Refrigerant R410A

INVERTER

AIR CONDITIONER

**Cassette type**

# DESIGN & TECHNICAL MANUAL

SINGLE INDOOR

AU∗G12LVLB
AU∗G14LVLB
AU∗G18LVLB
AU∗G24LVLA

OUTDOOR

AO∗G12LALL
AO∗G14LALL
AO∗G18LALL
AO∗G24LALA

FUJITSU GENERAL LIMITED

# 1. INDOOR UNIT

## CASSETTE TYPE :

**AU∗G12LVLB**
**AU∗G14LVLB**
**AU∗G18LVLB**
**AU∗G24LVLA**

DTR_AU047E_02
2013.02.28

CASSETTE TYPE
AU∗G12-24LVL

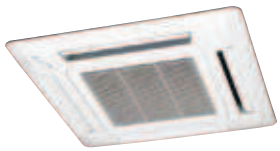
# CONTENTS

## 1. INDOOR UNIT

# 1. FEATURES

## ■ MODEL

**AU∗G12LVLB / AO∗G12LALL**
**AU∗G14LVLB / AO∗G14LALL**
**AU∗G18LVLB / AO∗G18LALL**
**AU∗G24LVLA / AO∗G24LALA**



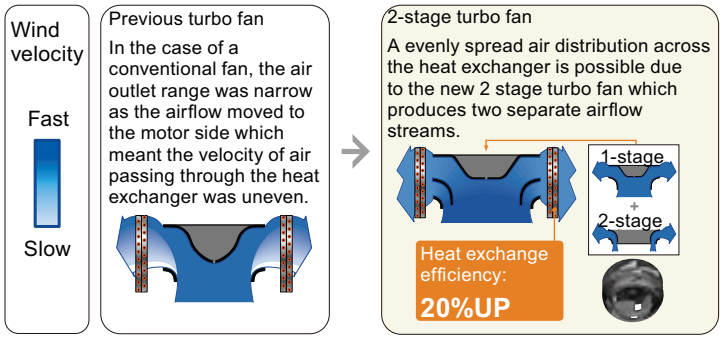
## ■ FEATURES

### ● Energy efficiency class

| | MODEL | | | |
|---|---|---|---|---|
| | AU∗G12LVLB | AU∗G14LVLB | AU∗G18LVLB | AU∗G24LVLA |
| Cooling | A++ | A++ | A++ | A+ |
| Heating | A+ | A+ | A+ | A |

### ● 2-stage turbo fan

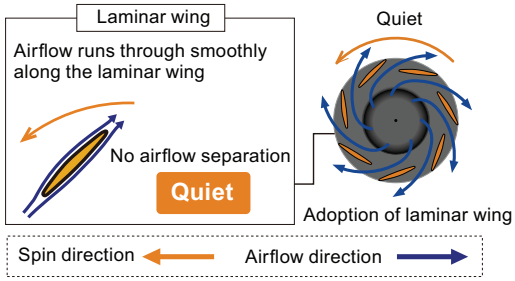
High efficiency design by 2 stage structure




### ● Quiet quality

Optimization of wing form (laminar wing type) and wing number (7 blades each)

Designed by CFD-analysis (fluid) simulations




### ● Easy maintenance

①Maintenance of fan motor and fan

Maintenance of the fan motor and fan can be done easily after taking off the panel as the bell mouth of the fan can be removed easily.

A : Fan motor　B : 2-stage turbo fan

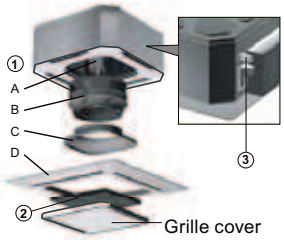
C : Bell-mouth　D : Panel

②Long life filter

: standard equipment

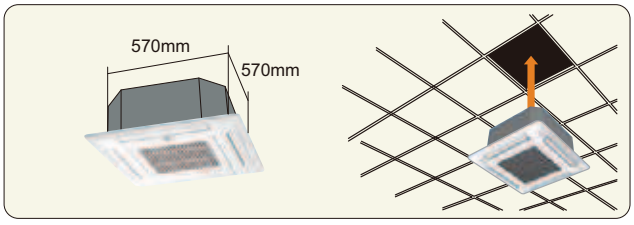
③Adaptation of transparent drainage parts

During installation, maintenance and operation, the drain pump and kit can be checked easily.



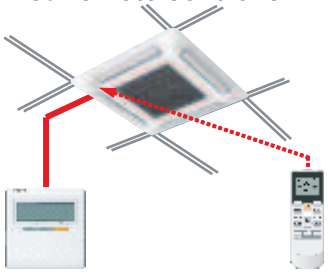

### ● Compact design

Easy installation by taking off ceiling panel of 600mm x 600mm size

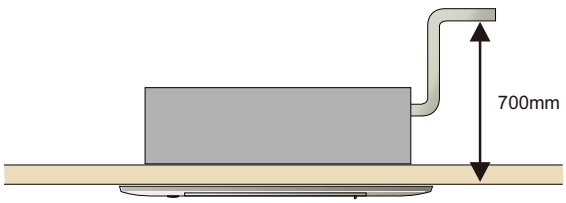



### ● Easy installation

**Easy setting by wireless or wired remote controller**



### ● High lift drain pump



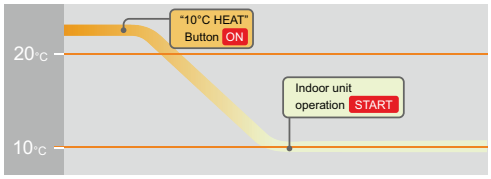
CASSETTE TYPE
AU∗G12-24LVL

## ●10°C HEAT Operation *Only available with Wireless RC.

The room temperature can be set to go no lower than 10°C,
thus ensuring that the room does not get too cold when not occupied.

Caution)

- When the room temperature is higher than 10°C, "**10°C HEAT**" operation will not start. Operation starts and maintains the room temperature at 10°C when the temperature drops below 10°C.
- When "**10°C HEAT**" operation stops, the room set temperature quickly returns to the preset temperature.




## ●Economy operation

The power consumption can be reduced.

# ■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).

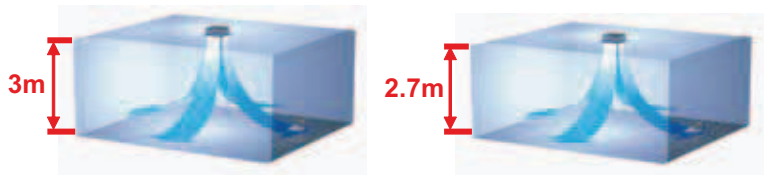
3-way direction mode: Set when there are 3 outlets.

## ●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 air flow according to the height of the ceiling.

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




Standard ...Operates at normal air flow.

Mode 1 ...Air flow 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.

CASSETTE TYPE
AU∗G12-24LVL

# 2. REMOTE CONTROLLER

## WIRELESS REMOTE CONTROLLER

## ■ FEATURES

- ∗ 4 mode timer setup available (ON / OFF / PROGRAM / SLEEP)
- ∗ Easy operation.
- ∗ Easy to change signal code (max. 4 units) by button operation.

### ● Simple function setting

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

### ● Built-in timers

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

### ● Program timer

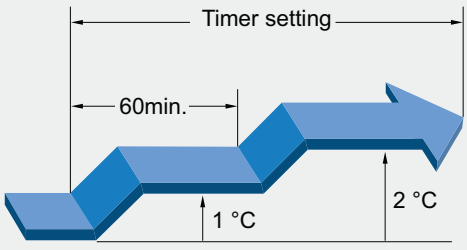
The program timer operates the on and off timer once within a 24 hour period.

### ● 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.

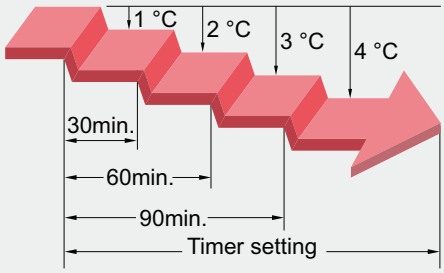
Cooling operation/dry operation

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.

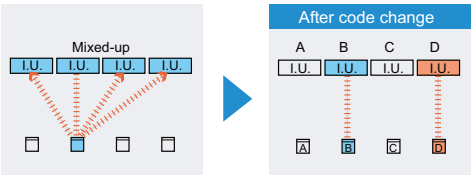



Heating operation

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.




### ● Switching remote controller signal code




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

*I.U.=Indoor unit

CASSETTE TYPE
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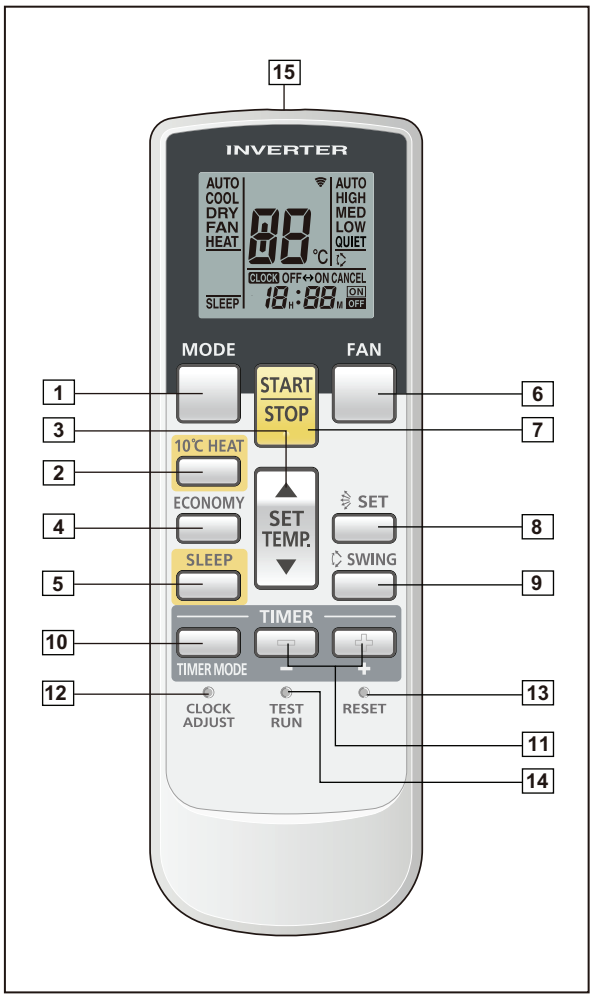
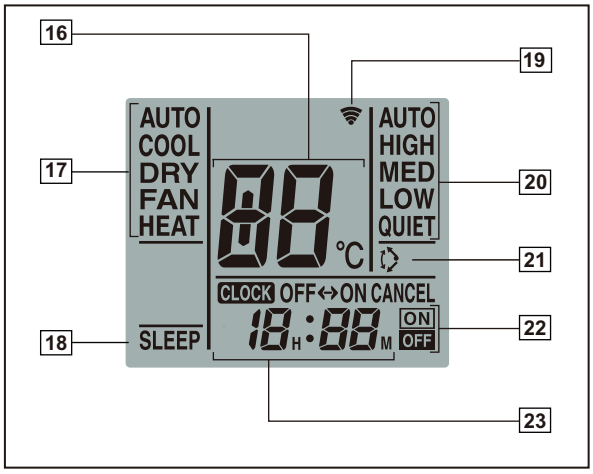
# ■ FUNCTIONS




Display panel




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

2 10°C HEAT button

3 SET TEMP. button ( ▲ / ▼ )
Sets the indoor temp./ Sets R.C. signal 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)
Air flow direction vertical set button.

9 SWING button
Air flow 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 display

17 Operating mode display

18 Sleep display

19 Transmit indicator

20 Fan speed display

21 Swing display

22 Timer mode display

23 Clock display

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

# ■ SPECIFICATION

| | | |
|---|---|---|
| SIZE | (H × W × D mm) | 170 × 56 × 19 |
| WEIGHT | (g) | 85 (w/o batteries) |
| ACCESSORY | | Holder |

# 3. SPECIFICATIONS

| Type | | | | | CASSETTE MODEL | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | INVERTER HEATPUMP | | | |
| Model name | | | | Indoor unit | AU∗G12LVLB | AU∗G14LVLB | AU∗G18LVLB | AU∗G24LVLA |
| | | | | Outdoor unit | AO∗G12LALL | AO∗G14LALL | AO∗G18LALL | AO∗G24LALA |
| Power source | | | | | 230V ~ 50Hz | | | |
| Available voltage range | | | | | 198-264V ~ 50Hz | | | |
| Capacity | Cooling | Rated | | kW | 3.50 | 4.30 | 5.20 | 6.80 |
| | | | | Btu/h | 11950 | 14650 | 17700 | 23200 |
| | | Min. - Max. | | kW | 0.90 - 4.40 | 0.90 - 5.40 | 0.90 - 5.90 | 0.90 - 8.00 |
| | | | | Btu/h | 3100 - 15000 | 3100 - 18400 | 3100 - 20100 | 3100 - 27300 |
| | Heating | Rated | | kW | 4.10 | 5.00 | 6.00 | 8.00 |
| | | | | Btu/h | 14000 | 17050 | 20500 | 27300 |
| | | Min. - Max. | | kW | 0.90 - 5.70 | 0.90 - 6.50 | 0.90 - 7.50 | 0.90 - 9.10 |
| | | | | Btu/h | 3100 - 19400 | 3100 - 22100 | 3100 - 25600 | 3100 - 31000 |
| Input power | Cooling | Rated | | kW | 1.05 | 1.33 | 1.62 | 2.21 |
| | | *Max. | | | 1.70 | 2.04 | 2.04 | 2.85 |
| | Heating | Rated | | | 1.11 | 1.34 | 1.66 | 2.26 |
| | | *Max. | | | 2.26 | 2.83 | 2.83 | 3.19 |
| Current | Cooling | Rated | | A | 4.8 | 6.1 | 7.2 | 9.7 |
| | Heating | | | | 5.1 | 6.1 | 7.4 | 9.9 |
| EER | | Cooling | | kW / kW | 3.33 | 3.21 | 3.21 | 3.08 |
| COP | | Heating | | | 3.69 | 3.71 | 3.61 | 3.54 |
| Moisture removal | | | | l/h (pints/h) | 1.2 ( 2.1 ) | 1.5 ( 2.6 ) | 2.2 ( 3.9 ) | 2.7 ( 4.8 ) |
| Maximum operating current *1 | | Cooling | | A | 7.5 | 9.0 | 9.0 | 12.0 |
| | | Heating | | | 10.0 | 12.5 | 12.5 | 13.5 |
| Fan | Airflow rate | Cooling | High | $m^3/h$ | 600 | 680 | 680 | 930 |
| | | | Med | | 530 | 580 | 580 | 830 |
| | | | Low | | 470 | 490 | 490 | 600 |
| | | | Quiet | | 410 | 410 | 410 | 450 |
| | | Heating | High | | 600 | 800 | 800 | 930 |
| | | | Med | | 530 | 680 | 680 | 860 |
| | | | Low | | 470 | 580 | 580 | 700 |
| | | | Quiet | | 410 | 450 | 450 | 530 |
| | Type × Q'ty | | | | Turbo × 1 | | | |
| | Motor output | | | W | 54 | | | |
| Sound pressure level | | Cooling | High | dB (A) | 37 | 38 | 38 | 49 |
| | | | Med | | 34 | 34 | 34 | 44 |
| | | | Low | | 30 | 30 | 30 | 36 |
| | | | Quiet | | 27 | 27 | 26 | 30 |
| | | Heating | High | | 37 | 43 | 43 | 49 |
| | | | Med | | 34 | 38 | 38 | 45 |
| | | | Low | | 31 | 34 | 34 | 40 |
| | | | Quiet | | 29 | 30 | 30 | 33 |
| Heat exchanger type | | Dimensions (H × W × D) | | mm | 210 × 1310 × 13.3<br>210 × 1250 × 13.3 | | | 210 × 1375 × 13.3<br>210 × 1310 × 13.3<br>210 × 1250 × 13.3 |
| | | Fin pitch | | | 1.20 | | | 1.45 |
| | | Rows × Stages | | | 2 × 10 | | | 3 × 10 |
| | | Pipe type | | | Copper tube | | | |
| | | 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 | | | Ø9.52 (Ø3/8 in.) | Ø12.70 (Ø1/2 in.) | | Ø15.88 (Ø5/8 in.) |
| | Method | | | | Flare | | | |
| 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<br>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)] | | | |
| Drain hose | Material | | | | PVC | | | |
| | Size | | | mm | VP25 [Ø25(I.D.),Ø32(O.D.)] | | | |

Note :
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 : 5.0 m, Height difference : 0 m. (Outdoor unit - Indoor unit)
Ceiling mode : Standard
*The maximum current and the maximum input value are the maximum value when operated within the operation range.
The protective function might work when using outside the operation range.

CASSETTE TYPE
AU∗G12-24LVL

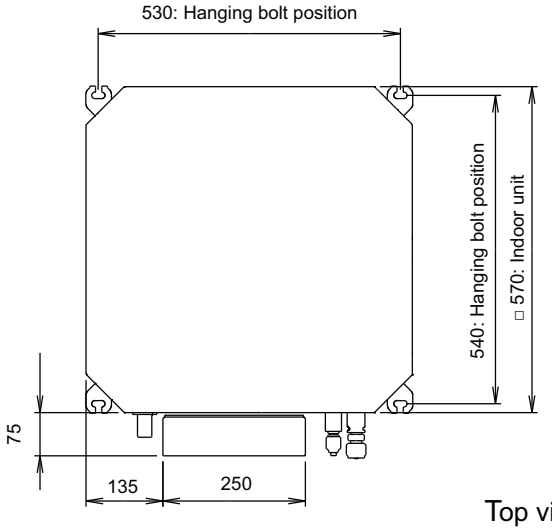
| Model name | | | | AU∗G12LVLB | AU∗G14LVLB | AU∗G18LVLB | AU∗G24LVLA |
|---|---|---|---|---|---|---|---|
| Energy efficiency class | Cooling | | | A++ | A++ | A++ | A+ |
| | Heating (Average) | | | A+ | A+ | A+ | A |
| Pdesign | Cooling | | kW | 3.5 (35°C) | 4.3 (35°C) | 5.2 (35°C) | 6.8 (35°C) |
| | Heating (Average) | | | 4.2 (-10°C) | 4.5 (-10°C) | 5.2 (-10°C) | 6.0 (-10°C) |
| SEER | Cooling | | kWh/kWh | 6.20 | 6.40 | 6.20 | 5.60 |
| SCOP | Heating (Average) | | | 4.10 | 4.40 | 4.20 | 3.90 |
| Annual energy consumption | QCE | | kWh/a | 198 | 235 | 293 | 425 |
| | QHE (Average) | | | 1431 | 1432 | 1731 | 2151 |
| Sound power level | Cooling | High | dB (A) | 49 | 50 | 50 | 59 |
| | Heating | | | 49 | 55 | 55 | 61 |

CASSETTE TYPE
AU∗G12-24LVL

# 4. DIMENSIONS

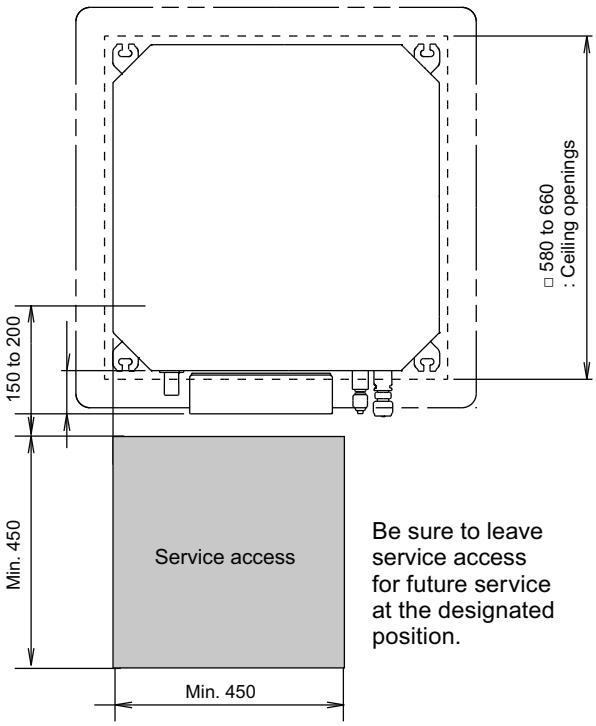
## ■ MODEL: AU∗G12LVLB, AU∗G14LVLB, AU∗G18LVLB, AU∗G24LVLA

Unit : mm

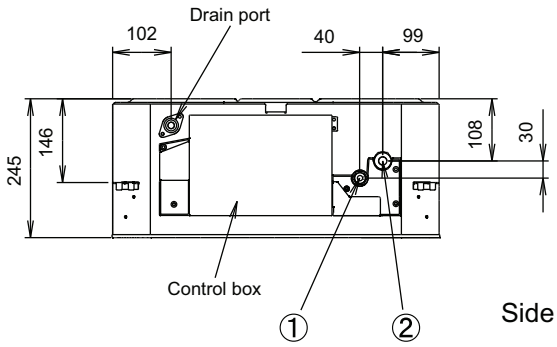


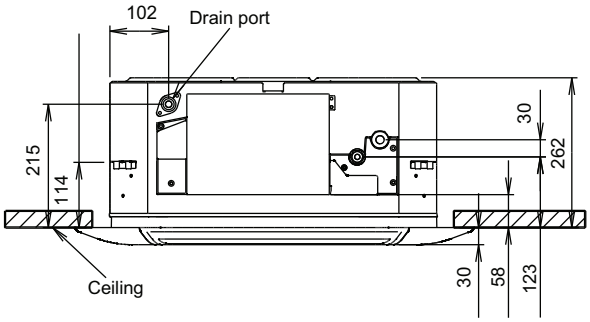

Top view

• Cassette grille mounting state

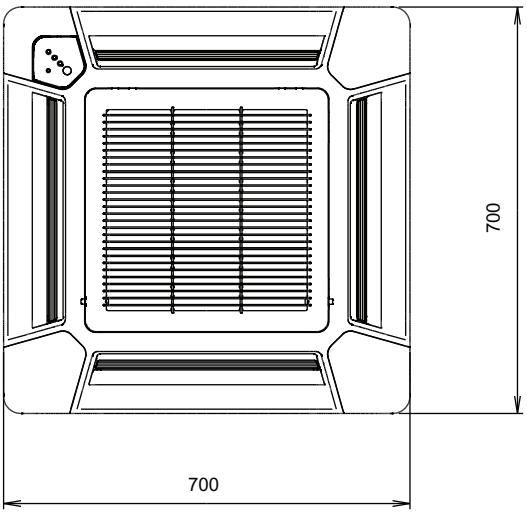



Be sure to leave service access for future service at the designated position.

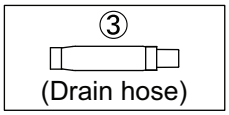


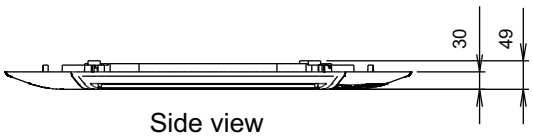




Side view




Bottom view



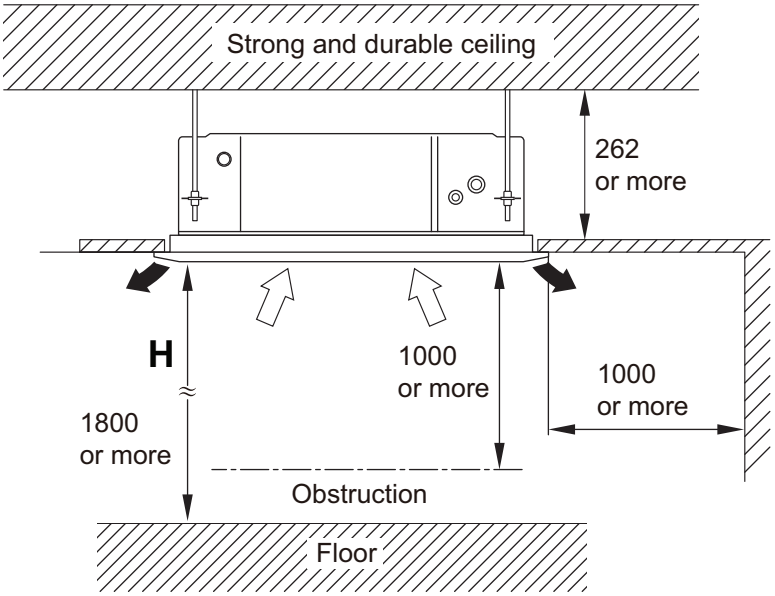




Side view

| | | | AU∗G12LVLB | AU∗G14LVLB, AU∗G18LVLB | AU∗G24LVLA |
|---|---|---|---|---|---|
| ① | Refrigerant pipe flare connection | Liquid | ø 6.35 mm (ø 1/4 in.) | ø 6.35 mm (ø 1/4 in.) | ø 6.35 mm (ø 1/4 in.) |
| ② | | Gas | ø 9.52 mm (ø 3/8 in.) | ø 12.70 mm (ø 1/2 in.) | ø 15.88 mm (ø 5/8 in.) |
| ③ | Drain hose connection | Drain hose | VP25[ ø 25(I.D.)ø 32(O.D.)] | | |

CASSETTE TYPE
AU∗G12-24LVL

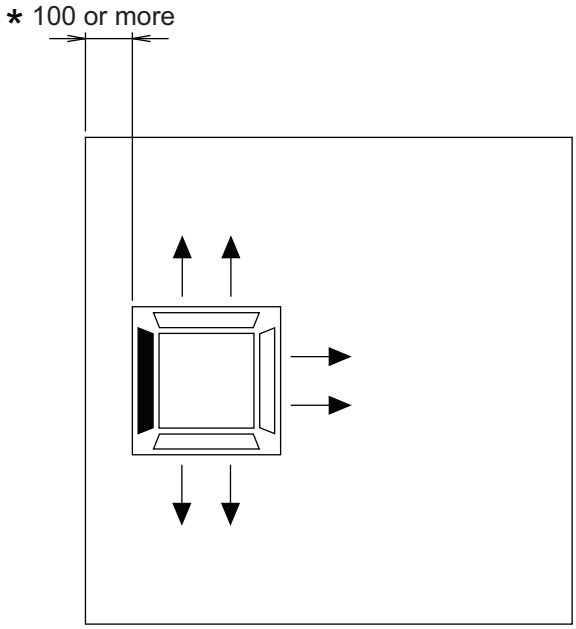
# ■ INSTALLATION PLACE




Unit : mm

| | H (The maximum height from floor to ceiling) Unit: mm | | | |
|---|---|---|---|---|
| Model name | AU∗G12LVLB | AU∗G14LVLB | AU∗G18LVLB | AU∗G24LVLA |
| Standard mode | 2700 | 2700 | 2700 | 2700 |
| High Ceiling mode | 3000 | 3000 | 3000 | 3000 |

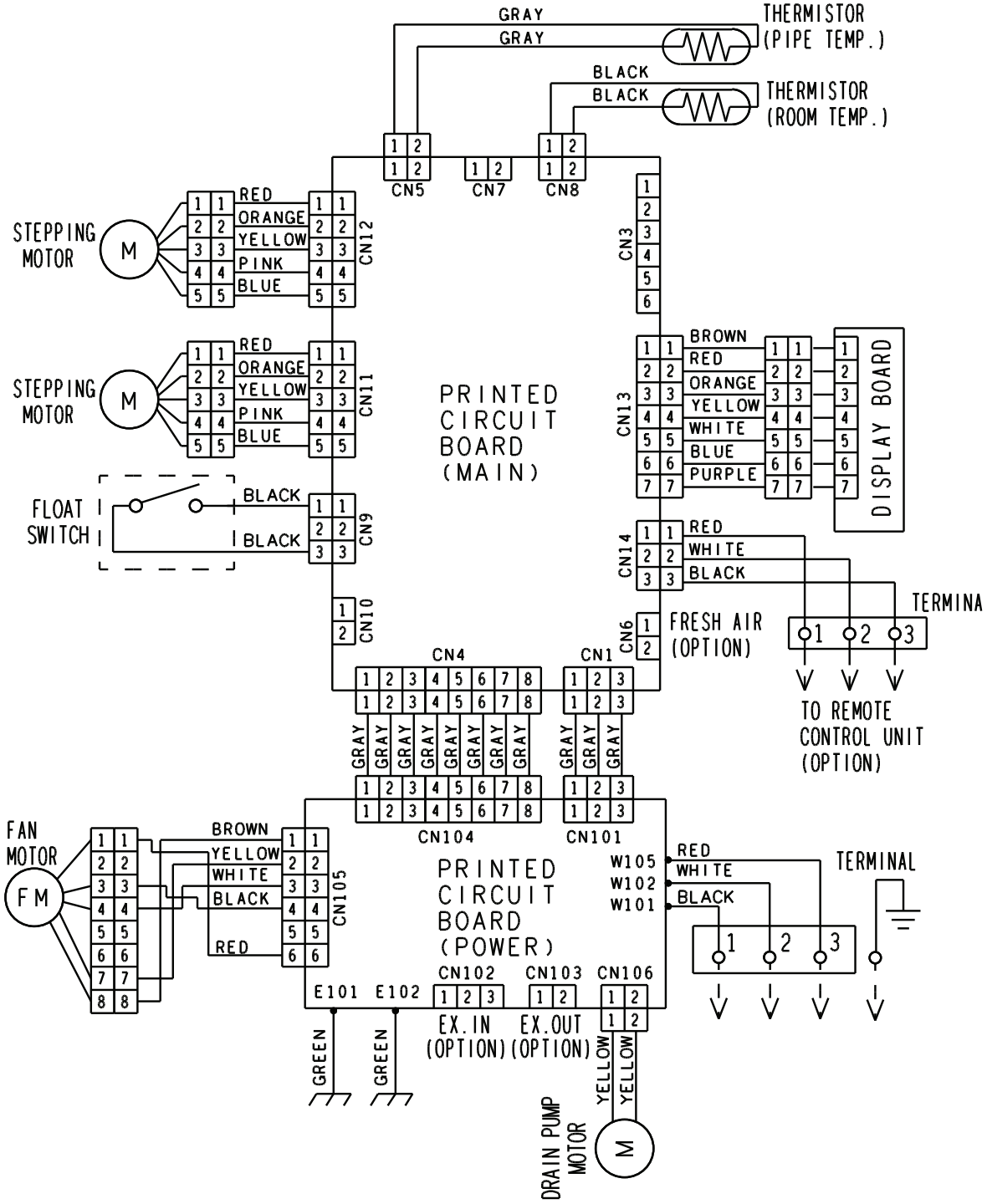
## ● 3-way directions setting




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.

# 5. WIRING DIAGRAMS

## ■ MODEL: AU∗G12LVLB, AU∗G14LVLB, AU∗G18LVLB, AU∗G24LVLA



CASSETTE TYPE
AU∗G12-24LVL

# 6. CAPACITY TABLE

## 6-1. COOLING CAPACITY

This table is created using the maximum capacity.

### ■ MODEL: AU∗G12LVLB

| AFR | 10.0 |
|---|---|

| | | 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 |
| | -10 | 3.47 | 2.59 | 0.29 | 3.87 | 2.61 | 0.30 | 4.00 | 2.83 | 0.30 | 4.26 | 2.84 | 0.30 | 4.40 | 3.07 | 0.30 | 4.66 | 3.06 | 0.31 | 4.92 | 3.26 | 0.31 |
| | 0 | 3.29 | 2.52 | 0.49 | 3.67 | 2.53 | 0.50 | 3.79 | 2.75 | 0.50 | 4.05 | 2.76 | 0.51 | 4.17 | 2.98 | 0.51 | 4.42 | 2.97 | 0.51 | 4.67 | 3.16 | 0.52 |
| | 5 | 3.30 | 2.52 | 0.47 | 3.67 | 2.53 | 0.48 | 3.80 | 2.75 | 0.48 | 4.05 | 2.76 | 0.49 | 4.17 | 2.98 | 0.49 | 4.42 | 2.97 | 0.50 | 4.67 | 3.16 | 0.50 |
| | 10 | 3.30 | 2.51 | 0.44 | 3.67 | 2.52 | 0.45 | 3.80 | 2.75 | 0.45 | 4.05 | 2.75 | 0.45 | 4.17 | 2.97 | 0.46 | 4.42 | 2.96 | 0.46 | 4.67 | 3.16 | 0.46 |
| | 15 | 3.19 | 2.48 | 0.53 | 3.56 | 2.50 | 0.54 | 3.68 | 2.71 | 0.54 | 3.92 | 2.72 | 0.55 | 4.04 | 2.94 | 0.55 | 4.28 | 2.93 | 0.56 | 4.53 | 3.12 | 0.56 |
| | 20 | 4.12 | 2.81 | 1.23 | 4.59 | 2.83 | 1.25 | 4.74 | 3.07 | 1.26 | 5.05 | 3.08 | 1.27 | 5.21 | 3.33 | 1.28 | 5.52 | 3.32 | 1.29 | 5.84 | 3.53 | 1.31 |
| | 25 | 3.95 | 2.79 | 1.37 | 4.40 | 2.81 | 1.40 | 4.55 | 3.06 | 1.40 | 4.85 | 3.07 | 1.42 | 5.00 | 3.31 | 1.42 | 5.30 | 3.30 | 1.44 | 5.60 | 3.51 | 1.45 |
| | 30 | 3.78 | 2.73 | 1.52 | 4.21 | 2.74 | 1.54 | 4.35 | 2.98 | 1.55 | 4.64 | 2.99 | 1.57 | 4.78 | 3.23 | 1.57 | 5.07 | 3.22 | 1.59 | 5.36 | 3.43 | 1.61 |
| | 35 | 3.48 | 2.59 | 1.54 | 3.87 | 2.61 | 1.56 | 4.00 | 2.83 | 1.57 | 4.27 | 2.84 | 1.59 | 4.40 | 3.07 | 1.60 | 4.66 | 3.06 | 1.61 | 4.93 | 3.26 | 1.63 |
| | 40 | 2.96 | 2.40 | 1.31 | 3.29 | 2.41 | 1.33 | 3.40 | 2.62 | 1.34 | 3.63 | 2.63 | 1.35 | 3.74 | 2.84 | 1.36 | 3.97 | 2.83 | 1.37 | 4.19 | 3.01 | 1.39 |
| | 46 | 2.19 | 2.10 | 1.00 | 2.44 | 2.11 | 1.02 | 2.52 | 2.30 | 1.03 | 2.68 | 2.31 | 1.04 | 2.77 | 2.49 | 1.04 | 2.93 | 2.48 | 1.05 | 3.10 | 2.64 | 1.06 |

### ■ MODEL: AU∗G14LVLB

| AFR | 11.3 |
|---|---|

| | | 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 |
| | -10 | 4.08 | 2.99 | 0.39 | 4.54 | 3.01 | 0.40 | 4.69 | 3.27 | 0.40 | 5.00 | 3.28 | 0.40 | 5.16 | 3.54 | 0.40 | 5.47 | 3.53 | 0.41 | 5.78 | 3.76 | 0.41 |
| | 0 | 3.98 | 2.96 | 0.45 | 4.44 | 2.98 | 0.46 | 4.59 | 3.24 | 0.46 | 4.89 | 3.25 | 0.47 | 5.04 | 3.51 | 0.47 | 5.34 | 3.50 | 0.48 | 5.65 | 3.72 | 0.48 |
| | 5 | 3.87 | 2.92 | 0.56 | 4.31 | 2.94 | 0.57 | 4.46 | 3.19 | 0.57 | 4.75 | 3.20 | 0.58 | 4.90 | 3.46 | 0.58 | 5.19 | 3.45 | 0.59 | 5.49 | 3.67 | 0.59 |
| | 10 | 3.74 | 2.87 | 0.66 | 4.17 | 2.89 | 0.67 | 4.31 | 3.14 | 0.68 | 4.60 | 3.15 | 0.68 | 4.74 | 3.40 | 0.69 | 5.02 | 3.39 | 0.70 | 5.31 | 3.61 | 0.70 |
| | 15 | 3.75 | 2.87 | 0.58 | 4.18 | 2.89 | 0.59 | 4.32 | 3.14 | 0.60 | 4.61 | 3.15 | 0.60 | 4.75 | 3.41 | 0.60 | 5.04 | 3.39 | 0.61 | 5.32 | 3.61 | 0.62 |
| | 20 | 4.72 | 3.18 | 1.23 | 5.26 | 3.20 | 1.25 | 5.44 | 3.48 | 1.25 | 5.79 | 3.49 | 1.27 | 5.97 | 3.77 | 1.27 | 6.33 | 3.75 | 1.29 | 6.69 | 4.00 | 1.30 |
| | 25 | 4.53 | 3.17 | 1.37 | 5.04 | 3.18 | 1.39 | 5.21 | 3.46 | 1.40 | 5.56 | 3.47 | 1.41 | 5.73 | 3.75 | 1.42 | 6.07 | 3.74 | 1.44 | 6.42 | 3.98 | 1.45 |
| | 30 | 4.32 | 3.10 | 1.52 | 4.81 | 3.12 | 1.54 | 4.98 | 3.39 | 1.55 | 5.30 | 3.40 | 1.56 | 5.47 | 3.67 | 1.57 | 5.80 | 3.66 | 1.59 | 6.12 | 3.89 | 1.60 |
| | 35 | 4.27 | 3.08 | 1.79 | 4.75 | 3.10 | 1.82 | 4.91 | 3.37 | 1.83 | 5.24 | 3.38 | 1.85 | 5.40 | 3.65 | 1.85 | 5.72 | 3.64 | 1.87 | 6.05 | 3.87 | 1.89 |
| | 40 | 3.28 | 2.68 | 1.28 | 3.66 | 2.69 | 1.30 | 3.78 | 2.93 | 1.30 | 4.03 | 2.94 | 1.32 | 4.16 | 3.17 | 1.32 | 4.41 | 3.16 | 1.34 | 4.66 | 3.36 | 1.35 |
| | 46 | 2.36 | 2.35 | 0.97 | 2.63 | 2.36 | 0.98 | 2.72 | 2.57 | 0.99 | 2.90 | 2.57 | 1.00 | 2.99 | 2.78 | 1.00 | 3.17 | 2.77 | 1.01 | 3.35 | 2.95 | 1.02 |

### ■ MODEL: AU∗G18LVLB

| AFR | 11.3 |
|---|---|

| | | 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 |
| | -10 | 4.45 | 3.17 | 0.44 | 4.96 | 3.18 | 0.44 | 5.13 | 3.46 | 0.44 | 5.47 | 3.47 | 0.45 | 5.64 | 3.75 | 0.45 | 5.97 | 3.74 | 0.46 | 6.31 | 3.98 | 0.46 |
| | 0 | 4.35 | 3.11 | 0.51 | 4.85 | 3.13 | 0.52 | 5.01 | 3.40 | 0.52 | 5.34 | 3.41 | 0.52 | 5.51 | 3.69 | 0.53 | 5.84 | 3.67 | 0.53 | 6.17 | 3.91 | 0.54 |
| | 5 | 4.23 | 3.06 | 0.63 | 4.71 | 3.08 | 0.64 | 4.87 | 3.35 | 0.64 | 5.19 | 3.36 | 0.65 | 5.35 | 3.63 | 0.65 | 5.67 | 3.62 | 0.66 | 6.00 | 3.85 | 0.66 |
| | 10 | 4.09 | 3.00 | 0.74 | 4.56 | 3.02 | 0.75 | 4.71 | 3.28 | 0.76 | 5.02 | 3.29 | 0.76 | 5.18 | 3.56 | 0.77 | 5.49 | 3.54 | 0.78 | 5.80 | 3.78 | 0.78 |
| | 15 | 4.10 | 3.01 | 0.65 | 4.57 | 3.03 | 0.66 | 4.72 | 3.29 | 0.66 | 5.04 | 3.30 | 0.67 | 5.19 | 3.57 | 0.67 | 5.50 | 3.55 | 0.68 | 5.82 | 3.78 | 0.69 |
| | 20 | 5.16 | 3.23 | 1.37 | 5.74 | 3.25 | 1.39 | 5.94 | 3.54 | 1.40 | 6.33 | 3.55 | 1.41 | 6.53 | 3.83 | 1.42 | 6.92 | 3.81 | 1.44 | 7.31 | 4.06 | 1.45 |
| | 25 | 4.94 | 3.22 | 1.53 | 5.51 | 3.24 | 1.56 | 5.70 | 3.53 | 1.56 | 6.07 | 3.54 | 1.58 | 6.26 | 3.82 | 1.59 | 6.63 | 3.80 | 1.60 | 7.01 | 4.05 | 1.62 |
| | 30 | 4.72 | 3.21 | 1.69 | 5.26 | 3.23 | 1.72 | 5.44 | 3.51 | 1.73 | 5.79 | 3.52 | 1.75 | 5.97 | 3.80 | 1.75 | 6.33 | 3.78 | 1.77 | 6.69 | 4.03 | 1.79 |
| | 35 | 4.66 | 3.20 | 1.98 | 5.19 | 3.22 | 2.01 | 5.37 | 3.50 | 2.02 | 5.72 | 3.51 | 2.04 | 5.90 | 3.79 | 2.04 | 6.25 | 3.77 | 2.04 | 6.61 | 4.02 | 2.04 |
| | 40 | 3.59 | 2.80 | 1.43 | 4.00 | 2.82 | 1.45 | 4.13 | 3.06 | 1.46 | 4.40 | 3.07 | 1.47 | 4.54 | 3.32 | 1.48 | 4.81 | 3.31 | 1.49 | 5.09 | 3.52 | 1.51 |
| | 46 | 2.58 | 2.41 | 1.08 | 2.87 | 2.43 | 1.10 | 2.97 | 2.64 | 1.10 | 3.17 | 2.65 | 1.11 | 3.27 | 2.86 | 1.12 | 3.46 | 2.85 | 1.13 | 3.66 | 3.03 | 1.14 |

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

CASSETTE TYPE
AU∗G12-24LVL

# ■MODEL: AU∗G24LVLA

| AFR | 15.5 |
|---|---|

| | | 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 |
| | -10 | 5.62 | 4.52 | 0.60 | 6.26 | 4.54 | 0.60 | 6.47 | 4.94 | 0.61 | 6.90 | 4.95 | 0.61 | 7.11 | 5.35 | 0.62 | 7.54 | 5.33 | 0.62 | 7.96 | 5.68 | 0.63 |
| | 0 | 5.52 | 4.47 | 0.64 | 6.15 | 4.49 | 0.65 | 6.36 | 4.89 | 0.66 | 6.78 | 4.90 | 0.66 | 6.99 | 5.29 | 0.67 | 7.41 | 5.27 | 0.67 | 7.83 | 5.62 | 0.68 |
| | 5 | 5.33 | 4.37 | 0.78 | 5.94 | 4.40 | 0.79 | 6.14 | 4.78 | 0.80 | 6.55 | 4.80 | 0.80 | 6.75 | 5.18 | 0.81 | 7.15 | 5.16 | 0.82 | 7.56 | 5.50 | 0.82 |
| | 10 | 5.12 | 4.26 | 0.91 | 5.71 | 4.29 | 0.92 | 5.90 | 4.66 | 0.93 | 6.29 | 4.68 | 0.94 | 6.49 | 5.05 | 0.94 | 6.87 | 5.03 | 0.95 | 7.26 | 5.36 | 0.96 |
| | 15 | 5.25 | 4.33 | 0.76 | 5.85 | 4.35 | 0.77 | 6.05 | 4.73 | 0.78 | 6.45 | 4.75 | 0.79 | 6.65 | 5.13 | 0.79 | 7.05 | 5.11 | 0.80 | 7.44 | 5.44 | 0.81 |
| | 20 | 6.75 | 5.11 | 1.65 | 7.52 | 5.15 | 1.67 | 7.77 | 5.59 | 1.68 | 8.29 | 5.61 | 1.70 | 8.54 | 6.06 | 1.71 | 9.05 | 6.04 | 1.73 | 9.57 | 6.43 | 1.74 |
| | 25 | 6.41 | 4.93 | 1.78 | 7.14 | 4.96 | 1.81 | 7.38 | 5.39 | 1.82 | 7.87 | 5.41 | 1.84 | 8.11 | 5.84 | 1.85 | 8.60 | 5.82 | 1.86 | 9.08 | 6.20 | 1.88 |
| | 30 | 6.07 | 4.75 | 1.98 | 6.76 | 4.78 | 2.01 | 6.99 | 5.20 | 2.02 | 7.46 | 5.22 | 2.04 | 7.69 | 5.63 | 2.05 | 8.15 | 5.61 | 2.07 | 8.61 | 5.98 | 2.09 |
| | 35 | 6.32 | 4.88 | 2.52 | 7.04 | 4.91 | 2.56 | 7.28 | 5.34 | 2.57 | 7.76 | 5.36 | 2.60 | 8.00 | 5.79 | 2.61 | 8.48 | 5.76 | 2.64 | 8.96 | 6.14 | 2.66 |
| | 40 | 5.22 | 4.31 | 2.10 | 5.81 | 4.34 | 2.14 | 6.01 | 4.72 | 2.15 | 6.41 | 4.73 | 2.17 | 6.61 | 5.11 | 2.18 | 7.00 | 5.09 | 2.20 | 7.40 | 5.42 | 2.22 |
| | 46 | 3.74 | 3.58 | 1.59 | 4.17 | 3.60 | 1.61 | 4.31 | 3.91 | 1.62 | 4.60 | 3.92 | 1.64 | 4.74 | 4.24 | 1.65 | 5.02 | 4.22 | 1.66 | 5.31 | 4.50 | 1.68 |

AFR : Air flow rate ($m^3$/min)
TC : Total capacity (kW)
SHC : Sensible Heat capacity (kW)
IP : Input Power (kW)

CASSETTE TYPE
AU∗G12-24LVL

# 6-2. HEATING CAPACITY

This table is created using the maximum capacity.

## ■ MODEL: AU∗G12LVLB

| AFR | 10.0 |
|---|---|

| | | | Indoor temperature | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | °CDB | 16 | | 18 | | 20 | | 22 | | 24 | |
| Outdoor temperature | °CDB | °CWB | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| | -15 | -16 | 3.76 | 1.87 | 3.67 | 1.91 | 3.58 | 1.95 | 3.49 | 1.99 | 3.40 | 2.03 |
| | -10 | -11 | 4.26 | 1.87 | 4.16 | 1.91 | 4.06 | 1.95 | 3.96 | 1.99 | 3.86 | 2.03 |
| | -5 | -7 | 4.69 | 2.13 | 4.58 | 2.17 | 4.47 | 2.21 | 4.35 | 2.26 | 4.20 | 2.26 |
| | 0 | -2 | 5.30 | 2.12 | 5.17 | 2.17 | 5.05 | 2.21 | 4.92 | 2.26 | 4.76 | 2.26 |
| | 5 | 3 | 5.79 | 2.13 | 5.65 | 2.18 | 5.51 | 2.22 | 5.38 | 2.26 | 5.18 | 2.26 |
| | 7 | 6 | 5.99 | 2.07 | 5.85 | 2.11 | 5.70 | 2.15 | 5.56 | 2.20 | 5.42 | 2.24 |
| | 10 | 8 | 6.05 | 1.84 | 5.91 | 1.87 | 5.76 | 1.91 | 5.62 | 1.95 | 5.47 | 1.99 |
| | 15 | 10 | 6.08 | 1.76 | 5.93 | 1.80 | 5.79 | 1.84 | 5.64 | 1.87 | 5.50 | 1.91 |
| | 20 | 15 | 5.87 | 1.48 | 5.73 | 1.51 | 5.59 | 1.54 | 5.45 | 1.57 | 5.31 | 1.61 |
| | 24 | 18 | 5.86 | 1.48 | 5.72 | 1.51 | 5.58 | 1.54 | 5.44 | 1.57 | 5.30 | 1.60 |

## ■ MODEL: AU∗G14LVLB

| AFR | 13.3 |
|---|---|

| | | | Indoor temperature | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | °CDB | 16 | | 18 | | 20 | | 22 | | 24 | |
| Outdoor temperature | °CDB | °CWB | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| | -15 | -16 | 4.24 | 2.16 | 4.14 | 2.21 | 4.04 | 2.25 | 3.94 | 2.30 | 3.84 | 2.34 |
| | -10 | -11 | 4.88 | 2.16 | 4.76 | 2.21 | 4.65 | 2.25 | 4.53 | 2.30 | 4.41 | 2.34 |
| | -5 | -7 | 5.49 | 2.40 | 5.36 | 2.45 | 5.23 | 2.50 | 5.10 | 2.55 | 4.97 | 2.60 |
| | 0 | -2 | 6.37 | 2.72 | 6.22 | 2.77 | 6.07 | 2.83 | 5.87 | 2.83 | 5.61 | 2.83 |
| | 5 | 3 | 6.97 | 2.71 | 6.80 | 2.77 | 6.64 | 2.83 | 6.47 | 2.83 | 6.18 | 2.83 |
| | 7 | 6 | 6.82 | 2.36 | 6.66 | 2.40 | 6.50 | 2.45 | 6.34 | 2.50 | 6.17 | 2.55 |
| | 10 | 8 | 7.03 | 2.37 | 6.86 | 2.42 | 6.70 | 2.47 | 6.53 | 2.52 | 6.36 | 2.56 |
| | 15 | 10 | 6.75 | 2.07 | 6.59 | 2.12 | 6.43 | 2.16 | 6.27 | 2.20 | 6.11 | 2.25 |
| | 20 | 15 | 6.22 | 1.59 | 6.07 | 1.63 | 5.92 | 1.66 | 5.77 | 1.69 | 5.62 | 1.73 |
| | 24 | 18 | 6.40 | 1.60 | 6.25 | 1.64 | 6.10 | 1.67 | 5.94 | 1.70 | 5.79 | 1.74 |

## ■ MODEL: AU∗G18LVLB

| AFR | 13.3 |
|---|---|

| | | | Indoor temperature | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | °CDB | 16 | | 18 | | 20 | | 22 | | 24 | |
| Outdoor temperature | °CDB | °CWB | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| | -15 | -16 | 5.01 | 2.50 | 4.89 | 2.55 | 4.77 | 2.60 | 4.65 | 2.65 | 4.53 | 2.71 |
| | -10 | -11 | 5.76 | 2.61 | 5.62 | 2.67 | 5.49 | 2.72 | 5.35 | 2.77 | 5.21 | 2.83 |
| | -5 | -7 | 6.49 | 2.69 | 6.34 | 2.74 | 6.18 | 2.80 | 6.03 | 2.83 | 5.87 | 2.83 |
| | 0 | -2 | 7.35 | 2.72 | 7.18 | 2.77 | 7.00 | 2.83 | 6.83 | 2.83 | 6.65 | 2.83 |
| | 5 | 3 | 8.04 | 2.71 | 7.85 | 2.76 | 7.66 | 2.82 | 7.47 | 2.83 | 7.28 | 2.83 |
| | 7 | 6 | 7.87 | 2.42 | 7.69 | 2.47 | 7.50 | 2.52 | 7.31 | 2.57 | 7.12 | 2.62 |
| | 10 | 8 | 8.12 | 2.43 | 7.92 | 2.48 | 7.73 | 2.53 | 7.54 | 2.58 | 7.34 | 2.63 |
| | 15 | 10 | 7.79 | 2.13 | 7.61 | 2.17 | 7.42 | 2.22 | 7.23 | 2.26 | 7.05 | 2.31 |
| | 20 | 15 | 7.17 | 1.64 | 7.00 | 1.67 | 6.83 | 1.71 | 6.66 | 1.74 | 6.49 | 1.77 |
| | 24 | 18 | 7.39 | 1.65 | 7.21 | 1.68 | 7.03 | 1.71 | 6.86 | 1.75 | 6.68 | 1.78 |

AFR : Air Flow Rate ($m^3$/min)
TC : Total Capacity (kW)
IP : Input Power (kW)

CASSETTE TYPE
AU∗G12-24LVL

# ■ MODEL: AU∗G24LVLA

| AFR | 15.5 |
|---|---|

| | | | Indoor temperature | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | °CDB | 16 | | 18 | | 20 | | 22 | | 24 | |
| Outdoor temperature | °CDB | °CWB | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| | -15 | -16 | 6.15 | 2.84 | 6.01 | 2.90 | 5.86 | 2.96 | 5.72 | 3.01 | 5.57 | 3.07 |
| | -10 | -11 | 6.92 | 3.03 | 6.75 | 3.09 | 6.59 | 3.15 | 6.42 | 3.22 | 6.26 | 3.28 |
| | -5 | -7 | 7.64 | 3.02 | 7.45 | 3.08 | 7.27 | 3.14 | 7.09 | 3.20 | 6.91 | 3.27 |
| | 0 | -2 | 8.59 | 3.00 | 8.38 | 3.06 | 8.18 | 3.12 | 7.97 | 3.18 | 7.77 | 3.25 |
| | 5 | 3 | 9.54 | 3.02 | 9.31 | 3.08 | 9.09 | 3.14 | 8.86 | 3.20 | 8.63 | 3.27 |
| | 7 | 6 | 9.55 | 2.69 | 9.33 | 2.74 | 9.10 | 2.80 | 8.87 | 2.86 | 8.64 | 2.91 |
| | 10 | 8 | 9.87 | 2.69 | 9.63 | 2.75 | 9.40 | 2.80 | 9.16 | 2.86 | 8.93 | 2.92 |
| | 15 | 10 | 8.97 | 2.07 | 8.76 | 2.12 | 8.54 | 2.16 | 8.33 | 2.20 | 8.11 | 2.25 |
| | 20 | 15 | 8.23 | 1.63 | 8.03 | 1.66 | 7.84 | 1.69 | 7.64 | 1.73 | 7.45 | 1.76 |
| | 24 | 18 | 8.52 | 1.62 | 8.32 | 1.66 | 8.12 | 1.69 | 7.92 | 1.73 | 7.71 | 1.76 |

AFR : Air Flow Rate ($m^3$/min)
TC : Total Capacity (kW)
IP : Input Power (kW)

CASSETTE TYPE
AU∗G12-24LVL

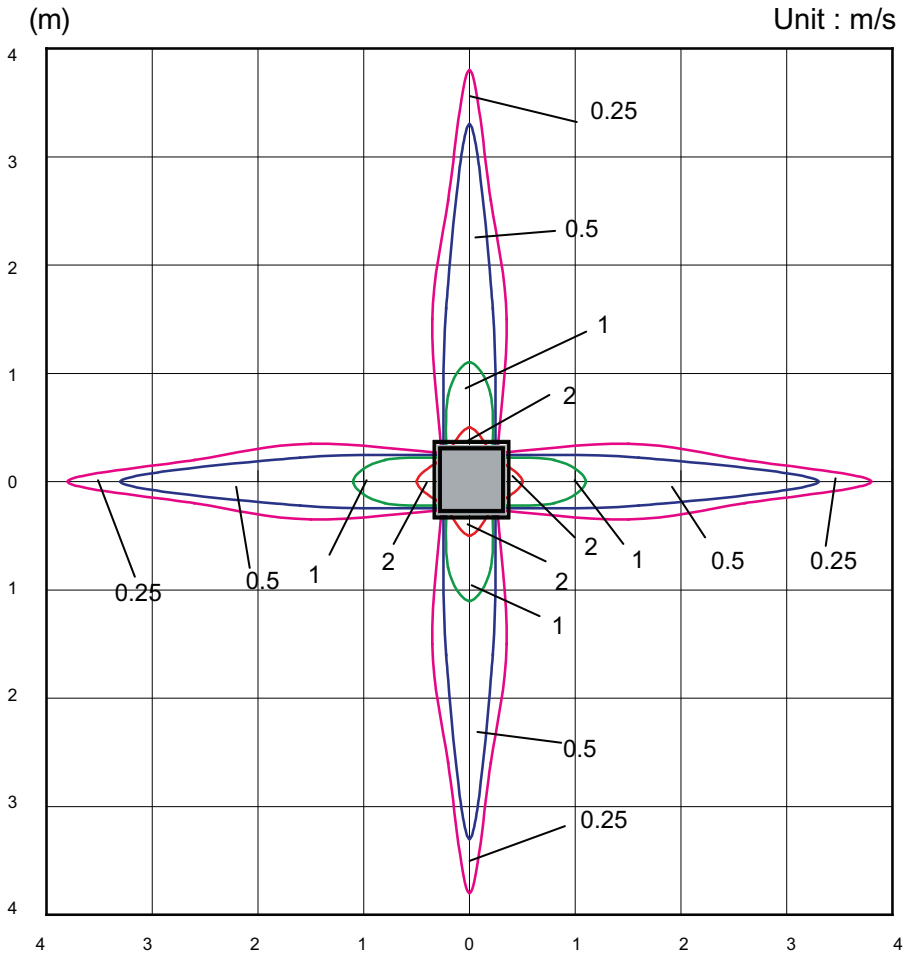
# 7. FAN PERFORMANCE

## 7-1. AIR VELOCITY DISTRIBUTION

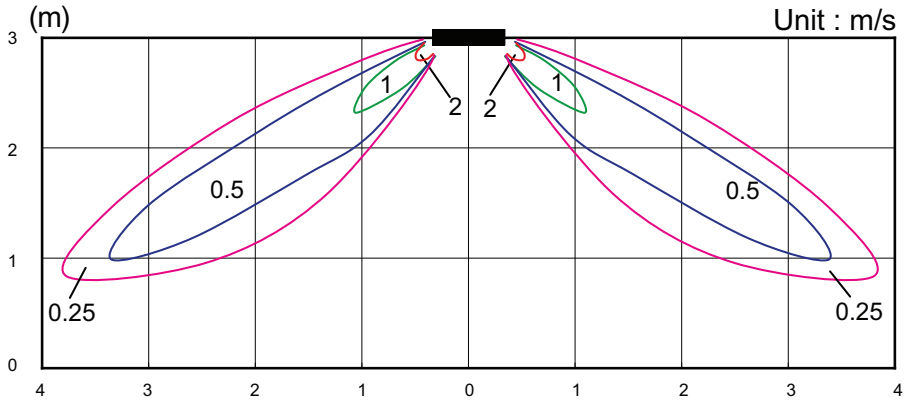
Note:
Condition
Fan speed : High
Operation mode : Fan
Ceiling mode : Standard

### ■ MODEL: AU∗G12LVLB

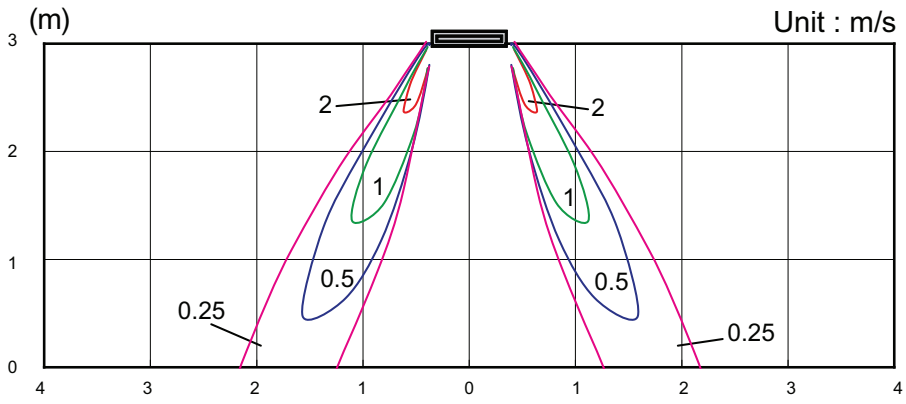
#### ● 4-way air outlet




TOP VIEW
VERTICAL LOUVER
: Upward




SIDE VIEW
VERTICAL LOUVER
: Upward

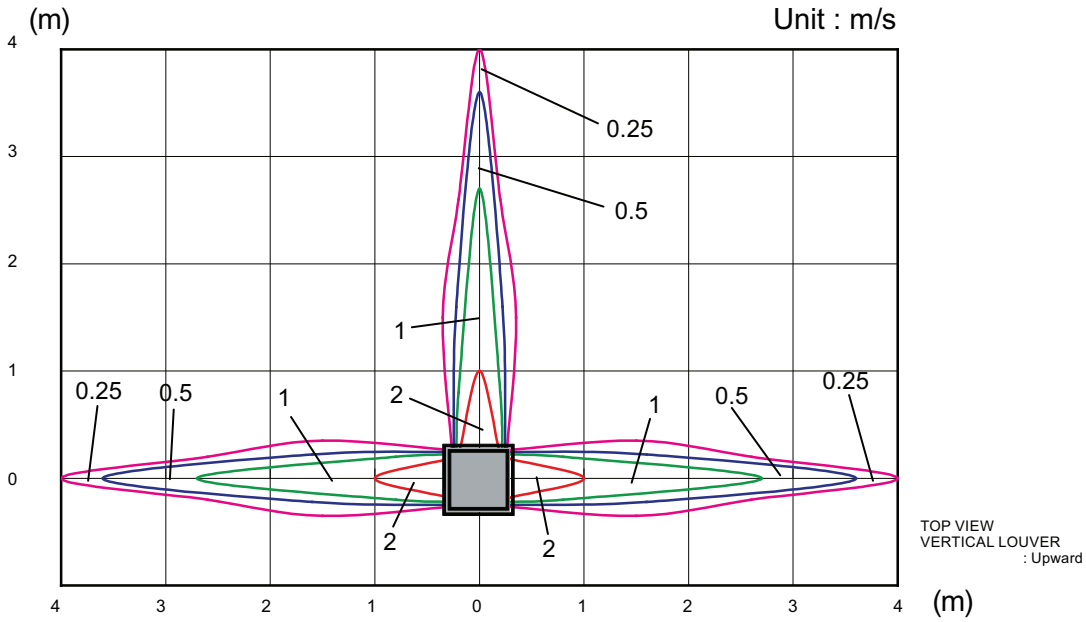



SIDE VIEW
VERTICAL LOUVER
: Downward

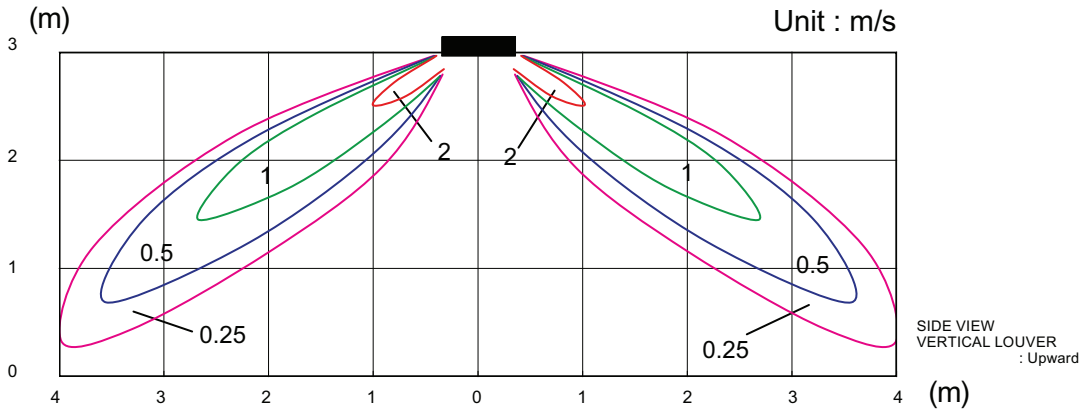
CASSETTE TYPE
AU∗G12-24LVL

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

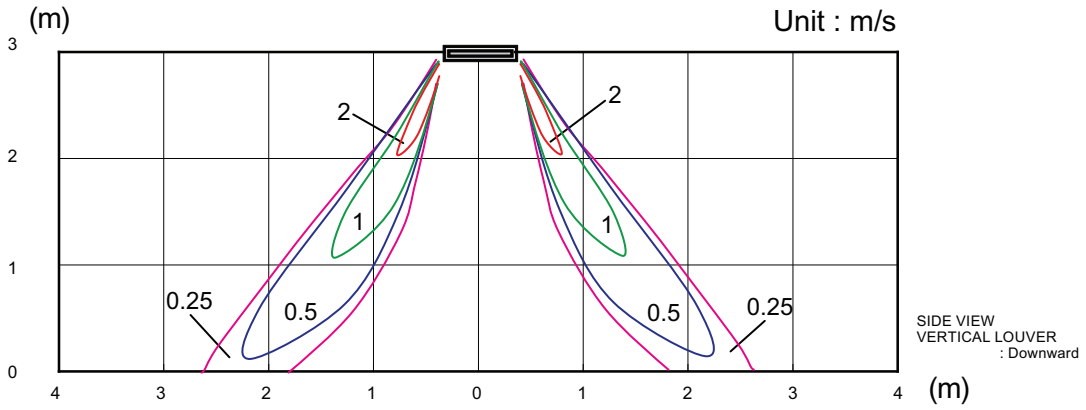
## ● 3-way air outlet




TOP VIEW
VERTICAL LOUVER
: Upward




SIDE VIEW
VERTICAL LOUVER
: Upward



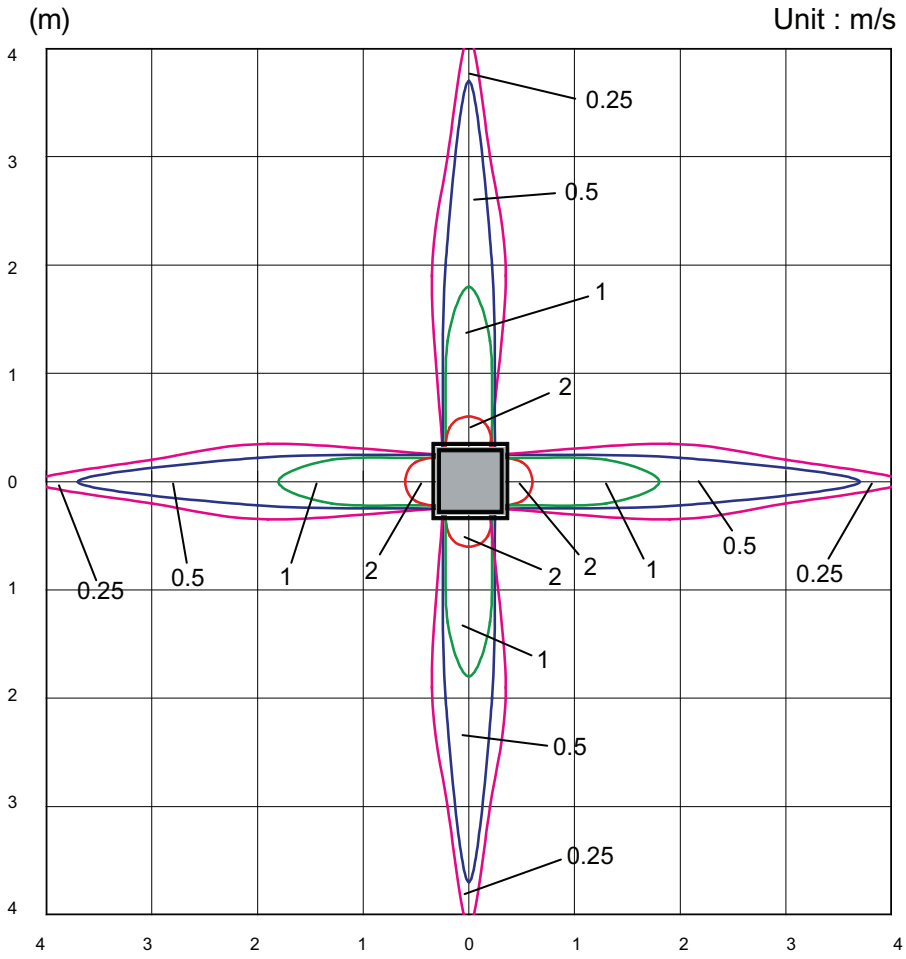

SIDE VIEW
VERTICAL LOUVER
: Downward

CASSETTE TYPE
AU∗G12-24LVL

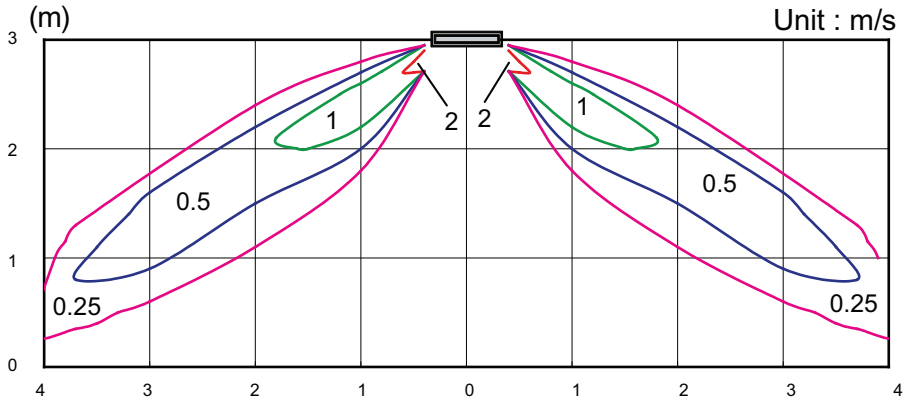
Note:
Condition
Fan speed : High
Operation mode : Fan
Ceiling mode : Standard

# ■MODEL: AU∗G14LVLB

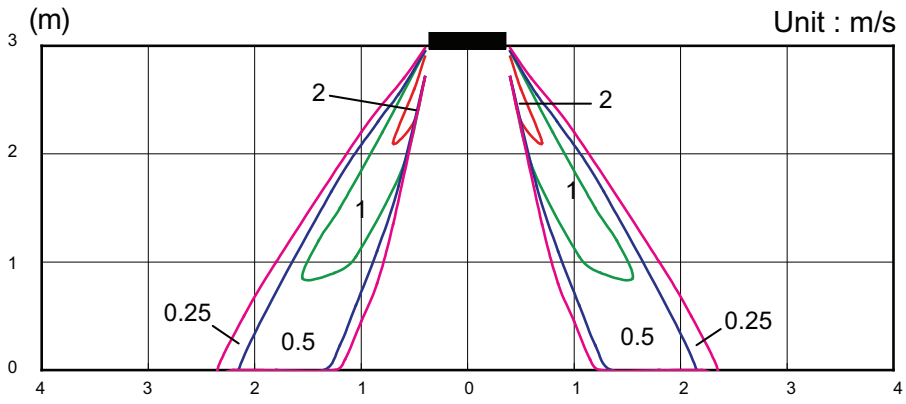
## ●4-way air outlet




TOP VIEW
VERTICAL LOUVER
: Upward




SIDE VIEW
VERTICAL LOUVER
: Upward

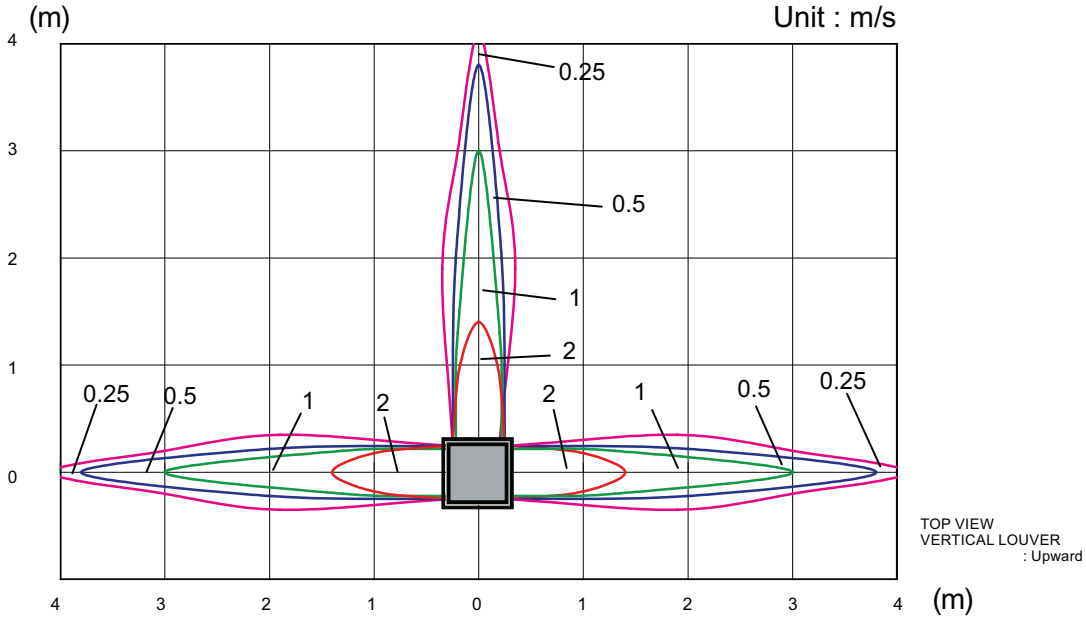



SIDE VIEW
VERTICAL LOUVER
: Downward

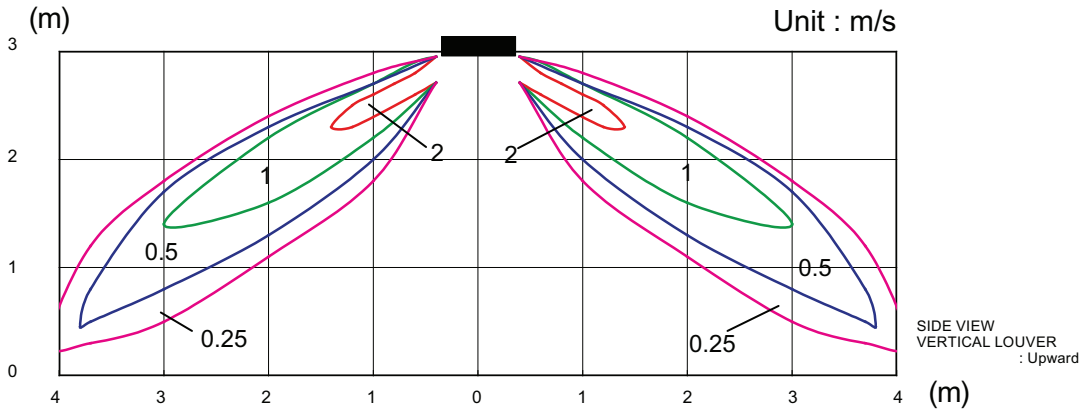
CASSETTE TYPE
AU∗G12-24LVL

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

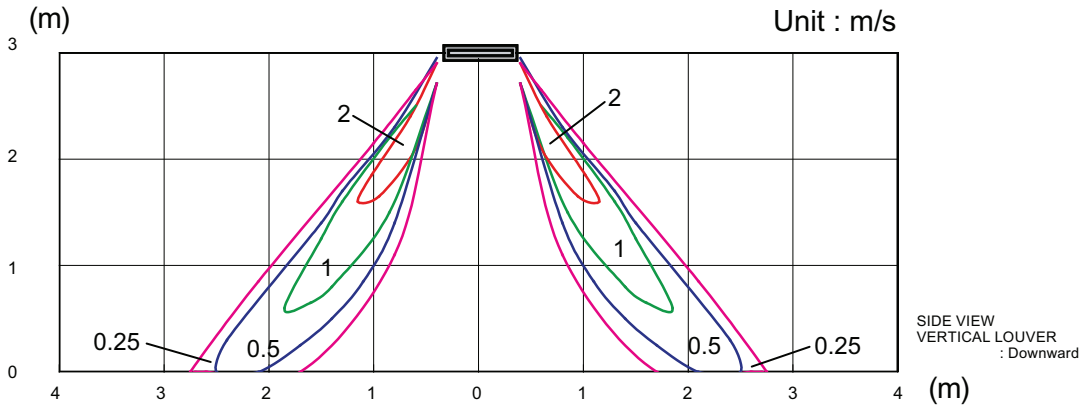
## ● 3-way air outlet




TOP VIEW
VERTICAL LOUVER
: Upward




SIDE VIEW
VERTICAL LOUVER
: Upward



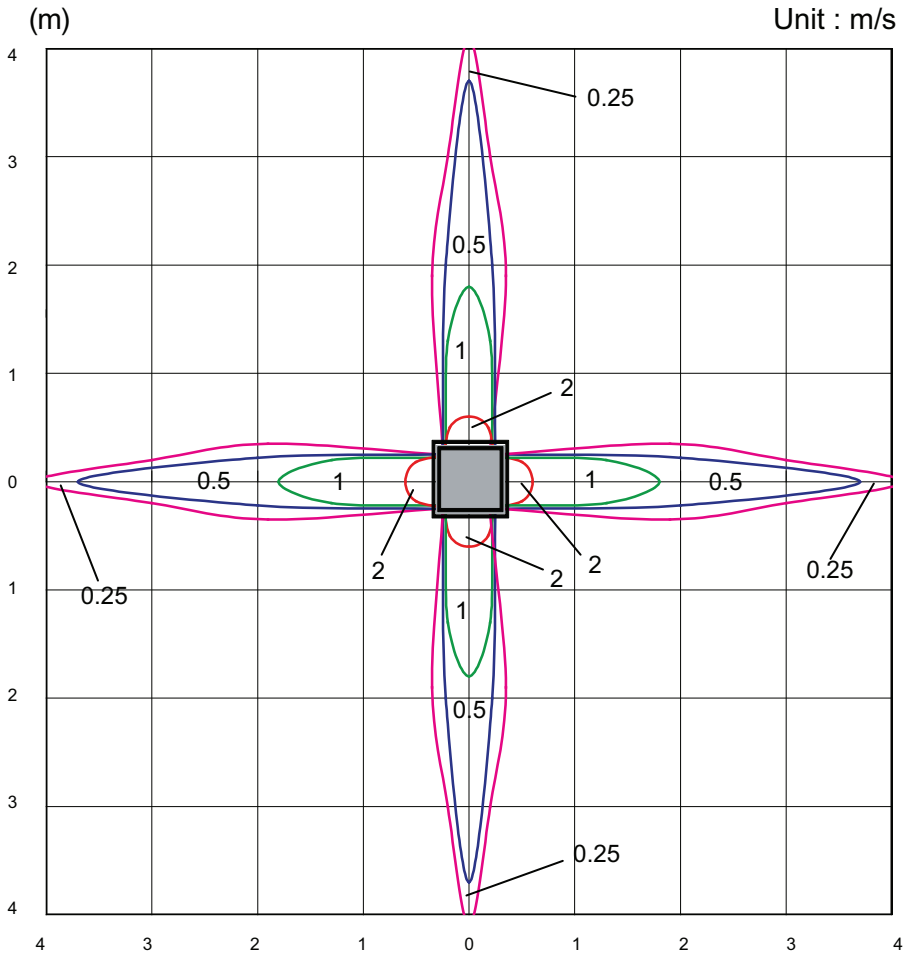

SIDE VIEW
VERTICAL LOUVER
: Downward

CASSETTE TYPE
AU∗G12-24LVL

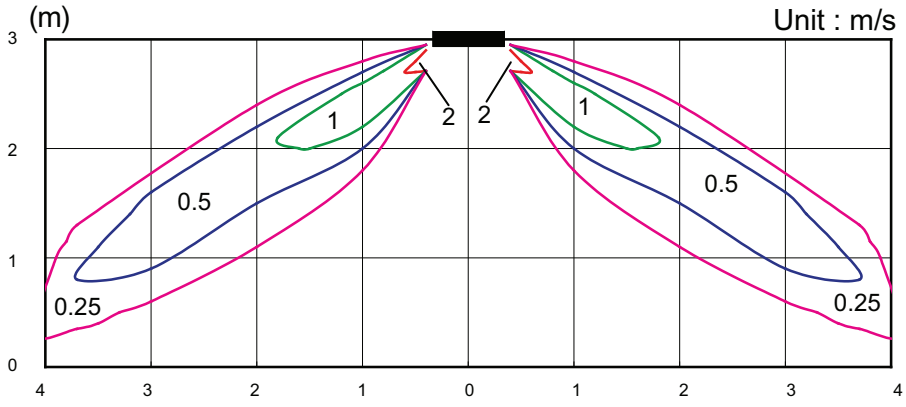
Note:
Condition
Fan speed : High
Operation mode : Fan
Ceiling mode : Standard

# ■MODEL: AU∗G18LVLB

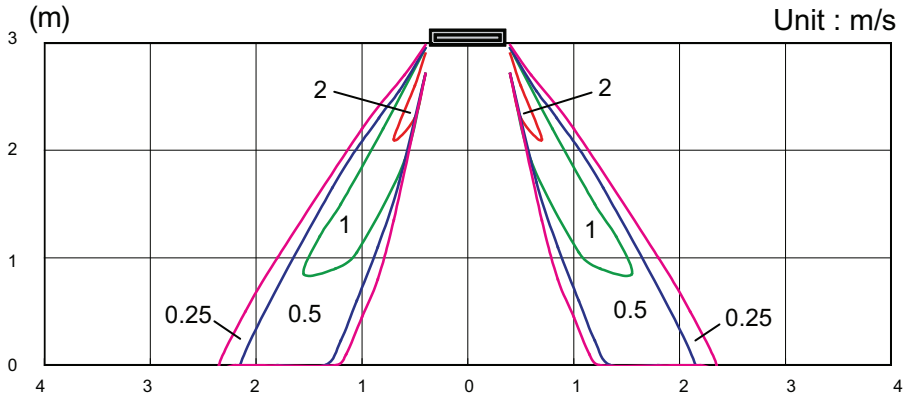
## ●4-way air outlet




TOP VIEW
VERTICAL LOUVER
: Upward




SIDE VIEW
VERTICAL LOUVER
: Upward

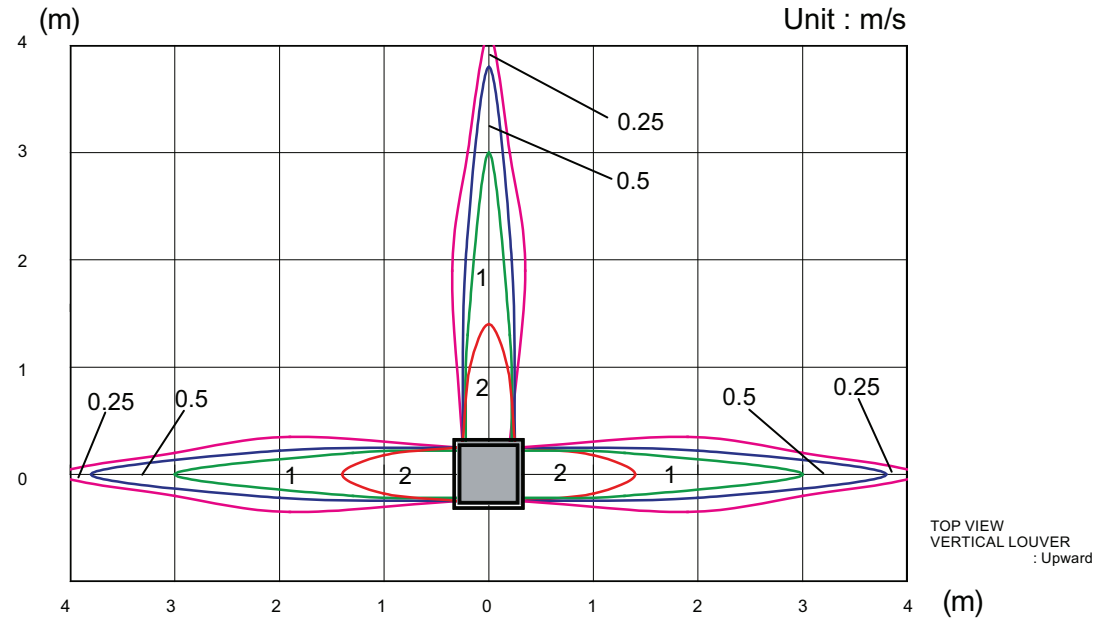



SIDE VIEW
VERTICAL LOUVER
: Downward

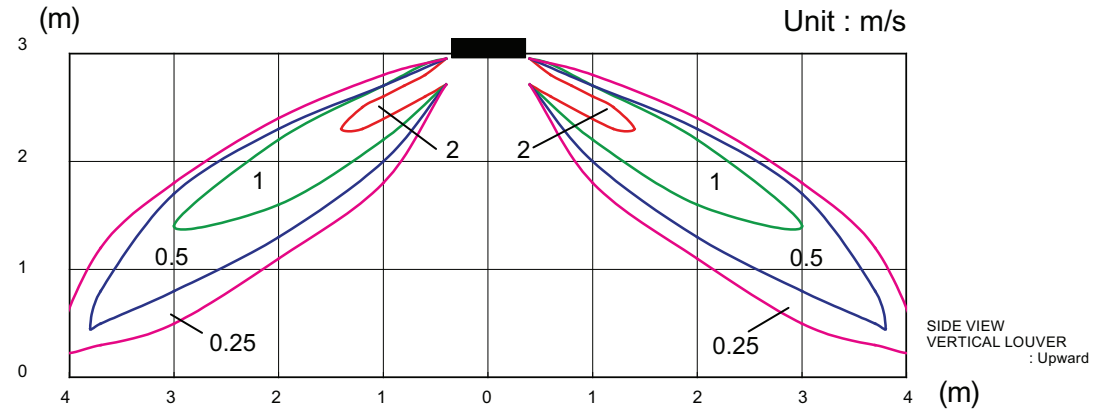
CASSETTE TYPE
AU∗G12-24LVL

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

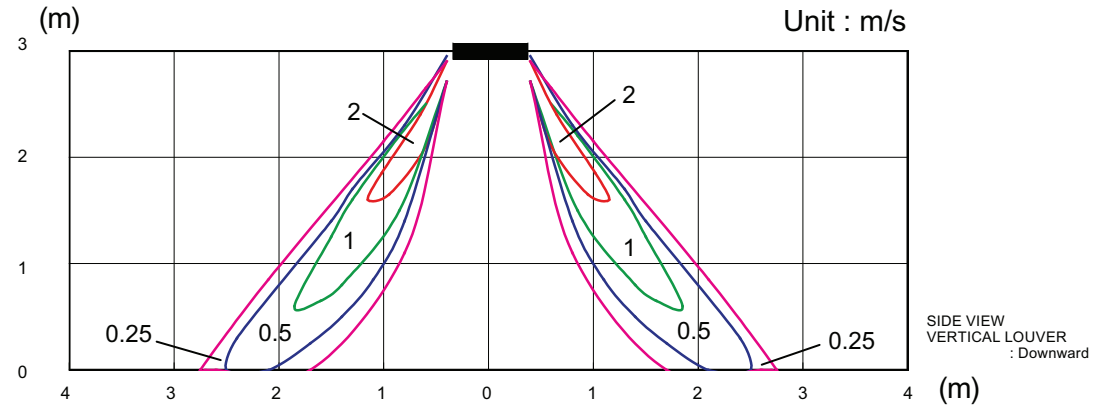
## ● 3-way air outlet




TOP VIEW
VERTICAL LOUVER
: Upward




SIDE VIEW
VERTICAL LOUVER
: Upward



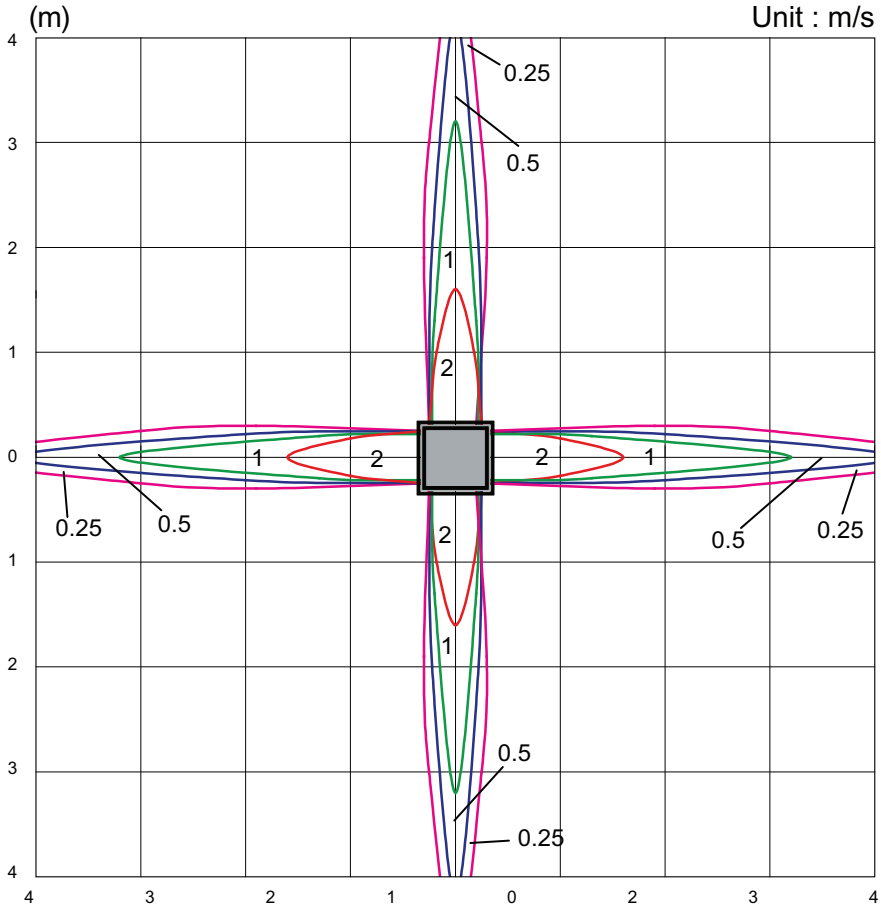

SIDE VIEW
VERTICAL LOUVER
: Downward

CASSETTE TYPE
AU∗G12-24LVL

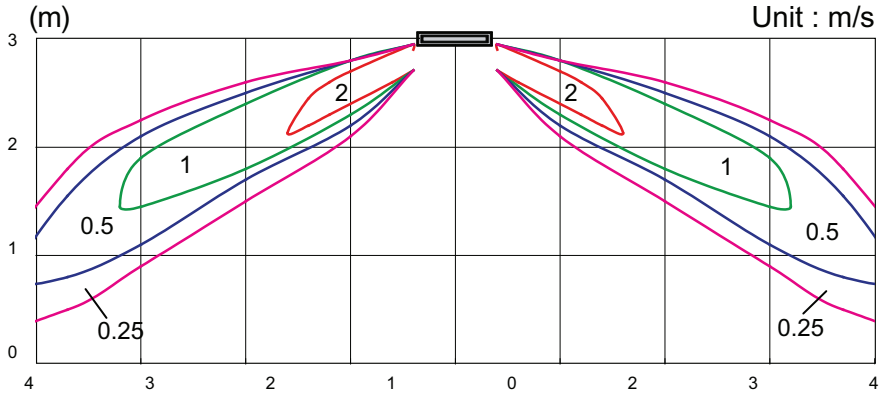
Note:
Condition
Fan speed : High
Operation mode : FAN
Ceiling mode : Standard

# ■MODEL: AU∗G24LVLA

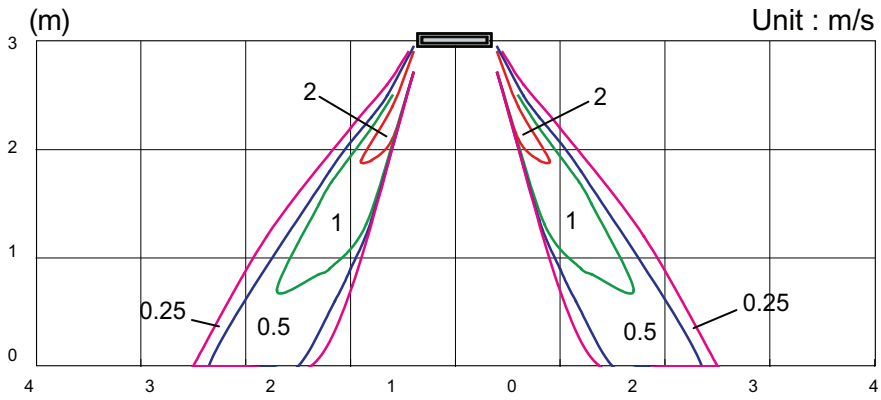
## ●4-way air outlet




TOP VIEW
VERTICAL FLAP
: Upward




SIDE VIEW
VERTICAL FLAP
: Upward



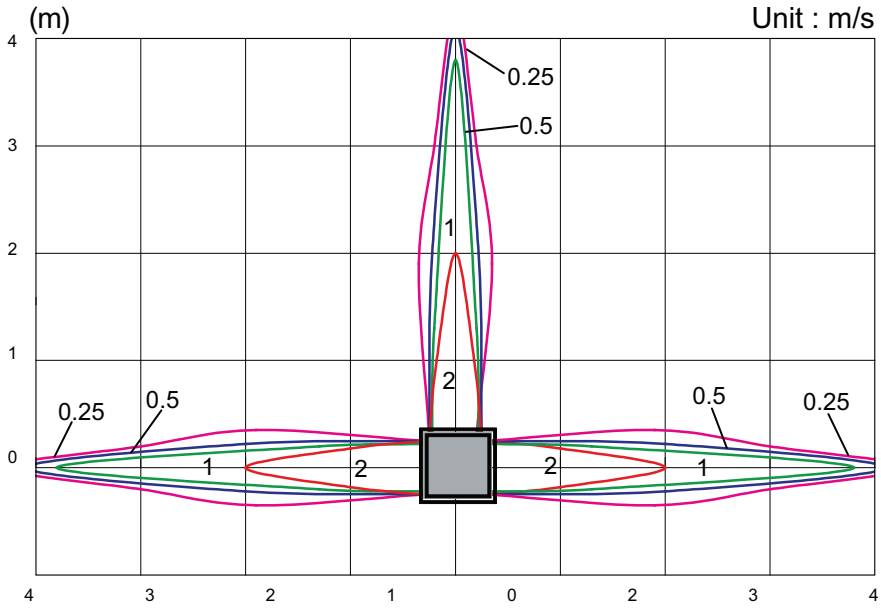

SIDE VIEW
VERTICAL FLAP
: Downward

CASSETTE TYPE
AU∗G12-24LVL

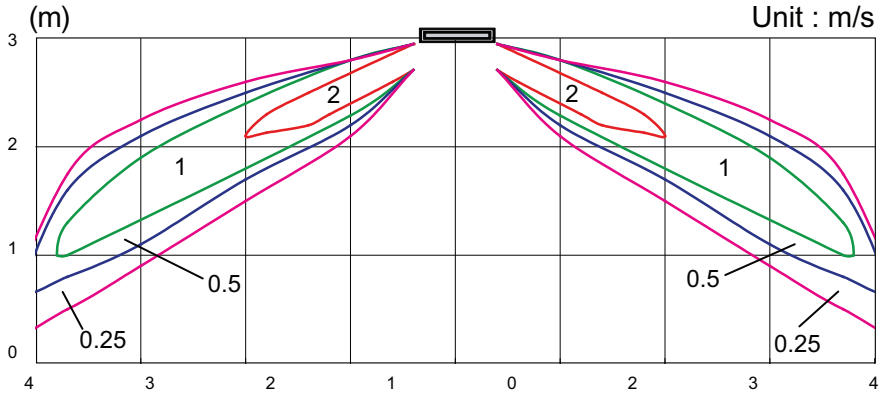
Note:
Condition
Fan speed : High
Operation mode : FAN
Ceiling mode : Standard

# ■ MODEL: AU∗G24LVLA

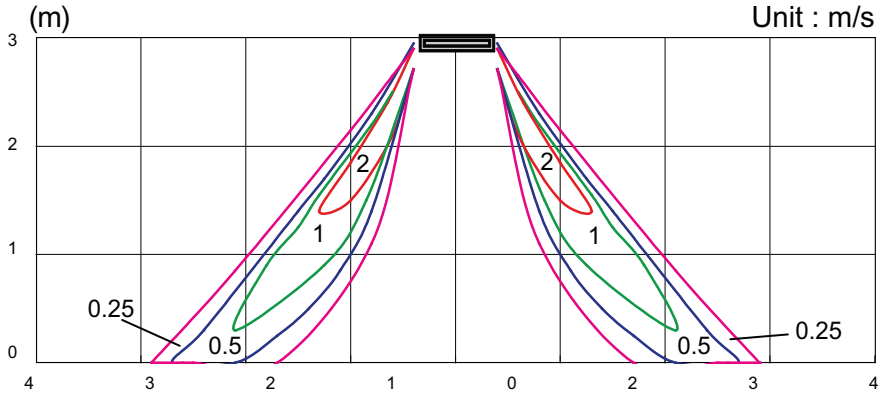
## ● 3-way air outlet




TOP VIEW
VERTICAL FLAP
: Upward




SIDE VIEW
VERTICAL FLAP
: Upward




SIDE VIEW
VERTICAL FLAP
: Downward

CASSETTE TYPE
AU∗G12-24LVL

# 7-2. AIRFLOW

## 7-2-1. STANDARD CEILING MODE

### ■ MODEL: AU∗G12LVLB

#### ● Cooling

| Fan speed | Number of rotations (r.p.m) | Airflow | |
|---|---|---|---|
| HIGH | 650 | $m^3/h$ | 600 |
| | | l/s | 167 |
| | | CFM | 353 |
| MED | 580 | $m^3/h$ | 530 |
| | | l/s | 147 |
| | | CFM | 312 |
| LOW | 520 | $m^3/h$ | 470 |
| | | l/s | 131 |
| | | CFM | 277 |
| QUIET | 460 | $m^3/h$ | 410 |
| | | l/s | 114 |
| | | CFM | 241 |

#### ● Heating

| Fan speed | Number of rotations (r.p.m) | Airflow | |
|---|---|---|---|
| HIGH | 650 | $m^3/h$ | 600 |
| | | l/s | 167 |
| | | CFM | 353 |
| MED | 580 | $m^3/h$ | 530 |
| | | l/s | 147 |
| | | CFM | 312 |
| LOW | 520 | $m^3/h$ | 470 |
| | | l/s | 131 |
| | | CFM | 277 |
| QUIET | 460 | $m^3/h$ | 410 |
| | | l/s | 114 |
| | | CFM | 241 |

CASSETTE TYPE
AU∗G12-24LVL

# ■ MODEL: AU∗G14LVLB

## ● Cooling

| Fan speed | Number of rotations (r.p.m) | Airflow | |
|---|---|---|---|
| HIGH | 730 | $m^3/h$ | 680 |
| | | l/s | 189 |
| | | CFM | 400 |
| MED | 630 | $m^3/h$ | 580 |
| | | l/s | 161 |
| | | CFM | 341 |
| LOW | 540 | $m^3/h$ | 490 |
| | | l/s | 136 |
| | | CFM | 288 |
| QUIET | 460 | $m^3/h$ | 410 |
| | | l/s | 114 |
| | | CFM | 241 |

## ● Heating

| Fan speed | Number of rotations (r.p.m) | Airflow | |
|---|---|---|---|
| HIGH | 830 | $m^3/h$ | 800 |
| | | l/s | 222 |
| | | CFM | 471 |
| MED | 730 | $m^3/h$ | 680 |
| | | l/s | 189 |
| | | CFM | 400 |
| LOW | 630 | $m^3/h$ | 580 |
| | | l/s | 161 |
| | | CFM | 341 |
| QUIET | 500 | $m^3/h$ | 450 |
| | | l/s | 125 |
| | | CFM | 265 |

CASSETTE TYPE
AU∗G12-24LVL

# ■ MODEL: AU∗G18LVLB

## ● Cooling

| Fan speed | Number of rotations (r.p.m) | Airflow | |
|---|---|---|---|
| HIGH | 730 | $m^3/h$ | 680 |
| | | l/s | 189 |
| | | CFM | 400 |
| MED | 630 | $m^3/h$ | 580 |
| | | l/s | 161 |
| | | CFM | 341 |
| LOW | 540 | $m^3/h$ | 490 |
| | | l/s | 136 |
| | | CFM | 288 |
| QUIET | 460 | $m^3/h$ | 410 |
| | | l/s | 114 |
| | | CFM | 241 |

## ● Heating

| Fan speed | Number of rotations (r.p.m) | Airflow | |
|---|---|---|---|
| HIGH | 830 | $m^3/h$ | 800 |
| | | l/s | 222 |
| | | CFM | 471 |
| MED | 730 | $m^3/h$ | 680 |
| | | l/s | 189 |
| | | CFM | 400 |
| LOW | 630 | $m^3/h$ | 580 |
| | | l/s | 161 |
| | | CFM | 341 |
| QUIET | 500 | $m^3/h$ | 450 |
| | | l/s | 125 |
| | | CFM | 265 |

CASSETTE TYPE
AU∗G12-24LVL

# ■ MODEL: AU∗G24LVLA

## ● Cooling

| Fan speed | Number of rotations (r.p.m.) | Airflow | |
|---|---|---|---|
| HIGH | 960 | $m^3/h$ | 930 |
| | | l/s | 258 |
| | | CFM | 547 |
| MED | 850 | $m^3/h$ | 830 |
| | | l/s | 231 |
| | | CFM | 488 |
| LOW | 650 | $m^3/h$ | 600 |
| | | l/s | 167 |
| | | CFM | 353 |
| QUIET | 500 | $m^3/h$ | 450 |
| | | l/s | 125 |
| | | CFM | 265 |

## ● Heating

| Fan speed | Number of rotations (r.p.m.) | Airflow | |
|---|---|---|---|
| HIGH | 960 | $m^3/h$ | 930 |
| | | l/s | 258 |
| | | CFM | 547 |
| MED | 880 | $m^3/h$ | 860 |
| | | l/s | 239 |
| | | CFM | 506 |
| LOW | 740 | $m^3/h$ | 700 |
| | | l/s | 194 |
| | | CFM | 412 |
| QUIET | 580 | $m^3/h$ | 530 |
| | | l/s | 147 |
| | | CFM | 312 |

CASSETTE TYPE
AU∗G12-24LVL

# 7-2-2. HIGH CEILING MODE

## ■ MODEL: AU∗G12LVLB

### ● Cooling

| Fan speed | Number of rotations (r.p.m) | Airflow | |
|---|---|---|---|
| HIGH | 750 | $m^3/h$ | 700 |
| | | l/s | 194 |
| | | CFM | 412 |
| MED | 680 | $m^3/h$ | 630 |
| | | l/s | 175 |
| | | CFM | 371 |
| LOW | 620 | $m^3/h$ | 570 |
| | | l/s | 158 |
| | | CFM | 335 |
| QUIET | 460 | $m^3/h$ | 410 |
| | | l/s | 114 |
| | | CFM | 241 |

### ● Heating

| Fan speed | Number of rotations (r.p.m) | Airflow | |
|---|---|---|---|
| HIGH | 750 | $m^3/h$ | 700 |
| | | l/s | 194 |
| | | CFM | 412 |
| MED | 680 | $m^3/h$ | 630 |
| | | l/s | 175 |
| | | CFM | 371 |
| LOW | 620 | $m^3/h$ | 570 |
| | | l/s | 158 |
| | | CFM | 335 |
| QUIET | 460 | $m^3/h$ | 410 |
| | | l/s | 114 |
| | | CFM | 241 |

CASSETTE TYPE
AU∗G12-24LVL

# ■ MODEL: AU∗G14LVLB

## ● Cooling

| Fan speed | Number of rotations (r.p.m) | Airflow | |
|---|---|---|---|
| HIGH | 830 | $m^3/h$ | 800 |
| | | l/s | 222 |
| | | CFM | 471 |
| MED | 730 | $m^3/h$ | 680 |
| | | l/s | 189 |
| | | CFM | 400 |
| LOW | 640 | $m^3/h$ | 590 |
| | | l/s | 164 |
| | | CFM | 347 |
| QUIET | 460 | $m^3/h$ | 410 |
| | | l/s | 114 |
| | | CFM | 241 |

## ● Heating

| Fan speed | Number of rotations (r.p.m) | Airflow | |
|---|---|---|---|
| HIGH | 930 | $m^3/h$ | 900 |
| | | l/s | 250 |
| | | CFM | 530 |
| MED | 830 | $m^3/h$ | 800 |
| | | l/s | 222 |
| | | CFM | 471 |
| LOW | 730 | $m^3/h$ | 680 |
| | | l/s | 189 |
| | | CFM | 400 |
| QUIET | 500 | $m^3/h$ | 450 |
| | | l/s | 125 |
| | | CFM | 265 |

CASSETTE TYPE
AU∗G12-24LVL

# ■ MODEL: AU∗G18LVLB

## ● Cooling

| Fan speed | Number of rotations (r.p.m) | Airflow | |
|---|---|---|---|
| HIGH | 830 | $m^3/h$ | 800 |
| | | l/s | 222 |
| | | CFM | 471 |
| MED | 730 | $m^3/h$ | 680 |
| | | l/s | 189 |
| | | CFM | 400 |
| LOW | 640 | $m^3/h$ | 590 |
| | | l/s | 164 |
| | | CFM | 347 |
| QUIET | 460 | $m^3/h$ | 410 |
| | | l/s | 114 |
| | | CFM | 241 |

## ● Heating

| Fan speed | Number of rotations (r.p.m) | Airflow | |
|---|---|---|---|
| HIGH | 930 | $m^3/h$ | 900 |
| | | l/s | 250 |
| | | CFM | 530 |
| MED | 830 | $m^3/h$ | 800 |
| | | l/s | 222 |
| | | CFM | 471 |
| LOW | 730 | $m^3/h$ | 680 |
| | | l/s | 189 |
| | | CFM | 400 |
| QUIET | 500 | $m^3/h$ | 450 |
| | | l/s | 125 |
| | | CFM | 265 |

CASSETTE TYPE
AU∗G12-24LVL

# ■ MODEL: AU∗G24LVLA

## ● Cooling

| Fan speed | Number of rotations (r.p.m.) | Airflow | |
|---|---|---|---|
| HIGH | 1050 | $m^3/h$ | 1030 |
| | | l/s | 286 |
| | | CFM | 606 |
| MED | 950 | $m^3/h$ | 930 |
| | | l/s | 258 |
| | | CFM | 547 |
| LOW | 750 | $m^3/h$ | 710 |
| | | l/s | 197 |
| | | CFM | 418 |
| QUIET | 500 | $m^3/h$ | 450 |
| | | l/s | 125 |
| | | CFM | 265 |

## ● Heating

| Fan speed | Number of rotations (r.p.m.) | Airflow | |
|---|---|---|---|
| HIGH | 1030 | $m^3/h$ | 1000 |
| | | l/s | 278 |
| | | CFM | 589 |
| MED | 980 | $m^3/h$ | 960 |
| | | l/s | 267 |
| | | CFM | 565 |
| LOW | 840 | $m^3/h$ | 820 |
| | | l/s | 228 |
| | | CFM | 483 |
| QUIET | 580 | $m^3/h$ | 530 |
| | | l/s | 147 |
| | | CFM | 312 |

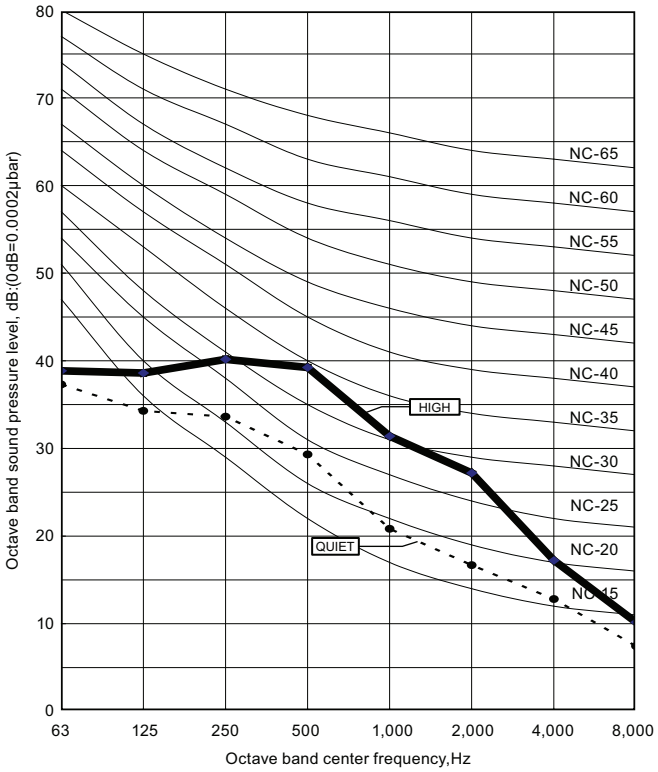
CASSETTE TYPE
AU∗G12-24LVL

# 8. OPERATION NOISE

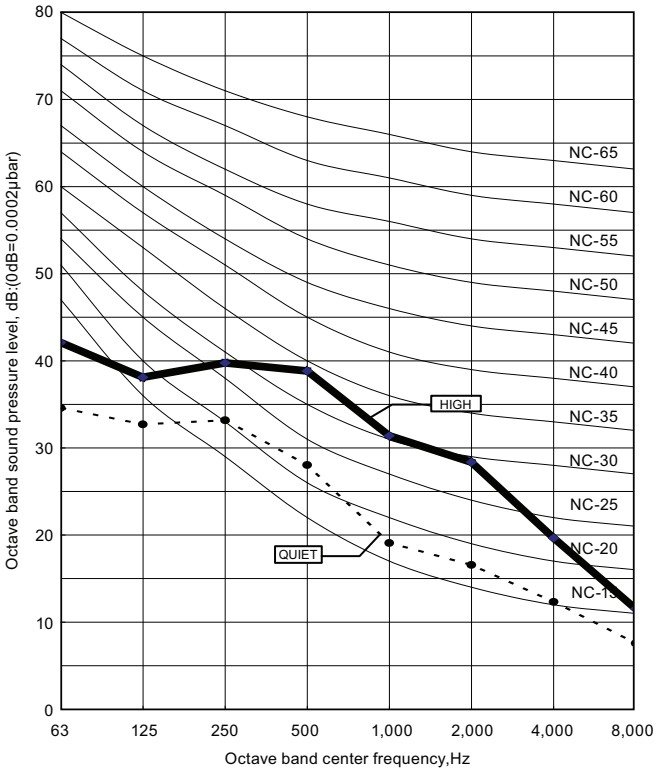
## 8-1. NOISE LEVEL CURVE

### ■ MODEL: AU∗G12LVLB

#### ● Cooling

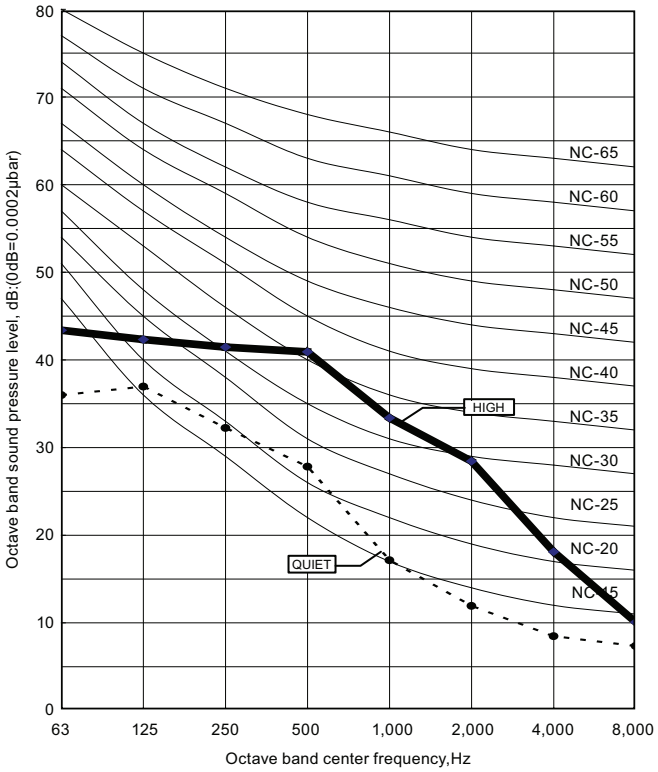



#### ● Heating

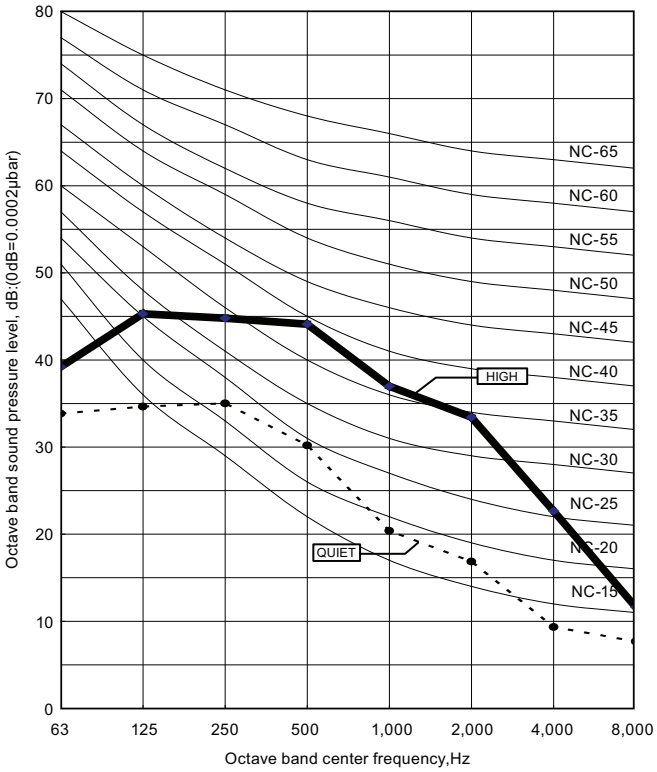



### ■ MODEL: AU∗G14LVLB

#### ● Cooling



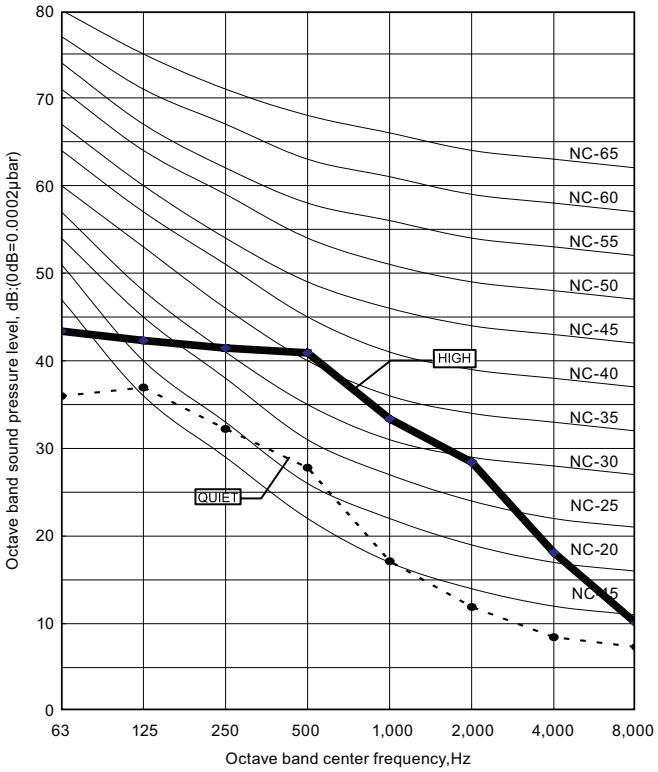

#### ● Heating



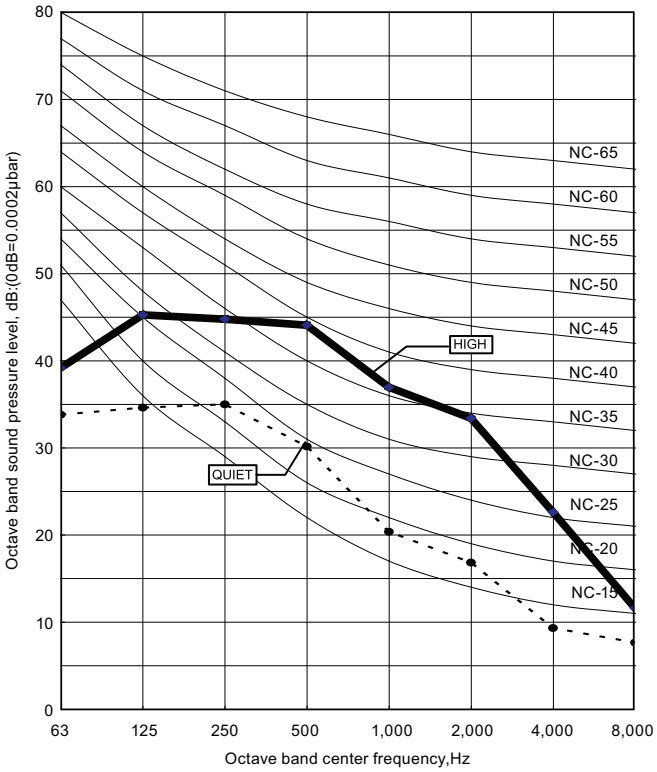
CASSETTE TYPE
AU∗G12-24LVL

## ■MODEL: AU∗G18LVLB

### ●Cooling

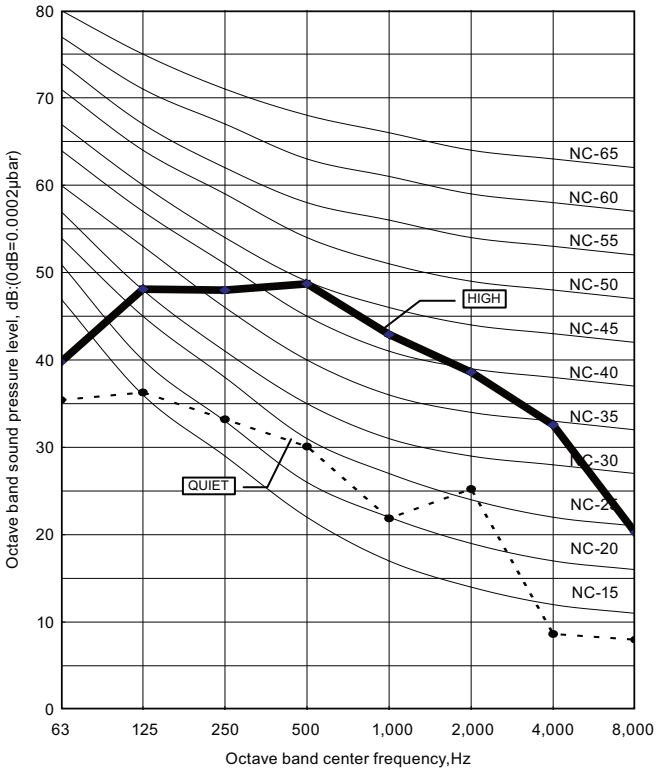



### ●Heating

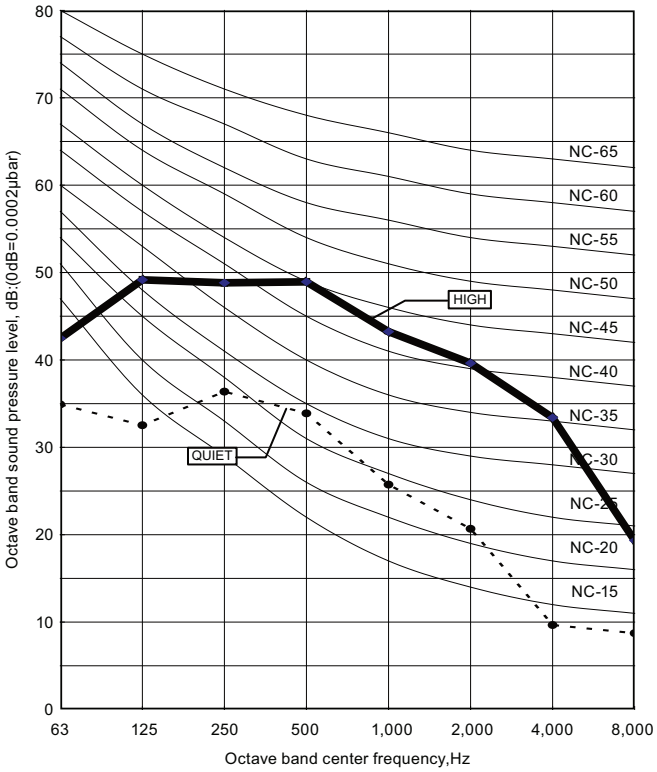



## ■MODEL: AU∗G24LVLA

### ●Cooling

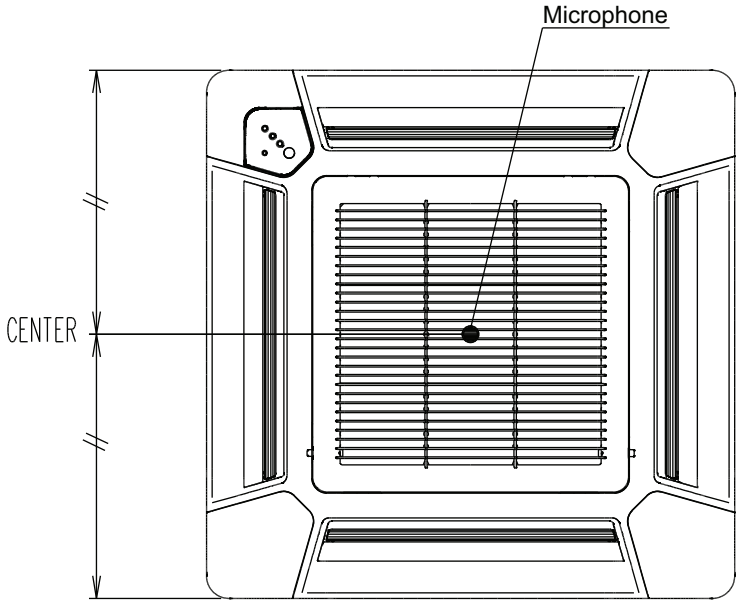


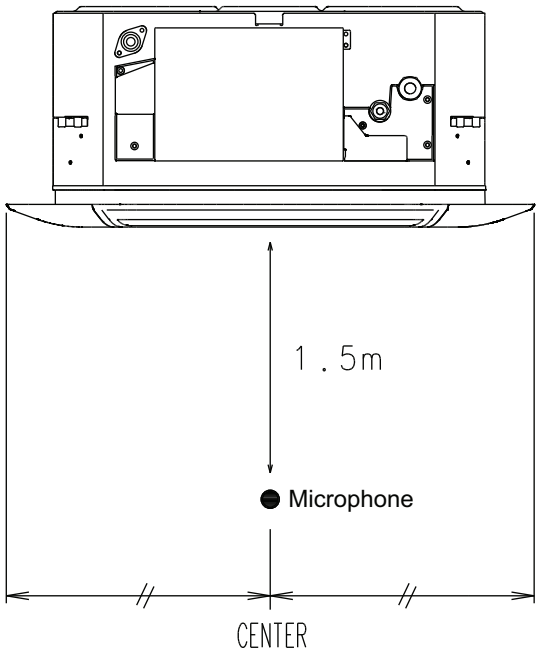

### ●Heating



CASSETTE TYPE
AU∗G12-24LVL

# 8-2. SOUND LEVEL CHECK POINT



# 9. ELECTRIC CHARACTERISTICS

| Model Name | | | AU∗G12LVLB | AU∗G14LVLB | AU∗G18LVLB | AU∗G24LVLA |
|---|---|---|---|---|---|---|
| Power Supply | Voltage | V | 230 ~ | | | |
| | Frequency | Hz | 50 | | | |
| Max Operating Current | | A | 0.24 | 0.28 | 0.38 | 0.30 |
| *1) Wiring Spec. | Connection Cable | $mm^2$ | 1.5 | | | |
| | Limited wiring length | m | 26 | | | 31 |

*1) Wiring Spec.
Selected Sample
(Selected based on Japan Electrotechnical Standard and Codes Committee E0005)

CASSETTE TYPE
AU∗G12-24LVL

# 10. SAFETY DEVICES

| | Protection form | Model | | | |
|---|---|---|---|---|---|
| | | AU∗G12LVLB | AU∗G14LVLB | AU∗G18LVLB | AU∗G24LVLA |
| Circuit protection | Current fuse (PCB) | 250V 3.15A | | | |
| Fan motor protection | Thermal protection program | 138 ± 15 °C OFF<br>105 ± 20 °C ON | | | |

CASSETTE TYPE
AU∗G12-24LVL

# 11. EXTERNAL INPUT & OUTPUT

| Connector | INPUT | OUTPUT | REMARKS |
|---|---|---|---|
| CN102 | Control input | — | See external input/output settings for details. |
| CN103 | — | Operation status output | |
| CN6 | — | Fresh air control output | |

# 11-1. EXTERNAL INPUT

## ■ CONTROL INPUT (Operation/Stop or Forced stop)

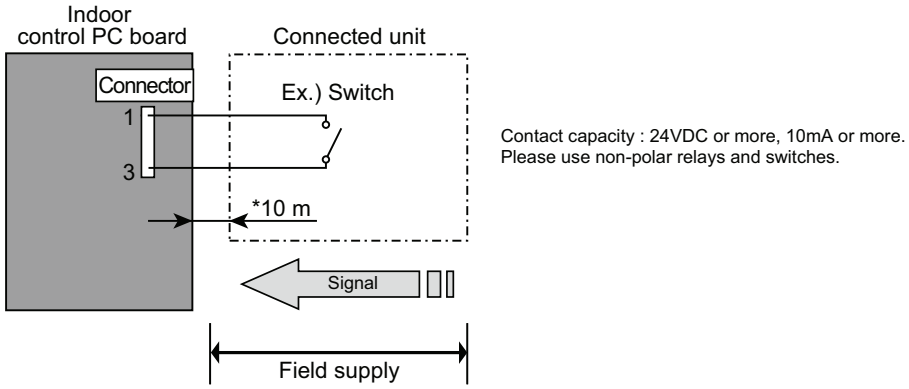
The air conditioner can be remotely operated by means of the following on-site work.

"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 PC board and turning it ON.

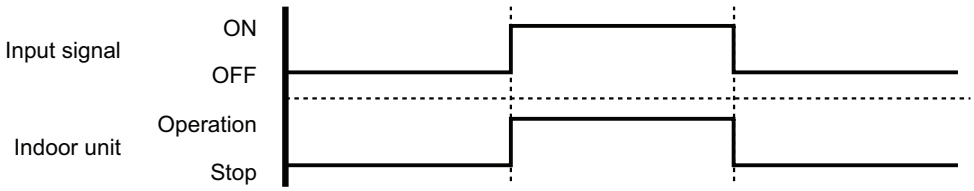
| Unit operation | Initial setting after turned power ON | Starting mode other than initial setting |
|---|---|---|
| Operation mode | Auto changeover | Mode at previous operation |
| Set temperature | 24°C | Temperature at previous operation |
| Air flow mode | AUTO | Mode at previous operation |
| Up-down air direction (swing) | Standard air direction (swing OFF) | Air direction at previous operation |
| Left-right air direction (swing) | Standard air direction (swing OFF) | Air direction at previous operation |

### ● Circuit diagram example

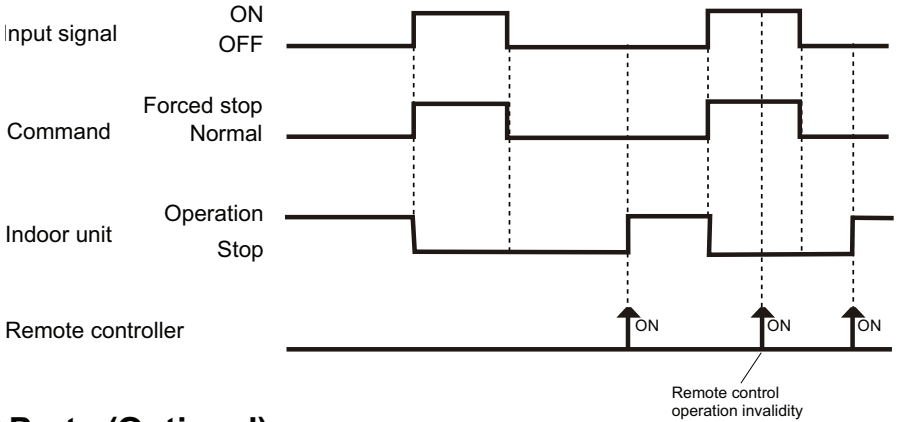



* Make the distance from the PC board to the connected unit within 10m.

