Refrigerant R410A
INVERTER

AIR CONDITIONER

Ceiling type

DESIGN & TECHNICAL DATA

SINGLE INDOOR

AB*A45LCT

OUTDOOR

AO*A45LBTL

FUJITSU GENERAL LIMITED

1. INDOOR UNIT

CEILING TYPE :

AB*A45LCT

D2D_AB031E/01
2009.05.11

CONTENTS

1. INDOOR UNIT

CEILING TYPE
AB∗A45L

1-1. FEATURE

■ MODEL (INDOOR/OUTDOOR)
AB∗A45LCT / AO∗A45LBTL

■ FEATURES

● Energy saving

High energy saving was realized by making the indoor unit and outdoor unit fan motor and compressor all DC and optimal design of the refrigerant cycle. Class A was achieved in European energy classifications.

● Quiet operation

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

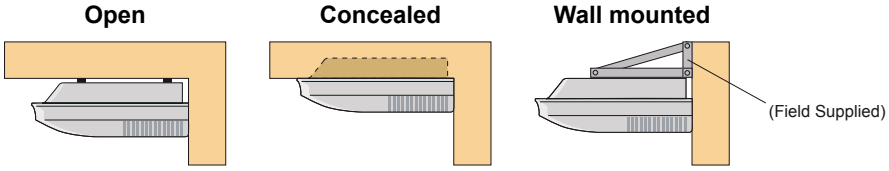
Operation that suppresses maximum power consumption is performed.

● Wired/wireless simultaneous use possible

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

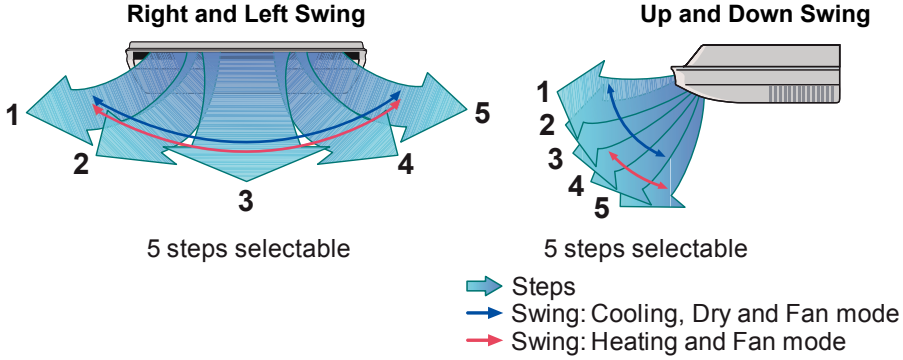
● Flexible installation

A high installation of the construction of the ceiling and degree of freedom corresponding to height is possible.



● 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.



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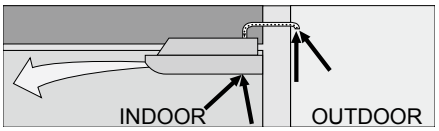
● Filter sign operating time (Standard/long/short/no display)

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

● Fresh-air intake



■ FUNCTION SETTING

● 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".

CEILING TYPE
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1-2. 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

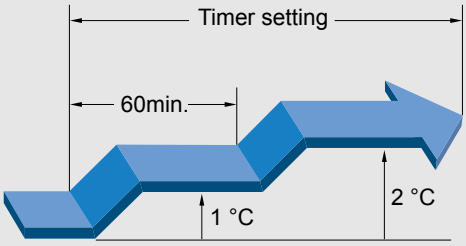
The program timer operates the ON and OFF timer once within a 24 hour period.

● 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.

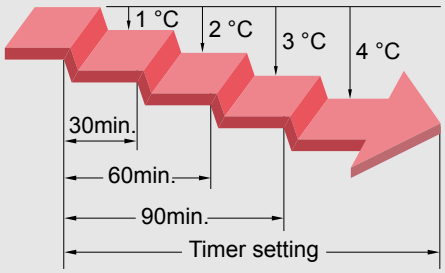
Cooling operation/dry operation

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.

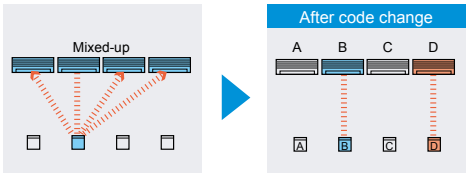


Heating operation

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.



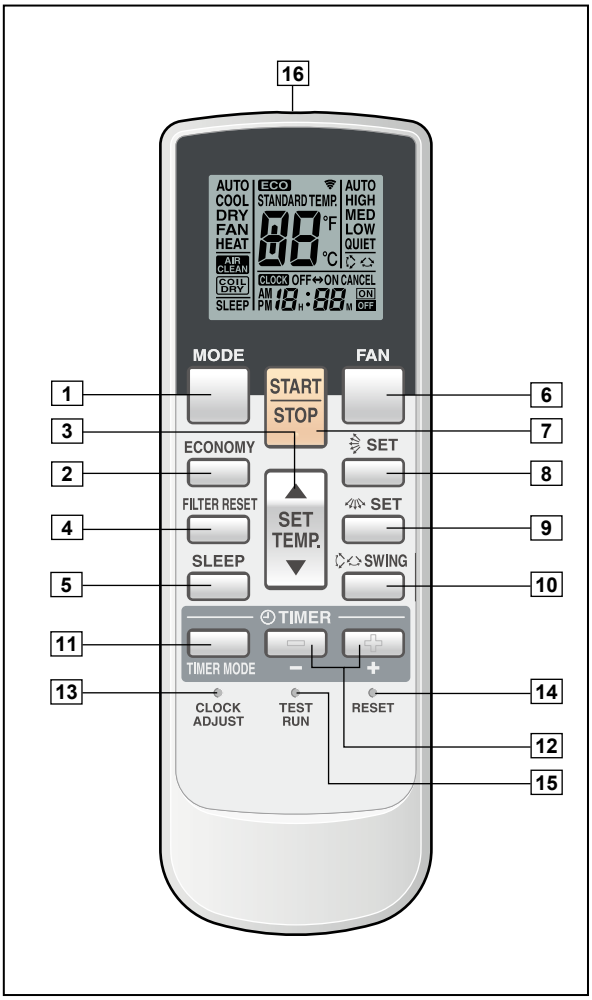
● Switching remote control unit signal code



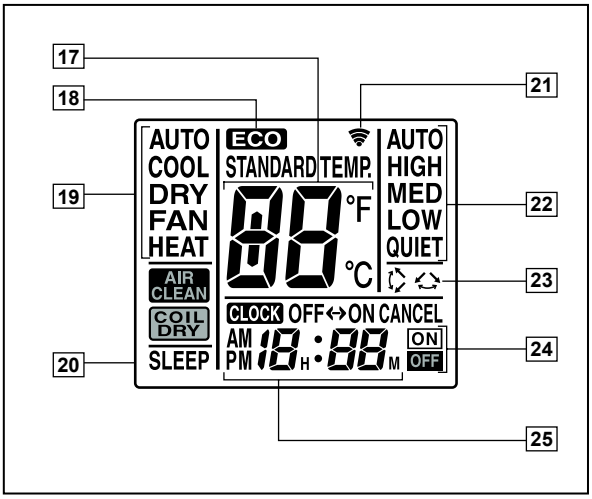
• Code selector switch eliminates unit being wrongly switched.
(Up to 4 codes can be set.)

CEILING TYPE
AB∗A45L

■ 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 CANCEL)

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

■ SPECIFICATION

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

1-3. SPECIFICATIONS

Type					CEILING MODEL
					INVERTER HEATPUMP
Model name					AB∗A45LCT
Power source					230V ~ 50Hz
Available voltage range					198-264V ~ 50Hz
European energy label				Cooling	A
				Heating	A
Capacity	Cooling	Rated		kW	12.5
				BTU/h	42700
		Min-Max		kW	4.0-14.0
				BTU/h	13700-47800
	Heating	Rated		kW	14.0
				BTU/h	47800
		Min-Max		kW	4.2-16.2
				BTU/h	14300-55300
Input power	Cooling	Rated		kW	3.89
		Max			4.56
	Heating	Rated			3.77
		Max			4.56
Current	Cooling	Rated		A	17.0
		Max			20.0
	Heating	Rated			16.5
		Max			20.0
EER		Cooling		kW/kW	3.21
COP		Heating			3.71
Moisture removal				l/h (pints/h)	4.5(9.5)
Fan	Airflow rate	Cooling	High	m^3/h	2100
			Med		1700
			Low		1400
			Quiet		1100
		Heating	High		2100
			Med		1700
			Low		1400
			Quiet		1100
	Type × Q'ty				Sirocco× 4
	Motor output			W	130
Sound pressure level		Cooling	High	dB(A)	49
			Med		45
			Low		39
			Quiet		34
		Heating	High		49
			Med		45
			Low		39
			Quiet		34
Heat exchanger type		Dimensions (H × W × D)		mm	252x1350x39.9
		Fin pitch			1.45
		Rows x Stages			3 x 12
		Pipe type			Copper
		Fin type			Aluminium
Enclosure		Material			ABS
		Colour			WHITE (Approximate colour of MUNSELL 5Y 9 / 0.5)
Dimensions (H×W×D)	Net			mm	240×1660×700
	Gross				318×1800×790
Weight	Net			kg(lb.)	46(101)
	Gross				58(128)
Connection pipe	Size	Liquid		mm	Ø9.52 (3/8 in.)
		Gas			Ø15.88 (5/8 in.)
	Method				Flare
Operation range		Cooling		˚C	18 to 32
				%RH	80 or less
		Heating		˚C	16 to 30
Remote controller type					Wireless
Drain pipe	Material				ABS
	Size			mm	Outer diameter : 26.0 / Inner diameter : 21.5

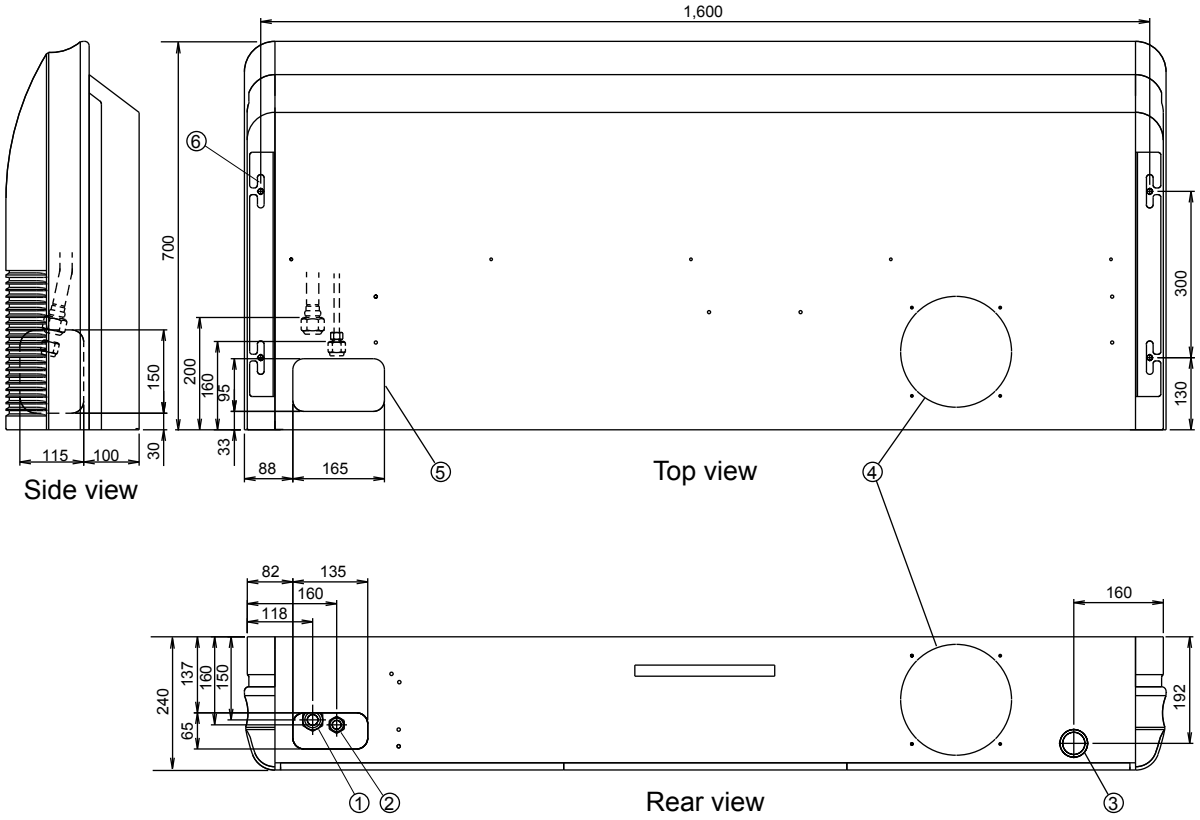
Note :
Specifications are based on the following conditions.
Cooling : Indoor temperature of 27˚CDB / 19˚CWB.and outdoor temperature of 35˚CDB / 24˚CWB.
Heating : Indoor temperature of 20˚CDB / 15˚CWB.and outdoor temperature of 7˚CDB / 6˚CWB.
Pipe length : 7.5 m, Height difference : 0 m.(Outdoor unit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

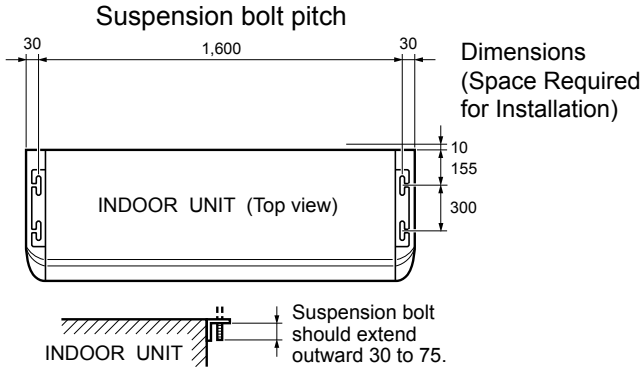
CEILING TYPE
AB∗A45L

1-4. DIMENSIONS

■MODEL: AB∗A45L

(Unit : mm)





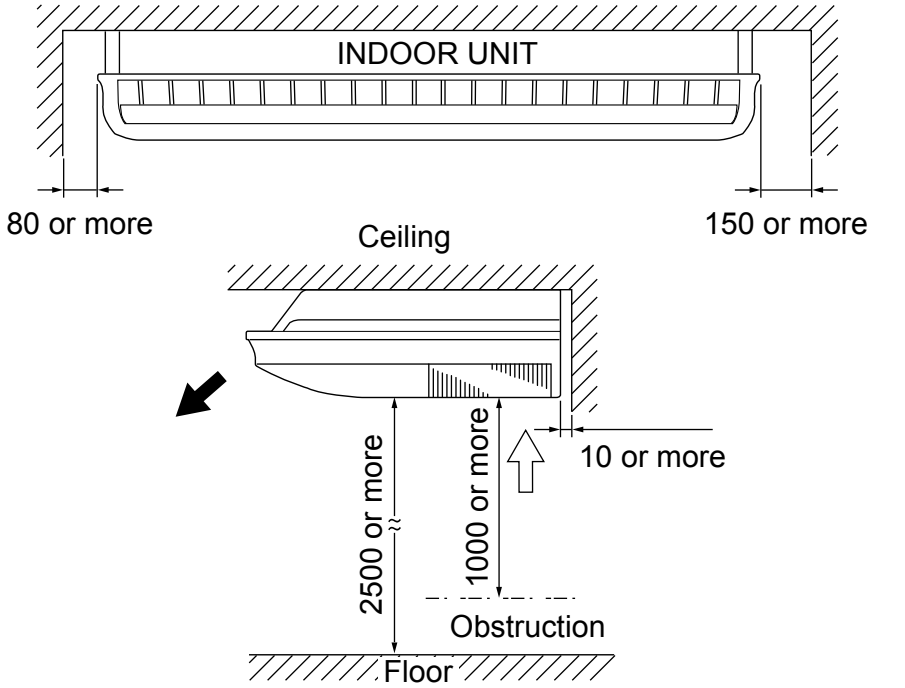
① Refrigerant piping flare connection (Gas)
② Refrigerant piping flare connection (Liquid)
③ Drain piping connection
④ Knock out hole for fresh air
⑤ Knock out hole for refrigerant piping
⑥ Hole for lifting bolt (Use M10 screw bolt)

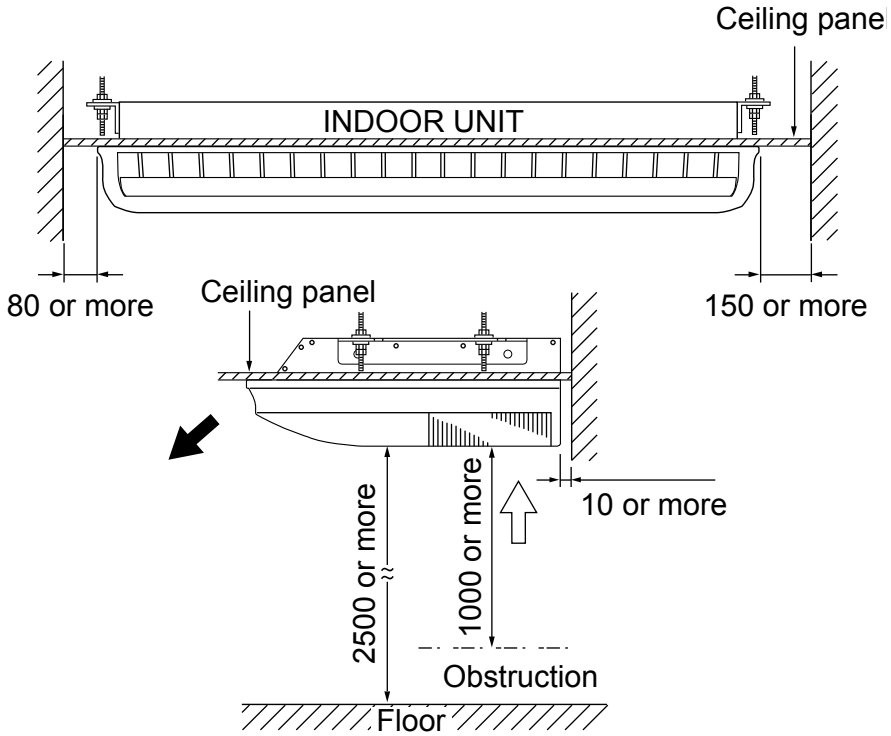
CEILING TYPE
AB∗A45L

■ INSTALLATION PLACE

(Unit : mm)

Ceiling

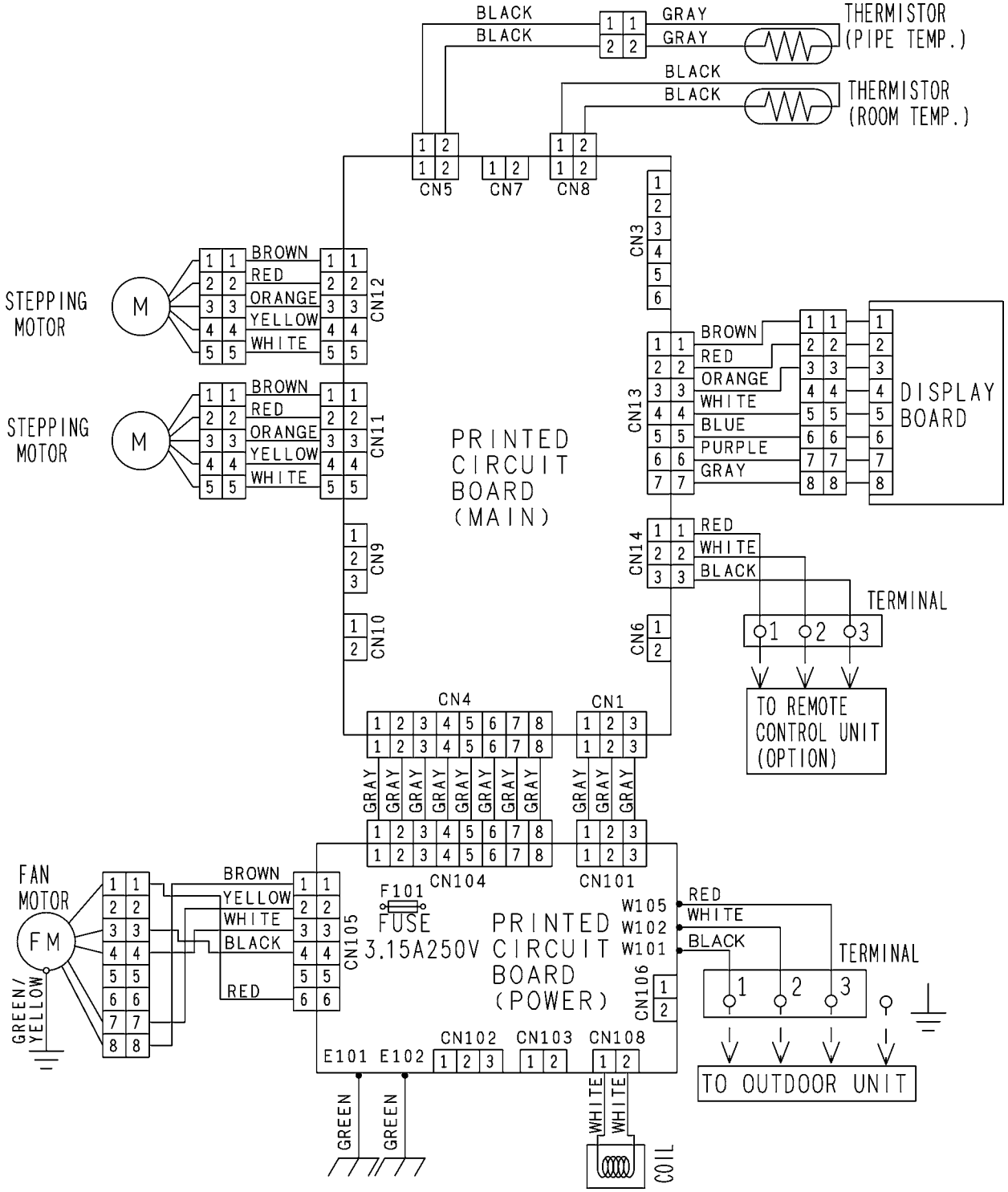




CEILING TYPE
AB∗A45L

1-5. WIRING DIAGRAMS

■ MODEL: AB∗A45L



CEILING TYPE
AB∗A45L

1-6. CAPACITY TABLE

1-6-1. COOLING CAPACITY

This table is created using the maximum capacity.

■ MODEL: AB∗A45L

AFR	35.0

		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
	-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	8.06	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	15.67	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 : Airfl ow rate (m^3/min)
TC : Total capacity (kW)
SHC : Sensible Heat capacity (kW)
PI : Power Input (kW)

CEILING TYPE
AB∗A45L

1-6-2. HEATING CAPACITY

This table is created using the maximum capacity.

■ MODEL: AB∗A45L

AFR	35.0

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
Outdoor temperature	-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^3/min)
TC : Total capacity (kW)
PI : Power Input (kW)

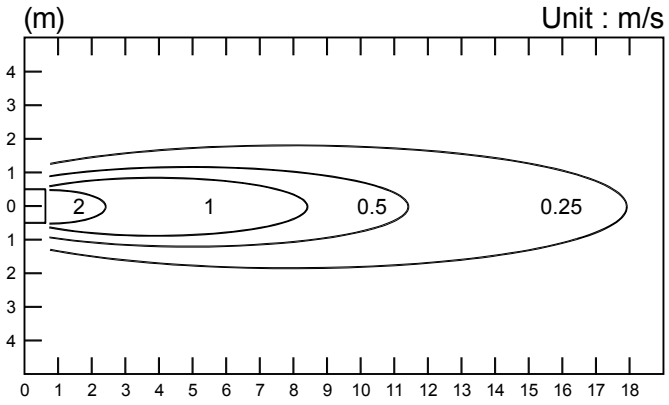
CEILING TYPE
AB∗A45L

1-7. FAN PERFORMANCE

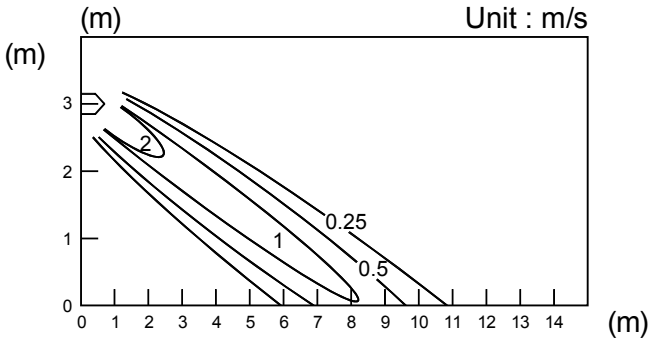
1-7-1. AIR VELOCITY DISTRIBUTION

■ MODEL: AB∗A45L

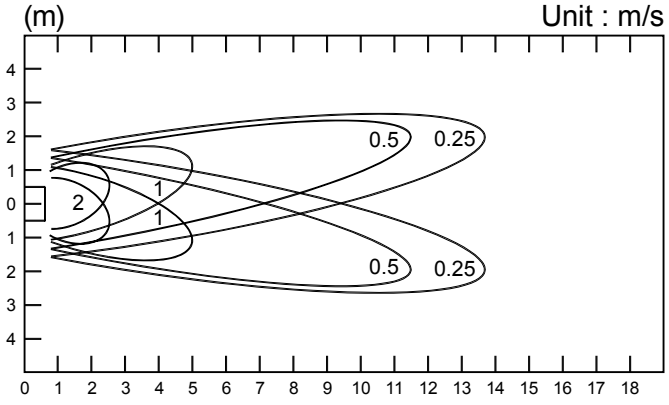
Note:
Condition
Fan speed : High
Operation mode : FAN



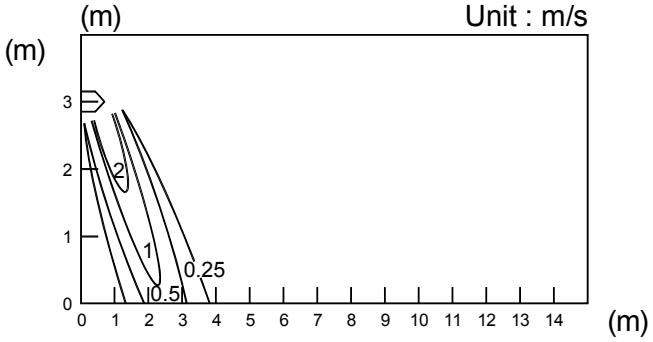
TOP VIEW
VERTICAL : UPWARD
HORIZONTAL : CENTER



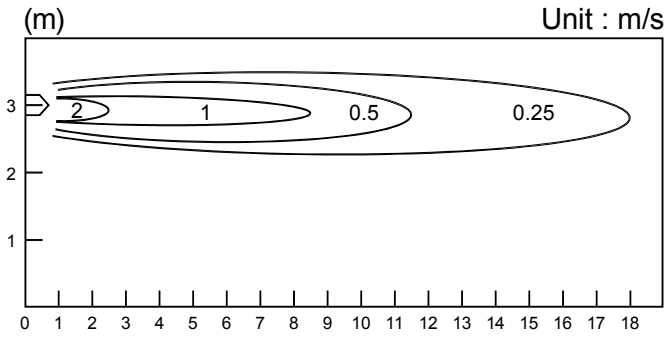
SIDE VIEW
FLAP : CENTER
HORIZONTAL : CENTER



TOP VIEW
VERTICAL : UPWARD
HORIZONTAL : RIGHT AND LEFT



SIDE VIEW
FLAP : DOWNWARD
HORIZONTAL : CENTER



SIDE VIEW
FLAP : UPWARD
HORIZONTAL : CENTER

CEILING TYPE
AB∗A45L

1-7-2. AIR FLOW

■ MODEL: AB∗A45L

● Cooling

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

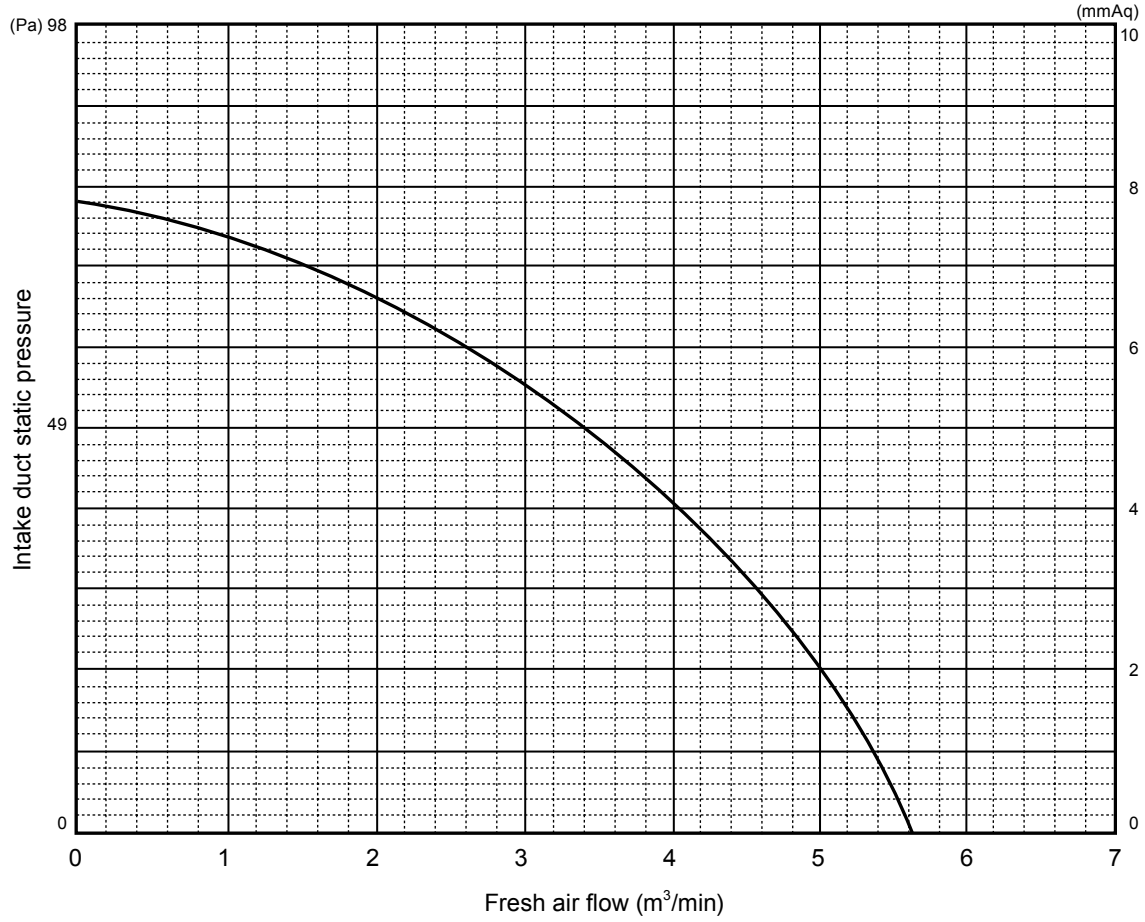
● Heating

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

CEILING TYPE
AB∗A45L

1-7-3. FRESH AIR CHARACTERISTIC

■ MODEL: AB∗A45L



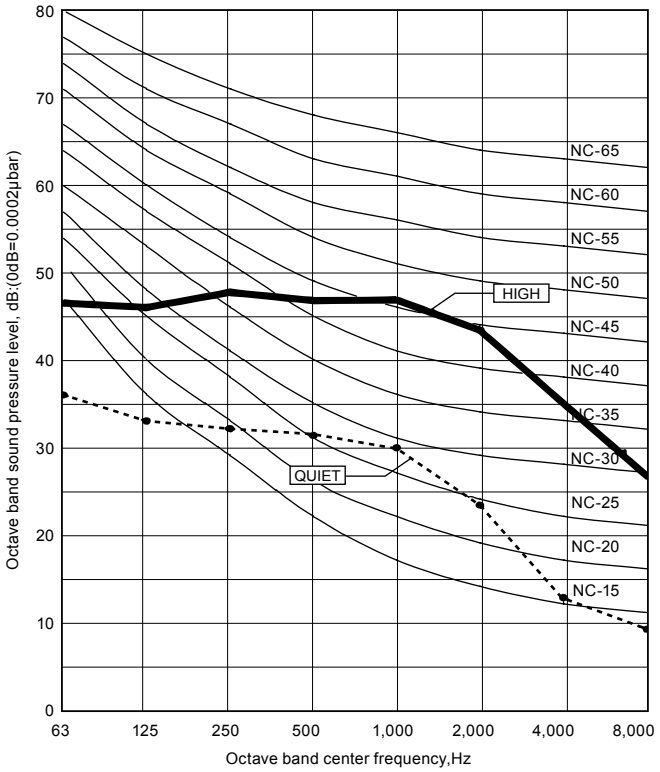
CEILING TYPE
AB∗A45L

1-8. OPERATION NOISE

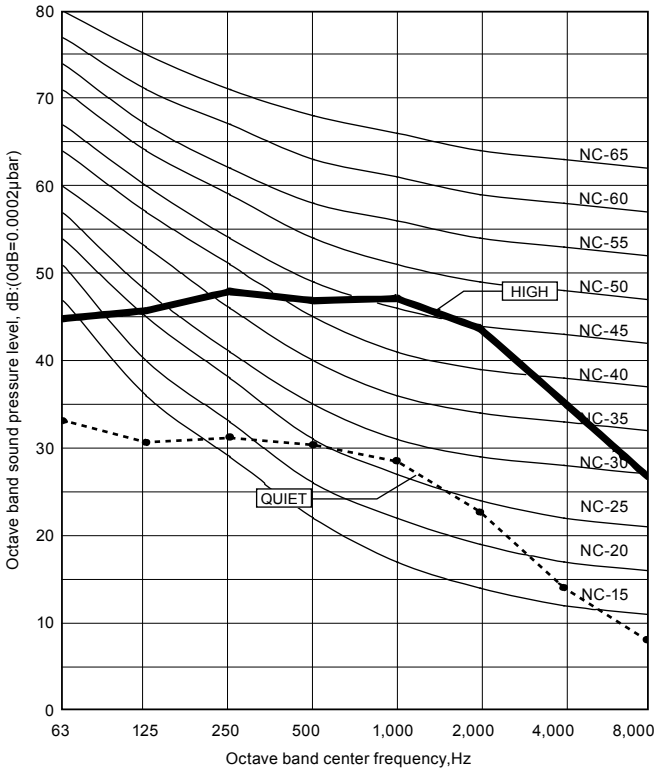
1-8-1. NOISE LEVEL CURVE

■ MODEL: AB∗A45L

● Cooling

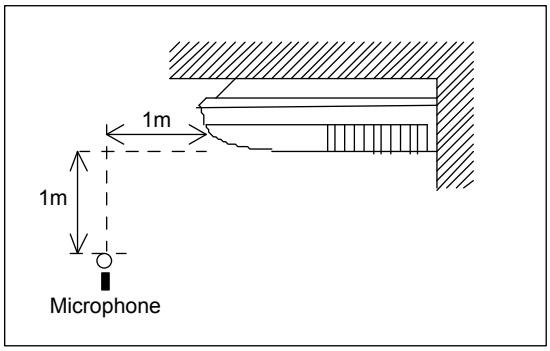


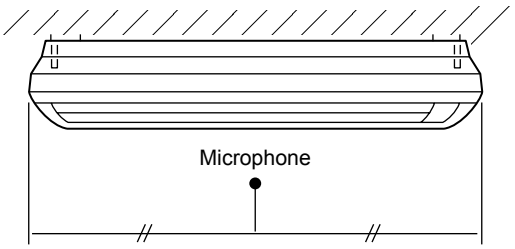
● Heating



CEILING TYPE
AB∗A45L

1-8-2. SOUND LEVEL CHECK POINT





1-9. ELECTRIC CHARACTERISTICS

Model name			AB∗A45L
Power supply	Voltage	V	230 ~
	Frequency	Hz	50
Max. operating current (Indoor unit)		A	0.8
Wiring spec. (Indoor unit to outdoor unit)	Connection cable	mm^2	1.5 (Min)
	Limited wiring length	m	50

1-10. SAFETY DEVICES

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

CEILING TYPE
AB∗A45L

1-11. EXTERNAL INPUT & OUTPUT

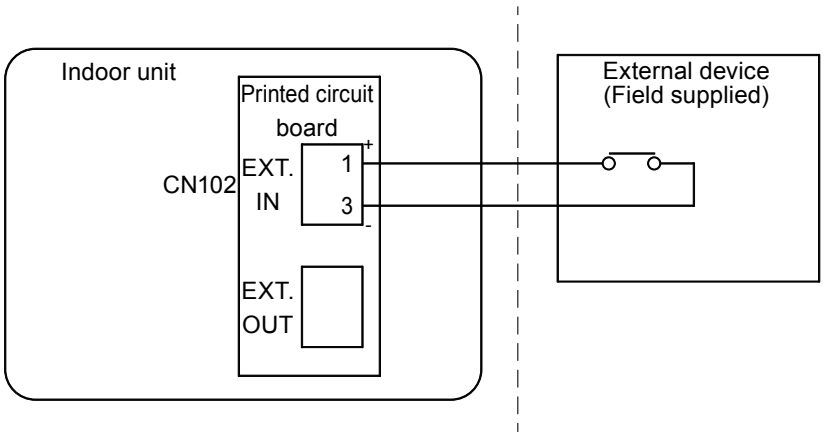
Connector	INPUT	OUTPUT	REMARKS
CN102	CONTROL OPERATION (ON / OFF)	—	See external input/output settings for details.
CN103	—	OPERATION DISPLAY	
CN6	—	FRESH AIR CONTROL	

■ EXTERNAL INPUT

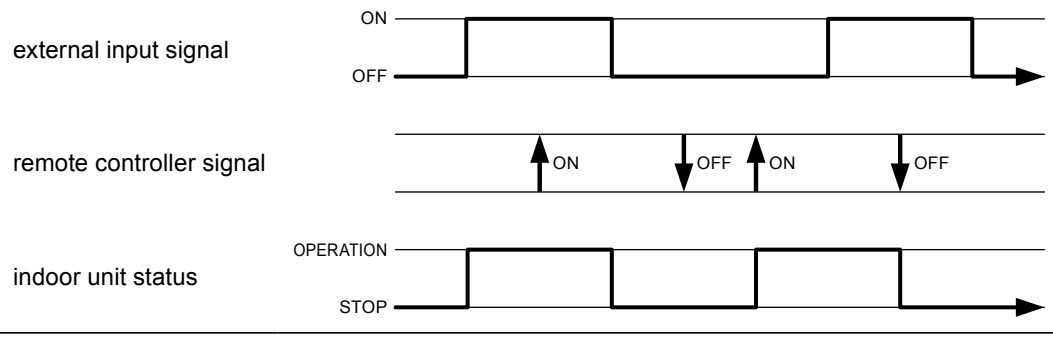
You can control air conditioner ON/OFF operation by external input.

Note) Only ON / OFF external input can be set up. Use the remote controller to set MODE, AIR FLOW RATE, SET TEMPERATURE and other values. When the air conditioner starts operating, it operates with the settings used when it stopped previously.

[Example]



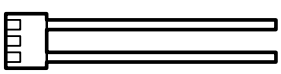
Signal Specification
Non-voltage contact ON/OFF continuous signal Contact capacity: 12VDC, 10mA



Parts (Optional)

Model name	Parts No.
UTY-XWZX	9028651003

Wire (External input) : Orange / Yellow



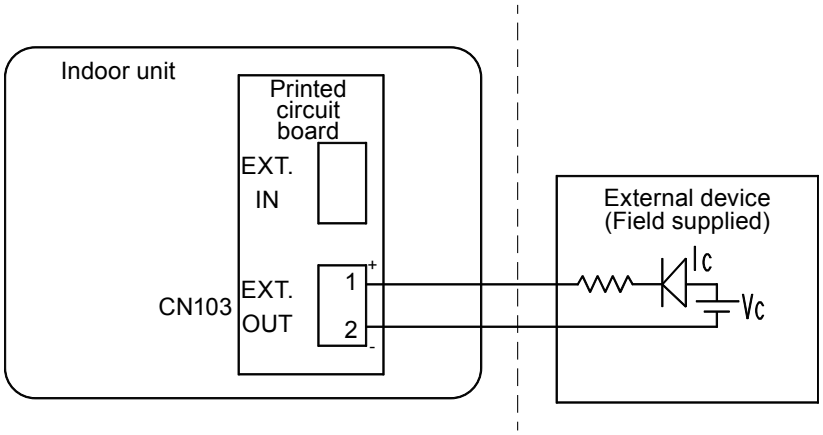
CEILING TYPE
AB∗A45L

■ EXTERNAL OUTPUT

You can display air conditioner ON/OFF operation by external output.

Note) Only ON/OFF is output as external output. Regarding MODE, AIR FLOW RATE, SET TEMPERATURE, error signals and others, please check the display on the main unit or the remote controller.

[Example]

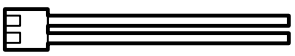


Signal Specification
Non-voltage contact Contact capacity: Max. 24VDC, 10mA to less than 1A


Parts (Optional)

Model name	Parts No.
UTY-XWZX	9028651003

Wire (External output) : Blue / Purple

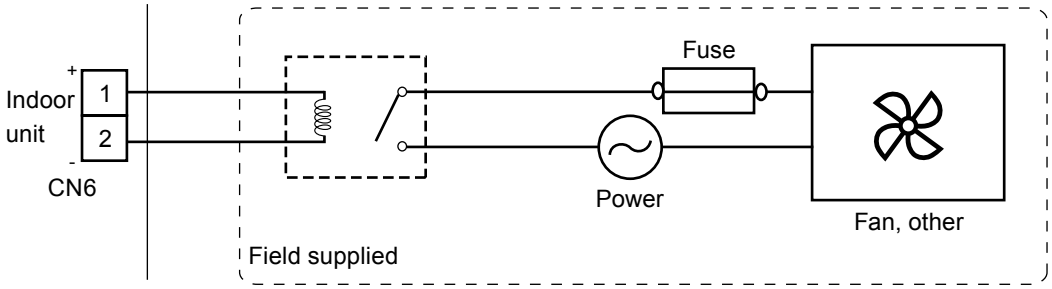


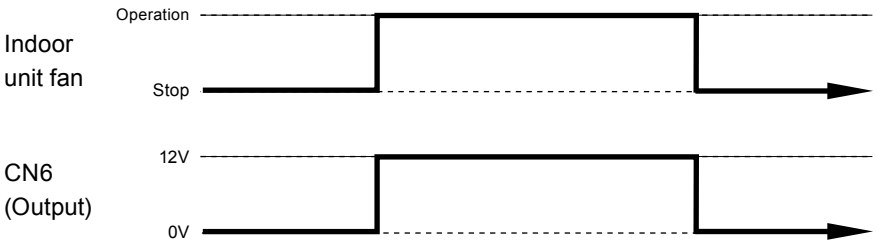
CEILING TYPE
AB∗A45L

■ FRESH AIR CONTROL OUTPUT

You can control sub fan by synchronizaton with fan operation of indoor unit.

[Example]





Parts (Optional)

Model name	Parts No.
UTD-ECS5A	9077359004

Wire (Fresh air output)

CEILING TYPE
AB∗A45L

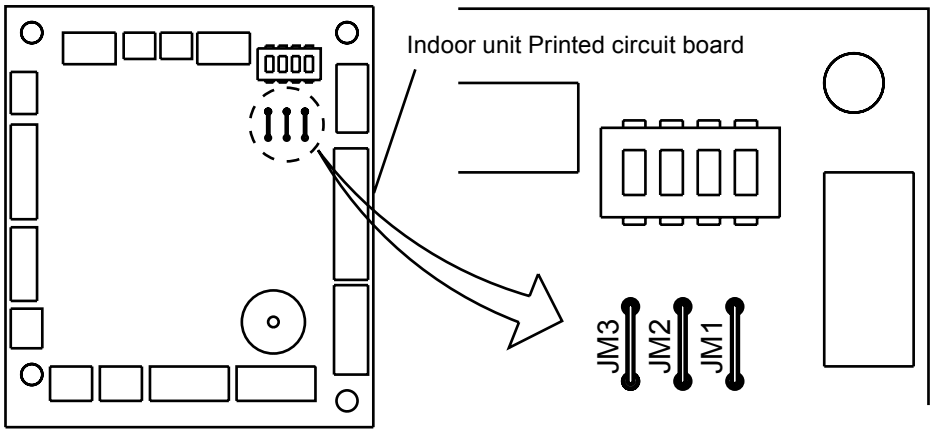
1-12. FUNCTION SETTING

1-12-1. INDOOR UNIT

INDOOR UNIT		
DIP SW	1	Forbidden
	2	
	3	
	4	
Jumper Wire	JM1	Remote control unit signal code
	JM2	
	JM3	Fan delay setting

■ SWITCH POSITION

MAIN PCB



■ JUMPER WIRE SETTING

Remote control unit signal code

Indoor unit setting **(◆··· