Refrigerant
R410A

INDOOR UNIT

1. CASSETTE TYPE :

AU＊A18LAL
AU＊F18LAL
AU＊F18LBL
AU＊A24LAL
AU＊A24LBL
AU＊F24LBL

D2D_AU030E/05
2009.08.21

CASSETTE TYPE
AU∗A18-24L

1. FEATURE

■ MODEL :

INDOOR UNIT	OUTDOOR UNIT	
AU∗A18LAL AU∗F18LAL AU∗F18LBL	AO∗A18LACL AO∗A18LALL	AO∗B18LACL AO∗B18LALL
AU∗A24LAL AU∗A24LBL AU∗F24LBL	AO∗A24LACL AO∗A24LALL	AO∗B24LACL AO∗B24LALL

■ FEATURES

● Energy saving

- All DC design
- Heat exchange efficiency increased and larger air flow by adoption of new type turbo fan

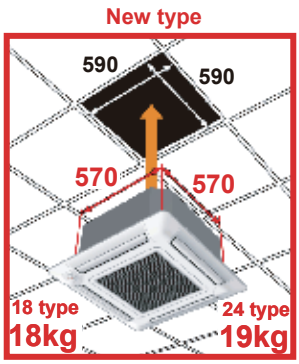
● Advancement in comfort

- 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.



CASSETTE TYPE
AU✳A18-24L

● Easy maintenance

①Maintenance of fan motor and fan

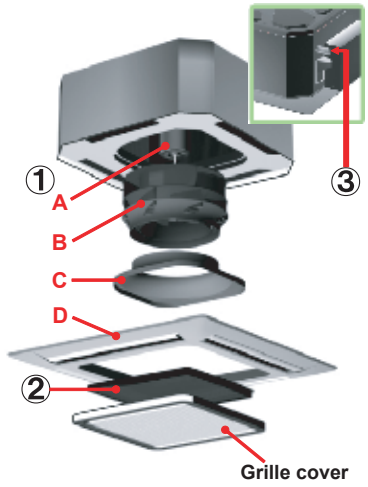
Maintenance of fan motor and fan can be done easily after taking off the panel, since bell-mouth can be removed easily

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

New type

CASSETTE TYPE
AU✱A12-14L

■ 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**

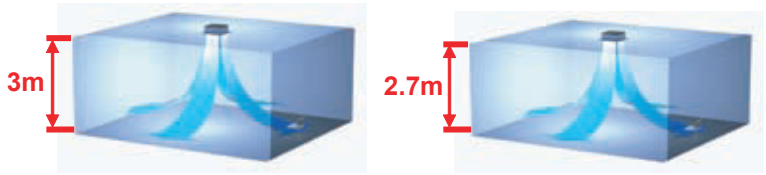
4-way direction mode: Set when there are 4 outlets (shipped state).
3-way direction mode: Set when there are 3 outlets.

● 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.

● Filter sign

The indoor unit has sign to inform the user that it is time to clean the filter

● 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.

● Economy operation

The power consumption can be reduced.

Powerful mode ...Standard

Soft mode ...Performs operation which reduces the power consumption

CASSETTE TYPE
AU*A18-24L

2. REMOTE CONTROLLER

WIRELESS REMOTE CONTROLLER

■FEATURES

* Four kinds of timer setup (ON / OFF / PROGRAM / SLEEP) are possible.
* Four kinds of timers. Easy operation.
* Easy to change transmission code (4 patterns) 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

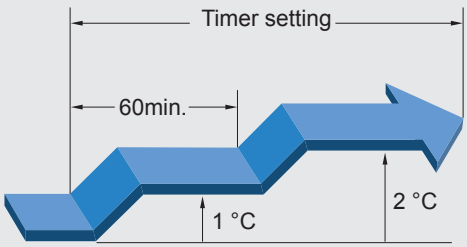
The program timer operates the ON and OFF timer once within a 24 hour period.

●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.

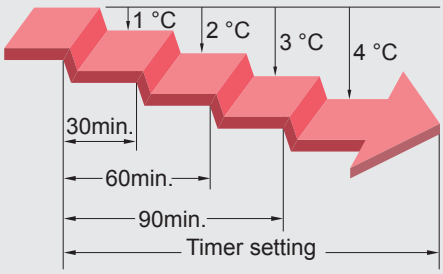
Cooling operation/dry operation

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.

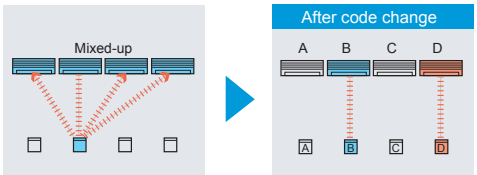


Heating operation

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.



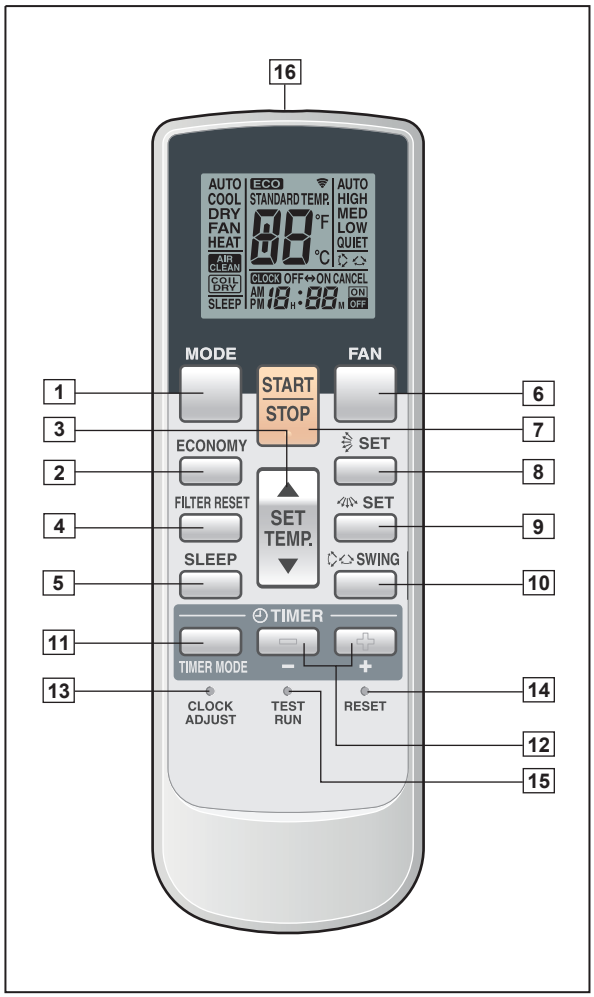
●Switching remote control unit signal code



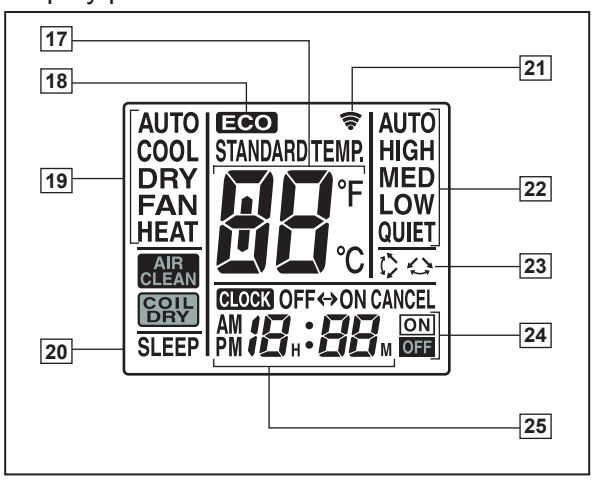
• Code selector switch eliminates unit being wrongly switched.
(Up to 4 codes can be set.)

CASSETTE TYPE
AU*A18-24L

■FUNCTIONS



Display panel



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

2 Economy button

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

4 Filter reset button

5 Sleep button
Pressed to select sleep timer.

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

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

8 Set button (Vertical)
Air flow direction vertical set button.

9 Set button (Horizontal)
Air flow direction horizontal set button.

10 Swing button
Air flow direction swing button.

11 Timer mode button
Pressed to select the timer mode. (OFF TIMER, ON TIMER, PROGRAM TIMER, TIMER RESET)

12 Timer set (⊕ / ⊖) button
Sets the current time and on-off time.

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 display

18 Economy display

19 Operating mode display

20 Sleep display

21 Transmit indicator

22 Fan speed display

23 Swing display

24 Timer mode display

25 Clock display

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

■SPECIFICATION

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

CASSETTE TYPE
AU∗A18-24L

3. SPECIFICATIONS

Type					CASSETTE MODEL	
					INVERTER HEATPUMP	
Model name					AU∗A18LAL, AU∗F18LAL AU∗F18LBL	AU∗A24LAL, AU∗A24LBL AU∗F24LBL
					AO∗A18LACL, AO∗A18LALL	AO∗A24LACL, AO∗A24LALL
Power source					230V～ 50Hz	
Available voltage range					198-264V～ 50Hz	
European energy label				Cooling	A	A
				Heating	A	A
Capacity	Cooling	Rated		kW	5.20	7.10
				BTU/h	17700	24200
		Min.-Max.		kW	0.90 - 5.90	0.90 - 8.00
				BTU/h	3100 - 20100	3100 - 27300
	Heating	Rated		kW	6.00	8.00
				BTU/h	20500	27300
		Min.-Max.		kW	0.90 - 7.50	0.90 - 9.10
				BTU/h	3100 - 25600	3100 - 31000
Input power	Cooling	Rated		kW	1.62	2.21
		*Max.			2.16	2.85
	Heating	Rated			1.66	2.21
		*Max.			2.96	3.19
Current	Cooling	Rated		A	7.1	9.7
		*Max.			9.0	12.0
	Heating	Rated			7.3	9.7
		*Max.			12.5	13.5
EER		Cooling		kW/kW	3.21	3.21
COP		Heating			3.61	3.61
Moisture removal				l/h (pints/h)	2.2 (3.9)	2.7 (4.8)
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	54
Sound pressure level		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
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 x 10	3 x 10
		Pipe type			Copper tube	
		Fin type			Aluminium	
Enclosure		Material			PS	
		Colour			WHITE Approximate colour of MUNSELL N 9.25/	
Dimensions (H×W×D)	Net	Unit		mm	245 × 570 × 570	
		Panel			49 x 700 x 700	
	Gross	Unit			265 x 730 x 625	
		Panel			120 x 765 x 755	
Weight	Net	Unit		kg(lb.)	15 (33)	17 (37)
		Panel			2.6 (5.7)	
	Gross	Unit			18 (40)	20 (44)
		Panel			4.5 (10.0)	
Connection pipe	Size	Liquid		mm	ϕ6.35 (ϕ1/4 in.)	ϕ6.35 (ϕ1/4 in.)
		Gas			ϕ12.70(ϕ1/2 in.)	ϕ15.88(ϕ5/8 in.)
	Method				Flare	Flare
Operation range		Cooling		°C	18 to 32	18 to 32
				%RH	80 or less	80 or less
		Heating		°C	30 or less	30 or less
Remote controller type					WIRELESS	
Drain pipe	Material				ABS	
	Size			mm	Outer diameter : 25.4 / Inner diameter : 19.4	

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 : 7.5 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 (temperature).

CASSETTE TYPE
AU∗A18-24L

Type					CASSETTE MODEL	
					INVERTER HEATPUMP	
Model name					AU∗A18LAL, AU∗F18LAL AU∗F18LBL	AU∗A24LAL, AU∗A24LBL AU∗F24LBL
					AO∗B18LACL, AO∗B18LALL	AO∗B24LACL, AO∗B24LALL
Power source					230V～ 50Hz	
Available voltage range					198-264V ～ 50Hz	
European energy label				Cooling	B	B
				Heating	B	B
Capacity	Cooling	Rated		kW	5.20	7.10
				BTU/h	17700	24200
		Min.-Max.		kW	0.90 - 5.70	0.90 - 7.80
				BTU/h	3100 - 19500	3100 - 26600
	Heating	Rated		kW	6.00	8.00
				BTU/h	20500	27300
		Min.-Max.		kW	0.90 - 7.20	0.90 - 8.80
				BTU/h	3100 - 24600	3100 - 30000
Input power	Cooling	Rated		kW	1.70	2.32
		*Max.			2.16	2.85
	Heating	Rated			1.75	2.33
		*Max.			2.96	3.19
Current	Cooling	Rated		A	7.4	10.1
		*Max.			9.0	12.0
	Heating	Rated			7.7	10.2
		*Max.			12.5	13.5
EER		Cooling		kW/kW	3.06	3.06
COP		Heating			3.43	3.43
Moisture removal				l/h (pints/h)	2.2 (3.9)	2.7 (4.8)
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	54
Sound pressure level		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
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			2X10	3X10
		Pipe type			Copper tube	
		Fin type			Aluminium	
Enclosure		Material			PS	
		Colour			WHITE Approximate colour of MUNSELL N 9.25/	
Dimensions (H×W×D)	Net	Unit		mm	245 x 570 x 570	
		Panel			49 x 700 x 700	
	Gross	Unit			265 x 730 x 625	
		Panel			120 x 765 x 755	
Weight	Net	Unit		kg(lb.)	15 (33)	17 (37)
		Panel			2.6 (5.7)	
	Gross	Unit			18 (40)	20 (44)
		Panel			4.5 (10.0)	
Connection pipe	Size	Liquid		mm	ϕ6.35 (ϕ1/4 in.)	ϕ6.35 (ϕ1/4 in.)
		Gas			ϕ12.70(ϕ1/2 in.)	ϕ15.88(ϕ5/8 in.)
	Method				Flare	Flare
Operation range		Cooling		°C	18 to 32	18 to 32
				%RH	80 or less	80 or less
		Heating		°C	30 or less	30 or less
Remote controller type					WIRELESS	
Drain pipe	Material				ABS	
	Size			mm	Outer diameter : 25.4 / Inner diameter : 19.4	

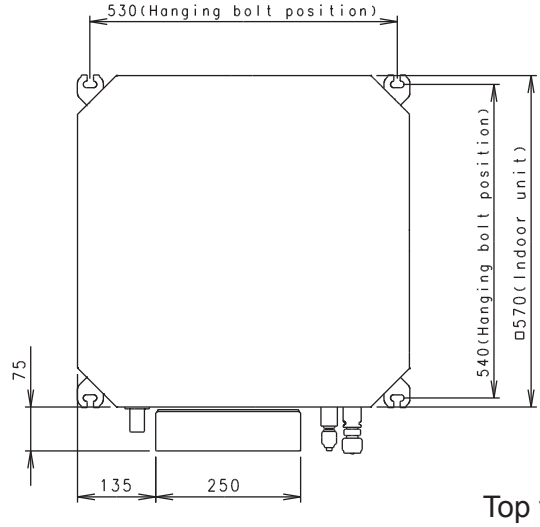
Note :
Specifications are based on the following conditions.
Cooling : Indoor temperature of 27°CDB/19°CWB. and outdoor temperature of 35°CDB/24°CWB.
Heating : Indoor temperature of 20°CDB/15°CWB. and outdoor temperature of 7°CDB/6°CWB.
Pipe length : 7.5 m, Height difference : 0 m. (Outdoor unit - Indoor unit)
Ceiling mode : Standard
∗ The maximum current and the maximum input value are the maximum value when operated within the operation range (temperature).

CASSETTE TYPE
AU∗A18-24L

4. DIMENSIONS

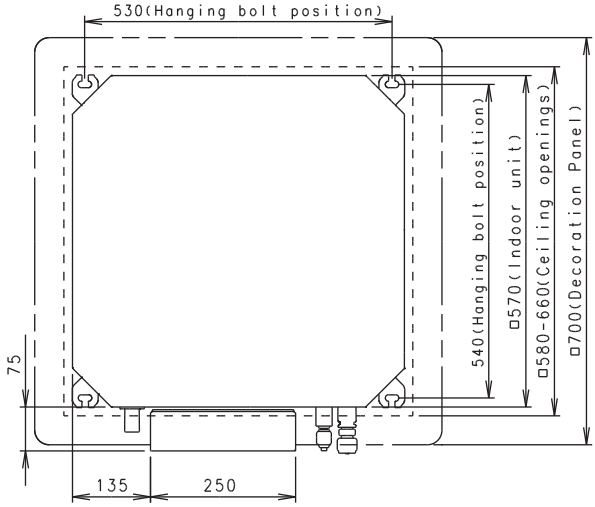
■MODEL : AU∗A18L, AU∗F18L, AU∗A24L,AU∗F24L

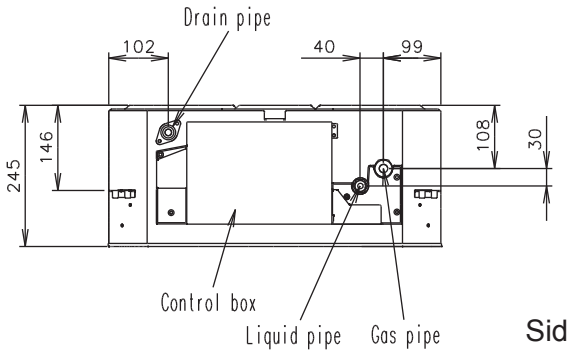
(Unit : mm)

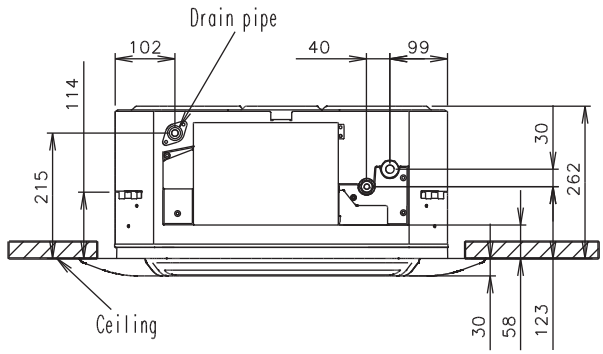


Top view

• Decoration panel mounting state

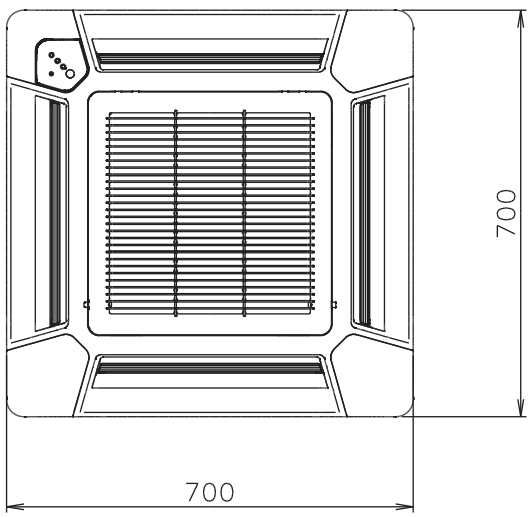




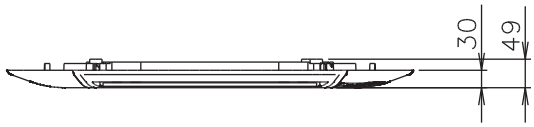


Side view

■MODEL : UTG-UF∗A-W, UTG-UF∗B-W



Bottom view

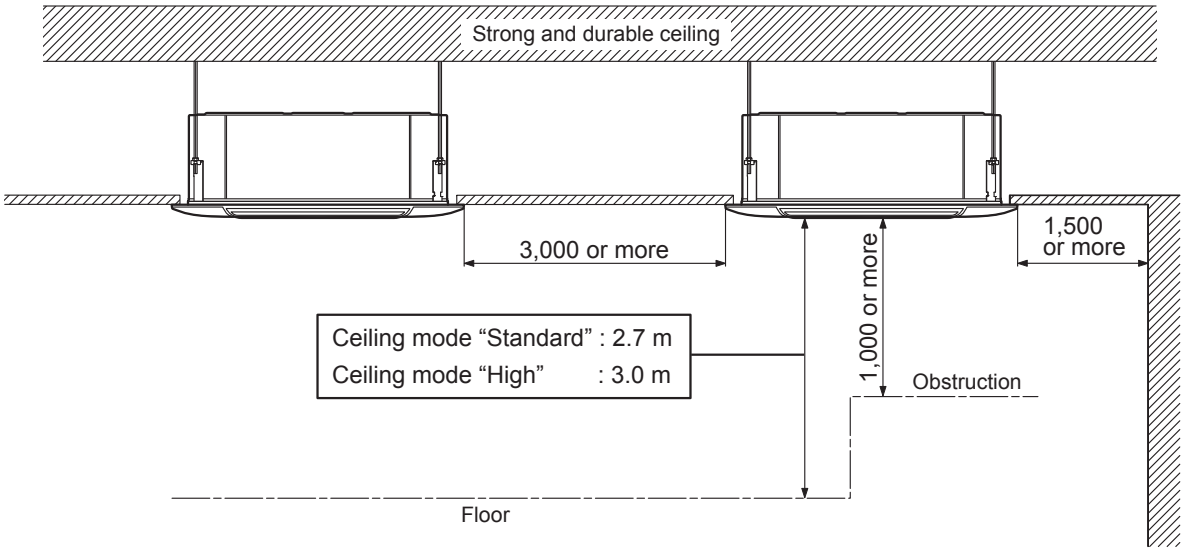


Side view

CASSETTE TYPE
AU✱A18-24L

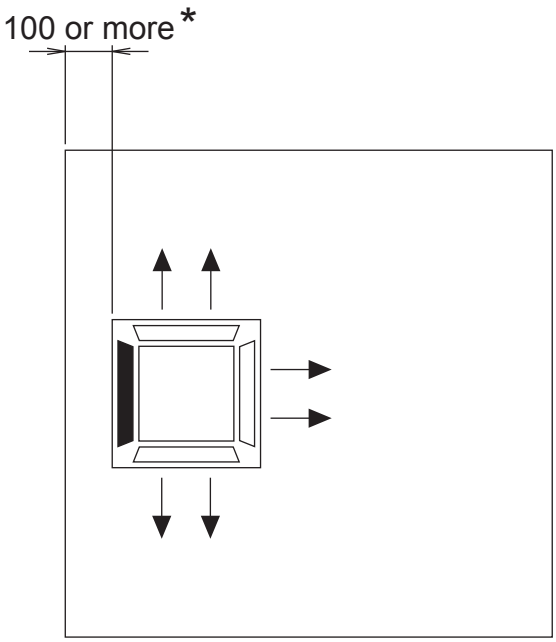
■ INSTALLATION PLACE

(Unit : mm)



● 3-way directions setting

(Unit : mm)



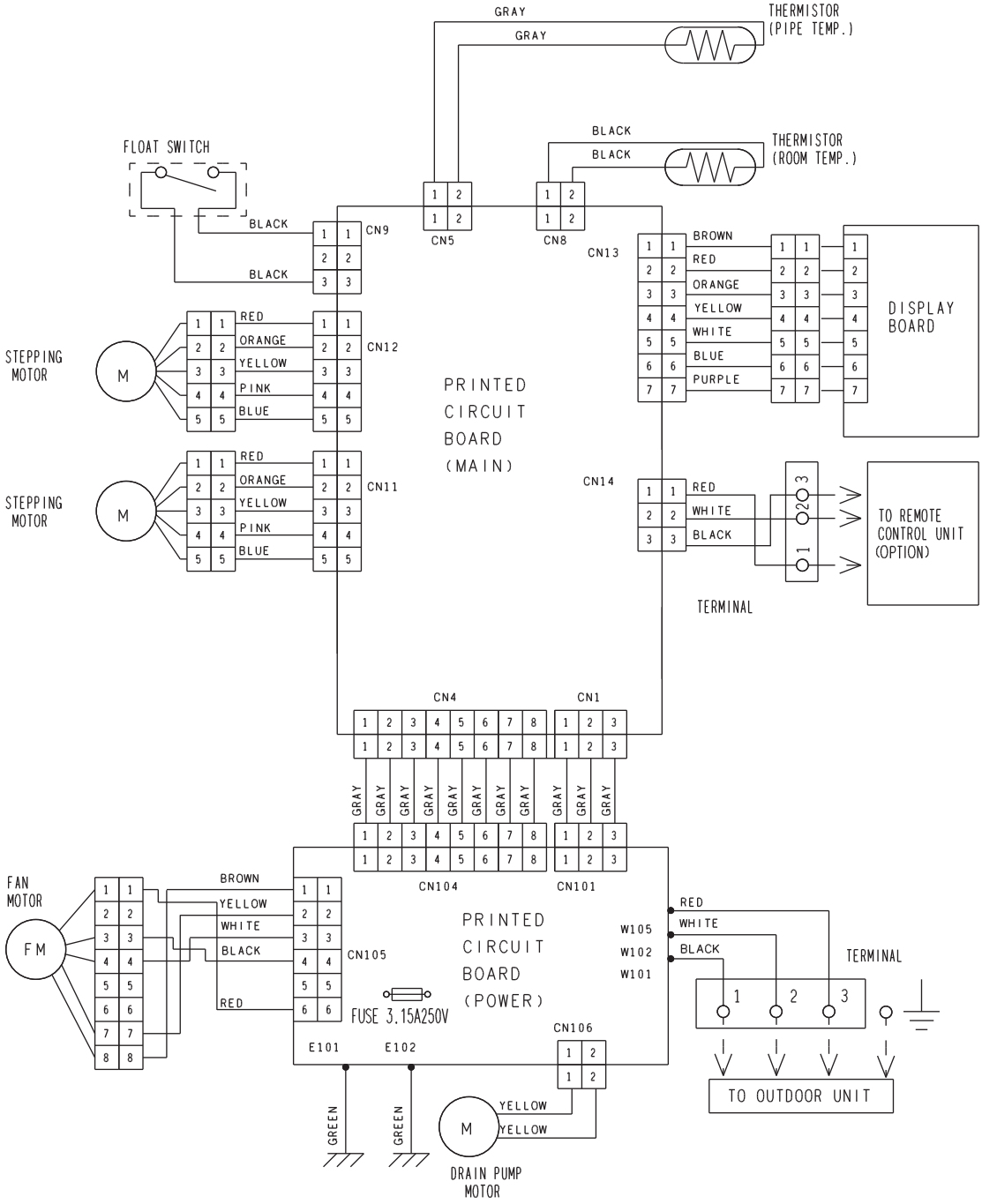
To set “3-way directions”, the air outlet shutter plate (UTR-YDZA or UTR-YDZB) sold separately must be installed and “outlet-direction” switched to “3-way” by remote controller.

*When installing the indoor unit, be careful about the maintenance hole

CASSETTE TYPE
AU∗A18-24L

5. WIRING DIAGRAMS

■ MODEL : AU∗A18L, AU∗F18L, AU∗A24L, AU∗F24L



CASSETTE TYPE
AU∗A18-24L

6. CAPACITY TABLE

6-1. COOLING CAPACITY

This table is created using the maximum capacity.

■MODEL : AU∗A18L, AU∗F18L / AO∗A18L

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	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
	-10	4.45	3.38	0.44	4.96	3.40	0.44	5.13	3.69	0.44	5.47	3.71	0.45	5.64	4.00	0.45	5.97	3.99	0.46	6.31	4.25	0.46
	0	4.35	3.32	0.51	4.85	3.34	0.52	5.01	3.64	0.52	5.34	3.65	0.52	5.51	3.94	0.53	5.84	3.92	0.53	6.17	4.18	0.54
	5	4.23	3.26	0.63	4.71	3.28	0.64	4.87	3.57	0.64	5.19	3.58	0.65	5.35	3.86	0.65	5.67	3.85	0.66	6.00	4.10	0.66
	10	4.09	3.19	0.74	4.56	3.21	0.75	4.71	3.49	0.76	5.02	3.50	0.76	5.18	3.78	0.77	5.49	3.76	0.78	5.80	4.01	0.78
	15	4.10	3.20	0.65	4.57	3.21	0.66	4.72	3.49	0.66	5.04	3.51	0.67	5.19	3.79	0.67	5.50	3.77	0.68	5.82	4.02	0.69
	20	5.16	3.75	1.37	5.74	3.77	1.39	5.94	4.10	1.40	6.33	4.12	1.41	6.53	4.44	1.42	6.92	4.43	1.44	7.31	4.72	1.45
	25	4.94	3.64	1.53	5.51	3.66	1.56	5.70	3.98	1.56	6.07	3.99	1.58	6.26	4.31	1.59	6.63	4.29	1.60	7.01	4.57	1.62
	30	4.72	3.52	1.69	5.26	3.54	1.72	5.44	3.85	1.73	5.79	3.86	1.75	5.97	4.17	1.75	6.33	4.15	1.77	6.69	4.42	1.79
	35	4.66	3.49	2.00	5.19	3.51	2.03	5.37	3.81	2.04	5.72	3.83	2.06	5.90	4.13	2.07	6.25	4.11	2.09	6.61	4.38	2.11
	40	3.59	2.94	1.43	4.00	2.95	1.45	4.13	3.21	1.46	4.40	3.22	1.47	4.54	3.48	1.48	4.81	3.47	1.49	5.09	3.69	1.51
	46	2.58	2.45	1.08	2.87	2.46	1.10	2.97	2.68	1.10	3.17	2.69	1.11	3.27	2.90	1.12	3.46	2.89	1.13	3.66	3.08	1.14

■MODEL : AU∗A18L, AU∗F18L / AO∗B18L

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	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
	-10	4.45	3.38	0.44	4.96	3.40	0.44	5.13	3.69	0.44	5.47	3.71	0.45	5.64	4.00	0.45	5.97	3.99	0.46	6.31	4.25	0.46
	0	4.35	3.32	0.51	4.85	3.34	0.52	5.01	3.64	0.52	5.34	3.65	0.52	5.51	3.94	0.53	5.84	3.92	0.53	6.17	4.18	0.54
	5	4.23	3.26	0.63	4.71	3.28	0.64	4.87	3.57	0.64	5.19	3.58	0.65	5.35	3.86	0.65	5.67	3.85	0.66	6.00	4.10	0.66
	10	4.09	3.19	0.74	4.56	3.21	0.75	4.71	3.49	0.76	5.02	3.50	0.76	5.18	3.78	0.77	5.49	3.76	0.78	5.80	4.01	0.78
	15	4.10	3.20	0.65	4.57	3.21	0.66	4.72	3.49	0.66	5.04	3.51	0.67	5.19	3.79	0.67	5.50	3.77	0.68	5.82	4.02	0.69
	20	5.16	3.75	1.37	5.74	3.77	1.39	5.94	4.10	1.40	6.33	4.12	1.41	6.53	4.44	1.42	6.92	4.43	1.44	7.31	4.72	1.45
	25	4.94	3.64	1.53	5.51	3.66	1.56	5.70	3.98	1.56	6.07	3.99	1.58	6.26	4.31	1.59	6.63	4.29	1.60	7.01	4.57	1.62
	30	4.72	3.52	1.69	5.26	3.54	1.72	5.44	3.85	1.73	5.79	3.86	1.75	5.97	4.17	1.75	6.33	4.15	1.77	6.69	4.42	1.79
	35	4.50	3.32	2.00	5.02	3.34	2.03	5.19	3.63	2.04	5.53	3.64	2.06	5.70	3.93	2.07	6.04	3.91	2.09	6.38	4.17	2.11
	40	3.47	2.81	1.43	3.86	2.82	1.45	3.99	3.07	1.46	4.26	3.08	1.47	4.39	3.33	1.48	4.65	3.31	1.49	4.91	3.53	1.51
	46	2.49	2.36	1.08	2.78	2.37	1.10	2.87	2.58	1.10	3.06	2.59	1.11	3.16	2.79	1.12	3.34	2.78	1.13	3.53	2.96	1.14

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

CASSETTE TYPE
AU∗A18-24L

■MODEL : AU∗A24L / AU∗F24L / AO∗A24L

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	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
	-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

■MODEL : AU∗A24L / AU∗F24L / AO∗B24L

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	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
	-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	6.16	4.72	2.52	6.86	4.74	2.56	7.10	5.16	2.57	7.57	5.17	2.60	7.80	5.59	2.61	8.27	5.57	2.64	8.74	5.93	2.66
	40	5.09	4.17	2.10	5.67	4.20	2.14	5.86	4.56	2.15	6.25	4.58	2.17	6.44	4.94	2.18	6.83	4.92	2.20	7.22	5.25	2.22
	46	3.65	3.48	1.59	4.06	3.50	1.61	4.20	3.80	1.62	4.48	3.81	1.64	4.62	4.12	1.65	4.90	4.10	1.66	5.17	4.37	1.68

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

CASSETTE TYPE
AU∗A18-24L

6-2. HEATING CAPACITY

This table is created using the maximum capacity.

