577	539	489	-	-
	Low	m^3/h	-	-	825	690	-	-	-	-
		l/s	-	-	229	192	-	-	-	-
		CFM	-	-	486	406	-	-	-	-
	Quiet	m^3/h	630	525	-	-	-	-	-	-
		l/s	175	146	-	-	-	-	-	-
		CFM	371	309	-	-	-	-	-	-

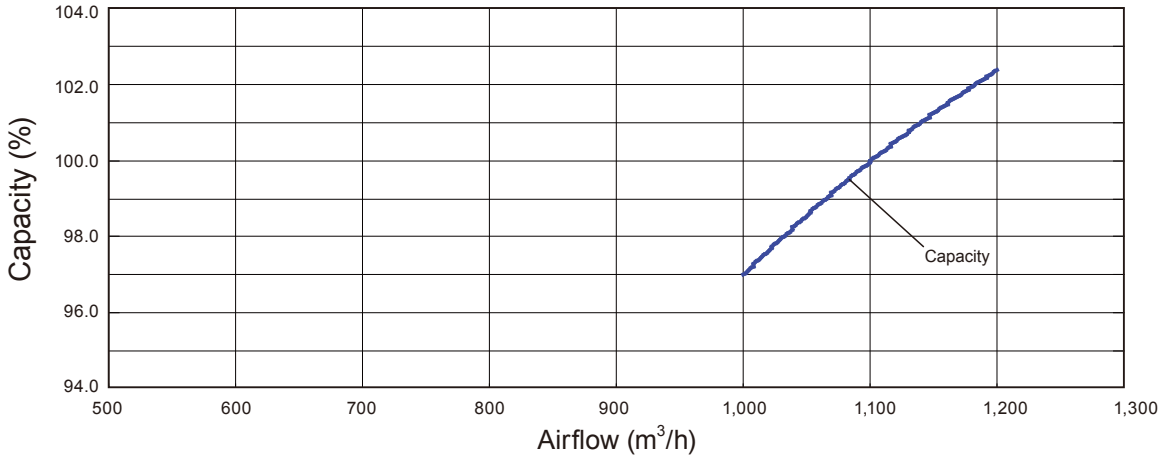
Q-h Characteristic curve



COOLING



HEATING

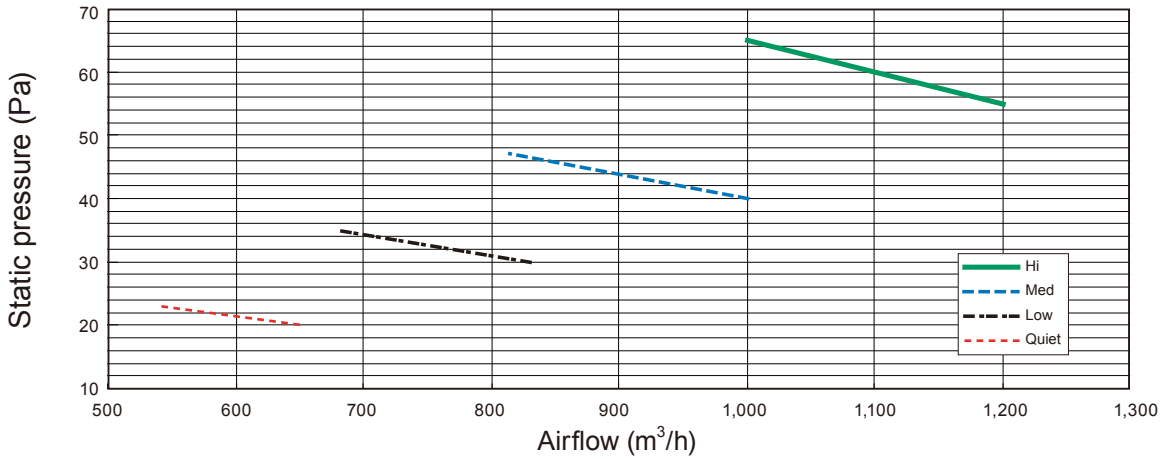


INDOOR UNITS (SIMULTANEOUS MULTI)

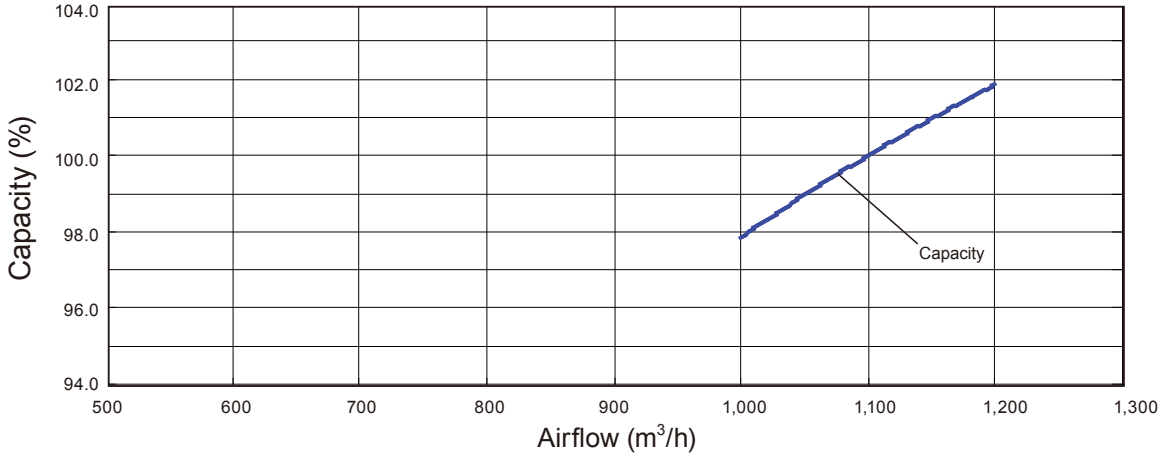
■ MODEL: AR∗G22LM (STATIC PRESSURE MODE 1)

			Static pressure (Pa)							
			20	23	30	35	40	47	55	65
FAN SPEED	Hi	m^3/h	-	-	-	-	-	-	1200	1000
		l/s	-	-	-	-	-	-	333	278
		CFM	-	-	-	-	-	-	706	589
	Med	m^3/h	-	-	-	-	1000	815	-	-
		l/s	-	-	-	-	278	226	-	-
		CFM	-	-	-	-	589	480	-	-
	Low	m^3/h	-	-	830	680	-	-	-	-
		l/s	-	-	231	189	-	-	-	-
		CFM	-	-	489	400	-	-	-	-
	Quiet	m^3/h	650	540	-	-	-	-	-	-
		l/s	181	150	-	-	-	-	-	-
		CFM	383	318	-	-	-	-	-	-

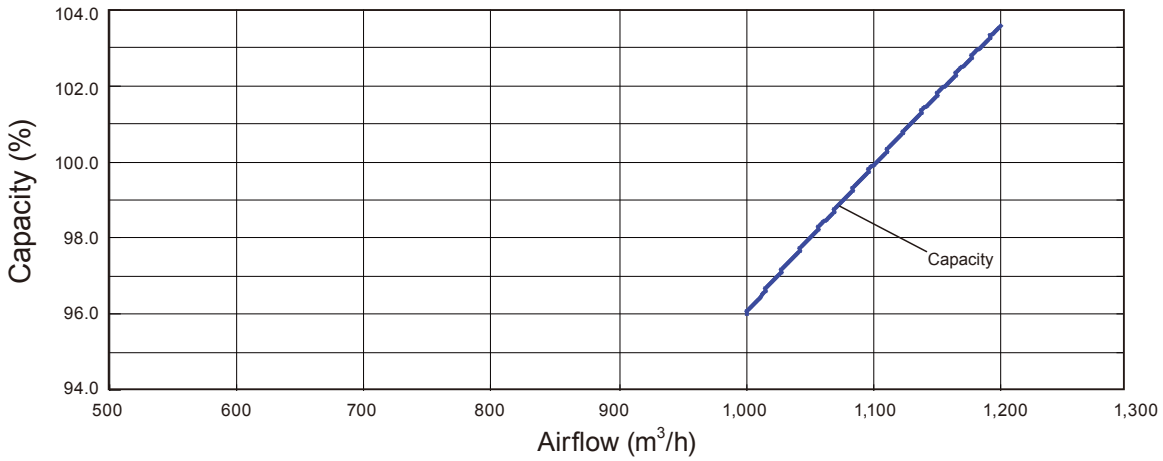
Q-h Characteristic curve



COOLING



HEATING

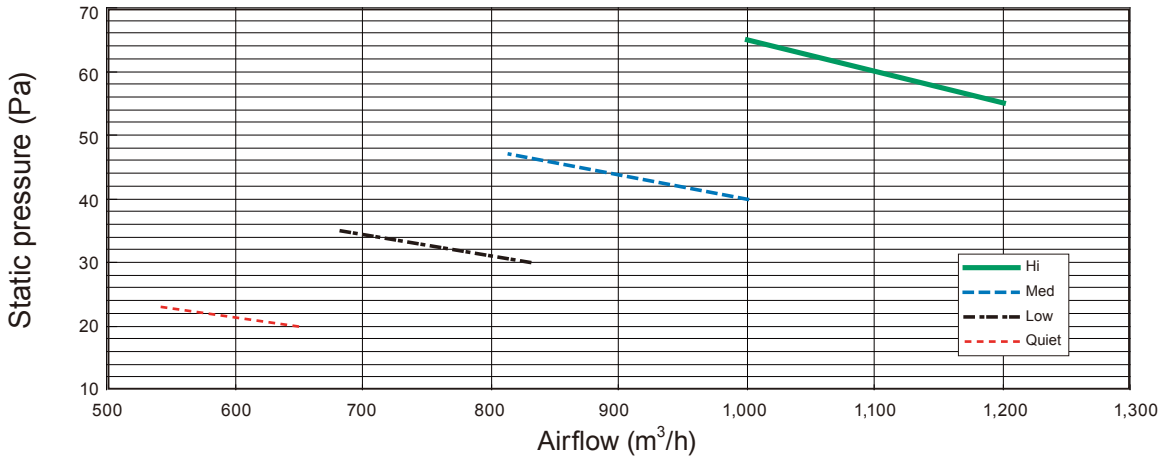


INDOOR UNITS
(SIMULTANEOUS MULTI)

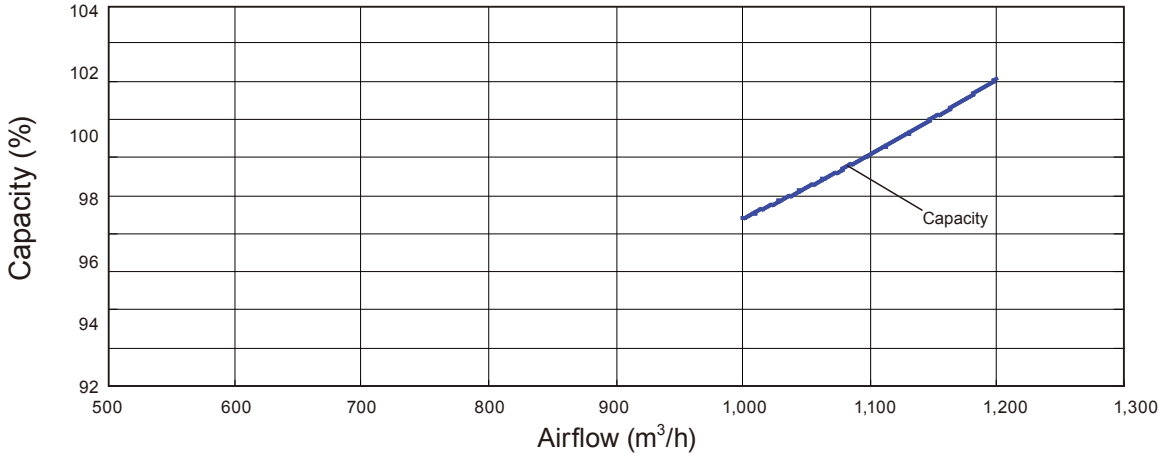
■ MODEL: AR∗G24LM (STATIC PRESSURE MODE 1)

			Static pressure (Pa)							
			20	23	30	35	40	47	55	65
FAN SPEED	Hi	m^3/h	-	-	-	-	-	-	1200	1000
		l/s	-	-	-	-	-	-	333	278
		CFM	-	-	-	-	-	-	706	589
	Med	m^3/h	-	-	-	-	1000	815	-	-
		l/s	-	-	-	-	278	226	-	-
		CFM	-	-	-	-	589	480	-	-
	Low	m^3/h	-	-	830	680	-	-	-	-
		l/s	-	-	231	189	-	-	-	-
		CFM	-	-	489	400	-	-	-	-
	Quiet	m^3/h	650	540	-	-	-	-	-	-
		l/s	181	150	-	-	-	-	-	-
		CFM	383	318	-	-	-	-	-	-

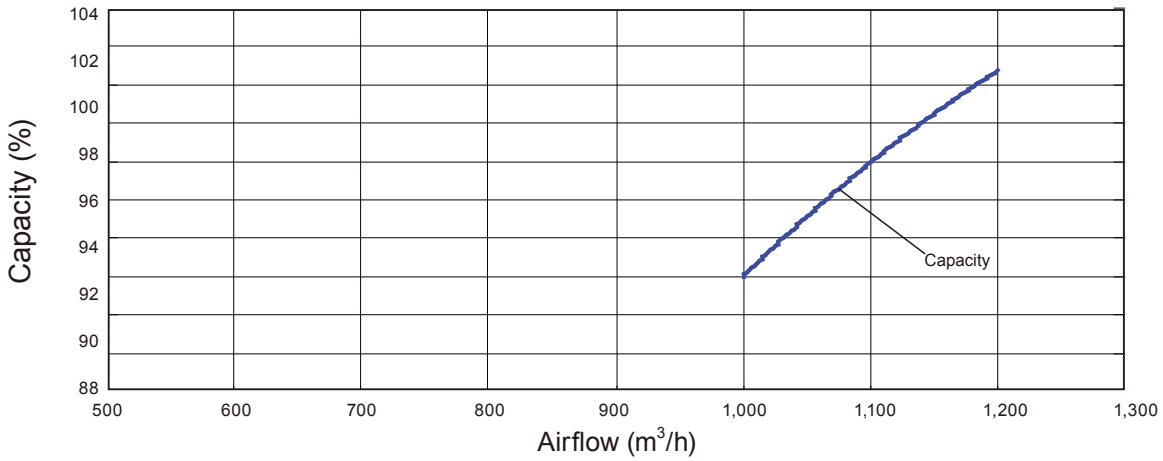
Q-h Characteristic curve



COOLING



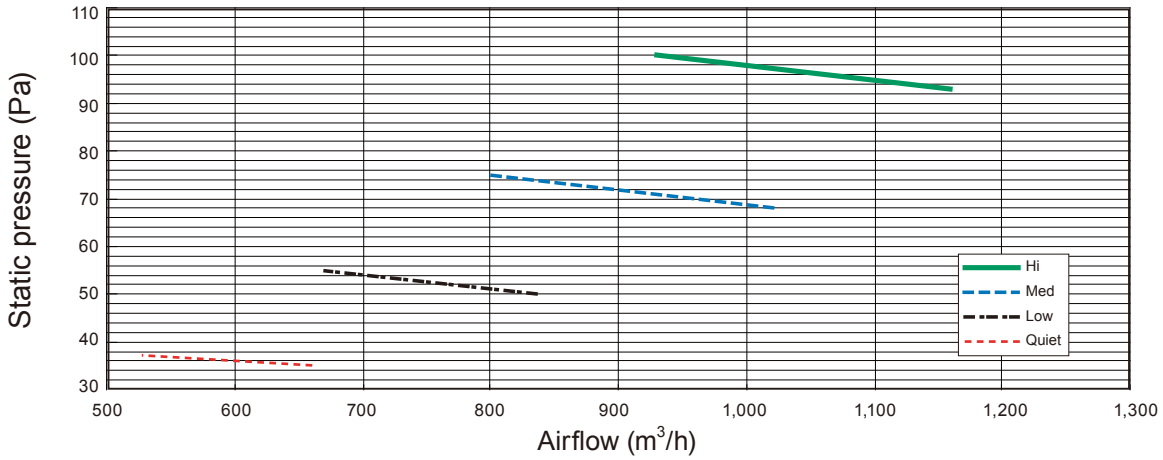
HEATING



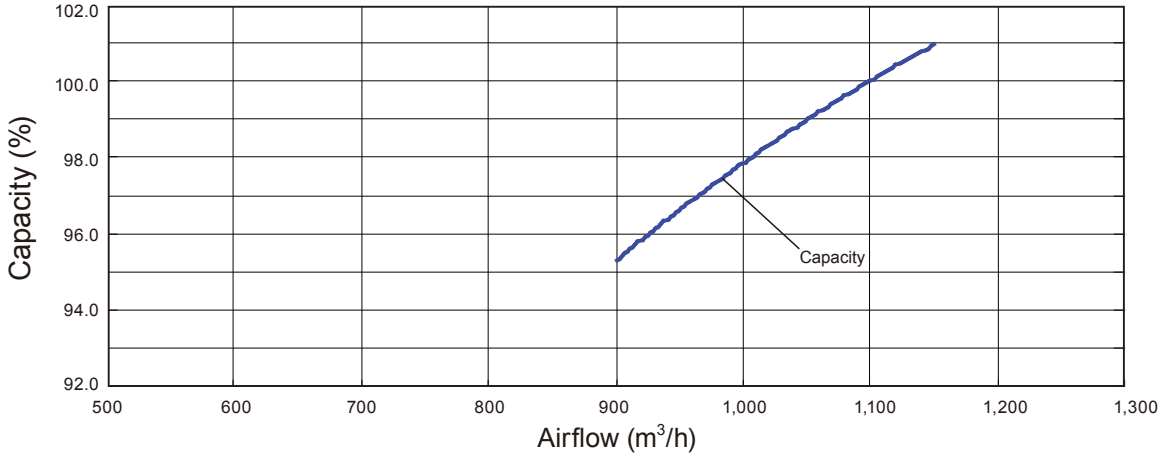
■ MODEL: AR∗G22LM (STATIC PRESSURE MODE 2)

			Static pressure (Pa)							
			35	37	50	55	68	75	93	100
FAN SPEED	Hi	m^3/h	-	-	-	-	-	-	1160	930
		l/s	-	-	-	-	-	-	322	258
		CFM	-	-	-	-	-	-	683	547
	Med	m^3/h	-	-	-	-	1020	800	-	-
		l/s	-	-	-	-	283	222	-	-
		CFM	-	-	-	-	600	471	-	-
	Low	m^3/h	-	-	835	670	-	-	-	-
		l/s	-	-	232	186	-	-	-	-
		CFM	-	-	491	394	-	-	-	-
	Quiet	m^3/h	660	530	-	-	-	-	-	-
		l/s	183	147	-	-	-	-	-	-
		CFM	388	312	-	-	-	-	-	-

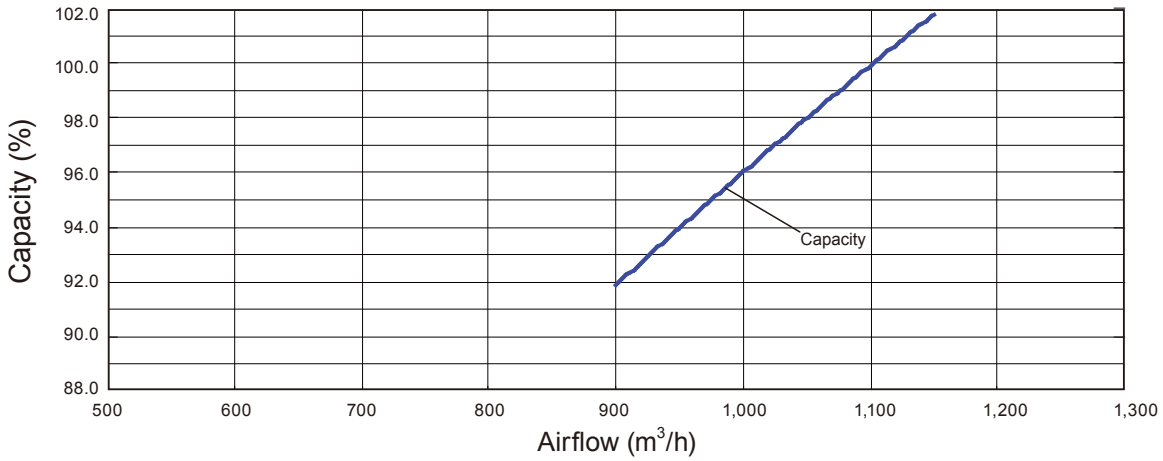
Q-h Characteristic curve



COOLING



HEATING

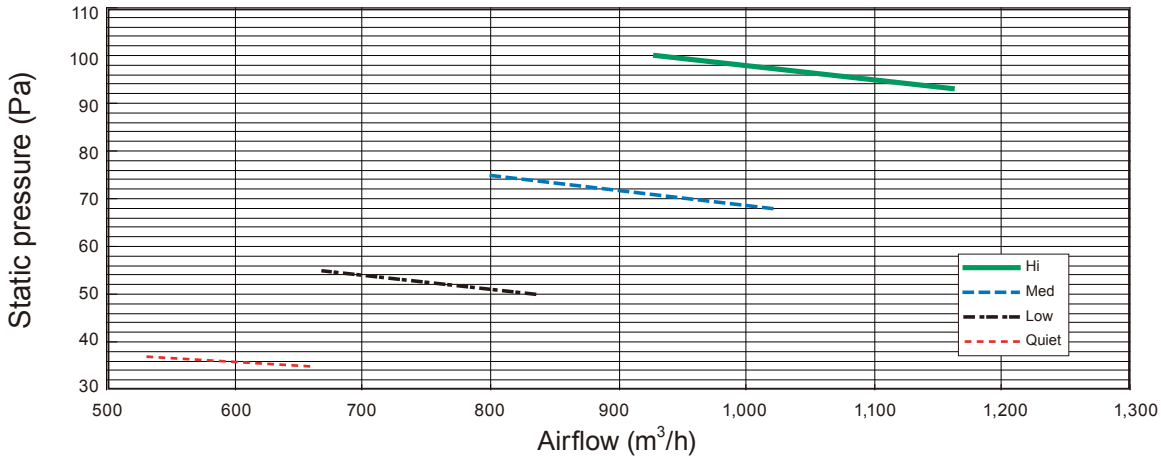


INDOOR UNITS (SIMULTANEOUS MULTI)

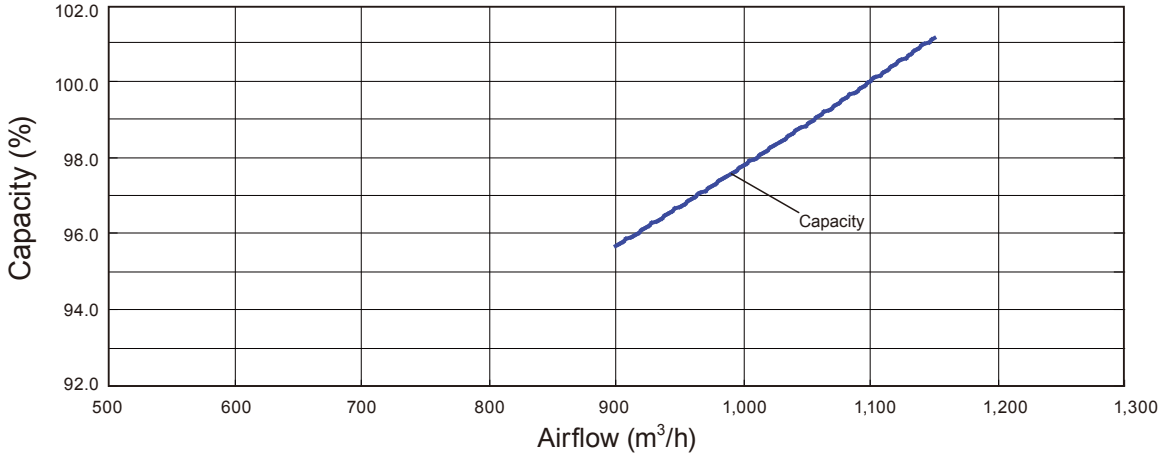
■ MODEL: AR∗G24LM (STATIC PRESSURE MODE 2)

			Static pressure (Pa)							
			35	37	50	55	68	75	93	100
FAN SPEED	Hi	m^3/h	-	-	-	-	-	-	1160	930
		l/s	-	-	-	-	-	-	322	258
		CFM	-	-	-	-	-	-	683	547
	Med	m^3/h	-	-	-	-	1020	800	-	-
		l/s	-	-	-	-	283	222	-	-
		CFM	-	-	-	-	600	471	-	-
	Low	m^3/h	-	-	835	670	-	-	-	-
		l/s	-	-	232	186	-	-	-	-
		CFM	-	-	491	394	-	-	-	-
	Quiet	m^3/h	660	530	-	-	-	-	-	-
		l/s	183	147	-	-	-	-	-	-
		CFM	388	312	-	-	-	-	-	-

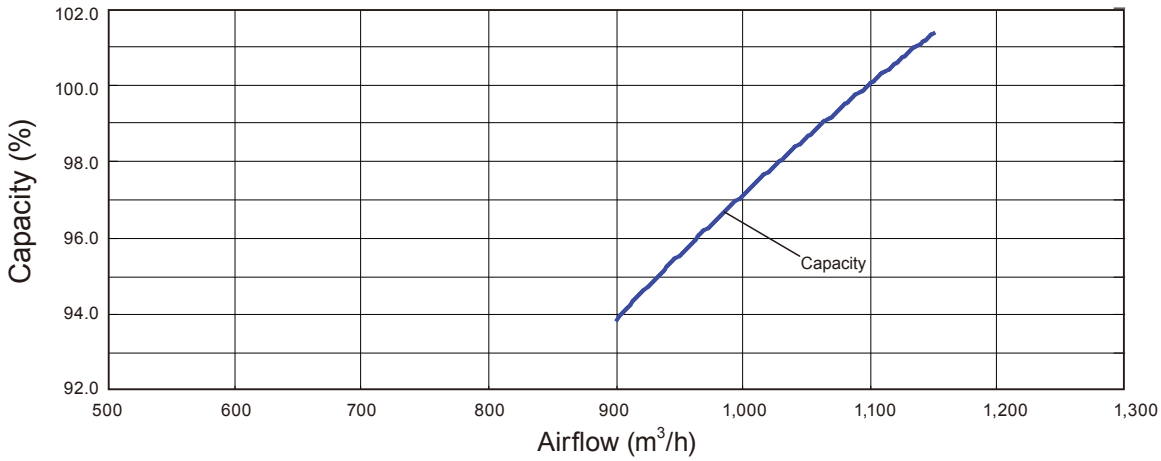
Q-h Characteristic curve



COOLING



HEATING

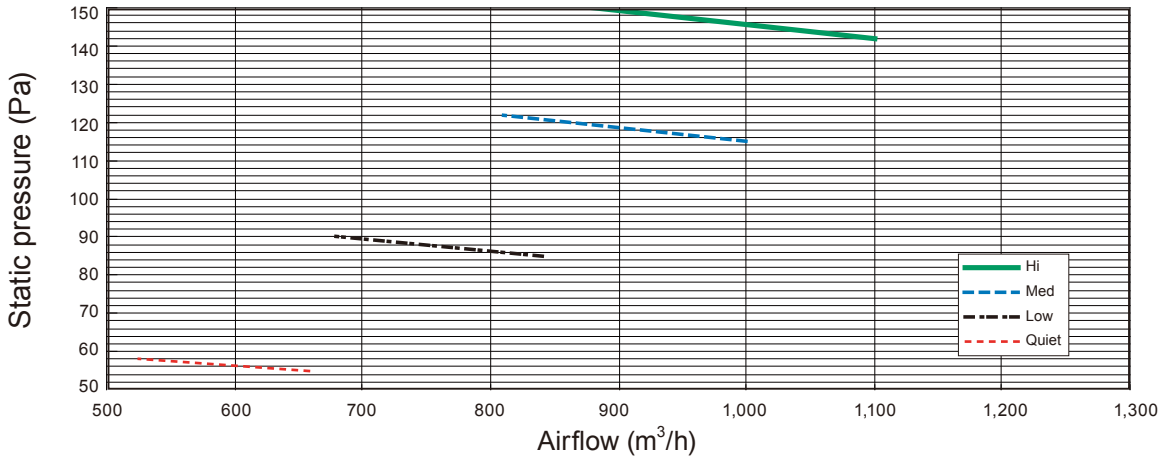


INDOOR UNITS (SIMULTANEOUS MULTI)

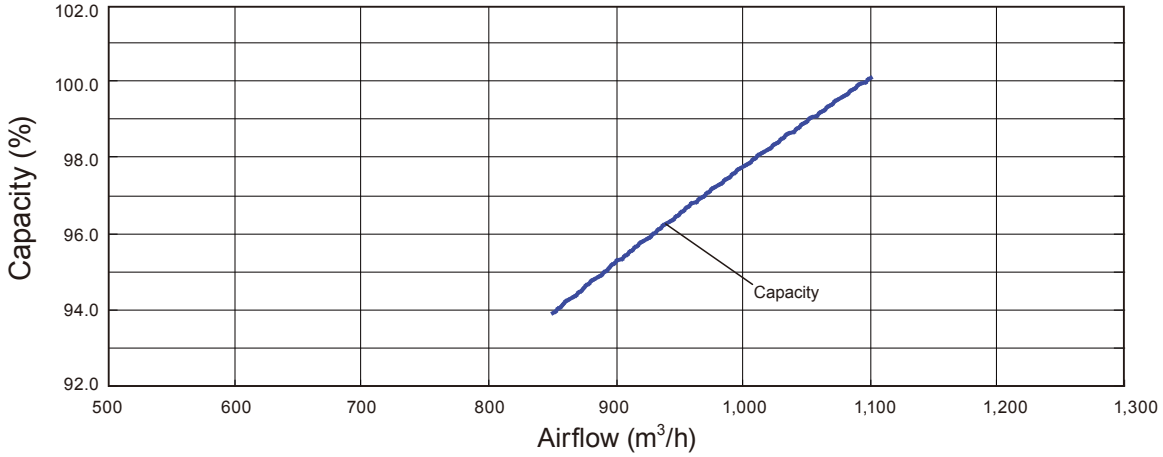
■ MODEL: AR∗G22LM (STATIC PRESSURE MODE 3)

			Static pressure (Pa)							
			55	58	85	90	115	122	142	150
FAN SPEED	Hi	m^3/h	-	-	-	-	-	-	1100	880
		l/s	-	-	-	-	-	-	306	244
		CFM	-	-	-	-	-	-	647	518
	Med	m^3/h	-	-	-	-	1000	810	-	-
		l/s	-	-	-	-	278	225	-	-
		CFM	-	-	-	-	589	477	-	-
	Low	m^3/h	-	-	840	680	-	-	-	-
		l/s	-	-	233	189	-	-	-	-
		CFM	-	-	494	400	-	-	-	-
	Quiet	m^3/h	660	525	-	-	-	-	-	-
		l/s	183	146	-	-	-	-	-	-
		CFM	388	309	-	-	-	-	-	-

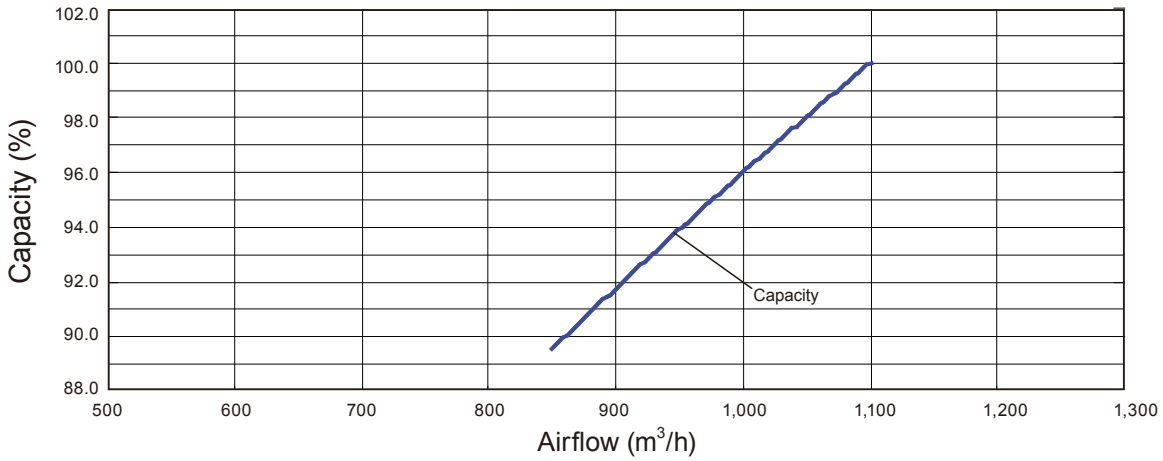
Q-h Characteristic curve



COOLING



HEATING

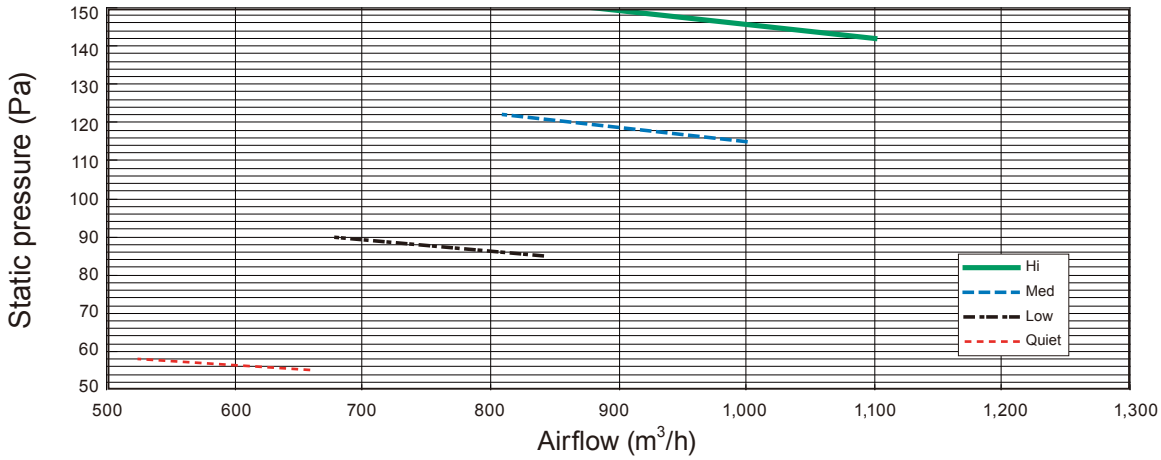


INDOOR UNITS (SIMULTANEOUS MULTI)

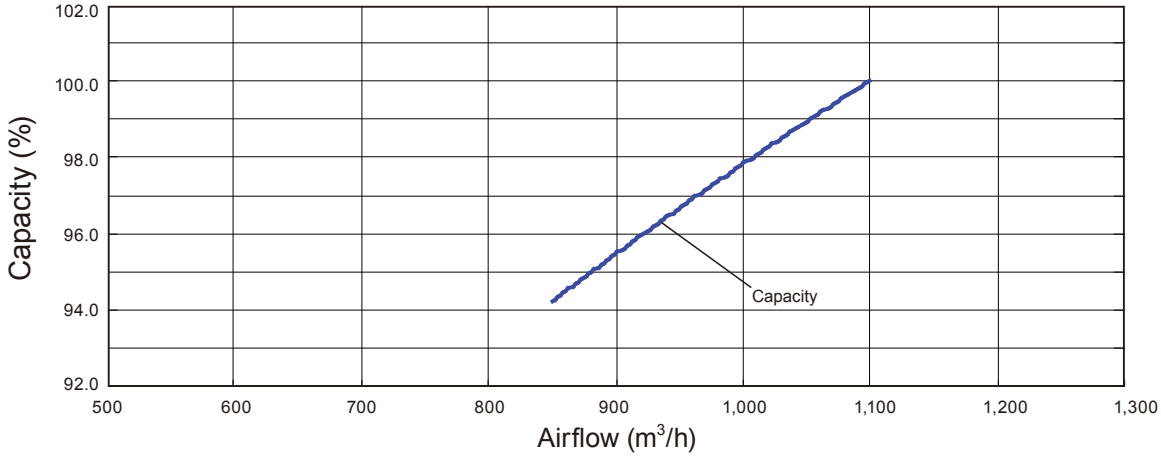
■ MODEL: AR∗G24LM (STATIC PRESSURE MODE 3)

			Static pressure (Pa)							
			55	58	85	90	115	122	142	150
FAN SPEED	Hi	m^3/h	-	-	-	-	-	-	1100	880
		l/s	-	-	-	-	-	-	306	244
		CFM	-	-	-	-	-	-	647	518
	Med	m^3/h	-	-	-	-	1000	810	-	-
		l/s	-	-	-	-	278	225	-	-
		CFM	-	-	-	-	589	477	-	-
	Low	m^3/h	-	-	840	680	-	-	-	-
		l/s	-	-	233	189	-	-	-	-
		CFM	-	-	494	400	-	-	-	-
	Quiet	m^3/h	660	525	-	-	-	-	-	-
		l/s	183	146	-	-	-	-	-	-
		CFM	388	309	-	-	-	-	-	-

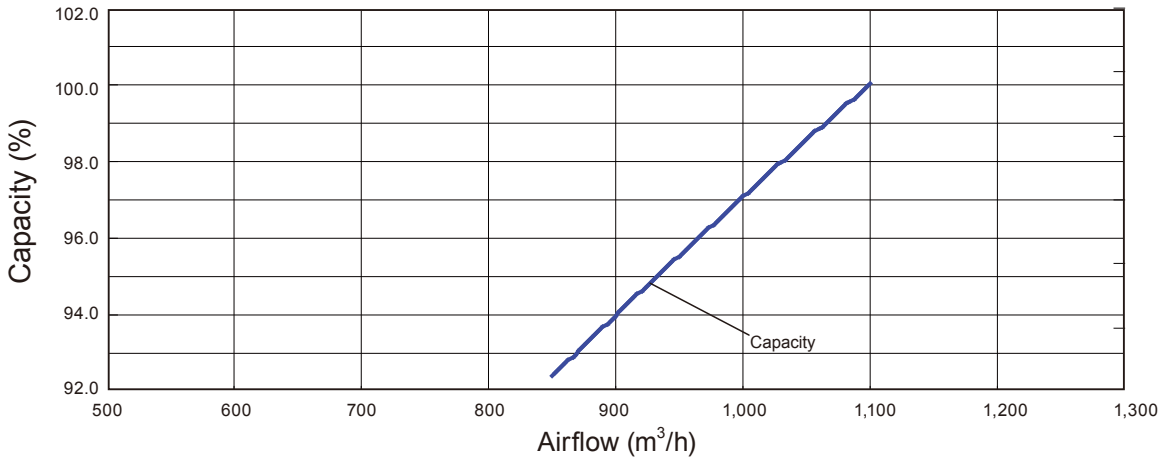
Q-h Characteristic curve



COOLING



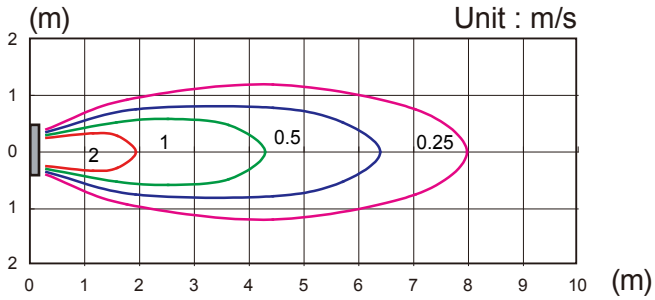
HEATING



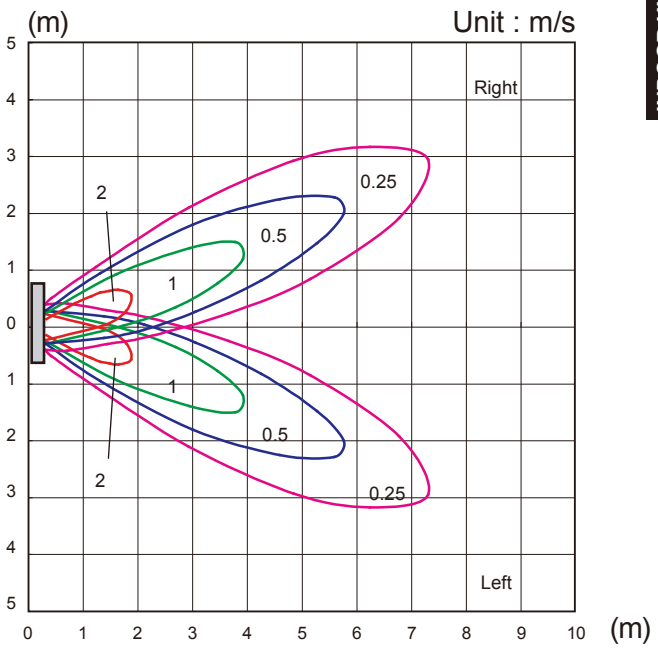
7-4. FLOOR / CEILING TYPE

7-4-1. AIR VELOCITY DISTRIBUTION

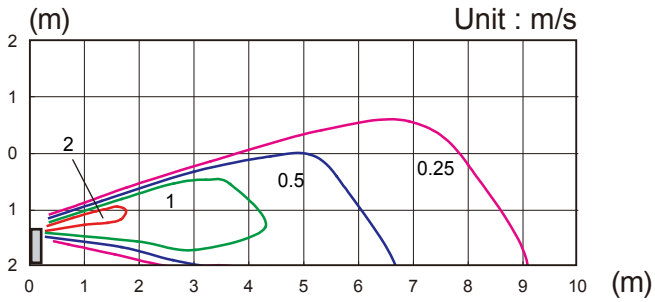
■ MODEL: AB∗G18LV (FLOOR CONSOLE)



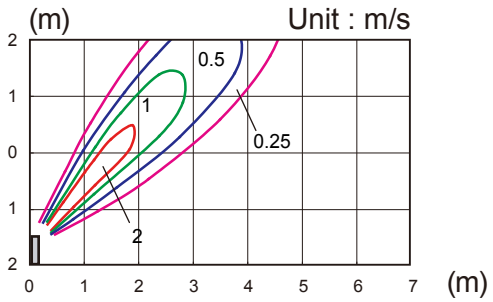
TOP VIEW
Vertical airflow direction louver : DOWNWARD
Horizontal airflow direction louver : CENTER



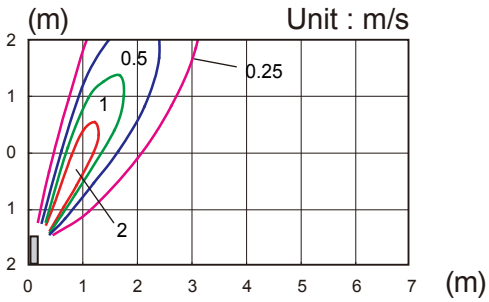
TOP VIEW
Vertical airflow direction louver : DOWNWARD
Horizontal airflow direction louver : RIGHT & LEFT



SIDE VIEW
Vertical airflow direction louver : DOWNWARD
Horizontal airflow direction louver : CENTER



SIDE VIEW
Vertical airflow direction louver : CENTER
Horizontal airflow direction louver : CENTER

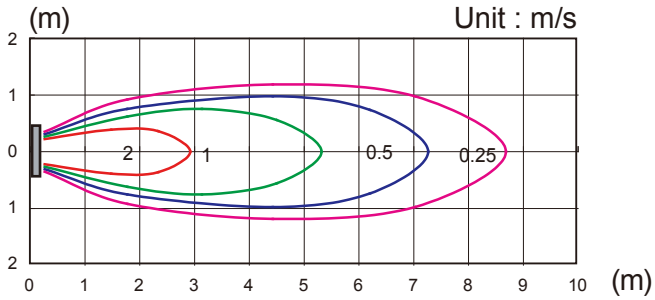


SIDE VIEW
Vertical airflow direction louver : UPWARD
Horizontal airflow direction louver : CENTER

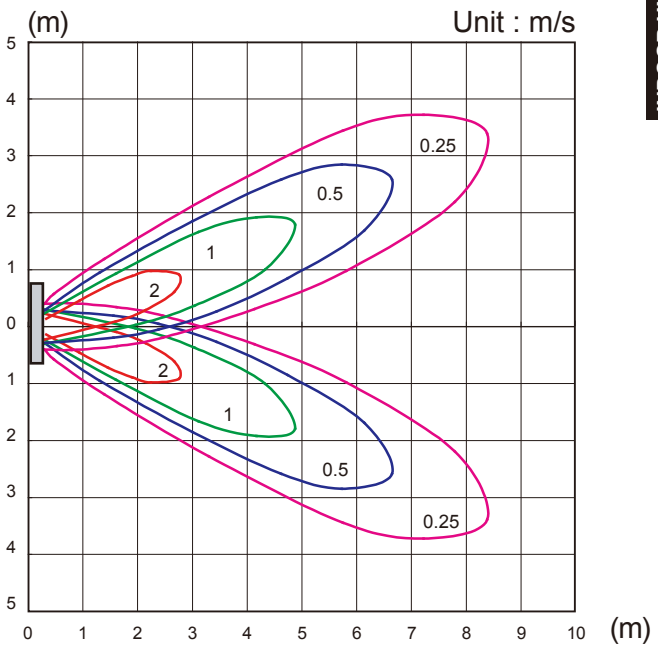
INDOOR UNITS (SIMULTANEOUS MULTI)

INDOOR UNITS
(SIMULTANEOUS MULTI)

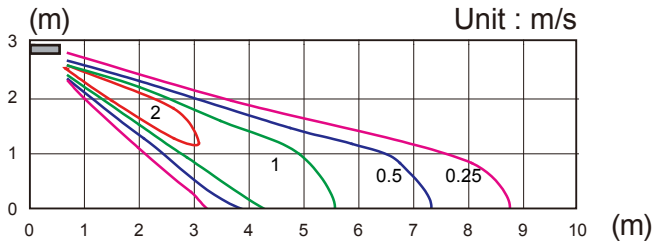
■ MODEL: AB∗G18LV (UNDER CEILING)



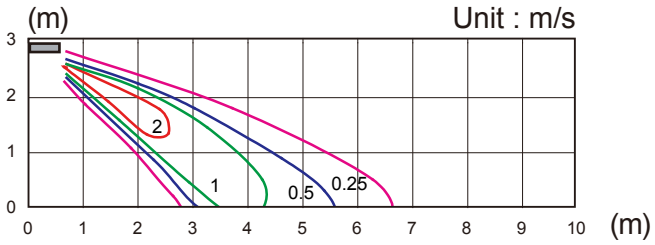
TOP VIEW
Vertical airflow direction louver : UPWARD
Horizontal airflow direction louver : CENTER



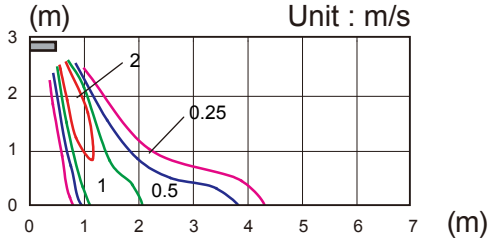
TOP VIEW
Vertical airflow direction louver : UPWARD
Horizontal airflow direction louver : RIGHT & LEFT



SIDE VIEW
Vertical airflow direction louver : UPWARD
Horizontal airflow direction louver : CENTER



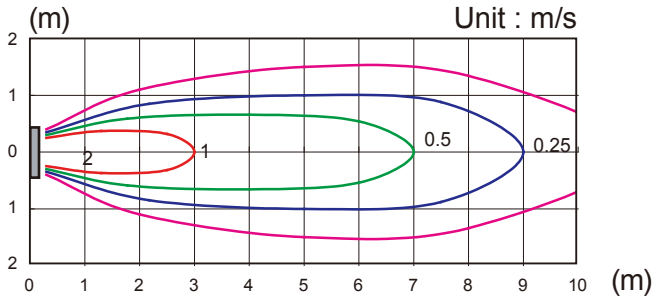
SIDE VIEW
Vertical airflow direction louver : CENTER
Horizontal airflow direction louver : CENTER



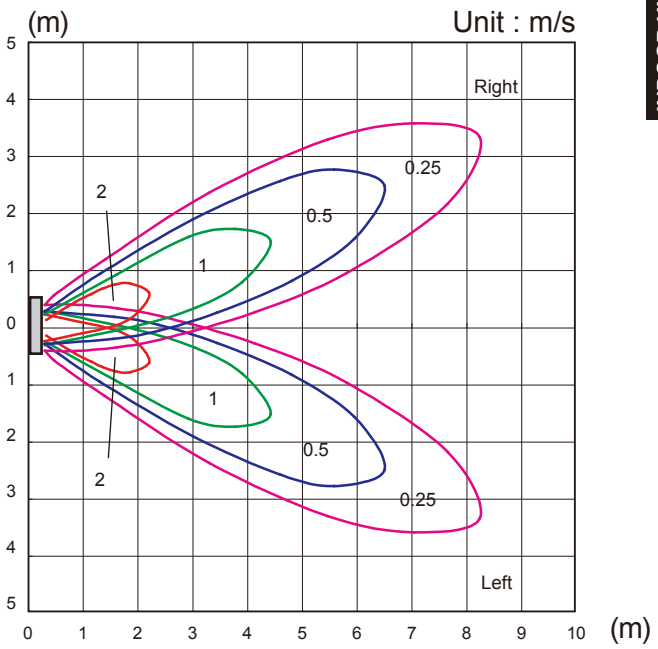
SIDE VIEW
Vertical airflow direction louver : DOWNWARD
Horizontal airflow direction louver : CENTER

INDOOR UNITS
(SIMULTANEOUS MULTI)

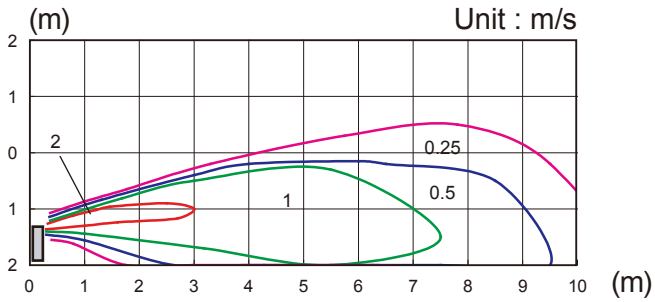
■ MODEL: AB∗G22LV (FLOOR CONSOLE)



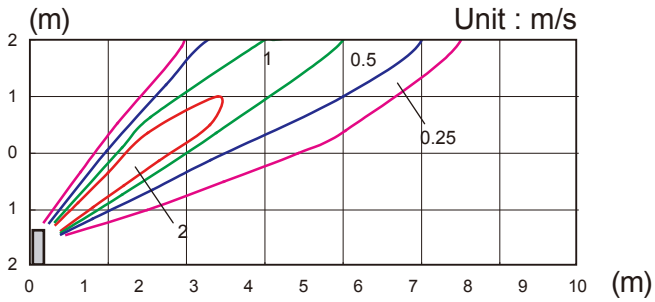
TOP VIEW
Vertical airflow direction louver : DOWNWARD
Horizontal airflow direction louver : CENTER



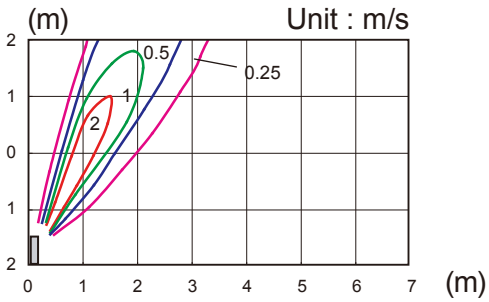
TOP VIEW
Vertical airflow direction louver : DOWNWARD
Horizontal airflow direction louver : RIGHT & LEFT



SIDE VIEW
Vertical airflow direction louver : DOWNWARD
Horizontal airflow direction louver : CENTER



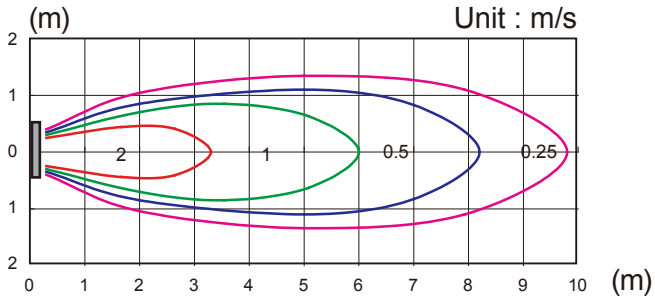
SIDE VIEW
Vertical airflow direction louver : CENTER
Horizontal airflow direction louver : CENTER



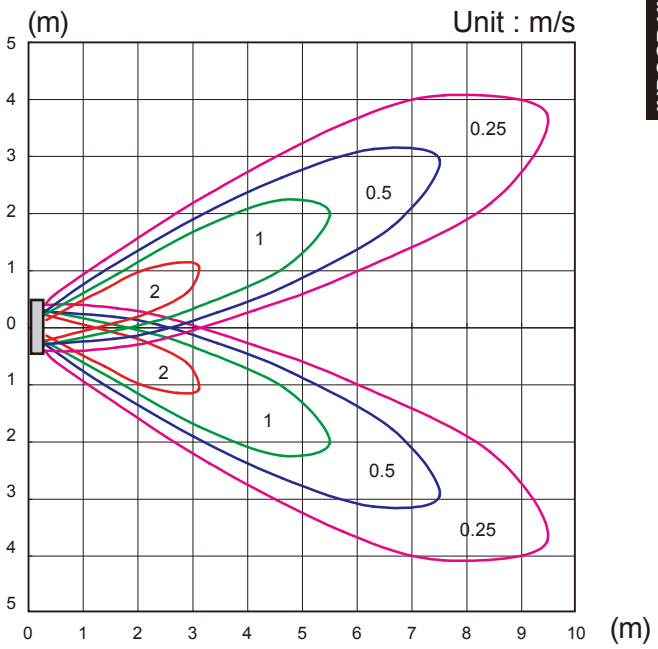
SIDE VIEW
Vertical airflow direction louver : UPWARD
Horizontal airflow direction louver : CENTER

INDOOR UNITS
(SIMULTANEOUS MULTI)

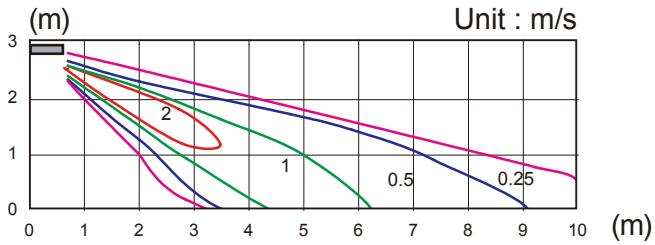
■ MODEL: AB∗G22LV (UNDER CEILING)



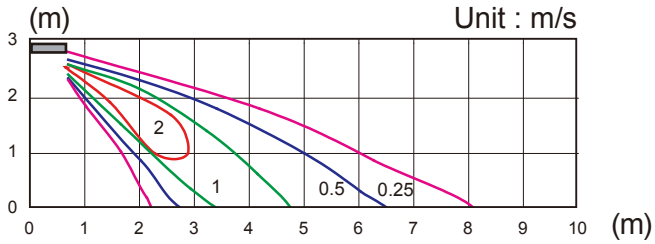
TOP VIEW
Vertical airflow direction louver : UPWARD
Horizontal airflow direction louver : CENTER



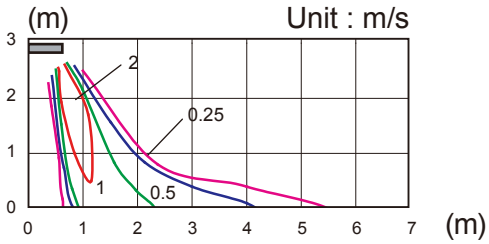
TOP VIEW
Vertical airflow direction louver : UPWARD
Horizontal airflow direction louver : RIGHT & LEFT



SIDE VIEW
Vertical airflow direction louver : UPWARD
Horizontal airflow direction louver : CENTER



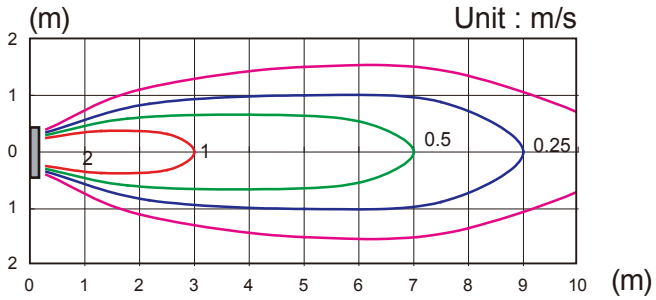
SIDE VIEW
Vertical airflow direction louver : CENTER
Horizontal airflow direction louver : CENTER



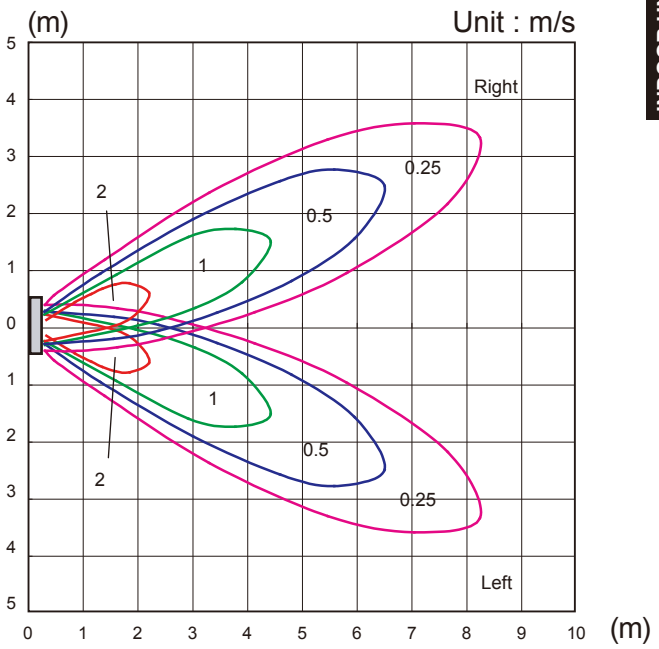
SIDE VIEW
Vertical airflow direction louver : DOWNWARD
Horizontal airflow direction louver : CENTER

INDOOR UNITS
(SIMULTANEOUS MULTI)

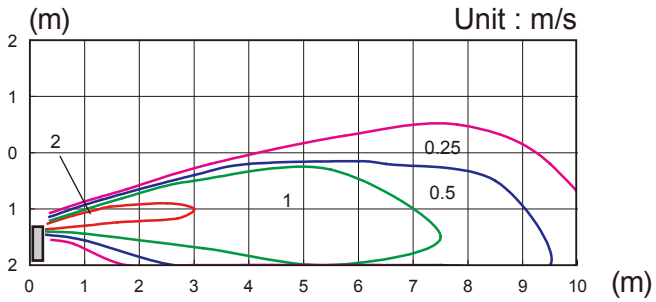
■ MODEL: AB∗G24LV (FLOOR CONSOLE)



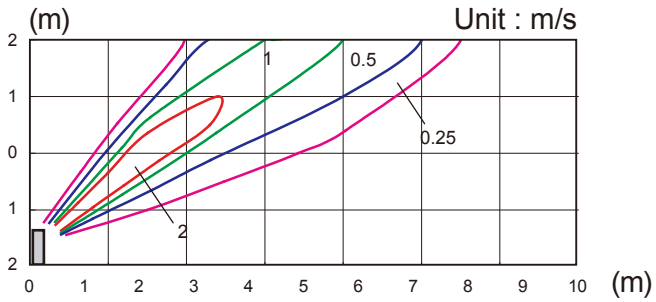
TOP VIEW
Vertical airflow direction louver : DOWNWARD
Horizontal airflow direction louver : CENTER



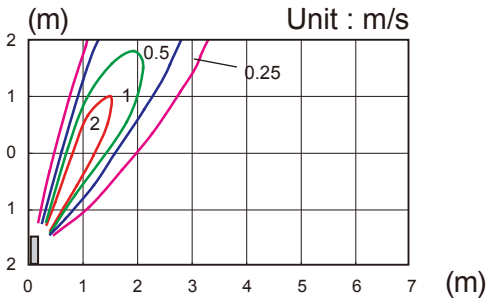
TOP VIEW
Vertical airflow direction louver : DOWNWARD
Horizontal airflow direction louver : RIGHT & LEFT



SIDE VIEW
Vertical airflow direction louver : DOWNWARD
Horizontal airflow direction louver : CENTER



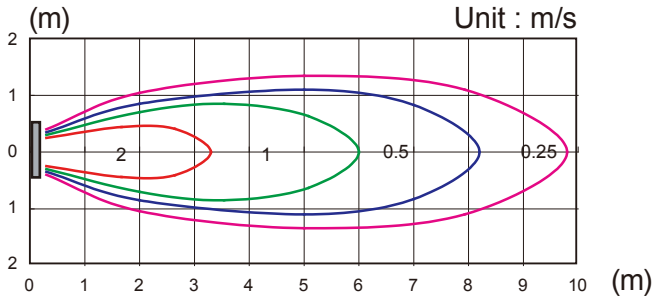
SIDE VIEW
Vertical airflow direction louver : CENTER
Horizontal airflow direction louver : CENTER



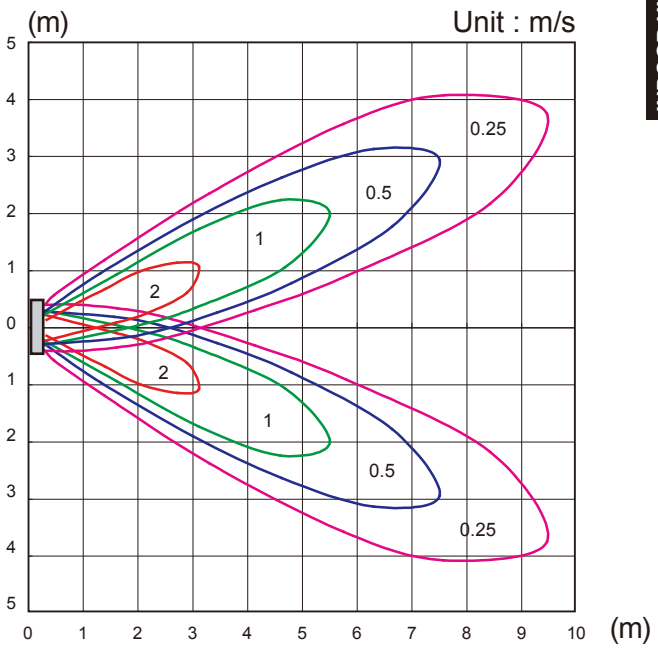
SIDE VIEW
Vertical airflow direction louver : UPWARD
Horizontal airflow direction louver : CENTER

INDOOR UNITS
(SIMULTANEOUS MULTI)

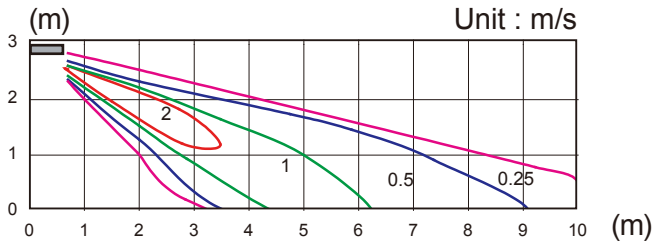
■ MODEL: AB∗G24LV (UNDER CEILING)



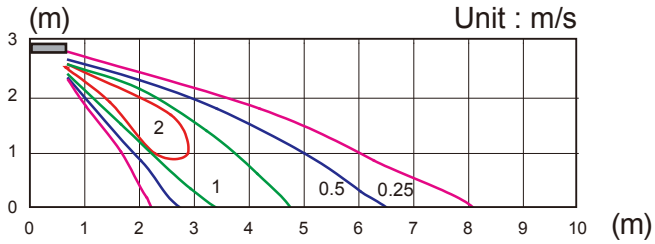
TOP VIEW
Vertical airflow direction louver : UPWARD
Horizontal airflow direction louver : CENTER



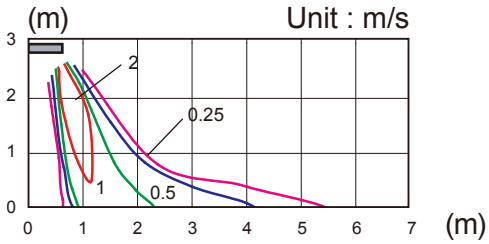
TOP VIEW
Vertical airflow direction louver : UPWARD
Horizontal airflow direction louver : RIGHT & LEFT



SIDE VIEW
Vertical airflow direction louver : UPWARD
Horizontal airflow direction louver : CENTER



SIDE VIEW
Vertical airflow direction louver : CENTER
Horizontal airflow direction louver : CENTER



SIDE VIEW
Vertical airflow direction louver : DOWNWARD
Horizontal airflow direction louver : CENTER

INDOOR UNITS
(SIMULTANEOUS MULTI)

7-4-2. AIRFLOW

■ MODEL: AB∗G18LV

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	780
	l/s	217
	CFM	459
MED	m^3/h	700
	l/s	194
	CFM	412
LOW	m^3/h	560
	l/s	156
	CFM	330
QUIET	m^3/h	500
	l/s	139
	CFM	294

● Heating

Fan speed	Airflow	
HIGH	m^3/h	780
	l/s	217
	CFM	459
MED	m^3/h	700
	l/s	194
	CFM	412
LOW	m^3/h	560
	l/s	156
	CFM	330
QUIET	m^3/h	500
	l/s	139
	CFM	294

INDOOR UNITS
(SIMULTANEOUS MULTI)

■ MODEL: AB∗G22LV

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	980
	l/s	272
	CFM	577
MED	m^3/h	820
	l/s	228
	CFM	483
LOW	m^3/h	680
	l/s	189
	CFM	400
QUIET	m^3/h	540
	l/s	150
	CFM	318

● Heating

Fan speed	Airflow	
HIGH	m^3/h	980
	l/s	272
	CFM	577
MED	m^3/h	820
	l/s	228
	CFM	483
LOW	m^3/h	680
	l/s	189
	CFM	400
QUIET	m^3/h	540
	l/s	150
	CFM	318

INDOOR UNITS
(SIMULTANEOUS MULTI)

■ MODEL: AB∗G24LV

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	980
	l/s	272
	CFM	577
MED	m^3/h	820
	l/s	228
	CFM	483
LOW	m^3/h	680
	l/s	189
	CFM	400
QUIET	m^3/h	540
	l/s	150
	CFM	318

● Heating

Fan speed	Airflow	
HIGH	m^3/h	980
	l/s	272
	CFM	577
MED	m^3/h	820
	l/s	228
	CFM	483
LOW	m^3/h	680
	l/s	189
	CFM	400
QUIET	m^3/h	540
	l/s	150
	CFM	318

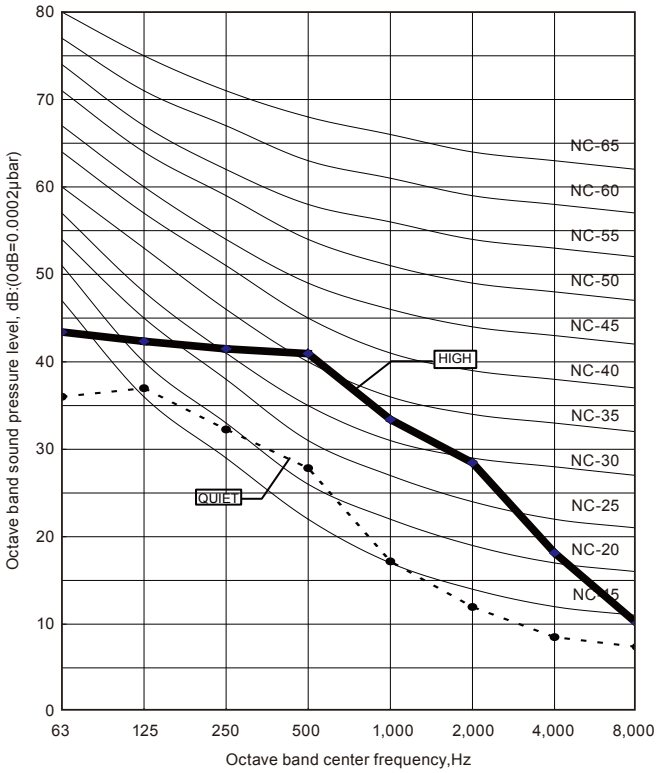
8. OPERATION NOISE

8-1. NOISE LEVEL CURVE

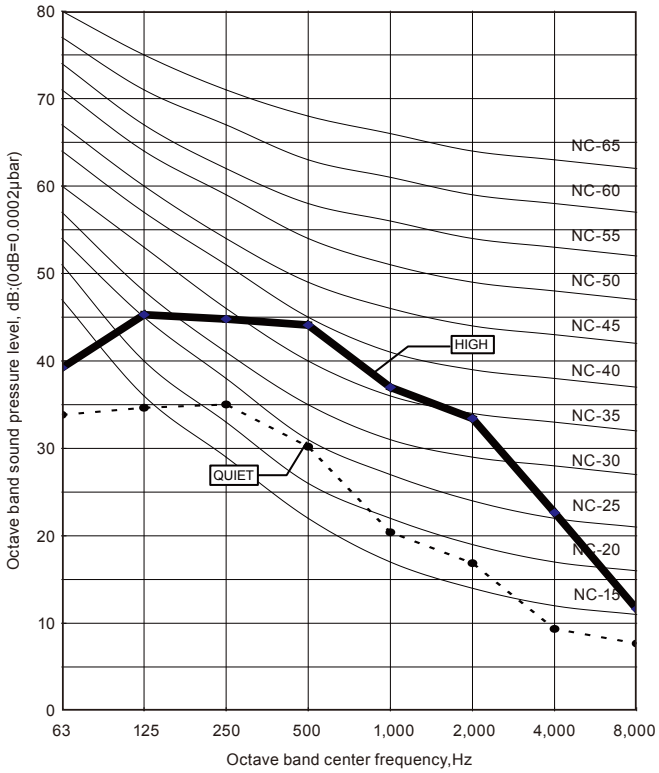
8-1-1. COMPACT CASSETTE TYPE

■ MODEL: AU∗G18LV

● Cooling

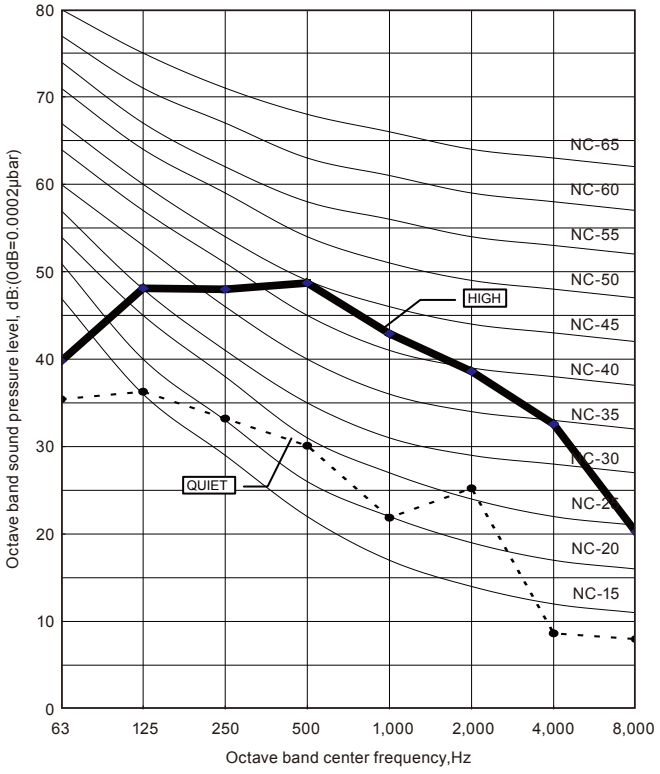


● Heating

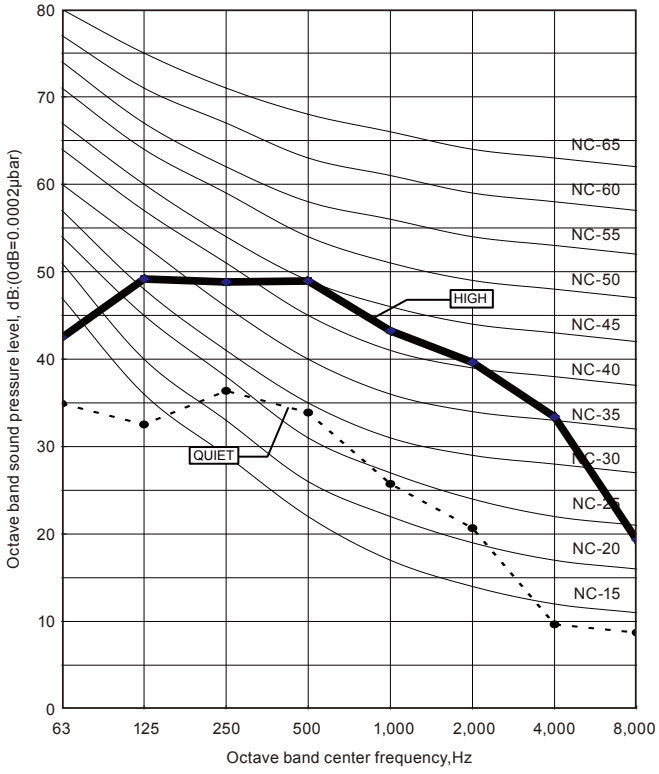


■ MODEL: AU∗G22LV

● Cooling



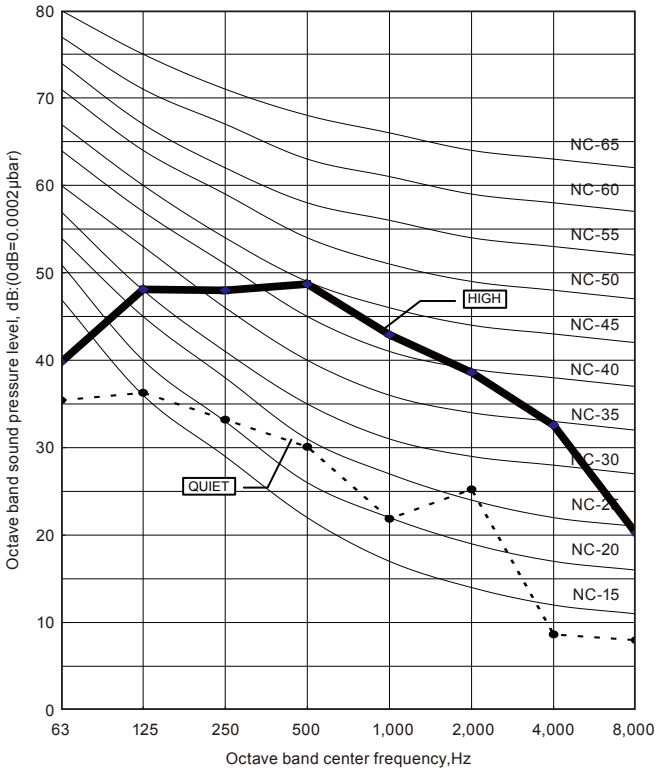
● Heating



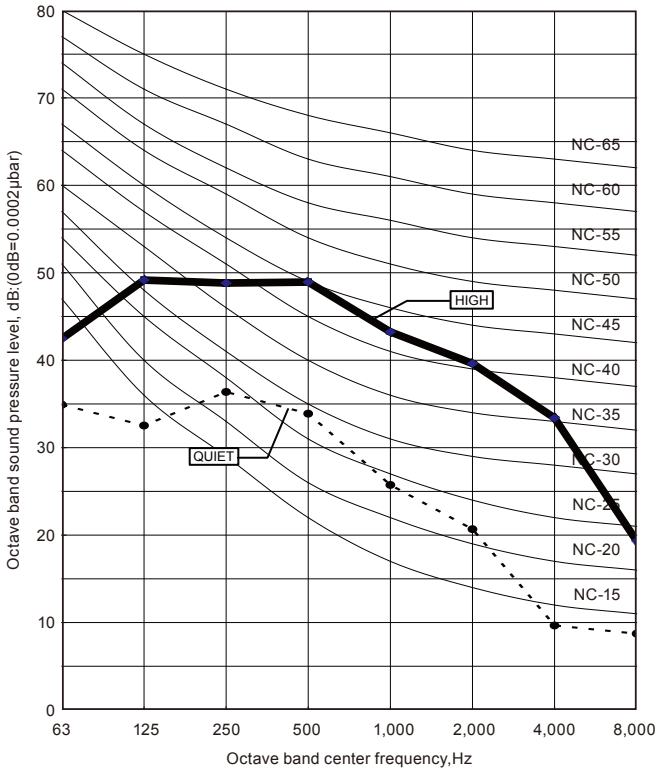
INDOOR UNITS
(SIMULTANEOUS MULTI)

■ MODEL: AU∗G24LV

● Cooling



● Heating

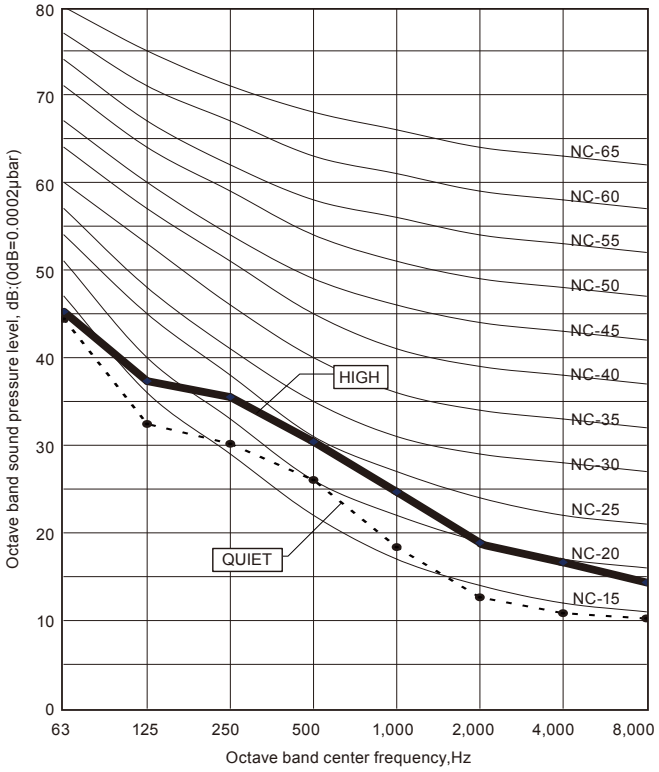


INDOOR UNITS
(SIMULTANEOUS MULTI)

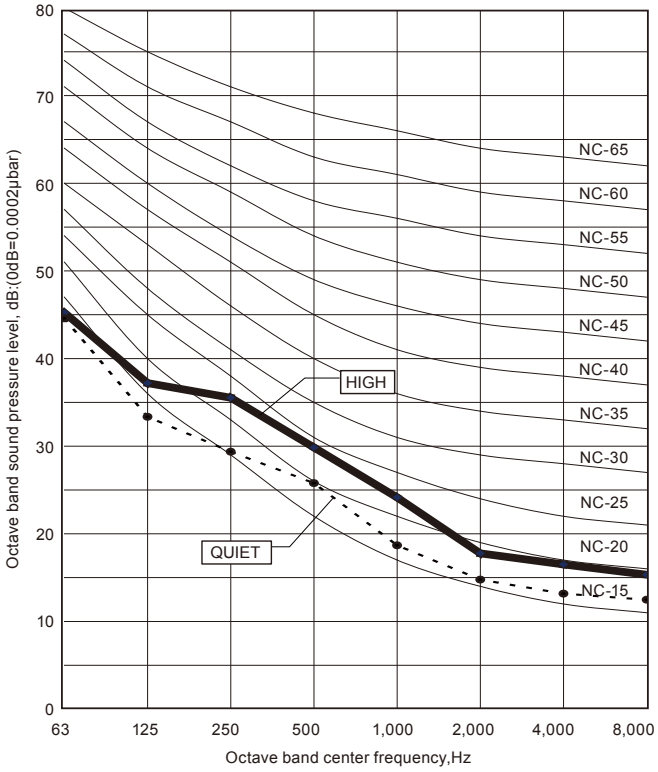
8-1-2. SLIM DUCT TYPE

■ MODEL: AR∗G18LL

● Cooling



● Heating

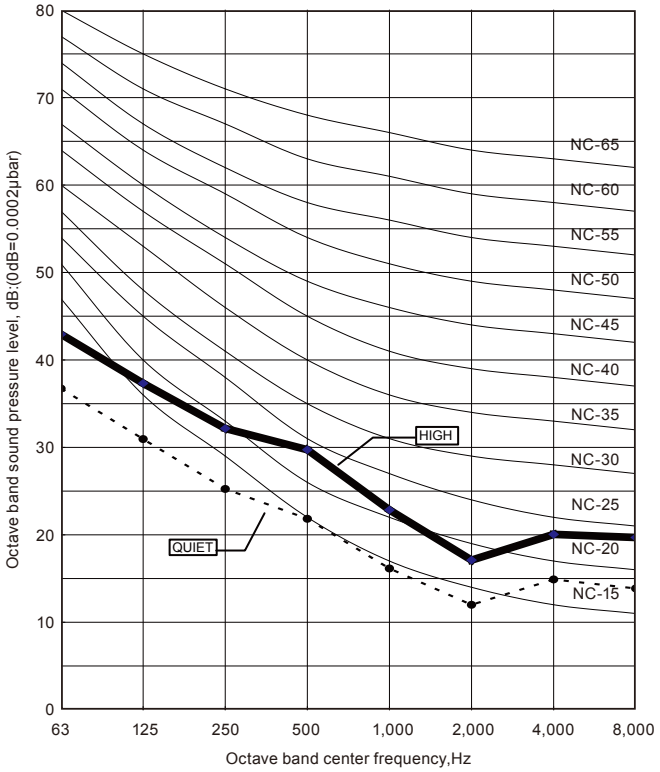


INDOOR UNITS
(SIMULTANEOUS MULTI)

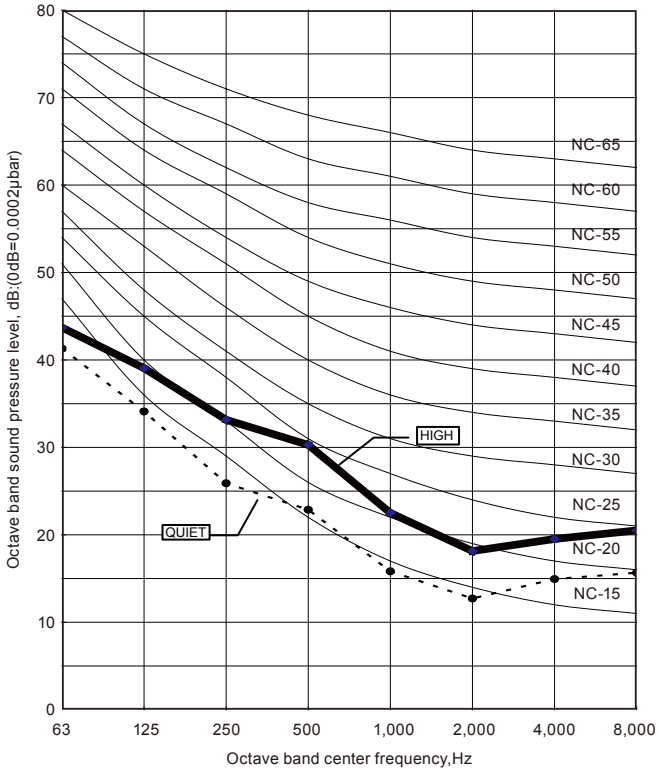
8-1-3. DUCT TYPE

■ MODEL: AR∗G22LM

● Cooling

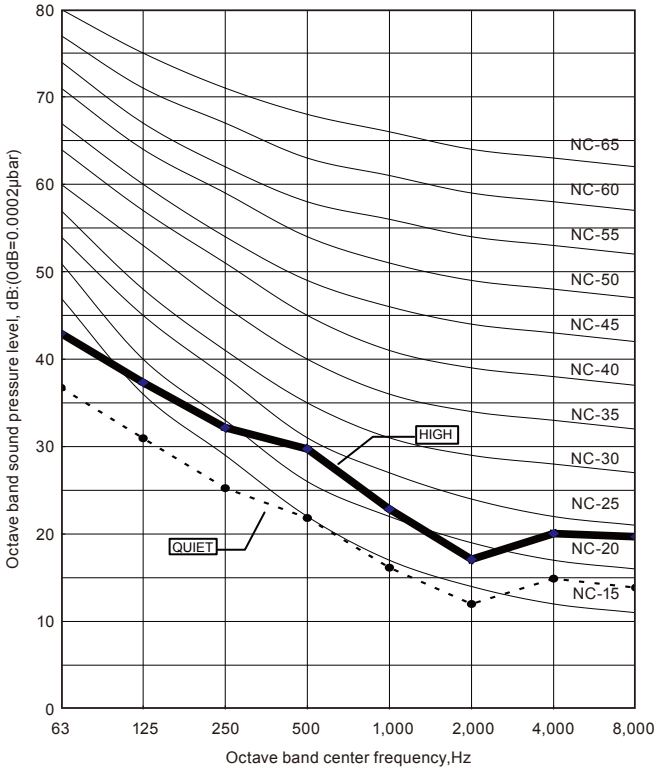


● Heating

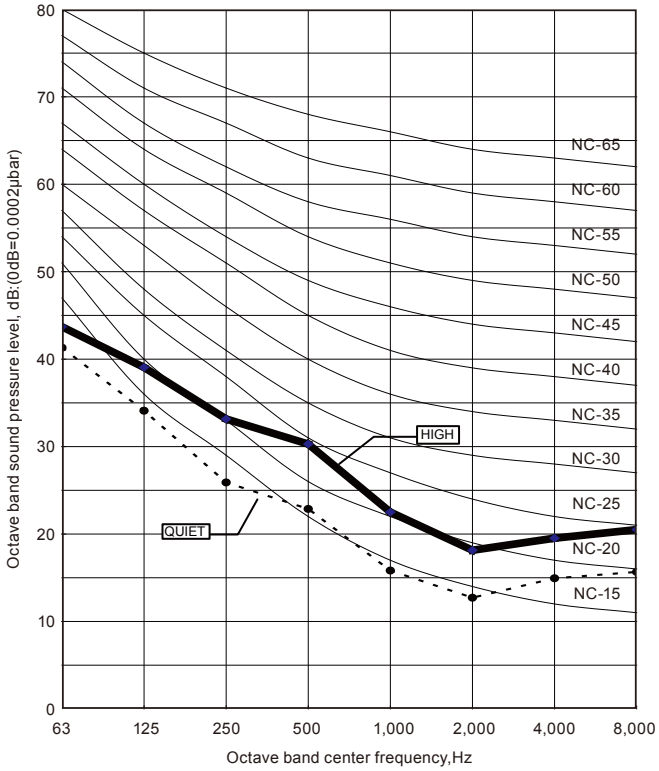


■ MODEL: AR∗G24LM

● Cooling



● Heating

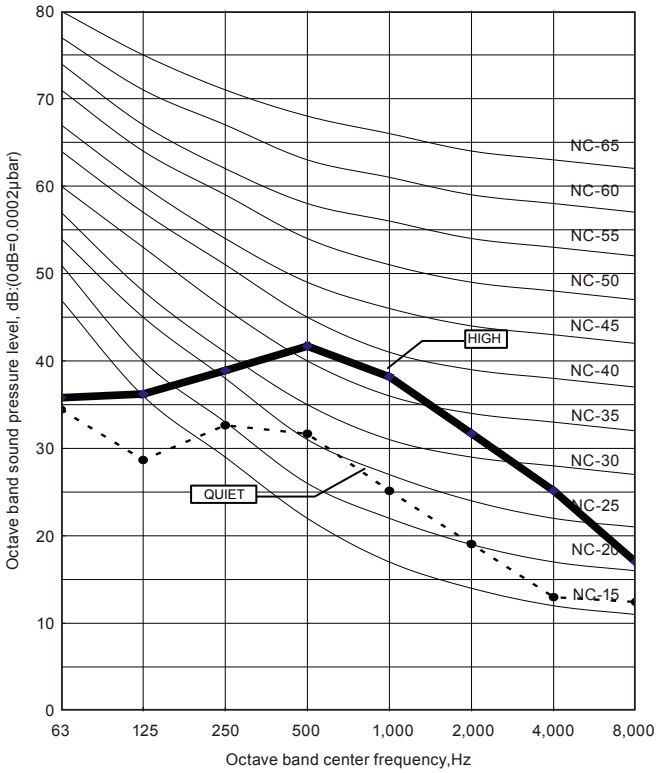


INDOOR UNITS
(SIMULTANEOUS MULTI)

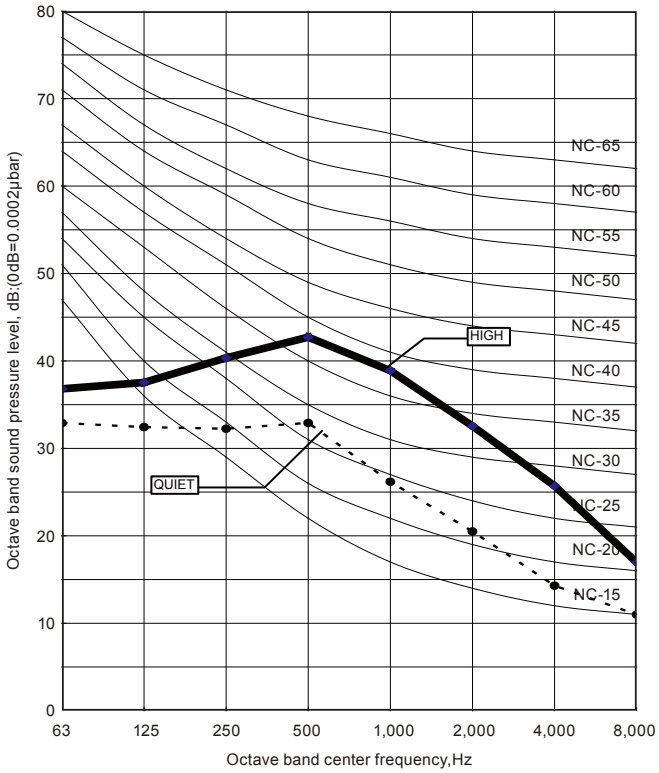
8-1-4. FLOOR / CEILING TYPE

■ MODEL: AB∗G18LV

● Cooling

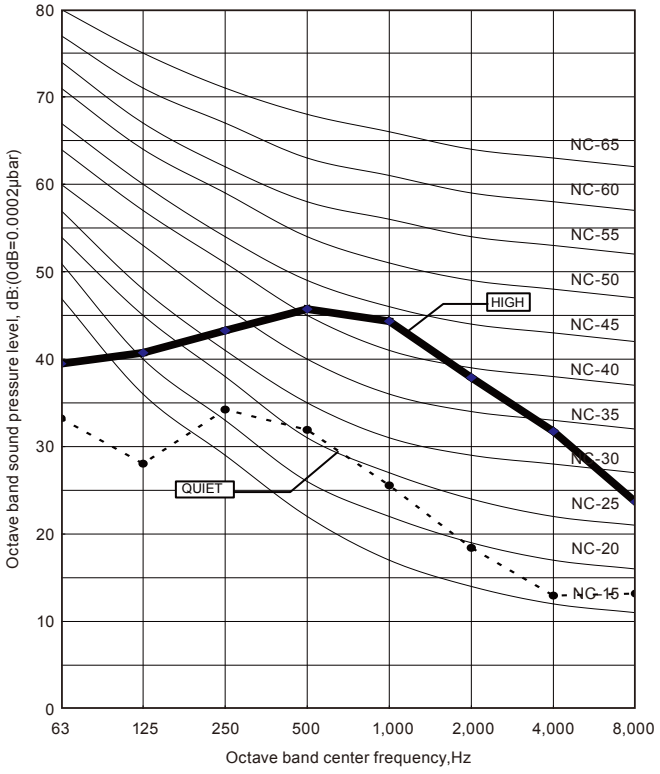


● Heating

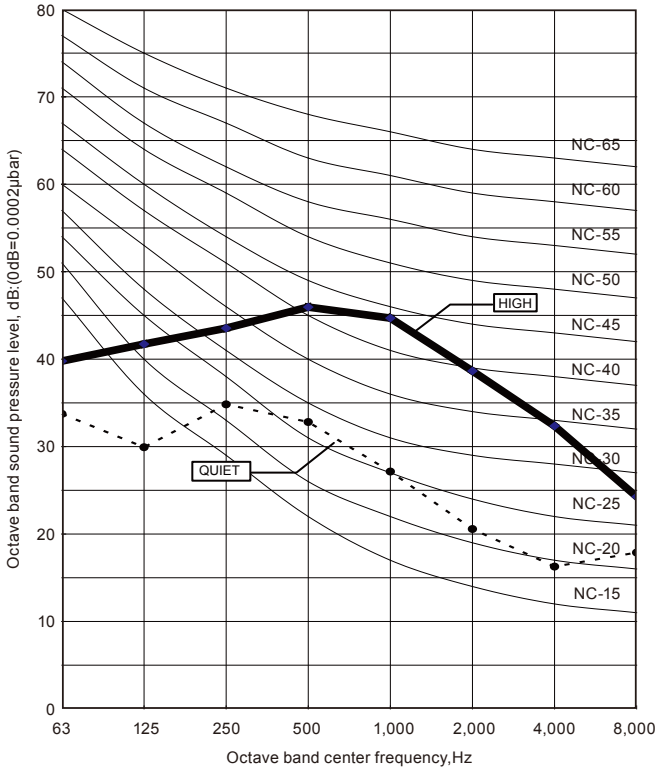


■ MODEL: AB∗G22LV

● Cooling



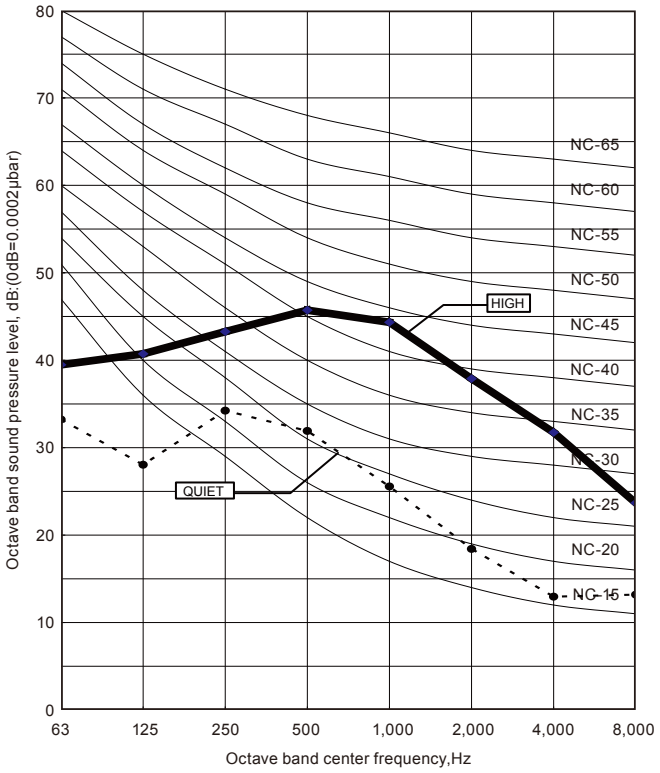
● Heating



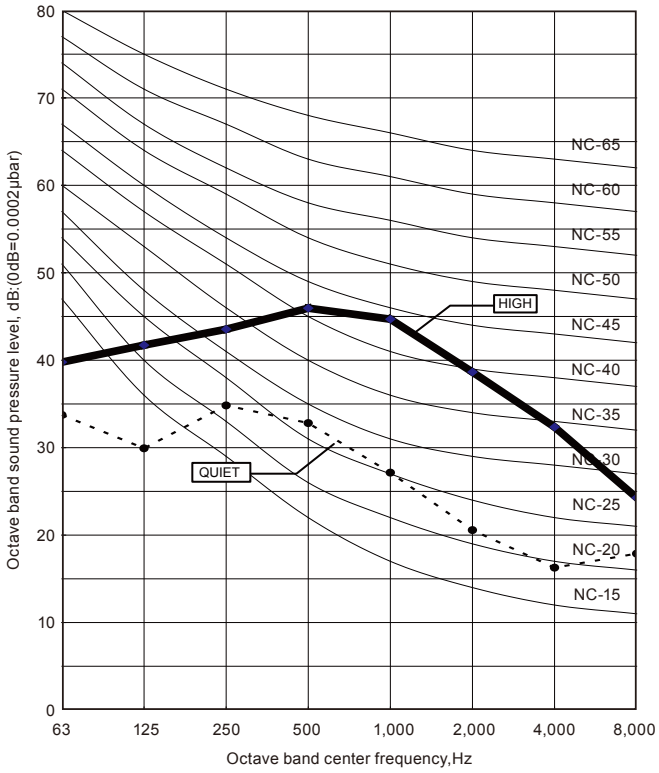
INDOOR UNITS (SIMULTANEOUS MULTI)

■ MODEL: AB∗G24LV

● Cooling



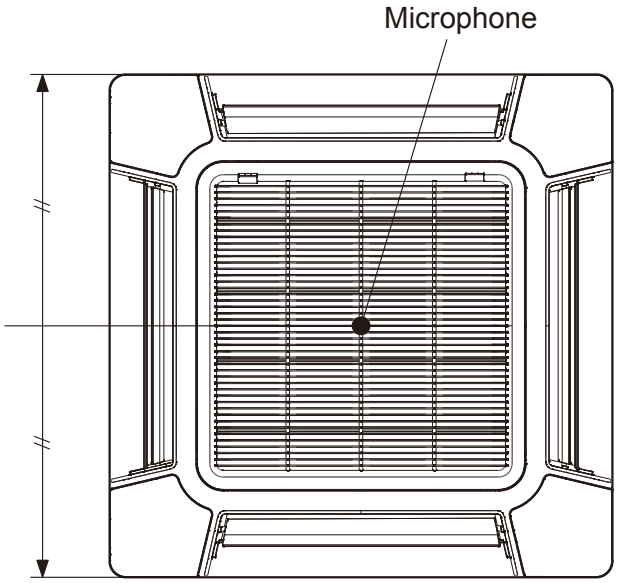
● Heating

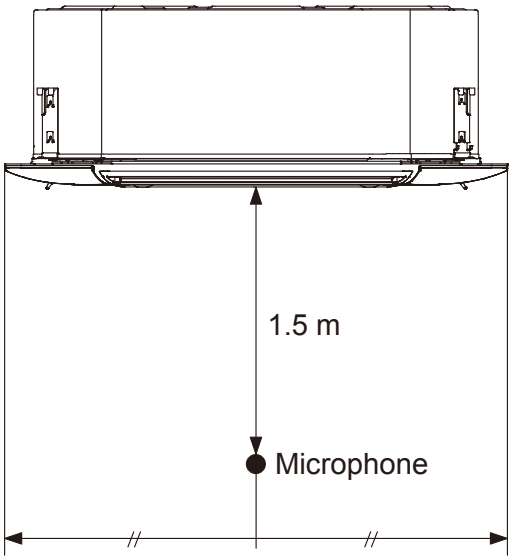


INDOOR UNITS
(SIMULTANEOUS MULTI)

8-2. SOUND LEVEL CHECK POINT

■ COMPACT CASSETTE TYPE

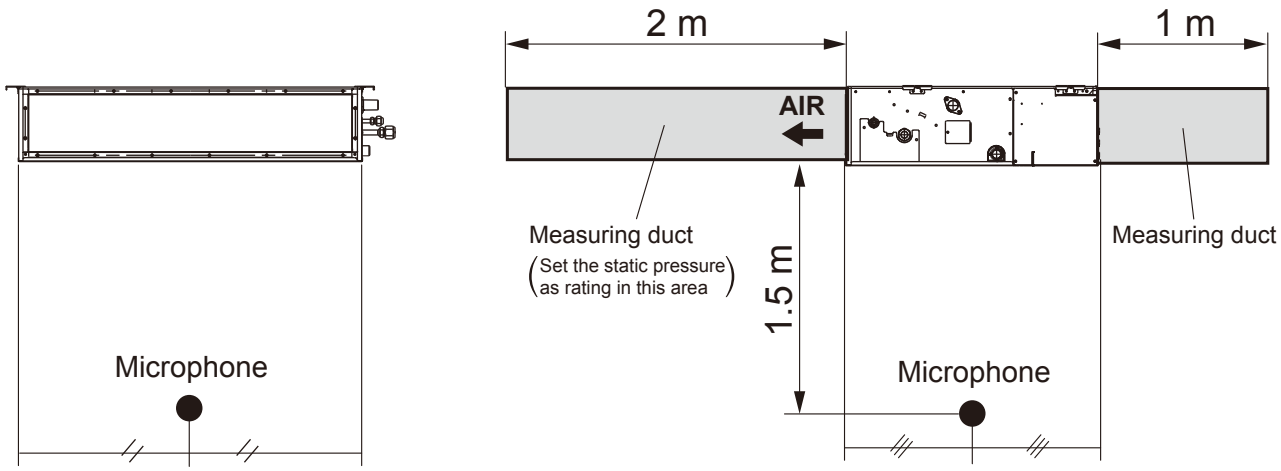




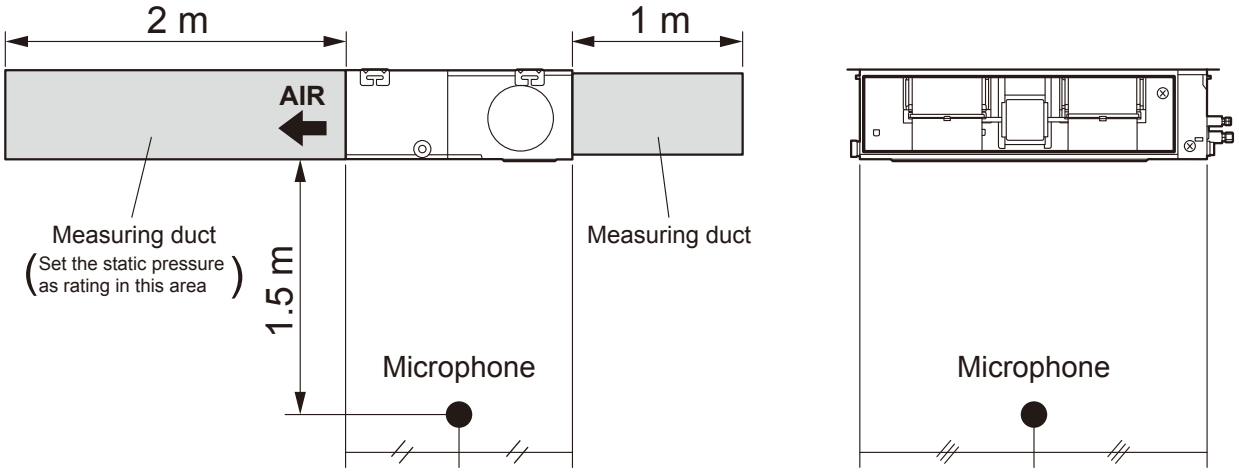
INDOOR UNITS
(SIMULTANEOUS MULTI)

INDOOR UNITS
(SIMULTANEOUS MULTI)

■ SLIM DUCT TYPE



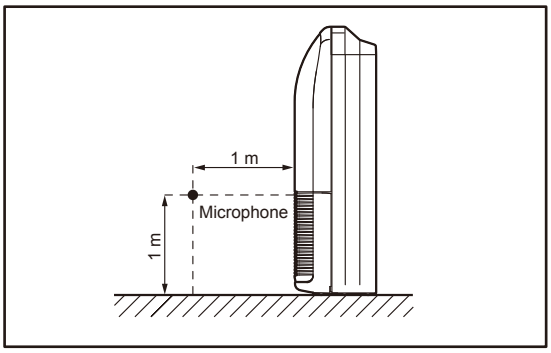
■ DUCT TYPE

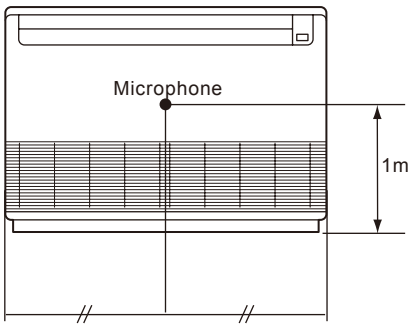


INDOOR UNITS
(SIMULTANEOUS MULTI)

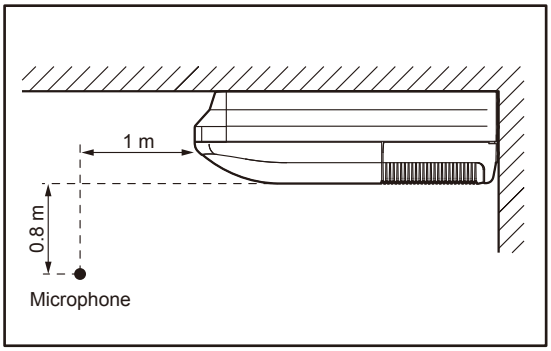
■ FLOOR / CEILING TYPE

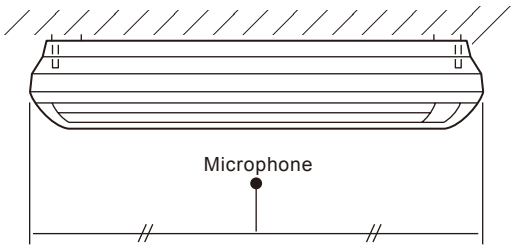
● Floor console





● Under ceiling





9. ELECTRIC CHARACTERISTICS

Indoor unit		Power supply		Max. operating current (A)	Wiring specification (Total*)	
Type	Model name	Voltage (V)	Frequency (Hz)		Connection cable (mm^2)	Limited wiring length (m)
COMPACT CASSETTE	AU∗G18LV	230 ~	50	0.2	1.5 (Min.)	75
	AU∗G22LV			0.3		
	AU∗G24LV			0.3		
SLIM DUCT	AR∗G18LL	230 ~	50	0.5	1.5 (Min.)	75
DUCT	AR∗G22LM	230 ~	50	0.7	1.5 (Min.)	75
	AR∗G24LM					
FLOOR / CEILING	AB∗G18LV	230 ~	50	0.5	1.5 (Min.)	75
	AB∗G22LV			0.7		
	AB∗G24LV			0.7		

Note : Wiring specification

1. Selected sample
   (Selected based on Japan Electrotechnical Standard and Codes Committee E0005)
2. Limited wiring length : Limit voltage drop to less than 2%. Increase cable gauge if voltage drop is 2% or more.
3. If the transmission wire is longer than 50m, use the bigger conductor size.

*: Total length of all wirings that interconnect between indoor units and between indoor unit and outdoor unit.