● When function setting is in "Operation/Stop" mode



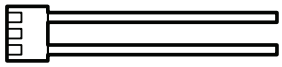

● When function setting is in "Forced stop" mode




### ● Parts (Optional)

| Model name |
|---|
| UTY-XWZX |

Wire (External input)



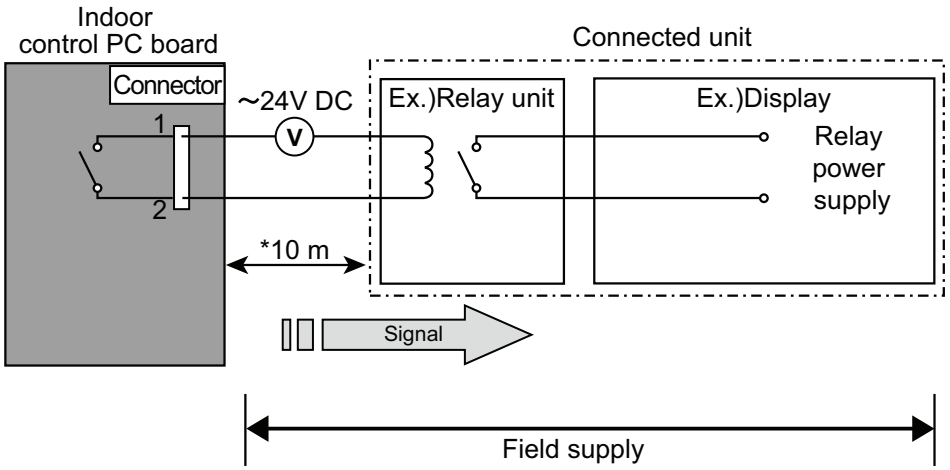
CASSETTE TYPE
AU∗G12-24LVL

# 11-2. EXTERNAL OUTPUT

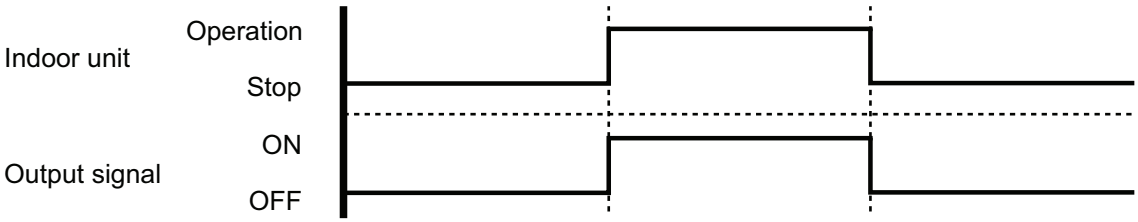
## ■ OPERATION STATUS OUTPUT

An air conditioner operation status signal can be output.

### ● Circuit diagram example




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




### ● Parts (Optional)

| Model name |
|---|
| UTY-XWZX |

Wire (External output)

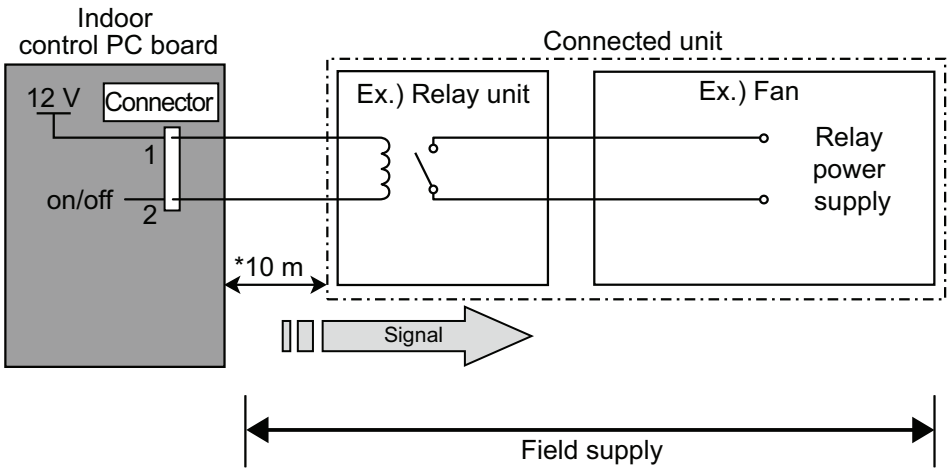
CASSETTE TYPE
AU∗G12-24LVL

# ■ FRESH AIR CONTROL OUTPUT

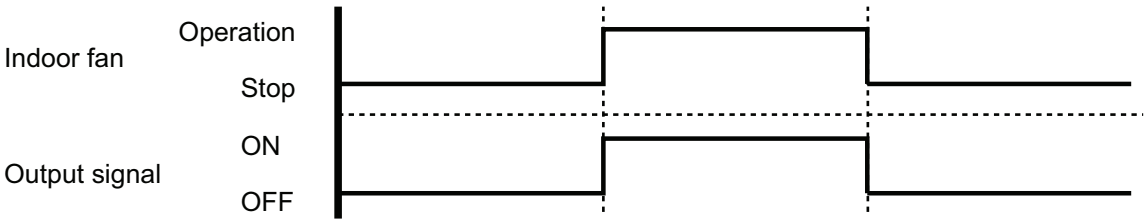
A signal linked to air conditioner indoor fan ON can be output.

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

## ● Circuit diagram example




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




## ● Parts (Optional)

| Model name |
|---|
| UTZ-VXAA *1 |

Wire (Fresh air output)

Note This wire is included in Fresh air intake kit (UTZ-VXAA)

CASSETTE TYPE
AU∗G12-24LVL

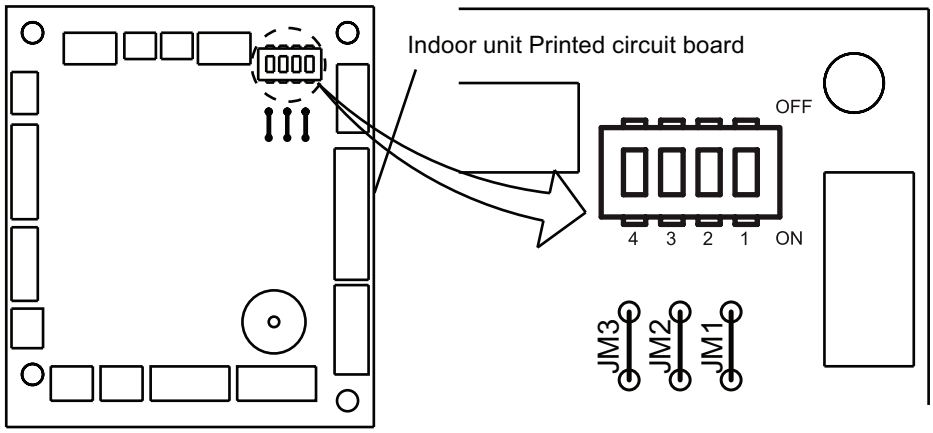
# 12. FUNCTION SETTINGS

## 12-1. INDOOR UNIT

| INDOOR UNIT | | |
|---|---|---|
| DIP SW | 1 | Remote controller address setting |
| | 2 | |
| | 3 | |
| | 4 | |
| Jumper Wire | JM1 | Setting forbidden |
| | JM2 | |
| | JM3 | |

## ■ SWITCH POSITION

MAIN PCB




## ■ 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 normaly 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 |

CASSETTE TYPE
AU∗G12-24LVL

# 12-2. INDOOR UNIT (Setting by 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 to 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 Value.
- Settings will not be changed if invalid numbers or setting values are selected.

## ■ PREPARATION

- Turn on the power.

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

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

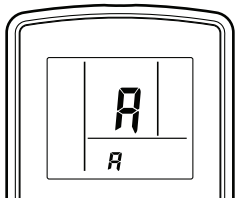
## ■ FUNCTION SETTING METHOD (for Wireless remote controller)

**Entering the Function Setting Mode**

- While pressing the FAN button and SET TEMP. (▲) simultaneously, press the RESET button to enter the function setting mode.

**STEP 1**

**Setting the Remote controller Signal Code**




Use the following steps to select the signal code of the remote controller. (Note that the air conditioner cannot receive a signal code if the air conditioner has not been set for the signal code.) The signal codes that are set through this process are applicable only to the signals in the FUNCTION SETTING. For details on how to set the signal codes through the normal process, refer to REMOTE CONTROLLER SIGNAL CODE SETTING.

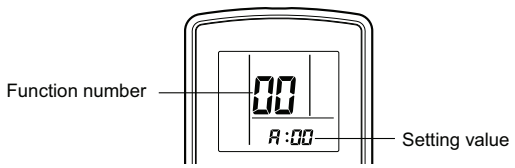
1. Press the SET TEMP. (▲) (▼) button to change the signal code between A → b → c → d Match the code on the display to the air conditioner signal code. (initially set to A)
   (If the signal code does not need to be selected, press the MODE button and proceed to STEP 2.)
2. Press the TIMER MODE button and check that the indoor unit can receive signals at the displayed signal code.
3. Press the MODE button to accept the signal code, and proceed to STEP 2.

| |
|---|
| The air conditioner signal code is set to A prior to shipment. |

| |
|---|
| The remote controller resets to signal code A when the batteries in the remote controller are replaced. If you use a signal code other than signal code A, reset the signal code after replacing the batteries.<br>If you do not know the air conditioner signal code setting, try each of the signal codes (A → b → c → d) until you find the code which operates the air conditioner. |

**STEP 2**

**Selecting the Function Number and Setting Value**




1. Press the SET TEMP. (▲) (▼) buttons to select the function number.
   (Press the MODE button to switch between the left and right digits.)
2. Press the FAN button to proceed to setting the value.
   Press the FAN button again to return to the function number selection.)
3. Press the SET TEMP. (▲) (▼) buttons to select the setting value.
   (Press the MODE button to switch between the left and right digits.)
4. Press the TIMER MODE button, and START/STOP button, in the order listed to confirm the settings.
5. Press the RESET button to cancel the function setting mode.
6. After completing the FUNCTION SETTING, be sure to turn off the power and turn it on again.

| ⚠CAUTION |
|---|
| The Function Setting will not become active unless the power is turned off then on again. |

CASSETTE TYPE
AU∗G12-24LVL

# ■ CONTENTS OF FUNCTION SETTING

- Follow the instructions in the Local Setup Procedure, which is supplied with the remote control, in accordance with the installed condition.
  After the power is turned on, perform the Function Setting on the remote control.
- The settings may be selected between the following two: Function Number or Setting Value.
- Settings will not be changed if invalid numbers or setting values are selected.

| | |
|---|---|
| 1) | Filter sign |
| 2) | Ceiling height |
| 3) | Outlet directions |
| 4) | Cooler room temperature correction |
| 5) | Heater room temperature correction |
| 6) | Auto restart |
| 7) | Indoor room temperature sensor switching function |
| 8) | Remote controller signal code |
| 9) | External input control |
| 10) | Indoor unit fan control for energy saving |

### 1) Filter sign

The indoor unit has a sign to inform the user that it is time to clean the filter. Select the time setting for the filter sign display interval in the table below according to the amount of dust or debris in the room. If you do not wish the filter sign to be displayed, select the setting value for "No indication".

(◆. . .Factory setting)

| | Setting Description | Function Number | Setting Value |
|---|---|---|---|
| | "Standard (2,500 hours)" | 11 | 00 |
| | "Long interval (4,400 hours)" | | 01 |
| | "Short interval (1,250 hours)" | | 02 |
| ◆ | No indication | | 03 |

### 2) Ceiling height

Select the setting values in the table below according to the height of the ceiling.

(◆. . .Factory setting)

| | Setting Description | Function Number | Setting Value |
|---|---|---|---|
| ◆ | Standard (2.7m) | 20 | 00 |
| | High ceiling (3.0m) | | 01 |

The ceiling height values are for the 4-way outlet.
Do not change this setting in the 3-way outlet mode.

### 3) Outlet directions

Select the setting values in the table below for using a 3-way outlet.

(◆. . .Factory setting)

| | Setting Description | Function Number | Setting Value |
|---|---|---|---|
| ◆ | 4-way | 22 | 00 |
| | 3-way | | 01 |

CASSETTE TYPE
AU∗G12-24LVL

### 4) Cooler room temperature correction

Depending on the installed environment, the room temperature sensor may require a correction. The settings may be selected as shown in the table below.

(◆. . .Factory setting)

| | Setting Description | Function Number | Setting Value |
|---|---|---|---|
| ◆ | Standard | 30 | 00 |
| | Slightly lower control | | 01 |
| | Lower control | | 02 |
| | Warmer control | | 03 |

### 5) Heater room temperature correction

Depending on the installed environment, the room temperature sensor may require a correction. The settings may be changed as shown in the table below.

(◆. . .Factory setting)

| | Setting Description | Function Number | Setting Value |
|---|---|---|---|
| ◆ | Standard | 31 | 00 |
| | Lower control | | 01 |
| | Slightly warmer control | | 02 |
| | Warmer control | | 03 |

### 6) Auto restart

Enable or disable automatic system restart after a power outage.

(◆. . .Factory setting)

| | Setting Description | Function Number | Setting Value |
|---|---|---|---|
| ◆ | Yes | 40 | 00 |
| | No | | 01 |

* Auto restart is an emergency function such as for power failure etc. Do not start and stop the indoor unit by this function in normal operation. Be sure to operate using the remote controller,or external input device.

### 7) Indoor room temperature sensor switching function

(Only for Wired remote controller)

The following settings are needed when use the control by Wired remote controller temperature sensor.

(◆. . .Factory setting)

| | Setting Description | Function Number | Setting Value |
|---|---|---|---|
| ◆ | No | 42 | 00 |
| | Yes | | 01 |

• If setting value is “00”,
room temperature is controlled by the indoor unit temperature sensor.

• If setting value is “01”,
room temperature is controlled by either indoor unit temperature sensor or remote controller unit sensor.

### 8) Remote controller signal code

Change the indoor unit Signal Code,depending on the remote controllers.

| | Setting Description | Function Number | Setting Value |
|---|---|---|---|
| ◆ | A | 44 | 00 |
| | B | | 01 |
| | C | | 02 |
| | D | | 03 |

### 9) External input control

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

(◆. . . Factory setting)

| | Setting description | Function number | Setting value |
|---|---|---|---|
| ◆ | Operation/Stop mode | 46 | 00 |
| | (Setting forbidden) | | 01 |
| | Forced stop mode | | 02 |

CASSETTE TYPE
AU∗G12-24LVL

### 10) Indoor unit fan control for energy saving (Only cooling mode)

Enable or disable indoor unit fan control when the outdoor unit is stopped.

(◆. . .Factory setting)

| | Setting Description | Function Number | Setting Value |
|---|---|---|---|
| | No | 49 | 00 |
| ◆ | Yes | | 01 |

*If setting value is “00”:

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

*If setting value is “01”:

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

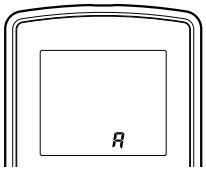
CASSETTE TYPE
AU∗G12-24LVL

# ■ REMOTE CONTROLLER SIGNAL CODE SETTING

Use the following steps to select the signal code of the remote controller.

(Note that the air conditioner cannot receive a signal code if the air conditioner has not been set for the signal code.)

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 signal code (initially set to A).
3. Press the SET TEMP. (▲) (▼) button to change the signal code between A → b → c → d.
   Match the code on the display to the air conditioner signal code.
4. Press the MODE button again to return to the clock display. The signal code will be changed.




If no buttons are pressed within 30 seconds after the signal code is displayed, the system returns to the original clock display. In this case, start again from step 1.

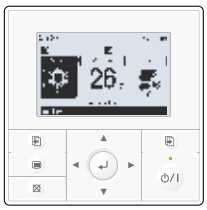
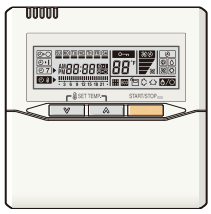
The air conditioner signal code is set to A prior to shipment. Contact your retailer to change the signal code.

The remote controller resets to signal code A when the batteries in the remote controller are replaced. If you use a signal code other than signal code A, reset the signal code after replacing the batteries.
If you do not know the air conditioner signal code setting,try each of the signal codes (A → b → c → d.) until you find the code which operates the air conditioner.

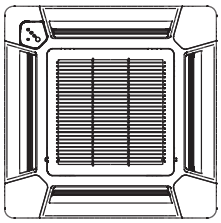
CASSETTE TYPE
AU∗G12-24LVL

# 13. OPTIONAL PARTS

## 13-1. CONTROLLER

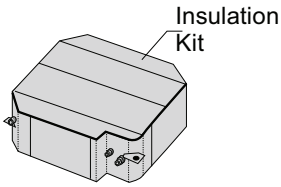
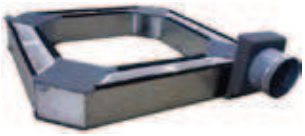
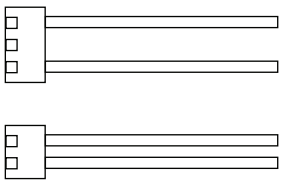
| Exterior | Parts name | Model No. | Summary |
|---|---|---|---|
|  | Wired Remote Controller | UTY-RVN∗M | Large and full-dot liquid crystal screen, wide and large keys easy to press, user-intuitive arrow key. |
|  | Wired remote controller | UTY-RNN∗M | Unit control is performed by **wired remote controller** |
|  | Simple remote controller | UTY-RSN∗M | Unit control is performed by **simple remote controller** |

## 13-2. CASSETTE GRILLE

| Exterior | Parts name | Model No. | Summary |
|---|---|---|---|
|  | Cassette grille | UTG-UF∗D-W | Ceiling dirt by discharged wind was made difficult to cling by reviewing the shape of the LOUVER. |

CASSETTE TYPE
AU∗G12-24LVL

# 13-3. OTHERS

| Exterior | Parts name | Model No. | Summary |
|---|---|---|---|
|  | Air outlet shutter plate | UTR-YDZB | Air outlet shutter plate is installed at the air outlet when 3-way direction is performed. |
|  | Insulation kit for high humidity | UTZ-KXGC | Install when the under roof condition is expected to be the humidity of over 80 % and the temperature of over 30 °C |
|  | Fresh air intake kit | UTZ-VXAA | 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. |
|  | External connect set | UTY-XWZX | Use to connect with various peripheral devices and air conditioner PC board. |

# 2. OUTDOOR UNIT

## SINGLE TYPE :

**AO∗G12LALL**
**AO∗G14LALL**
**AO∗G18LALL**
**AO∗G24LALA**

DTR_AO099E_02
2013.02.28

# CONTENTS

## 2. OUTDOOR UNIT



OUTDOOR UNIT
AO*G12-24LAL

# 1. SPECIFICATIONS

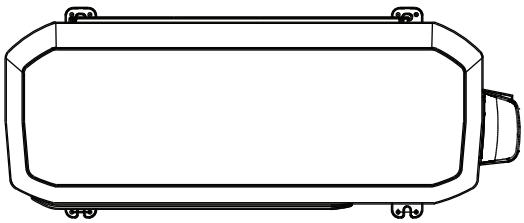
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Type | | | | INVERTER HEAT PUMP | | | |
| Model name | | | | AO∗G12LALL | AO∗G14LALL | AO∗G18LALL | AO∗G24LALA |
| Power source | | | | 230V ~ 50Hz | | | |
| Available voltage range | | | | 198 - 264V ~ 50Hz | | | |
| Starting current | | | A | 5.1 | 6.1 | 7.4 | 9.9 |
| Fan | Airflow rate | Cooling | $m^3/h$ | 1780 | 1910 | 2000 | 2470 |
| | | Heating | | 1630 | 1740 | 1910 | 2470 |
| | Type × Q'ty | | | Propeller × 1 | | | |
| | Motor output | | W | 54 | | | 65 |
| Sound pressure level | | Cooling | dB (A) | 47 | 49 | 50 | 52 |
| | | Heating | | 48 | 49 | 50 | 53 |
| Sound power level | | Cooling | dB (A) | 61 | 62 | 62 | 67 |
| | | Heating | | 63 | 64 | 65 | 70 |
| Heat exchanger type | | Dimensions (H × W × D) | mm | 546 × 876 × 18.2<br>546 × 842 × 18.2 | | | 546 × 866 × 18.2<br>546 × 832 × 18.2<br>504 × 589 × 18.2 |
| | | Fin pitch | | 1.30 | | | 1.40 |
| | | Rows × Stages | | 2 × 26 | | | 2 × 26<br>1 × 24 |
| | | Pipe type | | Copper | | | |
| | | Fin Type | | Aluminium | | | |
| Compressor | Type × Q'ty | | | Twin Rotary × 1 | | | |
| | Motor output | | W | 1100 | | | |
| Refrigerant | | Type (Global Warming Potential) | | R410A(1975) | | | |
| | | Charge | g | 1150 | 1250 | | 1700 |
| Refrigerant oil | | Type | | POE | | | |
| Enclosure | | Material | | Steel sheet | | | |
| | | Colour | | Beige<br>Approximate colour of MUNSELL 10YR7.5/1.0 | | | |
| Dimensions (H × W × D) | Net | | mm | 578 × 790 ×300 | | | 578 × 790 ×315 |
| | Gross | | | 648 × 910 × 380 | | | |
| Weight | Net | | kg | 40 | | | 44 |
| | Gross | | | 44 | | | 48 |
| Connenction pipe | Size | Liquid | mm | Ø6.35 (Ø1/4 in.) | | | |
| | | Gas | | Ø9.52 (Ø3/8 in.) | Ø12.70 (Ø1/2 in.) | | Ø15.88 (Ø5/8 in.) |
| | Method | | | Flare | | | |
| | Pre-charge length | | m | 15 | | | |
| | Max. length | | | 25 | | | 30 |
| | Max. height difference | | | 15 | | | 20 |
| Operation range | | Cooling | °C | -10 to 46 | | | |
| | | Heating | | -15 to 24 | | | |

Note :
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 : 5.0 m, Height difference : 0 m. (Outdoor unit - Indoor unit)
The protective function may work when using it outside the operation range.

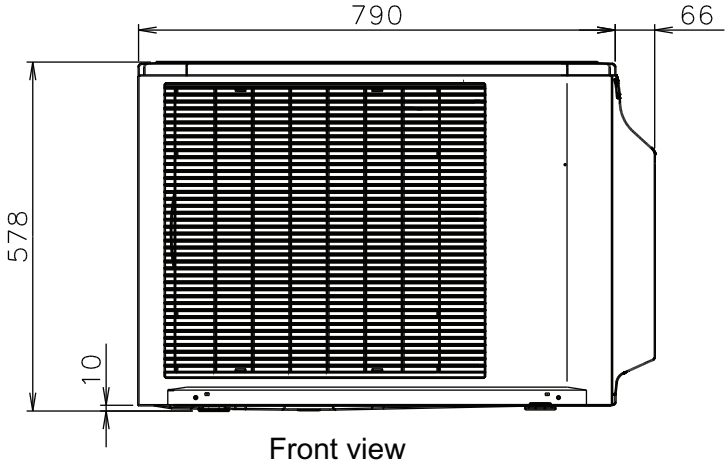
# 2. DIMENSIONS

## ■ MODEL: AO∗G12LALL, AO∗G14LALL, AO∗G18LALL, AO∗G24LALA

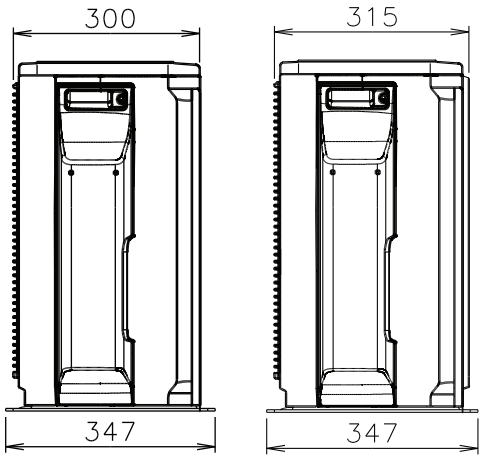
(Unit : mm)



Top view



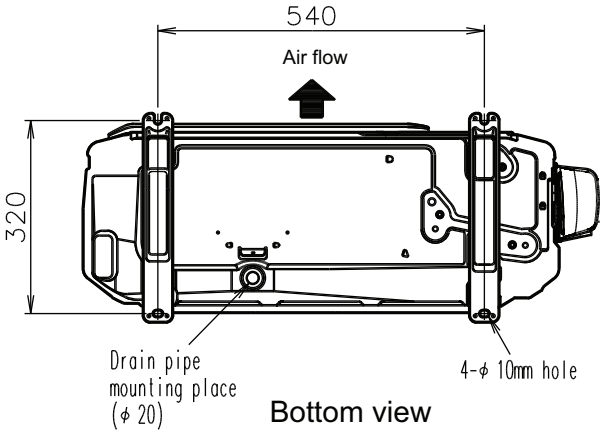

Front view



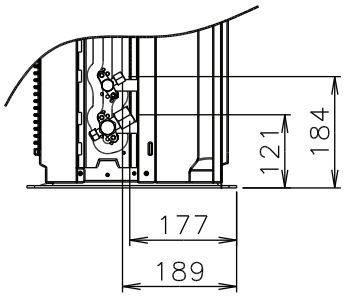

AO∗G12LALL
AO∗G14LALL
AO∗G18LALL

AO∗G24LALA

Side view

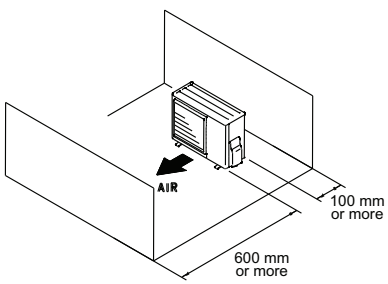



Bottom view

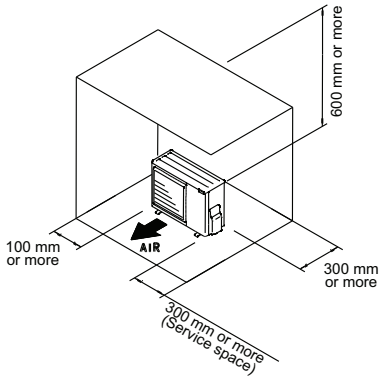



## ■ INSTALLATION PLACE

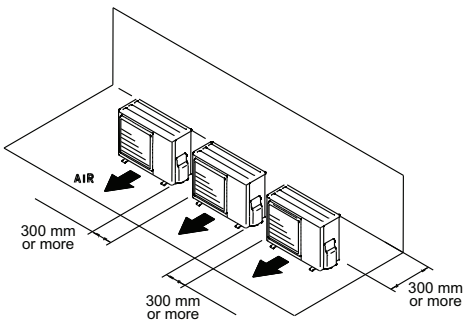
When there are obstacles at the back or front sides.




When there are obstacles at the back, side(s), and top.

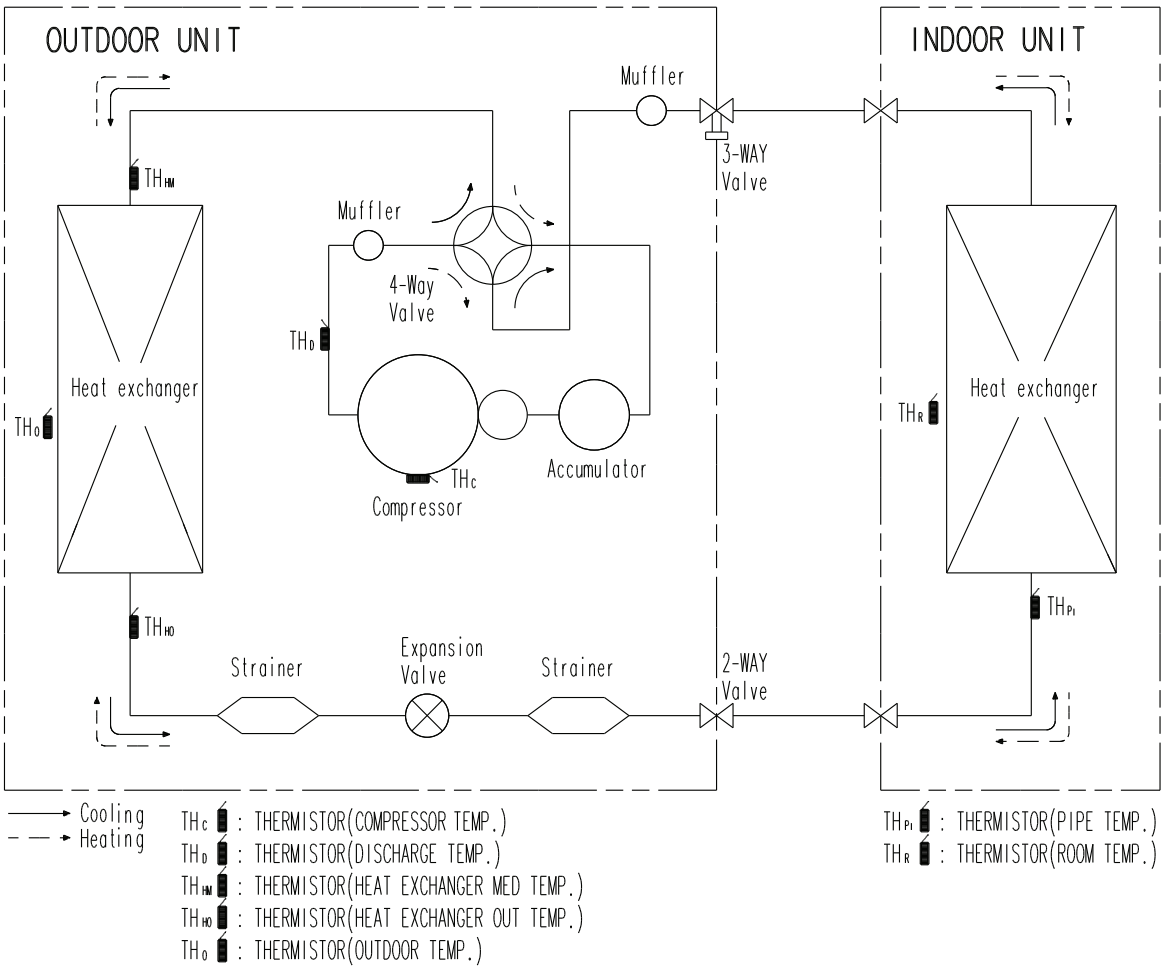



When there are obstacles at the back, side with the installation of more than one unit.



# 3. REFRIGERANT CIRCUIT

## ■ MODEL: AO∗G12LALL, AO∗G14LALL, AO∗G18LALL, AO∗G24LALA



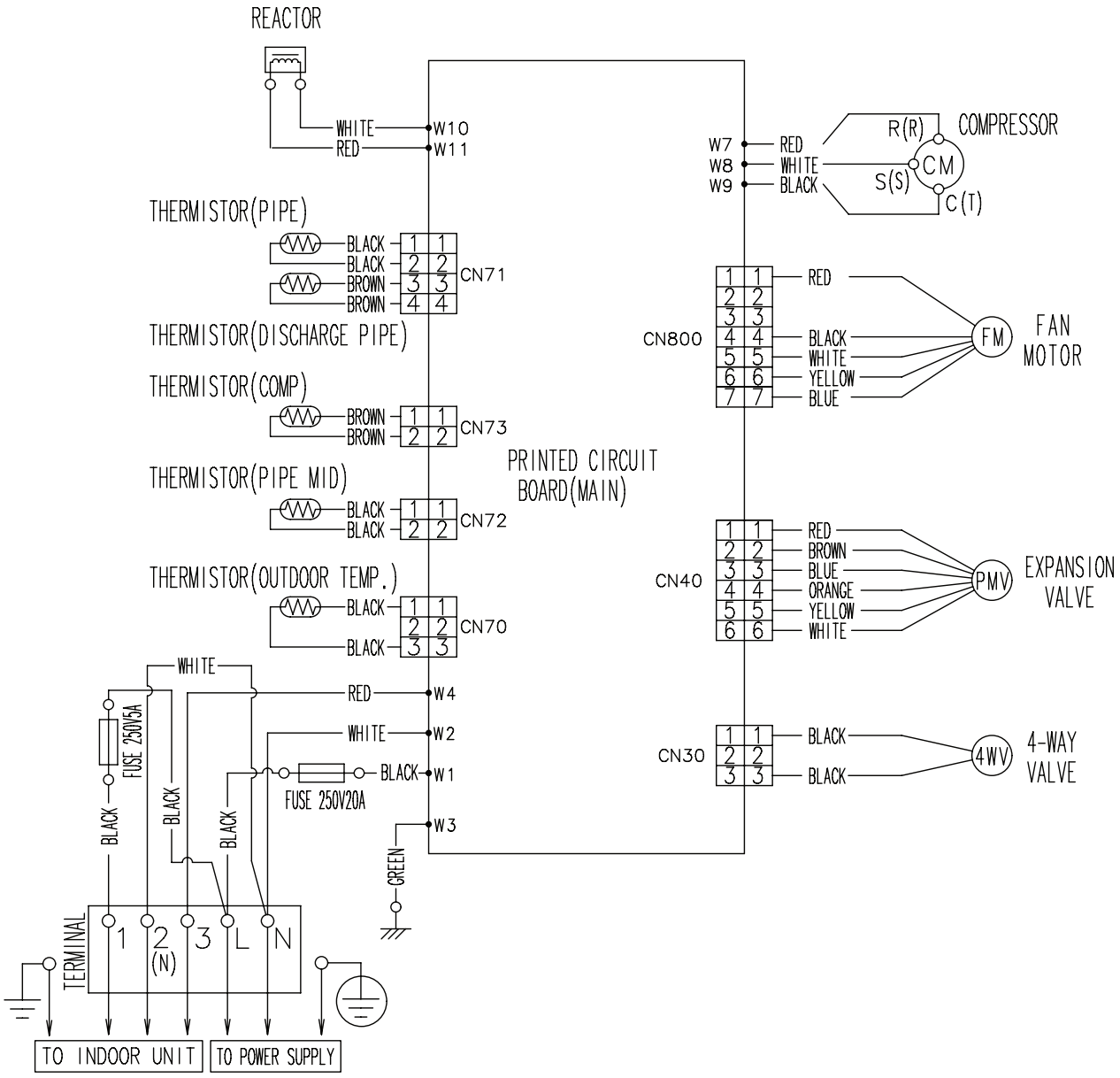

Refrigerant pipe diameter

Liquid : 1/4" (6.35 mm)

Gas : 3/8" (9.52 mm) : AO∗G12LALL
1/2" (12.70 mm) : AO∗G14LALL, AO∗G18LALL
5/8" (15.88 mm) : AO∗G24LALA

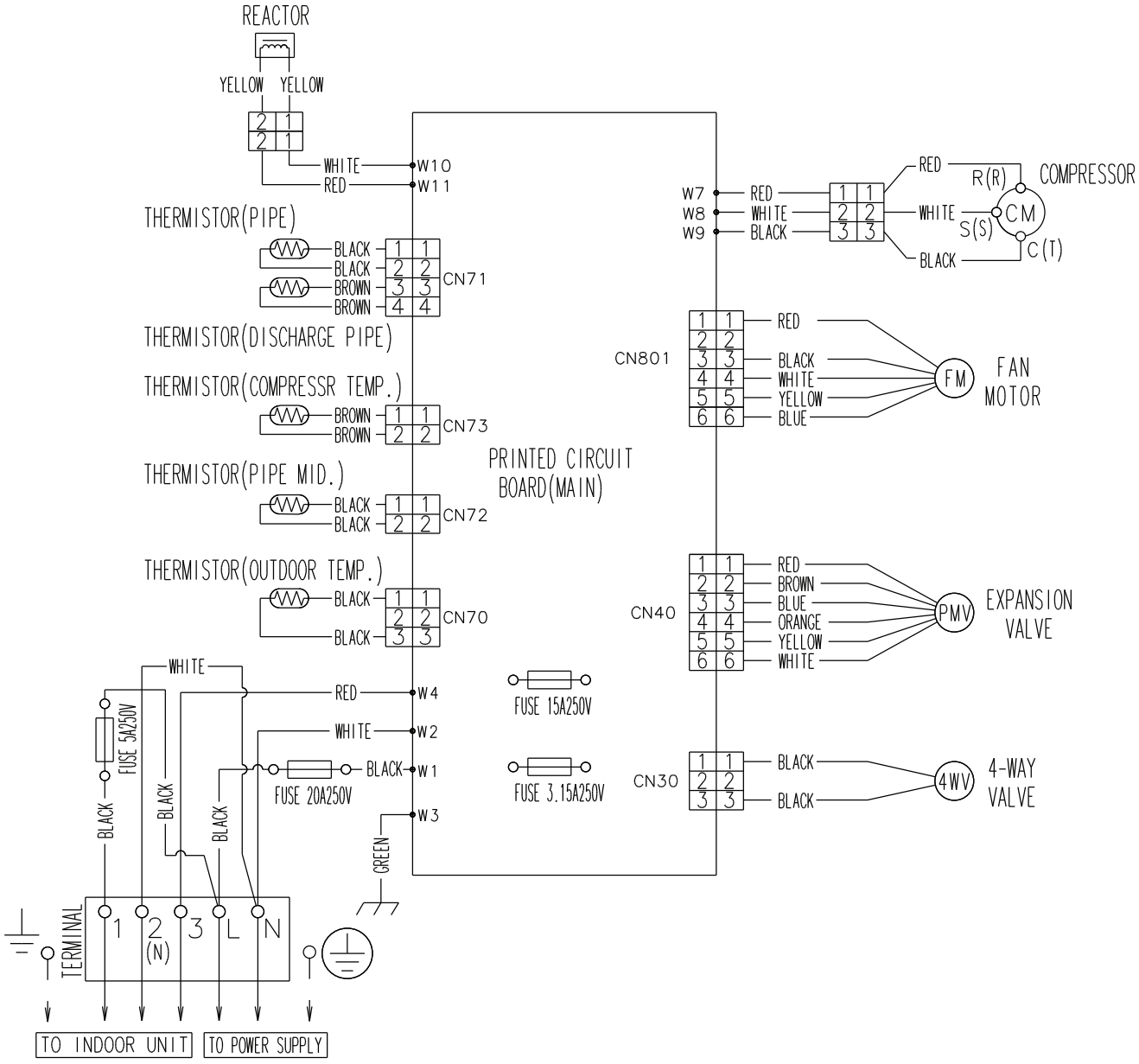
# 4. WIRING DIAGRAMS

## ■ MODEL: AO*G12LALL, AO*G14LALL, AO*G18LALL




OUTDOOR UNIT
AO*G12-24LAL

# ■ MODEL: AO*G24LALA




OUTDOOR UNIT
AO*G12-24LAL

OUTDOOR UNIT
AO∗G12-24LAL

# 5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

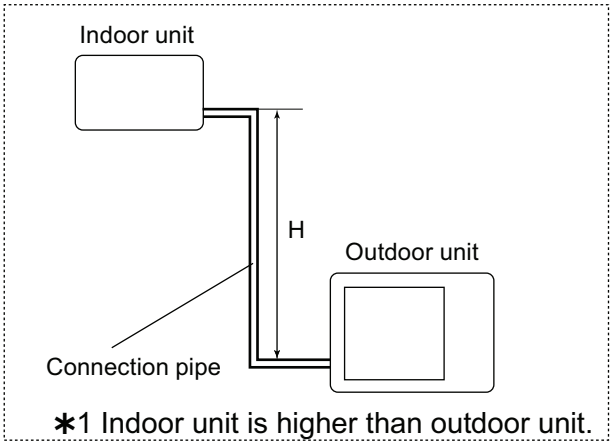
This table is created using the maximum capacity.

## ■ MODEL: AO∗G12LALL

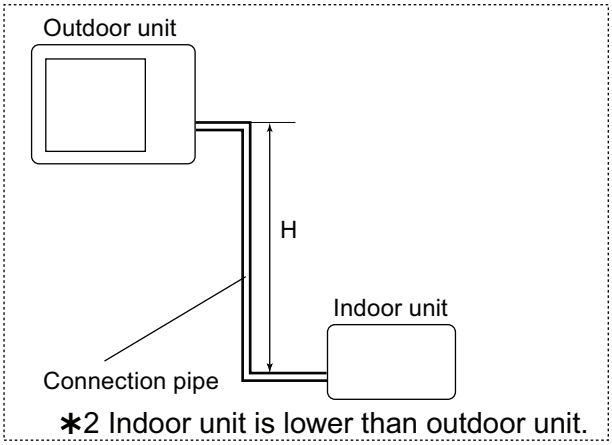
| COOLING | | | Pipe length (m) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 5 | 7.5 | 10 | 15 | 20 | 25 |
| Height difference H (m) | ∗1 Indoor unit is higher than outdoor unit. | 15 | - | - | - | 0.903 | 0.894 | 0.867 |
| | | 10 | - | - | 0.964 | 0.918 | 0.909 | 0.881 |
| | | 7.5 | - | 0.988 | 0.968 | 0.922 | 0.912 | 0.885 |
| | | 5 | 0.992 | 0.992 | 0.972 | 0.925 | 0.916 | 0.888 |
| | | 0 | 1.000 | 1.000 | 0.980 | 0.933 | 0.923 | 0.895 |
| | ∗2 Indoor unit is lower than outdoor unit. | -5 | 1.000 | 1.000 | 0.980 | 0.933 | 0.923 | 0.895 |
| | | -7.5 | - | 1.000 | 0.980 | 0.933 | 0.923 | 0.895 |
| | | -10 | - | - | 0.980 | 0.933 | 0.923 | 0.895 |
| | | -15 | - | - | - | 0.933 | 0.923 | 0.895 |

| HEATING | | | Pipe length (m) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 5 | 7.5 | 10 | 15 | 20 | 25 |
| Height difference H (m) | ∗1 Indoor unit is higher than outdoor unit. | 15 | - | - | - | 0.943 | 0.916 | 0.896 |
| | | 10 | - | - | 1.010 | 0.943 | 0.916 | 0.896 |
| | | 7.5 | - | 1.000 | 1.010 | 0.943 | 0.916 | 0.896 |
| | | 5 | 1.000 | 1.000 | 1.010 | 0.943 | 0.916 | 0.896 |
| | | 0 | 1.000 | 1.000 | 1.010 | 0.943 | 0.916 | 0.896 |
| | ∗2 Indoor unit is lower than outdoor unit. | -5 | 0.995 | 0.995 | 1.005 | 0.939 | 0.912 | 0.892 |
| | | -7.5 | - | 0.993 | 1.002 | 0.936 | 0.909 | 0.890 |
| | | -10 | - | - | 0.999 | 0.934 | 0.907 | 0.887 |
| | | -15 | - | - | - | 0.925 | 0.898 | 0.878 |

Height difference H




∗1 Indoor unit is higher than outdoor unit.




∗2 Indoor unit is lower than outdoor unit.

OUTDOOR UNIT
AO∗G12-24LAL

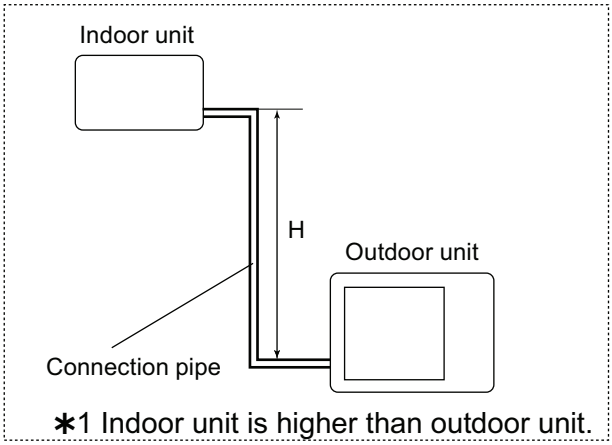
This table is created using the maximum capacity.

## ■MODEL: AO∗G14LALL

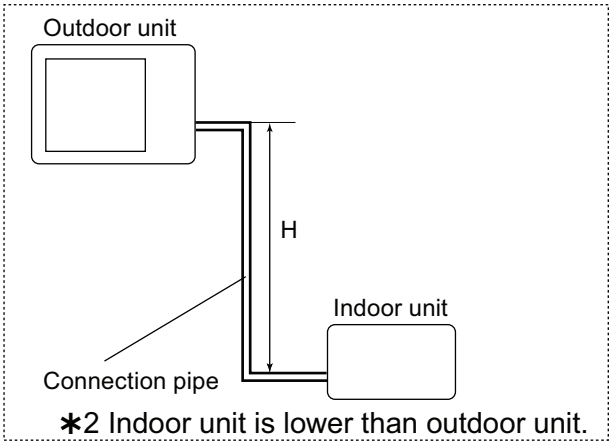
| COOLING | | | Pipe length (m) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 5 | 7.5 | 10 | 15 | 20 | 25 |
| Height difference H (m) | ∗1 Indoor unit is higher than outdoor unit. | 15 | - | - | - | 0.953 | 0.950 | 0.947 |
| | | 10 | - | - | 0.983 | 0.968 | 0.966 | 0.962 |
| | | 7.5 | - | 0.988 | 0.987 | 0.972 | 0.970 | 0.966 |
| | | 5 | 0.992 | 0.992 | 0.991 | 0.976 | 0.974 | 0.970 |
| | | 0 | 1.000 | 1.000 | 0.999 | 0.984 | 0.982 | 0.978 |
| | ∗2 Indoor unit is lower than outdoor unit. | -5 | 1.000 | 1.000 | 0.999 | 0.984 | 0.982 | 0.978 |
| | | -7.5 | - | 1.000 | 0.999 | 0.984 | 0.982 | 0.978 |
| | | -10 | - | - | 0.999 | 0.984 | 0.982 | 0.978 |
| | | -15 | - | - | - | 0.984 | 0.982 | 0.978 |

| HEATING | | | Pipe length (m) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 5 | 7.5 | 10 | 15 | 20 | 25 |
| Height difference H (m) | ∗1 Indoor unit is higher than outdoor unit. | 15 | - | - | - | 0.918 | 0.891 | 0.862 |
| | | 10 | - | - | 0.981 | 0.918 | 0.891 | 0.862 |
| | | 7.5 | - | 1.000 | 0.981 | 0.918 | 0.891 | 0.862 |
| | | 5 | 1.000 | 1.000 | 0.981 | 0.918 | 0.891 | 0.862 |
| | | 0 | 1.000 | 1.000 | 0.981 | 0.918 | 0.891 | 0.862 |
| | ∗2 Indoor unit is lower than outdoor unit. | -5 | 0.995 | 0.995 | 0.976 | 0.914 | 0.886 | 0.858 |
| | | -7.5 | - | 0.993 | 0.974 | 0.912 | 0.884 | 0.856 |
| | | -10 | - | - | 0.972 | 0.909 | 0.882 | 0.854 |
| | | -15 | - | - | - | 0.900 | 0.873 | 0.845 |

Height difference H




∗1 Indoor unit is higher than outdoor unit.




∗2 Indoor unit is lower than outdoor unit.

OUTDOOR UNIT
AO∗G12-24LAL

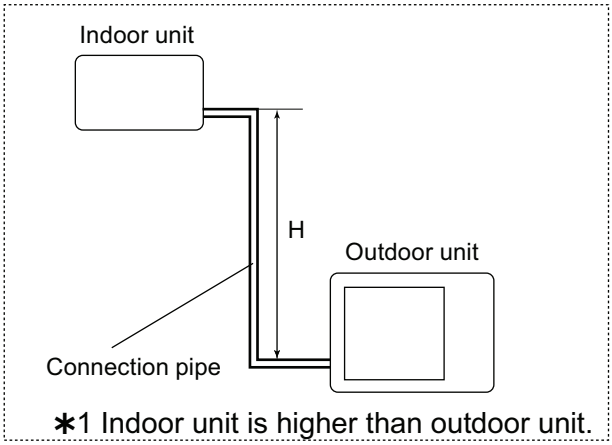
This table is created using the maximum capacity.

## ■MODEL: AO∗G18LALL

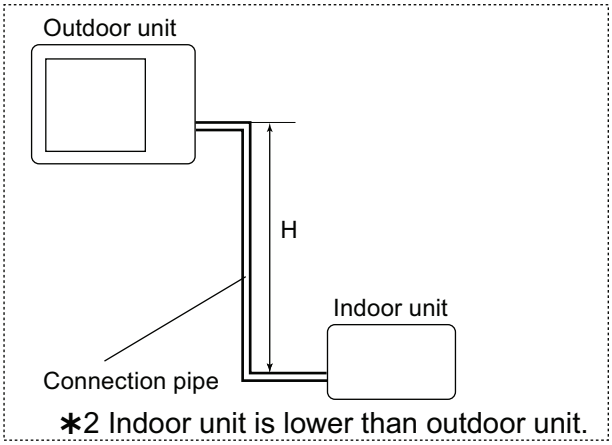
| COOLING | | | Pipe length (m) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 5 | 7.5 | 10 | 15 | 20 | 25 |
| Height difference H (m) | ∗1 Indoor unit is higher than outdoor unit. | 15 | - | - | - | 0.953 | 0.950 | 0.947 |
| | | 10 | - | - | 0.983 | 0.968 | 0.966 | 0.962 |
| | | 7.5 | - | 0.988 | 0.987 | 0.972 | 0.970 | 0.966 |
| | | 5 | 0.992 | 0.992 | 0.991 | 0.976 | 0.974 | 0.970 |
| | | 0 | 1.000 | 1.000 | 0.999 | 0.984 | 0.982 | 0.978 |
| | ∗2 Indoor unit is lower than outdoor unit. | -5 | 1.000 | 1.000 | 0.999 | 0.984 | 0.982 | 0.978 |
| | | -7.5 | - | 1.000 | 0.999 | 0.984 | 0.982 | 0.978 |
| | | -10 | - | - | 0.999 | 0.984 | 0.982 | 0.978 |
| | | -15 | - | - | - | 0.984 | 0.982 | 0.978 |

| HEATING | | | Pipe length (m) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 5 | 7.5 | 10 | 15 | 20 | 25 |
| Height difference H (m) | ∗1 Indoor unit is higher than outdoor unit. | 15 | - | - | - | 0.920 | 0.894 | 0.867 |
| | | 10 | - | - | 0.982 | 0.920 | 0.894 | 0.867 |
| | | 7.5 | - | 1.000 | 0.982 | 0.920 | 0.894 | 0.867 |
| | | 5 | 1.000 | 1.000 | 0.982 | 0.920 | 0.894 | 0.867 |
| | | 0 | 1.000 | 1.000 | 0.982 | 0.920 | 0.894 | 0.867 |
| | ∗2 Indoor unit is lower than outdoor unit. | -5 | 0.995 | 0.995 | 0.977 | 0.916 | 0.889 | 0.862 |
| | | -7.5 | - | 0.993 | 0.975 | 0.913 | 0.887 | 0.860 |
| | | -10 | - | - | 0.972 | 0.911 | 0.885 | 0.858 |
| | | -15 | - | - | - | 0.902 | 0.876 | 0.849 |

Height difference H




∗1 Indoor unit is higher than outdoor unit.




∗2 Indoor unit is lower than outdoor unit.

OUTDOOR UNIT
AO∗G12-24LAL

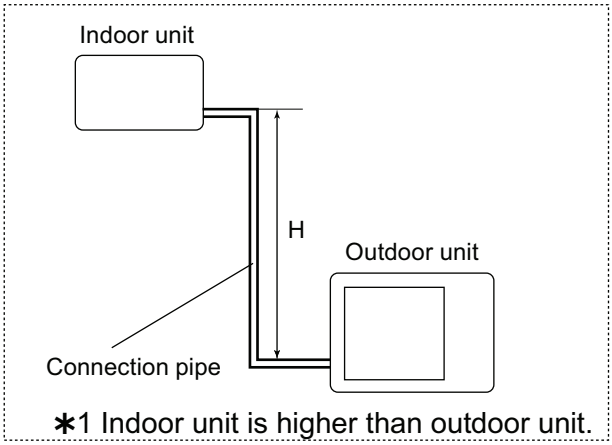
This table is created using the maximum capacity.

## ■MODEL: AO∗G24LALA

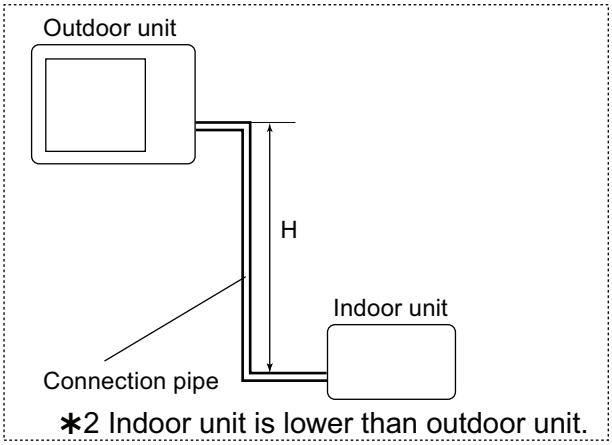
| COOLING | | | Pipe length (m) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 |
| Height difference H (m) | ∗1 Indoor unit is higher than outdoor unit. | 20 | - | - | - | - | 0.963 | 0.961 | 0.959 |
| | | 10 | - | - | 0.984 | 0.981 | 0.979 | 0.977 | 0.975 |
| | | 7.5 | - | 0.988 | 0.988 | 0.985 | 0.983 | 0.981 | 0.979 |
| | | 5 | 0.992 | 0.992 | 0.992 | 0.989 | 0.987 | 0.985 | 0.983 |
| | | 0 | 1.000 | 1.000 | 1.000 | 0.997 | 0.995 | 0.993 | 0.991 |
| | ∗2 Indoor unit is lower than outdoor unit. | -5 | 1.000 | 1.000 | 1.000 | 0.997 | 0.995 | 0.993 | 0.991 |
| | | -7.5 | - | 1.000 | 1.000 | 0.997 | 0.995 | 0.993 | 0.991 |
| | | -10 | - | - | 1.000 | 0.997 | 0.995 | 0.993 | 0.991 |
| | | -20 | - | - | - | - | 0.995 | 0.993 | 0.991 |

| HEATING | | | Pipe length (m) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 |
| Height difference H (m) | ∗1 Indoor unit is higher than outdoor unit. | 20 | - | - | - | - | 0.927 | 0.893 | 0.863 |
| | | 10 | - | - | 0.992 | 0.952 | 0.927 | 0.893 | 0.863 |
| | | 7.5 | - | 1.000 | 0.992 | 0.952 | 0.927 | 0.893 | 0.863 |
| | | 5 | 1.000 | 1.000 | 0.992 | 0.952 | 0.927 | 0.893 | 0.863 |
| | | 0 | 1.000 | 1.000 | 0.992 | 0.952 | 0.927 | 0.893 | 0.863 |
| | ∗2 Indoor unit is lower than outdoor unit. | -5 | 0.995 | 0.995 | 0.987 | 0.947 | 0.922 | 0.888 | 0.859 |
| | | -7.5 | - | 0.993 | 0.984 | 0.945 | 0.920 | 0.886 | 0.857 |
| | | -10 | - | - | 0.982 | 0.943 | 0.917 | 0.884 | 0.855 |
| | | -20 | - | - | - | - | 0.908 | 0.875 | 0.846 |

Height difference H




∗1 Indoor unit is higher than outdoor unit.




∗2 Indoor unit is lower than outdoor unit.

OUTDOOR UNIT
AO∗G12-24LAL

# 6. ADDITIONAL CHARGE CALCULATION

## ■ MODEL: AO∗G12LALL

| | | |
|---|---|---|
| Refrigerant type | | R410A |
| Refrigerant amount | g | 1150 |

### ● Refrigerant charge

| | | | | | |
|---|---|---|---|---|---|
| Total pipe length | m | 15 or less | 20 | 25 (MAX) | 20g/m |
| Additional charge | g | 0 | 100 | 200 | |

## ■ MODEL: AO∗G14LALL, AO∗G18LALL

| | | |
|---|---|---|
| Refrigerant type | | R410A |
| Refrigerant amount | g | 1250 |

### ● Refrigerant charge

| | | | | | |
|---|---|---|---|---|---|
| Total pipe length | m | 15 or less | 20 | 25 (MAX) | 20g/m |
| Additional charge | g | 0 | 100 | 200 | |

## ■ MODEL: AO∗G24LALA

| | | |
|---|---|---|
| Refrigerant type | | R410A |
| Refrigerant amount | g | 1700 |

### ● Refrigerant charge

| | | | | | | |
|---|---|---|---|---|---|---|
| Total pipe length | m | 15 or less | 20 | 25 | 30 (MAX) | 20g/m |
| Additional charge | g | 0 | 100 | 200 | 300 | |

OUTDOOR UNIT
AO∗G12-24LAL

# 7. AIRFLOW

## ■ MODEL: AO∗G12LALL

### ● Cooling

| Number of rotations (r.p.m.) | Airflow | |
|---|---|---|
| 770 | $m^3/h$ | 1780 |
| | l/s | 494 |
| | CFM | 1048 |

### ● Heating

| Number of rotations (r.p.m.) | Airflow | |
|---|---|---|
| 700 | $m^3/h$ | 1630 |
| | l/s | 453 |
| | CFM | 959 |

## ■ MODEL: AO∗G14LALL

### ● Cooling

| Number of rotations (r.p.m.) | Airflow | |
|---|---|---|
| 820 | $m^3/h$ | 1910 |
| | l/s | 531 |
| | CFM | 1124 |

### ● Heating

| Number of rotations (r.p.m.) | Airflow | |
|---|---|---|
| 750 | $m^3/h$ | 1740 |
| | l/s | 483 |
| | CFM | 1024 |

OUTDOOR UNIT
AO∗G12-24LAL

## ■ MODEL: AO∗G18LALL

### ● Cooling

| Number of rotations (r.p.m.) | Airflow | |
|---|---|---|
| 860 | $m^3/h$ | 2000 |
| | l/s | 556 |
| | CFM | 1177 |

### ● Heating

| Number of rotations (r.p.m.) | Airflow | |
|---|---|---|
| 820 | $m^3/h$ | 1910 |
| | l/s | 531 |
| | CFM | 1124 |

## ■ MODEL: AO∗G24LALA

### ● Cooling

| Number of rotations (r.p.m.) | Airflow | |
|---|---|---|
| 1050 | $m^3/h$ | 2470 |
| | l/s | 686 |
| | CFM | 1454 |

### ● Heating

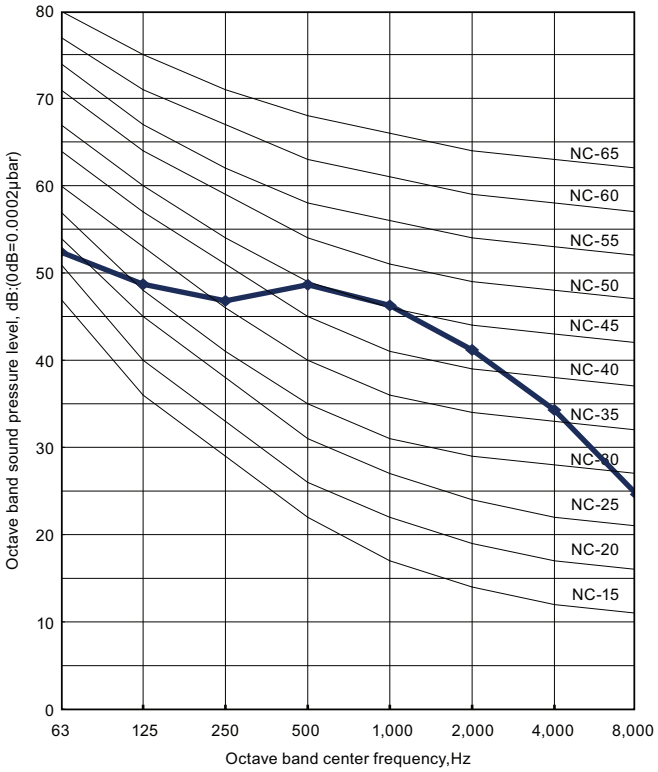
| Number of rotations (r.p.m.) | Airflow | |
|---|---|---|
| 1050 | $m^3/h$ | 2470 |
| | l/s | 686 |
| | CFM | 1454 |

# 8. OPERATION NOISE (SOUND PRESSURE)

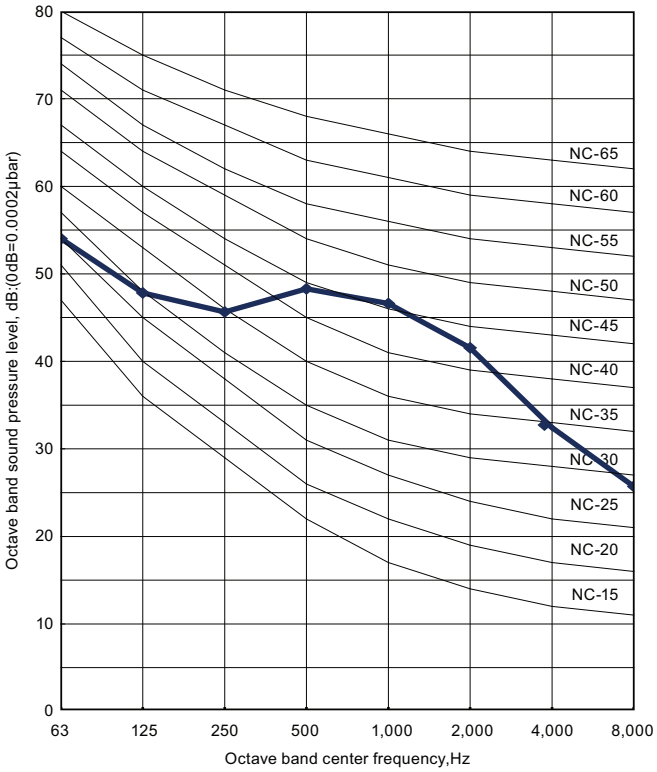
## 8-1. NOISE LEVEL CURVE

### ■ MODEL: AO∗G12LALL

#### ● Cooling

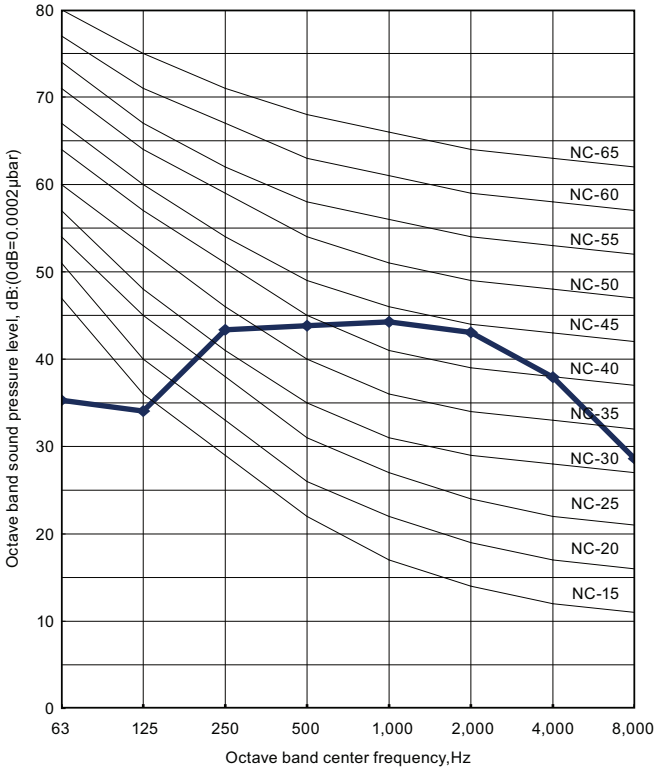



#### ● Heating

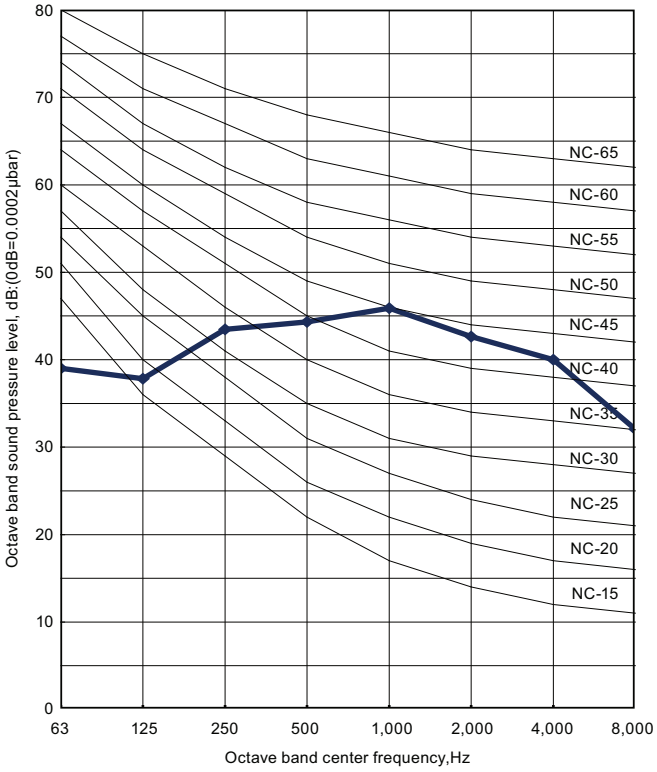



### ■ MODEL: AO∗G14LALL

#### ● Cooling



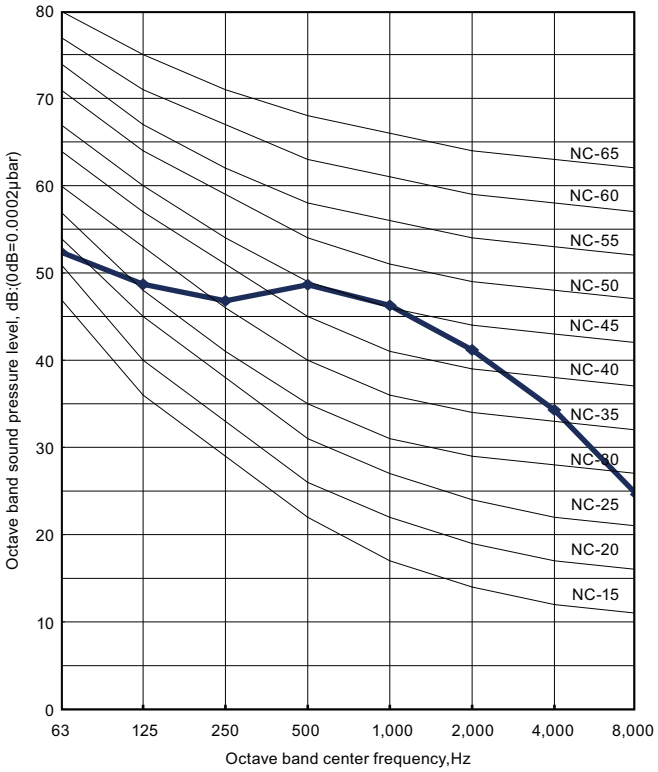

#### ● Heating



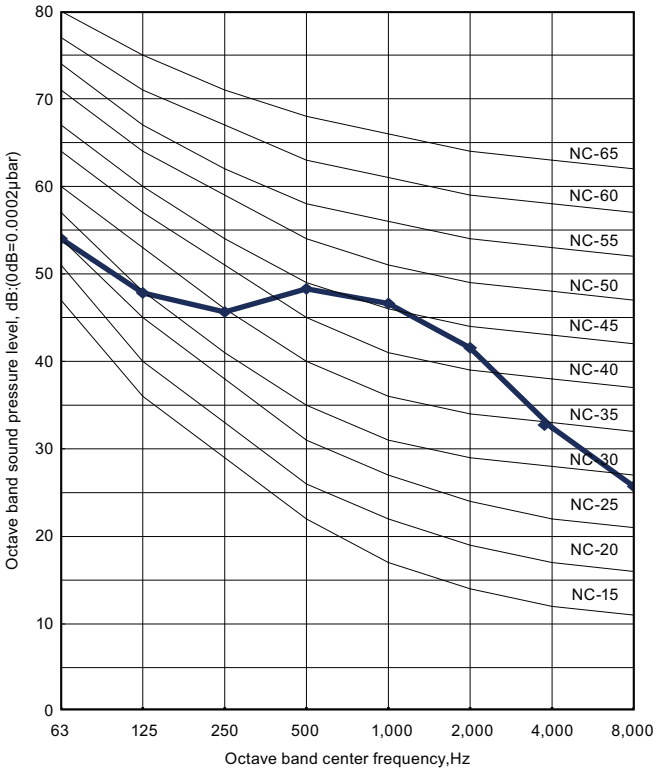
OUTDOOR UNIT
AO∗G12-24LAL

## ■MODEL: AO∗G18LALL

### ●Cooling

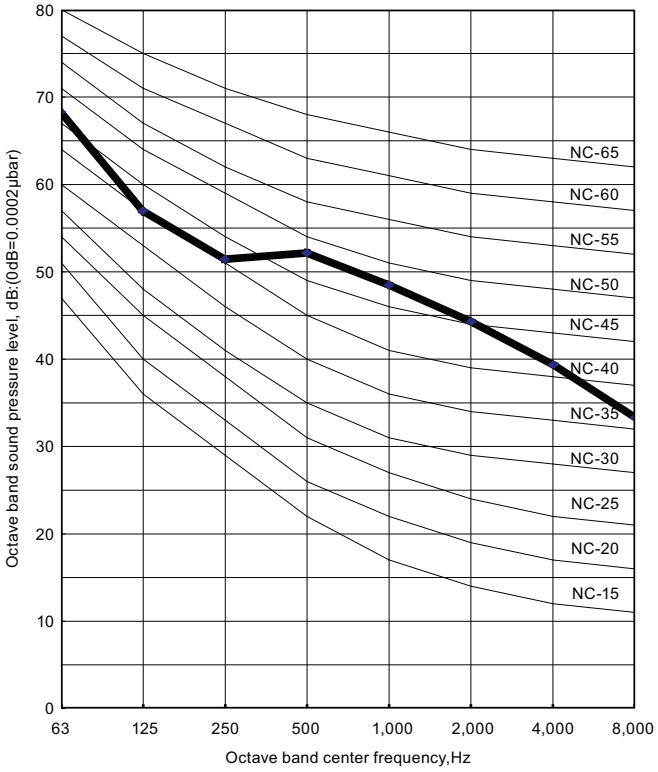



### ●Heating

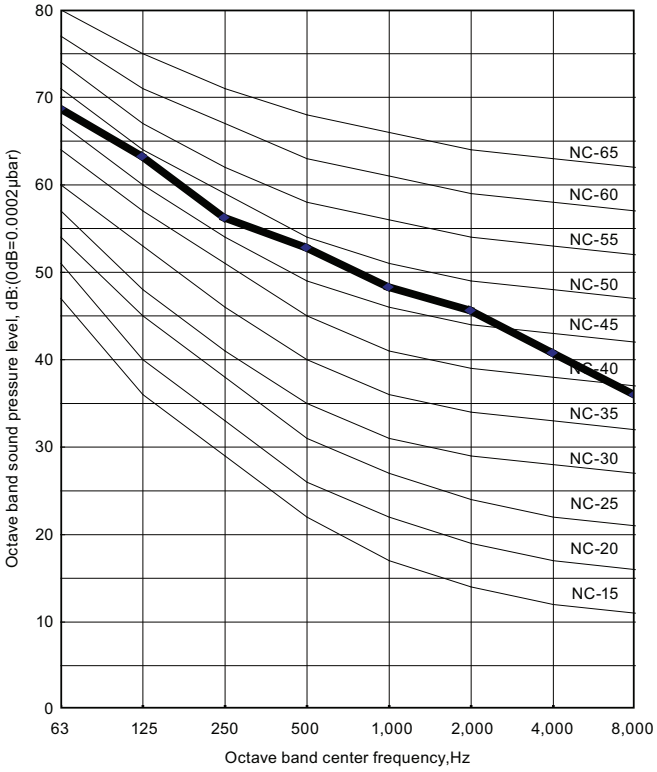



## ■MODEL: AO∗G24LALA

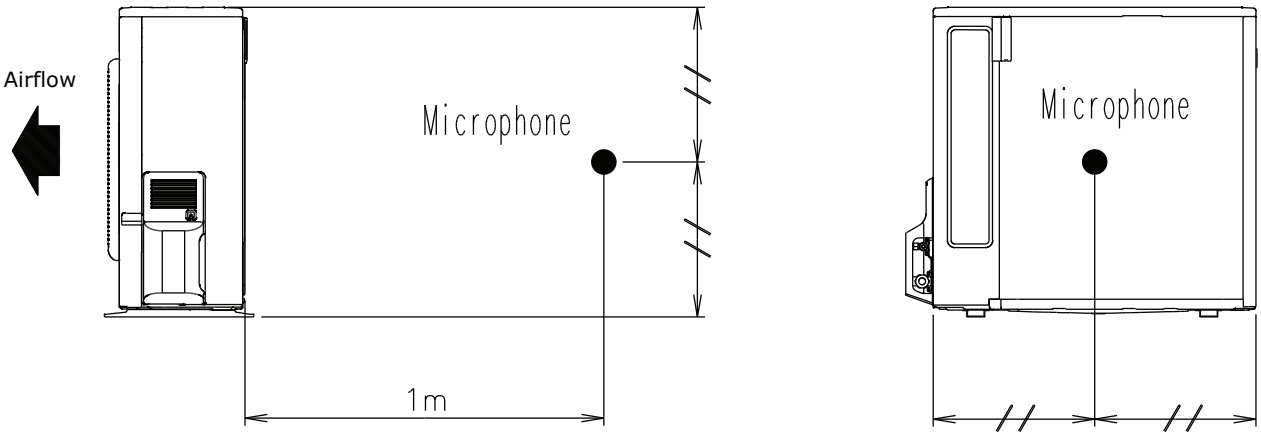
### ●Cooling




### ●Heating



# 8-2. SOUND LEVEL CHECK POINT




OUTDOOR UNIT
AO*G12-24LAL

# 9. ELECTRIC CHARACTERISTICS

| Model name | | | AO∗G12LALL | AO∗G14LALL | AO∗G18LALL | AO∗G24LALA |
|---|---|---|---|---|---|---|
| Power supply | Voltage | V | 230 ~ | | | |
| | Frequency | Hz | 50 | | | |
| *1) Max operating current | | A | 10.0 | 12.5 | | 13.5 |
| Starting Current | | A | 5.1 | 6.1 | 7.4 | 9.9 |
| *2) Wiring Spec. | Main Fuse (Circuit breaker) Current | A | 25 | | | |
| | Power Cable | $mm^2$ | 4.0 | | | |

*1) The maximum current is the total current of indoor unit and outdoor unit.

*2) Wiring Spec.:

Selected Sample
(Selected based on Japan Electrotechnical Standards and Codes Committee E0005)

OUTDOOR UNIT
AO∗G12-24LAL

# 10. SAFETY DEVICES

| | Protection form | Model | | | |
|---|---|---|---|---|---|
| | | AO∗G12LALL | AO∗G14LALL | AO∗G18LALL | AO∗G24LALA |
| Circuit protection | Current fuse (Near the terminal) | 250V 20A | | | |
| | | 250V 5A | | | |
| | Current fuse (Main printed circuit board) | 250V 15A | | | |
| | | 250V 3.15A | | | |
| Fan motor protection | Thermal protection program | OFF : $100^{+15}_{-10}$°C<br>ON : $95^{+15}_{-10}$°C | | | OFF : $110^{+15}_{-10}$°C<br>ON : $105^{+15}_{-10}$°C |
| Compressor protection | Terminal protection program (Compressor temp.) | OFF : 110°C<br>ON : After 40 minutes and 80°C or less | | | |
| | Thermal protection program (Discharge temp.) | OFF : 110°C<br>ON : After 7 minutes | | | |

OUTDOOR UNIT
AO∗G12-24LAL