■MODEL : AU∗A18L, AU∗F18L / AO∗A18L

AFR	13.3

		Indoor temperature											
		°CDB	16		18		20		22		24		
Outdoor temperature	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	
	-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	2.73	6.34	2.79	6.18	2.85	6.03	2.90	5.87	2.96	
	0	-2	7.35	2.80	7.18	2.86	7.00	2.92	6.83	2.98	6.65	3.04	
	5	3	8.04	2.79	7.85	2.84	7.66	2.90	7.47	2.96	7.28	3.02	
	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	

■MODEL : AU∗A18L, AU∗F18L / AO∗B18L

AFR	13.3

		Indoor temperature											
		°CDB	16		18		20		22		24		
Outdoor temperature	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	
	-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	2.73	6.34	2.79	6.18	2.85	6.03	2.90	5.87	2.96	
	0	-2	7.06	2.80	6.89	2.86	6.72	2.92	6.55	2.98	6.38	3.04	
	5	3	7.72	2.79	7.54	2.84	7.35	2.90	7.17	2.96	6.99	3.02	
	7	6	7.56	2.42	7.38	2.47	7.20	2.52	7.02	2.57	6.84	2.62	
	10	8	7.79	2.43	7.61	2.48	7.42	2.53	7.23	2.58	7.05	2.63	
	15	10	7.48	2.13	7.30	2.17	7.12	2.22	6.94	2.26	6.77	2.31	
	20	15	6.89	1.64	6.72	1.67	6.56	1.71	6.39	1.74	6.23	1.77	
	24	18	7.09	1.65	6.92	1.68	6.75	1.71	6.58	1.75	6.42	1.78	

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

CASSETTE TYPE
AU∗A18-24L

■MODEL : AU∗A24L / AU∗F24L / AO∗A24L

AFR	15.5

			Indoor temperature									
		°CDB	16		18		20		22		24	
Outdoor temperature	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	-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

■MODEL : AU∗A24L / AU∗F24L / AO∗B24L

AFR	15.5

			Indoor temperature									
		°CDB	16		18		20		22		24	
Outdoor temperature	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	-15	-16	6.15	2.84	6.01	2.90	5.86	2.96	5.72	3.01	5.57	3.07
	-10	-11	6.69	3.03	6.53	3.09	6.37	3.15	6.21	3.22	6.05	3.28
	-5	-7	7.38	3.02	7.21	3.08	7.03	3.14	6.86	3.20	6.68	3.27
	0	-2	8.30	3.00	8.10	3.06	7.91	3.12	7.71	3.18	7.51	3.25
	5	3	9.23	3.02	9.01	3.08	8.79	3.14	8.57	3.20	8.35	3.27
	7	6	9.24	2.69	9.02	2.74	8.80	2.80	8.58	2.86	8.36	2.91
	10	8	9.54	2.69	9.31	2.75	9.09	2.80	8.86	2.86	8.63	2.92
	15	10	8.67	2.07	8.47	2.12	8.26	2.16	8.05	2.20	7.85	2.25
	20	15	7.96	1.63	7.77	1.66	7.58	1.69	7.39	1.73	7.20	1.76
	24	18	8.24	1.62	8.05	1.66	7.85	1.69	7.65	1.73	7.46	1.76