INDOOR UNITS (SIMULTANEOUS MULTI)

10. SAFETY DEVICES

Indoor unit		Circuit protection	Fan motor protection	
Type	Model name	Current fuse (PCB)	Thermal protection program	
			Activate	Reset
COMPACT CASSETTE	AU∗G18LV	250V 3.15A	138 ± 15 °C Fan motor speed down	105 ± 20 °C Fan motor speed recover
	AU∗G22LV			
	AU∗G24LV			
SLIM DUCT	AR∗G18LL	250V 5A	135 ± 15 °C Fan motor speed down	115 ± 15 °C Fan motor speed recover
DUCT	AR∗G22LM	250V 3.15A	135 ± 15 °C Fan motor speed down	115 ± 15 °C Fan motor speed recover
	AR∗G24LM			
FLOOR / CEILING	AB∗G18LV	250V 3.15A	135 ± 15 °C Fan motor speed down	115 ± 15 °C Fan motor speed recover
	AB∗G22LV			
	AB∗G24LV			

INDOOR UNITS (SIMULTANEOUS MULTI)

Refrigerant R410A
INVERTER

AIR CONDITIONER

1 phase type

Simultaneous multi system

3. OUTDOOR UNIT

DTR_SSM002E_02--CHAPTER03
2016.04.22

CONTENTS

3. OUTDOOR UNIT

1. SPECIFICATIONS

Tyipe				INVERTER HEATPUMP		
Model name				AO＊G36LBTB		
Indoor unit combination				AU＊G18LVLB × 2	AB＊G18LVTB × 2	AR＊G18LLTB × 2
Power source				230V ~ 50Hz		
Available voltage range				198V - 264V		
Capacity	Cooling	Rated	kW	10.0	10.0	10.0
			Btu/h	34,100	34,100	34,100
		Min. - Max.	kW	4.7 - 11.4	4.7 - 11.4	4.7 - 11.4
			Btu/h	16,000 - 38,900	16,000 - 38,900	16,000 - 38,900
	Heating	Rated	kW	11.2	11.2	11.2
			Btu/h	38,200	38,200	38,200
		Min. - Max.	kW	5.0 - 13.5	5.0 - 13.5	5.0 - 13.5
			Btu/h	17,100 - 46,000	17,100 - 46,000	17,100 - 46,000
Input power	Cooling	Rated	kW	2.89	2.89	2.86
		Max.		3.94	3.94	3.94
	Heating	Rated		3.06	3.06	2.89
		Max.		4.21	4.21	4.21
Current	Cooling	Rated	A	12.8	12.8	12.7
	Heating			13.6	13.6	12.8
Power factor	Cooling		%	98	98	98
	Heating			98	98	98
EER	Cooling	Rated	kW/kW	3.46	3.46	3.50
COP	Heating			3.66	3.66	3.87
Starting current			A	13.6	13.6	12.8
Maximum operating current			A	19.0	19.0	19.0
Fan	Airflow rate	Cooling	m^3/h	6200	6200	6200
		Heating		6200	6200	6200
	Type × Q'ty			Propeller × 2		
	Motor output		W	100 × 2		
Sound pressure level *1		Cooling	dB (A)	52	52	52
		Heating		54	54	54
Sound power level		Cooling	dB (A)	68	68	68
		Heating		69	69	69
Heat exchanger type		Dimensions (H × W × D)	mm	1260 × 900 × 36.4		
		Fin pitch		1.30		
		Rows x Stages		2 × 60		
		Pipe type		Copper		
		Fin: Type (Material)		Corrugate (Aluminium)		
		Fin: Surface treatment		Hydrophilic coating (Blue fin)		
Compressor	Type × Q'ty			Twin Rotary × 1		
	Motor output		W	3750		
Refrigerant		Type (Global Warming Potential)		R410A (1975)		
		Charge	g	3450		
Refrigerant oil		Type		POE		
		Amount	cm3	1550		
Enclosure		Material		Steel sheet		
		Colour		Beige Approximate color of MUNSELL 10YR7.5/1.0		
Dimensions (H × W × D)	Net		mm	1290 × 900 × 330		
	Gross			1460 × 1050 × 445		
Weight	Net		kg	93		
	Gross			103		
Connection pipe	Size (Standard)	Liquid	mm	Ø 9.52 (Ø 3/8 in.)		
		Gas		Ø 15.88 (Ø 5/8 in.)		
	Method			Flare		
	Pre-charge length		m	30		
	Max. length			75		
	Max. height difference			30		
Operation range		Cooling	°C	-15 to 46		
		Heating		-15 to 24		
Drain hose	Material			LDPE		
	Size		mm	Ø 13.0 (I.D.), Ø 16.0 to Ø 16.7 (O.D.)		

NOTES:
Specifications are based on the following conditions.
- Cooling : Indoor temperature of 27 °CDB / 19 °CWB.and outdoor temperature of 35 °CDB / 24 °CWB.
- Heating : Indoor temperature of 20 °CDB / 15 °CWB.and outdoor temperature of 7 °CDB / 6 °CWB.
- Pipe length : 5 m, Height difference : 0 m. (Outdoor unit - Indoor unit)

Protective function might work when using it outside the operation range.
*1: Sound pressure level
- Measured values in manufacturer's anechoic chamber.
- Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

OUTDOOR UNIT

Model name				AO＊G36LBTB		
Indoor unit combination				AU＊G18LVLB × 2	AB＊G18LVTB × 2	AR＊G18LLTB × 2
Energy efficiency class	Cooling			A	A	A
	Heating (Average)			A	A	A
Pdesign	Cooling		kW	10.00 (35°C)	10.00 (35°C)	10.00 (35°C)
	Heating (Average)			10.00 (-10°C)	10.00 (-10°C)	10.00 (-10°C)
SEER	Cooling		kWh/kWh	5.56	5.50	5.33
SCOP	Heating (Average)			3.90	3.90	3.90
Annual energy consumption	QCE		kWh/a	629	636	656
	QHE (Average)			3588	3588	3588
Sound power level	Cooling	High	dB (A)	68	68	68
	Heating			69	69	69

Notice for specifications

•Specifications and design subject to change without notice for further improvement.
Please check with your dealer.

OUTDOOR UNIT

Tyipe					INVERTER HEATPUMP		
Model name					AO∗G45LBTB		
Indoor unit combination					AU∗G22LVLA × 2	AB∗G22LVTA × 2	AR∗G22LMLA × 2
Power source					230V ~ 50Hz		
Available voltage range					198V - 264V		
Capacity	Cooling	Rated		kW	12.1	12.1	12.1
				Btu/h	41,300	41,300	41,300
		Min. - Max.		kW	5.0 - 13.0	5.0 - 13.0	5.0 - 13.0
				Btu/h	17,100 - 44,300	17,100 - 44,300	17,100 - 44,300
	Heating	Rated		kW	14.0	14.0	14.0
				Btu/h	47,800	47,800	47,800
		Min. - Max.		kW	5.4 - 15.0	5.4 - 15.0	5.4 - 15.0
				Btu/h	18,400 - 51,200	18,400 - 51,200	18,400 - 51,200
Input power	Cooling	Rated		kW	3.77	3.77	3.70
		Max.			4.37	4.37	4.37
	Heating	Rated			3.97	3.97	3.93
		Max.			4.53	4.53	4.53
Current	Cooling	Rated		A	16.7	16.7	16.4
	Heating				17.6	17.6	17.4
Power factor	Cooling			%	98	98	98
	Heating				98	98	98
EER	Cooling	Rated		kW/kW	3.21	3.21	3.27
COP	Heating				3.52	3.52	3.56
Starting current				A	17.6	17.6	17.4
Maximum operating current				A	20.4	20.4	20.4
Fan	Airflow rate	Cooling		m^3/h	6750	6750	6750
		Heating			6200	6200	6750
	Type × Q'ty				Propeller × 2		
	Motor output			W	100 × 2		
Sound pressure level *1		Cooling		dB (A)	54	54	54
		Heating			55	55	56
Sound power level		Cooling		dB (A)	70	70	70
		Heating			70	70	70
Heat exchanger type		Dimensions (H × W × D)		mm	1260 × 900 × 36.4		
		Fin pitch			1.30		
		Rows x Stages			2 × 60		
		Pipe type			Copper		
		Fin	Type (Material)		Corrugate (Aluminium)		
			Surface treatment		Hydrophilic coating (Blue fin)		
Compressor	Type × Q'ty				Twin Rotary × 1		
	Motor output			W	3750		
Refrigerant		Type (Global Warming Potential)			R410A (1975)		
		Charge		g	3450		
Refrigerant oil		Type			POE		
		Amount		cm3	1550		
Enclosure		Material			Steel sheet		
		Colour			Beige Approximate color of MUNSELL 10YR7.5/1.0		
Dimensions (H × W × D)	Net			mm	1290 × 900 × 330		
	Gross				1460 × 1050 × 445		
Weight	Net			kg	93		
	Gross				103		
Connection pipe	Size (Standard)	Liquid		mm	Ø 9.52 (Ø 3/8 in.)		
		Gas			Ø 15.88 (Ø 5/8 in.)		
	Method				Flare		
	Pre-charge length			m	30		
	Max. length				75		
	Max. height difference				30		
Operation range		Cooling		°C	-15 to 46		
		Heating			-15 to 24		
Drain hose	Material				LDPE		
	Size			mm	Ø 13.0 (I.D.), Ø 16.0 to Ø 16.7 (O.D.)		

NOTES:
Specifications are based on the following conditions.
- Cooling : Indoor temperature of 27 °CDB / 19 °CWB.and outdoor temperature of 35 °CDB / 24 °CWB.
- Heating : Indoor temperature of 20 °CDB / 15 °CWB.and outdoor temperature of 7 °CDB / 6 °CWB.
- Pipe length : 5 m, Height difference : 0 m. (Outdoor unit - Indoor unit)

Protective function might work when using it outside the operation range.
*1: Sound pressure level
- Measured values in manufacturer's anechoic chamber.
- Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

Tyipe					INVERTER HEATPUMP		
Model name					AO∗G54LBTB		
Indoor unit combination					AU∗G24LVLA × 2	AB∗G24LVTA × 2	AR∗G24LMLA × 2
Power source					230V ~ 50Hz		
Available voltage range					198V - 264V		
Capacity	Cooling	Rated		kW	13.3	13.3	13.3
				Btu/h	45,400	45,400	45,400
		Min. - Max.		kW	5.4 - 13.8	5.4 - 13.8	5.4 - 13.8
				Btu/h	18,400 - 47,100	18,400 - 47,100	18,400 - 47,100
	Heating	Rated		kW	15.0	15.0	15.0
				Btu/h	51,200	51,200	51,200
		Min. - Max.		kW	5.8 - 15.6	5.8 - 15.6	5.8 - 15.6
				Btu/h	19,800 - 53,200	19,800 - 53,200	19,800 - 53,200
Input power	Cooling	Rated		kW	4.40	4.40	4.40
		Max.			4.65	4.65	4.65
	Heating	Rated			4.48	4.48	4.40
		Max.			4.76	4.76	4.76
Current	Cooling	Rated		A	19.5	19.5	19.5
	Heating				19.9	19.9	19.5
Power factor	Cooling			%	98	98	98
	Heating				98	98	98
EER	Cooling	Rated		kW/kW	3.02	3.02	3.02
COP	Heating				3.35	3.35	3.41
Starting current				A	19.9	19.9	19.5
Maximum operating current				A	21.5	21.5	21.5
Fan	Airflow rate	Cooling		m^3/h	6850	6850	6850
		Heating			6750	6750	6750
	Type × Q'ty				Propeller × 2		
	Motor output			W	100 × 2		
Sound pressure level *1		Cooling		dB (A)	55	55	55
		Heating			57	57	57
Sound power level		Cooling		dB (A)	71	71	71
		Heating			72	72	72
Heat exchanger type		Dimensions (H × W × D)		mm	1260 × 900 × 36.4		
		Fin pitch			1.30		
		Rows x Stages			2 × 60		
		Pipe type			Copper		
		Fin	Type (Material)		Corrugate (Aluminium)		
			Surface treatment		Hydrophilic coating (Blue fin)		
Compressor	Type × Q'ty				Twin Rotary × 1		
	Motor output			W	3750		
Refrigerant		Type (Global Warming Potential)			R410A (1975)		
		Charge		g	3450		
Refrigerant oil		Type			POE		
		Amount		cm3	1550		
Enclosure		Material			Steel sheet		
		Colour			Beige Approximate color of MUNSELL 10YR7.5/1.0		
Dimensions (H × W × D)	Net			mm	1290 × 900 × 330		
	Gross				1460 × 1050 × 445		
Weight	Net			kg	93		
	Gross				103		
Connection pipe	Size (Standard)	Liquid		mm	Ø 9.52 (Ø 3/8 in.)		
		Gas			Ø 15.88 (Ø 5/8 in.)		
	Method				Flare		
	Pre-charge length			m	30		
	Max. length				75		
	Max. height difference				30		
Operation range		Cooling		°C	-15 to 46		
		Heating			-15 to 24		
Drain hose	Material				LDPE		
	Size			mm	Ø 13.0 (I.D.), Ø 16.0 to Ø 16.7 (O.D.)		

NOTES:
Specifications are based on the following conditions.
- Cooling : Indoor temperature of 27 °CDB / 19 °CWB.and outdoor temperature of 35 °CDB / 24 °CWB.
- Heating : Indoor temperature of 20 °CDB / 15 °CWB.and outdoor temperature of 7 °CDB / 6 °CWB.
- Pipe length : 5 m, Height difference : 0 m. (Outdoor unit - Indoor unit)

Protective function might work when using it outside the operation range.
*1: Sound pressure level
- Measured values in manufacturer's anechoic chamber.
- Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

Tyipe				INVERTER HEATPUMP		
Model name				AO✳G54LBTB		
Indoor unit combination				AU✳G18LVLB × 3	AB✳G18LVTB × 3	AR✳G18LLTB × 3
Power source				230V ~ 50Hz		
Available voltage range				198V - 264V		
Capacity	Cooling	Rated	kW	13.3	13.3	13.3
			Btu/h	45,400	45,400	45,400
		Min. - Max.	kW	5.4 - 14.0	5.4 - 14.0	5.4 - 14.0
			Btu/h	18,400 - 47,700	18,400 - 47,700	18,400 - 47,700
	Heating	Rated	kW	16.0	16.0	16.0
			Btu/h	54,600	54,600	54,600
		Min. - Max.	kW	5.8 - 16.7	5.8 - 16.7	5.8 - 16.7
			Btu/h	19,800 - 56,900	19,800 - 56,900	19,800 - 56,900
Input power	Cooling	Rated	kW	4.23	4.23	4.14
		Max.		4.67	4.67	4.67
	Heating	Rated		4.53	4.53	4.34
		Max.		4.78	4.78	4.78
Current	Cooling	Rated	A	18.8	18.8	18.4
	Heating			20.1	20.1	19.3
Power factor	Cooling		%	98	98	98
	Heating			98	98	98
EER	Cooling	Rated	kW/kW	3.14	3.14	3.21
COP	Heating			3.53	3.53	3.68
Starting current			A	20.1	20.1	19.3
Maximum operating current			A	21.5	21.5	21.5
Fan	Airflow rate	Cooling	m^3/h	6850	6850	6850
		Heating		6750	6750	6750
	Type × Q'ty			Propeller × 2		
	Motor output		W	100 × 2		
Sound pressure level *1		Cooling	dB (A)	55	55	55
		Heating		57	57	57
Sound power level		Cooling	dB (A)	71	71	71
		Heating		72	72	72
Heat exchanger type		Dimensions (H × W × D)	mm	1260 × 900 × 36.4		
		Fin pitch		1.30		
		Rows x Stages		2 × 60		
		Pipe type		Copper		
		Fin — Type (Material)		Corrugate (Aluminium)		
		Fin — Surface treatment		Hydrophilic coating (Blue fin)		
Compressor	Type × Q'ty			Twin Rotary × 1		
	Motor output		W	3750		
Refrigerant		Type (Global Warming Potential)		R410A (1975)		
		Charge	g	3450		
Refrigerant oil		Type		POE		
		Amount	cm3	1550		
Enclosure		Material		Steel sheet		
		Colour		Beige Approximate color of MUNSELL 10YR7.5/1.0		
Dimensions (H × W × D)	Net		mm	1290 × 900 × 330		
	Gross			1460 × 1050 × 445		
Weight	Net		kg	93		
	Gross			103		
Connection pipe	Size (Standard)	Liquid	mm	Ø 9.52 (Ø 3/8 in.)		
		Gas		Ø 15.88 (Ø 5/8 in.)		
	Method			Flare		
	Pre-charge length		m	30		
	Max. length			75		
	Max. height difference			30		
Operation range		Cooling	°C	-15 to 46		
		Heating		-15 to 24		
Drain hose	Material			LDPE		
	Size		mm	Ø 13.0 (I.D.), Ø 16.0 to Ø 16.7 (O.D.)		

NOTES:
Specifications are based on the following conditions.
- Cooling : Indoor temperature of 27 °CDB / 19 °CWB.and outdoor temperature of 35 °CDB / 24 °CWB.
- Heating : Indoor temperature of 20 °CDB / 15 °CWB.and outdoor temperature of 7 °CDB / 6 °CWB.
- Pipe length : 5 m, Height difference : 0 m. (Outdoor unit - Indoor unit)

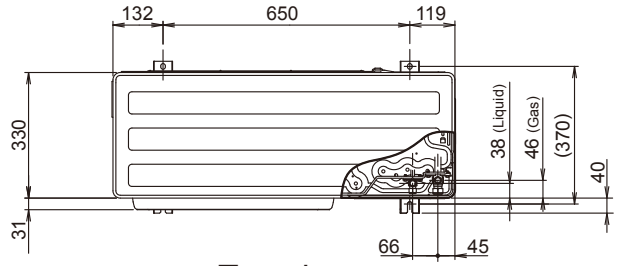
Protective function might work when using it outside the operation range.
*1: Sound pressure level
- Measured values in manufacturer's anechoic chamber.
- Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

2. DIMENSIONS

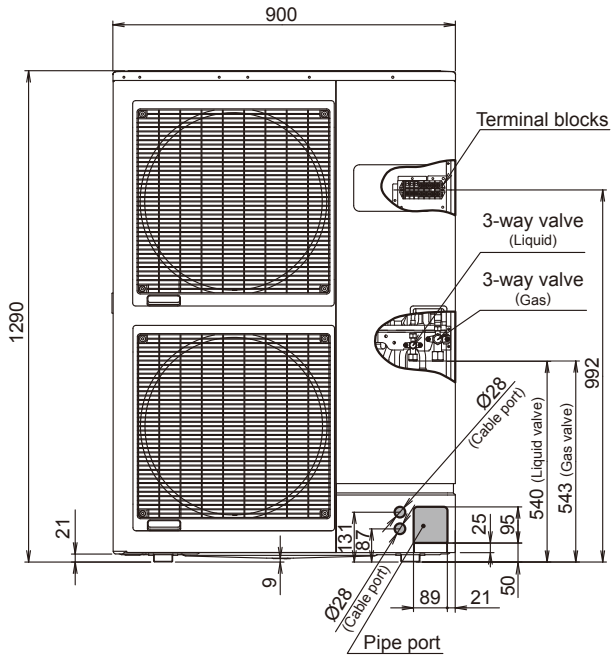
2-1. DIMENSIONS

■ MODELS : AO∗G36LB, AO∗G45LB, AO∗G54LB

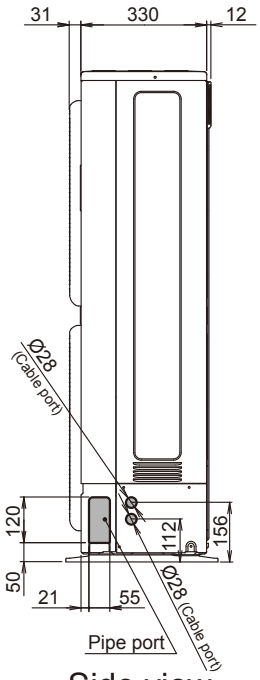
Unit: mm



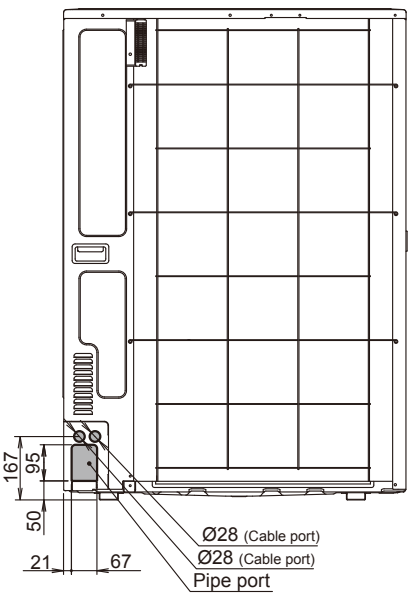
Top view



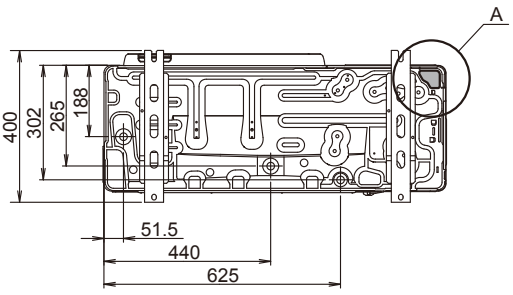
Front view



Side view

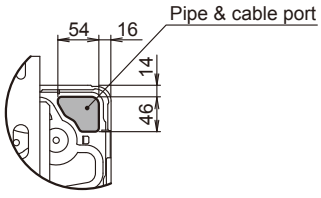


Rear view



Bottom view

Detail A



OUTDOOR UNIT

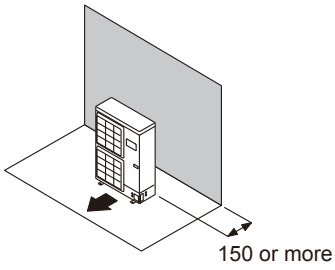
2-2. INSTALLATION PLACE

2-2-1. SINGLE OUTDOOR UNIT INSTALLATION

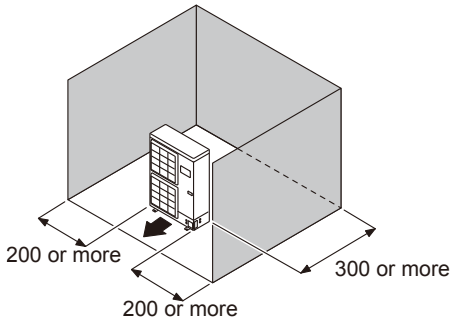
■ WHEN THE UPPER SPACE IS OPEN

(Unit : mm)

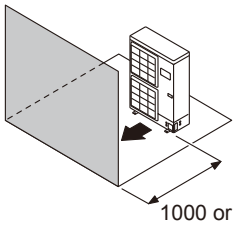
When there are obstacles at the rear only.



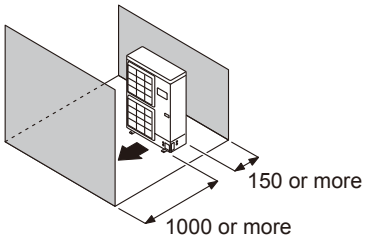
When there are obstacles at the rear and sides.



When there are obstacles at the front only.



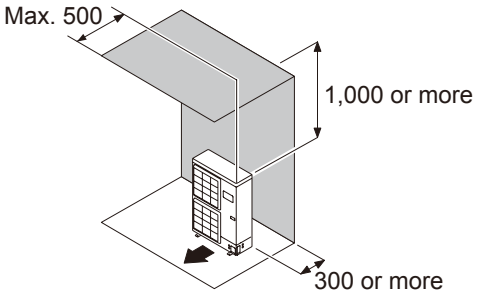
When there are obstacles at the front and rear.



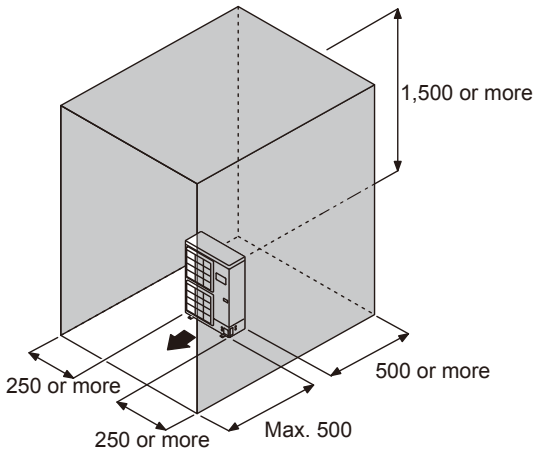
■ WHEN THERE IS AN OBSTRUCTION IN THE UPPER SPACE

(Unit : mm)

When there are obstacles at the rear and above.



When there are obstacles at the rear, sides, and above.



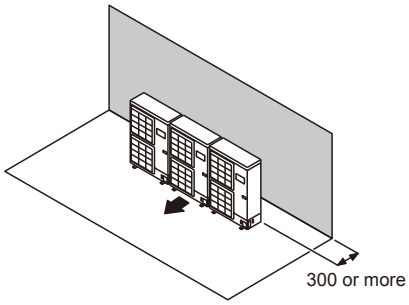
OUTDOOR UNIT

2-2-2. MULTIPLE OUTDOOR UNIT INSTALLATION

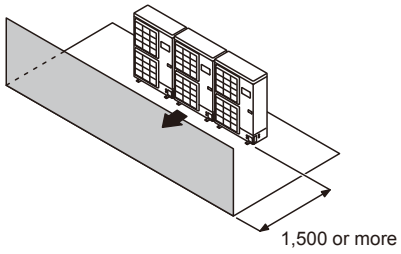
■ WHEN THE UPPER SPACE IS OPEN

(Unit : mm)

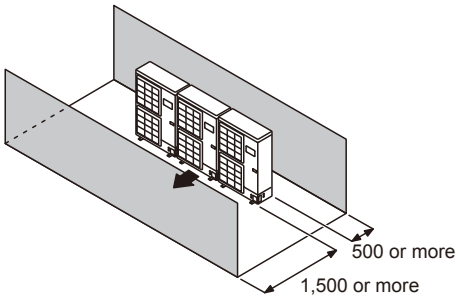
When there are obstacles at the rear only.



When there are obstacles at the front only.



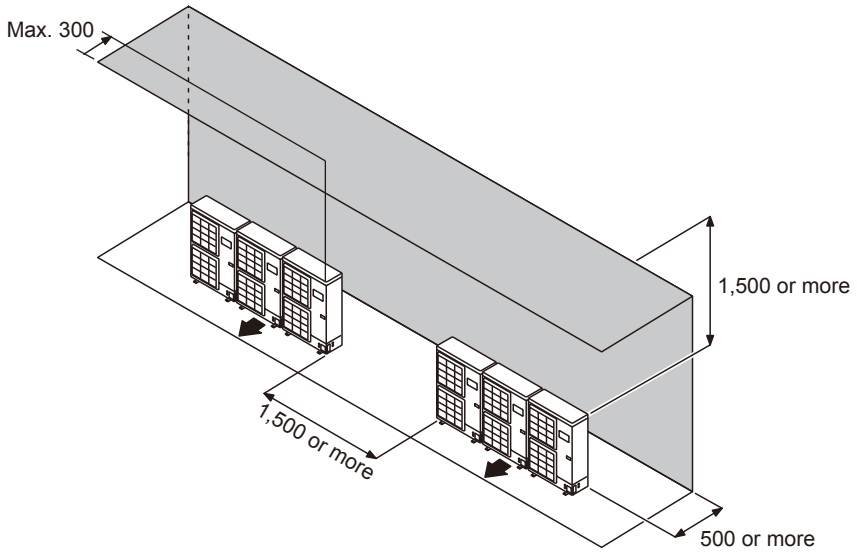
When there are obstacles at the front and rear.



■ WHEN THERE IS AN OBSTRUCTION IN THE UPPER SPACE

(Unit : mm)

When there are obstacles at the rear and above.

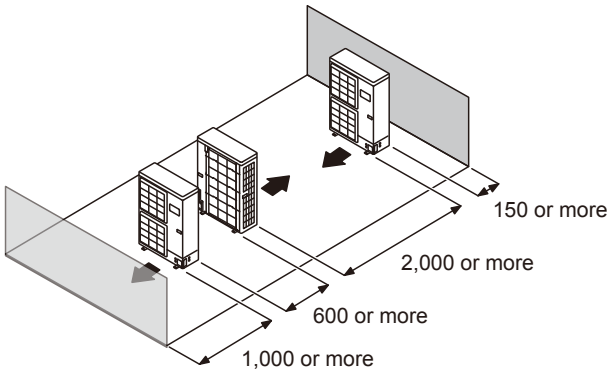


OUTDOOR UNIT

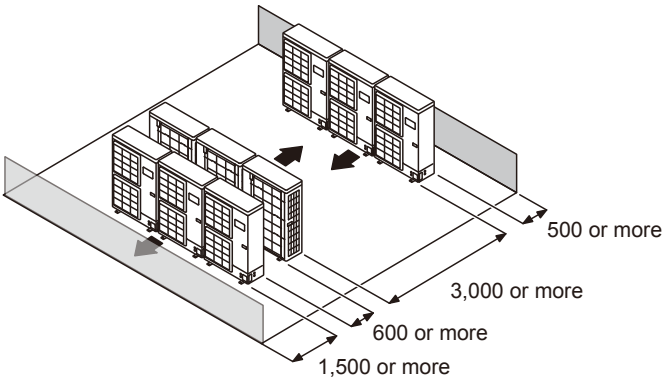
2-2-3. OUTDOOR UNIT INSTALLATION IN MULTI-ROW

(Unit : mm)

Single parallel unit arrangement



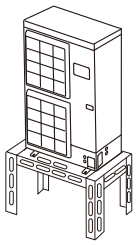
Multiple parallel unit arrangement



OUTDOOR UNIT

NOTES:

- If the space is larger than stated above, the condition will be the same as when there is no obstacle.
- Height above the floor level should be 50 mm or more.
- When installing the outdoor unit, be sure to open the front and left side to obtain better operation efficiency.



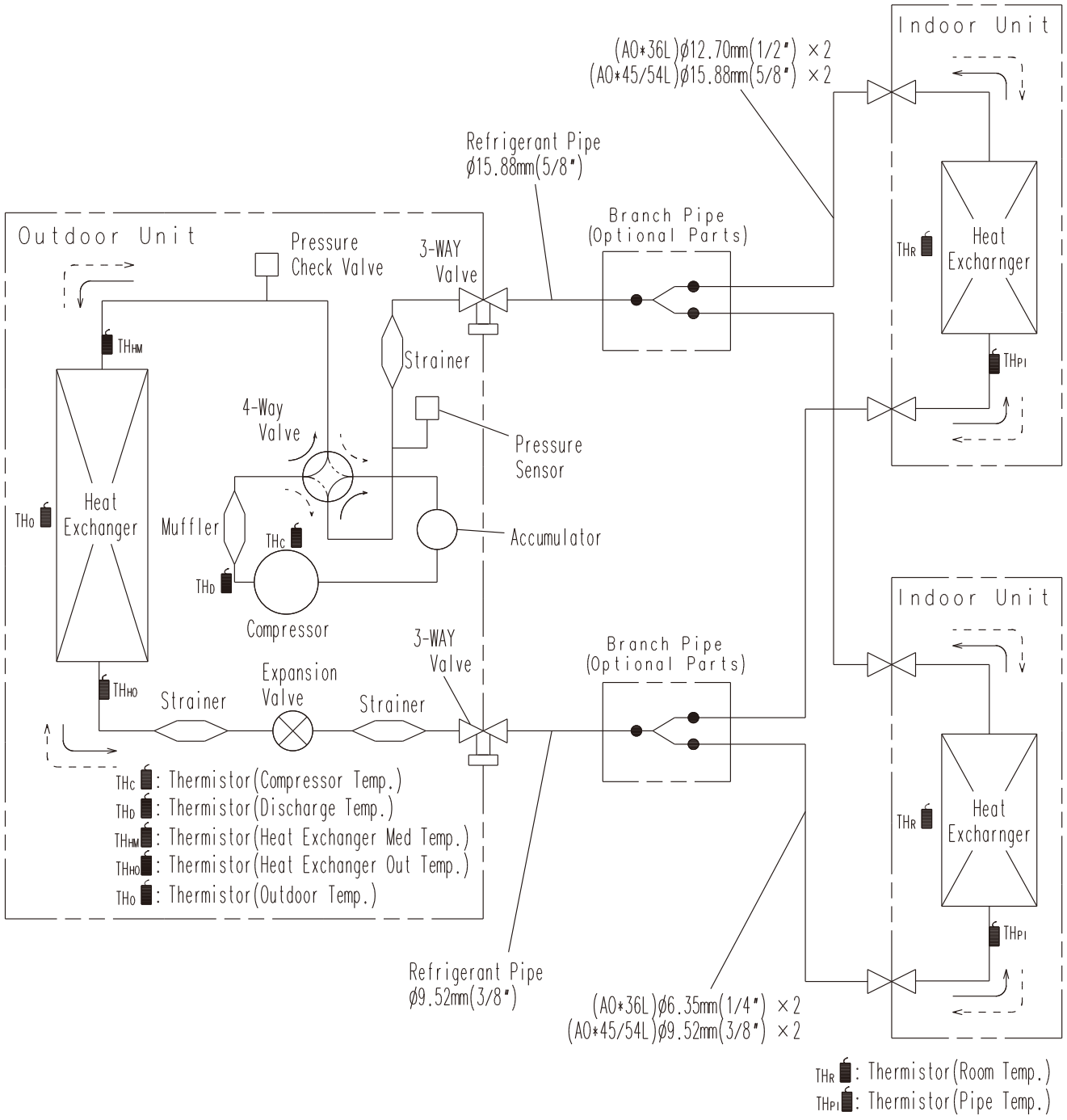
⚠ CAUTION

- When the outdoor temperature is 0 °C or less, do not use the accessory drain pipe and drain cap. If the drain pipe and drain cap are used, the drain water in the pipe may freeze in extremely cold climate. (For reverse cycle model only.)
- In area with heavy snowfall, if the inlet and outlet of the outdoor unit is blocked with snow, it might become difficult to get warm, and it is likely to cause product malfunction. Construct a canopy and a pedestal, or place the unit on a high stand that is locally installed.

3. REFRIGERANT CIRCUIT

3-1. SIMULTANEOUS MULTI (TWIN)

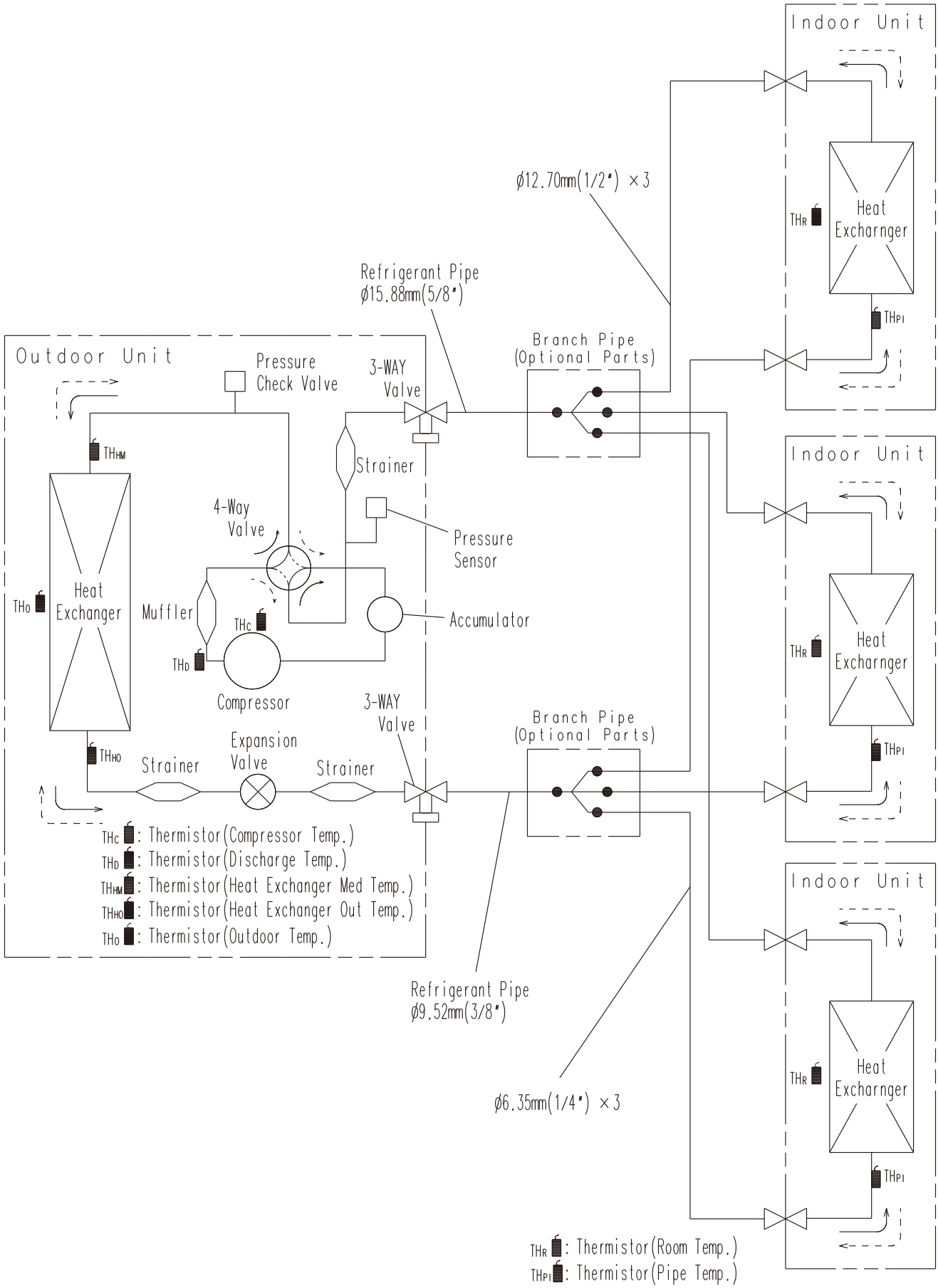
■ MODELS : AO∗G36LB, AO∗G45LB, AO∗G54LB



OUTDOOR UNIT

3-2. SIMULTANEOUS OPERATION MULTI (TRIPLE)

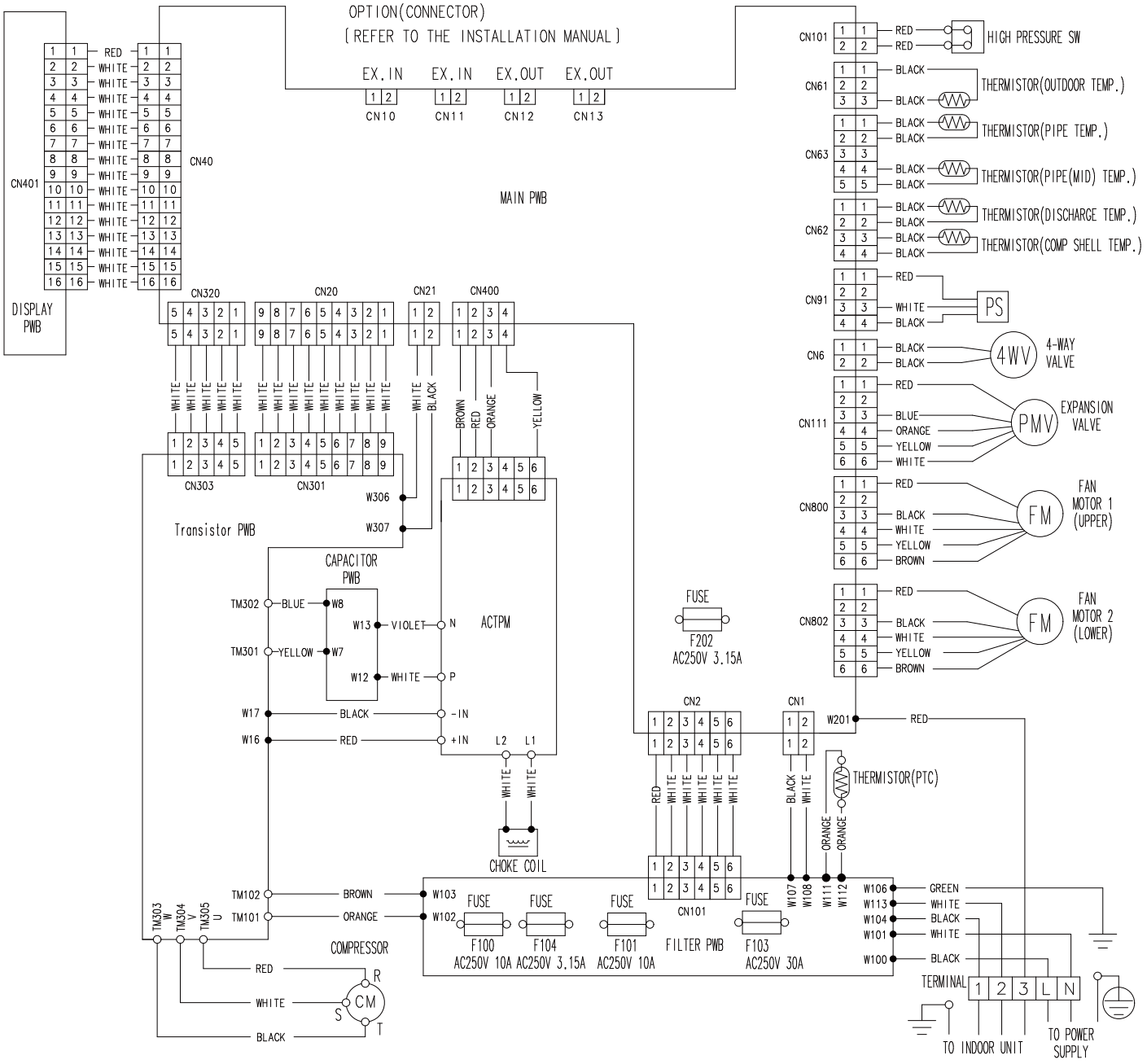
■ MODEL: AO∗G54LB



OUTDOOR UNIT

4. WIRING DIAGRAMS

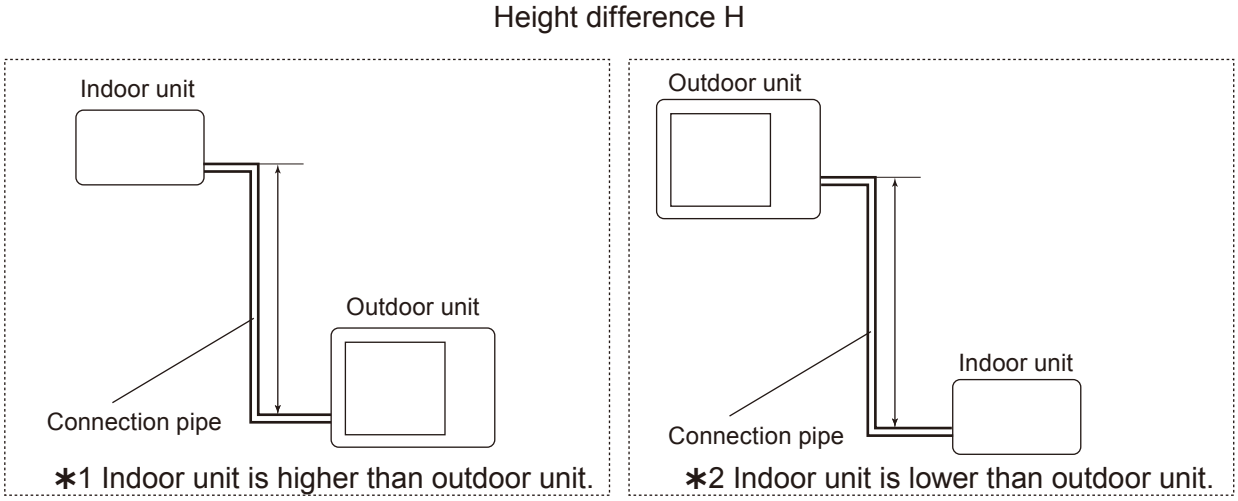
■ MODELS : AO∗G36LB, AO∗G45LB, AO∗G54LB



OUTDOOR UNIT

OUTDOOR UNIT

5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE



OUTDOOR UNIT

■ MODEL: AO∗G36LB

NOTE: Values mentioned in the table are calculated based on the maximum capacity.

COOLING			Pipe length (m)								
			5	7.5	10	20	30	40	50	60	75
Height difference H (m)	∗1 Indoor unit is higher than outdoor unit.	30	-	-	-	-	0.912	0.893	0.875	0.857	0.823
		20	-	-	-	0.945	0.927	0.908	0.890	0.872	0.837
		10	-	-	0.980	0.961	0.942	0.923	0.905	0.886	0.851
		7.5	-	0.988	0.984	0.965	0.946	0.927	0.908	0.890	0.854
		5	0.992	0.992	0.988	0.969	0.950	0.931	0.912	0.893	0.858
		0	1.000	1.000	0.996	0.977	0.958	0.939	0.920	0.901	0.865
	∗2 Indoor unit is lower than outdoor unit	-5	1.000	1.000	0.996	0.977	0.958	0.939	0.920	0.901	0.865
		-7.5	-	1.000	0.996	0.977	0.958	0.939	0.920	0.901	0.865
		-10	-	-	0.996	0.977	0.958	0.939	0.920	0.901	0.865
		-20	-	-	-	0.977	0.958	0.939	0.920	0.901	0.865
		-30	-	-	-	-	0.958	0.939	0.920	0.901	0.865

HEATING			Pipe length (m)								
			5	7.5	10	20	30	40	50	60	75
Height difference H (m)	∗1 Indoor unit is higher than outdoor unit.	30	-	-	-	-	0.978	0.968	0.958	0.948	0.935
		20	-	-	-	0.988	0.978	0.968	0.958	0.948	0.935
		10	-	-	0.998	0.988	0.978	0.968	0.958	0.948	0.935
		7.5	-	1.000	0.998	0.988	0.978	0.968	0.958	0.948	0.935
		5	1.000	1.000	0.998	0.988	0.978	0.968	0.958	0.948	0.935
		0	1.000	1.000	0.998	0.988	0.978	0.968	0.958	0.948	0.935
	∗2 Indoor unit is lower than outdoor unit	-5	0.995	0.995	0.993	0.983	0.973	0.963	0.953	0.943	0.930
		-7.5	-	0.993	0.990	0.980	0.970	0.960	0.950	0.940	0.928
		-10	-	-	0.988	0.978	0.968	0.958	0.948	0.938	0.926
		-20	-	-	-	0.968	0.958	0.948	0.938	0.929	0.916
		-30	-	-	-	-	0.948	0.939	0.929	0.919	0.907

■ MODEL: AO∗G45LB

NOTE: Values mentioned in the table are calculated based on the maximum capacity.

COOLING			Pipe length (m)								
			5	7.5	10	20	30	40	50	60	75
Height difference H (m)	∗1 Indoor unit is higher than outdoor unit.	30	-	-	-	-	0.879	0.847	0.814	0.782	0.743
		20	-	-	-	0.927	0.894	0.861	0.828	0.795	0.755
		10	-	-	0.975	0.942	0.909	0.875	0.842	0.808	0.768
		7.5	-	0.988	0.979	0.946	0.912	0.879	0.845	0.811	0.771
		5	0.992	0.992	0.983	0.950	0.916	0.882	0.848	0.815	0.774
		0	1.000	1.000	0.991	0.957	0.923	0.889	0.855	0.821	0.780
	∗2 Indoor unit is lower than outdoor unit	-5	1.000	1.000	0.991	0.957	0.923	0.889	0.855	0.821	0.780
		-7.5	-	1.000	0.991	0.957	0.923	0.889	0.855	0.821	0.780
		-10	-	-	0.991	0.957	0.923	0.889	0.855	0.821	0.780
		-20	-	-	-	0.957	0.923	0.889	0.855	0.821	0.780
		-30	-	-	-	-	0.923	0.889	0.855	0.821	0.780

HEATING			Pipe length (m)								
			5	7.5	10	20	30	40	50	60	75
Height difference H (m)	∗1 Indoor unit is higher than outdoor unit.	30	-	-	-	-	0.978	0.968	0.958	0.948	0.935
		20	-	-	-	0.988	0.978	0.968	0.958	0.948	0.935
		10	-	-	0.998	0.988	0.978	0.968	0.958	0.948	0.935
		7.5	-	1.000	0.998	0.988	0.978	0.968	0.958	0.948	0.935
		5	1.000	1.000	0.998	0.988	0.978	0.968	0.958	0.948	0.935
		0	1.000	1.000	0.998	0.988	0.978	0.968	0.958	0.948	0.935
	∗2 Indoor unit is lower than outdoor unit	-5	0.995	0.995	0.993	0.983	0.973	0.963	0.953	0.943	0.930
		-7.5	-	0.993	0.990	0.980	0.970	0.960	0.950	0.940	0.928
		-10	-	-	0.988	0.978	0.968	0.958	0.948	0.938	0.926
		-20	-	-	-	0.968	0.958	0.948	0.938	0.929	0.916
		-30	-	-	-	-	0.948	0.939	0.929	0.919	0.907

OUTDOOR UNIT

■ MODEL: AO∗G54LB

NOTE: Values mentioned in the table are calculated based on the maximum capacity.

