

## INDOOR UNIT

### 1. CEILING TYPE :

- AB \* A36LATN**
- AB \* A45LATN**

# 1. FEATURE

## ■ MODEL :

AB\*A36LATN

AB\*A45LATN



## ■ FEATURES

### ● Energy saving rank A

European energy ranking rank A achieved by all DCization and optimization of the refrigerant cycle.

### ● Quiet operation

Air flow mode can be set in 4 steps and more detailed air flow setting is possible.

36 type: 32 dB / 45 type: 34 dB at operation in the Quiet mode.

### ● Filter sign

Dirtying of filter is detected by air conditioner operating time and the user is informed.

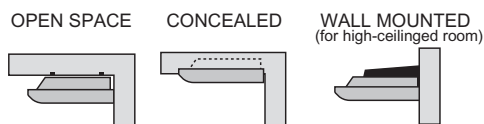
### ● Economy operation

Operation that suppresses maximum power consumption is performed.

### ● Wired/wireless simultaneous use possible

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

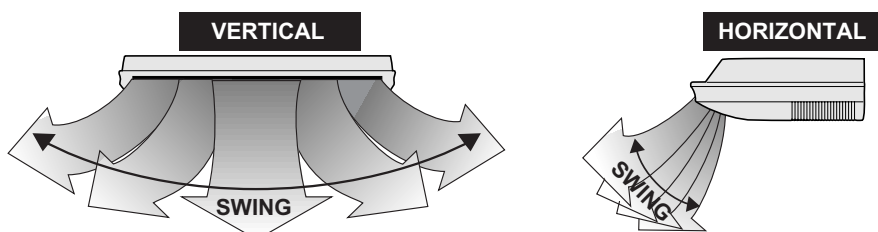
### ● Installation



### ● Double auto swing

Combination of up/down and right/left air direction swing allows three-dimensional air direction control.

Since up/down air direction flaps operate automatically, according to the operating mode of the unit, it is possible to set the air direction based on the operating mode.



- **Filter sign operating time (Standard/long/short/no display)**

Filter sign display time interval and filter sign no display can be selected.

- **Ceiling height (standard/high ceiling)**

Air conditioner operation capacity (air flow) switching is possible as response to height of installation ceiling.

- **Cooling room temperature correction (Standard/low control)**

Air conditioner control temperature can be switched to a little low as response to installation conditions.

- **Heating room temperature correction (Standard/low/slightly high/high control)**

Air conditioning control temperature can be slightly adjusted as response to installation conditions.

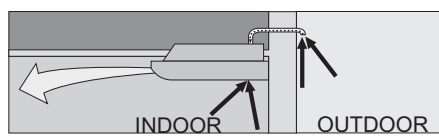
- **Auto restart (ON/OFF)**

ON/OFF of the function which automatically resets operation to the operation state before the power interruption at power recovery when there was a power interruption during operation can be selected.

- **Room temperature sensing function (ON/OFF) ← only at wired remote controller connection**

Sensor which controls the room temperature can be selected in two types: "Indoor sensor only" or "Indoor sensor or wired remote controller sensor can be switched by remote controller operation".

- **Fresh-air intake**



## 2. COMBINATION

### 2-1. OUTDOOR UNIT

■ MODEL :

AO\*A36LATL

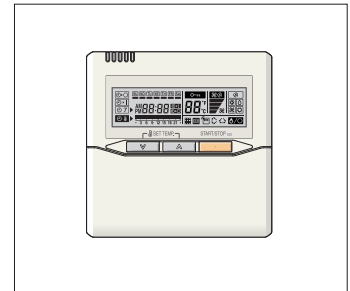
AO\*A45LATL



### 2-2. REMOTE CONTROLLER

#### 2-2-1. WIRED REMOTE CONTROLLER

■ MODEL : UTB-\*UD



#### 2-2-2. WIRELESS REMOTE CONTROLLER

■ MODEL : UTB-\*NA



#### CAUTION

Remote controller is not supplied with the indoor unit.  
Separate purchase is necessary.

### 3. SPECIFICATIONS

Type				CEILING MODEL		
				INVERTER HEATPUMP		
Model name				AB * A36LATN	AB * A45LATN	
Power source				230V~ 50Hz		
Available voltage range				198-264V ~ 50Hz		
European energy label			Cooling	A	A	
			Heating	A	A	
Capacity	Cooling	Rated	kW	10.0	12.5	
			BTU/h	34100	42700	
		Min.-Max.	kW	3.8 - 11.2	4.0 - 14.0	
			BTU/h	13000 - 38200	13700 - 47800	
	Heating	Rated	kW	11.2	14.0	
			BTU/h	38200	47800	
Min.-Max.		kW	4.0 - 14.0	4.2 - 16.2		
		BTU/h	13700 - 47800	14300 - 55300		
Input power	Cooling	Rated	kW	3.11	3.89	
		*Max.		4.33	4.56	
	Heating	Rated		3.02	3.77	
		*Max.		4.33	4.56	
Current	Cooling	Rated	A	13.6	17.0	
		*Max.		19.0	20.0	
	Heating	Rated		13.2	16.5	
		*Max.		19.0	20.0	
EER			Cooling	kW/kW	3.21	3.21
COP			Heating		3.71	3.71
Moisture removal			l/h (pints/h)	3.0 (5.3)	4.5 ( 7.9 )	
Fan	Airflow rate	Cooling	High	m <sup>3</sup> /h	1900	2100
			Med		1500	1700
			Low		1200	1400
			Quiet		1000	1100
		Heating	High		1900	2100
			Med		1500	1700
			Low		1200	1400
			Quiet		1000	1100
	Type × Q'ty			Sirocco × 4		
	Motor output			W	130	130
Sound pressure level	Cooling	High	dB(A)	47	49	
		Med		43	45	
		Low		37	39	
		Quiet		32	34	
	Heating	High		47	49	
		Med		43	45	
		Low		37	39	
		Quiet		32	34	
Heat exchanger type	Dimensions (H × W × D)		mm	252 × 1350 × 39.9	252 × 1350 × 39.9	
	Fin pitch			1.45	1.45	
	Rows x Stages			3 × 12	3 × 12	
	Pipe type		Copper			
	Fin type		Aluminium			
Enclosure	Material		ABS			
	Colour		White			
Dimensions (H × W × D)	Net		mm	240 × 1660 × 700		
	Gross			318 × 1800 × 790		
Weight	Net		kg(lb.)	46 ( 101 )	46 ( 101 )	
	Gross			58 ( 128 )	58 ( 128 )	
Connection pipe	Size	Liquid	mm	φ 9.52 ( φ 3 / 8 in.)	φ 9.52 ( φ 3 / 8 in.)	
		Gas		φ 15.88 ( φ 5 / 8 in.)	φ 15.88 ( φ 5 / 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 or Wired		
Drain pipe	Material		ABS			
	Size		mm	Outer diameter : 26.0 / Inner diameter : 21.5		

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.

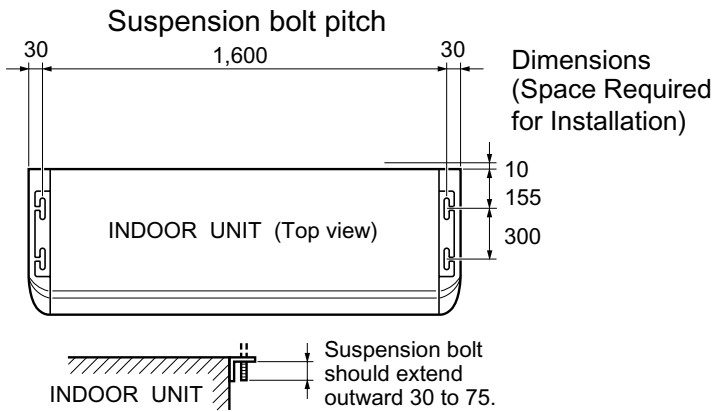
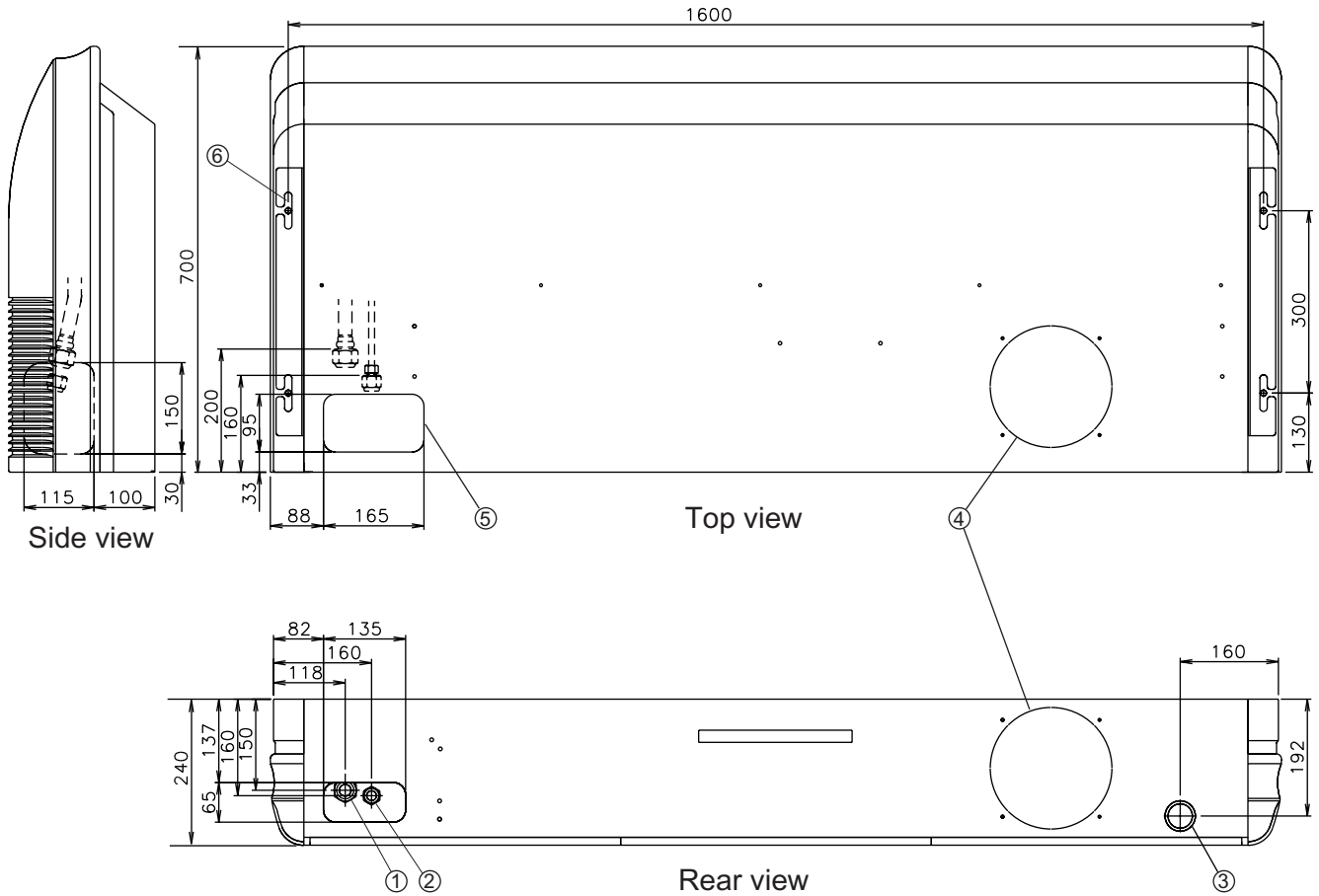
Pipe length : 7.5 m, Height difference : 0 m.(Outdoor unit - Indoor unit)

\*The maximum current and the maximum input value are the maximum value when operated within the operation range(temperature)

# 4. DIMENSIONS

■ MODEL : AB\*A36L, AB\*A45L

(Unit : mm)