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

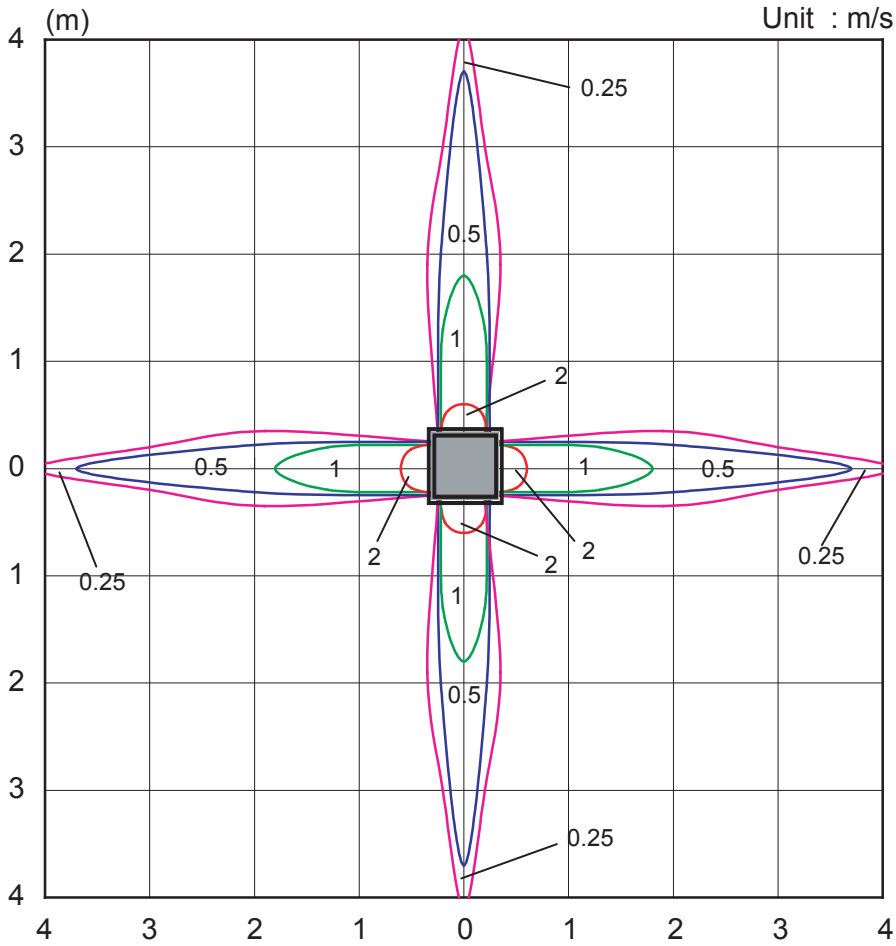
CASSETTE TYPE
AU*A18-24L

7. FAN PERFORMANCE

7-1. AIR VELOCITY DISTRIBUTION

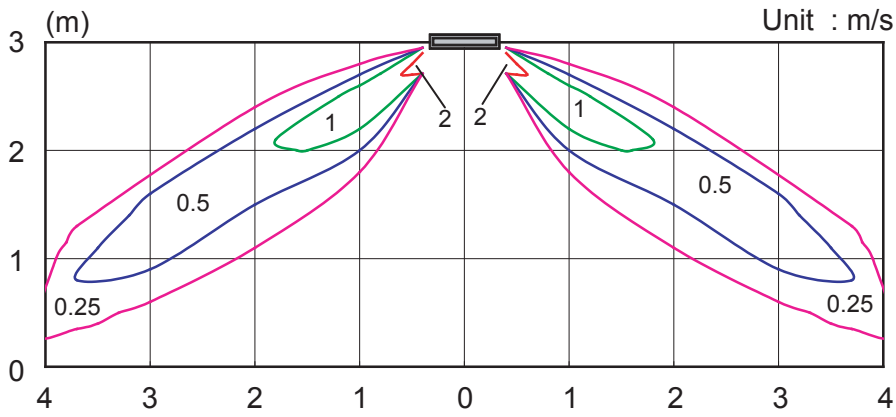
■MODEL : AU*A18L, AU*F18L

●4-WAY AIR OUTLET

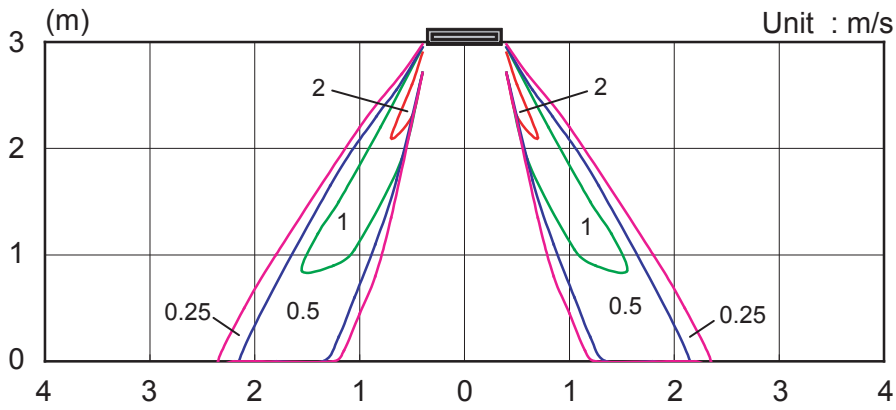


Note :
Condition
Fan speed : High
Operation mode : FAN
Ceiling mode : Standard

TOP VIEW
VERTICAL LOUVER
: Upward



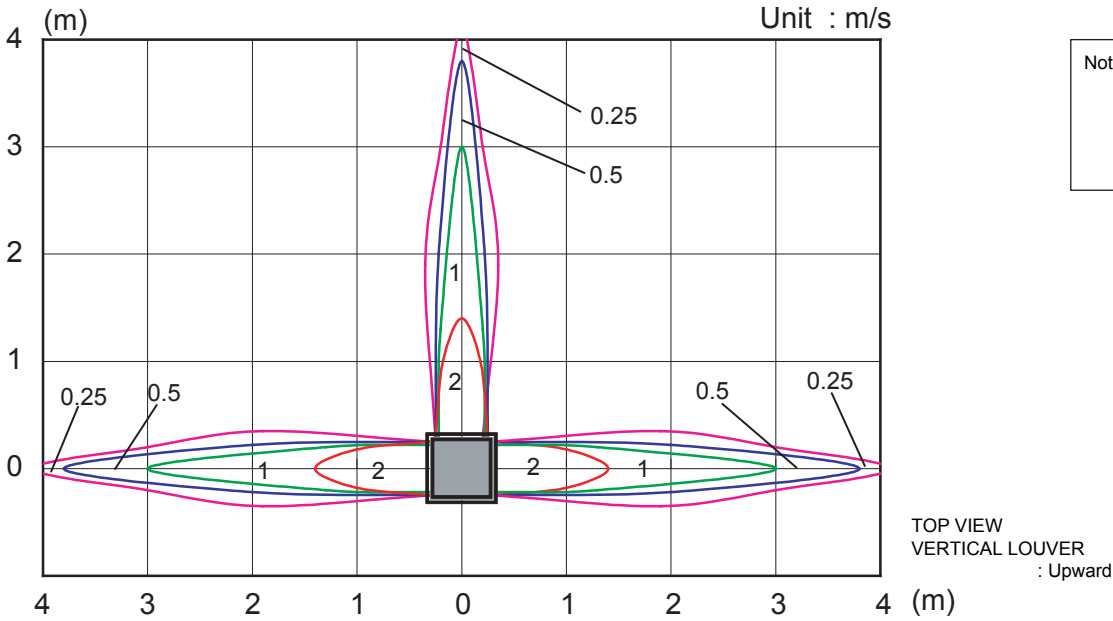
SIDE VIEW
VERTICAL LOUVER
: Upward



SIDE VIEW
VERTICAL LOUVER
: Downward

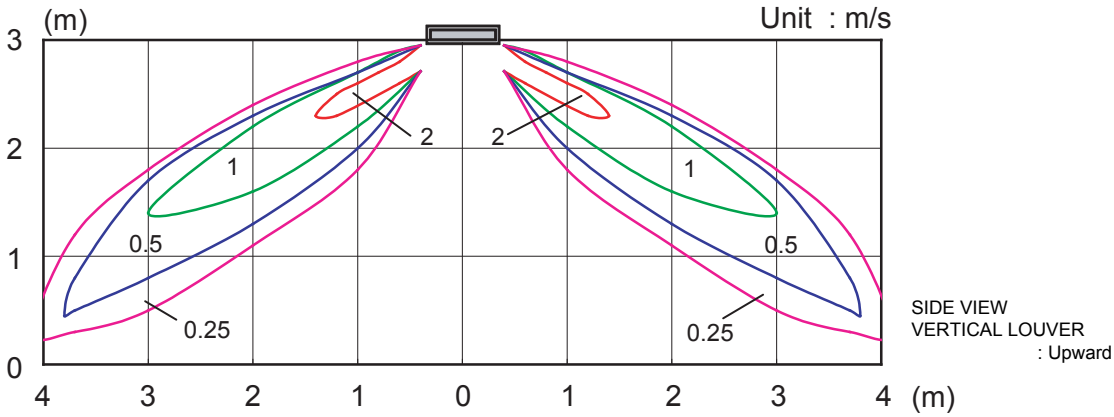
CASSETTE TYPE
AU✱A18-24L

●3-WAY AIR OUTLET

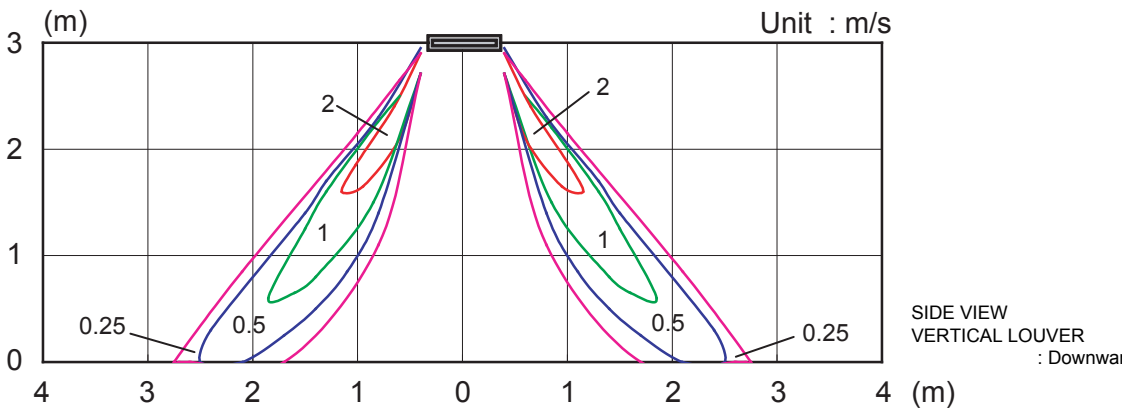


Note :
Condition
Fan speed : High
Operation mode : FAN
Ceiling mode : Standard

TOP VIEW
VERTICAL LOUVER
: Upward



SIDE VIEW
VERTICAL LOUVER
: Upward

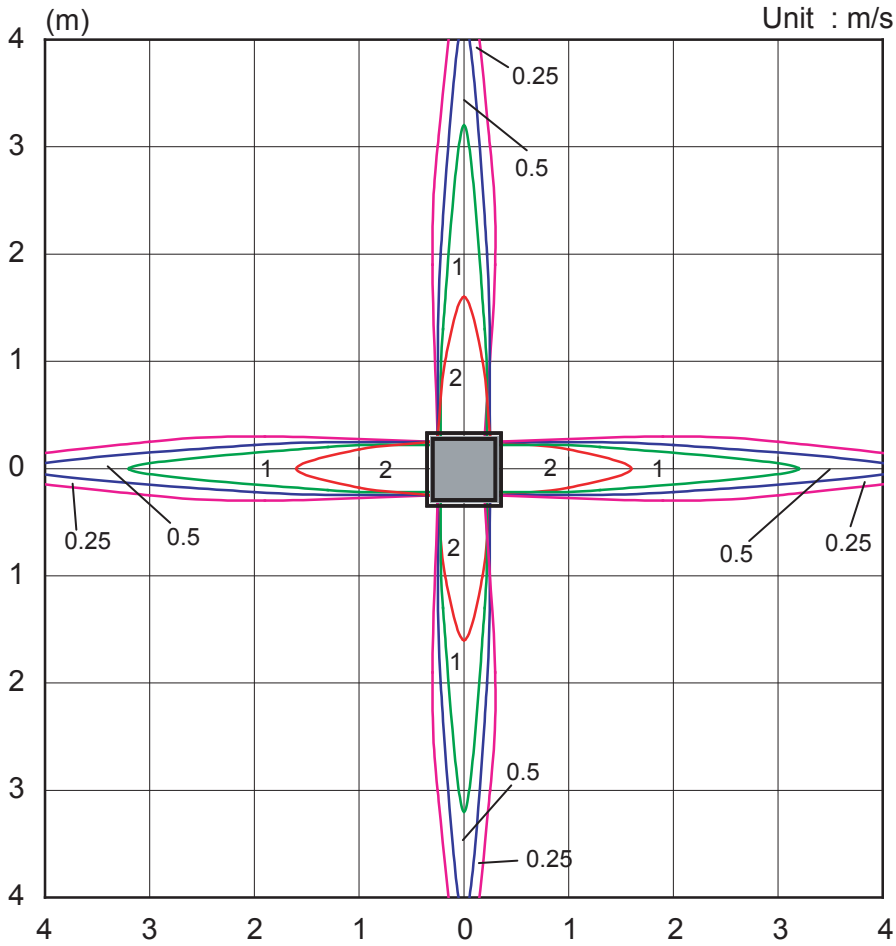


SIDE VIEW
VERTICAL LOUVER
: Downward

CASSETTE TYPE
AU*A18-24L

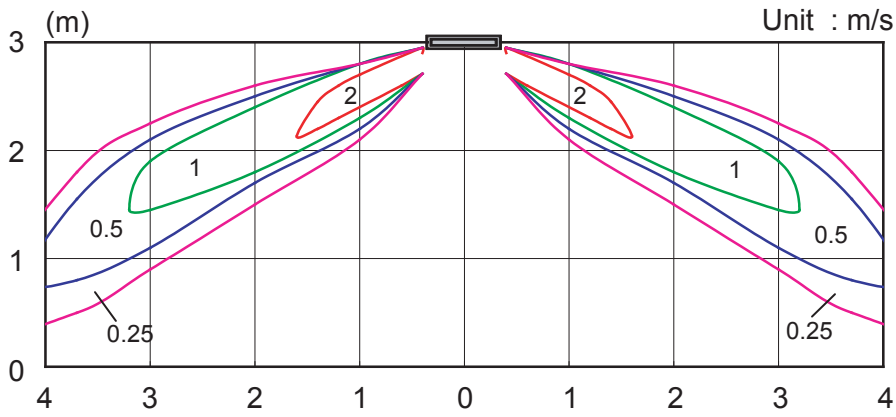
■MODEL : AU*A24L , AU*F24L

●4-WAY AIR OUTLET

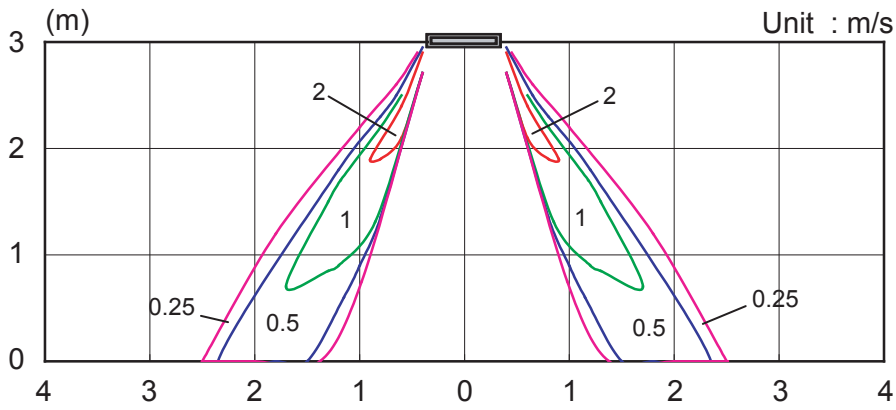


Note :
Condition
Fan speed : High
Operation mode : FAN
Ceiling mode : Standard

TOP VIEW
VERTICAL LOUVER
: Upward



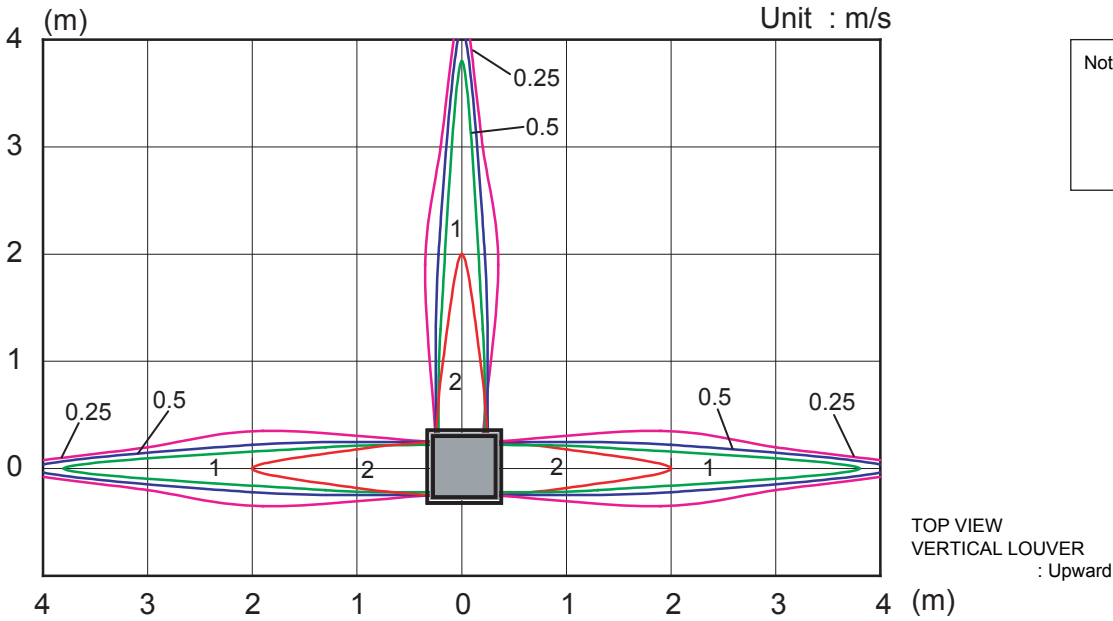
SIDE VIEW
VERTICAL LOUVER
: Upward



SIDE VIEW
VERTICAL LOUVER
: Downward

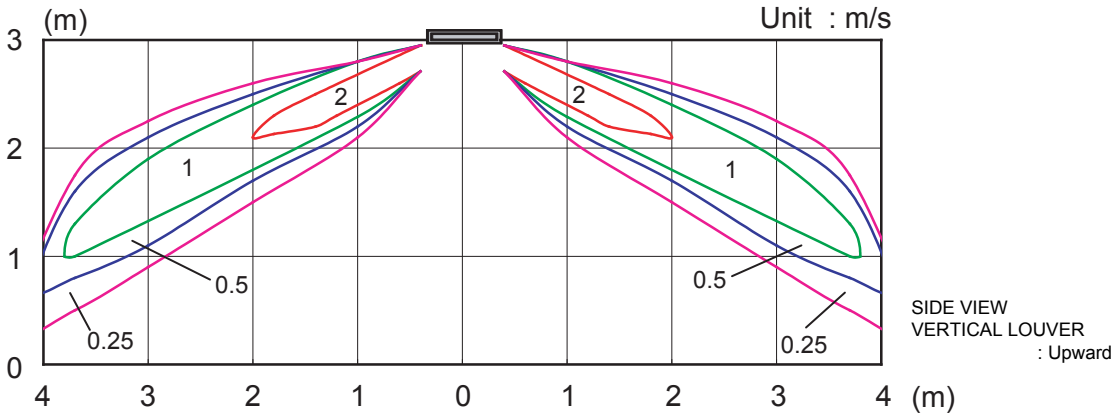
CASSETTE TYPE
AU✳A18-24L

●3-WAY AIR OUTLET

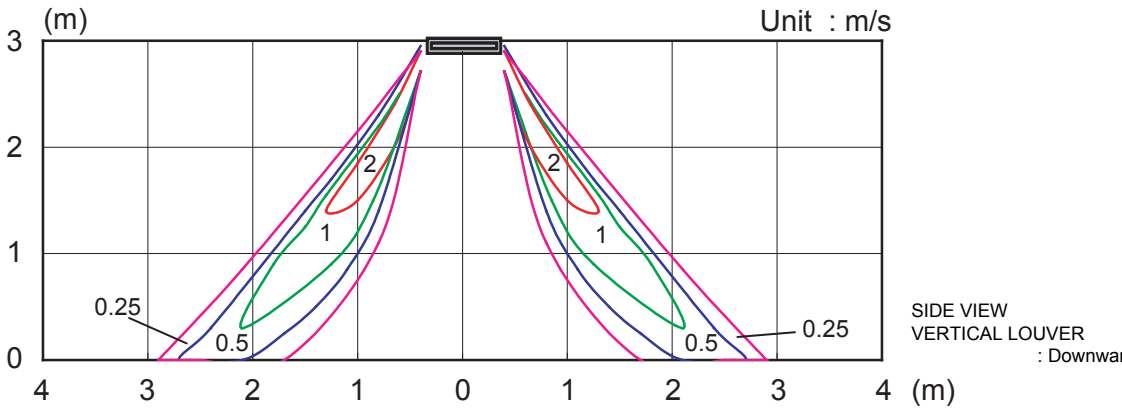


Note :
Condition
Fan speed : High
Operation mode : FAN
Ceiling mode : Standard

TOP VIEW
VERTICAL LOUVER
: Upward



SIDE VIEW
VERTICAL LOUVER
: Upward



SIDE VIEW
VERTICAL LOUVER
: Downward

CASSETTE TYPE
AU∗A18-24L

7-2. AIR FLOW

7-2-1. STANDARD CEILING MODE

■MODEL : AU∗A18L, AU∗F18L

●COOLING

FAN SPEED	NUMBER OF ROTATIONS (r.p.m)	AIR FLOW	
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)	AIR FLOW	
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∗A18-24L

■MODEL : AU∗A24L , AU∗F24L

●COOLING

FAN SPEED	NUMBER OF ROTATIONS (r.p.m)	AIR FLOW	
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)	AIR FLOW	
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∗A18-24L

7-2-2. HIGH CEILING MODE

■MODEL : AU∗A18L, AU∗F18L

●COOLING

FAN SPEED	NUMBER OF ROTATIONS (r.p.m)	AIR FLOW	
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)	AIR FLOW	
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∗A18-24L

■MODEL : AU∗A24L , AU∗F24L

●COOLING

FAN SPEED	NUMBER OF ROTATIONS (r.p.m)	AIR FLOW	
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)	AIR FLOW	
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

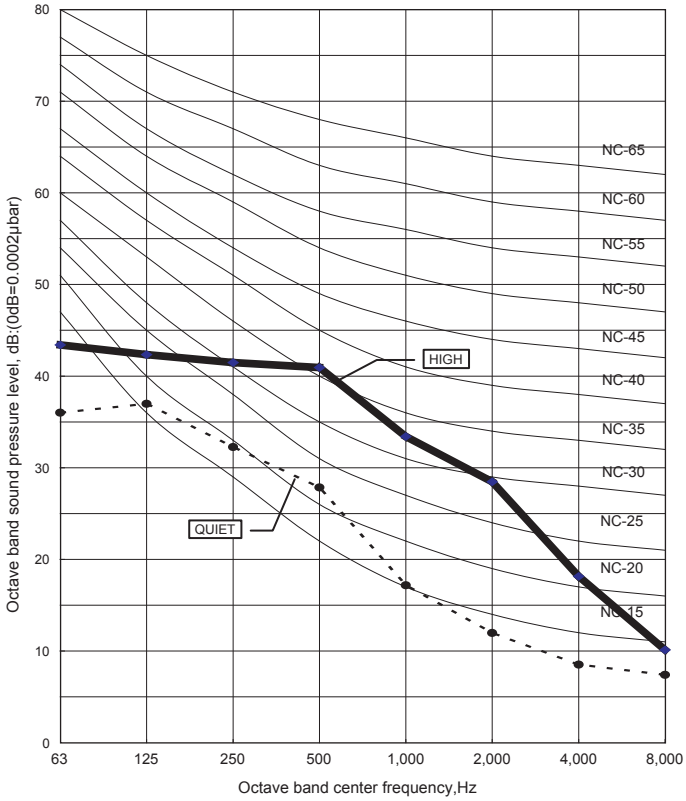
8. OPERATION NOISE

8-1. NOISE LEVEL CURVE

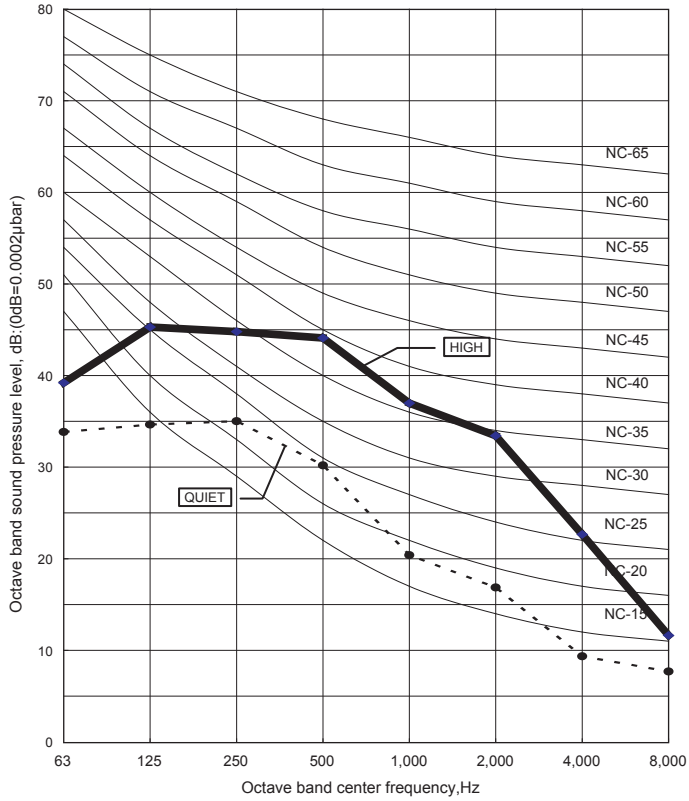
Condition
Ceiling mode : Standard
Air outlet : 4-way air outlet

■MODEL : AU∗A18L, AU∗F18L

●COOLING

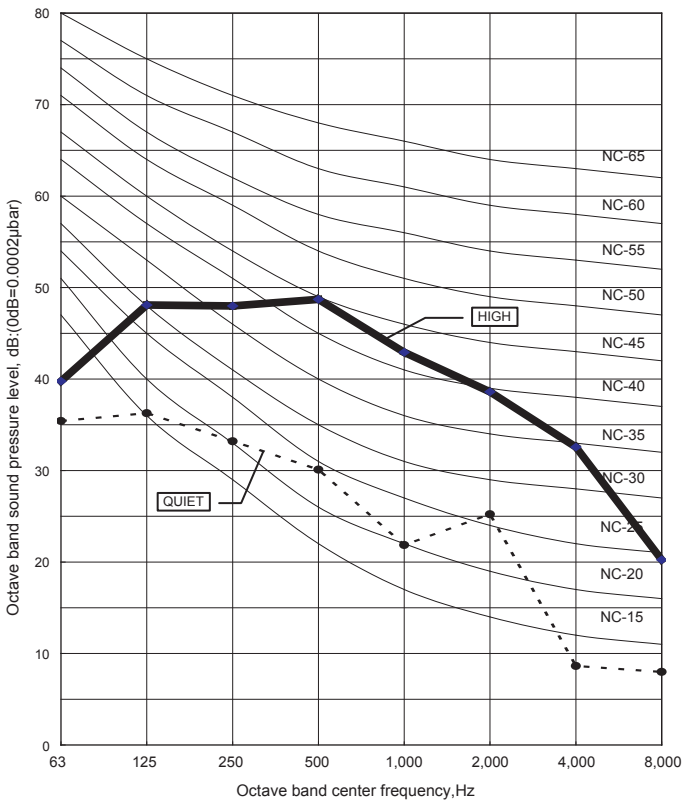


●HEATING

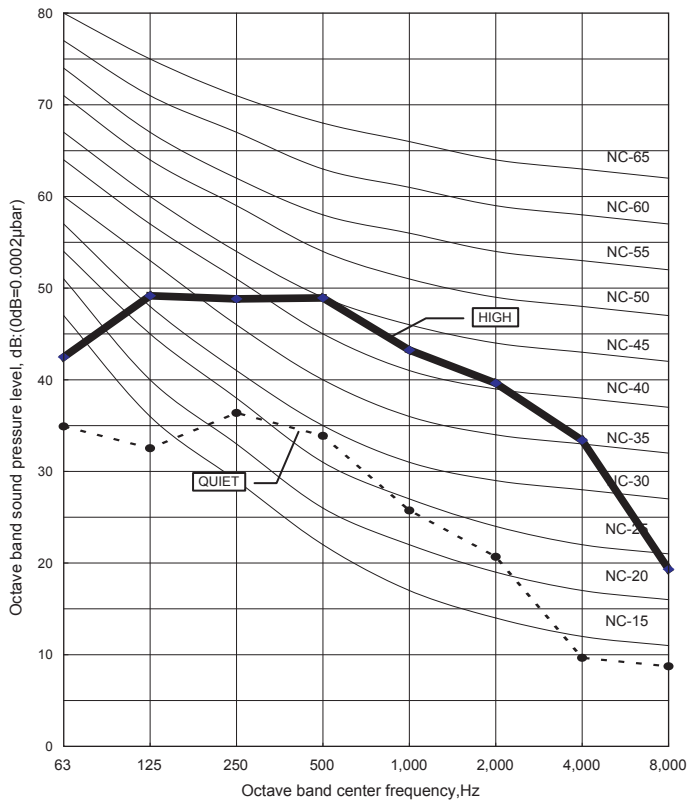


■MODEL : AU∗A24L , AU∗F24L

●COOLING

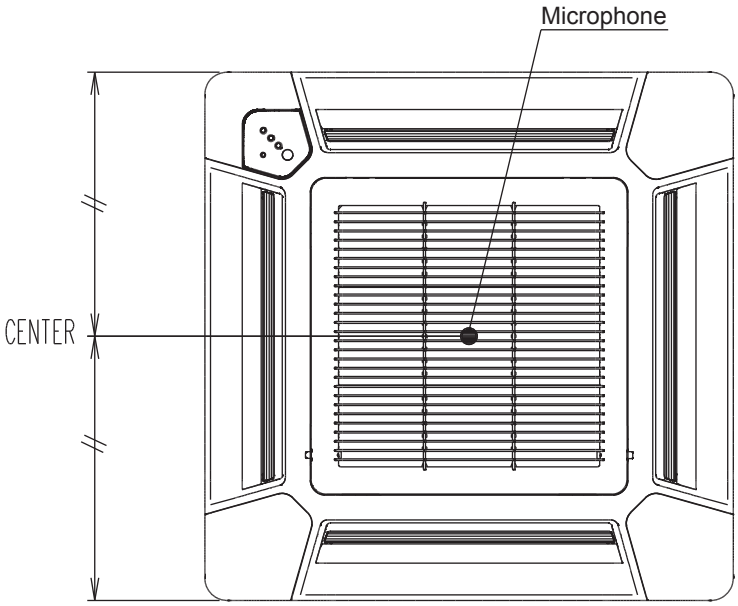


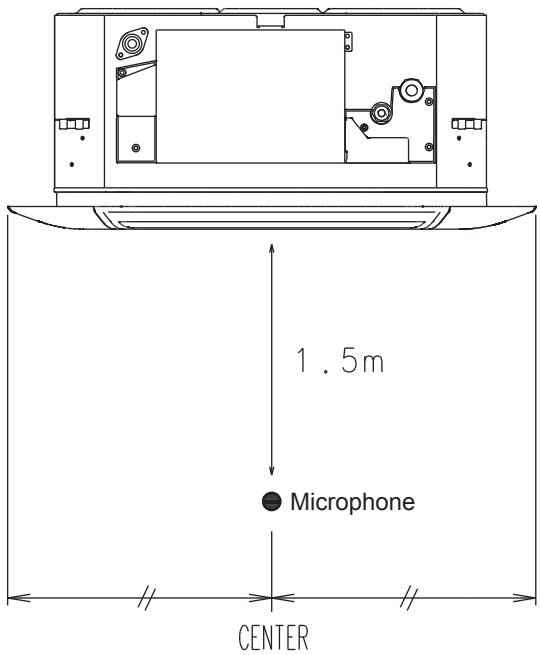
●HEATING



CASSETTE TYPE
AU✱A18-24L

8-2. SOUND LEVEL CHECK POINT





9. ELECTRIC CHARACTERISTICS

Model Name			AU ∗ A18L AU ∗ F18L	AU ∗ A24L AU ∗ F24L
Power Supply	Voltage	V	230 ～	
	Frequency	Hz	50	
Max Operating Current		A	0.2	0.3
*1)Wiring Spec.	Circuit breaker	A	0.3	0.4
	Connection Cable	mm^2	1.5-2.5	1.5-2.5
	Limited wiring length	m	26	31

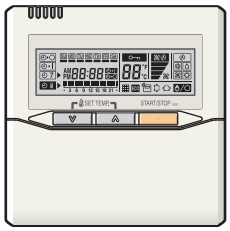
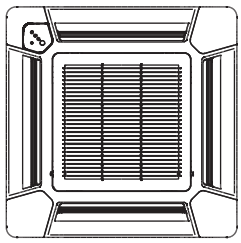
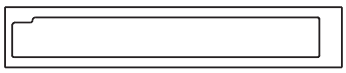
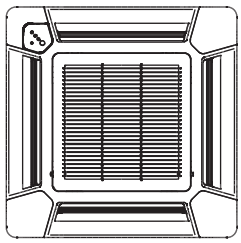
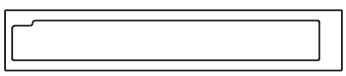
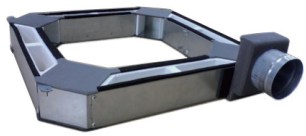
*1) Wiring Spec.
Selected Sample
(Selected based on Japan Electrotechnical Standard and Codes Committee E0005)

10. SAFETY DEVICE

	Protection form	Model	
		AU ∗ A18L AU ∗ F18L	AU ∗ A24L AU ∗ F24L
Circuit protection	Current fuse (PCB)	3.15A 250V	
Fan motor protection	Thermal protection program	140±20°C OFF 110±20°C ON	

CASSETTE TYPE
AU∗A18-24L

11. OPTIONAL PARTS

Exterior	Parts name	Model No.	Summary
	Wired remote controller	UTB-∗UD	Unit control is performed by **wired remote controller**
	Decoration panel	UTG-UF∗A-F	For AU∗A18L, AU∗A24LA Ceiling dirt by discharged wind was made difficult to cling by reviewing the shape of the LOUVER.
	Air outlet shutter plate	UTR-YDZA	For AU∗A18L, AU∗A24LA Air outlet shutter plate is installed at the air outlet when 3-way direction is performed.
	Decoration panel	UTG-UF∗B-F	For AU∗F18L, AU∗A24LB AU∗F24L Ceiling dirt by discharged wind was made difficult to cling by reviewing the shape of the LOUVER.
	Air outlet shutter plate	UTR-YDZB	For AU∗F18L, AU∗A24LB AU∗F24L Air outlet shutter plate is installed at the air outlet when 3-way direction is performed.
	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.

Refrigerant
R410A

OUTDOOR UNIT

2. SINGLE TYPE :

AO＊A18LACL

AO＊A18LALL

AO＊A24LACL

AO＊A24LALL

D2D_AO004E/04
2008.04.08

1. SPECIFICATIONS

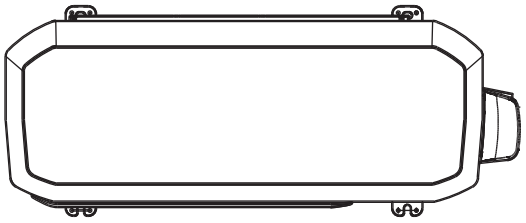
Type					INVERTER HEATPUMP	
Model name					AO ∗ A18LACL AO ∗ A18LALL	AO ∗ A24LACL AO ∗ A24LALL
Power source					230V～ 50Hz	
Available voltage range					198-264V～ 50Hz	
Starting current				A	7.7	10.0
Fan	Airflow rate	Cooling		m^3/h	2000	2470
		Heating			1910	2470
	Type × Q'ty				Propeller × 1	
	Motor output			W	54	65
Sound pressure level		Cooling		dB(A)	50	52
		Heating			50	53
Heat exchanger type		Dimensions (H × W × D)		mm	546 × 876 × 18.2 546 × 842 × 18.2	546 × 866 × 18.2 546 × 832 × 18.2 504 × 589 × 18.2
		Fin pitch			1.30	1.40
		Rows x Stages			2 × 26	2 × 26 1 × 24
		Pipe type			Copper	
		Fin type			Aluminium	
Compressor	Type × Q'ty				Twin Rotary × 1	
	Motor output			W	1100	
Refrigerant		Type			R410A	
		Charge		g	1250	1700
Refrigerant oil		Type			POE	
Enclosure		Material			Steel sheet	
		Colour			Beige (10YR7.5/1.0NN)	
Dimensions (H × W × D)	Net			mm	578 × 790 × 300	578 × 790 × 315
	Gross				648 × 910 × 380	
Weight	Net			kg(lb.)	40 (88)	44 (97)
	Gross				44 (97)	48 (106)
Connection pipe	Size	Liquid		mm	Φ 6.35 (Φ 1/4 in.)	
		Gas			Φ 12.70 (Φ 1/2 in.)	Φ 15.88(Φ 5/8 in.)
	Method				Flare	
	Max. length			m	25(chargeless : 15)	30(chargeless : 15)
	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 : 7.5 m, Height difference : 0 m. (Outdoor unit - Indoor unit)

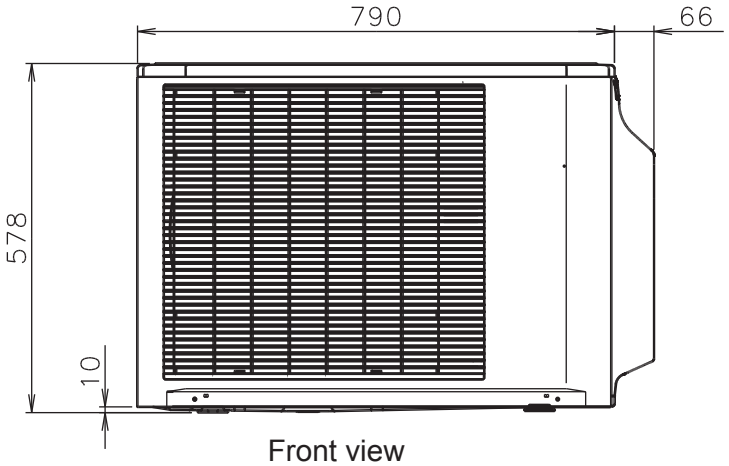
2. DIMENSIONS

■MODELS : AO∗A18L, AO∗A24L

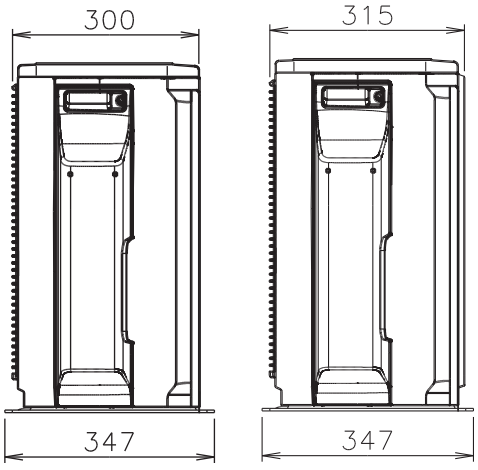
(Unit : mm)



Top view

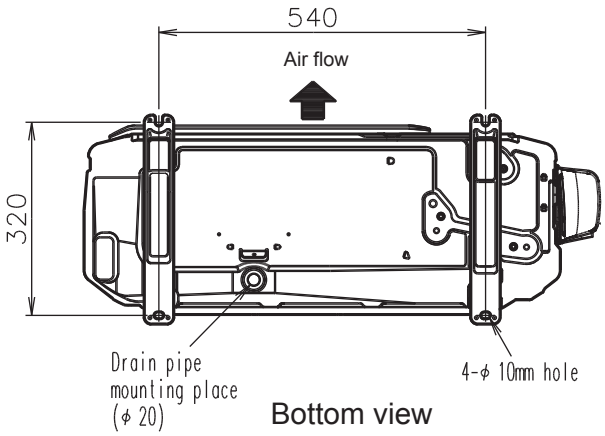


Front view

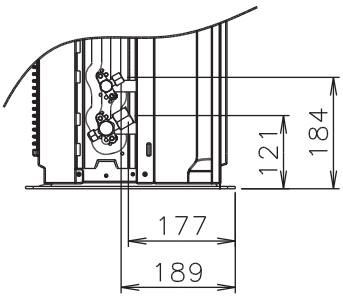


AO∗A18L AO∗A24L

Side view

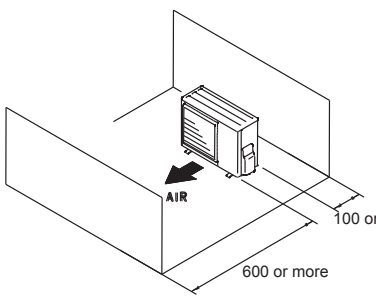


Bottom view

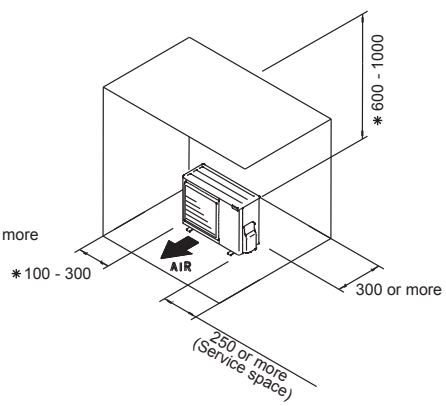


■MOUNTING POSITION

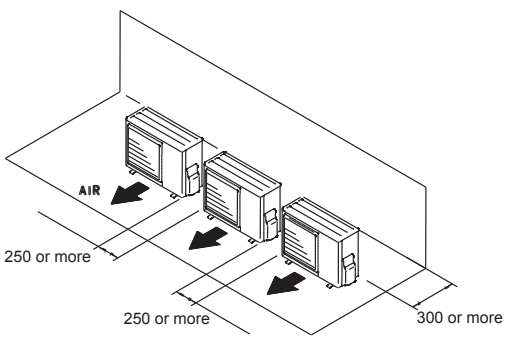
When there are obstacles at the back or front sides.



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

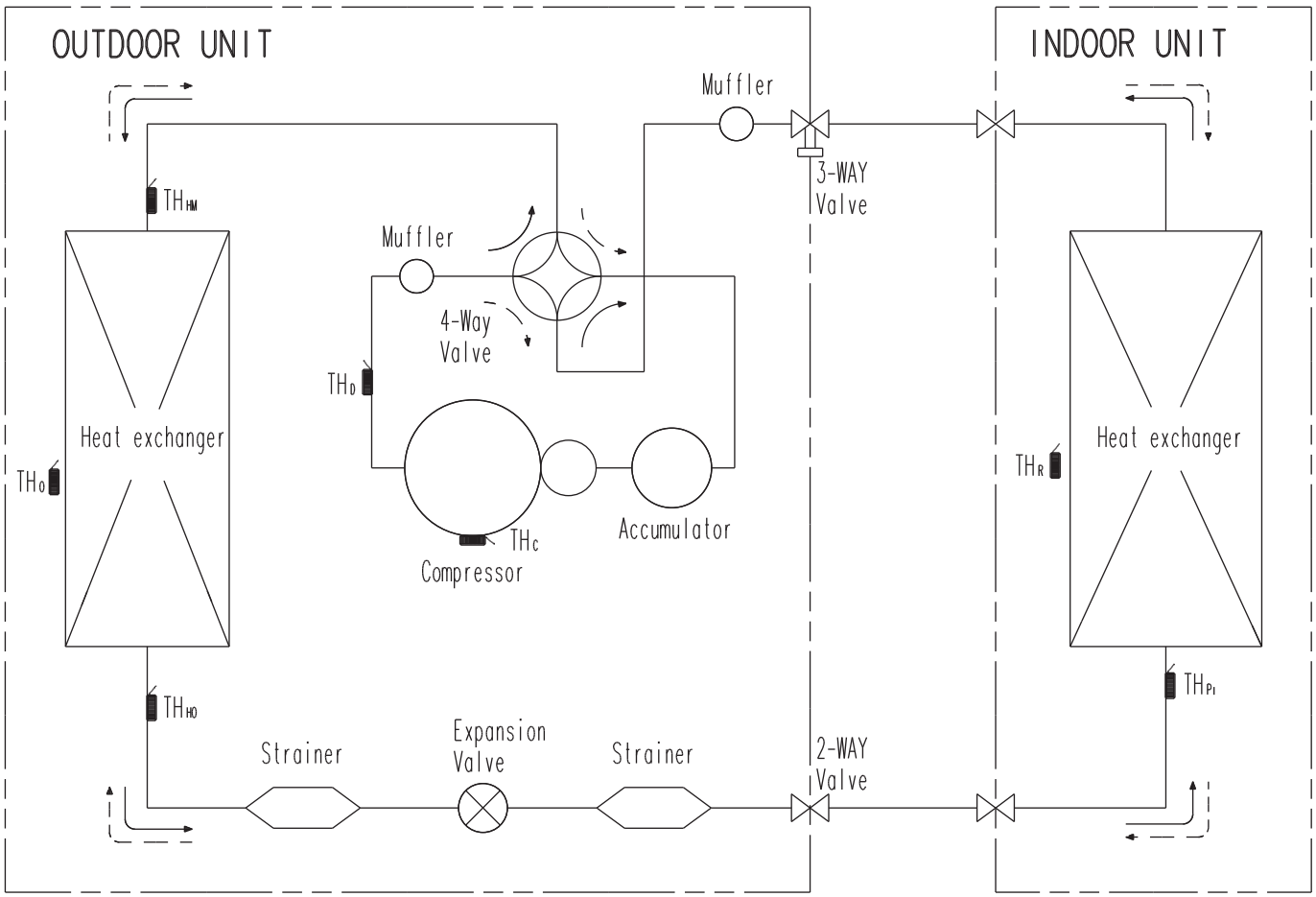


When there are obstacles at the back, side with the installation of more than one unit.



∗If the space is larger that is stated, the condition will be the same as that are no obstacles.

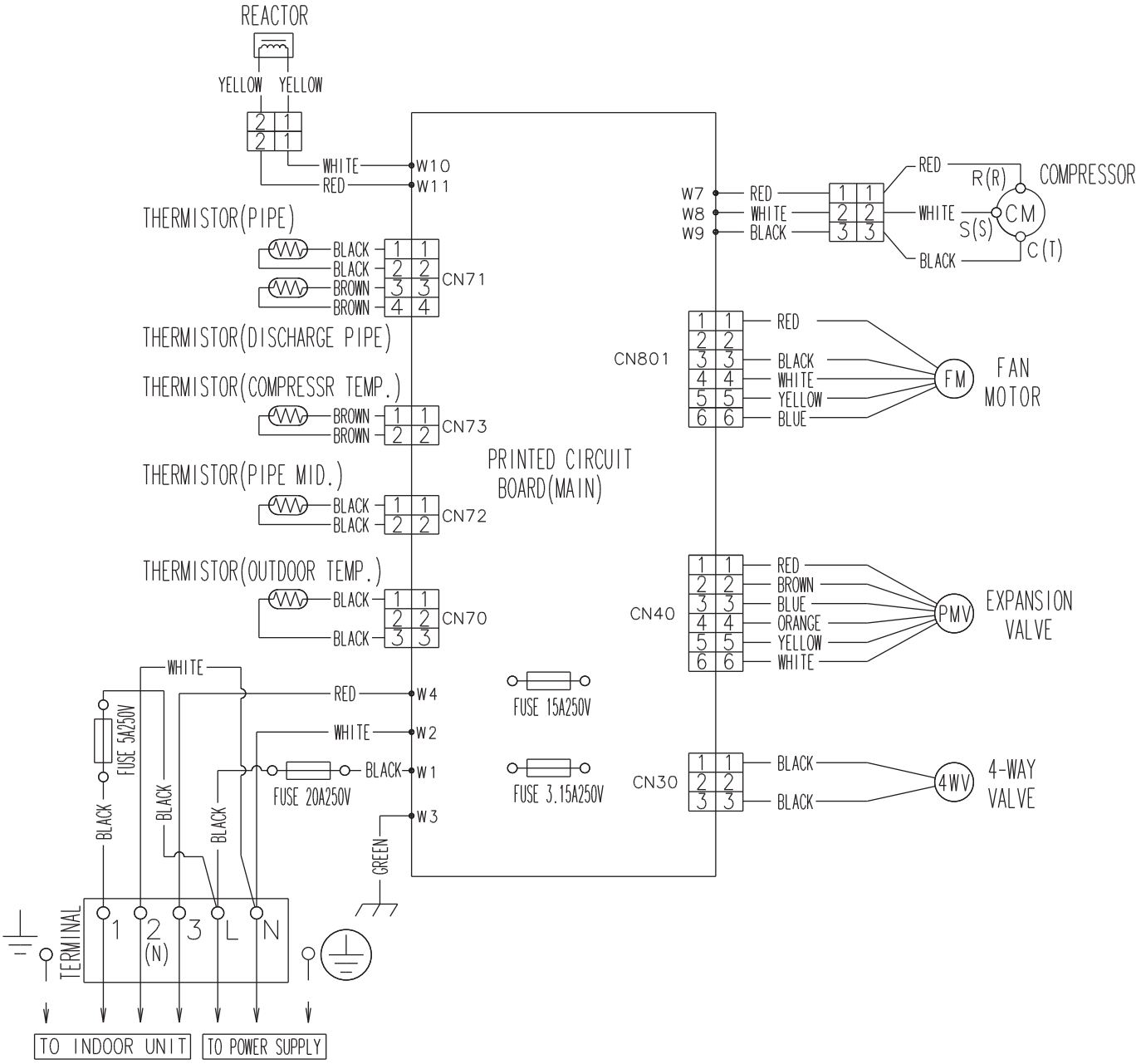
3. REFRIGERANT CIRCUIT



OUTDOOR UNIT
AO*A18-24L

4. WIRING DIAGRAMS

■MODELS : AO*A18L, AO*A24L



OUTDOOR UNIT
AO*A18-24L

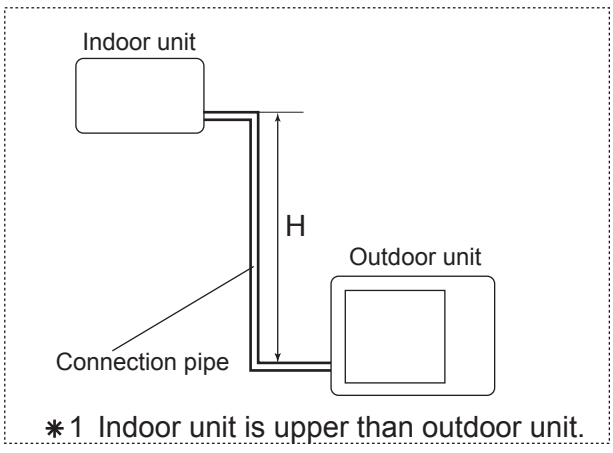
5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

■MODEL : AO∗A18L

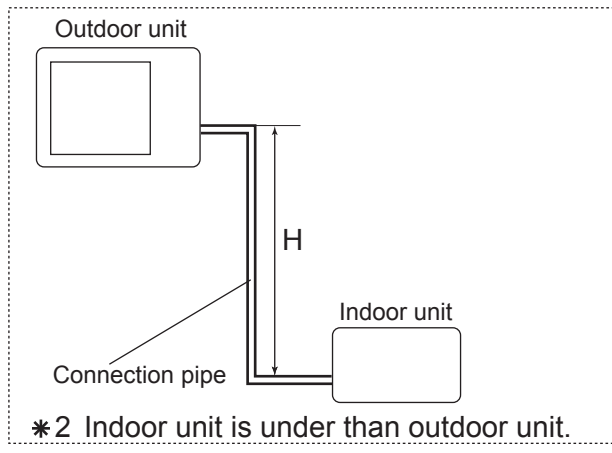
COOLING			Pipe length (m)					
			5	7.5	10	15	20	25
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.953	0.950	0.947
		10	-	-	0.983	0.968	0.966	0.962
		7.5	-	0.988	0.987	0.972	0.970	0.966
		5	0.992	0.992	0.991	0.976	0.974	0.970
		0	1.000	1.000	0.999	0.984	0.982	0.978
	∗2 Indoor unit is under 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 upper 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	0.993	1.000	0.982	0.920	0.894	0.867
		0	0.993	1.000	0.982	0.920	0.894	0.867
	∗2 Indoor unit is under than outdoor unit	-5	0.988	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 upper than outdoor unit.



∗2 Indoor unit is under than outdoor unit.

OUTDOOR UNIT
AO∗A18-24L

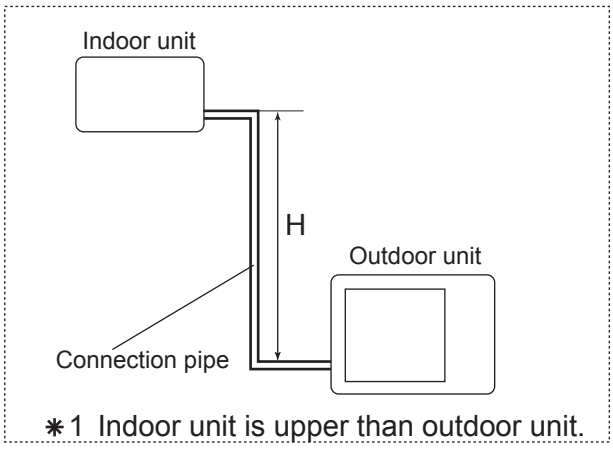
OUTDOOR UNIT
AO∗A18-24L

■MODEL : AO∗A24L

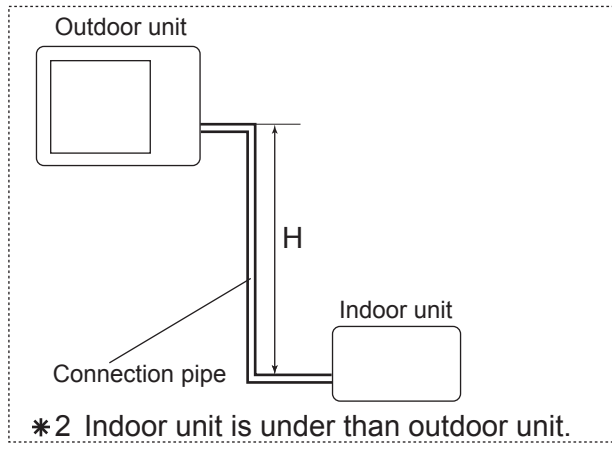
COOLING			Pipe length (m)						
			5	7.5	10	15	20	25	30
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	20	-	-	-	-	0.963	0.961	0.959
		10	-	-	0.984	0.981	0.979	0.977	0.975
		7.5	-	0.988	0.988	0.985	0.983	0.981	0.979
		5	0.992	0.992	0.992	0.989	0.987	0.985	0.983
		0	1.000	1.000	1.000	0.997	0.995	0.993	0.991
	∗2 Indoor unit is under 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 upper 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	1.001	1.000	0.992	0.952	0.927	0.893	0.863
		0	1.001	1.000	0.992	0.952	0.927	0.893	0.863
	∗2 Indoor unit is under than outdoor unit	-5	0.996	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 upper than outdoor unit.



∗2 Indoor unit is under than outdoor unit.

6. ADDITIONAL CHARGE CALCULATION

■MODEL : AO*A18L

Refrigerant type		R410A
Refrigerant amount	g	1250

●REFRIGERANT CHARGE

Pipe length	m	～ 15	20	25	20g/m
Additional charge	g	0 (Chargeless)	+100	+200	

■MODEL : AO*A24L

Refrigerant type		R410A
Refrigerant amount	g	1700

●REFRIGERANT CHARGE

Pipe length	m	～ 15	20	25	30	20g/m
Additional charge	g	0 (Chargeless)	+100	+200	+300	

OUTDOOR UNIT
AO*A18-24L

7. AIR FLOW

■MODEL : AO*A18L

●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*A24L

●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

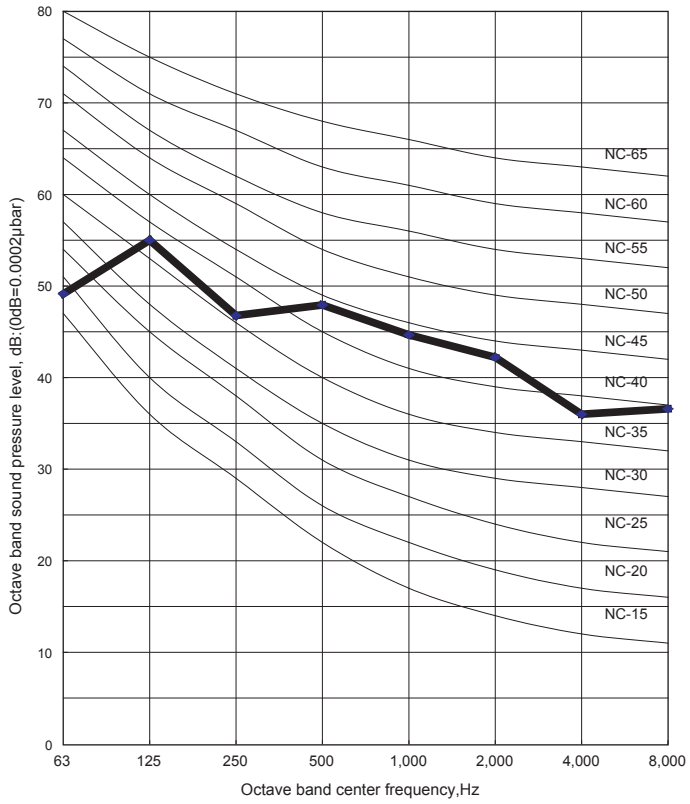
OUTDOOR UNIT
AO*A18-24L

8. OPERATION NOISE

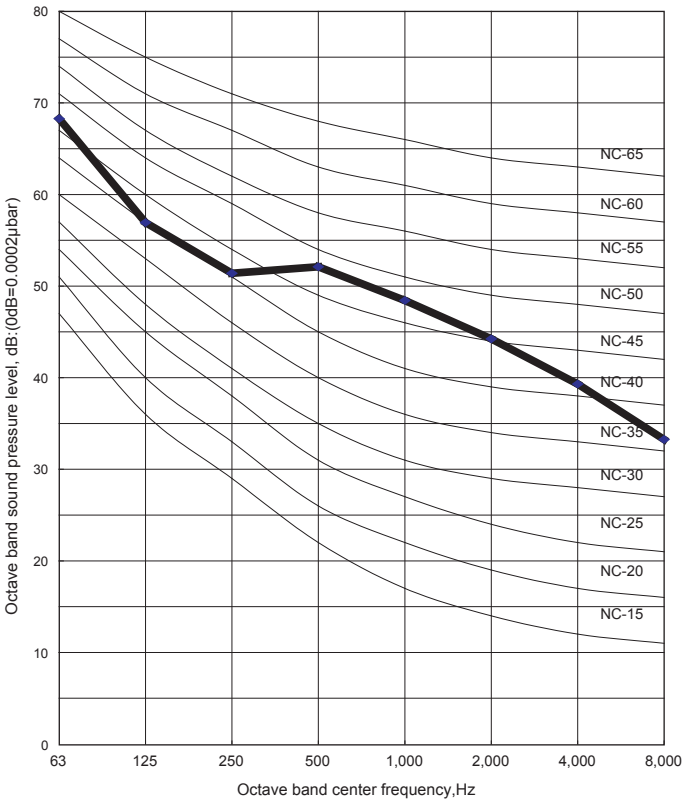
8-1. NOISE LEVEL CURVE

■COOLING

●MODEL : AO∗A18L

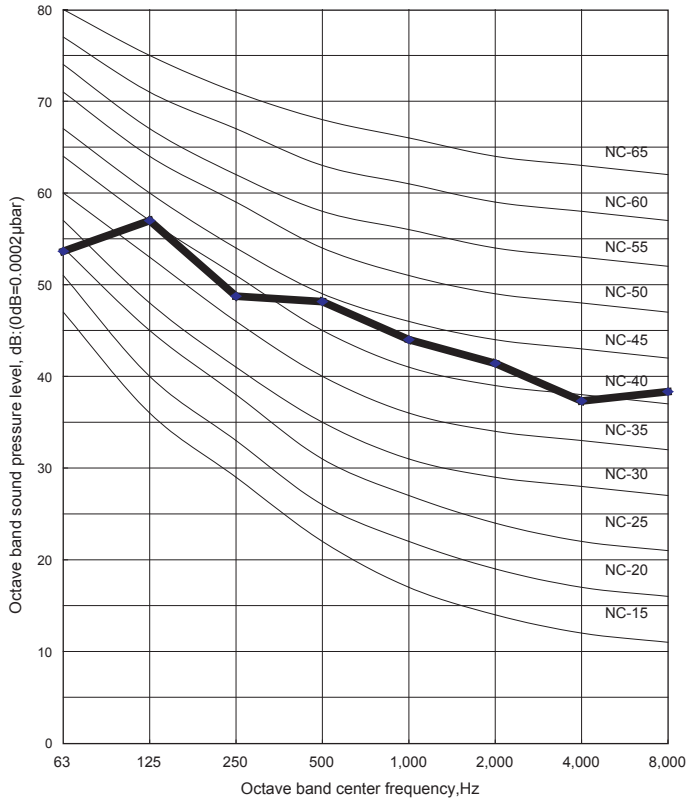


●MODEL : AO∗A24L

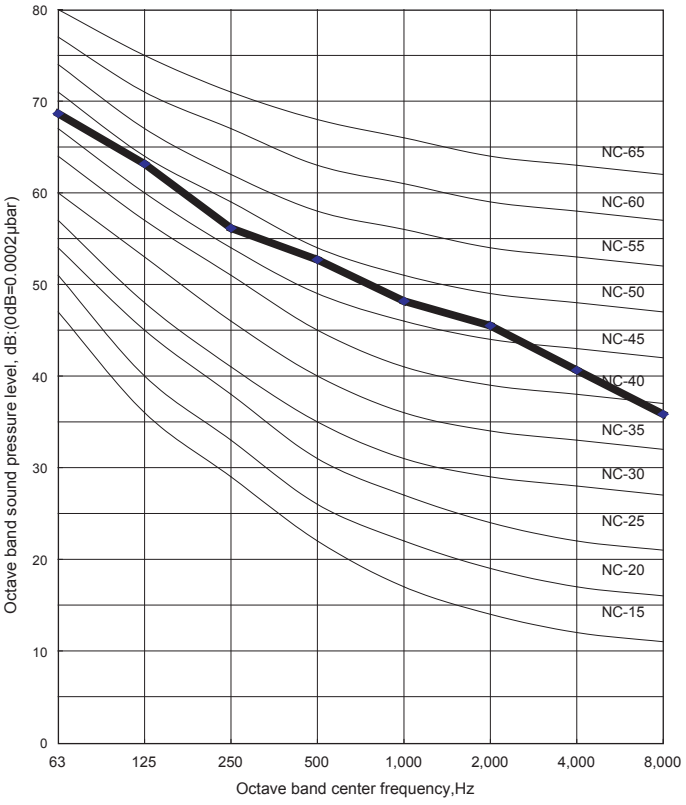


■HEATING

●MODEL : AO∗A18L

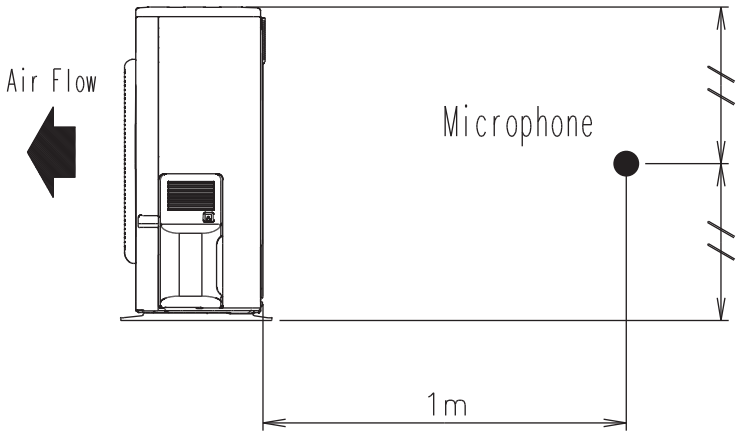


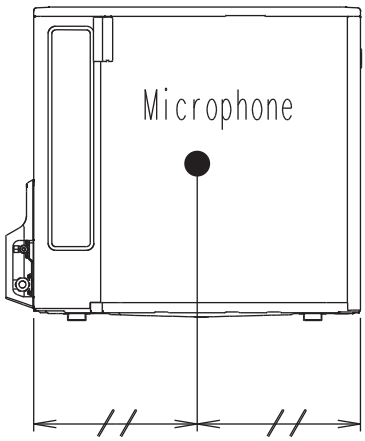
●MODEL : AO∗A24L



OUTDOOR UNIT
AO∗A18-24L

8-2. SOUND LEVEL CHECK POINT





OUTDOOR UNIT
AO*A18-24L

9. ELECTRIC CHARACTERISTICS

Model Name			AO ∗ A18L	AO ∗ A24L
Power Supply	Voltage	V	230～	
	Frequency	Hz	50	
Max Operating Current		A	15.0	16.2
Starting Current		A	7.7	10.0
*1) Wiring Spec.	Main Fuse (Circuit breaker) Current	A	20	20
	Power Cable	mm^2	3.5 - 4.5	
	*2)Limited wiring length	m	24	22

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

*2) Limited Wiring length :
This is the wiring length in case voltage descent is less than 2%.
When the wiring length becomes long, please select the wiring of a more larger diameter.

10. SAFETY DEVICES

	Protection form	Model	
		AO ∗ A18L	AO ∗ A24L
Circuit protection	Current fuse (NEAR THE TERMINAL)	20A 250V	
		5A 250V	
	Current fuse (MAIN PRINTED CIRCUIT BOARD)	15A 250V	
		3.15A 250V	
Fan motor protection	Thermal protection program	OFF:100^{+15}_{-10}°C ON:95^{+15}_{-10}°C	OFF:110^{+15}_{-10}°C ON:105^{+15}_{-10}°C
Compressor protection	Thermal protection program (COMPRESSOR TEMP.)	OFF:110°C ON: After 40 minutes	
	Thermal protection program (DISCHARGE TEMP.)	OFF:110°C ON: After 7 minutes	

OUTDOOR UNIT
AO∗A18-24L

Refrigerant
R410A

OUTDOOR UNIT

2. SINGLE TYPE :

AO＊B18LACL

AO＊B18LALL

AO＊B24LACL

AO＊B24LALL

D2D_AO021E/02
2008.04.08

1. SPECIFICATIONS

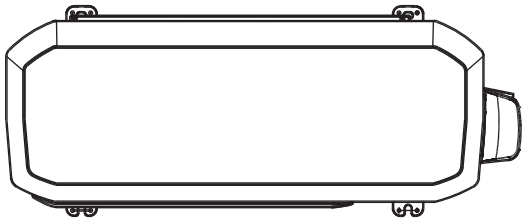
Type				INVERTER HEATPUMP	
Model name				AO*B18LACL AO*B18LALL	AO*B24LACL AO*B24LALL
Power source				230V ~ 50Hz	
Available voltage range				198-264V ~ 50Hz	
Starting current			A	7.7	10.0
Fan	Airflow rate	Cooling	m^3/h	2000	2470
		Heating		1910	2470
	Type × Q'ty			Propeller × 1	
	Motor output		W	54	65
Sound pressure level		Cooling	dB(A)	50	52
		Heating		50	53
Heat exchanger type		Dimensions (H × W × D)	mm	546 × 876 × 18.2 546 × 842 × 18.2	546 × 866 × 18.2 546 × 832 × 18.2 504 × 589 × 18.2
		Fin pitch		1.30	1.40
		Rows x Stages		2 × 26	2 × 26 1 × 24
		Pipe type		Copper	
		Fin type		Aluminium	
Compressor	Type × Q'ty			Twin Rotary × 1	
	Motor output		W	1100	
Refrigerant		Type		R410A	
		Charge	g	1250	1700
Refrigerant oil		Type		POE	
Enclosure		Material		Steel sheet	
		Colour		Beige (10YR7.5/1.0NN)	
Dimensions (H×W×D)	Net		mm	578 × 790 × 300	578 × 790 × 315
	Gross			648 × 910 × 380	
Weight	Net		kg(lb.)	40 (88)	44 (97)
	Gross			44 (97)	48 (106)
Connection pipe	Size	Liquid	mm	Φ 6.35 (Φ 1/4 in.)	
		Gas		Φ 12.70 (Φ 1/2 in.)	Φ 15.88 (Φ 5/8 in.)
	Method			Flare	
	Max. length		m	25(chargeless:15)	30(chargeless:15)
	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 : 7.5 m, Height difference : 0 m. (Outdoor unit - Indoor unit)

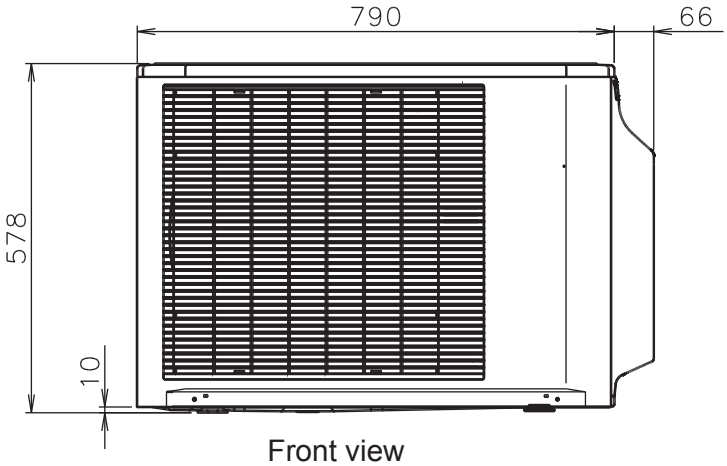
2. DIMENSIONS

■MODEL : AO∗B18L, AO∗B24L

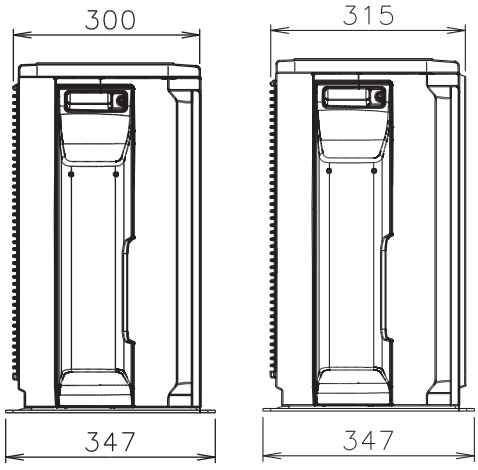
(Unit : mm)



Top view

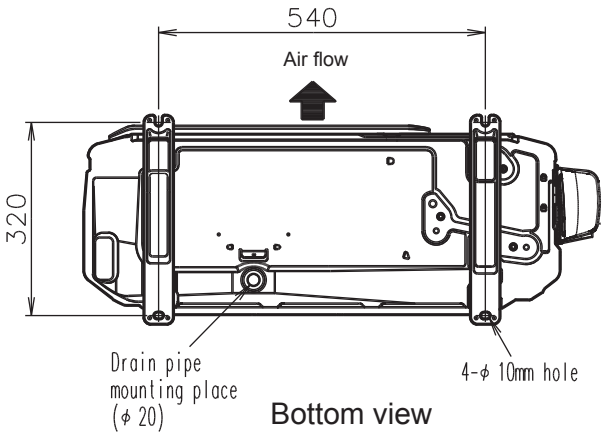


Front view

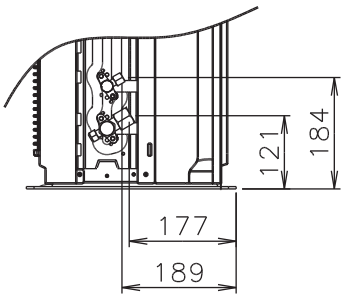


AO∗B18L AO∗B24L

Side view



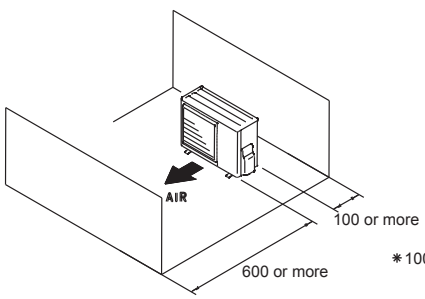
Bottom view



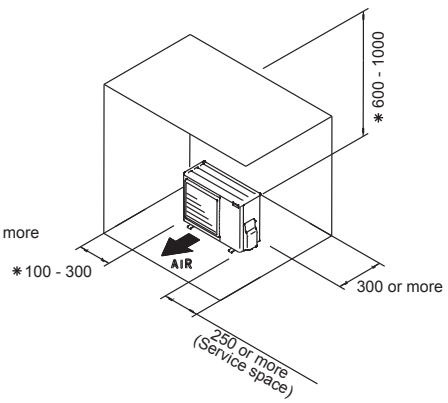
■MOUNTING POSITION

(Unit : mm)

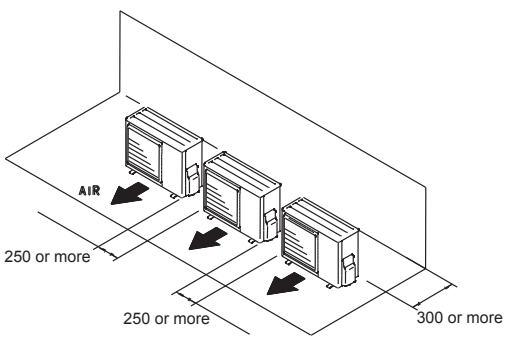
When there are obstacles at the back or front sides.



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

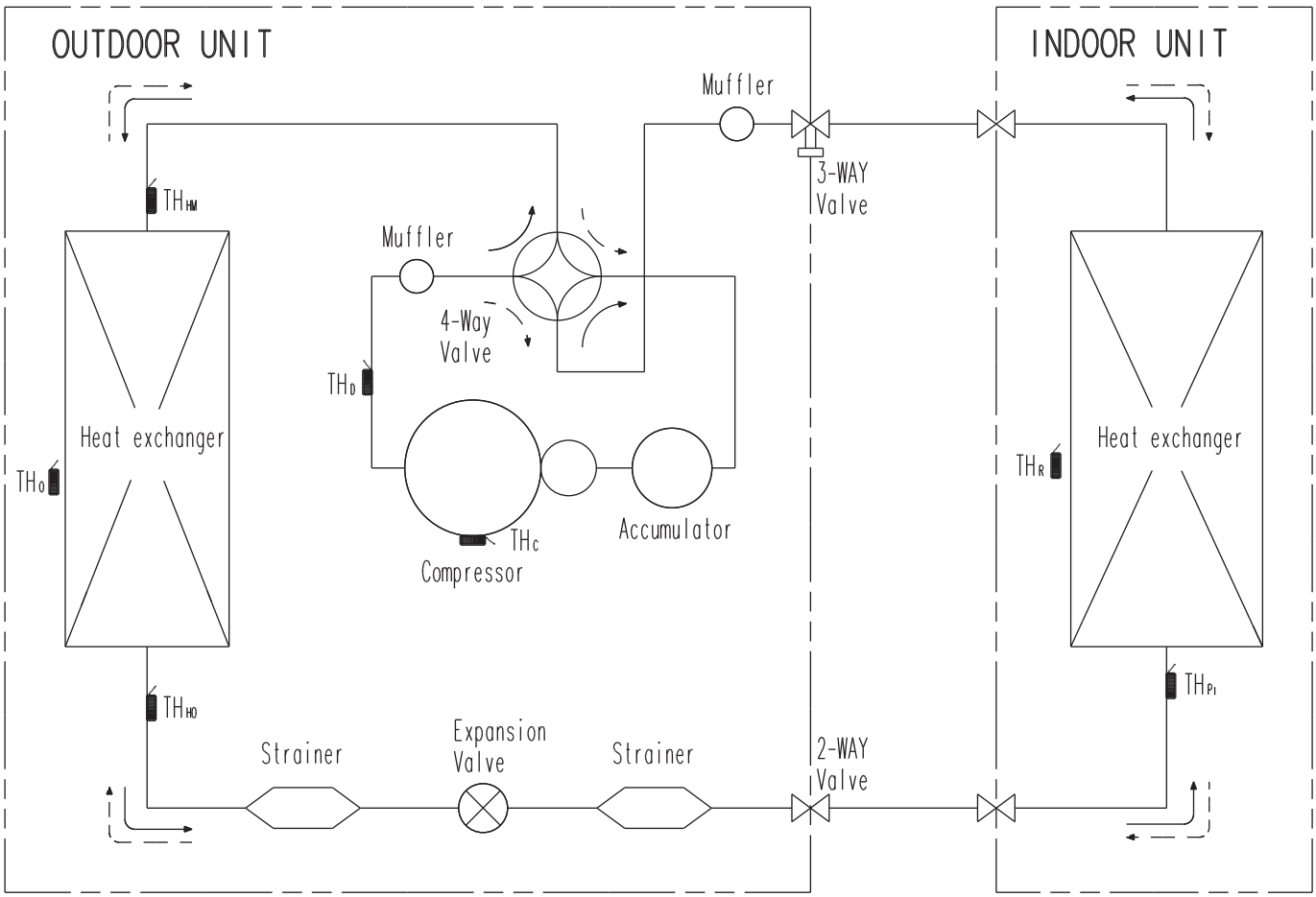


When there are obstacles at the back, side with the installation of more than one unit.



∗If the space is larger that is stated, the condition will be the same as that are no obstacles.

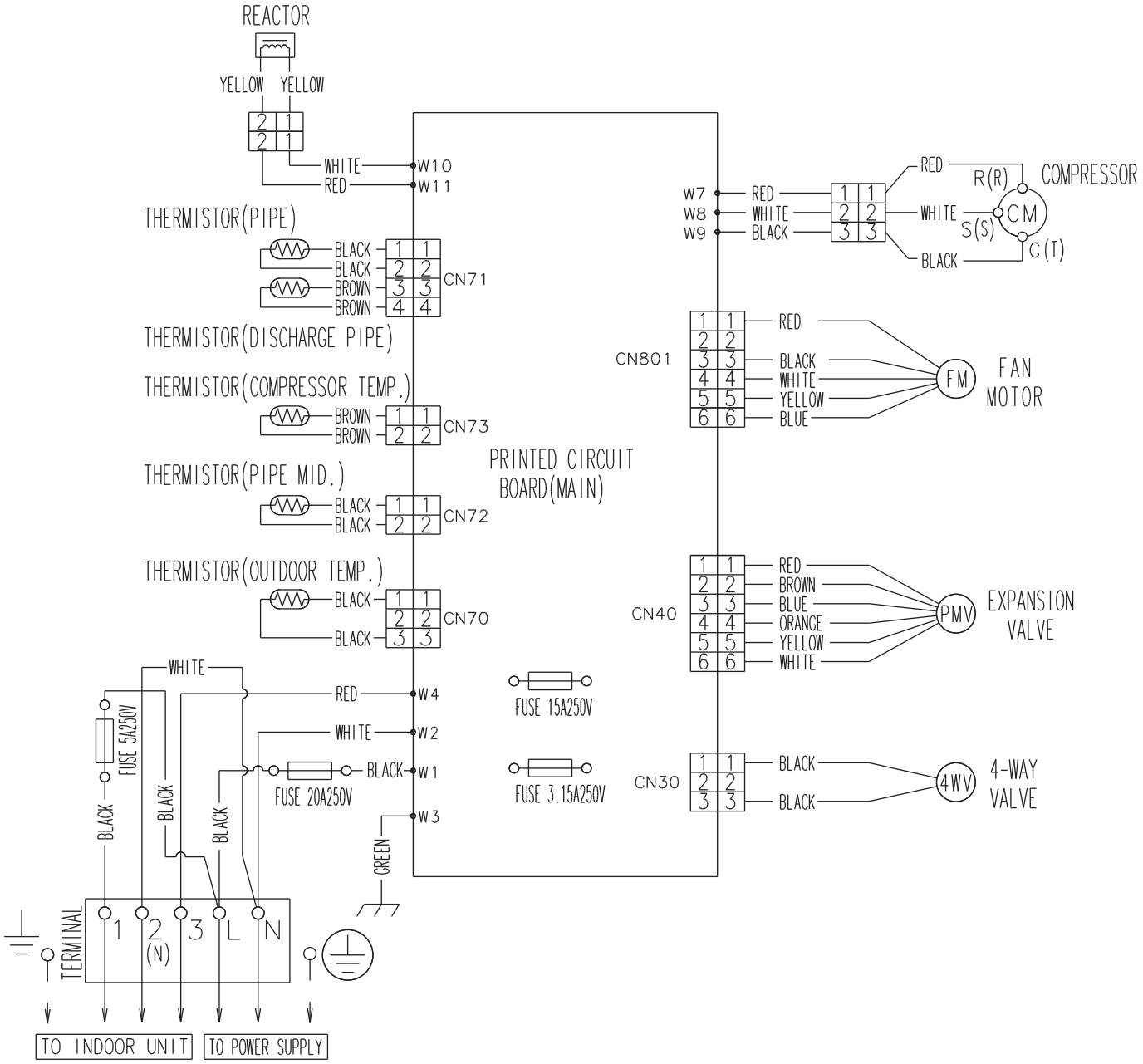
3. REFRIGERANT CIRCUIT



OUTDOOR UNIT
AO*B18-24L

4. WIRING DIAGRAMS

■MODEL : AO*B18L, AO*B24L



OUTDOOR UNIT
AO*B18-24L

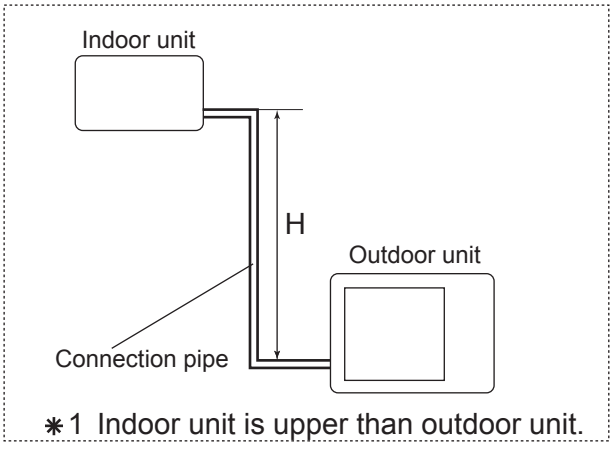
5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

■MODEL : AO∗B18L

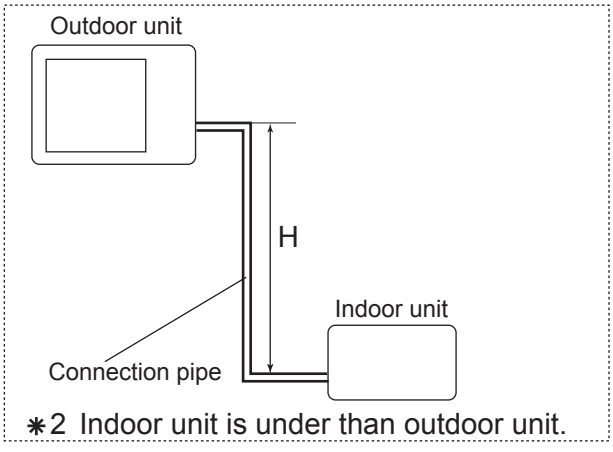
COOLING			Pipe length (m)					
			5	7.5	10	15	20	25
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.953	0.950	0.947
		10	-	-	0.983	0.968	0.966	0.962
		7.5	-	0.988	0.987	0.972	0.970	0.966
		5	0.992	0.992	0.991	0.976	0.974	0.970
		0	1.000	1.000	0.999	0.984	0.982	0.978
	∗2 Indoor unit is under 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 upper 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	0.993	1.000	0.982	0.920	0.894	0.867
		0	0.993	1.000	0.982	0.920	0.894	0.867
	∗2 Indoor unit is under than outdoor unit	-5	0.988	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 upper than outdoor unit.



∗2 Indoor unit is under than outdoor unit.

OUTDOOR UNIT
AO∗B18-24L

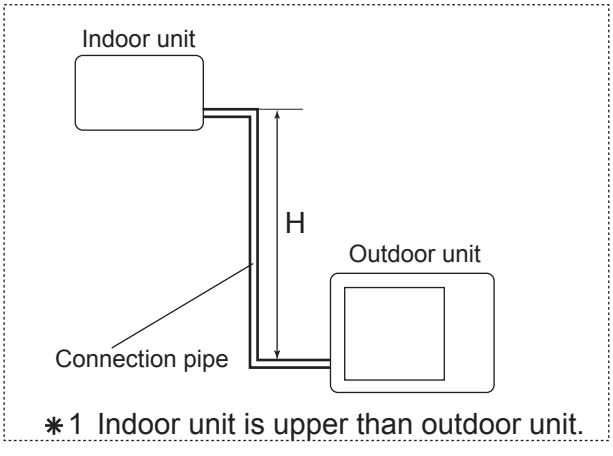
OUTDOOR UNIT
AO∗B18-24L

■MODEL : AO∗B24L

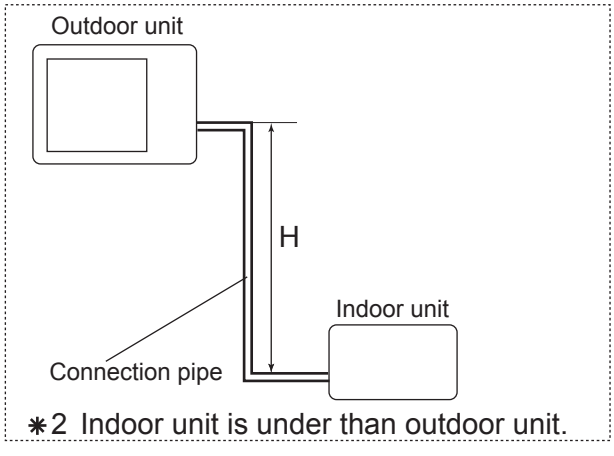
COOLING			Pipe length (m)						
			5	7.5	10	15	20	25	30
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	20	-	-	-	-	0.963	0.961	0.959
		10	-	-	0.984	0.981	0.979	0.977	0.975
		7.5	-	0.988	0.988	0.985	0.983	0.981	0.979
		5	0.992	0.992	0.992	0.989	0.987	0.985	0.983
		0	1.000	1.000	1.000	0.997	0.995	0.993	0.991
	∗2 Indoor unit is under 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 upper 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	1.001	1.000	0.992	0.952	0.927	0.893	0.863
		0	1.001	1.000	0.992	0.952	0.927	0.893	0.863
	∗2 Indoor unit is under than outdoor unit	-5	0.996	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 upper than outdoor unit.



∗2 Indoor unit is under than outdoor unit.

6. ADDITIONAL CHARGE CALCULATION

■MODEL : AO∗B18L

Refrigerant type		R410A
Refrigerant amount	g	1250

●REFRIGERANT CHARGE

Pipe length	m	～ 15	20	25	20g/m
Additional charge	g	0 (Chargeless)	+100	+200	

■MODEL : AO∗B24L

Refrigerant type		R410A
Refrigerant amount	g	1700

●REFRIGERANT CHARGE

Pipe length	m	～ 15	20	25	30	20g/m
Additional charge	g	0 (Chargeless)	+100	+200	+300	

OUTDOOR UNIT
AO∗B18-24L

7. AIR FLOW

■MODEL : AO∗B18L

●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∗B24L

●COOLING

NUMBER OF ROTATIONS (r.p.m)	Airflow	
1050	m^3/h	2470
	l/s	686
	CFM	1454

●HEATING

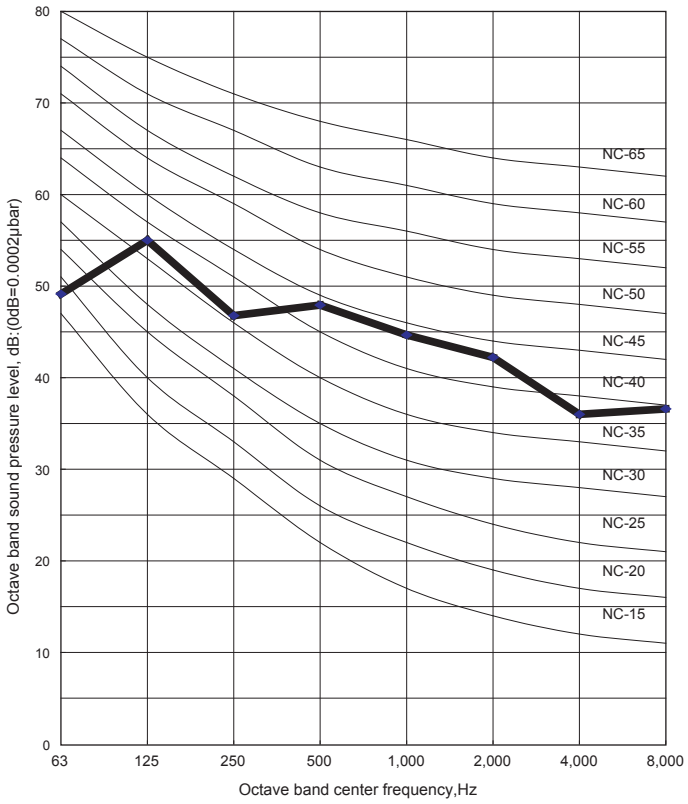
NUMBER OF ROTATIONS (r.p.m)	Airflow	
1050	m^3/h	2470
	l/s	686
	CFM	1454

8. OPERATION NOISE

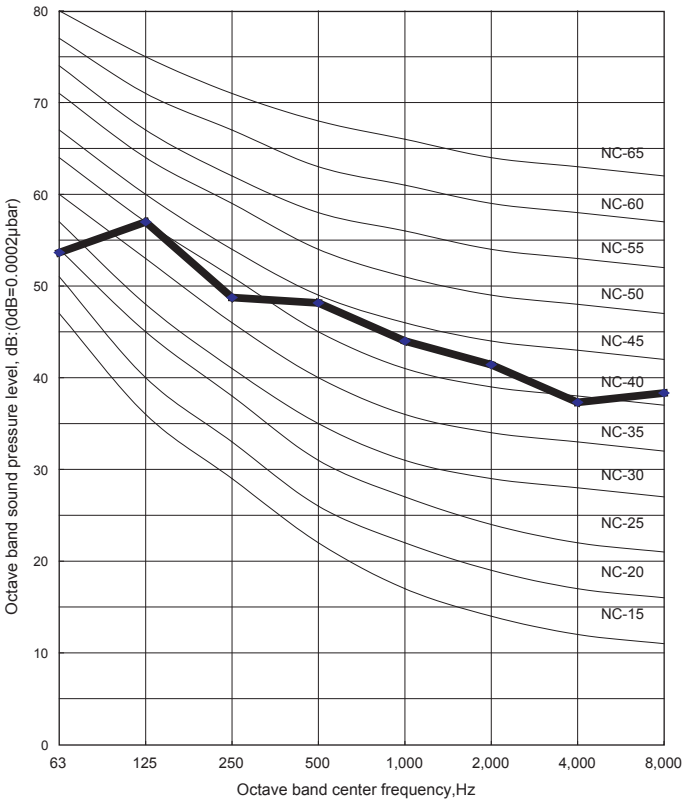
8-1. NOISE LEVEL CURVE

■MODEL : AO∗B18L

●COOLING

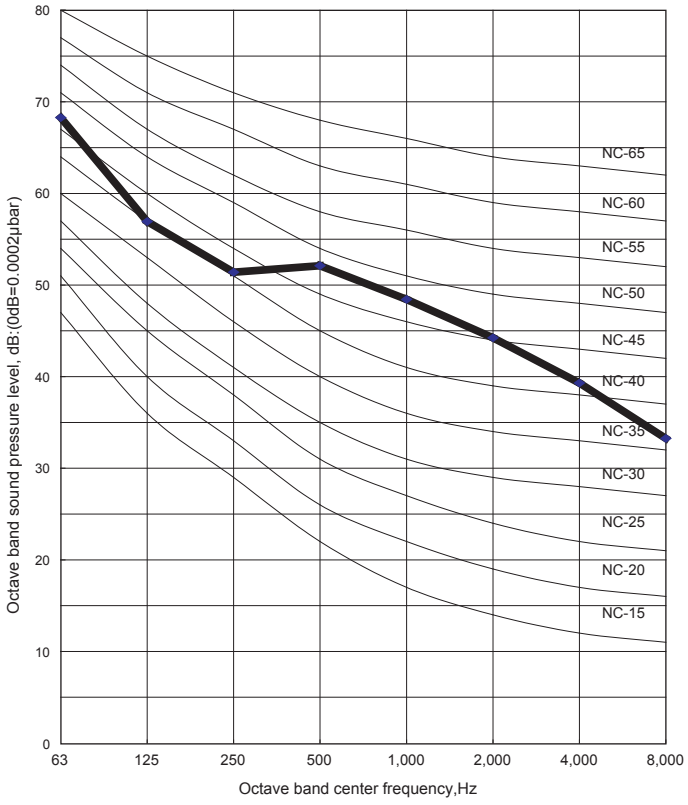


●HEATING

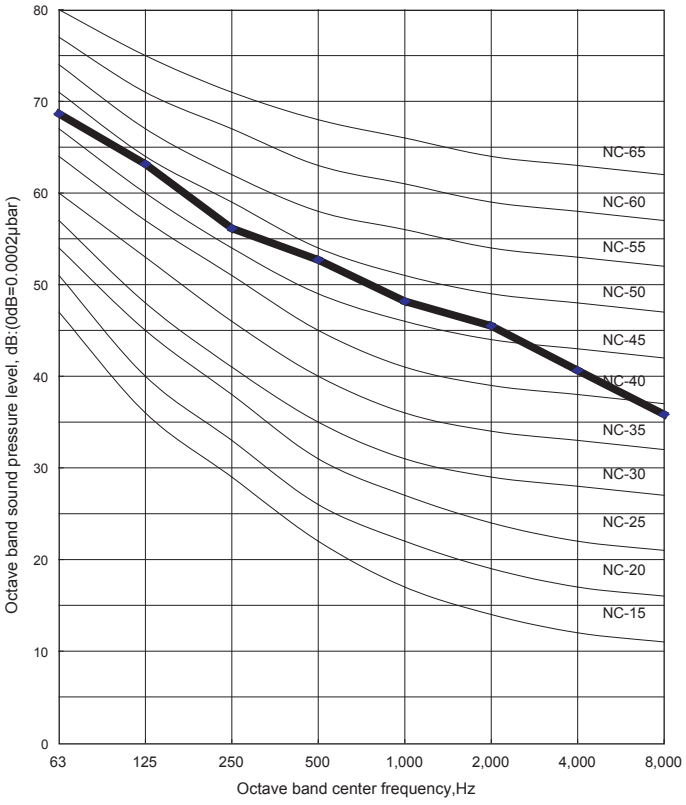


■MODEL : AO∗B24L

●COOLING

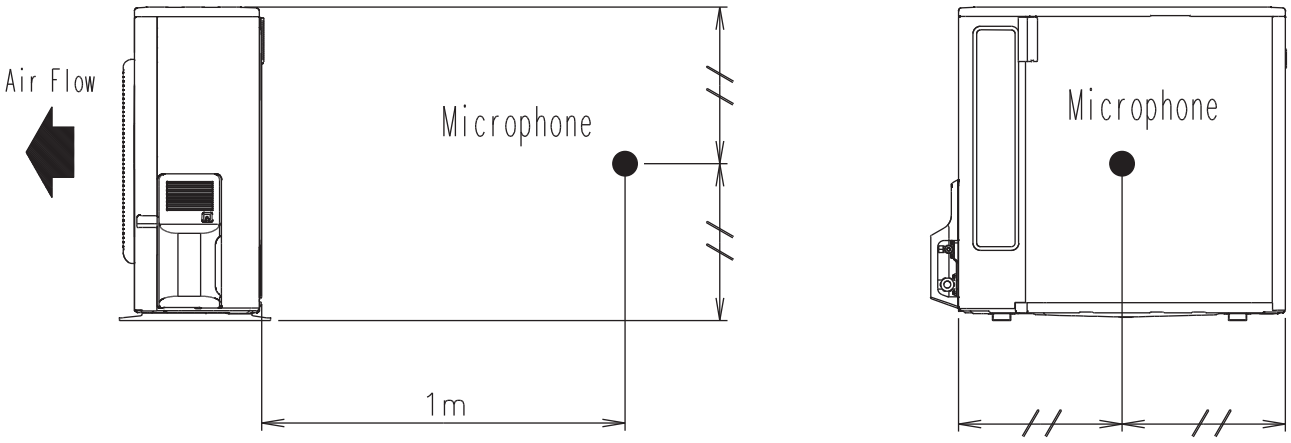


●HEATING



OUTDOOR UNIT
AO∗B18-24L

8-2. SOUND LEVEL CHECK POINT



OUTDOOR UNIT
AO*B18-24L

9. ELECTRIC CHARACTERISTICS

OUTDOOR UNIT
AO＊B18-24L

Model name			AO＊B18L	AO＊B24L
Power supply	Voltage	V	230 ～	
	Frequency	Hz	50	
Max. operating current		A	15.0	16.2
Starting current		A	7.7	10.0
*1) Wiring spec.	Main fuse (Circuit breaker) current	A	20	20
	Power cable	mm^2	4.0	
	*2)Limited wiring length	m	24	22

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

*2) Limited wiring length :
This is the wiring length in case voltage descent is less than 2%.
When the wiring length becomes long, please select the wiring of a more larger diameter.

10. SAFETY DEVICES

	Protection form	Model	
		AO∗B18L	AO∗B24L
Circuit protection	Current fuse (NEAR THE TERMINAL)	20A 250V	
		5A 250V	
	Current fuse (MAIN PRINTED CIRCUIT BOARD)	15A 250V	
		3.15A 250V	
Fan motor protection	Thermal protection program	OFF:100^{+15}_{-10}°C ON:95^{+15}_{-10}°C	OFF:110^{+15}_{-10}°C ON:105^{+15}_{-10}°C
Compressor protection	Thermal protection program (COMPRESSOR TEMP.)	OFF:110°C ON: After 40 minutes	
	Thermal protection program (DISCHARGE TEMP.)	OFF:110°C ON: After 7 minutes	

OUTDOOR UNIT
AO∗B18-24L