COOLING			Pipe length (m)								
			5	7.5	10	20	30	40	50	60	75
Height difference H (m)	∗1 Indoor unit is higher than outdoor unit.	30	-	-	-	-	0.871	0.837	0.803	0.768	0.717
		20	-	-	-	0.921	0.886	0.851	0.816	0.781	0.729
		10	-	-	0.971	0.936	0.901	0.865	0.830	0.794	0.741
		7.5	-	0.988	0.975	0.940	0.904	0.869	0.833	0.798	0.744
		5	0.992	0.992	0.979	0.944	0.908	0.872	0.836	0.801	0.747
		0	1.000	1.000	0.987	0.951	0.915	0.879	0.843	0.807	0.753
	∗2 Indoor unit is lower than outdoor unit	-5	1.000	1.000	0.987	0.951	0.915	0.879	0.843	0.807	0.753
		-7.5	-	1.000	0.987	0.951	0.915	0.879	0.843	0.807	0.753
		-10	-	-	0.971	0.951	0.915	0.879	0.843	0.807	0.753
		-20	-	-	-	0.951	0.915	0.879	0.843	0.807	0.753
		-30	-	-	-	-	0.915	0.879	0.843	0.807	0.753

HEATING			Pipe length (m)								
			5	7.5	10	20	30	40	50	60	75
Height difference H (m)	∗1 Indoor unit is higher than outdoor unit.	30	-	-	-	-	0.978	0.968	0.958	0.948	0.935
		20	-	-	-	0.988	0.978	0.968	0.958	0.948	0.935
		10	-	-	0.998	0.988	0.978	0.968	0.958	0.948	0.935
		7.5	-	1.000	0.998	0.988	0.978	0.968	0.958	0.948	0.935
		5	1.000	1.000	0.998	0.988	0.978	0.968	0.958	0.948	0.935
		0	1.000	1.000	0.998	0.988	0.978	0.968	0.958	0.948	0.935
	∗2 Indoor unit is lower than outdoor unit	-5	0.995	0.995	0.993	0.983	0.973	0.963	0.953	0.943	0.930
		-7.5	-	0.993	0.990	0.980	0.970	0.960	0.950	0.940	0.928
		-10	-	-	0.988	0.978	0.968	0.958	0.948	0.938	0.926
		-20	-	-	-	0.968	0.958	0.948	0.938	0.929	0.916
		-30	-	-	-	-	0.948	0.939	0.929	0.919	0.907

OUTDOOR UNIT

6. AIRFLOW

■ MODELS : AO∗G36LB, AO∗G45LB, AO∗G54LB

● Cooling

MODEL	Airflow	
AO∗G36LB	m^3/h	6200
	l/s	1722
	CFM	3650
AO∗G45LB	m^3/h	6750
	l/s	1875
	CFM	3973
AO∗G54LB	m^3/h	6900
	l/s	1917
	CFM	4062

● Heating

MODEL	Airflow	
AO∗G36LB	m^3/h	6200
	l/s	1722
	CFM	3650
AO∗G45LB	m^3/h	6200
	l/s	1722
	CFM	3650
AO∗G54LB	m^3/h	6900
	l/s	1917
	CFM	4062

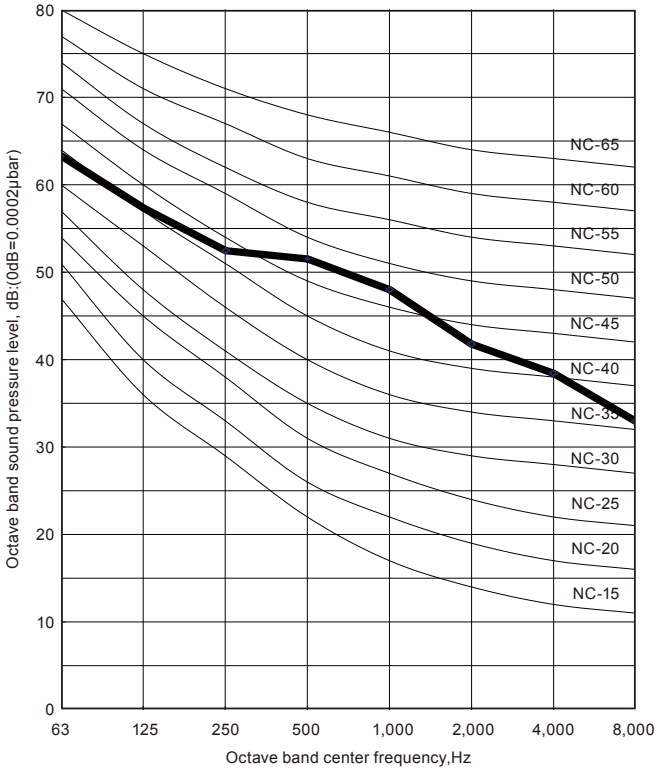
OUTDOOR UNIT

7. OPERATION NOISE

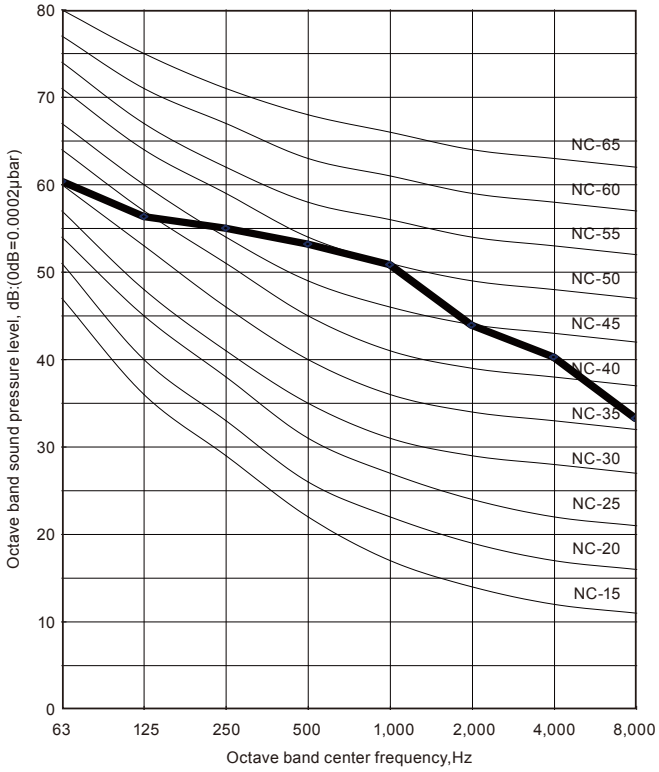
7-1. NOISE LEVEL CURVE

■ MODEL: AO∗G36LB

● Cooling

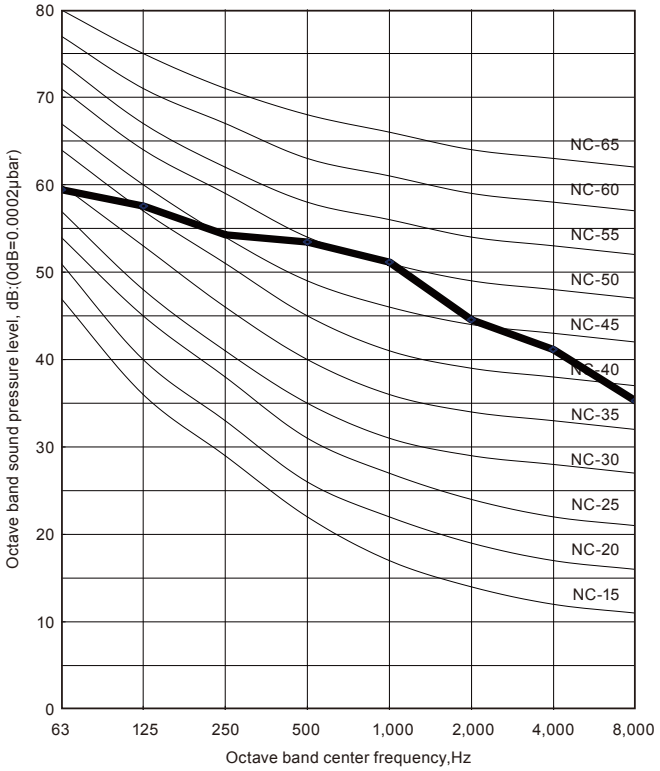


● Heating

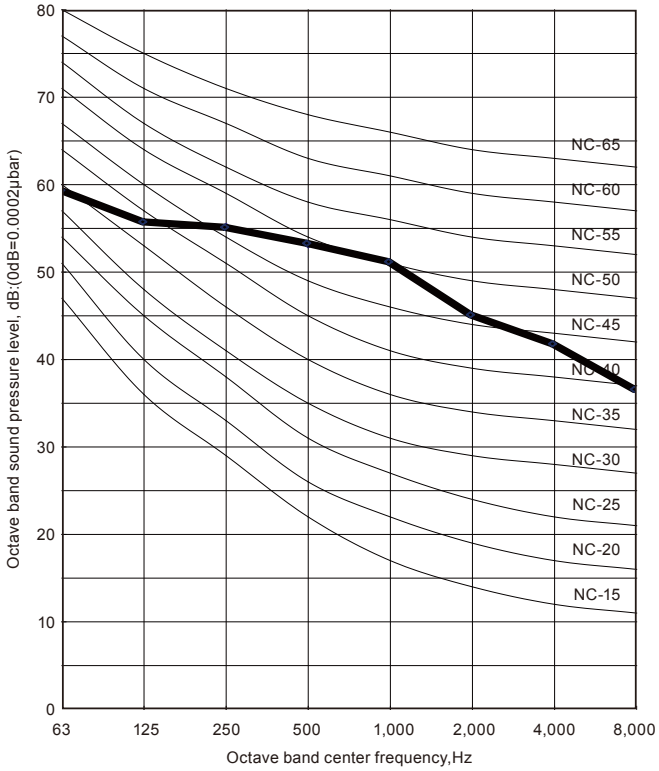


■ MODEL: AO∗G45LB

● Cooling



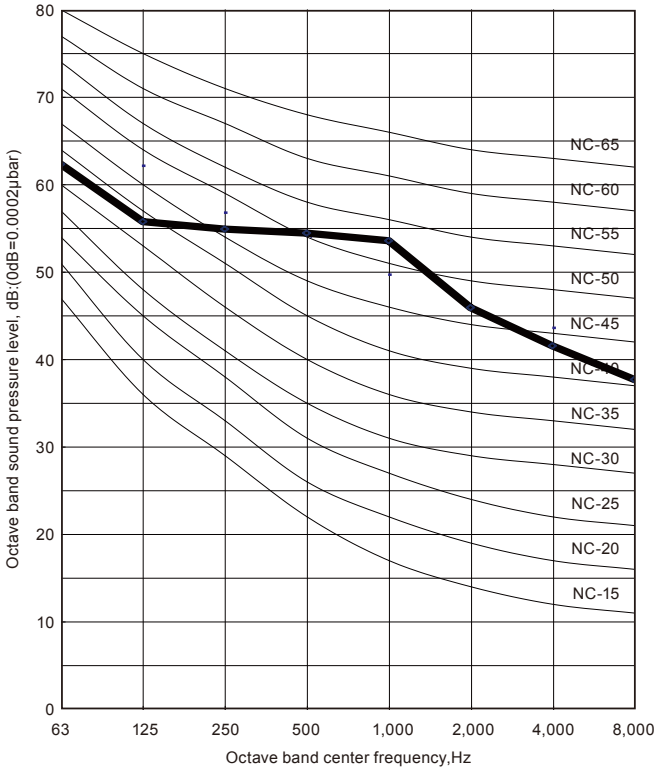
● Heating



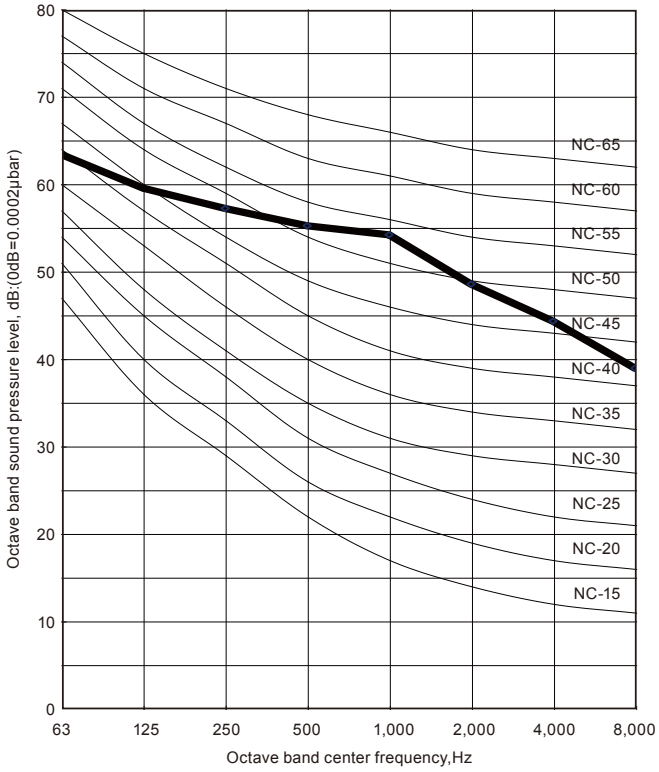
OUTDOOR UNIT

■ MODEL: AO∗G54LB

● Cooling

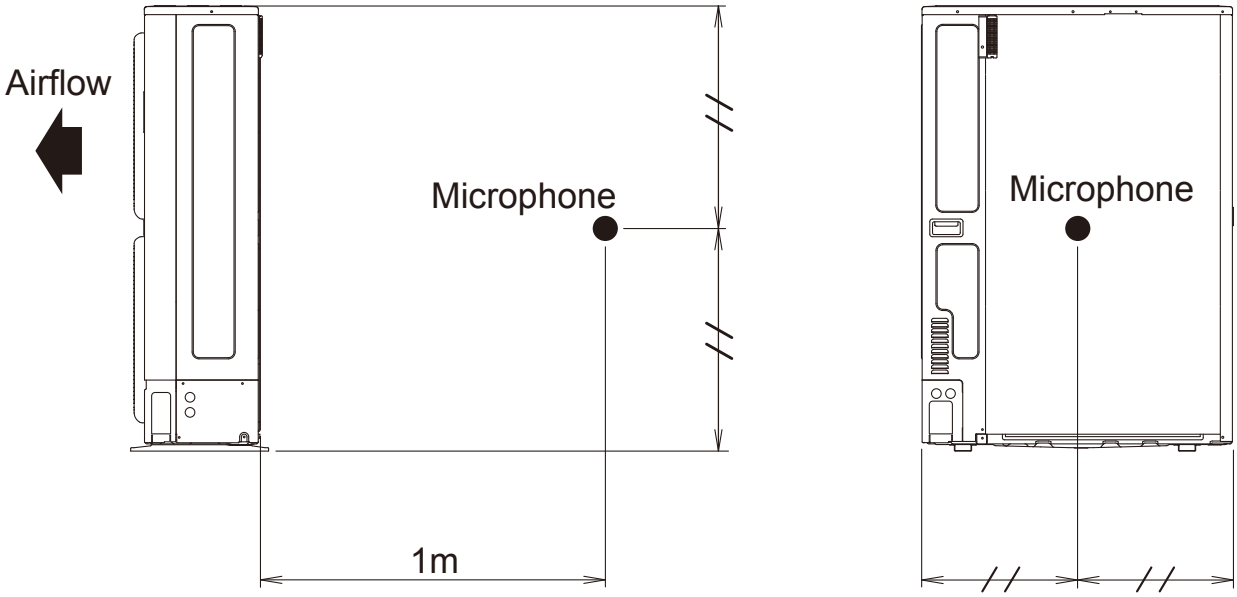


● Heating



OUTDOOR UNIT

7-2. SOUND LEVEL CHECK POINT



OUTDOOR UNIT

8. ELECTRIC CHARACTERISTICS

Model name					AO∗G36LB	AO∗G45LB	AO∗G54LB
Power supply	Voltage			V	230 ~		
	Frequency			Hz	50		
Max. operating current *1	SIMULTANEOUS OPERATION MULTI TYPE						
		TWIN	COMPACT CASSETTE TYPE	A	19.0	20.4	21.5
			SLIM DUCT TYPE	A	19.0	-	-
			DUCT TYPE	A	-	20.4	21.5
			FLOOR / CEILING TYPE	A	19.0	20.4	21.5
		TRIPLE	COMPACT CASSETTE TYPE	A	-	-	21.5
			SLIM DUCT TYPE	A	-	-	21.5
			FLOOR / CEILING TYPE	A	-	-	21.5
Starting current				A	13.6	17.6	20.1
Wiring spec. *2	Main fuse (Circuit breaker) Current			A	30		
	Power cable			mm^2	6.0		

*1: Maximum current is the total current of the indoor unit and the outdoor unit.

*2: Selected sample based on Japan Electrotechnical Standards and Codes Committee E0005.
As the regulations of wire size and circuit breaker differ in each country or region,
select appropriate devices complied to the regional standard.

OUTDOOR UNIT

9. SAFETY DEVICES

	Protection form			Model		
				AO∗G36LBTB	AO∗G45LBTB	AO∗G54LBTB
Circuit protection	Current fuse (Filter PCB))			250V 5A		
	Current fuse (Main PCB)			250V 3.15A		
	Current fuse (Near the terminal)			250V 10A		
Fan motor protection	Thermal protector		Activate	150 ± 15 °C Fan motor stop		
			Reset	120 ± 15 °C Fan motor restart		
Compressor protection	Thermal protection program (Compressor temp.)		Activate	110 °C Compressor stop		
			Reset	80 °C Compressor restart		
	Thermal protection program (Discharge temp.)		Activate	115 °C Compressor stop		
			Reset	After 7 minutes Compressor restart		
High pressure protection	Thermal protection program (Heat exchanger temp.)	Cooling	Activate	68 °C Compressor stop		
			Reset	63 °C Compressor restart		
	Pressure sensor	Heating	Activate	4.1 MPa Compressor stop		
			Reset	After 3 minutes Compressor restart		
Low pressure protection	Pressure sensor	Cooling	Activate	0.12 MPa or less(for 5 minutes) Compressor stop		
			Reset	After 7 minutes Compressor restart		

OUTDOOR UNIT

Refrigerant R410A
INVERTER

AIR CONDITIONER

1 phase type

Simultaneous multi system

4. SYSTEM DESIGN

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CONTENTS

4. SYSTEM DESIGN

CONTENTS

4. SYSTEM DESIGN

1. PIPE DESIGN

1-1. IMPORTANT ITEMS WHEN USING REFRIGERANT (R410A)

R410A operates at higher pressure and has less solubility with mineral oil than traditional R22 refrigerant. Therefore, the lubricant and a part of pipe material are different. Some special tools are necessary.

■ REFRIGERANT PIPING MATERIAL AND WALL THICKNESS

It is necessary to use seamless copper tubes for refrigerant use.
Thickness of tubes are shown in table below. The design pressure is 4.2 MPa.

Nominal Diameter	**(in)**	1/4"	3/8"	1/2"	5/8"	3/4"
Outside Diameter	**(mm)**	6.35	9.52	12.70	15.88	19.05
Material		JIS H3300 C1220T-O or equivalent *1				
Wall Thickness *2	**(mm)**	0.8	0.8	0.8	1.0	1.2

*1: Allowable tensile stress ≥ 33 (N/mm^2)

*2: Design pressure 4.2MPa

Please select the pipe size in accordance with local rules.

■ LUBRICANT

Refrigerant	R410A (Mixed refrigerant)
Lubricant	Synthetic oil

■ TOOLS

R410A work requires a number of special tools. Since the tools (with *3 symbol) for R22 work cannot be used for R410A, prepare them beforehand.

Tool name	Process and application	
Pipe cutter	Pipe cutting	Refrigerant piping work
Flaring tool *3	Pipe flaring work	
Torque wrench *3	Flare nut connection	
Expander	Expansion at pipe connection	
Pipe bender	Pipe bending work	
Nitrogen gas	Pipe interior oxidation prevention	Air tightness test
Welder	Pipe brazing	
Gauge manifold *3	Vacuum evacuation and refrigerant charging Operation check	Air tightness test ~ Refrigerant additional charging
Charging hose *3		
Vacuum pump (with adaptor) *3		Vacuum drying
Electronic scale for refrigerant charging		Refrigerant additional charging
Gas leak tester *3	Gas leakage test	

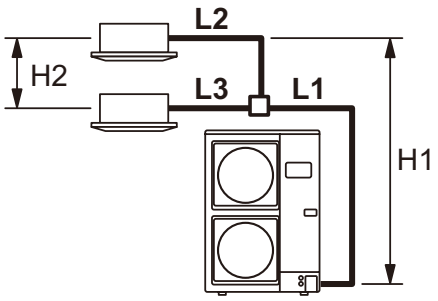
*3: Please refer to a service manual for details.

SYSTEM DESIGN

1-2. LIMITATION

■ IN THE CASE OF SIMULTANEOUS MULTI SYSTEM INSTALLATION

● Twin type

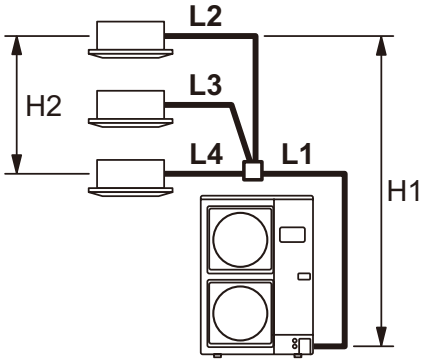


Note:
Be certain to install indoor units in the same room because the combinations are for simultaneous operation.
The lengths after branching should be equal if possible.

Model (Outdoor unit)	36 model	45 model	54 model
Model (Indoor unit)	18 model x 2	22 model x 2	24 model x2
Main pipe diameter (L1) <Liquid/Gas> (Standard) [mm (in.)]	9.52 (3/8) / 15.88 (5/8)		
Branch pipe diameter (L2, L3) <Liquid/Gas> [mm (in.)]	6.35 (1/4) / 12.70 (1/2)	9.52 (3/8) / 15.88 (5/8)	
Max. piping length (L1+L2+L3) [m]	75*1		
Min. piping length (L1+L2+L3) [m]	5		
Max. branch piping length (L2, L3) [m]	20		
Max. difference between branch lengths (L2 to L3) [m]	8		
Max. height difference (H1) <Indoor unit to outdoor unit> [m]	30		
Max. height difference (H2) <Indoor unit to indoor unit> [m]	0.5		

*1: For the standard pipe diameter.

● Triple type



Note:
Be certain to install indoor units in the same room because the combinations are for simultaneous operation.
The lengths after branching should be equal if possible.

Model (Outdoor unit)	54 model
Model (Indoor unit)	18 model x 3
Main pipe diameter (L1) <Liquid/Gas> (Standard) [mm (in.)]	9.52 (3/8) / 15.88 (5/8)
Branch pipe diameter (L2, L3, L4) <Liquid/Gas> [mm (in.)]	6.35 (1/4) / 12.70 (1/2)
Max. piping length (L1+L2+L3+L4) [m]	75*1
Min. piping length (L1+L2+L3+L4) [m]	5
Max. branch piping length (L2, L3, L4) [m]	20
Max. difference between branch lengths (L2 to L4) [m]	8
Max. height difference (H1) <Indoor unit to outdoor unit> [m]	30
Max. height difference (H2) <Indoor unit to indoor unit> [m]	0.5

*1: For the standard pipe diameter.

SYSTEM DESIGN

■ CAUTION

Keep the "piping limitation" for correct operation.

● Allowable height difference:

If the height difference between the indoor unit and outdoor unit is larger than the allowable value:

*The pressure loss will be larger → Insufficient cooling and heating
*The refrigerant in liquid pipe will flush → Refrigerant flow noise generate at indoor unit
*The refrigerant oil will not return → Insufficient refrigerant oil resulting in compressor damage

If the height difference between indoor unit is larger than the allowable value:

*The refrigerant flow balance will be poor → Insufficient cooling and heating (poor balance)
*Refrigerant oil will collect in the piping or non-operating indoor units
→ Insufficient refrigerant oil resulting in compressor damage

● Pipe length:

If the pipe length is longer than prescribed:

*The pressure loss will be larger → Insufficient cooling and heating
*Too much refrigerant will be charged → Liquid backs up resulting in compressor damage
*The refrigerant oil will not return → Insufficient refrigerant oil resulting in compressor damage

● Pipe size:

If the pipe size is larger than designated size:

*The refrigerant flow velocity will drop. Refrigerant oil will not return to the outdoor unit.
→ Insufficient refrigerant oil resulting in compressor damage
*The refrigerant in liquid pipe will flush easily → Insufficient cooling and heating

If the pipe size is smaller than designated size:

*The refrigerant circulation volume will drop → Insufficient cooling and heating
*The pressure loss will be larger → Insufficient cooling and heating

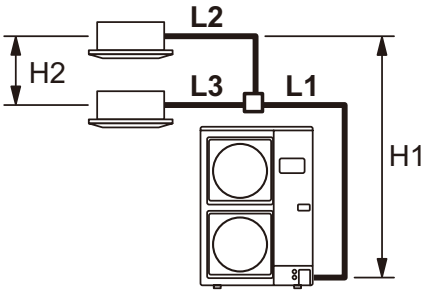
SYSTEM DESIGN

1-3. PIPE SIZE

■ PIPE SIZE SELECTION

● Simultaneous multi system installation:

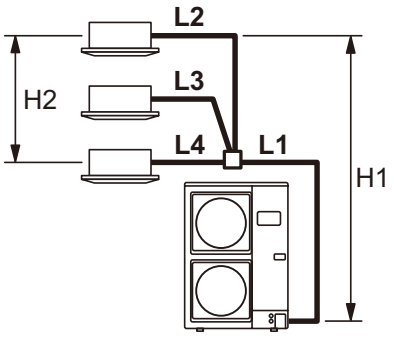
Twin type



Model		36 model
Main pipe diameter (L1) [mm (in.)]	Liquid pipes	9.52 (3/8)
	Gas pipes	15.88 (5/8)
Branch pipe diameter (L2, L3) [mm (in.)]	Liquid pipes	6.35 (1/4)
	Gas pipes	12.70 (1/2)
Piping length [m (m)]	Max. piping length <L1+L2+L3> (Pre-charge length)	75 [30]
Model		**45 model / 54 model**
Main pipe diameter (L1) [mm (in.)]	Liquid pipes	9.52 (3/8)
	Gas pipes	15.88 (5/8)
Branch pipe diameter (L2, L3) [mm (in.)]	Liquid pipes	9.52 (3/8)
	Gas pipes	15.88 (5/8)
Piping length [m (m)]	Max. piping length <L1+L2+L3> (Pre-charge length)	75 [30]

SYSTEM DESIGN

Triple type



Model		54 model
Main pipe diameter (L1) [mm (in.)]	Liquid pipes	9.52 (3/8)
	Gas pipes	15.88 (5/8)
Branch pipe diameter (L2, L3, L4) [mm (in.)]	Liquid pipes	6.35 (1/4)
	Gas pipes	12.70 (1/2)
Piping length [m (m)]	Max. piping length <L1+L2+L3+L4> *1 (Pre-charge length)	75 [30]

*1: For the standard pipe diameter.

■ BRANCH PIPES (OPTIONAL PARTS)

Model (Outdoor unit connection)	Type	Number of indoor units	Kit name
36 model	Twin connection	2	UTP-SX236□
45 model 54 model		2	UTP-SX254□
54 model	Triple connection	3	UTP-SX354□

SYSTEM DESIGN

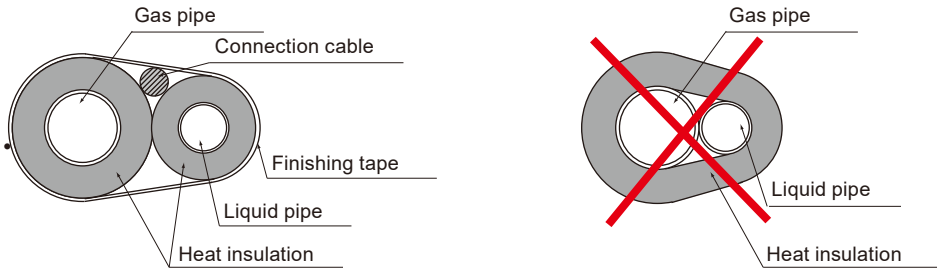
1-4. SELECTION OF PIPE HEAT INSULATING MATERIAL

- Always insulate the refrigerant pipe to prevent condensation and water droplets by the refrigerant pipe.
- Decide the thickness of the heat insulating material by referring to the recommended minimum thickness in Table 1. (For installation condition T=32°C(DB),humidity≤70%, humidity≤75%, humidity≤80%, humidity≤85%)
- When the outdoor unit is installed in a higher position than the indoor unit, fill the connecting part gap with putty, etc. to prevent the dew condensation water of the valve of the outdoor unit from flowing to the indoors from the gap between the pipe and the heat insulating material.
- Liquid pipe and gas pipe should be completely insulated with same specification.
- In case not to insulate and not to seal refrigerant pipe completely, it will become the cause of water leak.

Table1 Size of refrigerant pipe and recommended minimum thickness of heat insulating material
(In case a heat insulating material which thermal conductivity is equal to or less than 0.040 W/(m·k) is used.)

		Recommended minimum thickness for heat insulating material (mm)			
Relative humidity		≤70%	≤75%	≤80%	≤85%
Refrigerant pipe Outside diameter mm (in.)	6.35 (1/4")	8	10	13	17
	9.52 (3/8")	9	11	14	18
	12.70 (1/2")	10	12	15	19
	15.88 (5/8")	10	12	16	20
	19.05 (3/4")	10	13	16	21

- When an ambient temperature and relative humidity exceed 32°C (DB)and 85% respectively, please strengthen heat insulation of refrigerant pipe. If necessary put a heat insulation on indoor unit casing. When not strengthening heat insulation of refrigerant pipe, the surface of the heat insulation may be dewed.
- Since gas pipe becomes high temperature at heating operation for heatpump type, please select the heat insulating material which heat-resistant temperature is 120°C or more.



- Make sure that pipe is covered completely by the heat insulation,not expoding to air. Inadequate heat insulation may cause condensation.
- Do not cover heat insulation gas and liquid pipes together as above figure. It may cause condensation and capacity drop by heat loss.

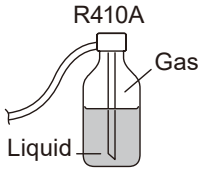
SYSTEM DESIGN

1-5. ADDITIONAL CHARGE CALCULATION

■ CAUTION

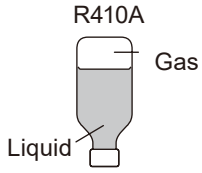
- After vacuuming the system, add refrigerant.
- When moving and installing the air conditioner, do not mix gas other than the specified refrigerant R410A inside the refrigerant cycle.
- Do not reuse recovered refrigerant.
- When charging the refrigerant R410A, always use an electronic scales for refrigerant charging (to measure the refrigerant by weight). Adding more refrigerant than the specified amount will cause a malfunction.
- When charging the refrigerant, take into account the slight change in the composition of the gas and liquid phases, and always charge from the liquid phase side whose composition is stable. Adding refrigerant through the gas pipe will cause a malfunction.
- Check if the steel cylinder has a siphon installed or not before filling. (There is an indication “with siphon for filling liquid” on the steel cylinder.)

FILLING METHOD FOR CYLINDER WITH SIPHON



Set the cylinder vertical and fill with the liquid.
(Liquid can be filled without turning bottom up with the siphon inside.)

FILLING METHOD FOR OTHER CYLINDERS



Turn bottom up and fill with liquid.
(Be careful to avoid turning over the cylinder.)

SYSTEM DESIGN

- Be sure to use the special tools for R410A for pressure resistance and to avoid mixing of impure substances.
- If the units are further apart than the maximum pipe length, correct operation can not be guaranteed.
- Make sure to back closing valve after refrigerant charging. Otherwise, the compressor may fail.
- Minimize refrigerant release to the air. Excessive release is prohibited under the Freon Collection and Destruction Law.

■ FOR PRE-CHARGE LENGTH

Refrigerant pipe size	Piping length (L) *Pre-charge [m]
Standard	30

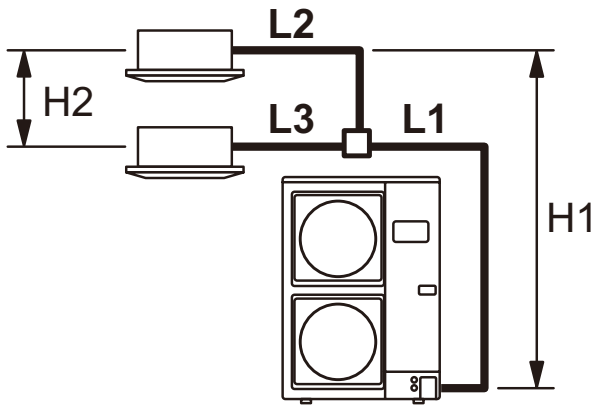
■ IF ADDITIONAL REFRIGERANT IS REQUIRED

- When the piping is longer than pre-charge length, additional charging is necessary.
- For the additional amount, see the table below.

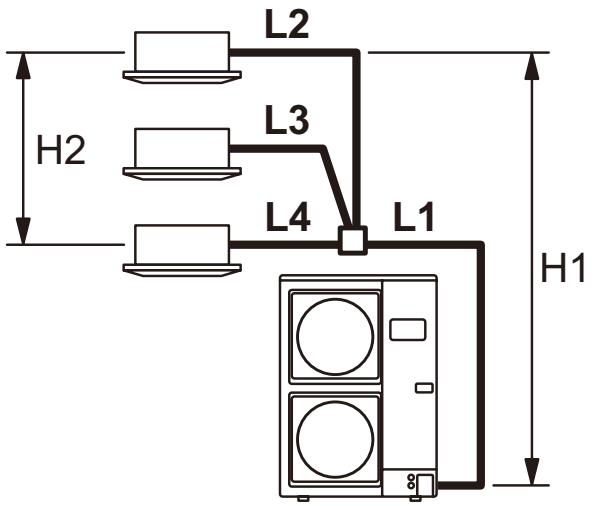
Additional charging amount

● Simultaneous multi system

Twin type



Triple type



Twin type: L1+L2+L3 > Pre-charge length
Triple type: L1+L2+L3+L4 > Pre-charge length

The additional charging amount for twin / triple type will be calculated as follows.

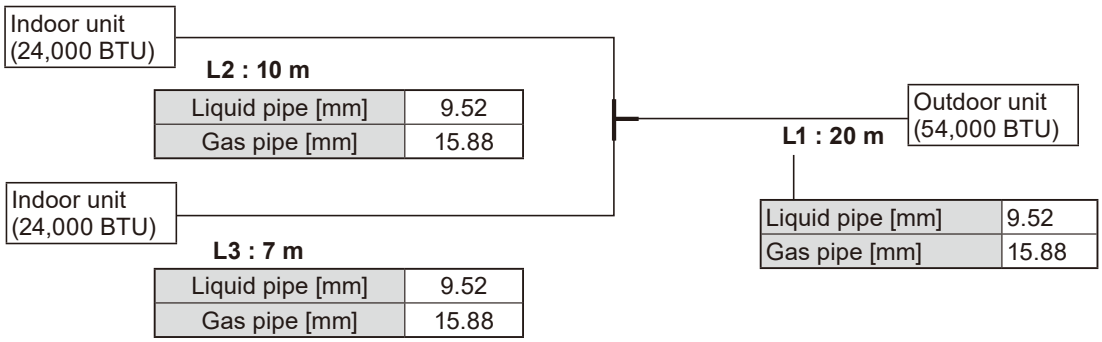
Additional charging amount (g)
= (A x 50) + (B x 30) - 1,500

- A = Piping length (m) of liquid pipe [9.52 mm (3/8 in.)]
- B = Piping length (m) of liquid pipe [6.35 mm (1/4 in.)]

- Do not remove refrigerant, even if the additional amount calculated is negative.

SYSTEM DESIGN

(Example 1)

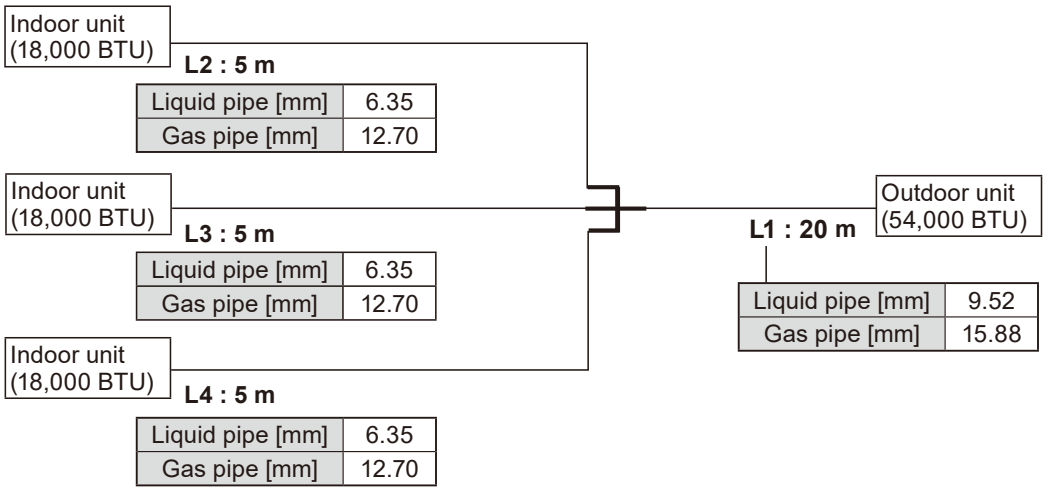


- Additional charging amount

Liquid pipe diameter [mm]	Piping length [m]	Coefficient
9.52	37	A = 37
6.35	0	B = 0

Applying the formula,
(37 x 50) + (0 x 30) - 1500 = 350
The additional charging amount is 350 g.

(Example 2)



- Additional charging amount

Liquid pipe diameter [mm]	Piping length [m]	Coefficient
9.52	20	A = 20
6.35	15	B = 15

Applying to the formula,
(20 x 50) + (15 x 30) - 1500 = –50
The calculated value is negative. Do not add or remove any refrigerant.

SYSTEM DESIGN

2. PIPING CONNECTION

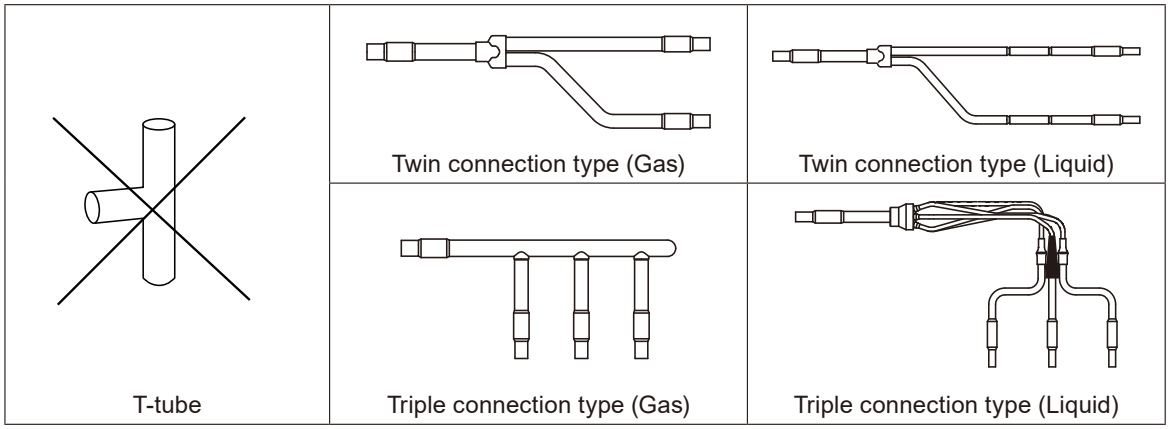
2-1. CAUTION OF PIPING

■ CAUTION

Keep the permissible length of every piping limitation to prevent a defect or cooling/heating failure.

● Piping material

- Use the designated size (Diameter & thickness) of refrigerant pipes.
- Those pipes purchased locally may contain dust inside. Please blow out the dust by dried inert gas when using.
- To process the branch, do not use T-shaped pipe, which causes a uneven refrigerant flow. Use the optionally available standard branch kit.



- When replacing the unit, never use piping which has been used for previous installations. Only use the new piping.

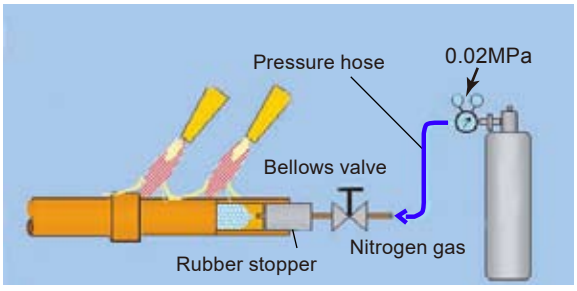
● Piping process strage

- Be careful to avoid the dust or water falling into the pipe when performing piping process and piping installation.
- When processing the pipe, make the number of bending portion as few as possible, and the bending radius as large as possible.
- If the diameter of the required pipe is different from the branch unit, either cut it out or use the reducer.

SYSTEM DESIGN

● Brazing

- While Brazing the pipes, be sure to blow dry nitrogen gas through them.
- If nitrogen gas is not blown through the pipes while they are being brazed, an oxidized layer may form on the inside of the pipes. If this occurs, the cooling efficiency may decrease and the air conditioner unit (compressor, valves, etc.) cause malfunction.



- When brazing the pipes, do not use flux. If the flux is chlorine-based, the pipes will corrode and when the flux contains fluorine, the refrigerant oil will deteriorate, etc. Using the flux has an adverse affect on the refrigerant piping system.
- For brazing materials, use phosphor copper solder that does not require flux.

● Piping treatment

- The pipes vibrate, expand, and contract during operation, so if loads are concentrated in one area, it could cause cracks in the pipes. Provide the pipe supports every 2 to 3m.
- Make sure to insulate the refrigeration pipes separately with ample thickness of heat-resistant polyethylene form etc. For the connecting portion, apply the enough insulation to avoid any gap.

■ EXAMPLE

● Brazing

While brazing the pipe, be sure to blow dry nitrogen gas through the pipes.

If not used, it will be caused to damage for compressor and clog the strainer and electronic expansion valve.

Example) Inside state of brazing pipe section

Nitrogen gas used	Nitrogen gas used but not sufficient (Oxygen gas still inside the pipe)	Nitrogen gas does not used
		

SYSTEM DESIGN

2-2. PIPING TO OUTDOOR UNIT

■ PIPING METHOD

● Knock out

⚠ CAUTION
• Be careful not to deform or scratch the panel while opening the knock out holes.
• To protect the piping insulation after opening a knock out hole, remove any burrs from the edge of the hole. It is recommended to apply rust prevention paint to the edge of the hole.

- Pipes can be connected from 4 directions, front, lateral side, rear side and bottom. (Fig. A)
- When connecting at the bottom, remove the service panel and piping cover on the front of the outdoor unit, and open the knock out hole provided at the bottom corner of the piping outlet.
- It can be installed as shown on “Fig. B” cutting out the 2 slits as indicated on “Fig. C”. (When cutting slits, use a steel saw.)

Fig. A

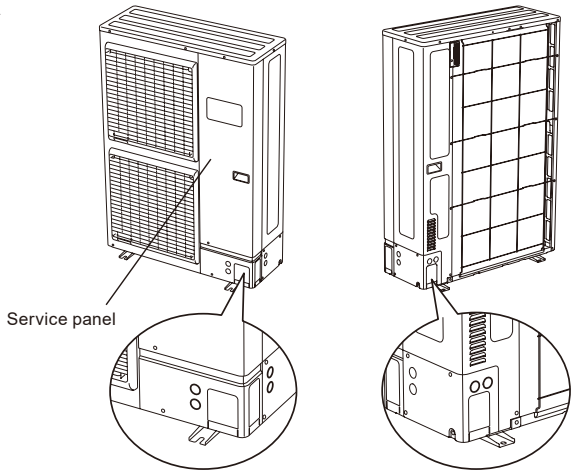


Fig. B

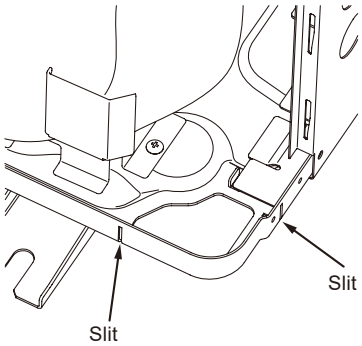
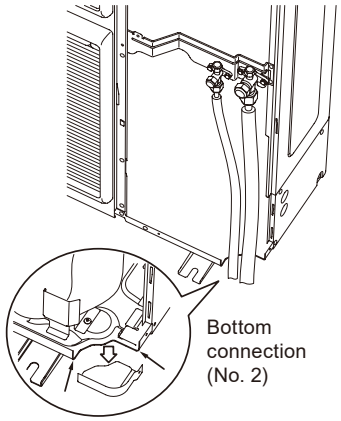


Fig. C



SYSTEM DESIGN

2-3. FLARE CONNECTION

⚠ CAUTION
• Do not use mineral oil on a flared part. Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.
• While welding the pipes, be sure to blow dry nitrogen gas through them.
• The maximum lengths of this product are shown in the table. If the units are further apart than this, correct operation cannot be guaranteed.

■ FLARING

• Use special pipe cutter and flare tool exclusive for R410A.

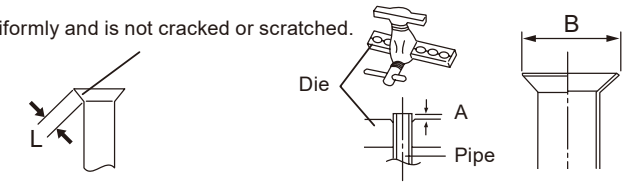
(1) Cut the connection pipe to the necessary length with a pipe cutter.

(2) Hold the pipe downward so that the cuttings will not enter the pipe and remove any burrs.

(3) Insert the flare nut (always use the flare nut attached to the indoor and outdoor units respectively) onto the pipe and perform the flare processing with a flare tool.
Leakage of refrigerant may result if other flare nuts are used.

(4) Protect the pipes by pinching them or with tape to prevent dust, dirt, or water from entering the pipes.

Check if [L] is flared uniformly and is not cracked or scratched.

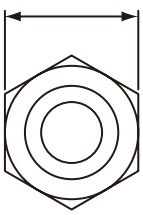


Pipe outside diameter [mm (in.)]	Dimension A [mm]
	Flare tool for R410A, clutch type
6.35 (1/4)	0 to 0.5
9.52 (3/8)	
12.70 (1/2)	
15.88 (5/8)	
19.05 (3/4)	

Pipe outside diameter [mm (in.)]	Dimension B $^{0}_{-0.4}$ [mm]
6.35 (1/4)	9.1
9.52 (3/8)	13.2
12.70 (1/2)	16.6
15.88 (5/8)	19.7
19.05 (3/4)	24.0

• When using conventional flare tools to flare R410A pipes, the dimension A should be approximately 0.5 mm more than indicated in the table (for flaring with R410A flare tools) to achieve the specified flaring. Use a thickness gauge to measure the dimension A.

Width across flats



Pipe outside diameter [mm (in.)]	Width across flats of Flare nut [mm]
6.35 (1/4)	17
9.52 (3/8)	22
12.70 (1/2)	26
15.88 (5/8)	29
19.05 (3/4)	36

SYSTEM DESIGN

■ BENDING PIPES

⚠ CAUTION
• To prevent breaking of the pipe, avoid sharp bends. Bend the pipe with a radius of curvature of 100 mm to 150 mm.
• If the pipe is bent repeatedly at the same place, it will break.

- If pipes are shaped by hand, be careful not to collapse them.
- Do not bend the pipes at an angle of more than 90°.
- When pipes are repeatedly bent or stretched, the material will harden, making it difficult to bend or stretch them any more.
- Do not bend or stretch the pipes more than three times.

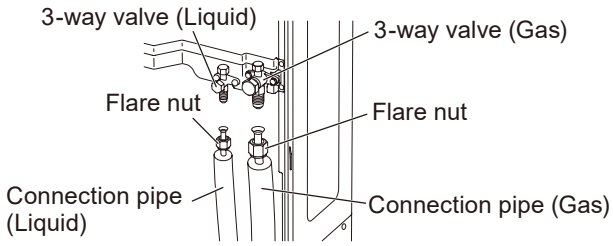
■ PIPE CONNECTION

⚠ CAUTION
• Be sure to install the pipe against the port on the indoor unit and the outdoor unit correctly. If the centering is improper, the flare nut cannot be tightened smoothly. If the flare nut is forced to turn, the threads will be damaged.
• Do not remove the flare nut from the outdoor unit pipe until immediately before connecting the connection pipe.
• After installing the piping, make sure that the connection pipes do not touch the compressor or outer panel. If the pipes touch the compressor or outer panel, they will vibrate and produce noise.

(1) Detach the caps and plugs from the pipes.

(2) Center the pipe against the port on the outdoor unit, and then turn the flare nut by hand.

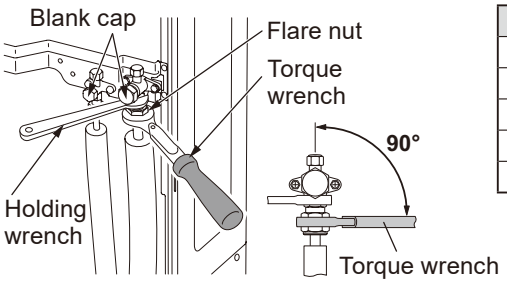
(3) Tighten the flare nut of the connection pipe at the outdoor unit valve connector.



(4) After tightening the flare nut by hand, use a torque wrench to fully tighten it.

⚠ CAUTION
• Hold the torque wrench at its grip, keeping it in a right angle with the pipe, in order to tighten the flare nut correctly.

- Outer panel may be distorted if fastened only with a wrench. Be sure to fix the elementary part with a spanner and fasten with a wrench (refer to below diagram).
- Do not apply force to the blank cap of the valve or hang a wrench, etc., on the cap. It may cause leakage of refrigerant.



Flare nut [mm (in.)]	Tightening torque [N·m (kgf·cm)]
6.35 (1/4) dia.	16 to 18 (160 to 180)
9.52 (3/8) dia.	32 to 42 (320 to 420)
12.70 (1/2) dia.	49 to 61 (490 to 610)
15.88 (5/8) dia.	63 to 75 (630 to 750)
19.05 (3/4) dia.	90 to 110 (900 to 1100)

SYSTEM DESIGN

■ HANDING PRECAUTIONS FOR THE VALVES

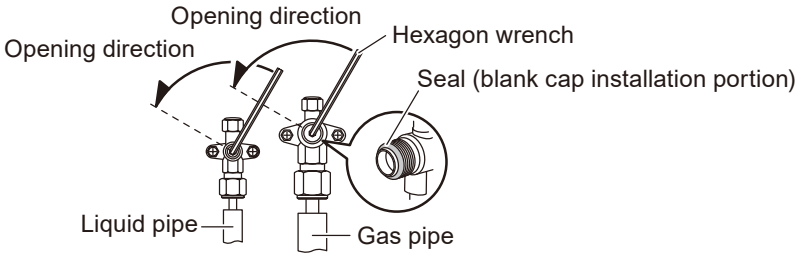
- Mounted part of Blank cap is sealed for protection.
- Fasten blank cap tightly after opening valves.

Table A

Blank cap [mm (in.)]	Tightening torque [N·m (kgf·cm)]
6.35 (1/4)	20 to 25 (200 to 250)
9.52 (3/8)	20 to 25 (200 to 250)
12.70 (1/2	25 to 30 (250 to 300)
15.88 (5/8)	30 to 35 (300 to 350)
19.05 (3/4)	35 to 40 (350 to 400)

Operating the valves

- Use a hexagon wrench (size 4 mm).
- Opening (1) Insert the hexagon wrench into the valve shaft, and turn it counterclockwise.
  (2) Stop turning when the valve shaft can no longer be turned. (Open position)
- Closing (1) Insert the hexagon wrench into the valve shaft, and turn it clockwise.
  (2) Stop turning when the valve shaft can no longer be turned. (Closed position)



SYSTEM DESIGN

2-4. BRANCH PIPES

■ SELECTION PROCEDURE

Type	Kit name	Number of kits	Model (Outdoor unit connection)	Piping diameter kit to outdoor unit (Standard) *1	Piping diameter kit to indoor unit	Number of indoor units
Twin connection	UTP-SX236□	1	36 model	Ø 9.52 (Liquid) Ø 15.88 (Gas)	Ø 6.35 (Liquid) Ø 12.70 (Gas)	2
	UTP-SX254□	1	45 model 54 model	Ø 9.52 (Liquid) Ø 15.88 (Gas)	Ø 9.52 (Liquid) *2 Ø 15.88 (Gas)	2
Triple connection	UTP-SX354□	1	54 model	Ø 9.52 (Liquid) Ø 15.88 (Gas)	Ø 6.35 (Liquid) Ø 12.70 (Gas)	3

*1: For the diameter of the connection piping between the outdoor unit and the branch pipes, please refer to the Installation Manual of the outdoor unit.

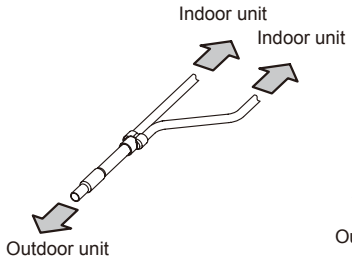
*2: When installing UTP-SX254□, it is necessary to install the adapter on the half union at the liquid pipe of the indoor unit.

■ INSTALLATION WORK

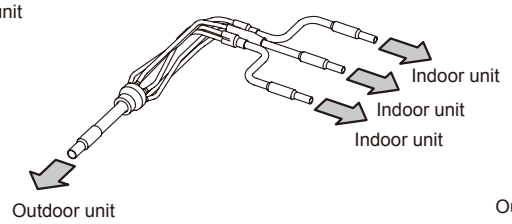
⚠ CAUTION
• Do not mistake the direction of connection.
• Set the piping from the branch pipe to the indoor units to be of the same length. (Max. difference: 8m)
• Shorten the length of the piping after branching as much as possible. (Max. length: 20m)

(1) Check the direction of connection.

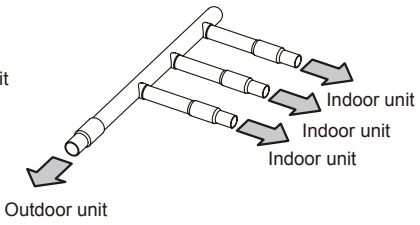
Twin connection type



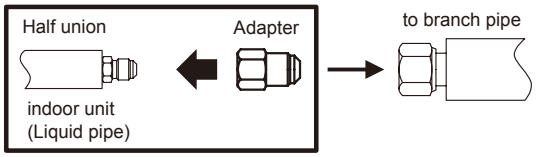
Triple connection type (Liquid)



Triple connection type (Gas)



(2) When installing UTP-SX254□, install the adapter on the half union at the liquid pipe of the indoor unit.



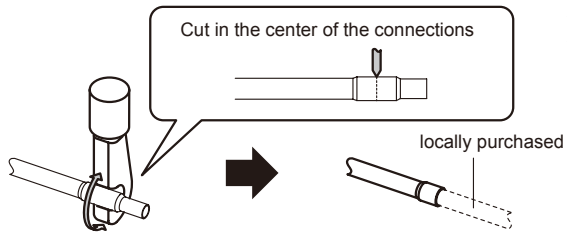
Adapter tightening torque

Adapter type	Tightening torque [N•m] (kgf•cm)
Ø6.35 → Ø9.52	14 to 18 (140 to 180)

- When using the Adapter, be careful not to overtighten the nut, or the smaller pipe may be damaged.
- Use appropriate wrenches to avoid damaging the connection thread by overtightening the flare nut.
- Apply wrenches on both of flare nut (local part), and Adapter to tighten them.

SYSTEM DESIGN

(3) If the diameter of the connection piping is too large, use a pipe cutter to cut as shown below.

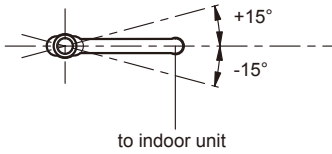


- Always use a pipe cutter.
- After cutting, remove the burr and clean the cut section.

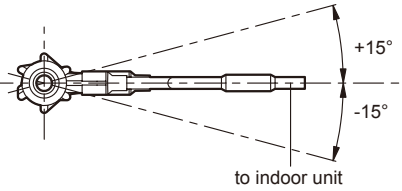
(4) Positioning of branch pipes

- If it is placed horizontally, keep it within ± 15°.
  Otherwise, it will not separate the refrigerant evenly, causing a reduction in performance.

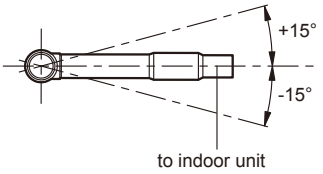
Twin connection type



Triple connection type (Liquid)

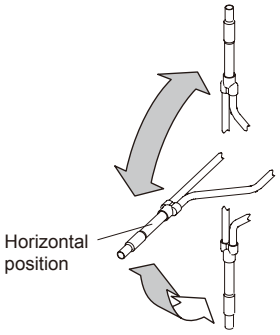


Triple connection type (Gas)

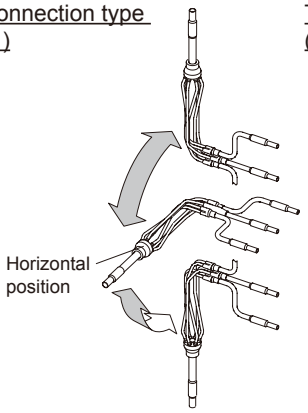


- Place the branch pipe in a horizontal position as far as possible. Only place the branch pipe as shown below during unavoidable circumstances.

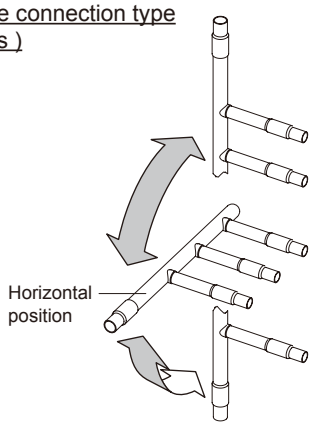
Twin connection type



Triple connection type (Liquid)

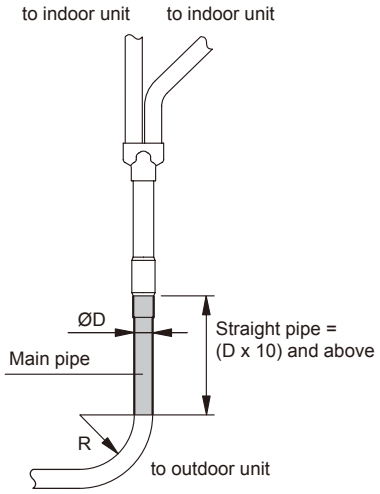


Triple connection type (Gas)

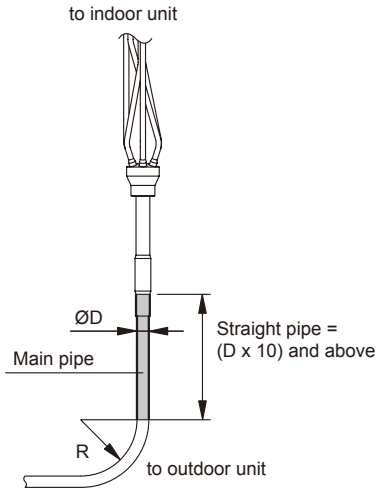


- When connecting the main piping, do not bend it near the connection section.
  If the main pipe must be bent due to unavoidable circumstances, ensure that the linear section is 10 times or more than the diameter of the connection piping.

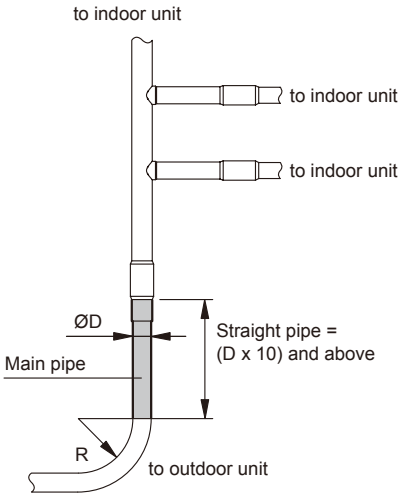
Twin connection type



Triple connection type (Liquid)



Triple connection type (Gas)



SYSTEM DESIGN

(5) Welding the piping

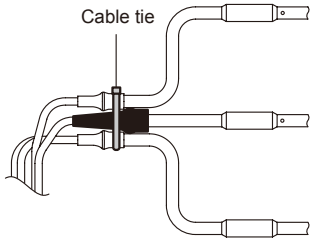
• Check that the connection piping is securely inserted into the branch pipe before welding.

⚠ CAUTION
• During piping work, apply nitrogen gas while brazing the pipes. If pipes are brazed without applying nitrogen gas, it will create a large amount of oxidation film, which will cause a critical malfunction.
• To prevent moisture or foreign matter from entering during work, do not leave the piping open.
• Refer to the Installation Manual supplied with the outdoor unit for sealing test evacuation procedures.

• Do not weld the rubber on the branch pipe. (UTP-SX354□ only)

(6) Installing Cable tie (UTP-SX354□ only)

• Install the Cable tie as shown below.

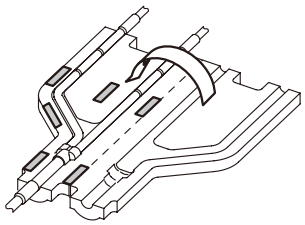


• The installation position of the Cable tie is shown on the left.
• After installing the Cable tie, cut away the excess portion neatly.

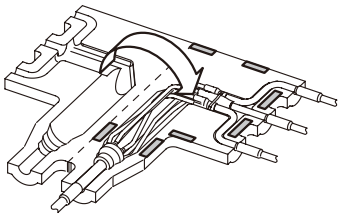
(7) After brazing the pipes, use the supplied heat insulation to insulate them.

• Remove the protective sheet from the double-stick tape that is affixed to the heat insulation.

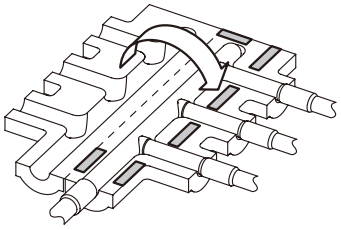
Twin connection type



Triple connection type (Liquid)

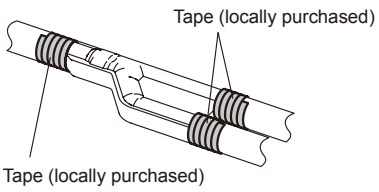


Triple connection type (Gas)

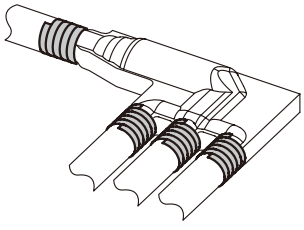


• Use tape (locally purchased) to seal the seam so that there will be no gap at the junction between the aforementioned heat insulation and the heat insulation on the local piping.

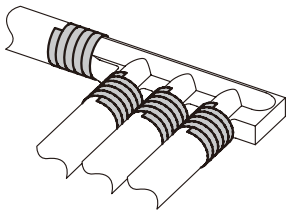
Twin connection type



Triple connection type (Liquid)

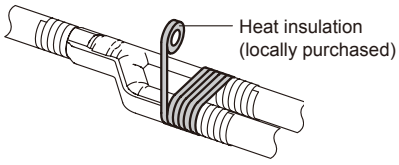


Triple connection type (Gas)

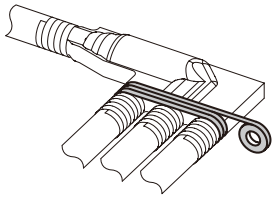


⚠ CAUTION
• Be sure to install the heat insulation on liquid pipes and gas pipes. Unless they are thermally insulated, water condensation can cause accidents or reduction in performance.
• After installing the heat insulation, if you worry about possible condensation due to the high humidity of installation position, please use locally purchased heat insulation to reinforce insulation.

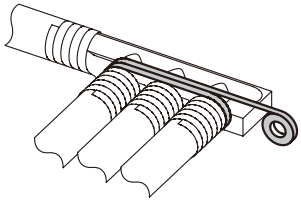
Twin connection type



Triple connection type (Liquid)



Triple connection type (Gas)



SYSTEM DESIGN

3. WIRING DESIGN

3-1. ELECTRICAL WIRING

■ PRECAUTION FOR ELECTRICAL WIRING

Regulation on wire diameter and selecting circuit braker size differ from locality.

Install in accordance with local rules and regulations.

⚠ WARNING
• Wiring connections must be performed by a qualified person in accordance with the specifications. The voltage rating for this product is 230 V at 50 Hz. It should be operated within the range of 198 to 264 V.
• Before connecting the wires, make sure the power supply is OFF.
• Never touch electrical components immediately after the power supply has been turned off. Electrical shock may occur. After turning off the power, always wait 10 minutes or more before touching electrical components.
• Use a dedicated power supply circuit. Insufficient power capacity in the electrical circuit or improper wiring may cause electric shock or fire.
• Install a breaker at the power supply for each outdoor unit. Improper breaker selection can cause electric shock or fire.
• Install a leakage circuit breaker in accordance with the related laws and regulations. An improperly installed electrical box cover can cause serious accidents such as electric shock or fire through exposure to dust or water.
• A circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3 mm between the contacts of each pole.
• Use designated cables and power cables. Improper use may cause electric shock or fire by poor connection, insufficient insulation, or over current.
• Do not modify power cable, use extension cable or branch wiring. Improper use may cause electric shock or fire by poor connection, insufficient insulation or over current.
• Connect the connector cable securely to the terminal. Check no mechanical force bears on the cables connected to the terminals. Faulty installation can cause a fire.
• Use crimp-type terminals and tighten the terminal screws to the specified torques, otherwise, abnormal overheating may be produced and possibly cause serious damage inside the unit.
• Make sure to secure the insulation portion of the connector cable with the cable clamp. Damaged insulation can cause a short circuit.
• Fix cables so that cables do not make contact with the pipes (especially on high pressure side). Do not make power supply cable and transmission cable come in contact with valves (Gas).
• Never install a power factor improvement condenser. Instead of improving the power factor, the condenser may overheat.
• Be sure to perform the grounding work. Do not connect grounding wires to a gas pipe, water pipe, lightning rod or grounding wire for a telephone. •Connection to a gas pipe may cause a fire or explosion if gas leaks. •Connection to a water pipe is not an effective grounding method if PVC pipe is used. •Connection to the grounding wire of a telephone or to a lightning rod may cause a dangerously abnormal rise in the electrical potential if lightning strikes. •Improper grounding work can cause electric shocks.
• Securely install the electrical box cover on the unit. An improperly installed service panel can cause serious accidents such as electric shock or fire through exposure to dust or water.

SYSTEM DESIGN

⚠ CAUTION
• The primary power supply capacity is for the air conditioner itself, and does not include the concurrent use of other devices.
• Do not start operation until the refrigerant is charged completely. The compressor will fail if it is operated before the refrigerant piping charging is complete.
• Transmission cable between indoor unit and outdoor unit is 230 V.
• Be sure not to remove thermistor sensor etc. from power wiring and connection wiring. Compressor may fail if operated while removed.
• Start wiring work after closing branch switch and over current breaker.
• Use an earth leakage breaker that is capable of handling high frequencies. Because the outdoor unit is inverter controlled, a high-frequency earth leakage breaker is necessary to prevent a malfunction of the breaker itself.
• When using an earth leakage breaker that has been designed solely for ground fault protection, be sure to install a fuse-equipped switch or circuit breaker.
• Do not connect the AC power supply to the transmission line terminal board. Improper wiring can damage the entire system.
• Do not use crossover power supply wiring for the outdoor unit.
• If the temperature surrounding the breaker is too high, the amperage at which the breaker cuts out may decrease.

SYSTEM DESIGN

3-2. POWER SUPPLY CABLE WIRING

■ POWER SUPPLY CABLE SPECIFICATIONS

Use a separate power supply for the outdoor unit and indoor unit.

OUTDOOR UNIT

● Breaker and wiring specifications

Breaker capacity (A)	Power supply cable
	Conductor size (mm²)
30	6.0 (Min.)

- Use confirmed cable with type 245 IEC 57.
- Perform all electrical work according to the standard.
- Install a circuit breaker with a contact gap of at least 3 mm in all poles nearby the units. (Both indoor units and outdoor units)
- Install the circuit breaker nearby the units.
- Wiring size must comply with the applicable local and national code.

INDOOR UNITS

● Simultaneous multi system

Electrical requirement

	Power supply cable Transmission cable	Earth cable
Conductor size (mm²)	1.5(Min.)	1.5

	Conductor size (mm²)	Max length (m)
Bus wire	0.33(Min.)	500*

*: This length shall be the total extended length in the system of the group. (Total length of bus wire and remote controller cable.)

- Use conformed cable with Type 245 IEC57. (Power supply cable or transmission cable)
- Perform all electrical work according to the standard.
- Install circuit breakers, which have the terminal spacing of more than 3 mm, in a place of near the indoor unit and outdoor unit.
- Wiring size must comply with the applicable local and national code.

WIRED REMOTE CONTROLLER

Electrical requirement

	Conductor cable (mm²)	Max length (m)	Wire type
Remote controller cable	0.33	500*	Use sheathed PVC cable, Polar 3 core

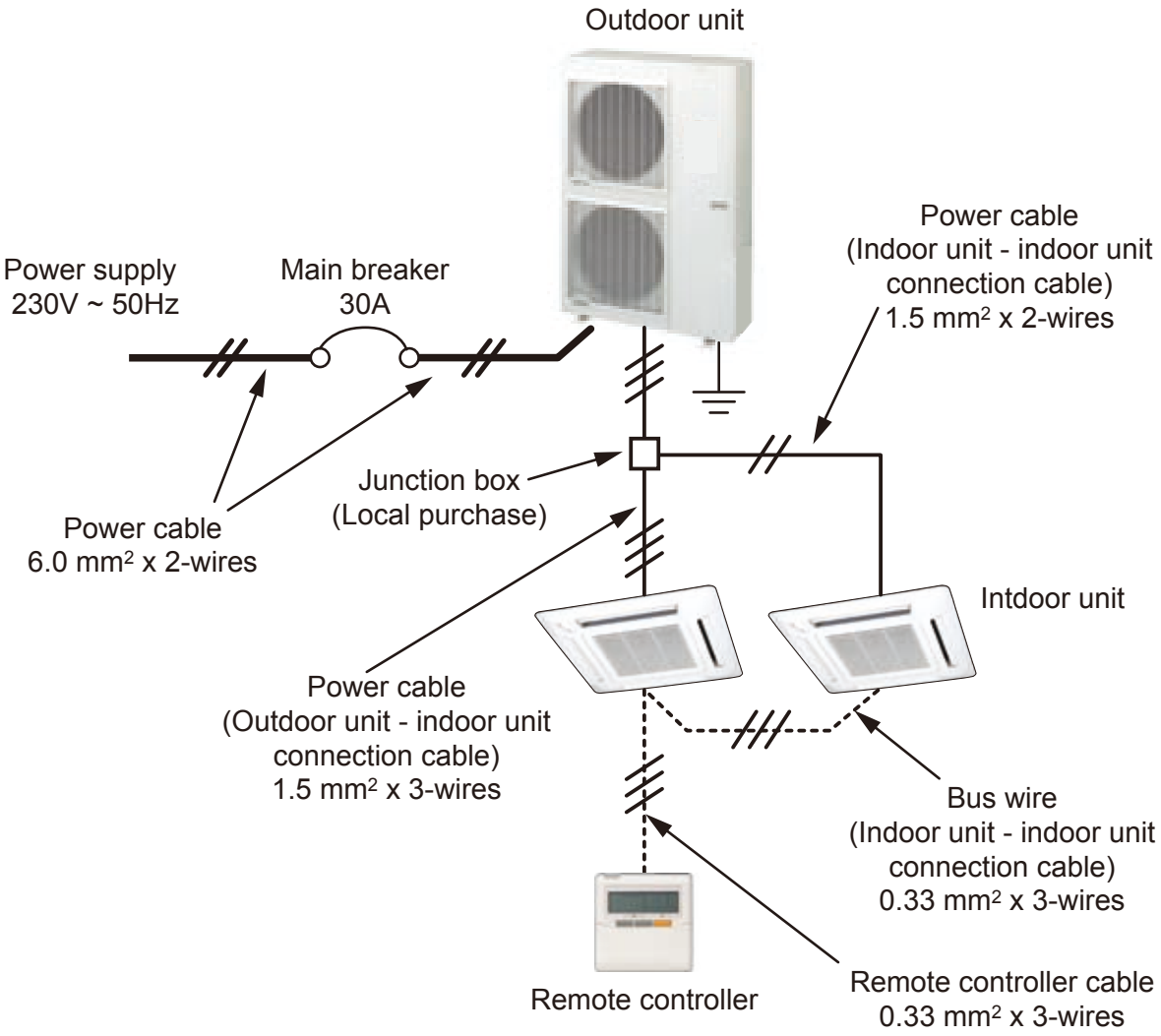
*: This length shall be the total extended length in the system of the group. (Total length of bus wire and remote controller cable.)

- Use conformed cable with Type 245 IEC57.
- Perform all electrical work according to the standard.

SYSTEM DESIGN

⚠ CAUTION
• Be sure to execute the electrical work according to the Laws of each country and the Installation Instructions. In addition, be sure to set as exclusive line and use the rated voltage and circuit breaker.
• Above "Conductor size" and "Breaker capacity" are minimum value.
• Transmission cable between indoor unit and outdoor unit is 230 V.
• Regulation of conductor size and circuit breaker differs from each locality, please refer in accordance with local rules.
• Start wiring work after closing branch switch and over current breaker.
• Specific wiring requirement should be applied Type 245 IEC 57 or equivalent.
• To prevent the electrical noise malufunction and hazards from insulation failure, the unit should be connected to ground.
• A disconnect switch may be required for ease of maintenance in accordance with local regulation for each unit. Please check the local rules and regulations. Make the wire length between disconnect switch and unit terminal as short as possible.
• All field wiring and components must be provided by a licensed electrician.
• Use copper conductors only.

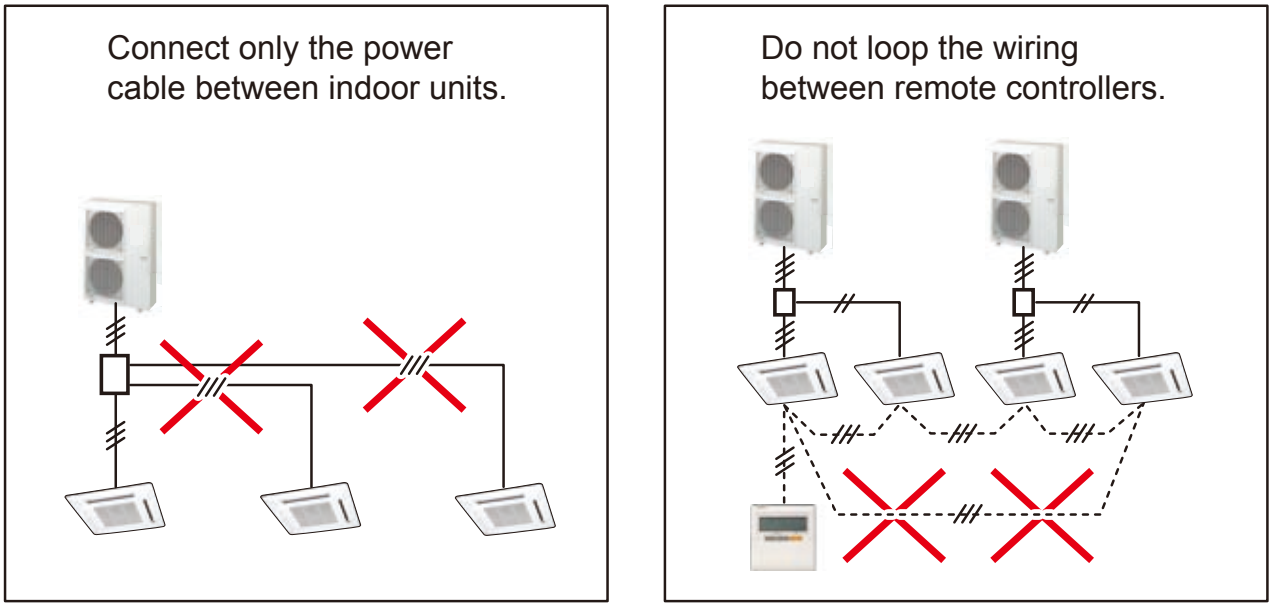
■ POWER SUPPLY CABLE WIRING



SYSTEM DESIGN

■ WIRING CONNECTION RULES

- Connect serial wire only to the primary unit.
  (If serial wire was connected from primary unit to secondary unit, the air conditioner will not operate.)
- Do not loop the wiring between remote controllers.
  (When looped, the air conditioner will not operate.)



Outdoor unit – indoor unit connection cable

Junction box (Local purchase)

Indoor unit – indoor unit connection cable

Remote controller cable

SYSTEM DESIGN

■ RECOMMENDED WIRING CONNECTION

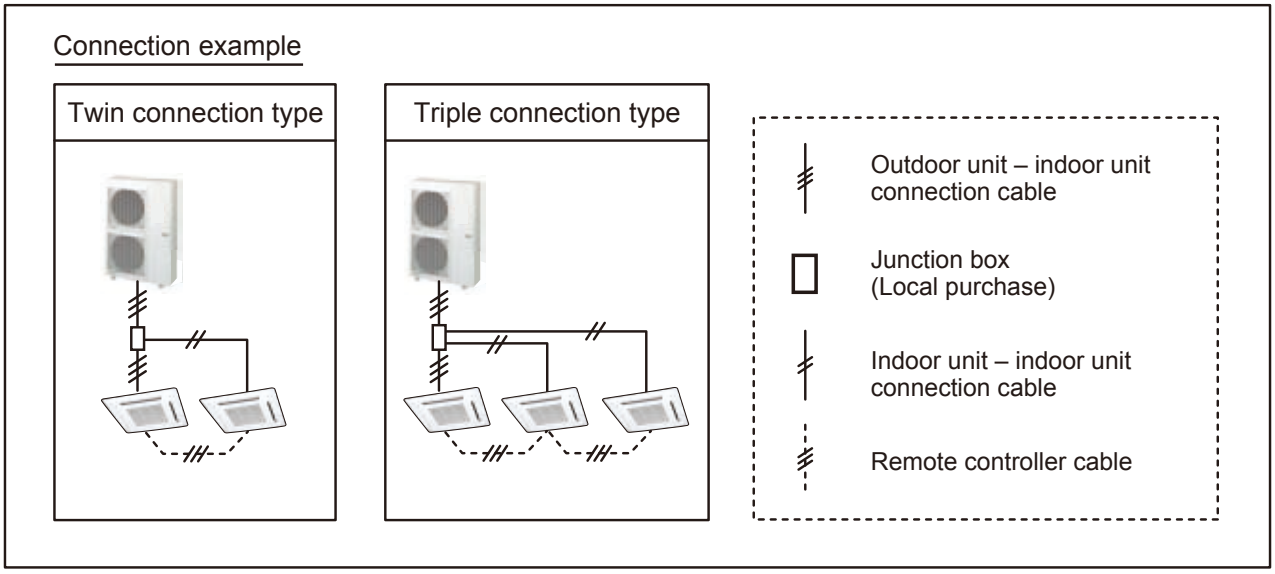
● Simultaneous multi system

Up to 3 indoor units can be connected to one outdoor unit.

Operation of all indoor units is the same.

The simultaneous multi system is effective for anomalistic floors and wide floors.

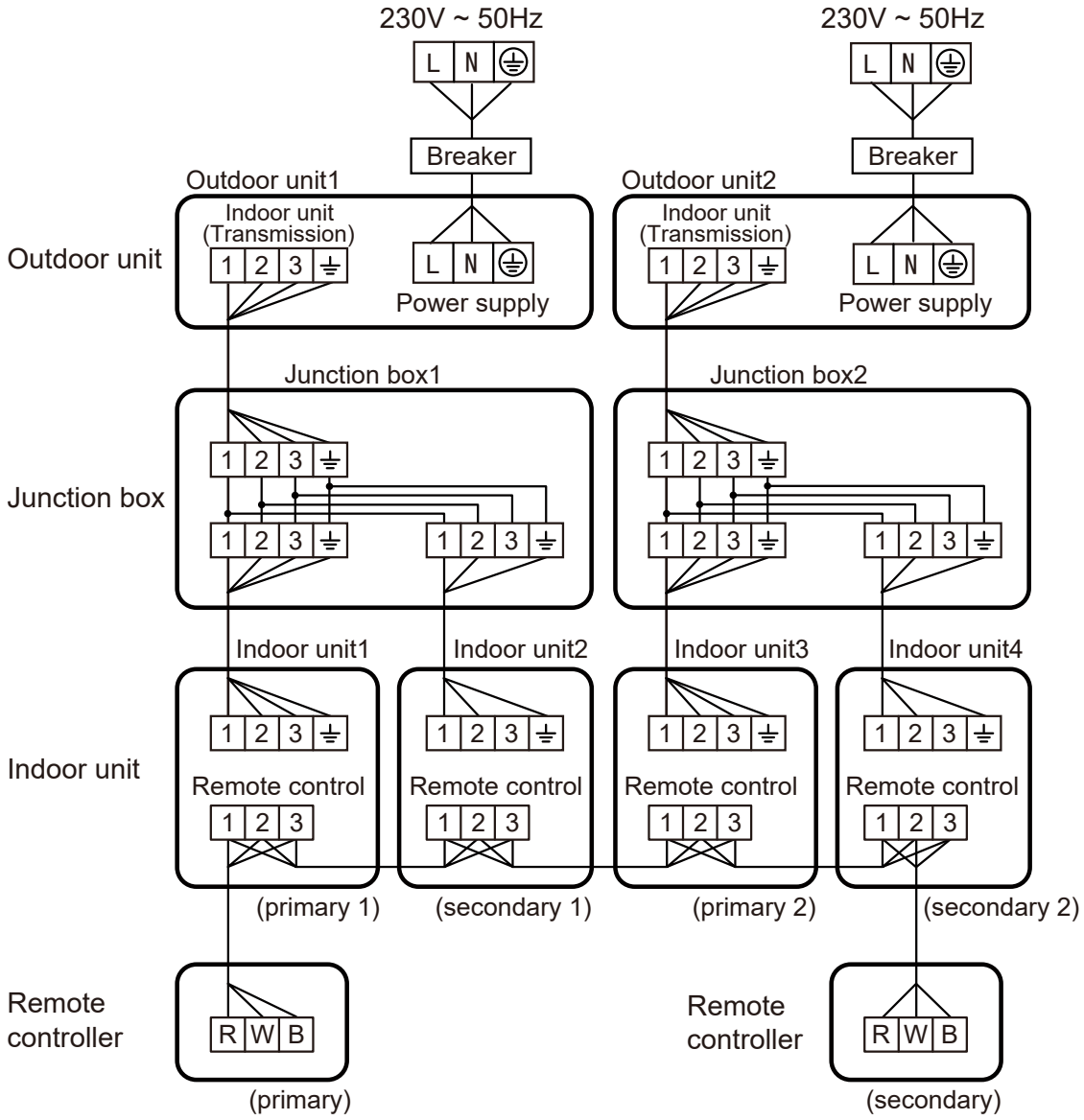
Connection example



SYSTEM DESIGN

■ WIRING METHOD

The wiring method conforms to the following diagram.



SYSTEM DESIGN

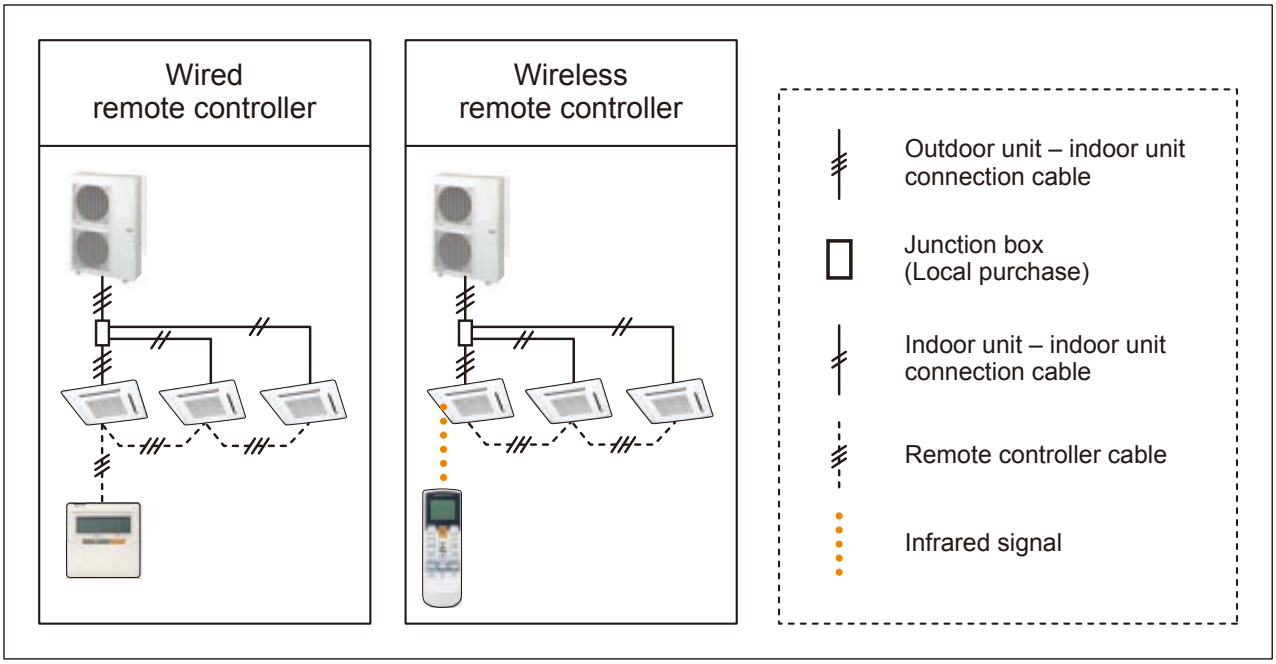
3-3. CONTROL PATTERNS

■ 1-REMOTE CONTROLLER CONTROL

This is the most basic system. Wired type or wireless type remote controller can be selected.

● Connection examples

Simultaneous multi system



*When using a wireless type remote controller, install IR Receiver unit to the indoor units.
(Slim duct type, Duct type)

*In simultaneous multi connection, the timer and 10°C HEAT functions by using the wireless remote controller cannot be used.

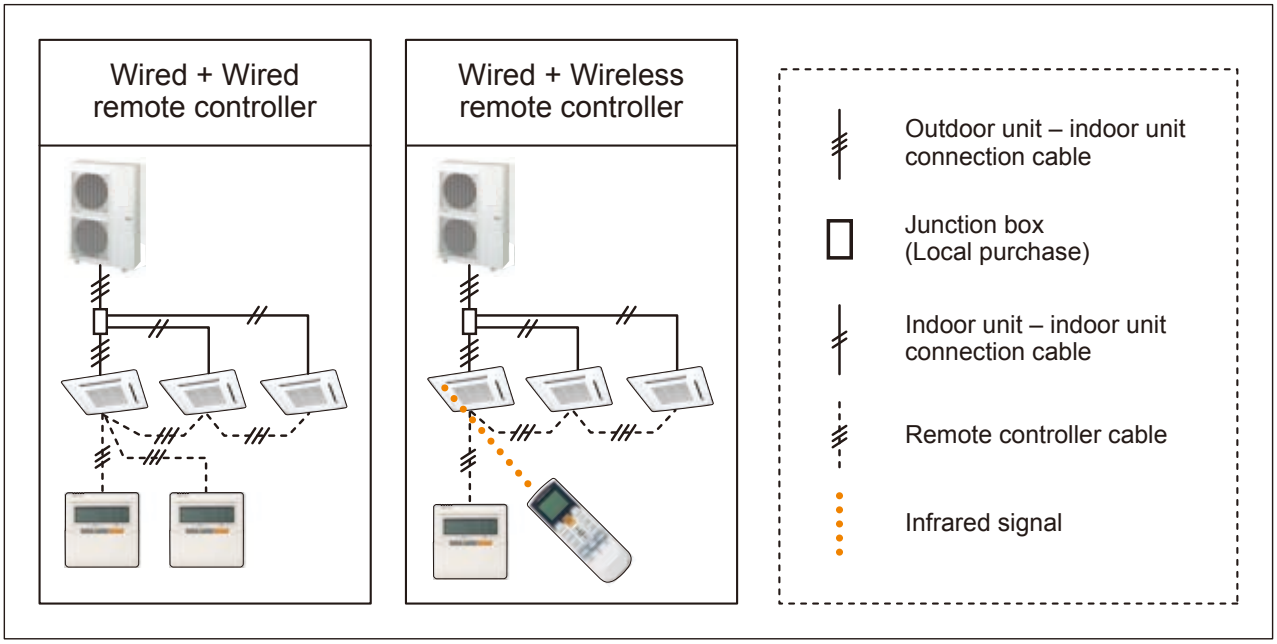
SYSTEM DESIGN

■ 2-REMOTE CONTROLLERS CONTROL

Control locally and from a remote point is possible using 2-remote controllers.

● Connection examples

Simultaneous multi system



*For 2 wired-type remote controllers, specify a primary and a secondary remote controller.
*The timer and 10°C HEAT (Wireless R.C. only) functions of the remote controller specified as the secondary cannot be used.
*In simultaneous multi connection, the timer and 10°C HEAT functions by using the wireless remote controller cannot be used.
*When using a wireless type remote controller, install IR Receiver unit to the indoor units.
(Slim duct type, Duct type)

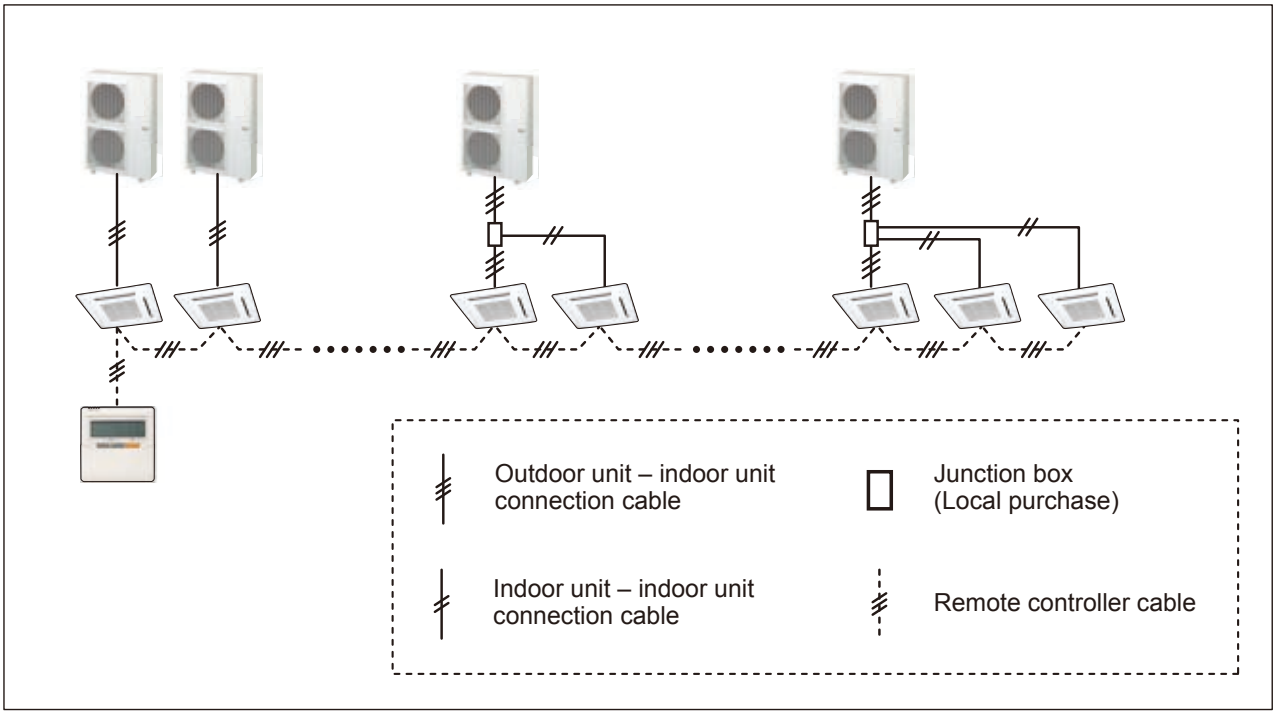
SYSTEM DESIGN

■ REMOTE CONTROLLER GROUP CONTROL

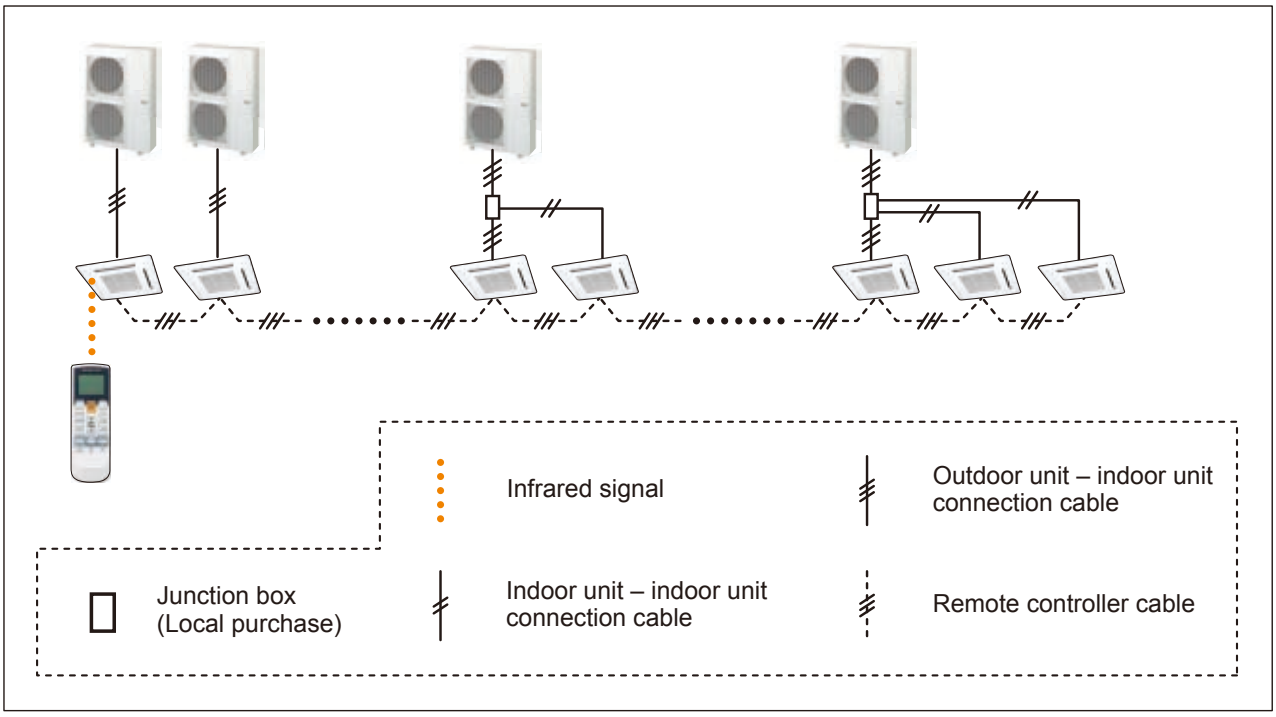
1 or 2-remote controllers can simultaneously control up to 16 indoor units.

● Connection examples

Wired remote controller type



Wireless remote controller type



*When using a wireless type remote controller, install IR Receiver unit to the indoor units. (Slim duct type, Duct type)

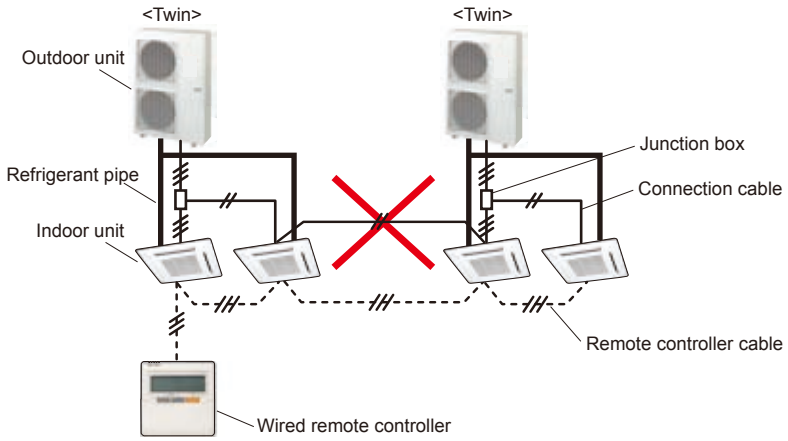
*In simultaneous multi connection, the timer and 10°C HEAT functions by using the wireless remote controller cannot be used.

*In the group connection of different models, the functions which can be set by using the wired remote controller are limited.

SYSTEM DESIGN

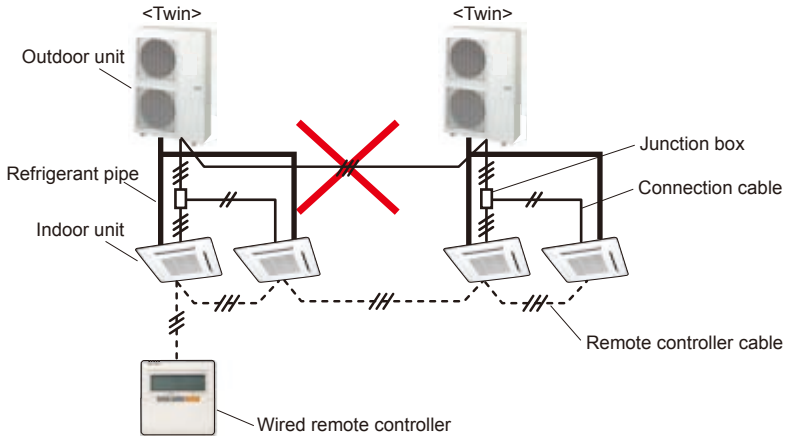
3-4. CONNECTION EXAMPLES

■ EXAMPLE 1 (Prohibited)



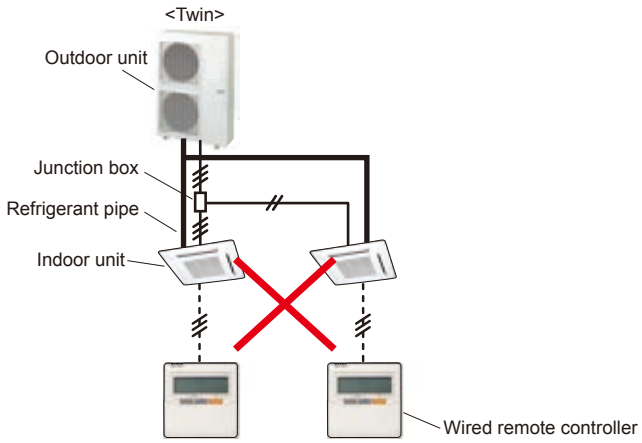
Note : Do not connect between indoor units crossing over a refrigerant circuit.

■ EXAMPLE 2 (Prohibited)



Note : Do not connect between outdoor units crossing.

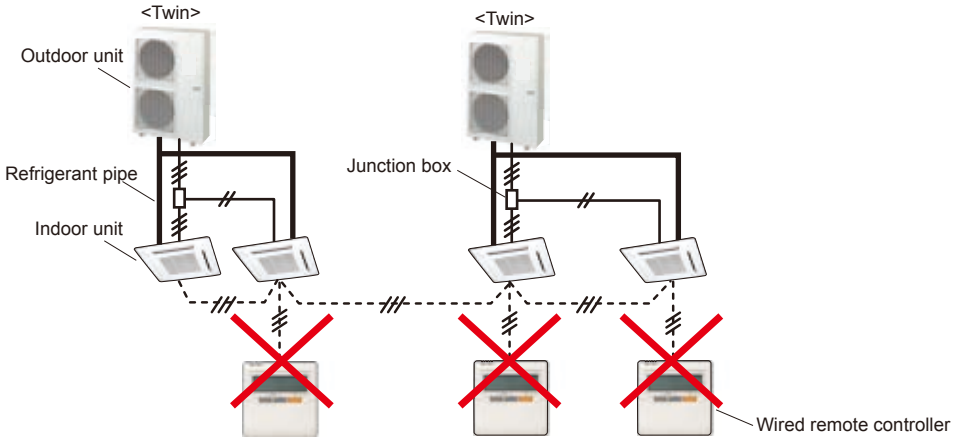
■ EXAMPLE 3 (Prohibited)



Note : When connecting more than 2 indoor units in same refrigerant circuit, the remote controller cable must be connected between indoor units.

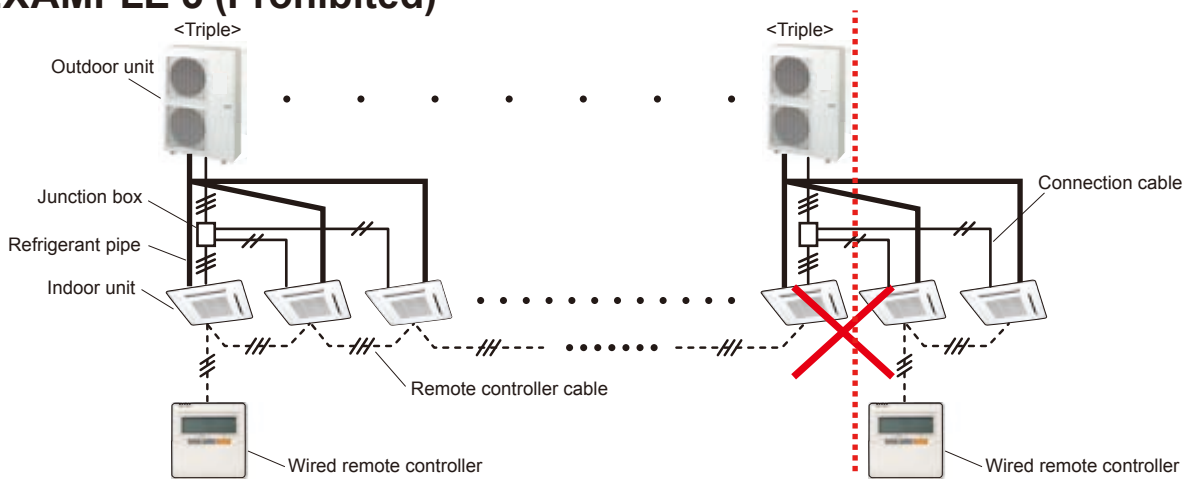
SYSTEM DESIGN

■ EXAMPLE 4 (Prohibited)



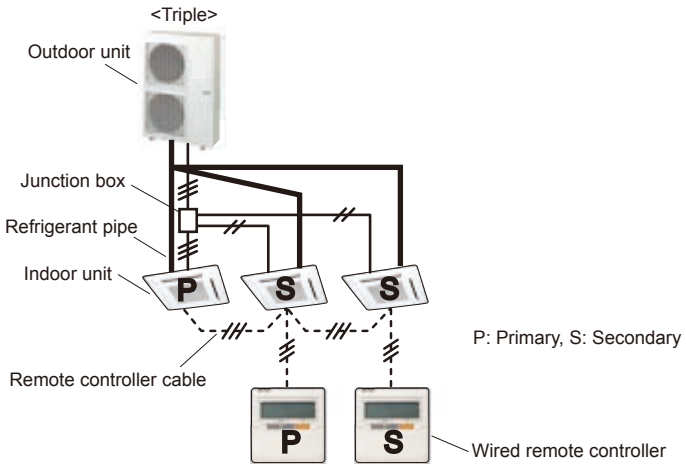
Note : Do not connect 3 or more remote controllers in the same remote controller group.

■ EXAMPLE 5 (Prohibited)



Note : Do not separate the remote controller group in the same refrigerant circuit.

■ EXAMPLE 6 (OK)



Note : Maximum of 2 remote controllers can be connected in the same remote controller group.
Also, a remote controller can be connected to any indoor unit.

SYSTEM DESIGN

4. SYSTEM SETTING

4-1. INDOOR UNIT SETTING

	Setting	Indoor unit	Setting range	Setting method
Set A	Indoor unit Primary / Secondary	○	"00" or "01"	Refer to 6-6. (Function number: 51)
Set B	Refrigerant circuit address	△	"00" to "15"	Refer to 6-6. (Function number: 02)
Set C	Remote controller address	○	"00" to "15" *1	Refer to 6-2. (DIP SW setting)

○: Setting is required.

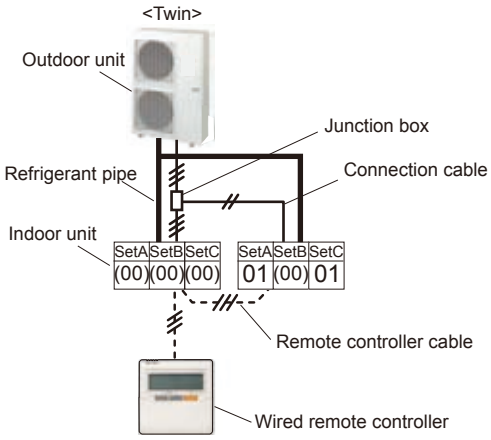
△: By a case, setting is required.

- : Setting is not required.

*1 : Set the remote controller address in the order of 00, 01, 02,…, 15.(Blank is not allowed)

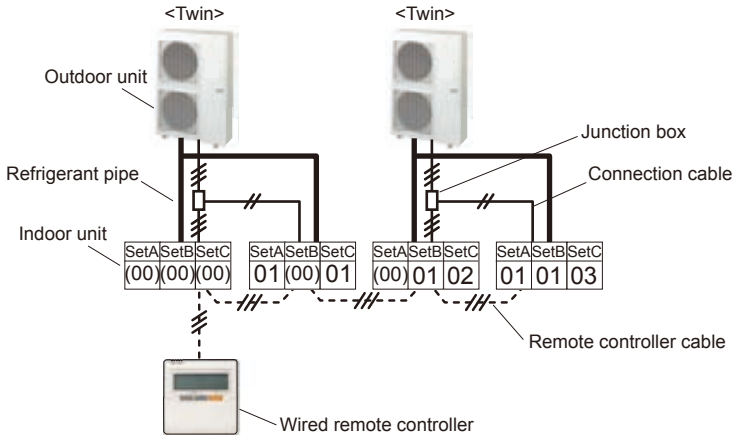
■ TWIN TYPE

● Connection example 3



Note : (00) is factory setting.

● Connection example 4

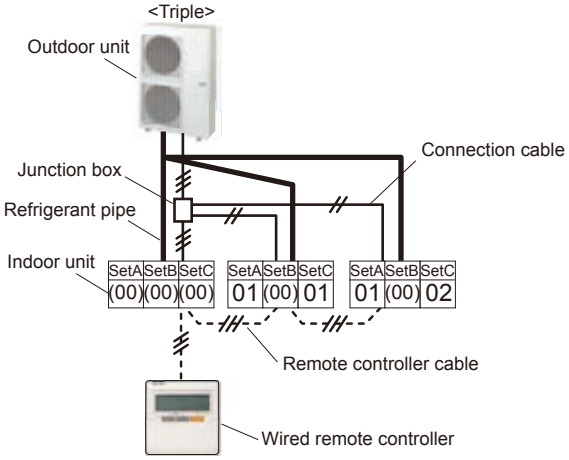


SYSTEM DESIGN

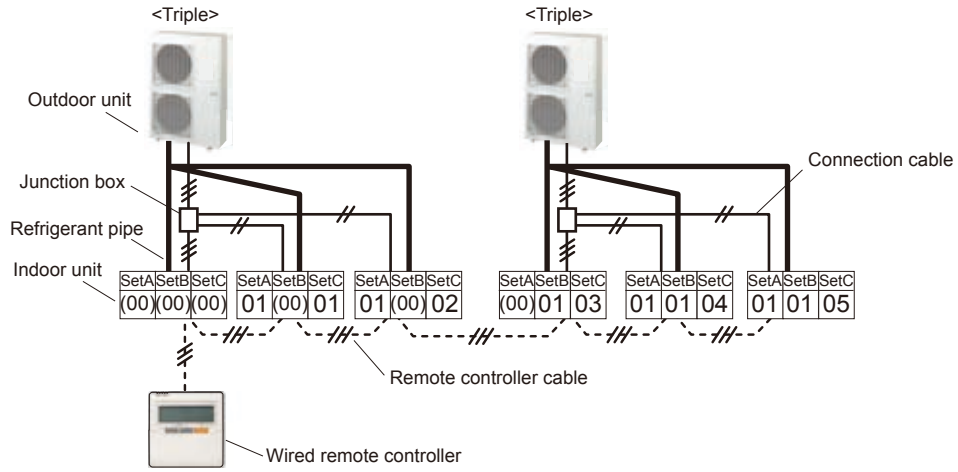
SYSTEM DESIGN

■ TRIPLE TYPE

● Connection example 5

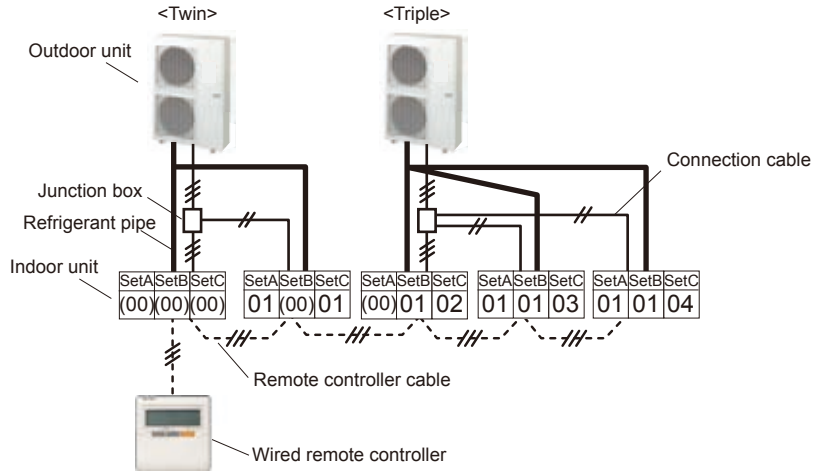


● Connection example 6



■ MIXED

● Connection example 7



Note : (00) is factory setting.

SYSTEM DESIGN

5. EXTERNAL INPUT AND OUTPUT

5-1. OUTDOOR UNIT

With using external input and output functions, this product can be operated inter-connectedly with an external device.

Connector	Input	Output	Remarks
CN10	Low noise mode	—	See external input/output settings for details.
CN11	Peak cut mode	—	
CN12	—	Error status	
CN13	—	Compressor status	

5-1-1. EXTERNAL INPUT

With using external input function, on/off status of “Low noise mode” and “Peak cut mode” can be specified by the external signal.

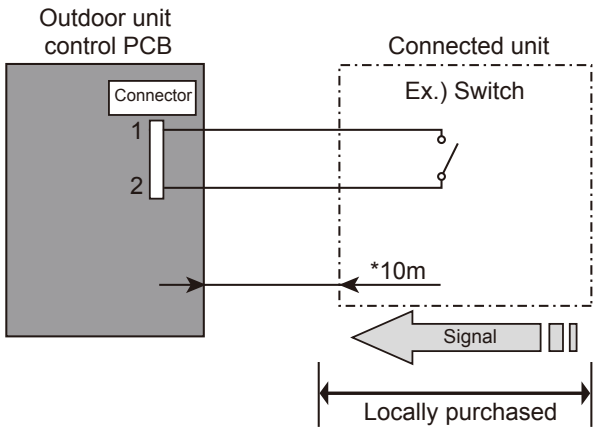
■ LOW NOISE MODE

In following condition, the operating noise of the outdoor unit reduces comparing from the one in normal operating condition:

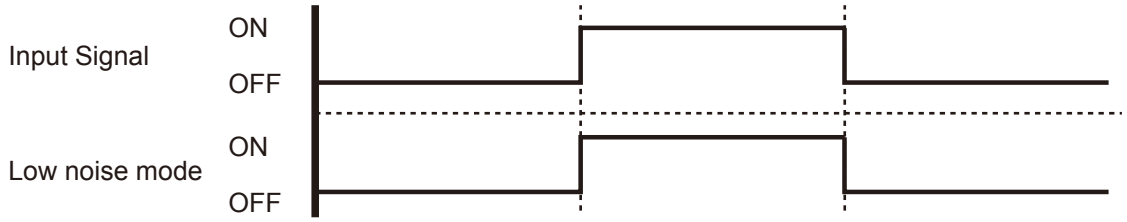
- The air conditioner is set to the “Low noise mode” when closing the contact input of a commercial timer or on/off switch to a connector on the control PCB of the outdoor unit.

NOTE: Product performance may drop depending on some conditions such as the outdoor temperature.

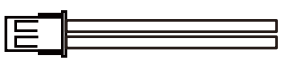
● Circuit diagram example



- Contact capacity: DC 24 V or more, 10 mA or more.
- *: Make the distance from the PCB to the connected unit within 10 m.
- Construct a circuit as shown in this figure with using optional parts mentioned below.
- Input signal: On in “Low noise mode”
- Input signal: Off in normal operation
- To set the level of “Low noise mode”, refer to “Low noise mode” in 6.FUNCTION SETTINGS.



● Optional part

Parts name	Model name	Exterior
External connect kit	UTY-XWZXZ3	

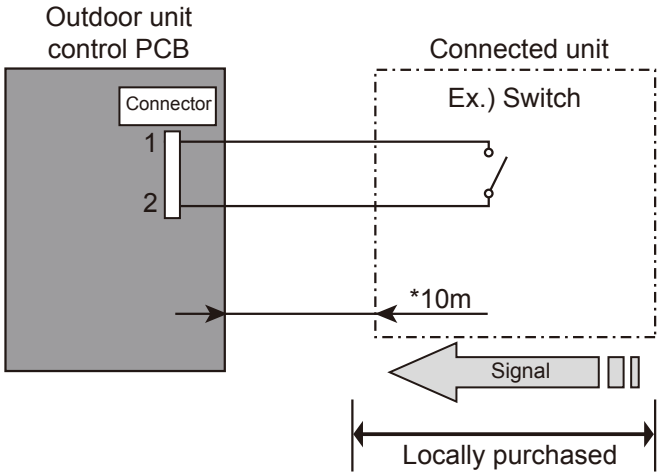
SYSTEM DESIGN

■ PEAK CUT MODE

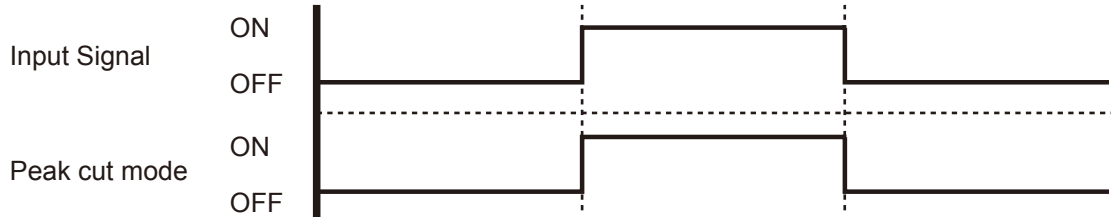
By performing following on-site work, operation that suppresses the current value can be enabled:

• The air conditioner is set to the “Peak cut mode” when closing the contact input of a commercial timer or on/off switch to a connector on the control PCB of the outdoor unit.

● Circuit diagram example



- .Contact capacity: DC 24 V or more, 10 mA or more.
- *: Make the distance from the PCB to the connected unit within 10 m.
- Construct a circuit as shown in this figure with using optional parts mentioned below.
- Input signal: On in “Peak cut mode”
- Input signal: Off in normal operation
- To set the level of “Peak cut mode”, refer to “Peak cut mode” in 6.FUNCTION SETTINGS.