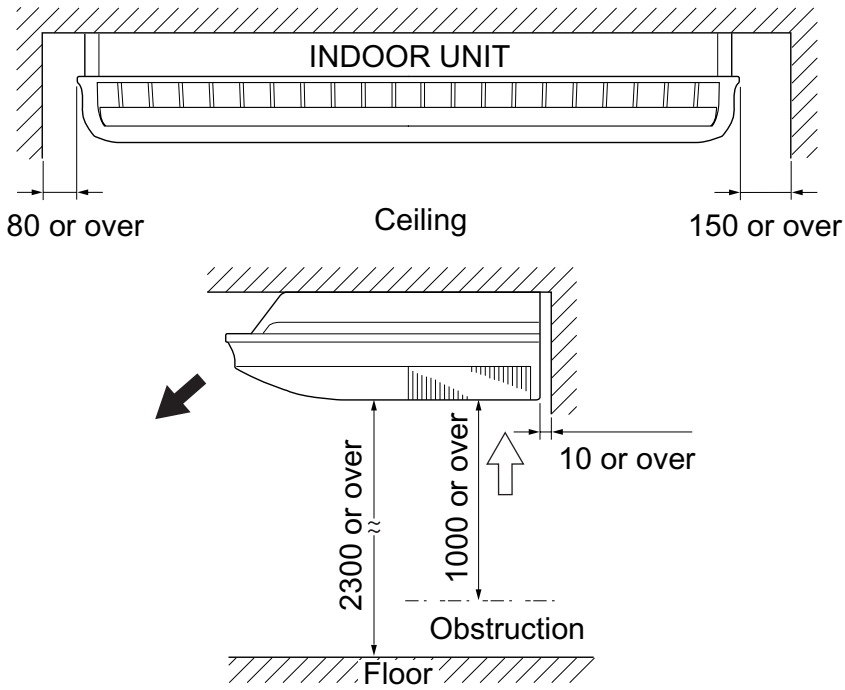


- ① Refrigerant piping flare connection (Gas)
- ② Refrigerant piping flare connection (Liquid)
- ③ Drain piping connection
- ④ Knock out hole for fresh air
- ⑤ Knock out hole for refrigerant piping
- ⑥ Hole for lifting bolt (Use M10 screw bolt)

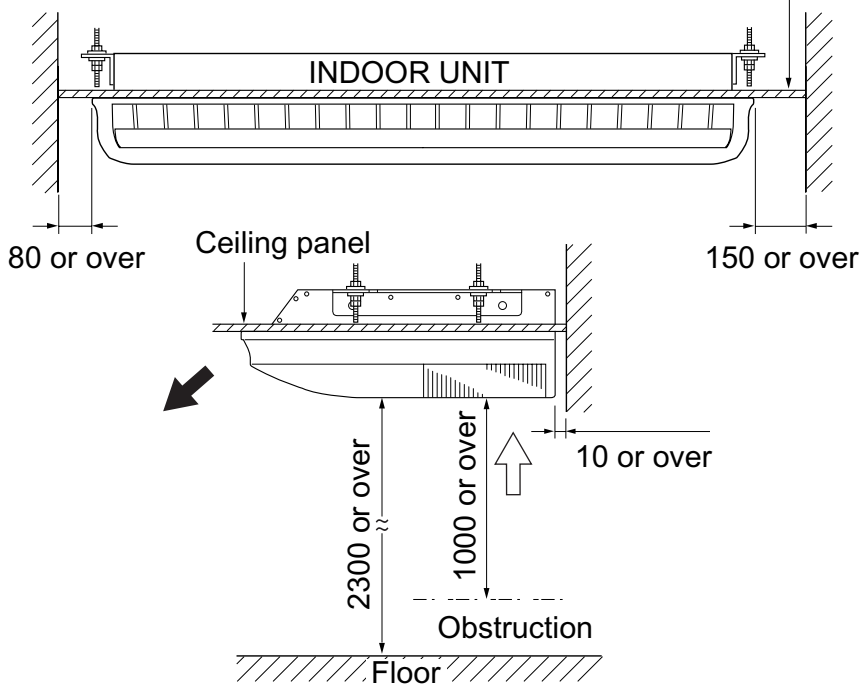
# ■ MOUNTING POSITION

(Unit : mm)

## Ceiling

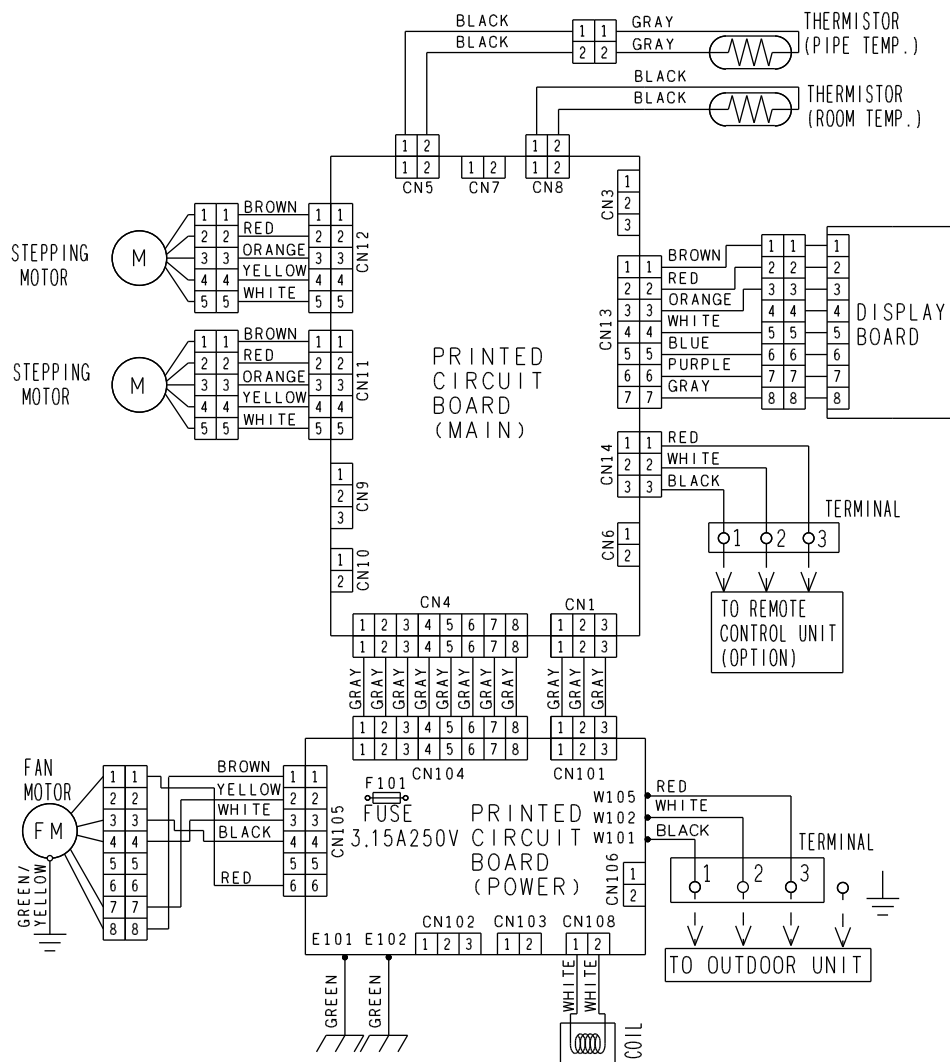


## Ceiling panel



# 5. WIRING DIAGRAMS

■ MODEL : AB\*A36L, AB\*A45L





# 6. CAPACITY TABLE

## 6-1. COOLING CAPACITY

This table is created using the maximum capacity.

### ■ MODEL : AB \* A36L

AFR	31.7
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		Indoor temperature																								
		18			21			23			25			27			29			32						
		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				
	-15	8.89	6.38	1.15	9.90	6.42	1.17	10.24	6.97	1.18	10.91	7.00	1.19	11.25	7.56	1.19	11.93	7.53	1.20	12.60	8.02	1.22				
	-10	8.59	6.25	1.39	9.56	6.29	1.41	9.89	6.84	1.42	10.54	6.86	1.43	10.87	7.41	1.44	11.52	7.38	1.45	12.17	7.86	1.47				
	0	8.71	6.37	1.25	9.70	6.41	1.27	10.04	6.97	1.27	10.70	6.99	1.29	11.03	7.55	1.29	11.69	7.52	1.30	12.35	8.01	1.32				
	5	8.40	6.18	1.48	9.35	6.22	1.50	9.67	6.76	1.51	10.31	6.78	1.52	10.63	7.32	1.53	11.27	7.30	1.55	11.90	7.77	1.56				
	10	8.41	6.19	1.43	9.37	6.22	1.45	9.69	6.77	1.46	10.32	6.79	1.47	10.64	7.33	1.48	11.28	7.30	1.50	11.92	7.78	1.51				
	15	8.07	6.05	1.66	8.99	6.08	1.69	9.29	6.61	1.69	9.91	6.63	1.71	10.21	7.17	1.72	10.82	7.14	1.74	11.44	7.60	1.75				
	20	9.74	6.75	2.49	10.85	6.79	2.53	11.22	7.38	2.54	11.96	7.40	2.57	12.33	8.00	2.58	13.07	7.96	2.61	13.81	8.48	2.63				
	25	9.58	6.69	2.59	10.67	6.73	2.63	11.03	7.31	2.65	11.76	7.34	2.67	12.13	7.92	2.69	12.85	7.89	2.71	13.58	8.40	2.74				
	30	9.12	6.48	2.90	10.16	6.52	2.94	10.51	7.09	2.96	11.20	7.11	2.99	11.55	7.68	3.00	12.24	7.65	3.03	12.94	8.15	3.06				
	35	8.85	6.37	3.37	9.86	6.40	3.42	10.19	6.96	3.44	10.86	6.99	3.47	11.20	7.54	3.49	11.87	7.51	3.53	12.54	8.00	3.56				
	40	7.28	5.72	2.87	8.11	5.76	2.92	8.38	6.26	2.93	8.94	6.28	2.96	9.21	6.78	2.98	9.77	6.75	3.01	10.32	7.19	3.04				
46	5.17	4.92	2.22	5.76	4.95	2.25	5.95	5.38	2.26	6.35	5.40	2.29	6.54	5.83	2.30	6.94	5.81	2.32	7.33	6.19	2.34					

### ■ MODEL : AB \* A45L

AFR	35.0
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		Indoor temperature																							
		18			21			23			25			27			29			32					
		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			
	-15	10.77	8.56	1.38	11.99	8.61	1.40	12.40	9.36	1.41	13.22	9.39	1.42	13.63	10.15	1.43	14.44	10.11	1.45	15.26	10.76	1.46			
	-10	10.39	8.37	1.66	11.57	8.42	1.69	11.97	9.15	1.70	12.76	9.18	1.71	13.15	9.92	1.72	13.94	9.88	1.74	14.73	10.52	1.76			
	0	10.56	8.47	1.48	11.77	8.52	1.51	12.17	9.26	1.51	12.97	9.29	1.53	13.37	10.03	1.54	14.17	9.99	1.55	14.97	10.64	1.57			
	5	10.17	8.27	1.76	11.33	8.32	1.78	11.72	9.04	1.79	12.49	9.07	1.81	12.88	9.80	1.82	13.65	9.76	1.84	14.42	10.39	1.86			
	10	10.20	8.28	1.70	11.36	8.33	1.72	11.75	9.06	1.73	12.52	9.08	1.75	12.91	9.81	1.76	13.68	9.77	1.78	14.46	10.41	1.79			
	15	9.78	8.07	1.97	10.89	8.11	2.00	11.26	8.82	2.01	12.00	8.85	2.03	12.37	9.56	2.04	13.12	9.52	2.06	13.86	10.14	2.08			
	20	11.87	9.15	2.95	13.22	9.21	3.00	13.67	10.01	3.02	14.58	10.04	3.05	15.03	10.85	3.06	15.93	10.80	3.09	16.83	11.51	3.12			
	25	11.68	9.05	3.06	13.01	9.11	3.11	13.46	9.90	3.13	14.34	9.93	3.16	14.79	10.73	3.17	15.67	10.68	3.21	16.56	11.38	3.24			
	30	11.12	8.76	3.43	12.39	8.81	3.48	12.81	9.58	3.50	13.66	9.61	3.53	14.08	10.38	3.55	14.92	10.34	3.59	15.77	11.01	3.62			
	35	11.06	8.72	4.21	12.32	8.77	4.27	12.74	9.54	4.29	13.58	9.57	4.34	14.00	10.33	4.36	14.84	10.29	4.40	15.68	10.96	4.45			
	40	8.83	7.58	3.39	9.83	7.62	3.44	10.17	8.29	3.46	10.84	8.31	3.50	11.17	8.98	3.52	11.84	8.94	3.55	12.51	9.53	3.59			
46	6.15	6.28	2.58	6.85	6.32	2.62	7.08	6.87	2.63	7.55	6.89	2.66	7.78	7.44	2.67	8.25	7.41	2.70	8.72	7.90	2.73				

AFR : Air flow rate (m<sup>3</sup>/min)  
 TC : Total capacity (kW)  
 SHC : Sensible Heat capacity (kW)  
 PI : Power Input (kW)

## 6-2. HEATING CAPACITY

This table is created using the maximum capacity.