● Optional part

Parts name	Model name	Exterior
External connect kit	UTY-XWZXZ3	

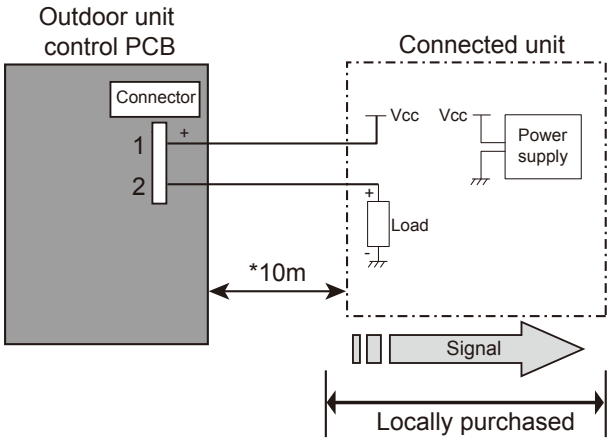
SYSTEM DESIGN

5-1-2. EXTERNAL OUTPUT

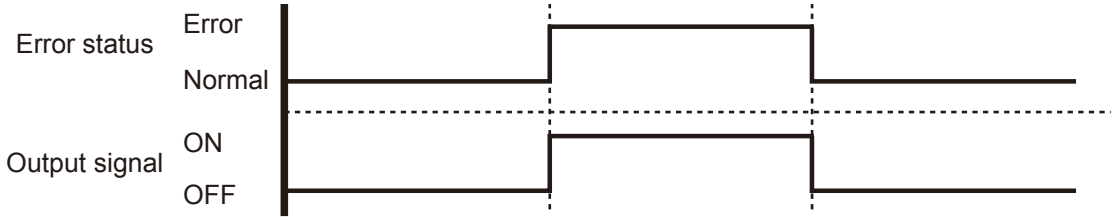
With using external output function, some status signals are transmitted to the control PCB, and the related LED lamp indicates the status of this product.

■ ERROR STATUS OUTPUT

● Circuit diagram example



- .1: Power supply
  Voltage (Vcc): DC 24 V or less
- 2: Load
  DC 500 mA or less
- *: Make the distance from the PCB to the connected unit within 10 m.



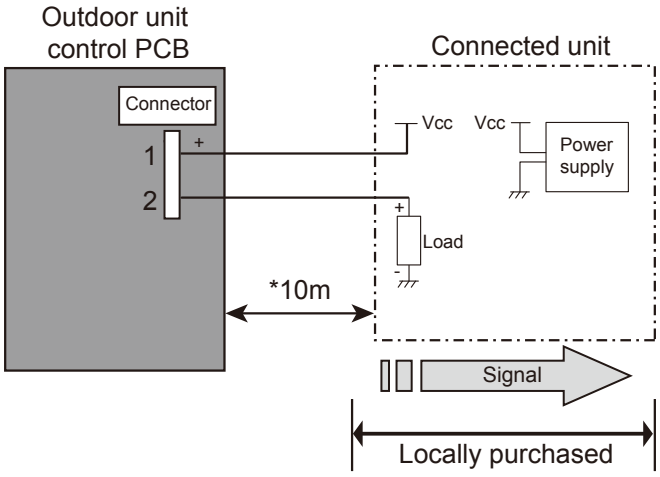
● Optional part

Parts name	Model name	Exterior
External connect kit	UTY-XWZXZ3	

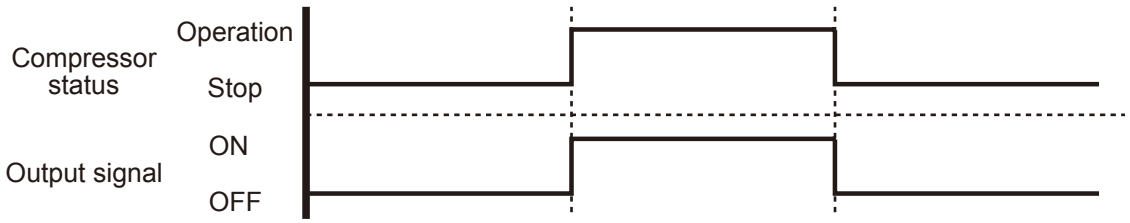
SYSTEM DESIGN

■ COMPRESSOR STATUS OUTPUT

● Circuit diagram example



- .1: Power supply
  Voltage (Vcc): DC 24 V or less
- 2: Load
  DC 500 mA or less
- *: Make the distance from the PCB to the connected unit within 10 m.



● Optional part

Parts name	Model name	Exterior
External connect kit	UTY-XWZXZ3	

SYSTEM DESIGN

5-2. INDOOR UNIT

Input	Output	Connector	Remarks
CONTROL (Operation/Stop or Forced stop)	—	CN102	See external input/output settings for details.
—	OPERATION STATUS	CN103	
—	FRESH AIR CONTROL	CN6	
—	AUXILIARY HEATER	CN10 (Duct only)	

■ CORRESPONDENCE LIST

●: Available, —: Not available

Names of types	Model	EXTERNAL INPUT	EXTERNAL OUTPUT		
		CONTROL (Operation/Stop or Forced stop)	OPERATION STATUS	FRESH AIR CONTROL	AUXILIARY HEATER
COMPACT CASSETTE	18 model	●	●	●	—
	22 model	●	●	●	—
	24 model	●	●	●	—
FLOOR / CEILING	18 model	●	●	—	—
	22 model	●	●	—	—
	24 model	●	●	—	—
SLIM DUCT	18 model	●	●	●	●
DUCT	22 model	●	●	●	●
	24 model	●	●	●	●

SYSTEM DESIGN

5-2-1. EXTERNAL INPUT

■ CONTROL INPUT (Operation / Stop or Forced stop)

Corresponding indoor units : All indoor units

The air conditioner can be remotely operated by means of the following on-site work.

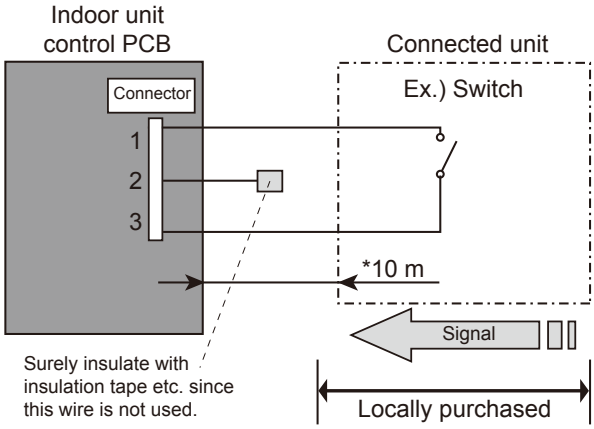
"Operation / Stop" mode or "Forced stop" mode can be selected with function setting of indoor unit.

Unit operation is started at the following contents by adding the contact input of a commercial ON / OFF switch to a connector on the external control PCB and turning it ON.

Unit operation	Initial starting after turned power on	Other than initial starting
Operation mode	Auto changeover	Mode at previous operation
Set temperature	24°C	Temperature at previous operation
Airflow mode	AUTO	Mode at previous operation
Air direction (swing)	Standard air direction (swing OFF)	Air direction at previous operation

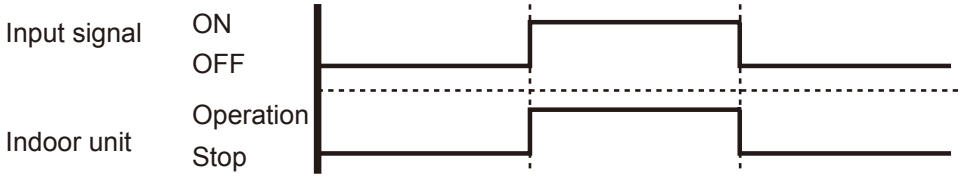
● Circuit diagram example

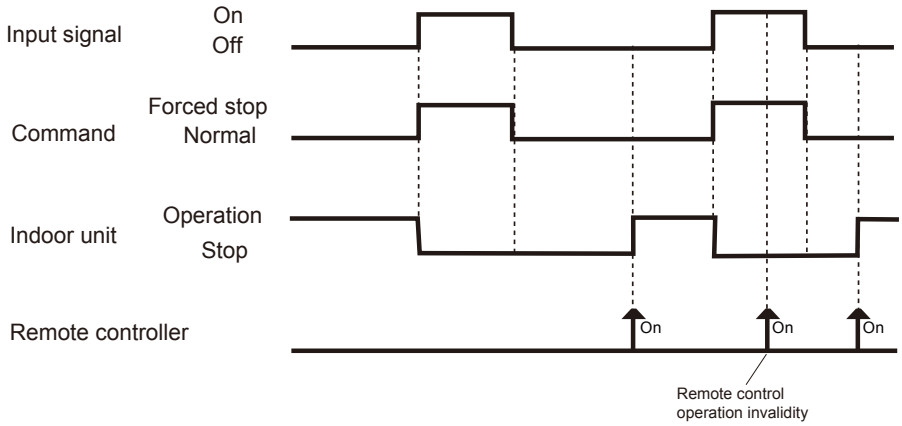
● When function setting is "Operation / Stop" mode



* Make the distance from the PCB to the connected unit within 10 m.
Contact capacity : 5VDC or more, 15mA or more.
Please use the non-polar relays and switches.

● When function setting is "Forced stop" mode





SYSTEM DESIGN

● Parts (Optional)

Duct type

Parts name	Model name
External control set	UTD-ECS5A

Wire (External input)

Other types

Parts name	Model name
External connect kit	UTY-XWZX

Wire (External input) : Orange / Yellow

SYSTEM DESIGN

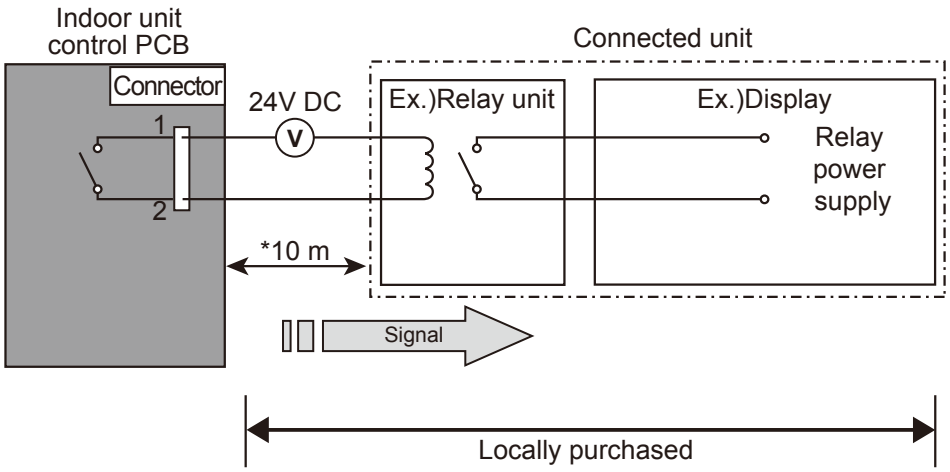
5-2-2. EXTERNAL OUTPUT

■ OPERATION STATUS OUTPUT

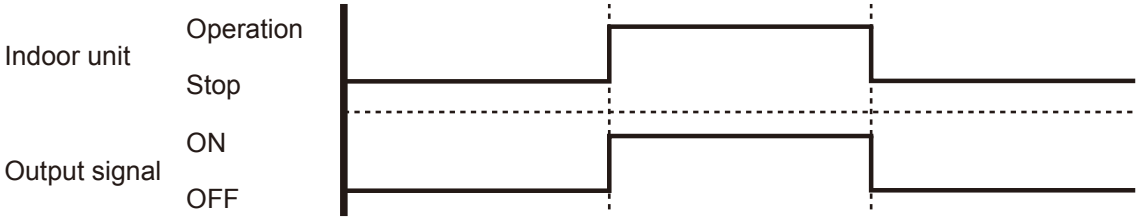
Corresponding indoor units: All indoor units

An air conditioner operation status signal can be output.

● Circuit diagram example



* Make the distance from the PCB to the connected unit within 10m.
Relay spec. : Max.24VDC, 10mA to less than 500mA.



● Optional part

Duct type

Parts name	Model name
External control set	UTD-ECS5A

Wire (External output)

Other types

Parts name	Model name
External connect kit	UTY-XWZX

Wire (External output) : Blue / Purple

SYSTEM DESIGN

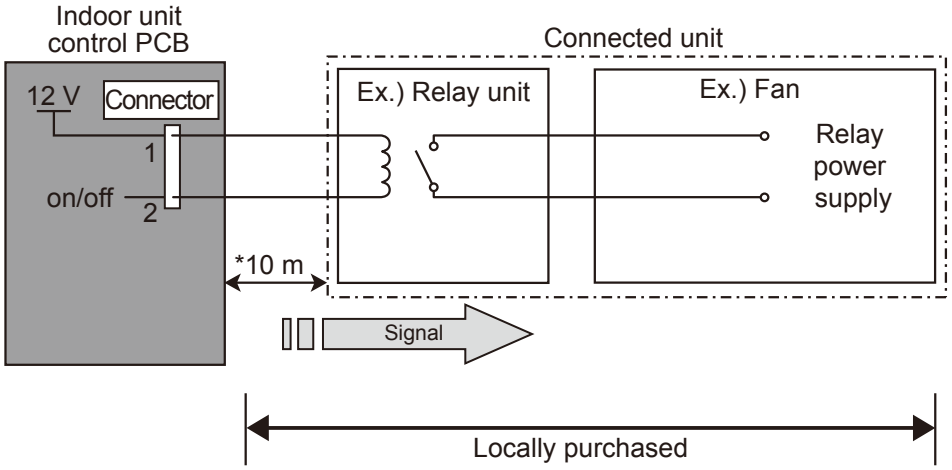
■ FRESH AIR CONTROL OUTPUT

Corresponding indoor units : All indoor units (Except for Floor/Ceiling type)

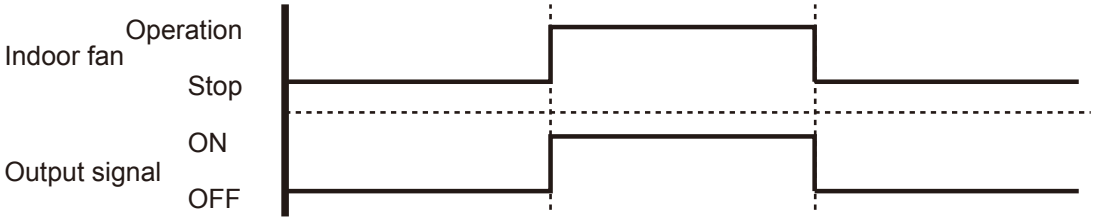
A signal linked to air conditioner indoor fan ON can be output.

* However, signal becomes OFF during cold air prevention control operation.

● Circuit diagram example



* Make the distance from the PCB to the connected unit within 10m.
Relay spec. : Rated 12VDC, 50mA or less.



● Optional part

	COMPACT CASSETTE	FLOOR / CEILING	SLIM DUCT	DUCT
Parts name	Fresh air intake kit	External control set		
Model name	UTZ-VXAA	UTD-ECS5A		

Only for cassette type, the table below outlines the required wire in diffrent fresh air intake options.

	No Fresh air intake	Built in Fresh air inlet
Wire required	N/A	UTD-ECS5A

Note : This wire is included in both Fresh air intake kit and External control set.

SYSTEM DESIGN

■ AUXILIARY HEATER OUTPUT

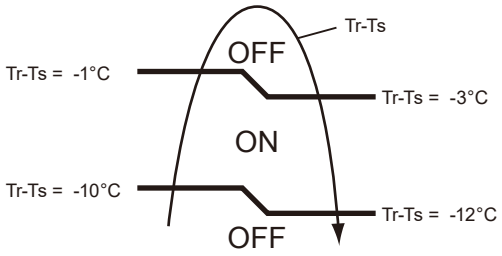
Corresponding indoor units: slim duct type, duct type

A signal is outputed from Connector when indoor fan and compressor turn on under heating operation.

*Signal output performance specifications are as shown on the right

Ex. When Set Temperature(Ts) is 22°C

- ▪and Room Temperature(Tr) increase above 12°C, signal output is on.
- ▪and Room Temperature(Tr) increase above 21°C, signal output is off.
- ▪and Room Temperature(Tr) decrease below 19°C, signal output is on.
- ▪and Room Temperature(Tr) decrease below 10°C, signal output is off.

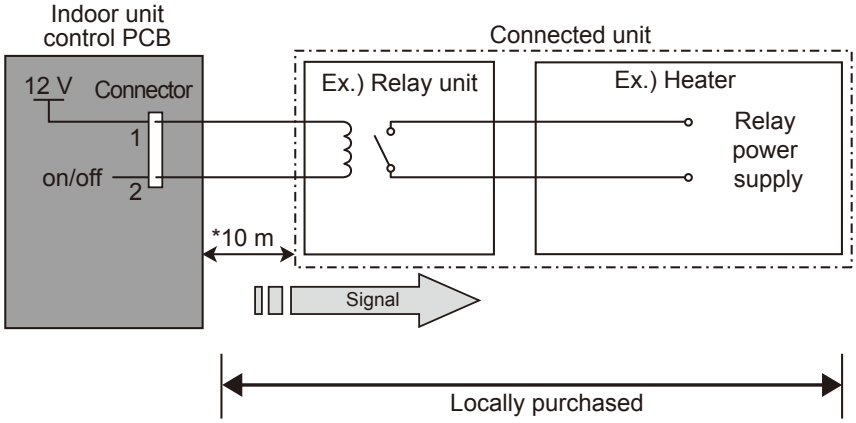


● Jumper wire (Indoor Unit)

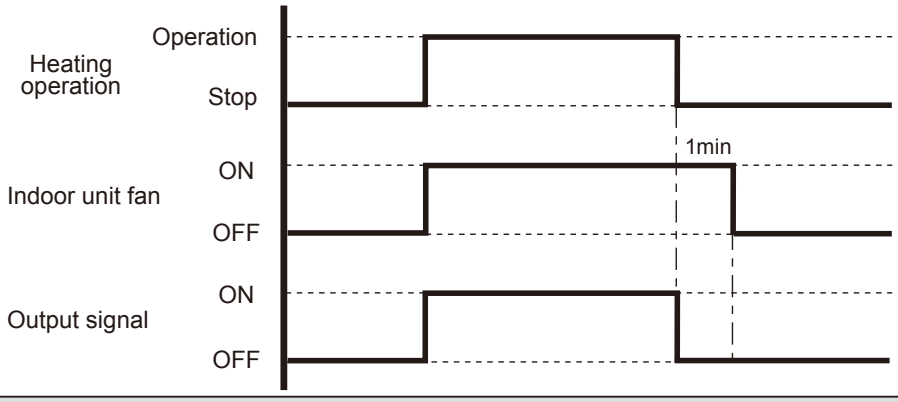
This is used to continue indoor unit fan operation for 1 minute after thermo OFF in heating mode.

1 minute delay control set by cutting jumper wire on PCB.

● Circuit diagram example



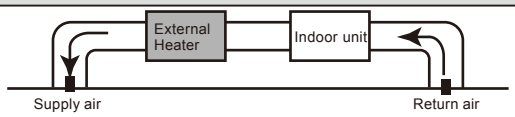
* Make the distance from the PCB to the connected unit within 10m.
Relay spec. : Rated 12VDC, 50mA or less.



⚠ CAUTION

Please locate a external heater between the indoor unit and the outlet.

Please be sure to use delay control of a fan.



● Optional part

Parts name	Model name
External control set	UTD-ECS5A

Wire (Heater output)

SYSTEM DESIGN

6. FUNCTION SETTING

6-1. OUTDOOR UNIT

Perform appropriate function setting locally according to the installation environment.

NOTE: Incorrect settings can cause a product malfunction.

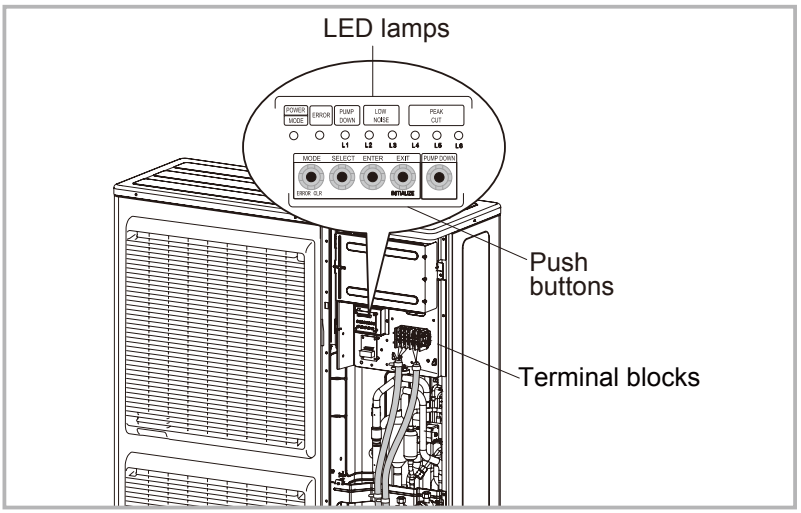
⚠ Caution

- Before setting up the switch buttons, discharge the static electricity from your body.
- Never touch the terminals or the patterns on the parts that are mounted on the PCB.

6-1-1. LOCAL SETTING SWITCH BUTTONS

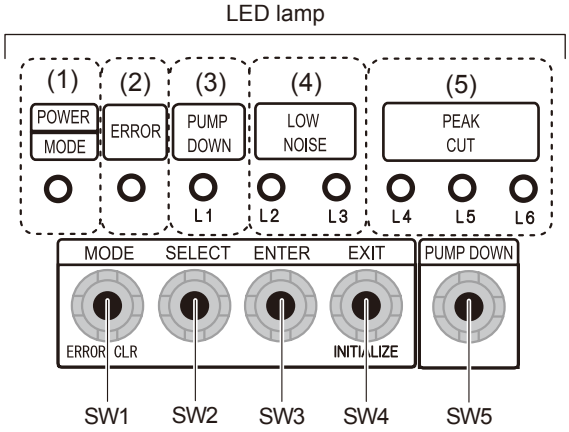
■ CONTROL PCB AND SWITCH BUTTONS LOCATION

Control PCB of the outdoor unit is located as shown in the following figure.



SYSTEM DESIGN

■ SWITCH BUTTONS AND THE FUNCTIONS



LED lamp			Function or operation method
(1)	POWER/MODE	Green	Lights on while power on. Local setting in outdoor unit or error code is displayed with blink.
(2)	ERROR	Red	Blinks during error operation.
(3)	PUMP DOWN (L1)	Orange	Lights on during pump down operation.
(4)	LOW NOISE MODE (L2 and L3)	Orange	Lights on during “Low noise mode” when local setting is activated. (Lighting pattern of L2 and L3 indicates low noise level.)
(5)	PEAK CUT MODE (L4, L5, and L6)	Orange	Lights on during “Peak cut mode” when local setting is activated. (Lighting pattern of L4, L5, and L6 indicates peak cut level.)

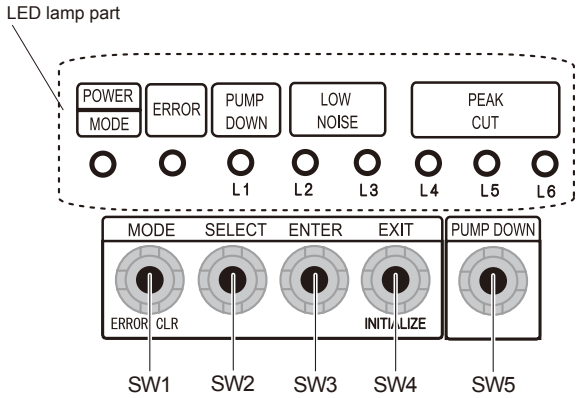
Switch button		Function or operation method
SW1	MODE	Switches between “Local setting” and “Error code display”.
SW2	SELECT	Switches between the individual “Local settings” and the “Error code displays”.
SW3	ENTER	Switches between the individual “Local settings” and the “Error code displays”.
SW4	EXIT	Returns to “Operation status display”.
SW5	PUMP DOWN	Starts the pump down operation.

SYSTEM DESIGN

6-1-2. LOCAL SETTING PROCEDURE

NOTE: Before performing the function setting, be sure to stop the operation of the air conditioner.

■ LOW NOISE MODE



(1) Press the MODE switch button (SW1) for 3 seconds or more to switch to “Local setting mode”.

(2) After confirming the LED lamp of POWER/MODE blinks 9 times, press the ENTER switch button (SW3).

POWER / MODE	ERROR	PUMP DOWN (L1)	LOW NOISE (L2)	LOW NOISE (L3)	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
Blinks (9 times)	○	○	○	○	○	○	○

Sign “ ○ ” : Lights off

(3) Press the SELECT switch button (SW2), and adjust the LED lamp as shown below. Then the LED lamp indicates the current setting.

	LOW NOISE (L2)	LOW NOISE (L3)
LOW NOISE MODE	○	Blink

(4) Press the ENTER switch button (SW3).

	LOW NOISE (L2)	LOW NOISE (L3)
LOW NOISE MODE	○	●

Sign “ ● ” : Lights on

(5) Press the SELECT switch button (SW2), and adjust the LED lamps as shown below.

	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
MODE 1	○	○	Blink
MODE 2	○	Blink	○

(6) Press the ENTER switch button (SW3) and fix it.

	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
MODE 1	○	○	●
MODE 2	○	●	○

SYSTEM DESIGN

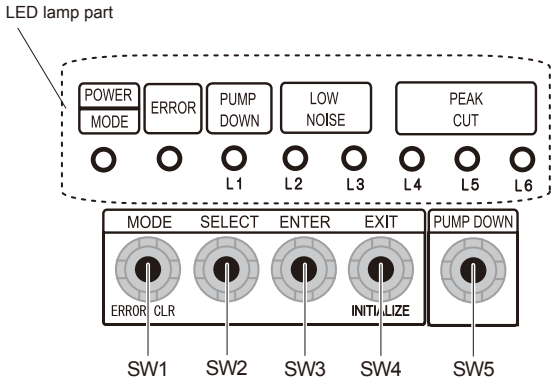
(7) To return to “Operating status display (Normal operation)”, press the EXIT switch button (SW4).

In case of missing how many times you pressed the SELECT and ENTER switch buttons:

1. To return to “Operation status display (Normal operation)”, press the EXIT switch button once.
2. Restart from the beginning of setting procedure.

NOTE: In case of missing how many times you pressed the SELECT and ENTER switch buttons, you must redo the setting procedure. Return to “Operation status display (Normal operation)” by pressing the EXIT switch button once, and restart from the beginning of the setting procedure.

■ PEAK CUT MODE



(1) Press the MODE switch button (SW1) for 3 seconds or more to switch to “Local setting mode”.

(2) After confirming the LED lamp of POWER/MODE blinks 9 times, press the ENTER switch button (SW3).

POWER / MODE	ERROR	PUMP DOWN (L1)	LOW NOISE (L2)	LOW NOISE (L3)	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
Blinks (9 times)	○	○	○	○	○	○	○

Sign “ ○ ” : Lights off

(3) Press the SELECT switch button (SW2), and adjust the LED lamp as shown below. Then the LED lamp indicates the current setting.

	LOW NOISE (L2)	LOW NOISE (L3)
PEAK CUT MODE	Blink	○

(4) Press the ENTER switch button (SW3).

	LOW NOISE (L2)	LOW NOISE (L3)
PEAK CUT MODE	●	○

Sign “ ● ” : Lights on

(5) Press the SELECT switch button (SW2), and adjust the LED lamps as shown below.

	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
100% of rated input ratio	○	○	Blink
75% of rated input ratio	○	Blink	○
50% of rated input ratio	○	Blink	Blink
0% of rated input ratio	Blink	○	○

SYSTEM DESIGN

(6) Press the ENTER switch button (SW3) and fix it.

	PEAK CUT		
	(L4)	(L5)	(L6)
100% of rated input ratio	○	○	●
75% of rated input ratio	○	●	○
50% of rated input ratio	○	●	●
0% of rated input ratio	●	○	○

(7) To return to “Operating status display (Normal operation)”, press the EXIT switch button (SW4).

NOTE: When pressed number is lost during setting, you must redo the setting procedure. Return to “Operation status display (Normal operation)” by pressing the EXIT switch button once, and restart from the beginning of the setting procedure.

SYSTEM DESIGN

6-2. INDOOR UNIT (setting by printed circuit board)

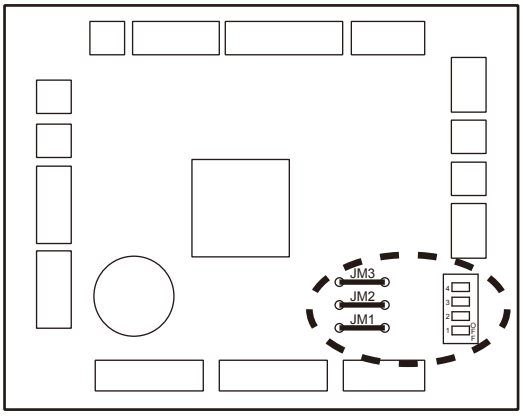
INDOOR UNIT		ALL INDOOR UNITS
DIP SW	1	Remote controller address setting
	2	
	3	
	4	

INDOOR UNIT		SLIM DUCT	DUCT
Jumper Wire	JM1	Drainage function setting	Setting prohibited
	JM2	Auto louver grille setting	
	JM3	Fan delay setting	

■ SWITCH POSITION

● ALL INDOOR UNITS

MAIN PCB



SYSTEM DESIGN

■ DIP-SW SETTING

● Remote controller address setting

A number of indoor units can be operated at the same time using a wired remote controller.
Set the unit number of each indoor unit using the DIP switches on the indoor unit circuit board.
(See the following table.)
The DIP switches are normally set to make the unit number 00.

(◆. . .Factory setting)

	Remote controller address	DIP switch No.			
		1	2	3	4
◆	00	OFF	OFF	OFF	OFF
	01	ON	OFF	OFF	OFF
	02	OFF	ON	OFF	OFF
	03	ON	ON	OFF	OFF
	04	OFF	OFF	ON	OFF
	05	ON	OFF	ON	OFF
	06	OFF	ON	ON	OFF
	07	ON	ON	ON	OFF
	08	OFF	OFF	OFF	ON
	09	ON	OFF	OFF	ON
	10	OFF	ON	OFF	ON
	11	ON	ON	OFF	ON
	12	OFF	OFF	ON	ON
	13	ON	OFF	ON	ON
	14	OFF	ON	ON	ON
	15	ON	ON	ON	ON

SYSTEM DESIGN

■ JUMPER WIRE SETTING

● Drainage function setting (JM1)

(◆...Factory setting)

	JM1	Drainage function
◆	Connect	Enable
	Disconnect	Disable

● Auto louver grille setting (JM2)

When Auto louver grille kit (optional parts) is attached, set the Auto louver grille setting "Enable".

(◆...Factory setting)

	JM2	Auto louver grille setting
◆	Connect	Disable
	Disconnect	Enable

● Fan delay setting (JM3)

(◆...Factory setting)

	JM3	Fan delay
◆	Connect	Disable
	Disconnect	Enable

SYSTEM DESIGN

6-3. INDOOR UNIT (setting by wireless remote controller)

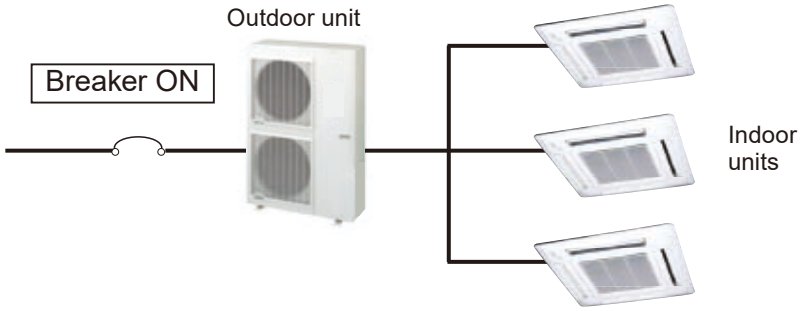
- The function settings of the control of the indoor unit can be changed by this procedure according to the installation conditions. Incorrect settings can cause the indoor unit malfunction.
- After the power is turned on, perform the “FUNCTION SETTING” according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function Number or Setting Number.
- Settings will not be changed if invalid numbers or setting numbers are selected.

■ PREPARATION

(1) Turn on the power to the Outdoor unit.

＊By turning on the power indoor units, so make sure the piping air-tight test and vacuuming have been conducted before turning on the power.

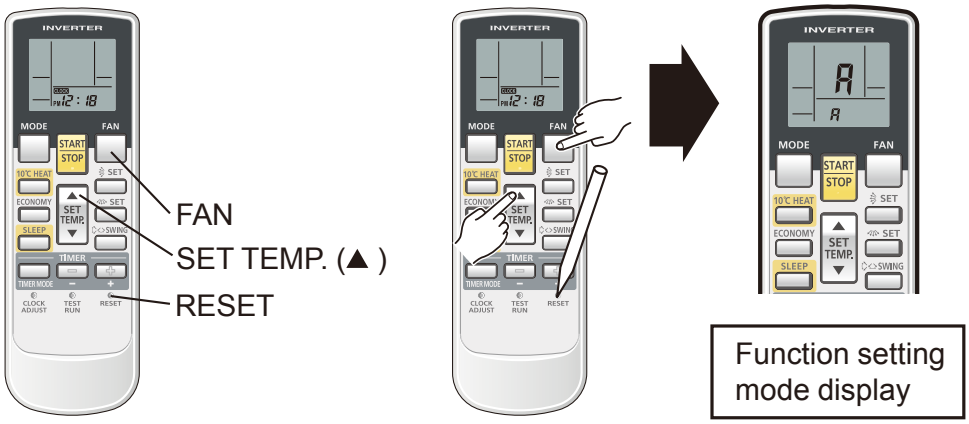
＊Also check again to make sure no wiring mistakes were made before turning on the power.



SYSTEM DESIGN

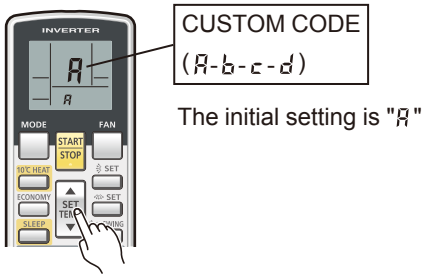
■ SWITCHING SELECTION OF FUNCTION SETTING MODE

(2) Press and hold the “FAN” and the “ SET TEMP. ▲ ” buttons. While holding these 2 buttons, press the "RESET" button.



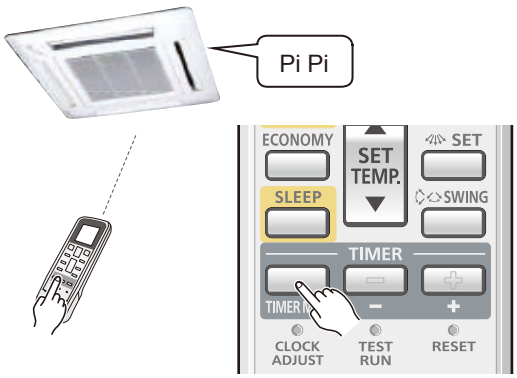
■ SELECTION AND CONFIRMATION OF CUSTOM CODE

(3) Press the “ SET TEMP. ▲ ” or “ SET TEMP. ▼ ” buttons to select the custom code that matches the setting with the indoor unit. By selecting the appropriate custom code, the communication between the indoor unit and the wireless RC become possible.



The initial setting is "A"

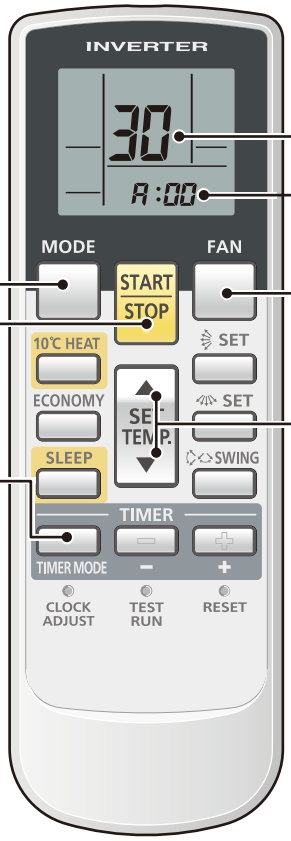
(4) Press the “TIMER MODE" button to send the code to the indoor unit.



SYSTEM DESIGN

■ BUTTON NAME AND FUNCTION

- During address setting mode, indoor unit reject the any operation command from remote controller.



Function number

Refer to FUNCTION DETAILS

Setting number

Refer to FUNCTION DETAILS

MODE button

- Start the function setting mode
- Changes the display digits

FAN button

Switches between the setting number (bottom line) and function number (top line)

START/STOP button

Transmits function setting

TIMER MODE button

Transmits function mode

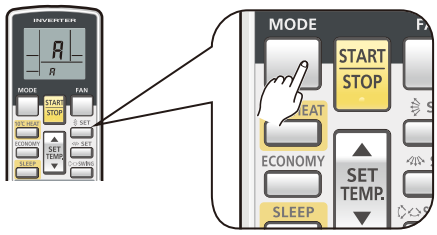
SET TEMP. " ▲ " and " ▼ " button

Increases and decreases the displayed number

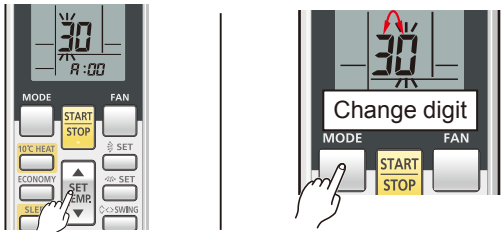
SYSTEM DESIGN

■ FUNCTION SETTING

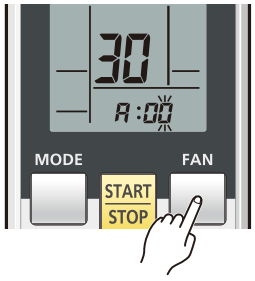
(5) Press the “MODE” button to access the function setting mode.



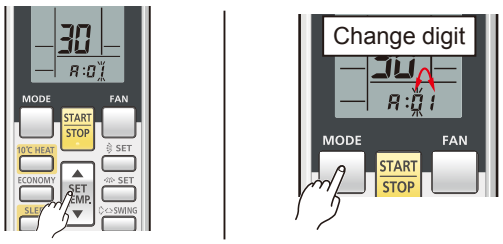
(6) Press the “ ▲ ” or the “ ▼ ” buttons to select the function number.
Each time the “MODE” button is pressed, it switches between the one's place and the ten's place positions.



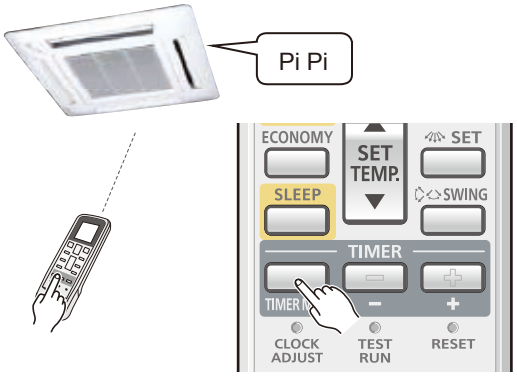
(7) Press the FAN button to proceed to setting the number. (Press the FAN button again to return to the function number selection.)



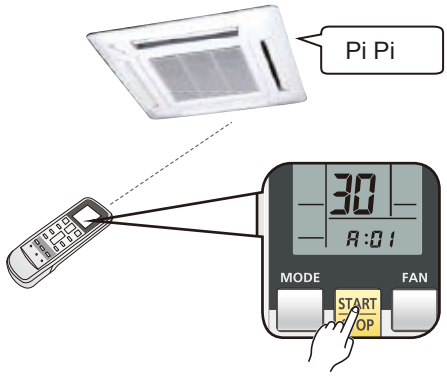
(8) Press the “ ▲ ” or the “ ▼ ” buttons to select the setting number.
Each time the “MODE” button is pressed, it switches between the one's place and the ten's place positions.



(9) Press the “TIME MODE” button once to send the function mode information.



(10) Press the “START/STOP” button once to send the function setting information.
A beeping noise will be heard if the command is accepted.
*Wrong code: No response



Note: Please push "START/STOP" button within 30 seconds after pushing "TIME MODE" button.

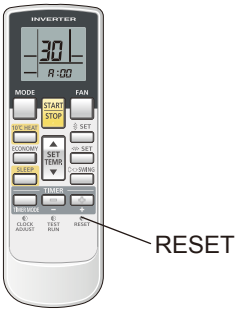
■ FUNCTION DETAILS

Refer to 6-6. FUNCTION DETAILS

SYSTEM DESIGN

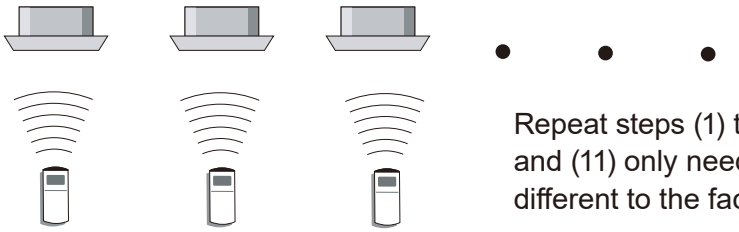
■ COMPLETION OF FUNCTION SETTING MODE

(11) Press the “RESET” button.



After pressing the RESET button, please set the custom code again if b,c,d setting.

■ SETTING UP EACH INDOOR UNIT



Repeat steps (1) through to (11). Steps (1) through to (4) and (11) only need to carried out if the custom code is different to the factory setting of “A”.

SYSTEM DESIGN

■ RESET THE POWER AFTER SETTING UP FUNCTION OF ALL INDOOR UNITS

Important

- **If the reset is not performed, function can not be read in normally.**
- **After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.**
  After the 2 minutes has passed, power can be restored.
- **The set fuction is stored in the PCB and will remain in memory even when the power is turned off.**
  However setting function is effective after power reset.
  Record the function set in the indoor unit on a label, etc., and affix the label to the unit so it can be used for after-sales service operations.

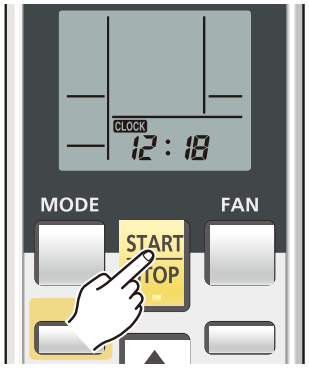
∗ Once the "RESET" button is pressed on the remote controller, the OPERATION MODE will be set in the "AUTO MODE".
Please adjust the OPERATION MODE to either "COOLING" or "HEATING" before trying to operate the air conditioner.

∗ Note : If CUSTOM CODE is set to anything other than "A" ,the remote control must be set accordingly to the INDOOR UNIT setting.

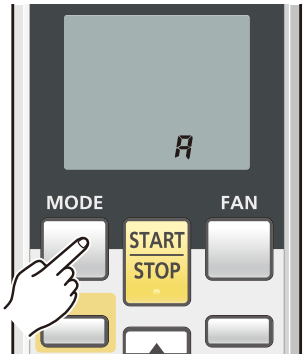
■ REMOTE CONTROLLER CUSTOM CODE SETTING

In function setting, please change to the setting that custom code setting of Wireless remote controller is the same as indoor unit according to the following content when you change custom code setting of indoor unit.

1.Press the START/STOP button until only the clock is displayed on the remote controller display.

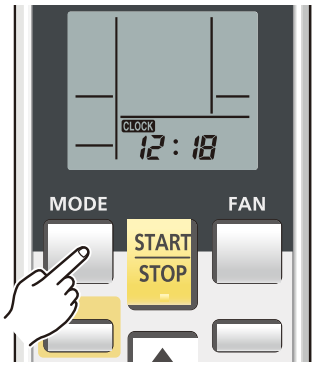


2.Press the MODE button for at least five seconds to display the current custom code (initially set to A).



3.Press the SET TEMP. " ▲ " or the " ▼ " button to change the custom code between A→B→C →D.

4.Press the MODE button again to return to the clock display. The custom code will be changed.



- If no buttons are pressed within 30 seconds after the custom code is displayed, the system returns to the original clock display. In this case, start again from step 1.
- The air conditioner custom code is set to A prior to shipment.
- The remote controller resets to custom code A when the batteries in the remote controller are replaced. If you use a custom code other than custom code A, reset the custom code after replacing the batteries. If you do not know the air conditioner custom code setting, try each of the custom codes (A→B→C→D) until you find the code which operates the air conditioner.

SYSTEM DESIGN

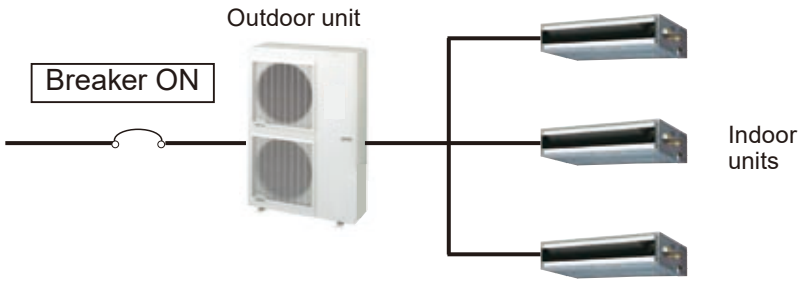
6-4. INDOOR UNIT (setting by wired remote controller)

- The function settings of the control of the indoor unit can be changed by this procedure according to the installation conditions. Incorrect settings can cause the indoor unit malfunction.
- After the power is turned on, perform the “FUNCTION SETTING” according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function Number or Setting Number.
- Settings will not be changed if invalid numbers or setting numbers are selected.
- This function cannot be used on the secondary units.

■ PREPARATION

1) Turn on the power to the Outdoor unit.

- By turning on the power indoor units, so make sure the piping air-tight test and vacuuming have been conducted before turning on the power.
- Also check again to make sure no wiring mistakes were made before turning on the power.

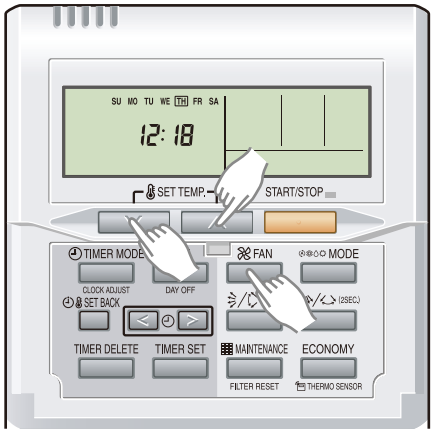


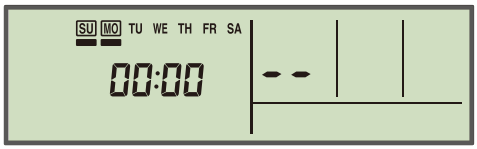
SYSTEM DESIGN

6-4-1. MODEL: UTY-RNN∗M

■ SWITCHING SELECTION OF FUNCTION SETTING MODE

2) To activate the address setting mode, hold down the three buttons of SET TEMP. V, SET TEMP. Λ and FAN at the same time for 5 seconds or longer.

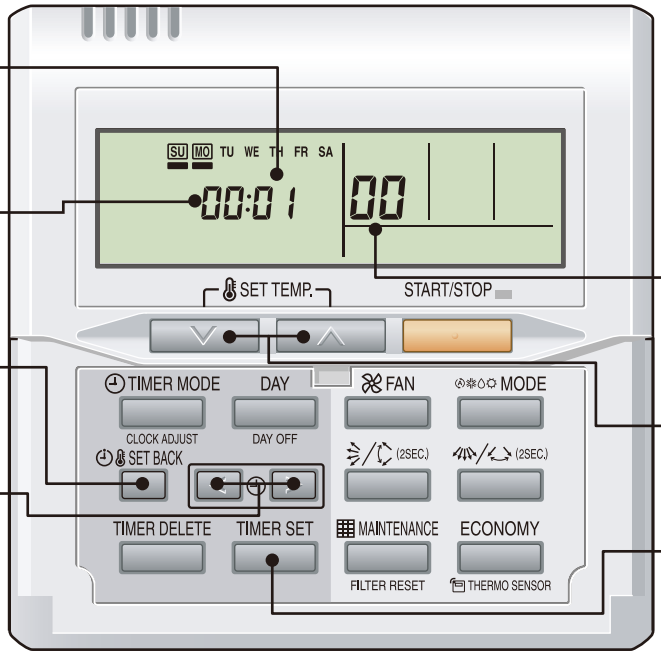




Address setting mode initial display

■ BUTTON NAME AND FUNCTION

- During address setting mode, indoor unit reject the any operation command from remote controller.



Function number

Refer to FUNCTION DETAILS

Remote controller address

Remote controller address setting number 00-15

SET BACK button

Switches the remote controller address setting number.

SET TIME "<" and ">" button

Switches the function number.

Setting number

Refer to FUNCTION DETAILS

SET TEMP. "V" and "Λ" button

Switches the setting number.

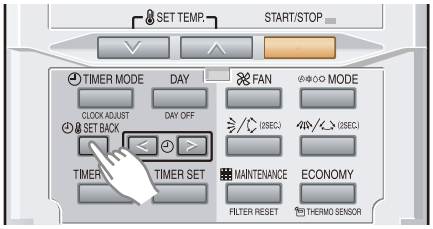
TIMER SET button

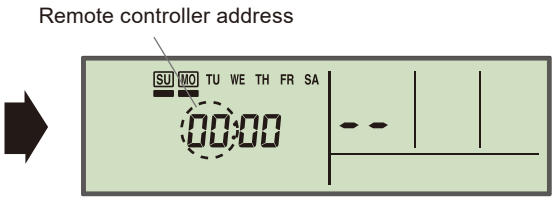
Transmits function setting

SYSTEM DESIGN

■ FUNCTION SETTING

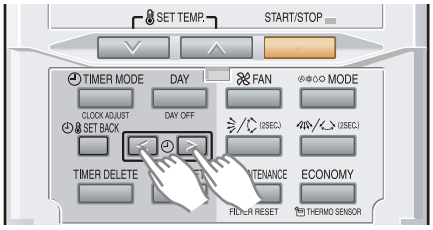
3) Pressing the SET BACK button, select a remote controller address (select the indoor unit you want to operate).

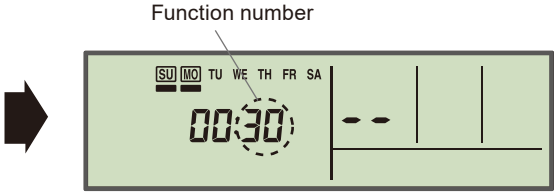




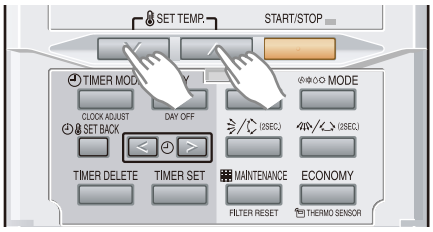
Ex.) When remote controller address “00” is selected

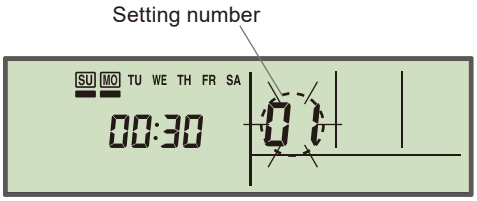
4) Pressing the SET TIME < button or the SET TIME > button, to select the function number.





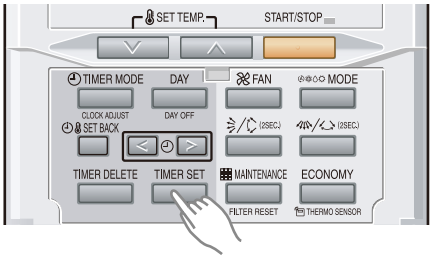
5) Pressing the SET TEMP. V button or the SET TEMP. Λ button, to select the setting number. The display flashes during setting number selection.

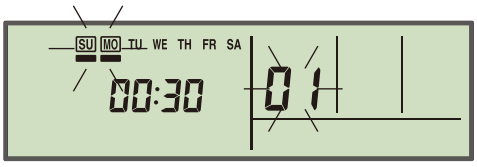




Ex.) Function number : 30, Setting number : 01

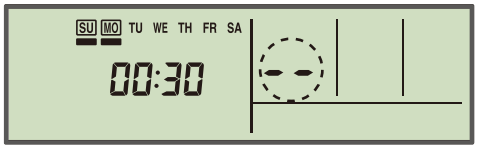
6) Pressing the TIMER SET button, confirm the setting.
(The data will be transferred to the indoor unit.)



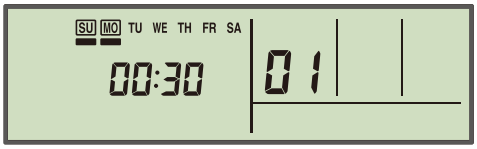


ERROR

GOOD



- When the data was not set up on the indoor unit (-- is displayed.)
- Set up the data again according to the procedure in step 6), 7) above.



When the data was normally set up on the indoor unit
(Flashing display changes to illuminated display.)

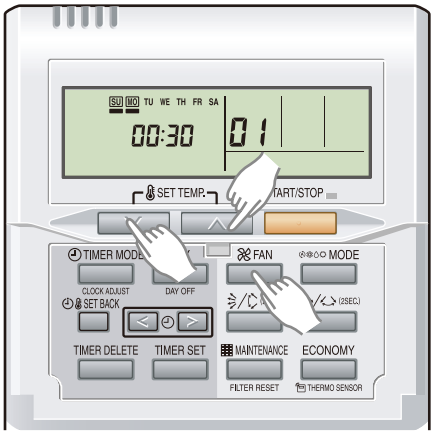
■ FUNCTION DETAILS

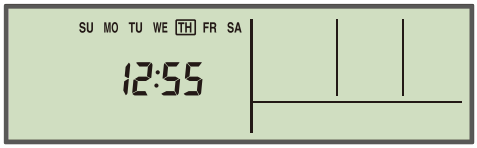
Refer to 6-6. FUNCTION DETAILS

SYSTEM DESIGN

■ COMPLETION OF FUNCTION SETTING MODE

7) To clear the function setting mode and return to the regular display, hold down the three buttons of SET TEMP. V, SET TEMP. Λ and FAN at the same time.





Normal mode display

*If no key entry is made for 60 seconds, even though none of the above buttons is pressed, the function setting mode will automatically be cleared.
(If the function setting mode is automatically cleared while setting addresses, activate the mode again according to the procedure in step 2) above.)

■ SETTING UP EACH INDOOR UNIT

Repeat the procedures in steps 1) through 7), and set up the indoor units requiring function setting.

■ RESET THE POWER AFTER SETTING UP FUNCTION OF ALL INDOOR UNITS

Important

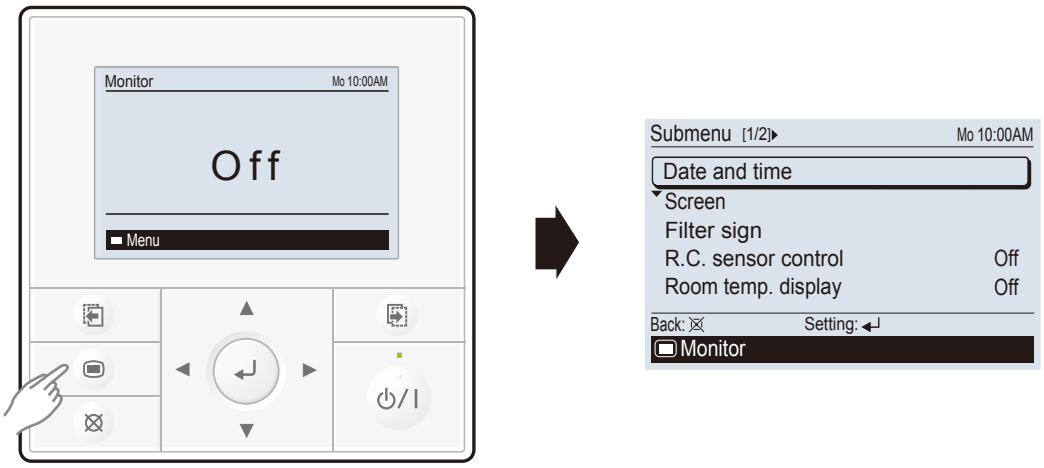
∗ If the reset is not performed, function can not be read in normally.
∗ After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
After the 2 minutes has passed, power can be restored.
∗ The set function is stored in the PCB and will remain in memory even when the power is turned off.
However setting function is effective after power reset.
Record the function set in the indoor unit on a label, etc., and affix the label to the unit so it can be used for after-sales service operations.

SYSTEM DESIGN

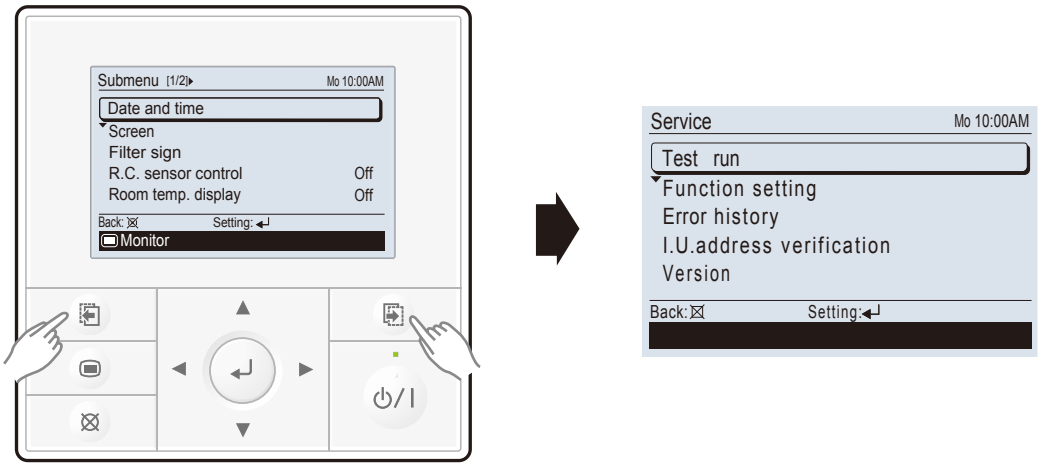
6-4-2.MODEL: UTY-RVN∗M

■ SWITCHING SELECTION OF FUNCTION SETTING MODE

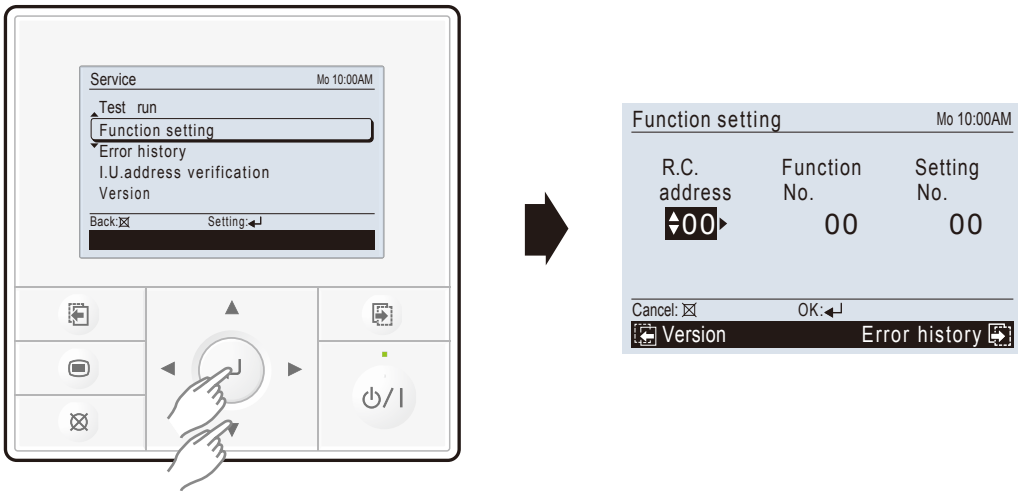
2) When [Menu button] is pressed twice while “Monitor” screen is displayed, it switches to the “Submenu” screen. If [Menu button] is pressed while the “Submenu” screen is displayed, the display returns to the “Monitor” screen.



Press the [Screen switch button (Left)] and [Screen switch button (Right)] simultaneously for 5 seconds to switch to “Service” screen.



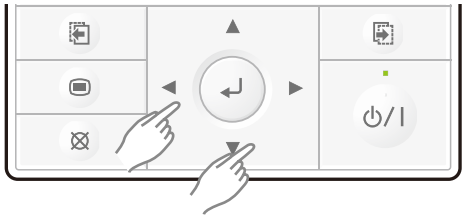
Select [Function setting] with pressing the [Cursor button (Up/Down)], and press the [Enter button].

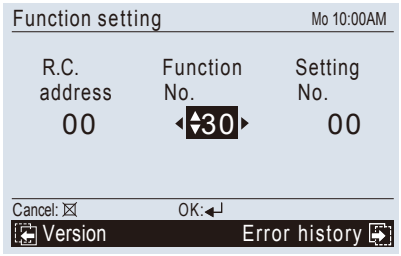


SYSTEM DESIGN

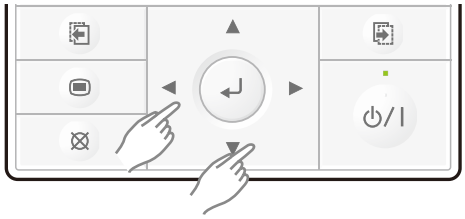
■ FUNCTION SETTING

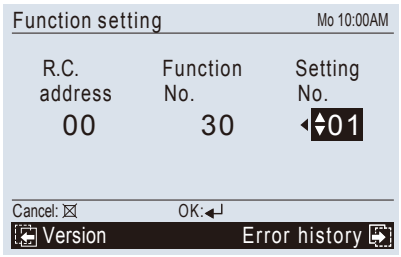
3) Select the [Function No.] with pressing the [Cursor button (Left/Right)], and select the Function No. to be set with pressing the [Cursor button (Up/Down)].



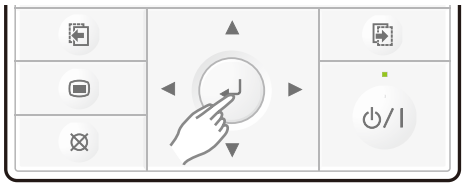


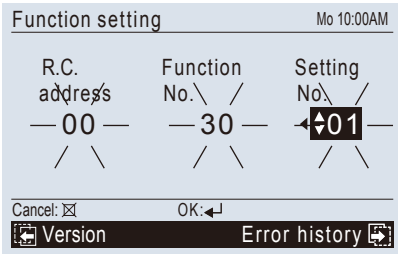
4) Select the [Setting No.] with pressing the [Cursor button (Left/Right)], and select the Setting No. to be set with pressing the [Cursor button (Up/Down)].





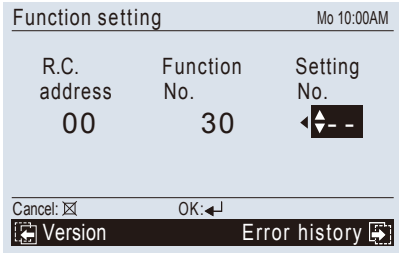
5) Pressing the [Enter button], confirm the setting.
(The data will be transferred to the indoor unit.)

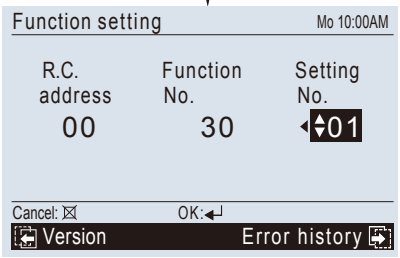




ERROR

GOOD





- When the data was not set up on the indoor unit (-- is displayed.)
- Set up the data again according to the procedure in step 3), 4) above.

When the data was normally set up on the indoor unit
(Flashing display changes to illuminated display.)

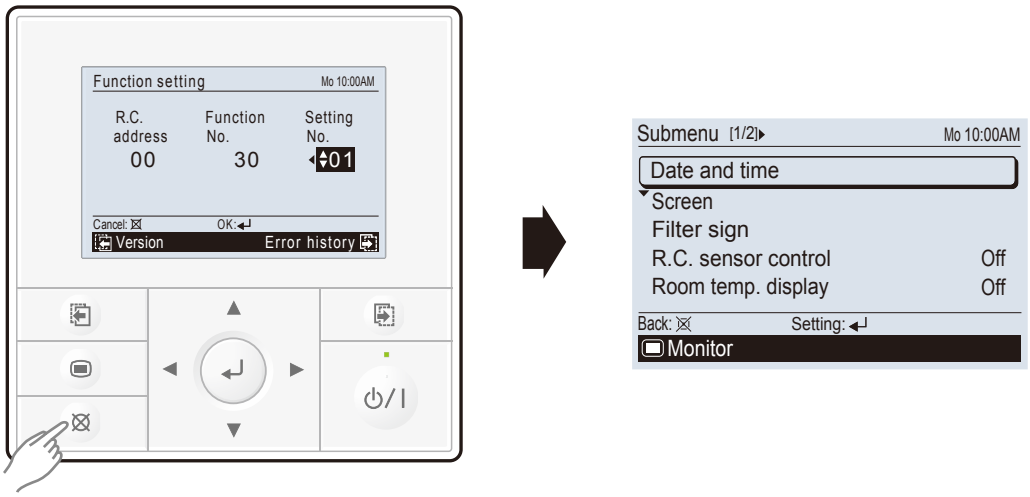
■ FUNCTION DETAILS

Refer to 6-6. FUNCTION DETAILS

SYSTEM DESIGN

■ COMPLETION OF FUNCTION SETTING MODE

6) When [Cancel button] is pressed twice while “Function setting” screen is displayed, it switches to the “Submenu” screen.



*If no key entry is made for 60 seconds, even though none of the above buttons is pressed, the function setting mode will automatically be cleared.
(If the function setting mode is automatically cleared while setting addresses, activate the mode again according to the procedure in step 2) above.)

■ SETTING UP EACH INDOOR UNIT

Repeat the procedures in steps 1) through 6), and set up the indoor units requiring function setting.

■ RESET THE POWER AFTER SETTING UP FUNCTION OF ALL INDOOR UNITS

Important

∗ If the reset is not performed, function can not be read in normally.
∗ After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
After the 2 minutes has passed, power can be restored.
∗ The set function is stored in the PCB and will remain in memory even when the power is turned off.
However setting function is effective after power reset.
Record the function set in the indoor unit on a label, etc., and affix the label to the unit so it can be used for after-sales service operations.

SYSTEM DESIGN

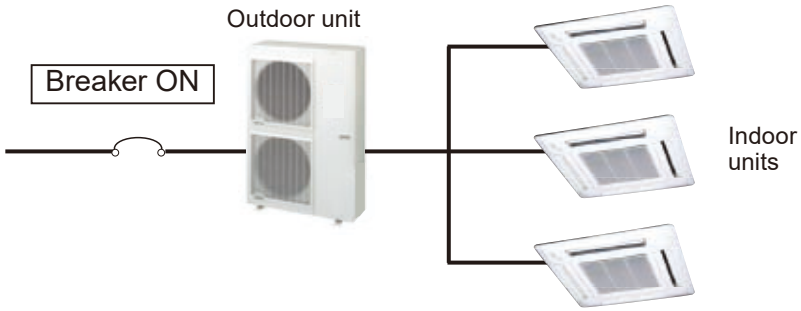
6-5. INDOOR UNIT (setting by simple remote controller)

- The function settings of the control of the indoor unit can be changed by this procedure according to the installation conditions. Incorrect settings can cause the indoor unit malfunction.
- After the power is turned on, perform the “FUNCTION SETTING” according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function Number or Setting Number.
- Settings will not be changed if invalid numbers or setting numbers are selected.
- This function cannot be used on the secondary units.

■ PREPARATION

(1) Turn on the power to the Outdoor unit.

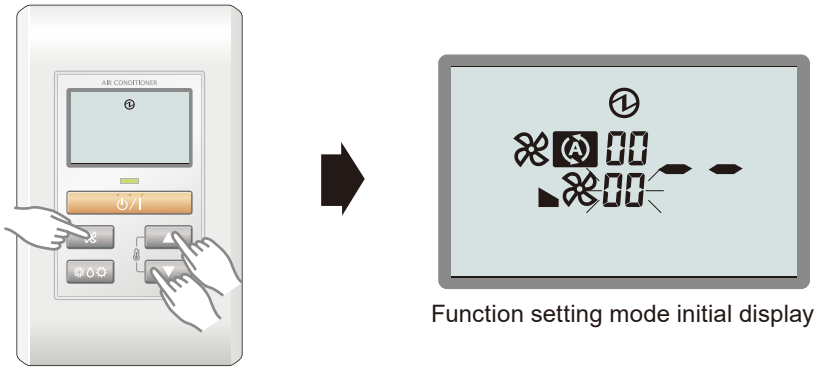
- By turning on the power indoor units, so make sure the piping air-tight test and vacuuming have been conducted before turning on the power.
- Also check again to make sure no wiring mistakes were made before turning on the power.



SYSTEM DESIGN

■ SWITCHING SELECTION OF FUNCTION SETTING MODE

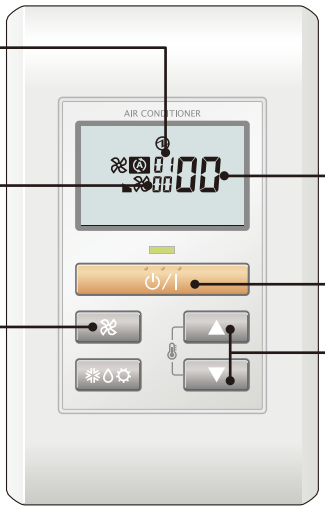
2) To activate the function setting mode, hold down the three buttons of SET TEMP. ▼, SET TEMP. ▲ and FAN at the same time for 5 seconds or longer.



Function setting mode initial display

■ BUTTON NAME AND FUNCTION

- During function setting mode, indoor unit reject the any operation command from remote controller.



Function number

Refer to FUNCTION DETAILS

Remote controller address

Remote controller address setting number 00-15.

FAN button

Each time this button is pressed, the fan setting changes among “Remote controller address,” “Function number” and “Setting number.”

Setting number

Refer to FUNCTION DETAILS

START/STOP button

Transmits function setting

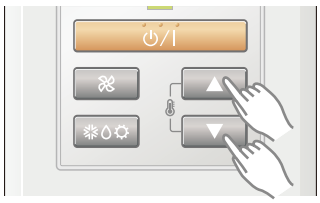
SET TEMP. “▲” and “▼” button

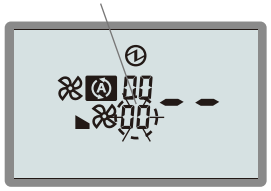
Switches the various numbers.

SYSTEM DESIGN

■ FUNCTION SETTING

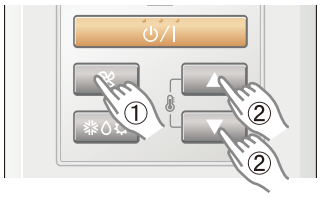
3) Pressing the SET TEMP. ▲ button or SET TEMP. ▼ button, select a remote controller address (select the indoor unit you want to operate).

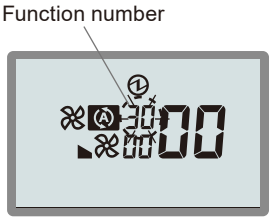




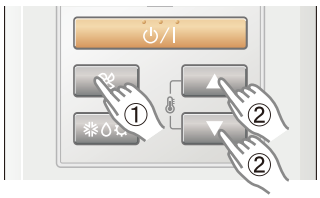
Ex.) When remote controller address “00” is selected

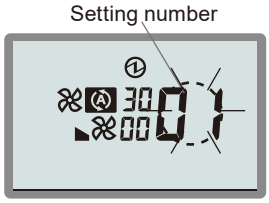
4) Press the FAN button so that the “Function number” display flashes. Then, press either the SET TEMP. ▲ button or the SET TEMP. ▼ button to set up the function number.





5) Press the FAN button so that the “Setting number” display flashes. Then, press either the SET TEMP. ▲ button or the SET TEMP. ▼ button to set up the setting number.



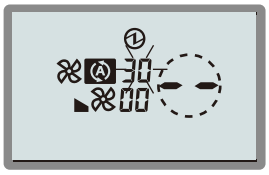


Ex.) Function number : 30, Setting number : 01

6) Pressing the START/STOP button, confirm the setting.
(The data will be transferred to the indoor unit.)

ERROR

GOOD



- When the data was not set up on the indoor unit (-- is displayed.)
- Set up the data again according to the procedure in step 4), 5) above.

When the data was normally set up on the indoor unit.

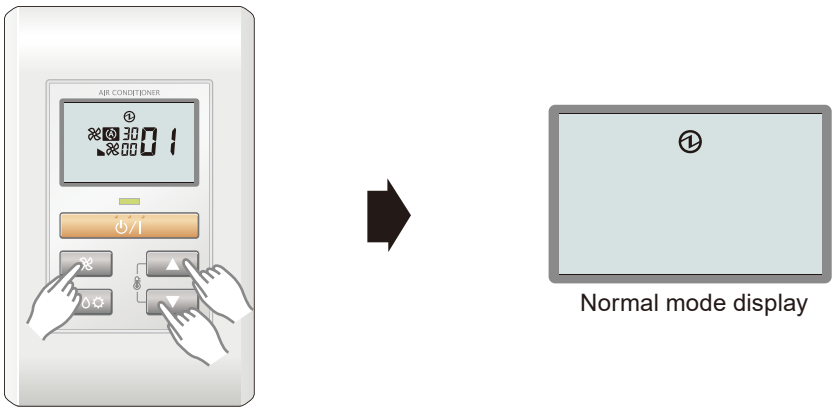
■ FUNCTION DETAILS

Refer to 6-6. FUNCTION DETAILS

SYSTEM DESIGN

■ COMPLETION OF FUNCTION SETTING MODE

7) Press the three buttons of SET TEMP. ▲, SET TEMP. ▼ and FAN at the same time for 5 seconds or longer. The function setting mode will be cleared and the regular display will be restored.



*If no key entry is made for 60 seconds, even though none of the above buttons is pressed, the function setting mode will automatically be cleared.
(If the function setting mode is automatically cleared while setting addresses, activate the mode again according to the procedure in step 2) above.)

■ SETTING UP EACH INDOOR UNIT

Repeat the procedures in steps 1) through 7), and set up the indoor units requiring function setting.

■ RESET THE POWER AFTER SETTING UP FUNCTION OF ALL INDOOR UNITS

Important

∗ If the reset is not performed, function can not be read in normally.
∗ After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
After the 2 minutes has passed, power can be restored.
∗ The set function is stored in the PCB and will remain in memory even when the power is turned off.
However setting function is effective after power reset.
Record the function set in the indoor unit on a label, etc., and affix the label to the unit so it can be used for after-sales service operations.

SYSTEM DESIGN

6-6. FUNCTION DETAILS

	Function no.	Functions	Simultaneous Multi System			
			Compact cassette	Slim duct	Duct	Floor/ ceiling
1)	02	Refrigerant circuit address	●	●	●	●
2)	11	Filter sign	●	●	●	●
3)	20	Ceiling height	●	—	—	●
4)	21	Static pressure	—	—	●	—
	26		—	●	—	—
5)	22	Outlet directions	●	—	—	—
6)	30	Room temperature sensor control for cooling	●	●	●	●
7)	31	Room temperature sensor control for heating	●	●	●	●
8)	40	Auto restart	●	●	●	●
9)	42	Room temperature sensor switching	●	●	●	●
10)	43	Cold air prevention	—	—	●	—
11)	44	Remote controller custom code	●	●	●	●
12)	46	External input control	●	●	●	●
13)	49	Indoor unit fan control for energy saving for cooling	●	●	●	●
14)	51	Primary and secondary settings	●	●	●	●

1) Refrigerant circuit address

Assign the same number to all of the indoor units connected to an outdoor unit.

Function Number	Setting Value	Refrigerant circuit address
02	00 to 15	00
		01
		≀
		14
		15

2) Filter sign

Select appropriate intervals for displaying the filter sign on the indoor unit according to the estimated amount of dust in the air of the room.
If the indication is not required, select "No indication" (03).

Function number	Setting value	Setting description	Factory setting
11	00	Standard	
	01	Long interval	
	02	Short interval	
	03	No indication	◆

Intervals will differ depending on the indoor unit type as follows:

Setting description	Simultaneous Multi System			
	Compact cassette	Slim duct	Duct	Floor/ ceiling
Standard	2500 hours	400 hours	2500 hours	400 hours
Long interval	4400 hours	1000 hours	4400 hours	1000 hours
Short interval	1250 hours	200 hours	1250 hours	200 hours

SYSTEM DESIGN

3) Ceiling height

Select the appropriate ceiling height according to the place of installation.

Function number	Setting value	Setting description	Factory setting
20	00	Standard	◆
	01	High ceiling	
	02	Low ceiling (Cassette type only)	

4) Static pressure

Select appropriate static pressure according to the installation conditions.

4-1) Duct type

Function number	Setting value	Setting description	Factory setting
21	00	Normal	◆
	01	High static pressure 1	
	02	High static pressure 2	
	03	High static pressure 3	

Determine the airflow in each mode i.e., applicable range of static pressure.

⚠ CAUTION
• If the applicable static pressure does not match the static pressure mode, the static pressure mode maybe changed to another mode automatically.

RECOMMENDED RANGE OF EXTERNAL STATIC PRESSURE [Pa]
30 to 150

4-2) Slim duct type

Function number	Setting value	Setting description	Factory setting
26	00	0 Pa	
	01	10 Pa	
	02	20 Pa	
	03	30 Pa	
	04	40 Pa	
	05	50 Pa	
	06	60 Pa	
	07	70 Pa	
	08	80 Pa	
	09	90 Pa	
	31	25 Pa [Standard]	◆

5) Outlet directions

Select the appropriate number of outlet directions according to the installation conditions.

Function number	Setting value	Setting description	Factory setting
22	00	4-way	◆
	01	3-way	

SYSTEM DESIGN

6) Room temperature sensor control for cooling

Depending on the installed environment, correction of the room temperature sensor may be required.
Select the appropriate control setting according to the installed environment.

Function number	Setting value	Setting description	Factory setting
30	00	Standard	◆
	01	Slightly lower control	
	02	Lower control	
	03	Higher control	

In case of Slim duct type and Floor/Ceiling type models: In floor console installations, select "01".

7) Room temperature sensor control for heating

Depending on the installed environment, correction of the room temperature sensor may be required.
Select the appropriate control setting according to the installed environment.

Function number	Setting value	Setting description	Factory setting
31	00	Standard	◆
	01	Lower control	
	02	Slightly higher control	
	03	Higher control	

In case of Slim duct type and Floor/Ceiling type models: In floor console installations, select "01".

8) Auto restart

Enable or disable automatic restart after a power interruption.

Function number	Setting value	Setting description	Factory setting
40	00	Enable	◆
	01	Disable	

* Auto restart is an emergency function such as for power outage etc.
  Do not attempt to use this function in normal operation.
  Be sure to operate the unit by remote controller or external device.

9) Room temperature sensor switching

(Only for Wired remote controller)

When using the Wired remote controller temperature sensor, change the setting to "Both" (01).

Function number	Setting value	Setting description	Factory setting
42	00	Indoor unit	◆
	01	Both	

00: Sensor on the indoor unit is active.

01: Sensors on both indoor unit and wired remote controller are active.

* Remote controller sensor must be turned on by using the remote controller.

SYSTEM DESIGN

10) Cold air prevention

This setting is to disable the cold air prevention function during heating operation. When disabled, the fan setting will always follow the setting on the remote controller. (Excluding defrost mode)

Function number	Setting value	Setting description	Factory setting
43	00	Enable	◆
	01	Disable	

11) Remote controller custom code

(Only for wireless remote controller)

The indoor unit custom code can be changed. Select the appropriate custom code.

Function number	Setting value	Setting description	Factory setting
44	00	A	◆
	01	B	
	02	C	
	03	D	

12) External input control

"Operation/Stop" mode or "Forced stop" mode can be selected.

Function number	Setting value	Setting description	Factory setting
46	00	Operation/Stop mode	◆
	01	(Setting prohibited)	
	02	Forced stop mode	

13) Indoor unit fan control for energy saving for cooling

Enables or disables the power-saving function by controlling the indoor unit fan rotation when the outdoor unit is stopped during cooling operation.

Function number	Setting value	Setting description	Factory setting
49	00	Disable	
	01	Enable	◆

00: When the outdoor unit is stopped, the indoor unit fan operates continuously following the setting on the remote controller.

01: When the outdoor unit is stopped, the indoor unit fan operates intermittently at a very low speed.

14) Primary and secondary settings

Set the indoor unit that is connected to the outdoor unit using a transmission cable as the primary.

Function number	Setting value	Setting description	Factory setting
51	00	Primary	◆
	01	Secondary	

SYSTEM DESIGN

6-7. WIRED REMOTE CONTROLLER

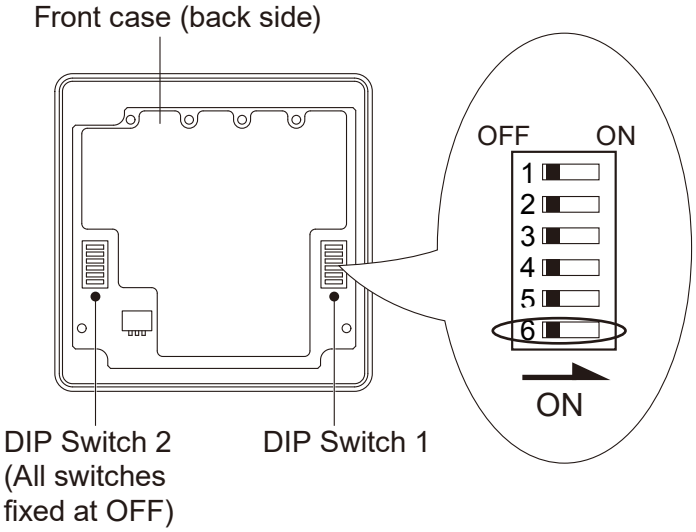
6-7-1. MODEL: UTY-RNN∗M

DIP Switch 1	SW1	Prohibited
	SW2	Dual remote controller setting
	SW3	Prohibited
	SW4	°F / °C switch
	SW5	Prohibited
	SW6	Memory backup setting

* Do not use DIP Switch 2

■ SWITCH POSITION

● Wired remote controller



SYSTEM DESIGN

■ DIP SWITCH 1 SETTING

● SW1 setting prohibited

(◆...Factory setting)

	SW1	
◆	OFF	Fixed at OFF
	ON	Setting prohibited

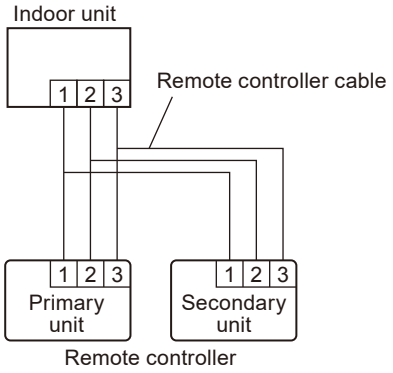
● SW2 setting

● Dual remote controller setting

Set the remote controller SW2 according to the following table.

(◆...Factory setting)

	Number of remote controller	Primary unit	Secondary unit
		SW2	SW2
◆	1 (Normal)	OFF	-
	2 (Dual)	OFF	ON



● SW3 setting prohibited

(◆...Factory setting)

	SW3	
◆	OFF	Fixed at OFF
	ON	Setting prohibited

● SW4 setting

● °F / °C switch

Temperature display is Fahrenheit(°F) / Celsius(°C)

(◆...Factory setting)

	SW4	
◆	OFF	°C
	ON	°F

SYSTEM DESIGN

● SW5 setting prohibited

(◆...Factory setting)

	SW5	
◆	OFF	Fixed at OFF
	ON	Setting prohibited

● SW6 setting

● Memory backup setting

Set to ON to use batteries for the memory backup.

If batteries are not used, all of settings stored in memory will be deleted if there is a power failure.

(◆...Factory setting)

	SW6	Memory backup
◆	OFF	Disable
	ON	Enable

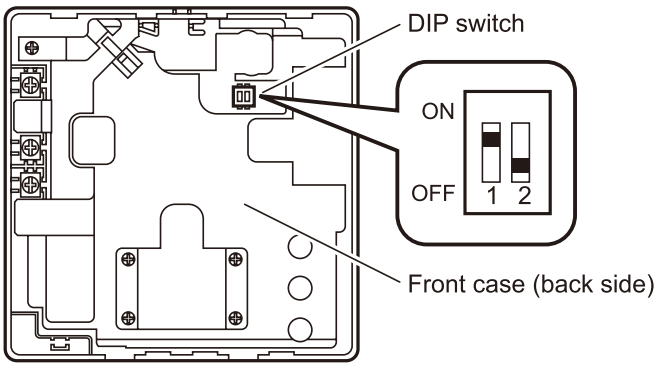
SYSTEM DESIGN

6-7-2. MODEL: UTY-RVN∗M

DIP Switch	SW1	Memory backup setting
	SW2	Dual remote controller setting

■ SWITCH POSITION

● Wired remote controller



■ DIP SWITCH SETTING

● Memory backup setting

Set to ON to use batteries for the memory backup.

If batteries are not used, all of settings stored in memory will be deleted if there is a power failure.

(◆...Factory setting)

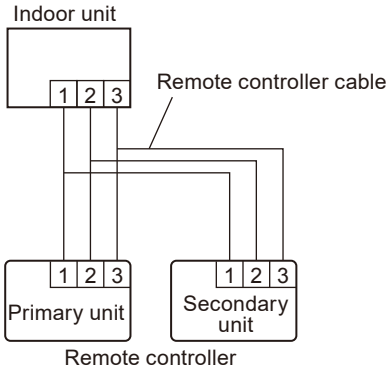
	SW1	Memory backup
◆	OFF	Disable
	ON	Enable

● Dual remote controller setting

Set the remote controller SW2 according to the following table.

(◆...Factory setting)

	Number of remote controller	Primary unit	Secondary unit
		SW2	SW2
◆	1 (Normal)	OFF	-
	2 (Dual)	OFF	ON



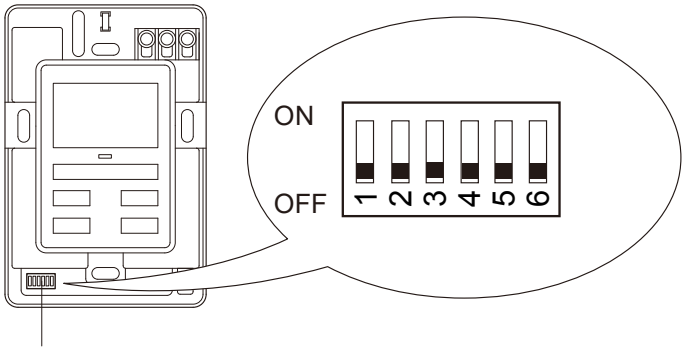
SYSTEM DESIGN

6-8. SIMPLE REMOTE CONTROLLER

DIP Switch	SW1	Prohibited
	SW2	Dual remote controller setting
	SW3	°F / °C switch
	SW4	Prohibited
	SW5	Prohibited
	SW6	Prohibited

■ SWITCH POSITION

● Simple remote controller



DIP Switch

SYSTEM DESIGN

■ DIP SWITCH SETTING

● SW1 setting prohibited

(◆...Factory setting)

	SW1	
◆	OFF	Fixed at OFF
	ON	Setting prohibited

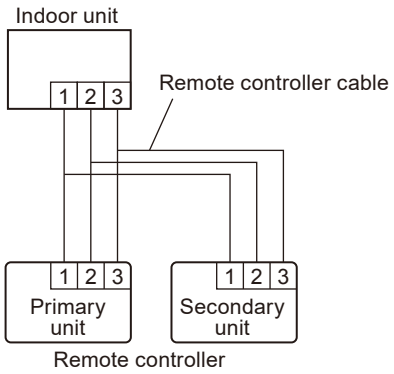
● SW2 setting

● Dual remote controller setting

Set the remote controller SW2 according to the following table.

(◆...Factory setting)

	Number of remote controller	Primary unit	Secondary unit
		SW2	SW2
◆	1 (Normal)	OFF	-
	2 (Dual)	OFF	ON



● SW3 setting

● °F / °C switch

Temperature display is Fahrenheit(°F) / Celsius(°C)

(◆...Factory setting)

	SW3	
◆	OFF	°C
	ON	°F

● SW4 setting prohibited

(◆...Factory setting)

	SW4	
◆	OFF	Fixed at OFF
	ON	Setting prohibited

SYSTEM DESIGN

● SW5 setting prohibited

(◆...Factory setting)

	SW5	
◆	OFF	Fixed at OFF
	ON	Setting prohibited

● SW6 setting prohibited

(◆...Factory setting)

	SW6	
◆	OFF	Fixed at OFF
	ON	Setting prohibited

SYSTEM DESIGN

7. OPTIONAL PARTS INSTALLATION

7-1. DRAIN PUMP UNIT

7-1-1. DUCT TYPE

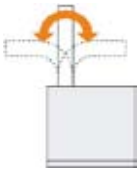
■ MODEL : UTZ-PX1NBA

■ SPECIFICATIONS

	Unit	Specifications
Height of drain up	mm	Maximum 1000
Power source	-	220-240V, 50/60Hz
Input Power (230V, 50/60Hz)	W	12 / 10.8
Current (230V, 50/60Hz)	mA	114 / 92
Dimensions (H x W x D)	mm	176 x 178 x 154
Weight	kg	2.5
Connection pipe diameter	-	VP25 (I.D.25mm, O.D.32mm)
Direction of pipe connection *1	-	360°
Angle of pipe connection *2	-	0° (Horizontal)-90° (Vertical)
Control method	-	Control board of indoor unit
safety device	-	Float switch, Thermal fuse

*1 : Direction of pipe connection

*2 : Angle of pipe connection

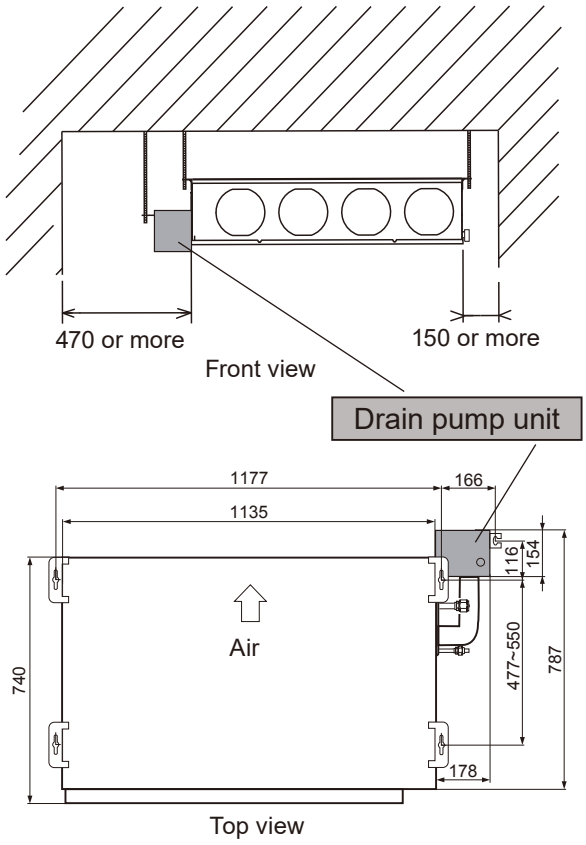


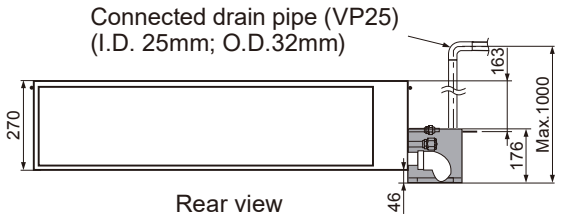
■ APPLICATION INDOOR UNITS

Type	Model name
Duct (Simultaneous multi system)	AR∗G22LM, AR∗G24LM

■ INSTALLATION PLACE

(Unit : mm)

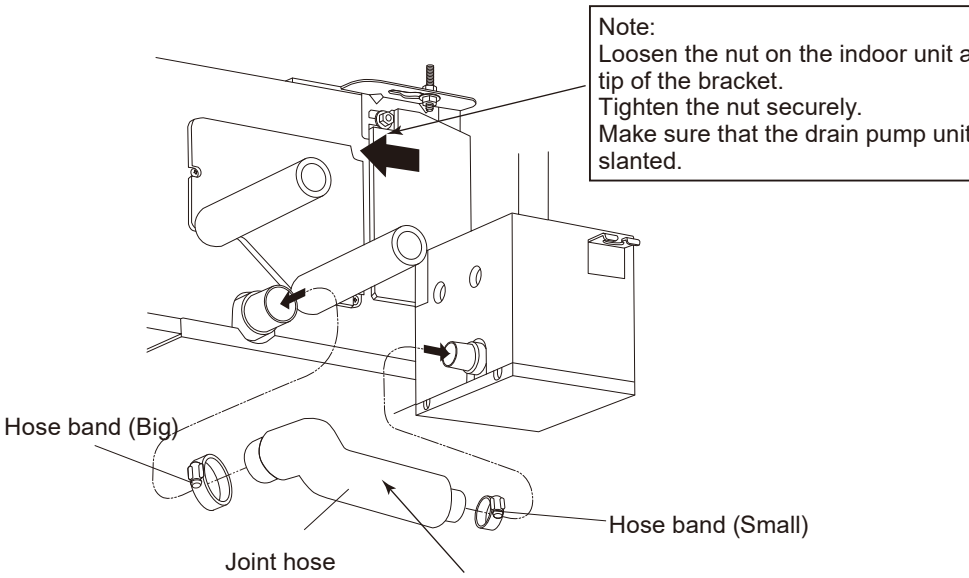


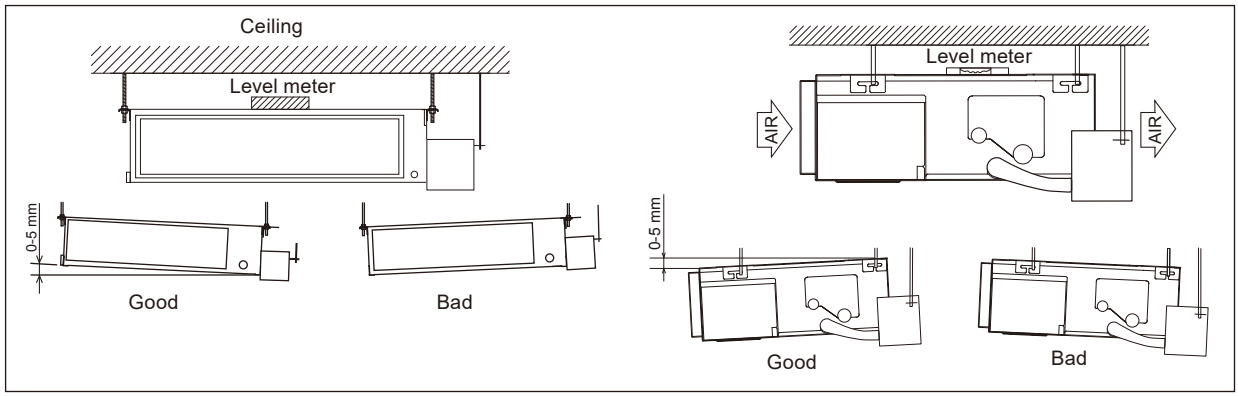


Note:
Leave the space required to service the unit.
Set a maintenance hole near the drain pump unit.

SYSTEM DESIGN

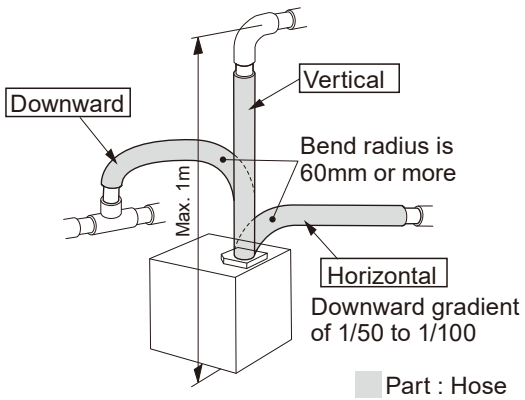
■ INSTALLING DRAIN PUMP UNIT

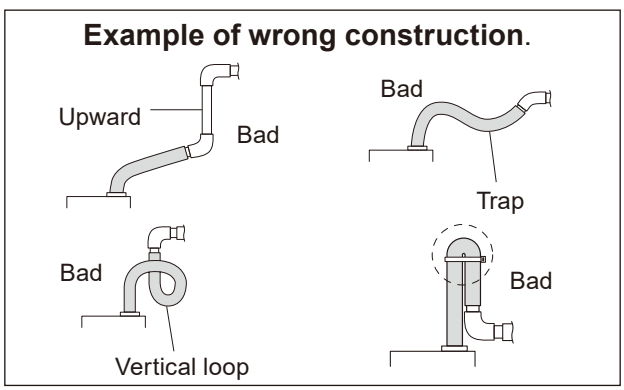




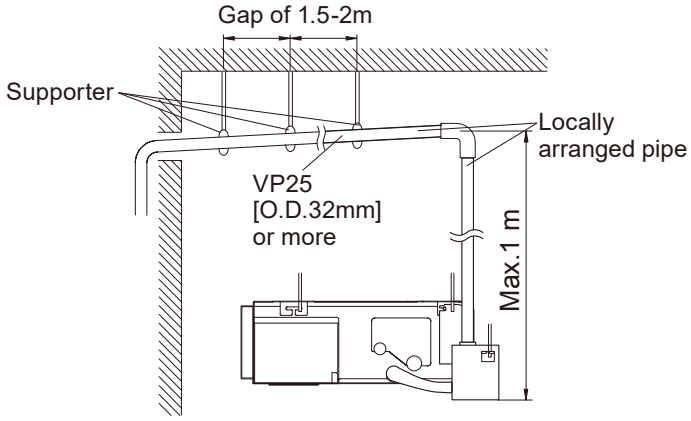
SYSTEM DESIGN

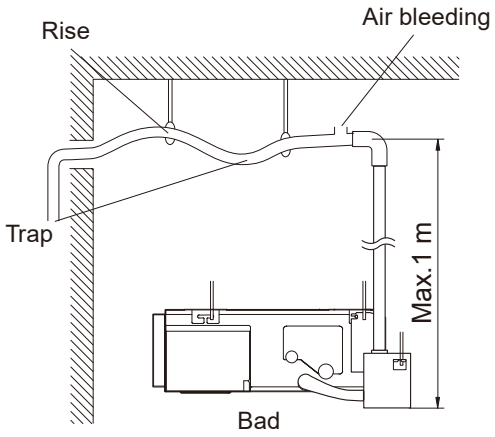
■ INSTALLING HOSE

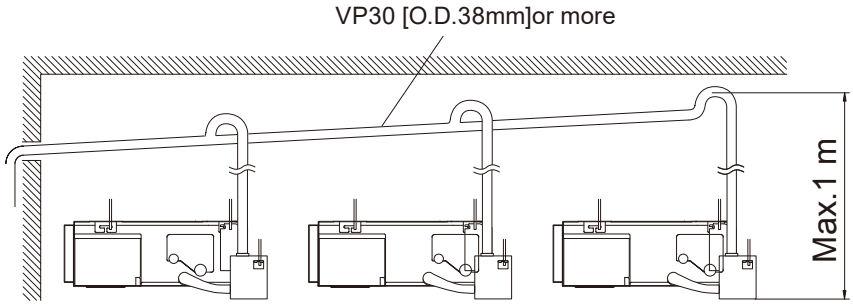




■ INSTALLING PIPE



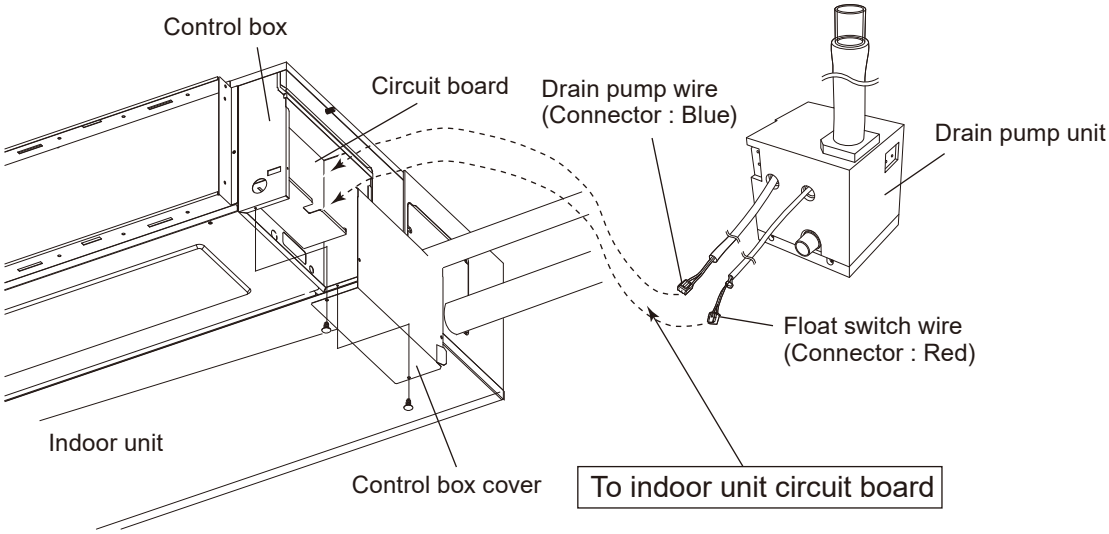




Observe the following procedures to construct centralized drain pipe fittings.

SYSTEM DESIGN

■ ELECTRICAL WIRING



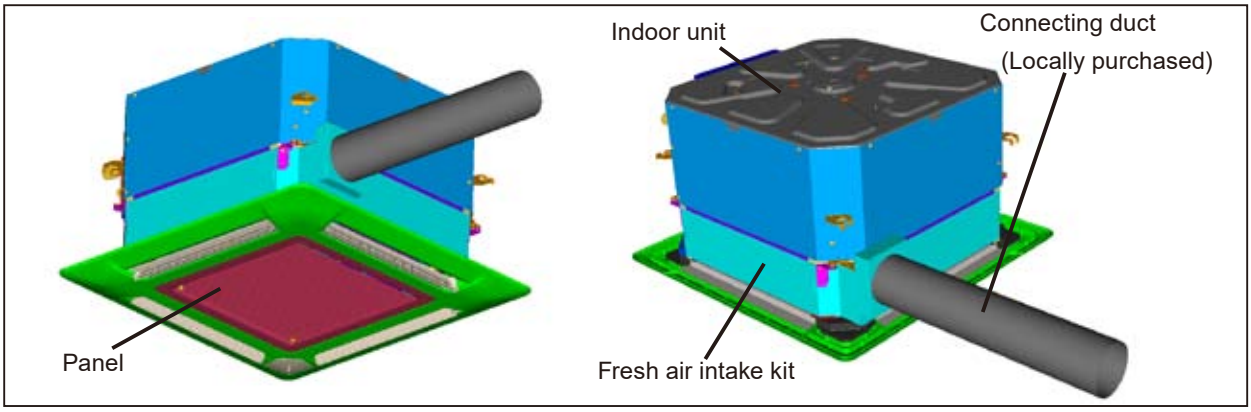
7-2. FRESH AIR INTAKE KIT

7-2-1. COMPACT CASSETTE TYPE

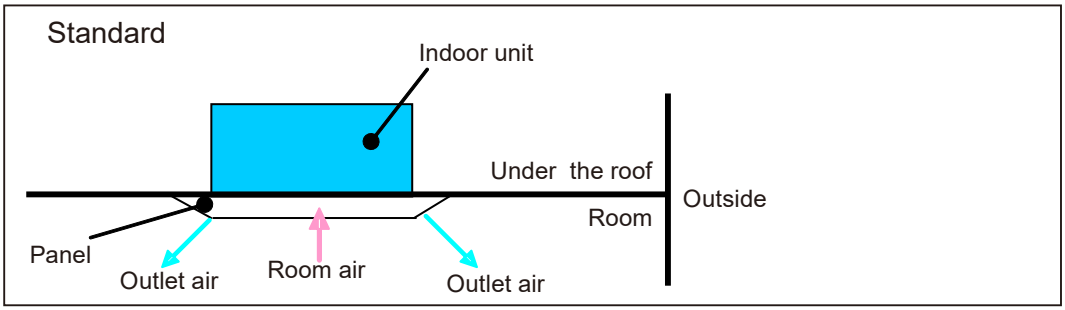
■ MODEL : UTZ-VXAA

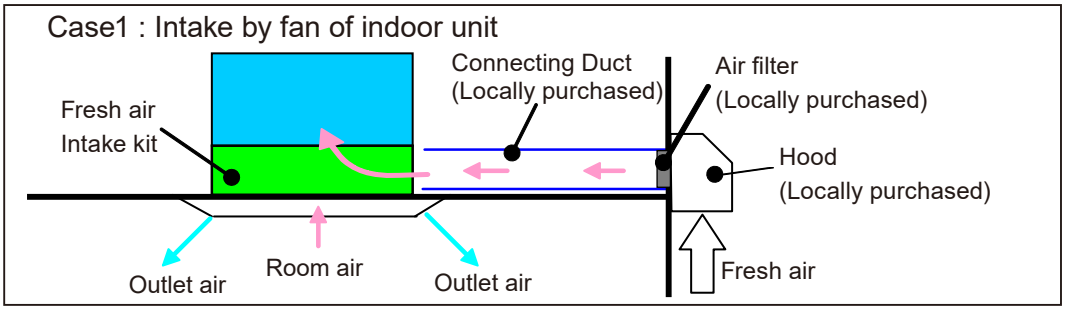
■ FEATURE

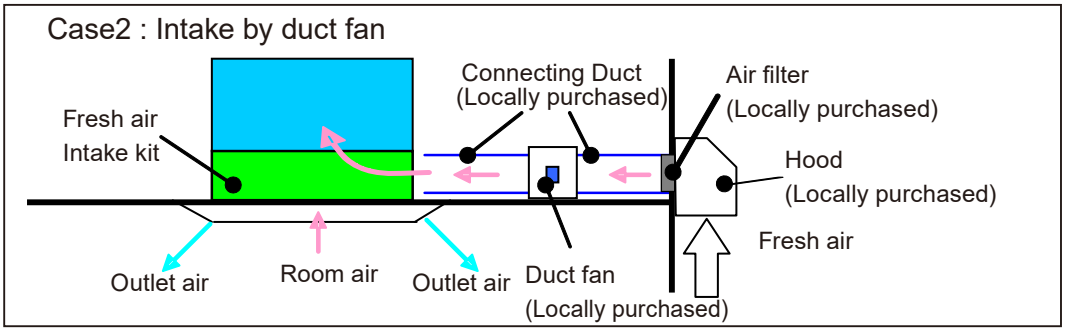
• It can be taken in fresh air of up to 10% of “high” air volume of the indoor unit by attaching Fresh Air Intake Kit to cassette type indoor unit.



■ INSTALLATION EXAMPLE







SYSTEM DESIGN

■ SPECIFICATIONS

Model name				UTZ-VXAA
Fresh air intake	Max. fresh air intake volume		% (for High)	10
Connection duct type			mm	ø 100
			Pcs	1
Dimension (H x W x D)		Net	mm	120 x 570 x 570
		Gross		165 x 585 x 585
Weight		Net	kg	3.5
		Gross		5.5

SYSTEM DESIGN

■ PRECAUTION

● About fresh air intake kit

- The Fresh Air Intake Kit can be installed onto cassette type air conditioners.
- The volume of ventilated air provided by the Fresh Air Intake Kit may be unable to fulfill ventilation regulations in all countries.

  On such occasions we ask that this kit be used along with Energy recovery ventilators.
- When intaking outside air please ensure correct air-conditioning design as based on air-conditioning load calculations.

  As outside air is not being processed an increase in outside air load can affect air conditioning.

● Installation location

- Area that generate substances that adversely affect the equipment, such as sulfuric gas,chlorine gas,add,or alkali it will cause the copper pipes and brazed joints to corrode,which can cause refrigerant leakage.
- Area with high salt content,such as at the seaside. It will deteriorate metal parts, causing the parts to fall or the unit to leak water.
- Be certain to use electric dampers and shutters to avoid infiltration of cold air, wind and fog during shutdown in areas with cold climates, strong winds, or where fogs are common.
- Please ensure the product is installed a distance of at least three times the duct diameter away from exterior wall air inlets, or air exhausts for the prevention of short circuits.

● Temperature conditions

- Condensation may form on the product when outside air temperature is low, and the temperature and humidity surrounding the product are high. Don't intake the air of below 0°C into the fresh air intake kit.
- The upper limit of the product's temperature range should respond to the outdoor temperature range.

● About duct fan

- When installing the duct fan, connect the drive relay (locally purchased) and operate with the indoor unit.
- Please ensure the intake air volume is below 10% of the product's air volume HI. When the intaken air volume becomes too large there the operating noise may increase and room temperature detection may be affected.

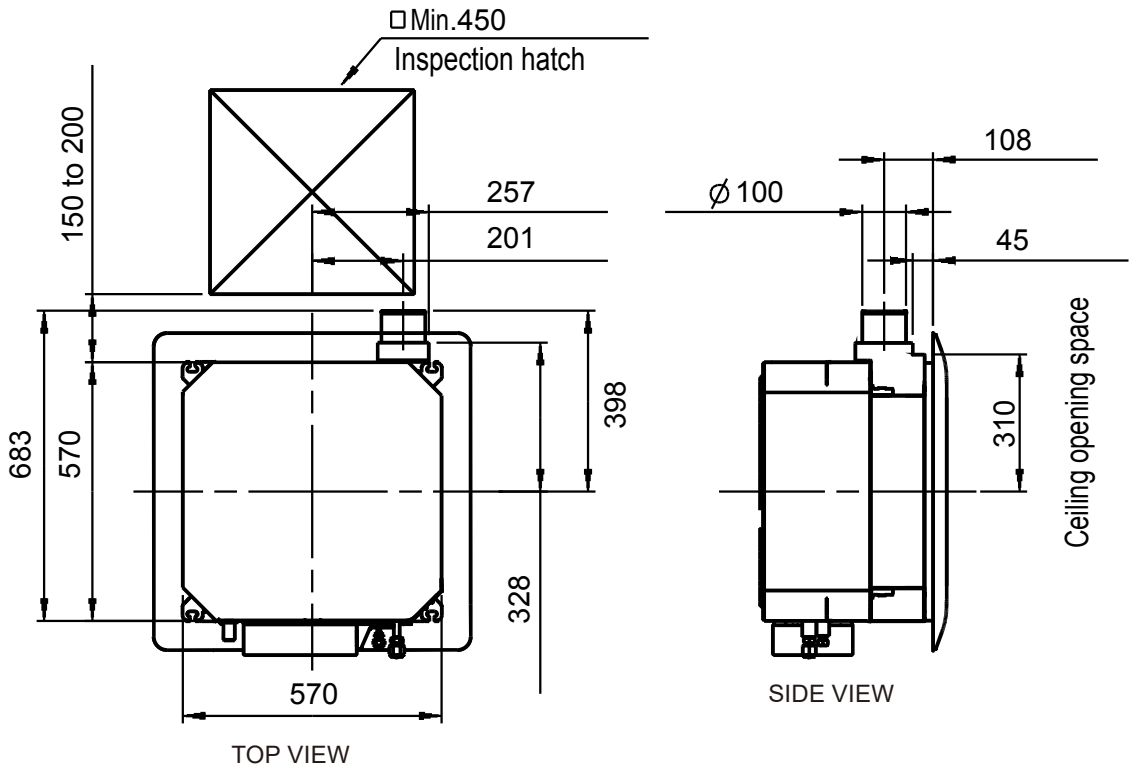
● About the duct connection

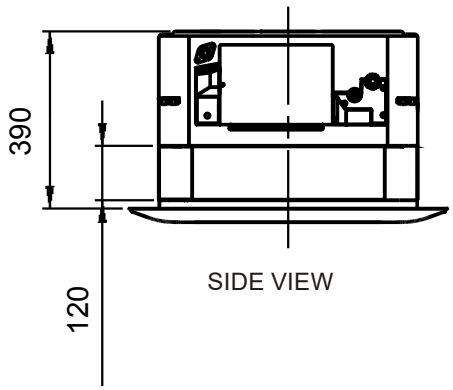
- Procure a duct with internal diameter that fits the external diameter of the duct flange.
- Please note that regulations of some countries may require the use of a nonflammable duct.
- If the duct penetrates a fire-retarding division or other fire-proofing measures, the installation of fire dampers, or a construction that does not adversely affect fire control measures is a regulatory requirement of some countries.
- When using metallic ducts please ensure metals (i.e., metal lath, wire lath, stainless sheeting) are electrically insulated. (A short occurring by electrical connection can cause fire)
- Please ensure to thermally insulate connected ducts to prevent condensation.
- Please make certain that netting or other measures are installed in parts exposed to the outside air to prevent infiltration of small animals such as birds and insects.
- Please be certain to install external air filters to parts exposed to the outside air for heat exchanger protection of indoor equipment.
- Please avoid the infiltration of rain water by installing outside ducts with an incline of at least 1/30, and fitting hoods on openings.

SYSTEM DESIGN

■ DIMENSIONS

Unit : mm



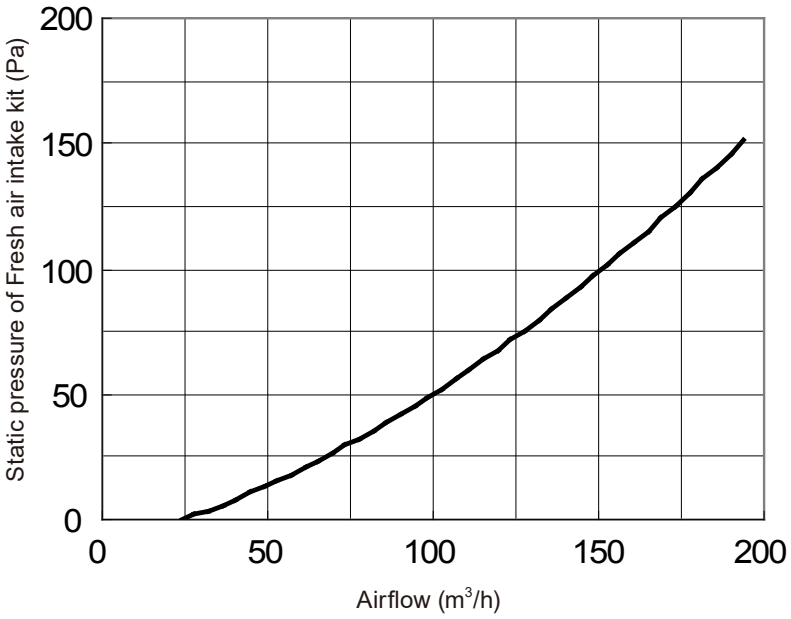


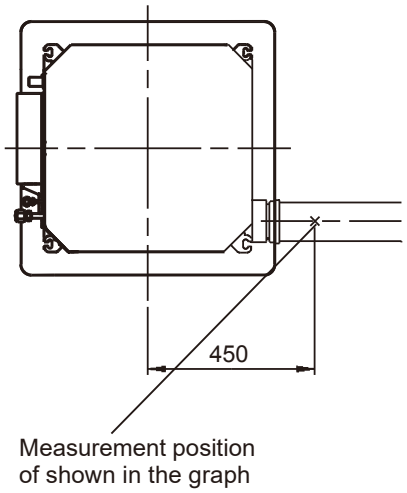
• When installing this kit, inspection hatch is necessary. (It is necessary when servicing.)

SYSTEM DESIGN

■ AIRFLOW

Unit : mm





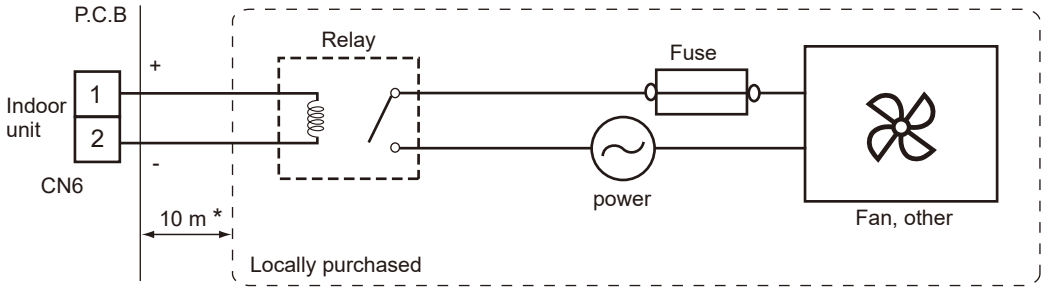
SYSTEM DESIGN

■ FRESH AIR CONTROL OUTPUT

- You can control duct fan by synchronization with fan operation of indoor unit.
- Wire for fresh air control output is supplied with Fresh Air Intake Kit.
- Extended length of the wire : Max. 10m

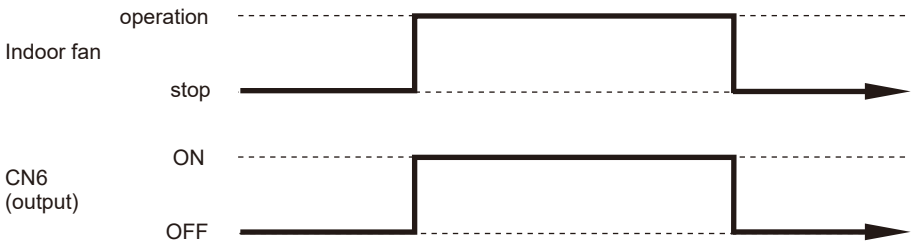
● Connection diagram

- For Relay Output voltage : DC12V
  Permissible current : 15mA



* : Make the distance from the PCB to the Relay Unit within 10 m

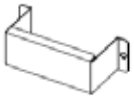
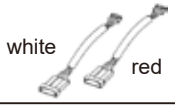
● Indoor unit status



● Wire (External output ①)

SYSTEM DESIGN

■ ACCESSORY PARTS

Name and shape	Q'ty	Application
Installation manual 	1	
Chamber 	1	Air joint for connection duct
Wire cover 	1	Cover for extension wire
Screw 	4	Attaching for chamber Attaching for wire cover
Extension wire for louver 	2	Extension wire for louver

Name and shape	Q'ty	Application
Extension wire for receiver kit 	1	Extension wire for receiving kit
Wire (External output ①) 	1	For connect indoor unit to relay of duct fan (For single or multi)
Wire (External output ②) 	1	For connect indoor unit to relay of duct fan (For VRF)
Bolt 	4	For attaching kit to indoor unit
Cable tie 	1	For fixing wire

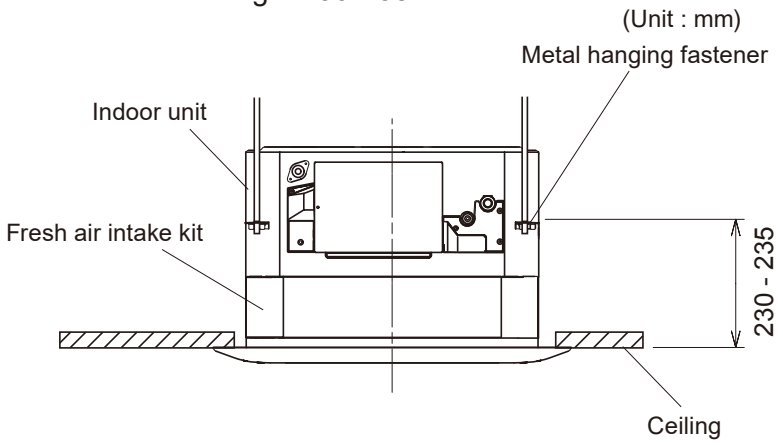
SYSTEM DESIGN

SYSTEM DESIGN

■ INSTALLATION

● Mounting of indoor unit

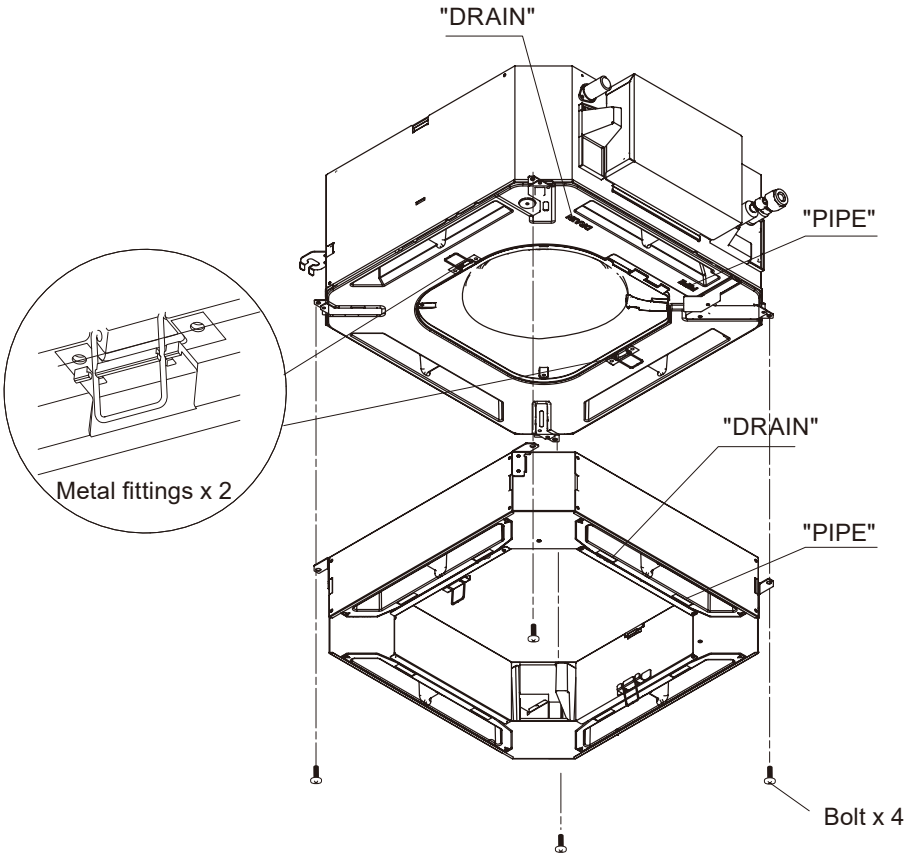
- Please refer to the installation manual provided with the indoor unit for mounting.
- Please refer to the diagram below for installation height.
- When installing this product to existing indoor units, please adjust the installation height of the indoor units to height 230-235mm.



● Installation of the fresh air intake kit

⚠CAUTION
Installing the Fresh Air Intake Kit with the wrong direction is a cause of water leakage.

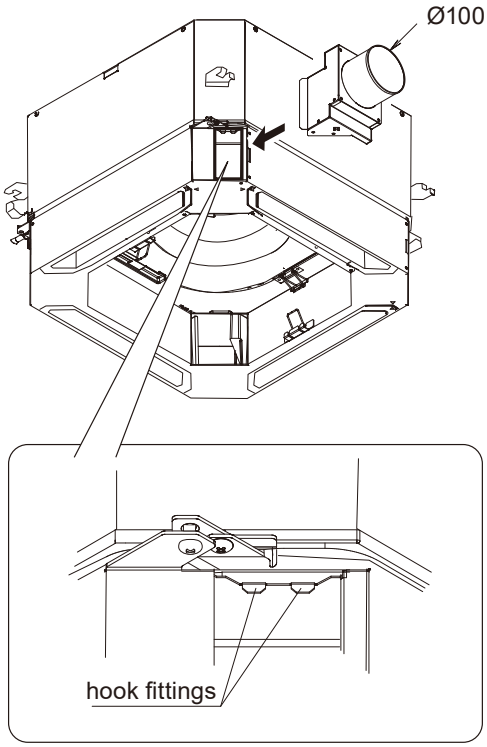
- Provisionally attach the “DRAIN”, “PIPE” of the Fresh Air Intake Kit to the indoor unit foam-sealed “DRAIN”, “PIPE”, following the direction of the indoor unit, using the metal fittings of the combined diagram.

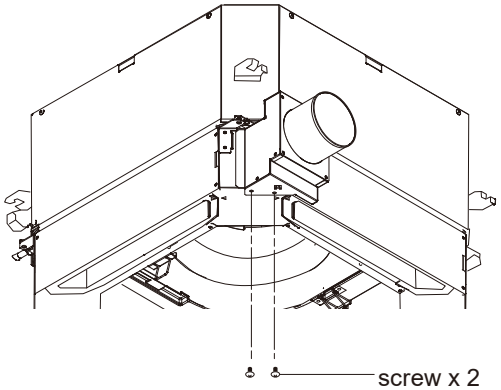


SYSTEM DESIGN

● Chamber installation

Fit the four-sided holes of the chamber together with the hook fittings of the Fresh Air Intake Kit (in two places), and secure the attached chamber in place with screws provided.

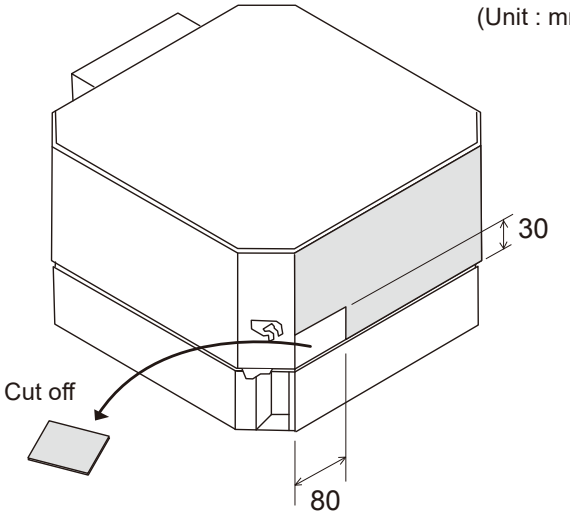




SYSTEM DESIGN

- When using the “UTZ-KXGC” kit for high humidity, please first cut off and remove the heat insulation as shown in the figure.
- Please install the kit for high humidity according to the installation instruction sheet provided.

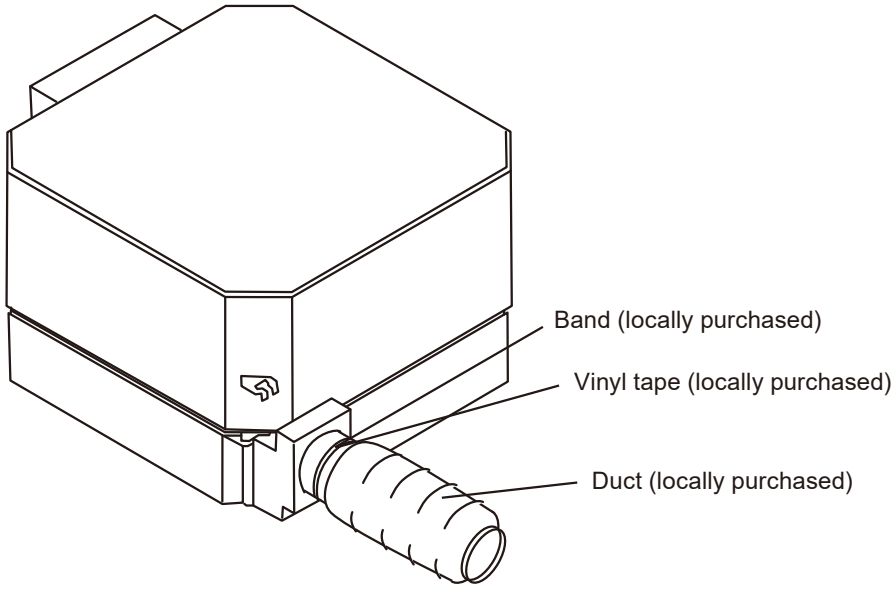
(Unit : mm)

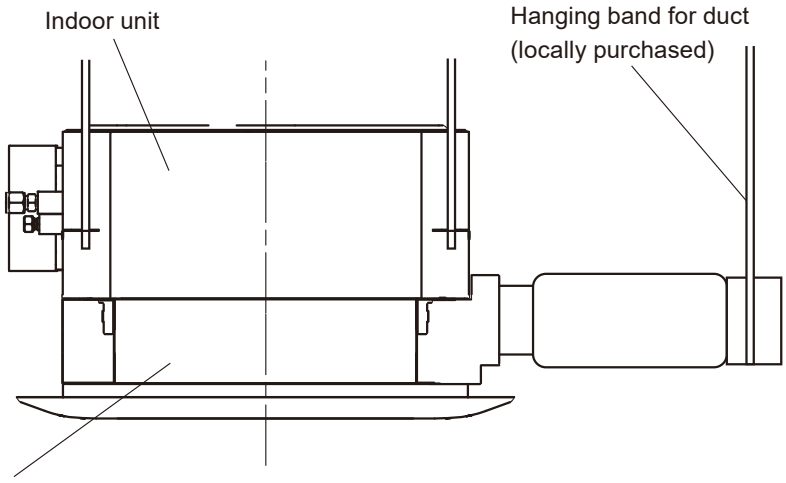


● Duct installation

- Please fasten the connecting parts of the ducts with band, and wrap with vinyl tape to ensure no air leaks. (Carry out the work to ensure no air leakage at a pressure of 200 Pa)
- Please do not construct the duct in the manner of below.
  - ○Extreme Bends
  - ○Highly Repetitive Bends
  - ○Making the Connecting Duct Diameters Smaller

Completion figure





When wiring of the duct fan is required please refer to "■FRESH AIR CONTROL OUTPUT".

SYSTEM DESIGN

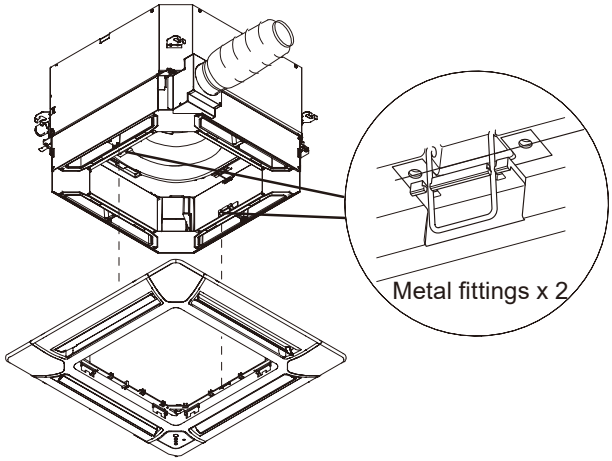
● Installation of cassette grille

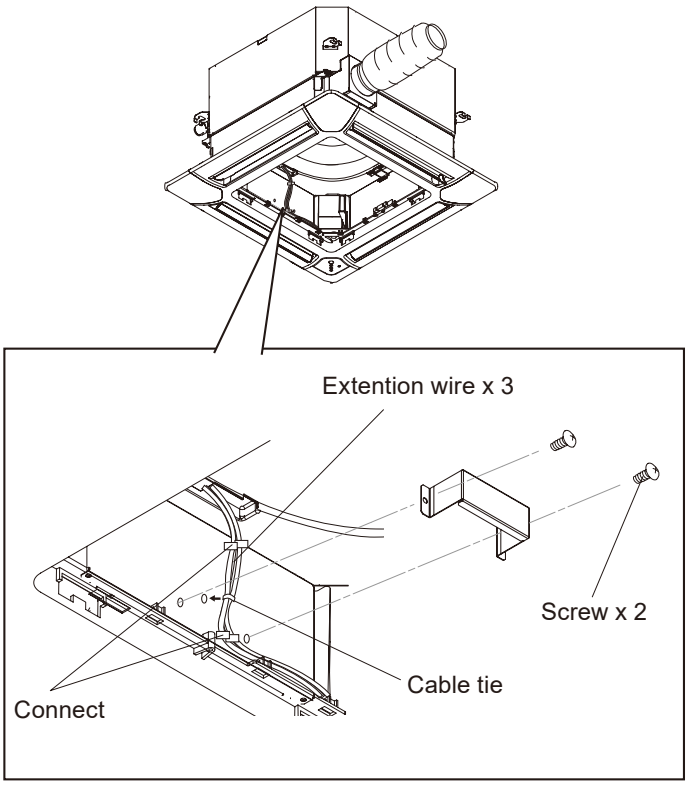
(1) Please connect extension wires for use with louvers, or extension wire for optical receiver after provisional attaching of the cassette grille.

(2) Tie the wires together with the fasteners provided and insert into the hole of the Fresh Air Intake Kit.

(3) Install the wire-cover provided on the Fresh Air Intake Kit.

(4) Please install cassette grille according to the installation instruction sheet provided.





SYSTEM DESIGN

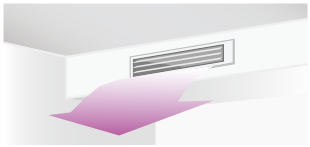
7-3. AUTO LOUVER GRILLE KIT

■ MODEL : UTD-GXSB-W

■ FEATURE

Simple flat Auto Louver will provide comfort airflow and harmonize with luxury interior.

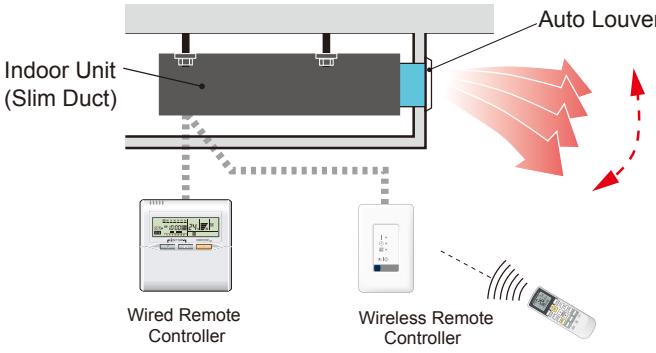
Closed louver
[Operation is stopped.]



Opened louver
[During operation]

SYSTEM DESIGN

● Flexible control



★*Operation with Indoor Unit*

Auto Louver can be operated by synchronizing remote controller of Indoor Unit.

★*UP and Down auto swing*

- Auto airflow direction and auto swing
- 4 steps selectable

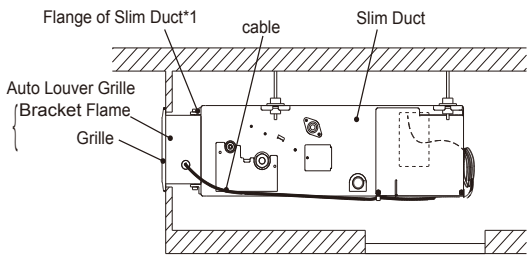
★*Auto-closing louver*

When operation of Indoor Unit is stopped, the louver will automatically close.

● Flexible installation

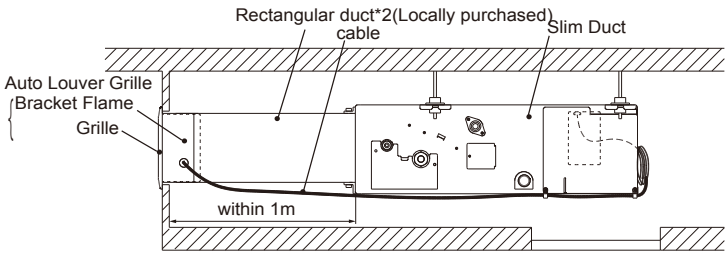
Auto Louver Grille can be connected either directly with indoor unit or through the rectangular duct.

(a) Direct connection to flange



*1 : Attachment is not necessary.

(b) Connection with rectangular duct



*2 : Length of connecting duct must be within 1m

■ SPECIFICATIONS

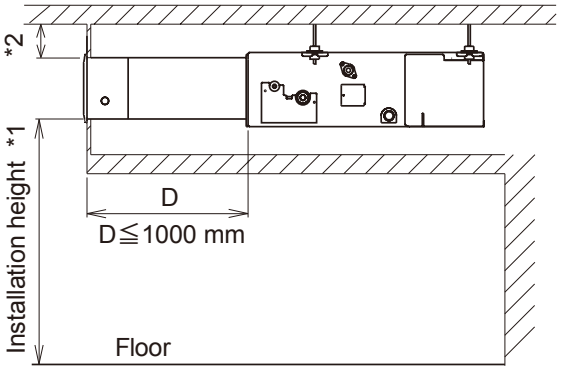
Model name			UTD-GXSB-W
Power Supply			Connecting with Control box of indoor unit
Fixing of Auto Louver Grille			Screw fixing to Flange or Rectangular duct
Extension Square Duct Limit			1.0m (Max. duct length between indoor unit and Grille)
Net Dimension (H x W x D)		mm	180 x 883 x (84+9)
Weight	Net	kg	2.5
	Gross		3.5
Color			White
Louver Motor			Stepping Motor
Material			Flame retardant ABS
Accessories			Fitting Flame, etc.
Operation range	Cooling	°C	18 to 32
		% RH	80% or less
	Heating	°C	16 to 30

SYSTEM DESIGN

■ PRECAUTION

●Select the installation location that meets the following requirement and that is approved by the customer.

• Cold and warm air should reach the entire room.



*1) Refer to Design & Technical manual for Air velocity distribution and Air temperature distribution during heating.

*2) If the distance from the ceiling is not adequate, it may cause mildew stains on the wall or the ceiling. (Ensure to fix at least 150 mm away from any surface of the equipment.)

●Do not install the unit in the following areas

• The upper part of the vicinity of room entrance. It may cause condensation on the outlet port.
• Near a wall surface. It may cause condensation on the wall during cooling.
• Area filled with mineral oil or containing a large amount of splashed oil or steam, such as a kitchen.
• The place where it will be exposed to direct sunlight. Or else, it may cause a change in color.

●When the installation area is exposed to direct sunlight, take measures to block the light such as covering the grille surface with a sheet. Or else, it may cause a change in color.

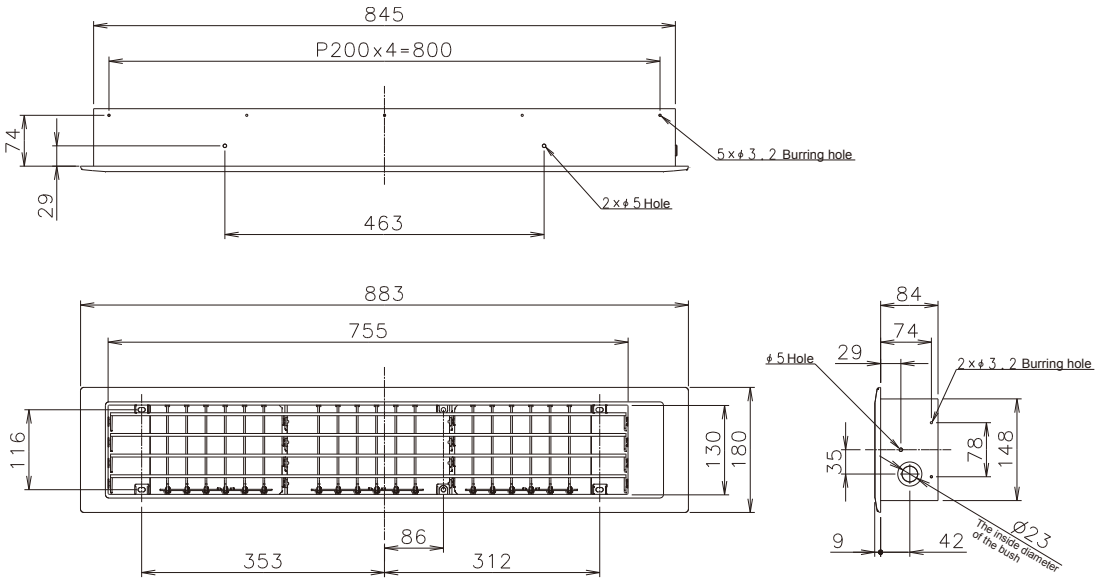
●Use an appropriate Grille that is compatible with the indoor unit. If not used with the correct combination, it may cause condensation.

●Perform heat insulation and field setting according the Design & Technical manual of Indoor unit. Not installing as per the instructions may cause condensation.

SYSTEM DESIGN

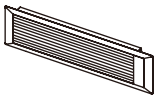
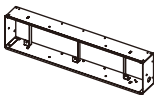
■ DIMENSIONS

● MODEL : UTD-GXSB-W



SYSTEM DESIGN

■ ACCESSORY PARTS

Name and shape	Q'ty
Installation manual 	1
Operating manual 	1
Grille 	1
Bracket frame 	1

Name and shape	Q'ty
Screw-A 	16
Screw-B 	6
Cable clip 	2
Cable tie 	3
Bushing 	1

SYSTEM DESIGN

8. INSTALLATION PRECAUTIONS

8-1. INDOOR UNIT INSTALLATION PRECAUTIONS

Note: The information listed below are general precautions.
Some models also include items that do not apply.

■ PLACES WHERE USE PROHIBITED

- •Places where there is the danger of combustible gas leakage.
- •Places where sulfur gas, chlorine gas, acid, alkali, or other matter which effects equipment is generated
- •Places where there is a lot of oil splash and steam (kitchen, machinery room, etc.)
- •Places where machinery which generates high frequencies is used
- •Ocean beaches and other areas where there is a lot of salt
- •Places where carbon fibers and metal powder, powder, etc. suspended in the air
- •Installation in vehicles, ships, and other conveyances
- •Factory, etc. where voltage fluctuations are large

■ POINTS TO REMEMBER WHEN INSTALLING

(1) The set shall be installed at a place which can withstand the weight and vibration of the indoor unit

(2) To allow maintenance after refrigerant piping, drain piping, and electric wiring connection and installation, provide an installation service space and an inspection port, as required.

*Installation service space is shown on " DIMENSIONS ".

(3) Be careful when installing the set at the following places.

[Installation precautions]

	Contents	Countermeasures (Reference)
When the ceiling is high	If the indoor unit is installed where the installation height given in the installation manual is exceeded, the temperature difference between the floor and ceiling of the room will be large and the heating effect will be poor. Moreover, even if the indoor unit is installed within the installation height, a similar phenomena will occur when installed in a room in which the doors are opened and closed frequently and hot air circulation is obstructed by desks, chairs, etc.	(1) Switch the setting to the high ceiling mode. (2) Install a circulator. (3)Arrange the furniture in the room so that it does not obstruct the hot air.
When lower level directly contacts the outside air.	When the lower level of the shop and office is a warehouse, parking lot, etc., the surface temperature of the flooring will become low and the radiation of cold from the floor will increase. In this case, your feet will feel cold even if the room temperature is suitable.	
When the airflow distribution is poor	When an indoor unit is installed in a position where the outlet airflow will directly contact people, a draft may be felt. In addition, when there are obstructions in the path of the intake and outlet airflow, the air distribution may become extremely bad.	(1) Adjust the louver fins or take other measures matched to the site. (2)Change the indoor unit outlet.

SYSTEM DESIGN

[Installation precautions]

	Contents	Countermeasures (Reference)
When inside the ceiling is high temperature and high humidity	When the indoor unit is installed where the inside of the ceiling is 30°C (86°F) RH80% or greater, the dew point temperature of the outer perimeter may become higher than the cabinet surface temperature and moisture will condense on the surface of the cabinet and water drops may fall inside the room. →Refer to Fig.A In addition, the humidity may vary considerably the same as when the inside of the ceiling is close to hermetically sealed and used as the outside air intake path.	(1) Add heat insulating material to the outside of the indoor unit cabinet. *Regarding the cassette type, use of the “high humidity correspondence kit (option)” is recommended. (2) Strengthen the heat insulating material of the refrigerant piping and drain piping also →Refer to Fig.B (3) When the humidity inside the ceiling changes considerably, install a ventilation port

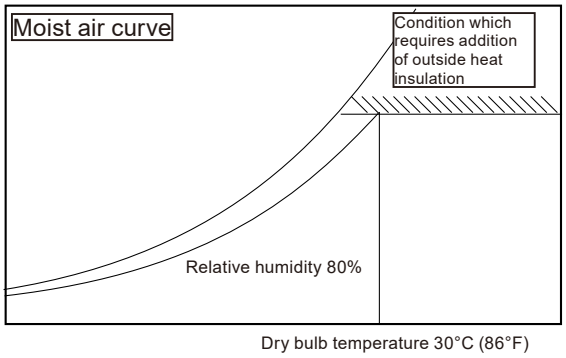


Fig.A

Work method when reinforcing the heat insulation of on-site piping

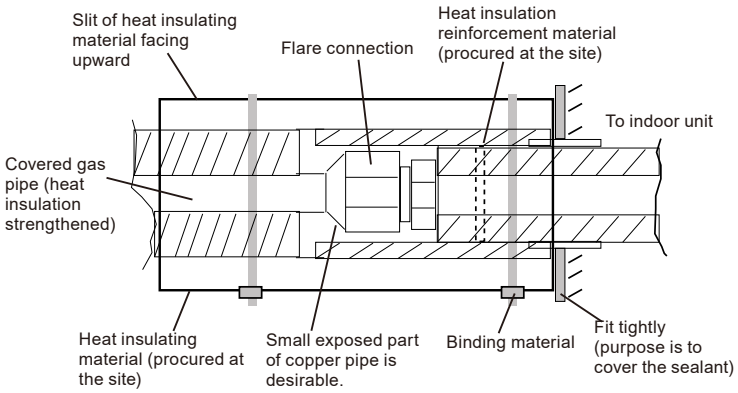


Fig.B

	Contents	Countermeasures (Reference)
When using an external duct	When using an external duct to take in new fresh air, etc., condensation may form on the surface of the duct due to the effect of the outside air temperature and the humidity inside the ceiling.	(1) Always perform heat insulation processing. (Heat insulating material: Glass wool 25mm (31/32 in.) thick or more.)
When the remote controller installation site is bad	If the cold or warm air blown out from the air conditioner directly contacts the thermostat section of the remote controller, the outlet temperature of the air conditioner may be sensed and room temperature control will be different from the room temperature and “not cooled” or “not heated” or other trouble may occur. In addition, there is the possbility that the same kind of trouble may also occur when the remote controller is effected by direct sunlight.	(1) Install the remote controller where it will not be directly exposed to the cold or hot air. (2) Install the remote controller where it will not be directly exposed to sunlight or strong lighting

SYSTEM DESIGN

[Installation precautions]

	Contents	Countermeasures (Reference)
When installation environment is quiet	When the wall mounting type was installed in a bedroom, living room, or other quiet place, the sound of the refrigerant flow may be sensed as noise and must be taken into accunt.	(1) Plan installation of a model with external expansion valve. (2) Plan installation of a branch box farther from indoor unit. (3) Plan installation using another air conditioner.
When installing duct type in ceiling chamber system	In the case of the ceiling chamber system (duct is not installed at indoor unit inlet side and room air is sucked into the indoor unit through the inside of the ceiling), the thermistor inside the indoor unit may not correctly detect the room temperature. Heating operation: Room is not heated because the indoor unit is easily turned off by the thermostat. Cooling operation: Room is too cold because the indoor unit is difficult to turn off by the thermostat.	(1) Replace the indoor unit thermistor with a Remote sensor unit (optional parts) and install the sensor where the room temperature can be correctly detected
When the outlet air is sucked in at duct type	Cooling operation does not cool the room and heating operation does not heat the room because the short circuited indoor unit is not turned on by the thermostat.	(1) Reconsider the ventilation port construction (2) Replace the indoor unit thermistor with a Remote sensor unit (optional parts) and install the sensor where the room temperature can be correctly detected.
When using the wireless remote controller	Signals may not be received when using it in a room illuminated by an inverter fluorescent lamp.	(1) Turn on the fluorescent lamp and check if the indoor unit receives the signals from the remote controller. If the indoor unit does not receive the signals, consult an authorized service personnel.
When installing the inverter type	It may generate noise in TV sets, stereos and PCs.	(1) The inverter type should be installed at a sufficient distance from these equipments.

SYSTEM DESIGN

8-2. OUTDOOR UNIT INSTALLATION PRECAUTIONS

Note: The information listed below are general precautions.
Some models also include items that do not apply.

■ PLACES WHERE USE PROHIBITED

- Places where there is the danger of combustible gas leakage
- Places where sulfur gas, chlorine gas, acid, alkali, or other matter which effects equipment is generated
- Places not affected by heat radiation from other heat sources
- Places where the air is not stagnant
- Places where machinery which generates high frequencies is used
- Ocean beaches and other areas where there is a lot of salt
- Installation in vehicles, ships, and other conveyances
- Factory, etc. where voltage fluctuations are large

■ POINTS TO REMEMBER WHEN INSTALLING

(1) The set shall be installed at a place which can withstand the weight and vibration of the outdoor unit

(2) To allow maintenance after refrigerant piping, drain piping, and electric wiring connection and installation, provide an installation service space.

*Installation service space is shown on " INSTALLATION PLACE ".

(3) Be careful when installing the set at the following places.

[Installation precautions]

	Contents	Countermeasures (Reference)
When installed near adjacent houses	Perform installation work so that operating sound does not disturb the neighbors.	(1) Install a soundproof barrier (2) Change the installation site
When there is the possibility of strong wind	(1) If the outdoor unit is exposed to strong wind, capacity may drop, frost may form during heating, and operation may be stopped by high pressure rise. In addition, when a very strong wind blows, the fan may be damaged. (2) When a very strong wind blows, there is the possibility of the outdoor unit being toppled over if held only by foundation bolts	(1) Install with the outlet side Keep a sufficient distance away from a facing wall or fence. (2) Make the outlet direction and wind direction perpendicular. (3) Fasten the outdoor unit using toppling prevention hardware (procured at the site).
When snow accumulates	If the outdoor unit is covered by accumulated snow, it may not be able to operate.	(1) Make the foundation as high as possible. (2) Perform snow prevention work.
When installing the inverter type	It may generate noise in TV sets, stereos and PCs.	(1) The inverter type should be installed at a sufficient distance from these equipments.

SYSTEM DESIGN

Refrigerant R410A
INVERTER

AIR CONDITIONER

1 phase type

Simultaneous multi system

5. OPTIONAL PARTS

DTR_SSM002E_01--CHAPTER05
2016.01.25

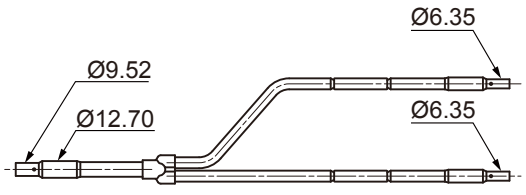
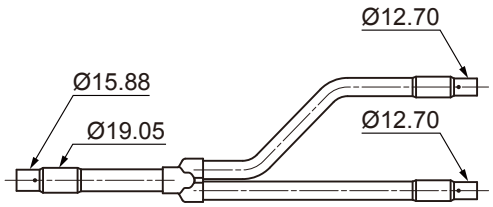
CONTENTS

5. OPTIONAL PARTS

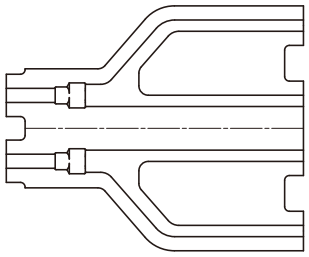
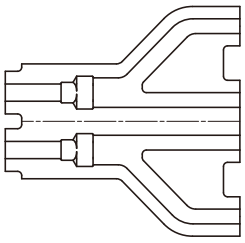
1. BRANCH PIPES

■ MODEL : UTP-SX236□

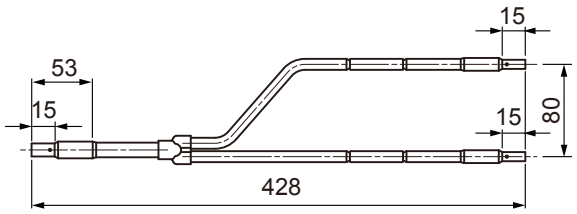
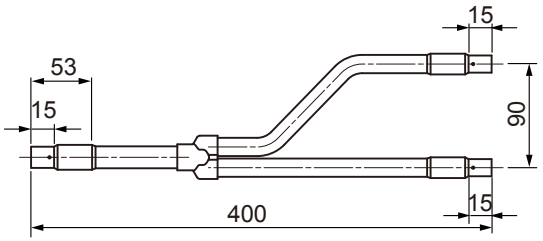
● Port diameters

Liquid pipe	Q'ty	Gas pipe	Q'ty
	1		1

● Heat insulation

Heat insulation for liquid pipe	Q'ty	Heat insulation for gas pipe	Q'ty
	1		1

● Dimensions

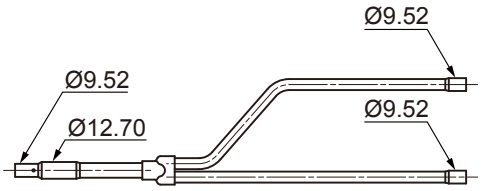
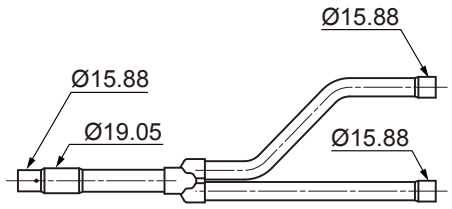
Liquid pipe	Gas pipe
	

OPTIONAL PARTS

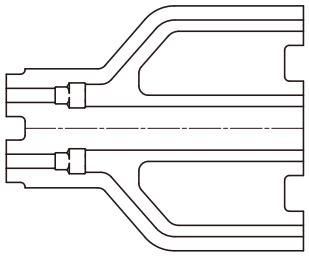
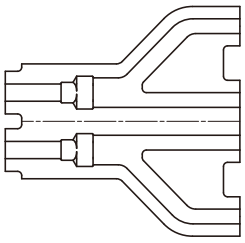
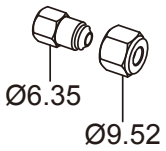
OPTIONAL PARTS

■ MODEL : UTP-SX254□

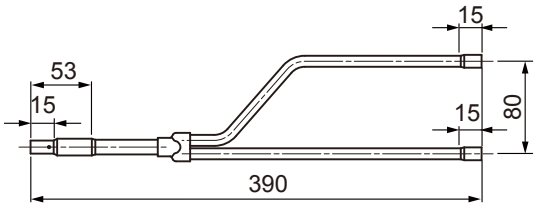
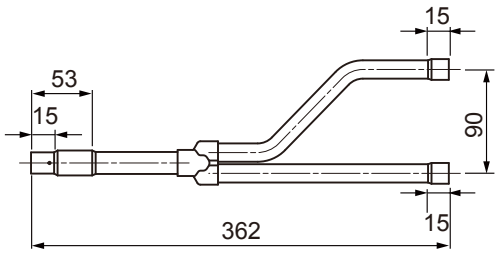
● Port diameters

Liquid pipe	Q'ty	Gas pipe	Q'ty
	1		1

● Heat insulation

Heat insulation for liquid pipe	Q'ty	Heat insulation for gas pipe	Q'ty	Adapter	Q'ty
	1		1		2

● Dimensions

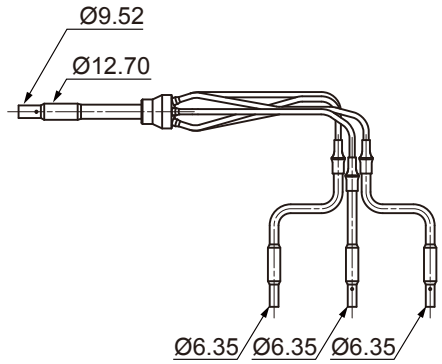
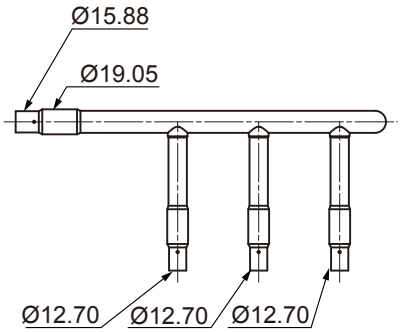
Liquid pipe	Gas pipe
	

OPTIONAL PARTS

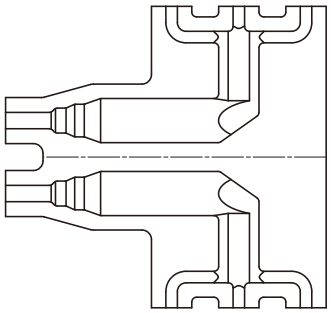
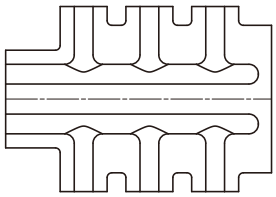
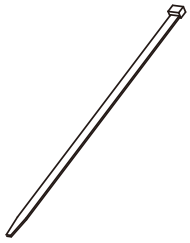
OPTIONAL PARTS

■MODEL : UTP-SX354□

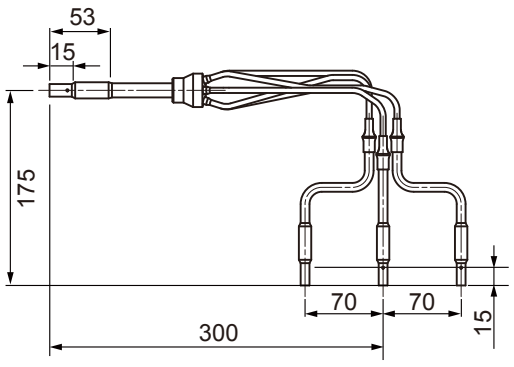
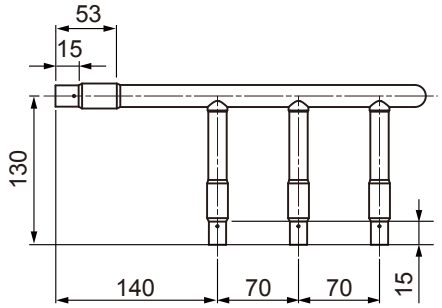
●Port diameters

Liquid pipe	Q'ty	Gas pipe	Q'ty
	1		1

●Heat insulation

Heat insulation for liquid pipe	Q'ty	Heat insulation for gas pipe	Q'ty	Cable tie	Q'ty
	1		1		1

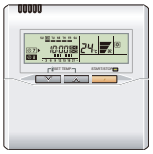
●Dimensions

Liquid pipe	Gas pipe
	

OPTIONAL PARTS

OPTIONAL PARTS

2. CONTROLLER

REMOTE CONTROLLER TYPE		Wired Remote Controller		Wireless Remote Controller	IR Receiver Unit	Simple Remote Controller
Note; ●: Accessory O: Optional Parts —: It is not possible to connect it.		 UTY-RVN∗M	 UTY-RNN∗M		 UTY - LRH∗M	 UTY-RSN∗M
INDOOR UNITS	**SIMULTANEOUS MULTI SYSTEM**					
	COMPACT CASSETTE	O	O	●	—	O
	SLIM DUCT	O	● O	—	O	O
	DUCT	O	● O	—	O	O
	FLOOR / CEILING	O	O	●	—	O

OPTIONAL PARTS

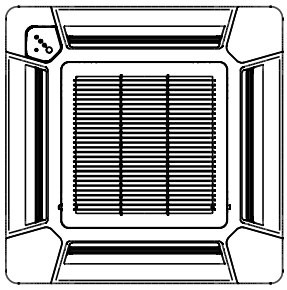
3. CASSETTE GRILLE

■ SIMULTANEOUS MULTI SYSTEM

TYPE	MODEL	INDOOR UNITS			
		COMPACT CASSETTE	SLIM DUCT	DUCT	FLOOR / CEILING
Cassette grille	UTG-UF∗D-W	O	—	—	—

● Parts

Cassette grille
Model: UTG-UF∗D-W



OPTIONAL PARTS

4. OTHERS (optional parts)

■ SIMULTANEOUS MULTI SYSTEM

TYPE	MODEL	INDOOR UNITS				OUTDOOR UNIT
		COMPACT CASSETTE	SLIM DUCT	DUCT	FLOOR / CEILING	
Air outlet shutter plate	UTR-YDZB	O	—	—	—	—
Insulation kit for high humidity	UTZ-KXGC	O	—	—	—	—
Fresh air intake kit	UTZ-VXAA	O	—	—	—	—
Square flange	UTD-SF045T	—	—	O	—	—
Round flange	UTD-RF204	—	—	O	—	—
Long-life filter	UTD-LF25NA	—	—	O	—	—
Remote sensor unit	UTY-XSZX	—	O	O	—	—
Auto louver grille kit	UTD-GXSB-W	—	O	—	—	—
External control set	UTD-ECS5A	—	O	O	—	—
Drain pump unit	UTZ-PX1NBA	—	—	O	—	—
External connect kit	UTY-XWZX	O	—	—	O	—
	UTY-XWZXZ3	—	—	—	—	O

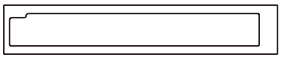
O: Optional, —: It is not possible to connect it.

OPTIONAL PARTS

■ SIMULTANEOUS MULTI SYSTEM

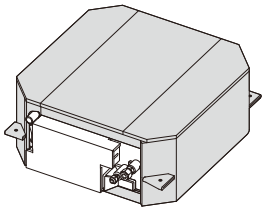
● Parts

Air outlet shutter plate
Model:UTR-YDZB



For
COMPACT CASSETTE
TYPE

Insulation kit for high humidity
Model:UTZ-KXGC

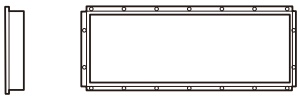


For
COMPACT CASSETTE
TYPE

Fresh air intake kit
Model:UTZ-VXAA

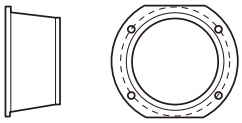
For
COMPACT CASSETTE
TYPE

Square flange
Model:UTD-SF045T



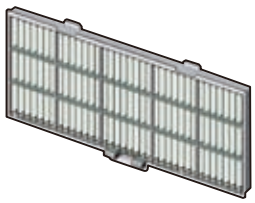
For
DUCT TYPE

Round flange
Model:UTD-RF204



For
DUCT TYPE

Long-life filter
Model:UTD-LF25NA



For
DUCT TYPE

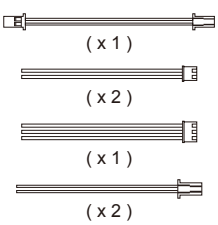
Remote sensor
Model:UTY-XSZX

For
DUCT TYPE,
SLIM DUCT TYPE

Auto louver grille kit
Model:UTD-GXSB-W

For
SLIM DUCT TYPE

External control set
Model:UTD-ECS5A



For
DUCT TYPE,
SLIM DUCT TYPE

Drain Pump Unit
Model:UTZ - PX1NBA

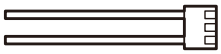
For
DUCT TYPE

OPTIONAL PARTS

OPTIONAL PARTS

External connect kit

Model:UTY - XWZX



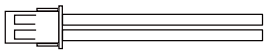
(x 1)

(x 1)

For
COMPACT CASSETTE
TYPE,
FLOOR / CEILING TYPE

External connect kit

Model:UTY - XWZXZ3



For
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OPTIONAL
PARTS