### ■ MODEL : AB\*A36L

AFR	31.7
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		Indoor temperature										
		°CDB		16		18		20		22		24
Outdoor temperature	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	-15	-16	10.11	3.65	9.87	3.72	9.63	3.80	9.39	3.87	9.15	3.95
	-10	-11	10.88	3.68	10.62	3.75	10.36	3.83	10.10	3.90	9.84	3.98
	-5	-7	11.57	3.63	11.29	3.71	11.02	3.78	10.74	3.86	10.47	3.93
	0	-2	12.48	3.64	12.18	3.71	11.88	3.79	11.59	3.86	11.29	3.94
	5	3	13.84	3.63	13.51	3.71	13.18	3.79	12.85	3.86	12.52	3.94
	7	6	14.70	3.62	14.35	3.69	14.00	3.77	13.65	3.84	13.30	3.92
	10	8	15.27	3.62	14.91	3.69	14.55	3.77	14.18	3.85	13.82	3.92
	15	10	14.98	3.29	14.62	3.35	14.26	3.42	13.91	3.49	13.55	3.54
	20	15	14.40	2.83	14.05	2.89	13.71	2.95	13.37	3.01	13.02	3.06
24	18	15.07	2.81	14.71	2.87	14.35	2.92	13.99	2.98	13.64	3.03	

### ■ MODEL : AB\*A45L

AFR	35.0
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		Indoor temperature										
		°CDB		16		18		20		22		24
Outdoor temperature	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	-15	-16	11.62	4.18	11.35	4.26	11.07	4.35	10.79	4.44	10.52	4.52
	-10	-11	12.41	4.16	12.11	4.25	11.82	4.33	11.52	4.42	11.23	4.51
	-5	-7	13.23	4.19	12.92	4.27	12.60	4.36	12.29	4.45	11.97	4.54
	0	-2	14.17	4.09	13.83	4.17	13.49	4.26	13.15	4.34	12.82	4.43
	5	3	15.88	4.16	15.50	4.24	15.12	4.33	14.74	4.42	14.36	4.50
	7	6	17.01	4.19	16.61	4.28	16.20	4.37	15.80	4.46	15.39	4.54
	10	8	17.53	4.15	17.11	4.24	16.69	4.32	16.28	4.41	15.86	4.50
	15	10	16.58	3.53	16.19	3.60	15.79	3.67	15.40	3.75	15.00	3.80
	20	15	15.83	3.02	15.46	3.09	15.08	3.15	14.70	3.21	14.33	3.26
24	18	16.64	3.00	16.24	3.06	15.85	3.12	15.45	3.19	15.06	3.23	

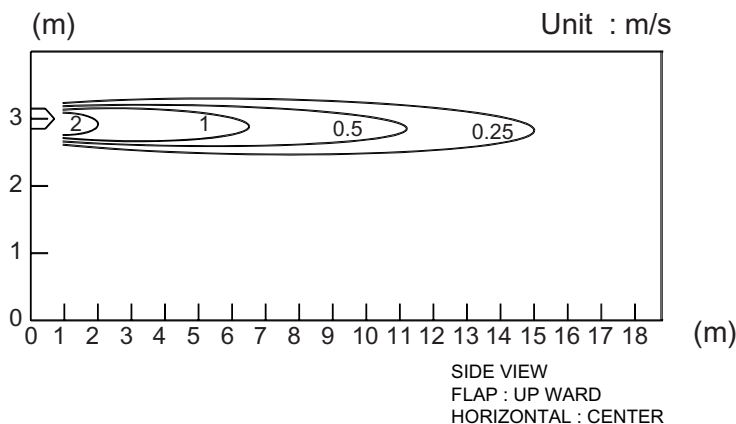
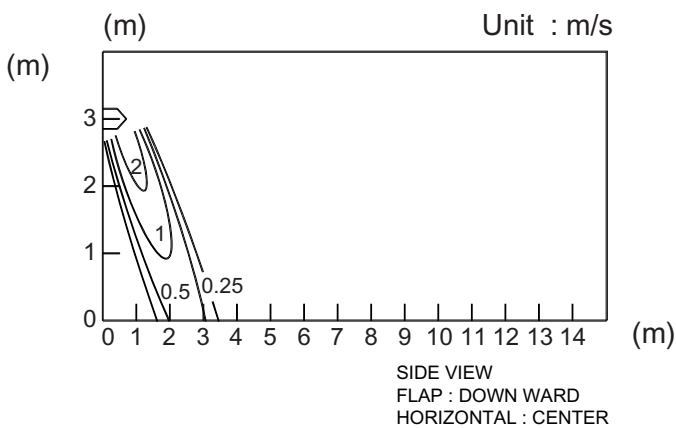
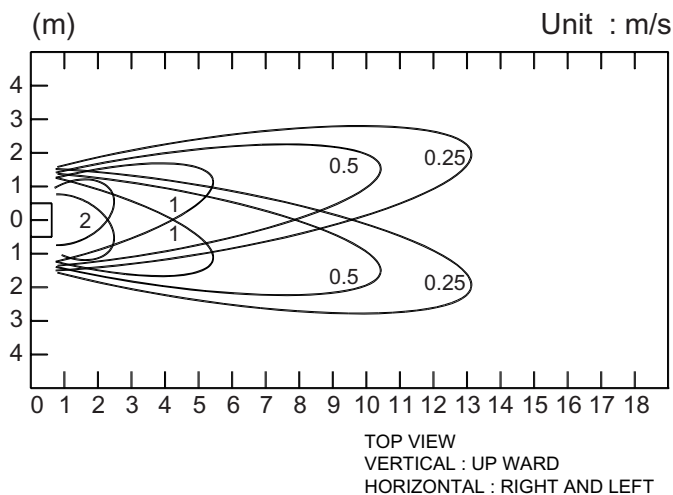
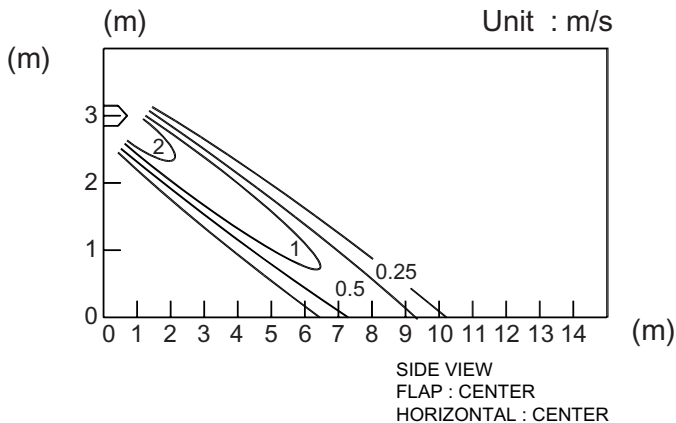
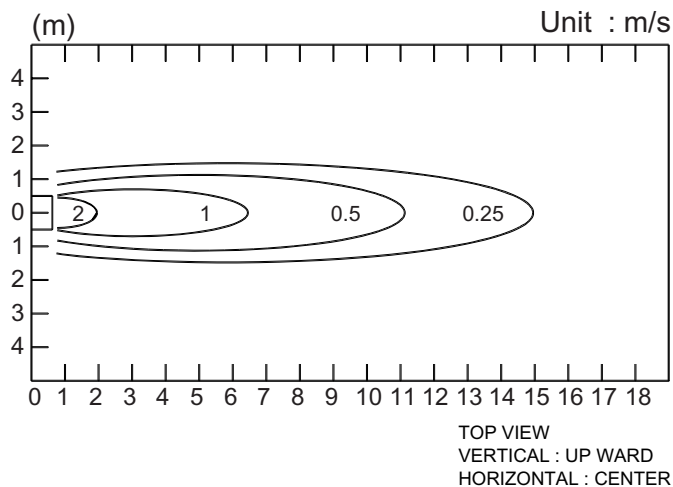
AFR : Air flow rate (m<sup>3</sup>/min)  
 TC : Total capacity (kW)  
 PI : Power Input (kW)

# 7. FAN PERFORMANCE AND AIR FLOW

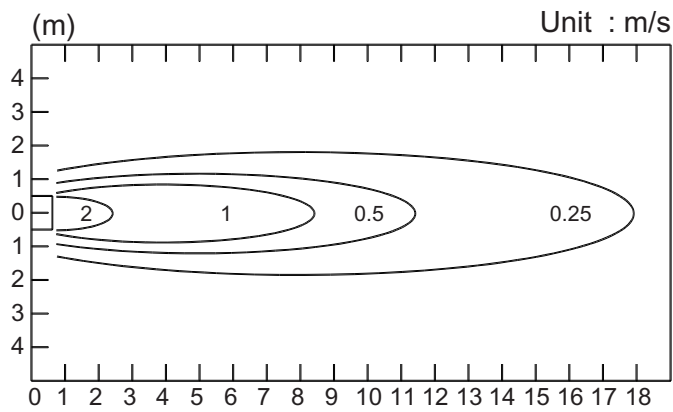
## 7-1. AIR VELOCITY DISTRIBUTION

■ MODEL : AB \*A36L

Note :  
Condition  
Fan speed : High  
Operation mode :FAN

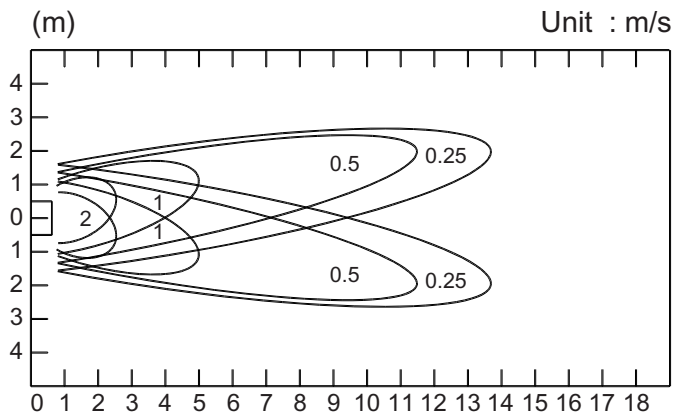


MODEL : AB \*A45L

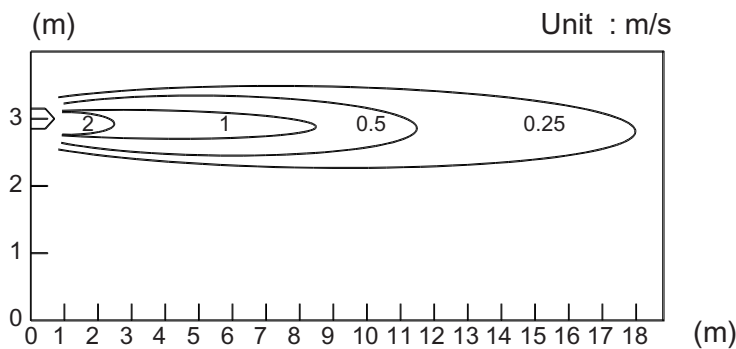


TOP VIEW  
VERTICAL : UP WARD  
HORIZONTAL : CENTER

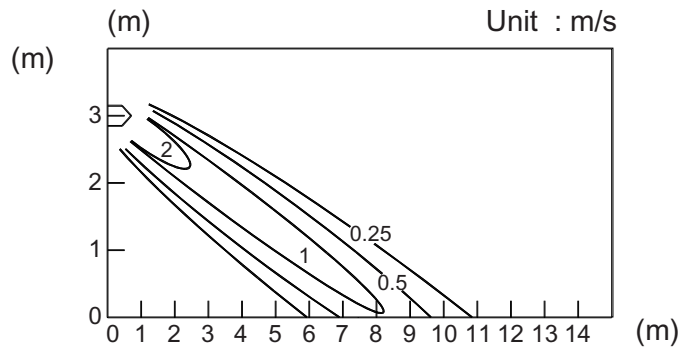
Note :  
Condition  
Fan speed : High  
Operation mode :FAN



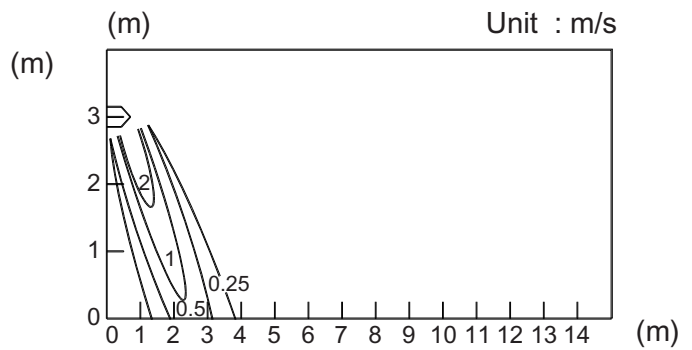
TOP VIEW  
VERTICAL : UP WARD  
HORIZONTAL : RIGHT AND LEFT



SIDE VIEW  
FLAP : UP WARD  
HORIZONTAL : CENTER



SIDE VIEW  
FLAP : CENTER  
HORIZONTAL : CENTER



SIDE VIEW  
FLAP : DOWN WARD  
HORIZONTAL : CENTER

## 7-2. AIR FLOW

### ■ MODEL : AB\*A36L

#### ● COOLING

Fan speed	Number of rotations (r.p.m)	Air flow	
		m <sup>3</sup> /h	l/s
HIGH	1100	m <sup>3</sup> /h	1900
		l/s	528
		CFM	1738
MED	910	m <sup>3</sup> /h	1500
		l/s	417
		CFM	883
LOW	750	m <sup>3</sup> /h	1200
		l/s	333
		CFM	706
QUIET	650	m <sup>3</sup> /h	1000
		l/s	278
		CFM	589

#### ● HEATING

Fan speed	Number of rotations (r.p.m)	Air flow	
		m <sup>3</sup> /h	l/s
HIGH	1100	m <sup>3</sup> /h	1900
		l/s	528
		CFM	1738
MED	910	m <sup>3</sup> /h	1500
		l/s	417
		CFM	883
LOW	750	m <sup>3</sup> /h	1200
		l/s	333
		CFM	706
QUIET	650	m <sup>3</sup> /h	1000
		l/s	278
		CFM	589

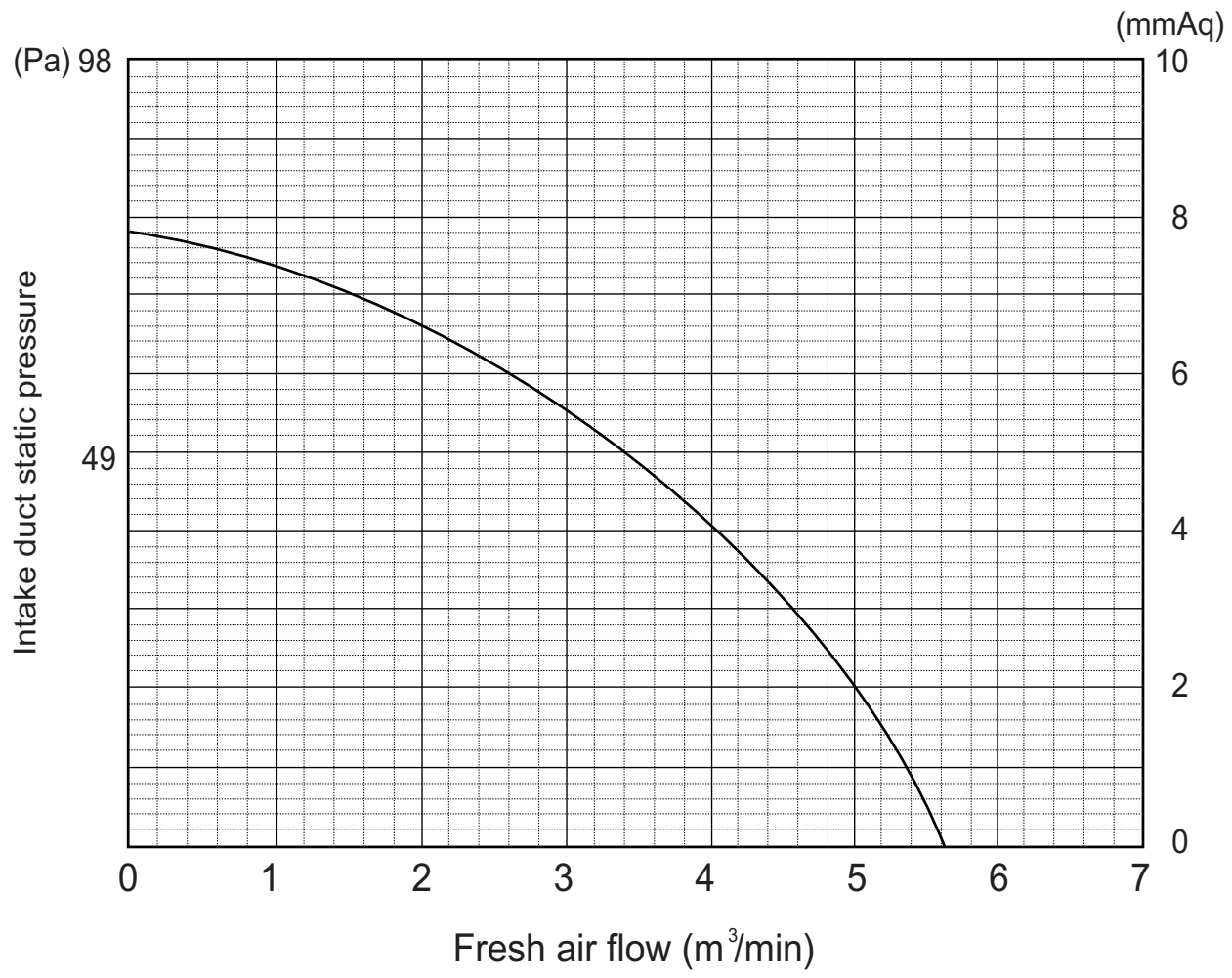
**MODEL : AB\*A45L****● COOLING**

Fan speed	Number of rotations (r.p.m)	Air flow	
		m <sup>3</sup> /h	l/s
HIGH	1200	m <sup>3</sup> /h	2100
		l/s	583
		CFM	1236
MED	1000	m <sup>3</sup> /h	1700
		l/s	472
		CFM	1000
LOW	830	m <sup>3</sup> /h	1400
		l/s	389
		CFM	824
QUIET	680	m <sup>3</sup> /h	1100
		l/s	306
		CFM	647

**● HEATING**

Fan speed	Number of rotations (r.p.m)	Air flow	
		m <sup>3</sup> /h	l/s
HIGH	1200	m <sup>3</sup> /h	2100
		l/s	583
		CFM	1236
MED	1000	m <sup>3</sup> /h	1700
		l/s	472
		CFM	1000
LOW	830	m <sup>3</sup> /h	1400
		l/s	389
		CFM	824
QUIET	680	m <sup>3</sup> /h	1100
		l/s	306
		CFM	647

### 7-3. FRESH AIR CHARACTERISTIC

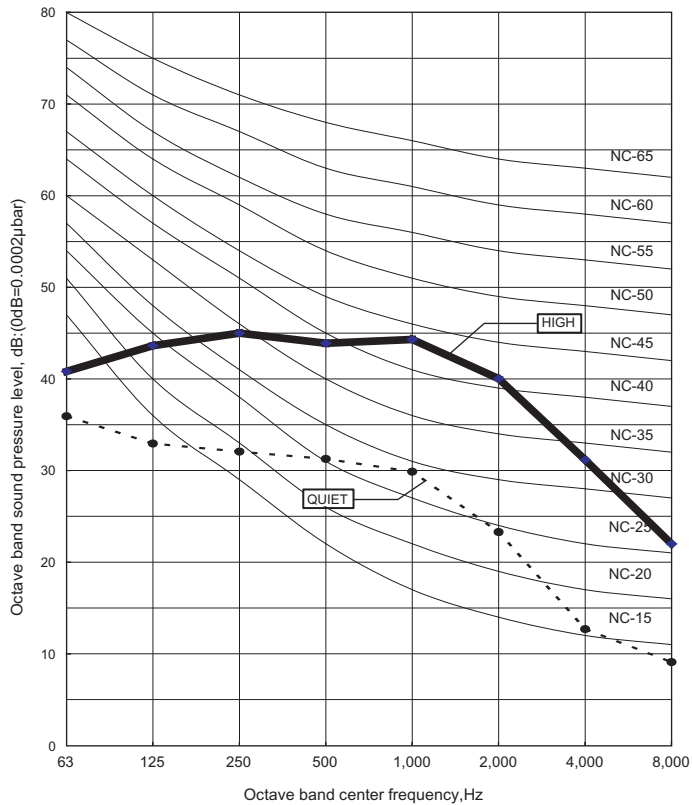


# 8. OPERATION NOISE

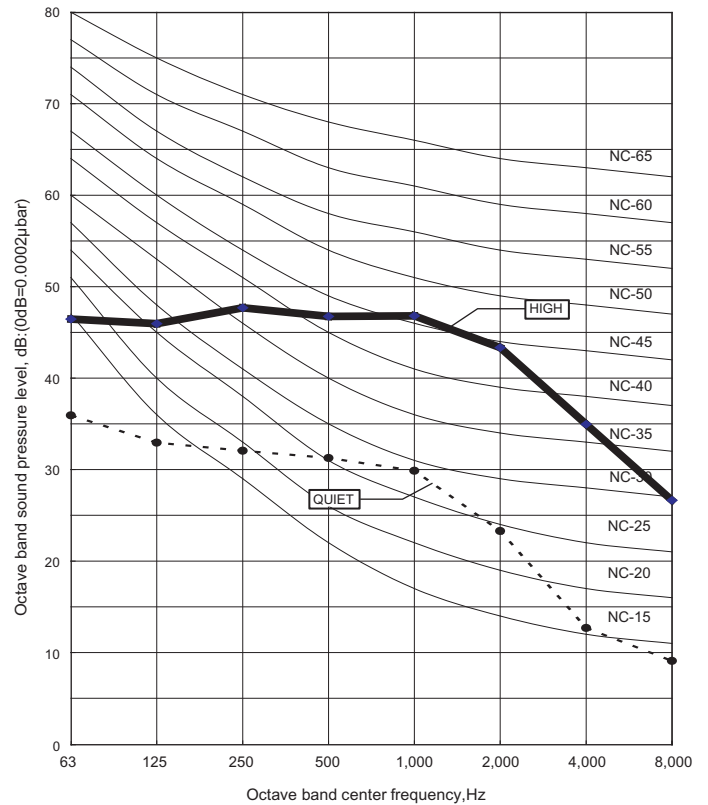
## 8-1. NOISE LEVEL CURVE

### ■ COOLING

● MODEL : AB\*A36L

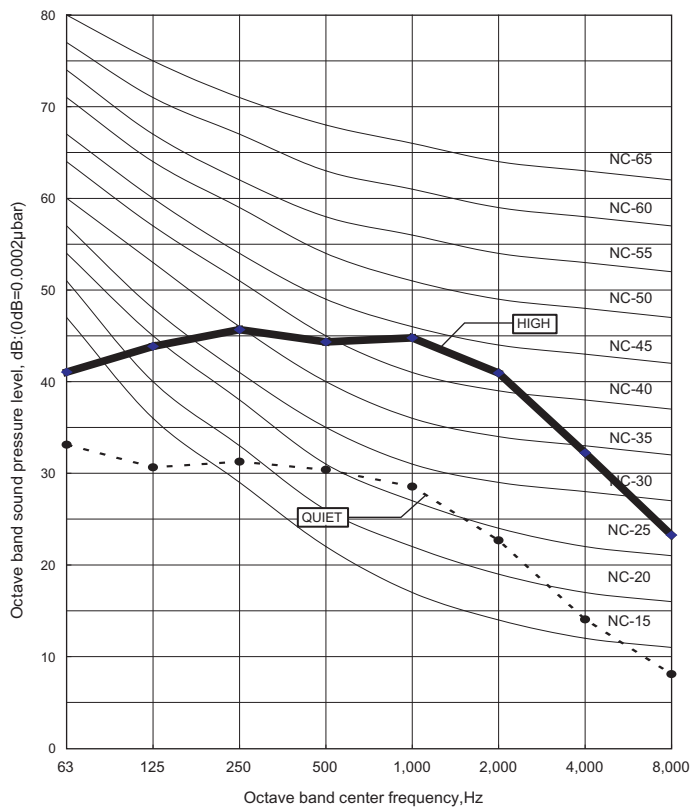


● MODEL : AB\*A45L

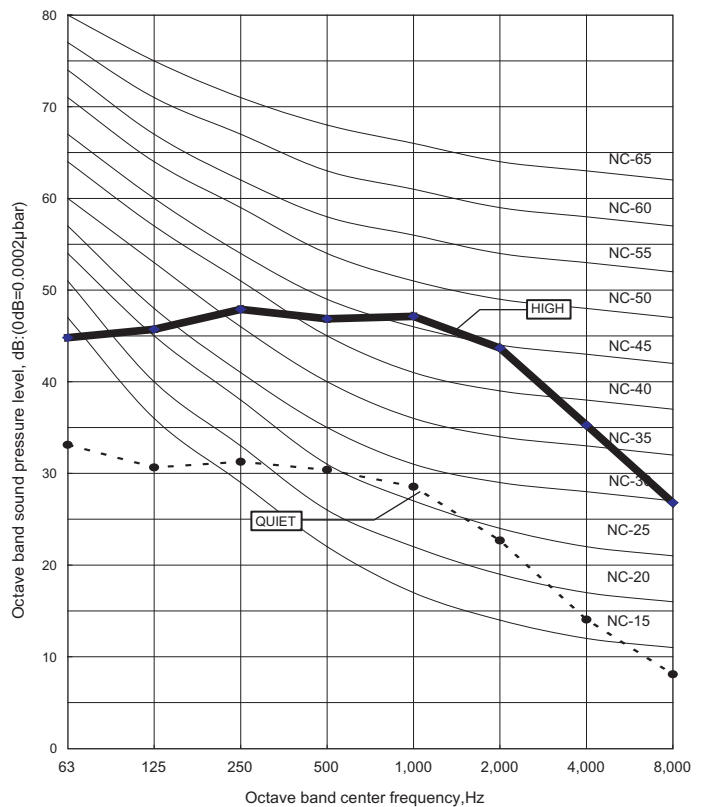


### ■ HEATING

● MODEL : AB\*A36L



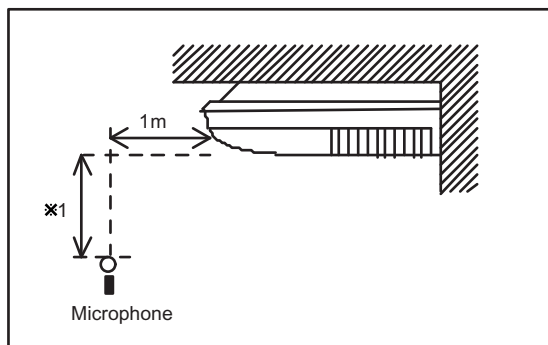
● MODEL : AB\*A45L



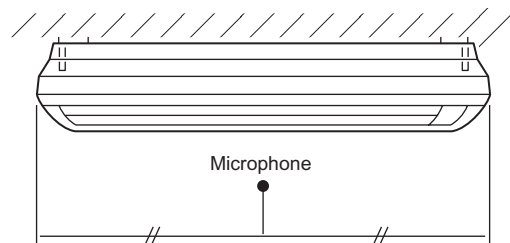


## 8-2. SOUND LEVEL CHECK POINT

### ● UNDER CEILING



※1 0.8m (For AB12 ~ AB24)  
1.0m (For AB30 ~ AB54)



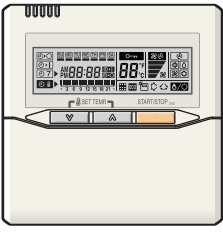

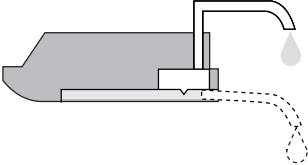
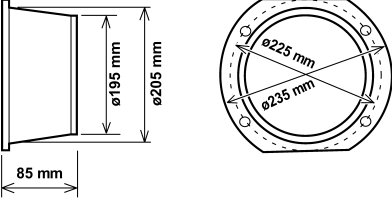
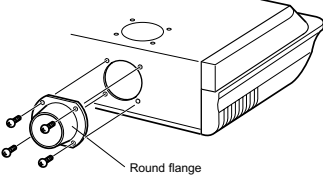
## 9. ELECTRIC CHARACTERISTICS

Model name			AB * A36L	AB * A45L
Power supply	Voltage	V	230~	
	Frequency	Hz	50	
Max. operating current (Indoor unit)		A	0.7	0.8
Wiring spec. (Indoor unit to outdoor unit)	Connection cable	mm <sup>2</sup>	1.5-2.5	1.5-2.5
	Limited wiring length	m	51	51

## 10. SAFETY DEVICES

	Protection form	Model	
		AB * A36L	AB * A45L
Circuit protection	Current fuse (PCB)	3.15A 250V	
Fan motor protection	Thermal protection program	140±20°C OFF 110±20°C ON	

# 11. OPTIONAL PARTS

Exterior	Parts name	Model No.	Summary
	Wired remote controller	UTB- *UD	Unit control is performed by <b>wired remote controller</b>
	Wireless remote controller	UTB- *NA	Unit control is performed by <b>wireless remote controller</b>
	Drain water riser kit	UTR-DPB241	Optional drain lift-up mechanism allows more flexible installation.
	Round flange	UTD-RF204	Round flange is used when the fresh air duct is installed. 

## **OUTDOOR UNIT**

### **2. SINGLE TYPE :**

- AO \* A36LATL**
- AO \* A45LATL**

# 1. SPECIFICATIONS

Type			INVERTER HEATPUMP		
Model name			AO * A36LATL	AO * A45LATL	
Power source			230V~ 50Hz		
Available voltage range			198-264V~ 50Hz		
Starting current		A	15.0	15.0	
Fan	Airflow rate	Cooling	m <sup>3</sup> /h	6600	
		Heating		6600	
	Type × Q'ty		Propeller × 2		
Motor output		W	103 × 2	103 × 2	
Sound pressure level	Cooling		dB(A)	54	
	Heating			55	
Heat exchanger type	Dimensions (H × W × D)		mm	1260 × 900 × 36.4	
	Fin pitch			1.30	
	Rows x Stages		2 × 60	2 × 60	
	Pipe type		Copper		
	Fin type		Aluminium		
Compressor	Type × Q'ty			Twin Rotary × 1	
	Motor output		W	3750	
Refrigerant	Type			R410A	
	Charge		g	3350	
Refrigerant oil	Type			POE	
Enclosure	Material			Steel sheet	
	Colour			Beige (10YR7.5/1.0NN)	
Dimensions (H × W × D)	Net		mm	1290 × 900 × 330	
	Gross			1430 × 1050 × 445	
Weight	Net		kg(lb.)	98 (216)	
	Gross			107 (236)	
Connection pipe	Size	Liquid	mm	φ 9.52 (φ 3/8 in.)	
		Gas		φ 15.88 (φ 5/8 in.)	
	Method			Flare	
Max. length	Max. length		m	50 (chargeless : 20)	50 (chargeless : 20)
	Max. height difference			30	30
Operation range	Cooling		°C	-15 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)

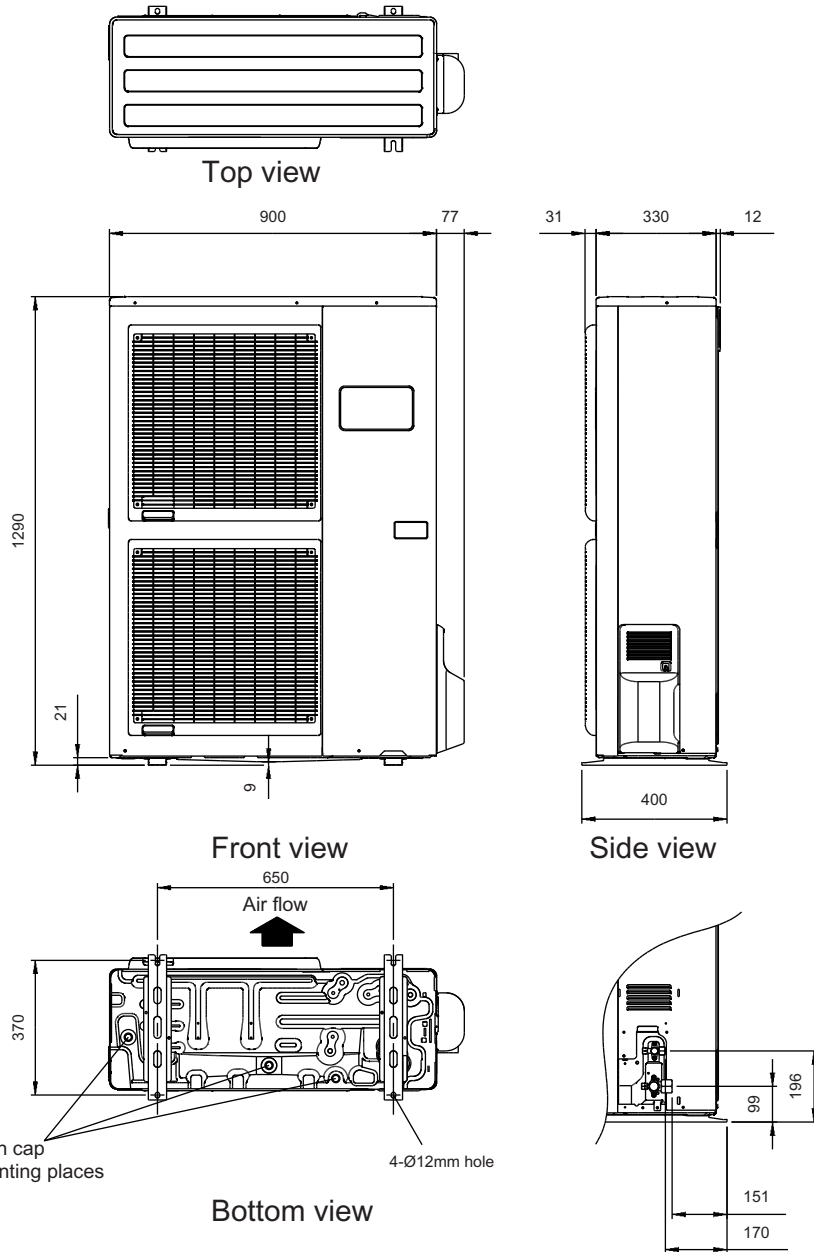
## 2. DIMENSIONS

■ MODEL : AO\*A36L, AO\*A45L

(Unit : mm)

OUTDOOR UNIT  
AO\*A36-45L

OUTDOOR UNIT  
AO\*A36-45L



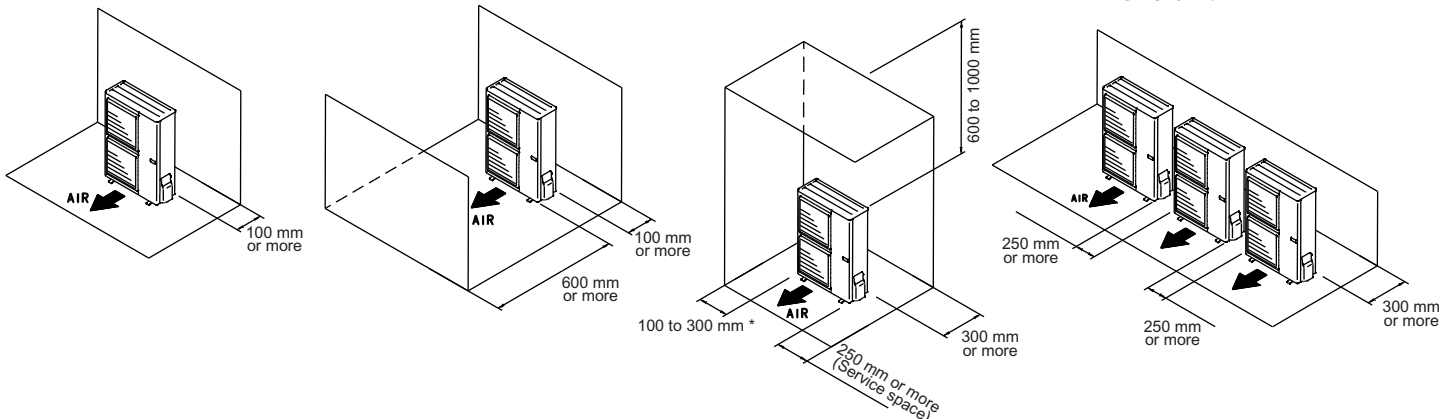
## ■ MOUNTING POSITION

When there are obstacles at the back or front side.

When there are obstacles at the back and 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.



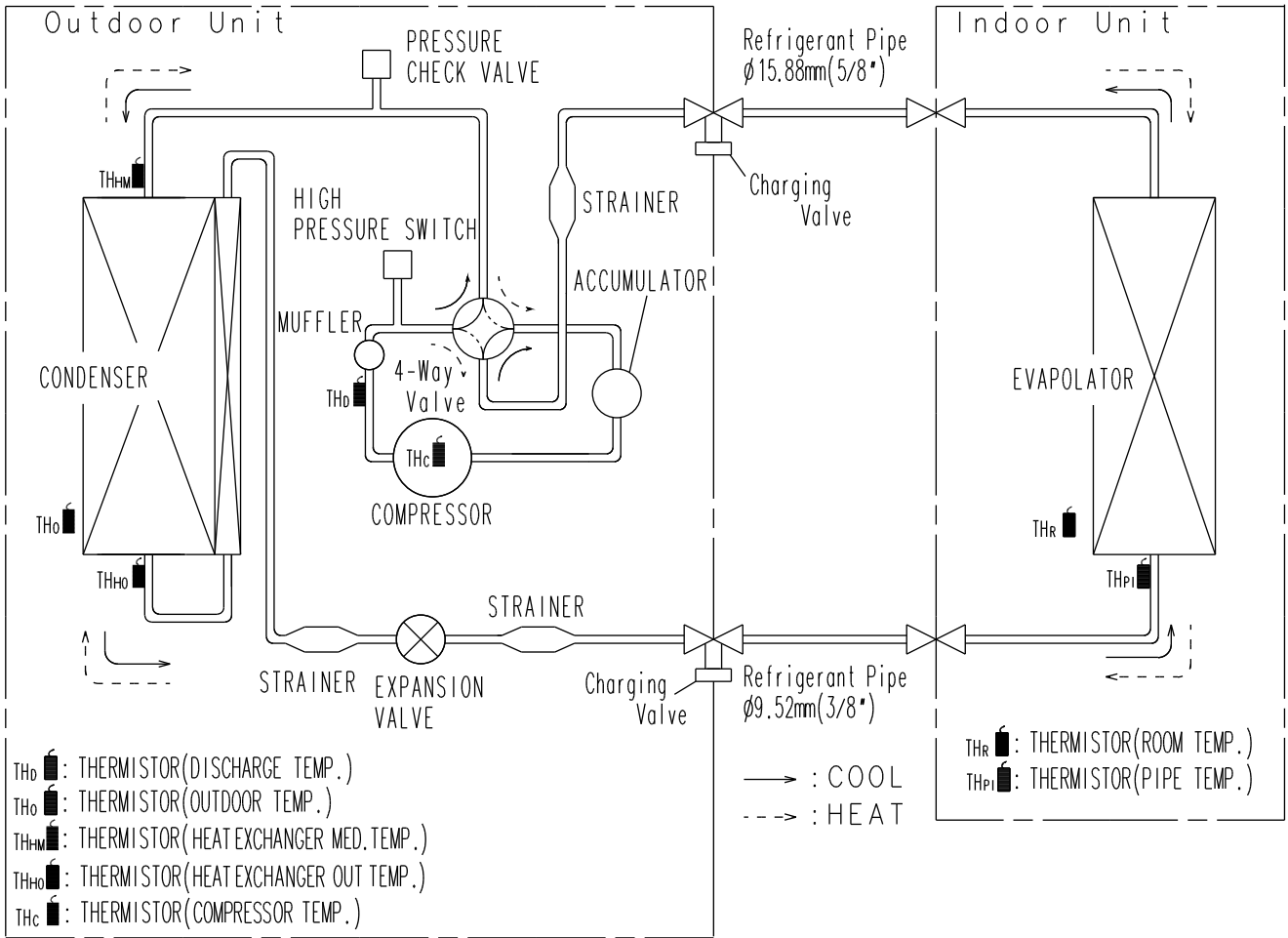
\* If the space is larger than that is stated, the condition will be the same as that there are no obstacles.

# 3. REFRIGERANT CIRCUIT

■ MODEL : AO\*A36L, AO\*A45L

OUTDOOR UNIT  
AO\*A36-45L

OUTDOOR UNIT  
AO\*A36-45L



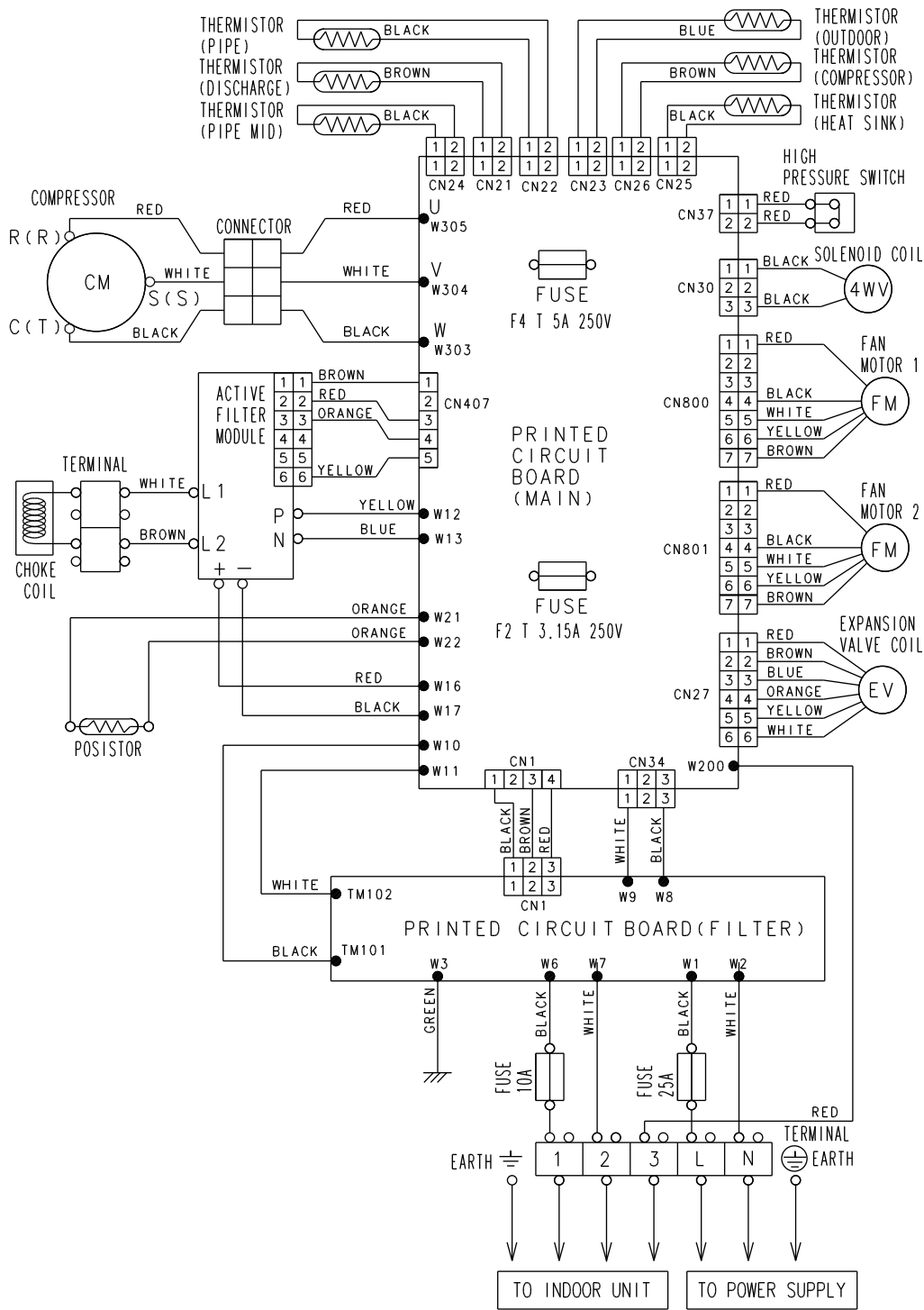


# 4. WIRING DIAGRAMS

■ MODEL : AO \*A36L, AO \*A45L

OUTDOOR UNIT  
AO\*A36-45L

OUTDOOR UNIT  
AO\*A36-45L



# 5. COEFFICIENT OF COMPENSATION FOR PIPE LENGTH AND HEIGHT DIFFERENCE

This table is created using the maximum capacity.

## ■ MODEL : AO\*A36L

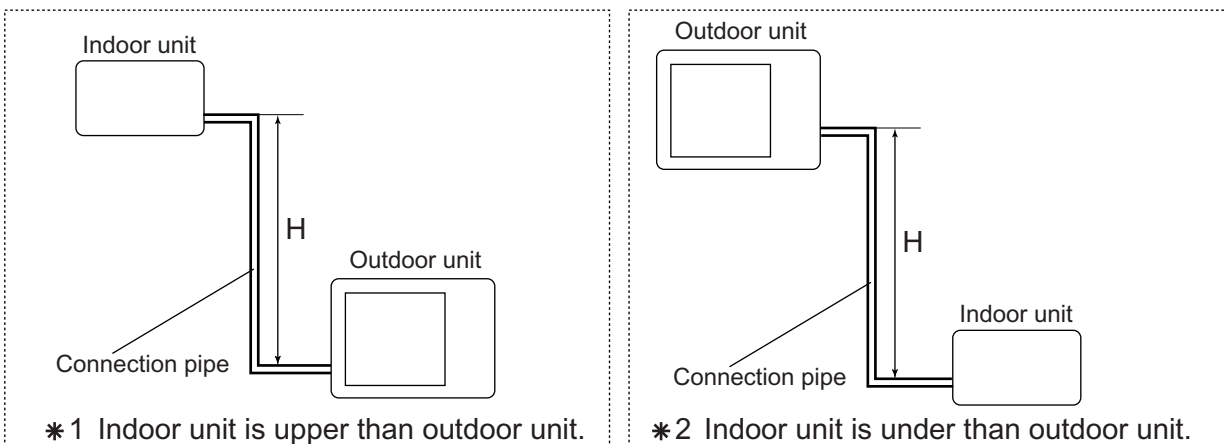
OUTDOOR UNIT  
AO\*A36-45L

OUTDOOR UNIT  
AO\*A36-45L

COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	* 1 Indoor unit is upper than outdoor unit.	30	-	-	-	-	0.929	0.926	0.905
		20	-	-	-	0.940	0.929	0.926	0.905
		10	-	-	0.985	0.940	0.929	0.926	0.905
		7.5	-	1.000	0.985	0.940	0.929	0.926	0.905
		5	1.009	1.000	0.985	0.940	0.929	0.926	0.905
	0	1.009	1.000	0.985	0.940	0.929	0.926	0.905	
	* 2 Indoor unit is under than outdoor unit	-5	1.001	0.992	0.977	0.932	0.921	0.918	0.898
		-7.5	-	0.988	0.973	0.929	0.918	0.914	0.894
		-10	-	-	0.969	0.925	0.914	0.911	0.890
		-20	-	-	-	0.910	0.899	0.896	0.876
-30		-	-	-	-	0.884	0.881	0.862	

HEATING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	* 1 Indoor unit is upper than outdoor unit.	30	-	-	-	-	0.942	0.921	0.899
		20	-	-	-	0.966	0.951	0.931	0.909
		10	-	-	1.006	0.975	0.961	0.940	0.918
		7.5	-	0.993	1.009	0.978	0.963	0.943	0.920
		5	0.973	0.995	1.011	0.980	0.966	0.945	0.923
	0	0.978	1.000	1.016	0.985	0.971	0.950	0.927	
	* 2 Indoor unit is under than outdoor unit	-5	0.978	1.000	1.016	0.985	0.971	0.950	0.927
		-7.5	-	1.000	1.016	0.985	0.971	0.950	0.927
		-10	-	-	1.016	0.985	0.971	0.950	0.927
		-20	-	-	-	0.985	0.971	0.950	0.927
-30		-	-	-	-	0.971	0.950	0.927	

Height difference H



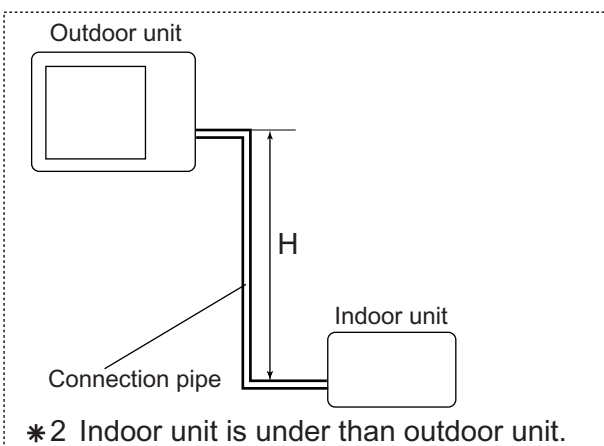
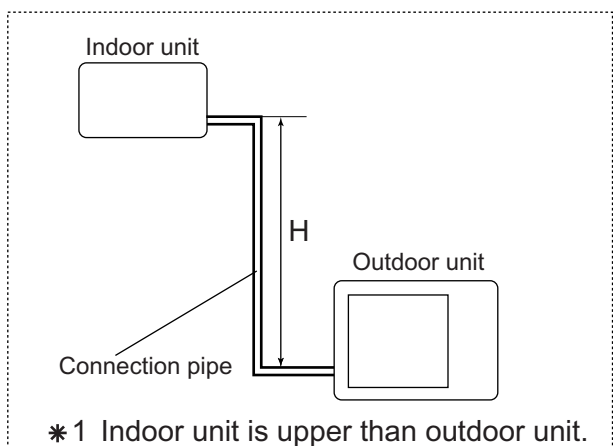
This table is created using the maximum capacity.

■ **MODEL : AO\*A45L**

COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	* 1 Indoor unit is upper than outdoor unit.	30	-	-	-	-	0.938	0.935	0.914
		20	-	-	-	0.949	0.938	0.935	0.914
		10	-	-	0.995	0.949	0.938	0.935	0.914
		7.5	-	1.000	0.995	0.949	0.938	0.935	0.914
		5	1.009	1.000	0.995	0.949	0.938	0.935	0.914
	0	1.009	1.000	0.995	0.949	0.938	0.935	0.914	
	* 2 Indoor unit is under than outdoor unit	-5	1.001	0.992	0.987	0.942	0.931	0.927	0.907
		-7.5	-	0.988	0.983	0.938	0.927	0.924	0.903
		-10	-	-	0.979	0.934	0.923	0.920	0.899
		-20	-	-	-	0.919	0.908	0.905	0.885
-30		-	-	-	-	0.893	0.890	0.870	

HEATING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	* 1 Indoor unit is upper than outdoor unit.	30	-	-	-	-	0.942	0.921	0.899
		20	-	-	-	0.966	0.951	0.931	0.909
		10	-	-	1.006	0.975	0.961	0.940	0.918
		7.5	-	0.993	1.009	0.978	0.963	0.943	0.920
		5	0.973	0.995	1.011	0.980	0.966	0.945	0.923
	0	0.978	1.000	1.016	0.985	0.971	0.950	0.927	
	* 2 Indoor unit is under than outdoor unit	-5	0.978	1.000	1.016	0.985	0.971	0.950	0.927
		-7.5	-	1.000	1.016	0.985	0.971	0.950	0.927
		-10	-	-	1.016	0.985	0.971	0.950	0.927
		-20	-	-	-	0.985	0.971	0.950	0.927
-30		-	-	-	-	0.971	0.950	0.927	

Height difference H



## 6. ADDITIONAL CHARGE CALCULATION

### ■ MODEL : AO \*A36L, AO \*A45L

Refrigerant type	R410A	
Refrigerant amount	g	3350

### ● REFRIGERANT CHARGE

Pipe length	m	~ 20	30	40	50	50g/m
Additional charge	g	0 (Charge less)	+500	+1000	+1500	

## 7. AIR FLOW

■ MODEL : AO \*A36L, AO \*A45L

### ● COOLING

	Number of rotations (r.p.m)	Air flow	
Upper fan	850	m <sup>3</sup> /h	6600
		l/s	1833
Lower fan	750	CFM	3884

### ● HEATING

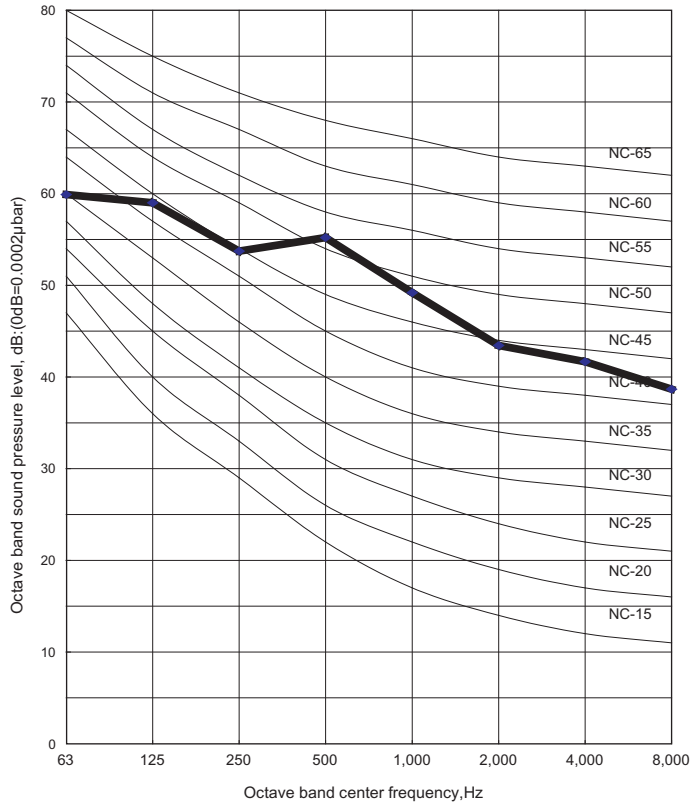
	Number of rotations (r.p.m)	Air flow	
Upper fan	850	m <sup>3</sup> /h	6600
		l/s	1833
Lower fan	750	CFM	3884

# 8. OPERATION NOISE

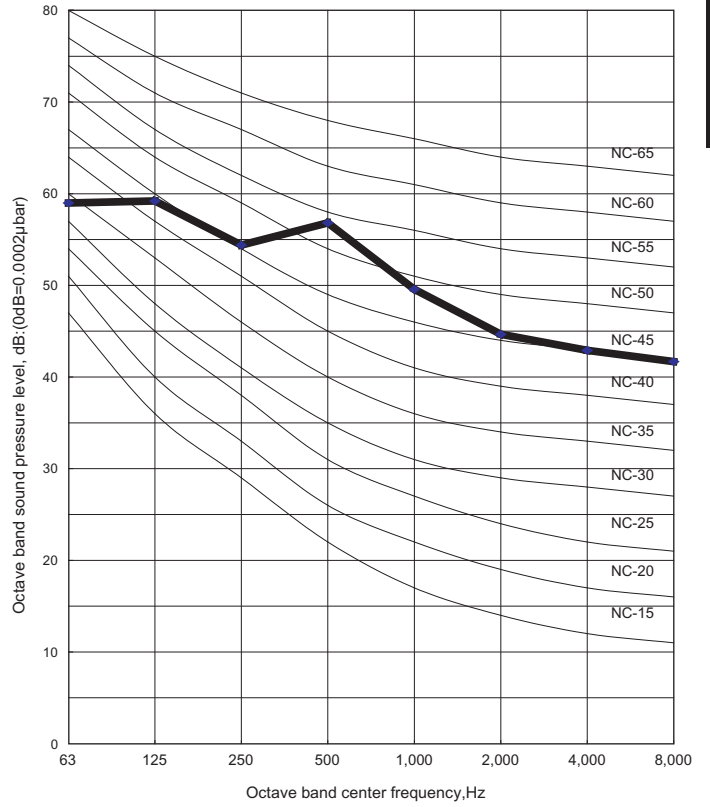
## 8-1. NOISE LEVEL CURVE

### COOLING

MODEL : AO\*A36L

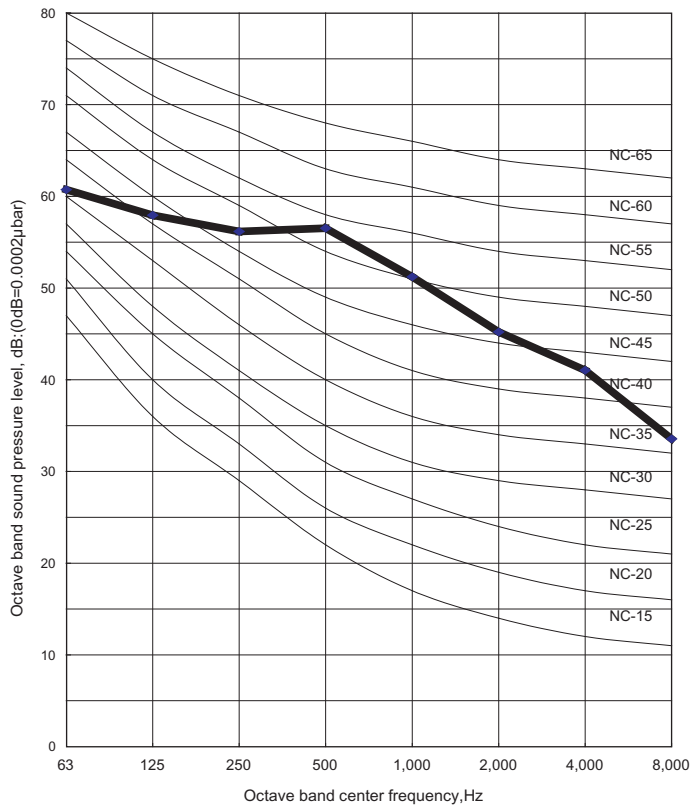


MODEL : AO\*A45L

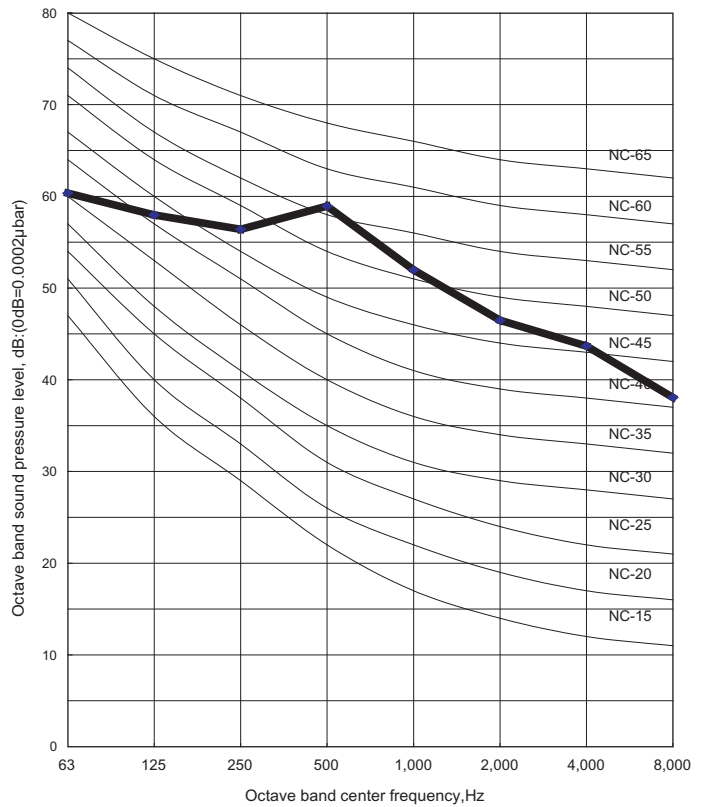


### HEATING

MODEL : AO\*A36L



MODEL : AO\*A45L

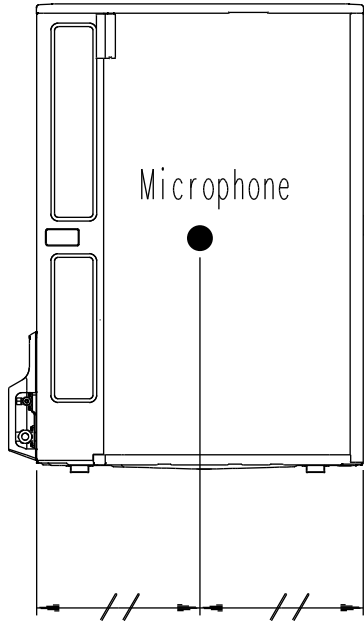
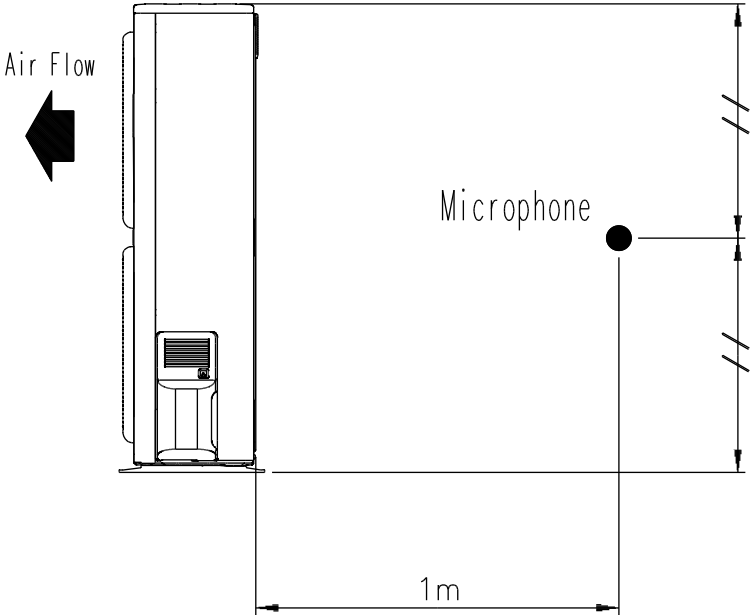


OUTDOOR UNIT  
AO\*A36-45L

OUTDOOR UNIT  
AO\*A36-45L

# 8-2. SOUND LEVEL CHECK POINT

OUTDOOR UNIT  
AO\*#A36-45L



OUTDOOR UNIT  
AO\*#A36-45L

## 9. ELECTRIC CHARACTERISTICS

Model Name			AO * A36L	AO * A45L
Power Supply	Voltage	V	230~	
	Frequency	Hz	50	
Max. Operating Current		A	19.0	20.0
Starting Current		A	15.0	
*1) Wiring Spec.	Main Fuse (Circuit breaker) Current	A	30	
	Power Cable	mm <sup>2</sup>	5.3 - 6.0	
	*2)Limited wiring length	m	17	

\*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

OUTDOOR UNIT  
AO\*A36-45L

OUTDOOR UNIT  
AO\*A36-45L

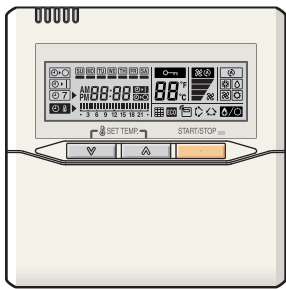
	Protection form	Model	
		AO * A36L	AO * A45L
Circuit protection	Current fuse (NEAR THE TERMINAL)	25A 250V	
	Current fuse (NEAR THE TERMINAL)	10A 250V	
	Current fuse (MAIN PRINTED CIRCUIT BOARD)	5A 250V	
	Current fuse (MAIN PRINTED CIRCUIT BOARD)	3.15A 250V	
Fan motor protection	Thermal protection program	OFF : 130±20°C ON : 100±20°C	
High Pressure Protection	High Pressure Switch	OFF : 4.2±0.1MPa ON : 3.2±0.15MPa	
Compressor protection	Thermal protection program (COMPRESSOR TEMP.)	OFF : 110°C ON : 80°C	
	Thermal protection program (DISCHARGE TEMP.)	OFF : 115°C ON : After 7 minutes	

## REMOTE CONTROLLER

### 3. WIRED REMOTE CONTROLLER :

**UTB - \*UD**

# FEATURES



- \* Various timer setup (ON / OFF / WEEKLY) are possible.
- \* Equipped with weekly timer as standard function. (2 times Start / Stop per day for a week)
- \* When setting up a timer, operation mode and a temperature setup can be changed.
- \* When a failure occurs, the error code is displayed. (Maximum of 16)
- \* Error indication. (A maximum of 16 error histories are memorizable.)
- \* Up to 16 indoor units can be simultaneously controlled.
- \* Economy operation are possible.
- \* Easy installation with a slim shape with no bulge in the back.
- \* The room temperature can be controlled by being detected the temperature accurately with built-in thermo sensor.

REMOTE CONTROLLER  
UTB-\*/UD

REMOTE CONTROLLER  
UTB-\*/UD

## Simple function setting

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

## High performance and compact size

Three functions are combined in one unit.



## Built-in timers

### Weekly timer

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

Easy-to-understand time bar display

Screen after setup

Setup screen example  
(Set to Wednesday: 8:00 to 20:00.)

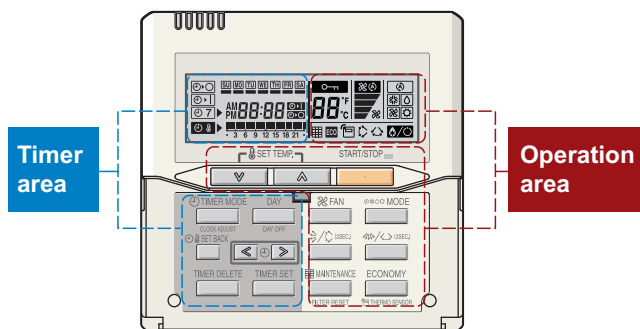
### Setback timer

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

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

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

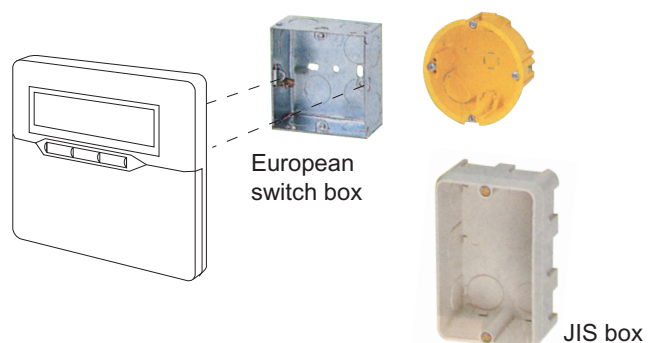
## Easy-to-understand operation



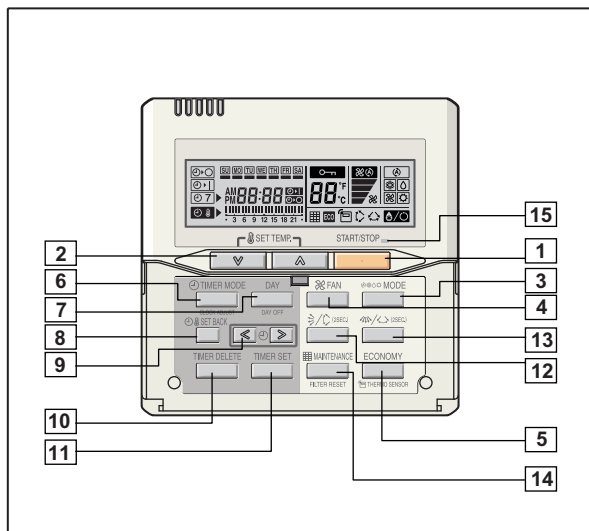
[ Variable timer control ]  
The operation/display sections are zoned according to time and operation, enabling variable programming to match application.

## Simple installation

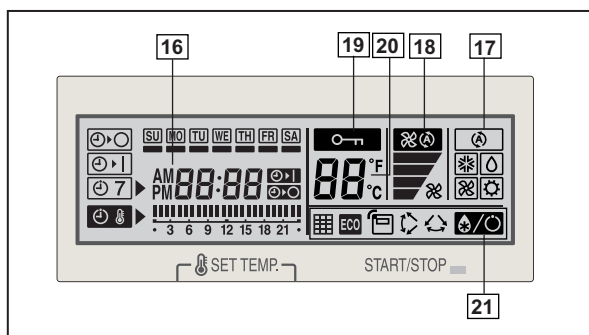
Components are compatible with standard switch boxes. Flat back construction allows equipment to be installed wherever it is needed.



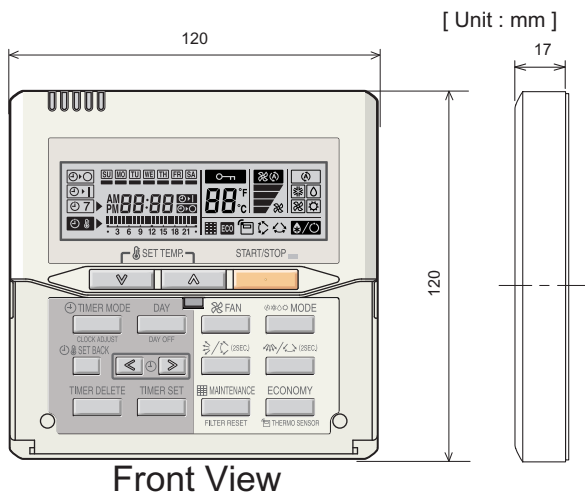
## FUNCTIONS



Display panel



## DIMENSION



## SPECIFICATION

SIZE (H x W x D mm)	120 x 120 x 17
WEIGHT (g)	160
CABLE LENGTH (m)	10
POWER (V)	12

- 1 START/STOP button  
Pressed to start and stop operation.
- 2 Set temperature button  
Selects the setting temperature.
- 3 Master control button  
Selects the operating mode(AUTO, HEAT, FAN, COOL, DRY).
- 4 Fan control button  
Selects the fan speed (AUTO, QUIET, LOW, MED, HIGH).
- 5 Economy button  
Turns the economy efficient mode on and off.
- 6 Timer mode (CLOCK ADJUST) button  
Selects the timer mode (OFF TIMER, ON TIMER, WEEKLY TIMER)  
Set the current time.
- 7 Day (DAY OFF) button  
Temporarily cancels of one day timer.
- 8 Set back button  
Pressed select the set back timer.
- 9 Set time button  
Pressed to set time.
- 10 Delete button  
The schedule of a weekly timer is deleted.
- 11 Set button  
Sets the date, hour, minute and on-off time.
- 12 Vertical airflow direction and swing button  
Push for two seconds to change the swing mode.
- 13 Horizontal airflow direction and swing button  
Push for two seconds to change the swing mode.
- 14 Filter button
- 15 Operation lamp  
Lights during operation and when the timer is on.
- 16 Timer and clock display
- 17 Operation mode display
- 18 Fan speed display
- 19 Operation lock display
- 20 Temperature display
- 21 Function display
  - Defrost display
  - Thermo sensor display
  - Economy display
  - Vertical swing display
  - Horizontal swing display
  - Filter display

# REMOTE CONTROLLER

## 4. WIRELESS REMOTE CONTROLLER :

**UTB - \*NA**

## ■ 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

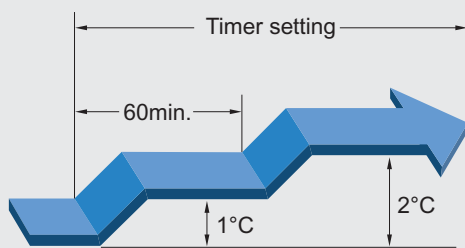
The program timer operates the ON and OFF timer once within a 24 hour period.

### ● 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.

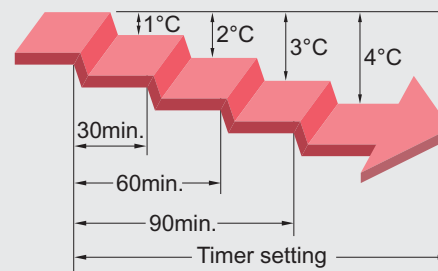
#### Cooling operation/dry operation

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.

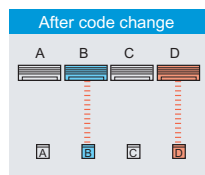
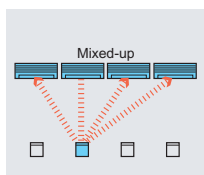


#### Heating operation

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.



### ● Simultaneously operation

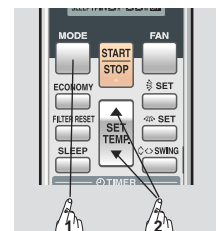


- Code selector switch eliminates unit being wrongly switched. (Up to 4 codes can be set.)

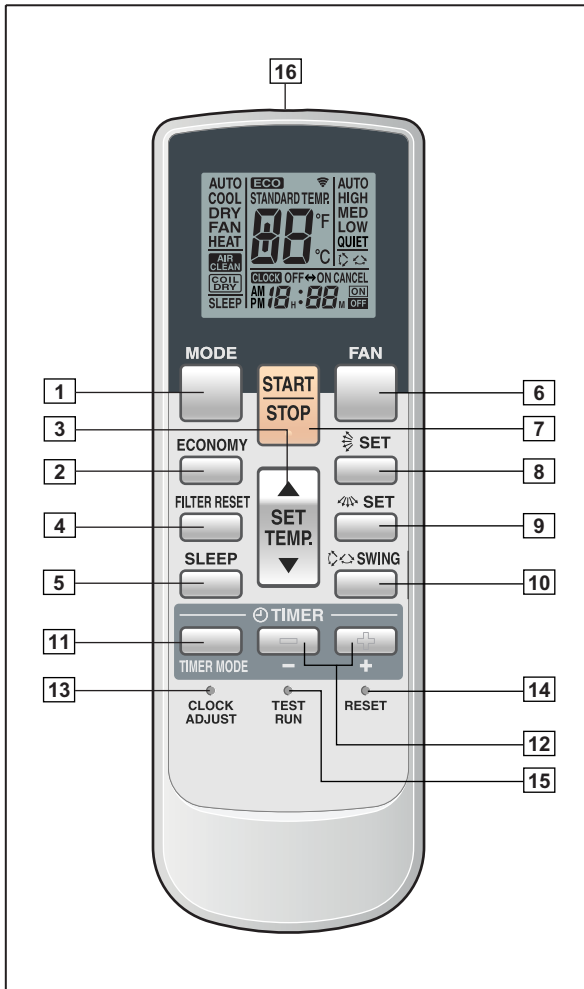


- Wide and precise transmitting range.

1. Press the MODE button for more than five seconds to start the code change.
2. Press the ▲ or ▼ button to select the desired code.  
▶ A → B → C → D
3. Press the MODE button again to end the code change.

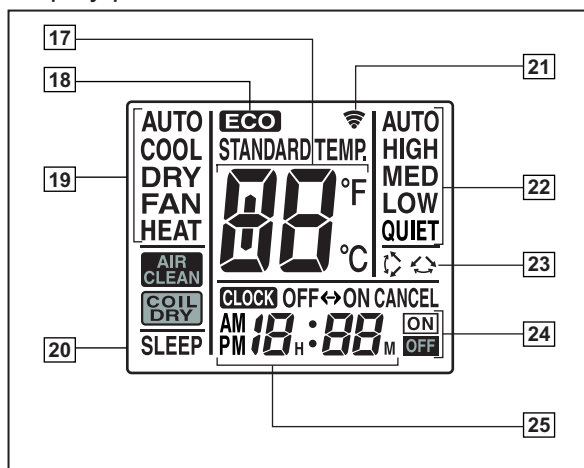


## FUNCTIONS



- 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.

### Display panel



- 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**

## SPECIFICATION

SIZE (H x W x D mm)	170 x 56 x 19
WEIGHT (g)	80
ACCESSORY	Holder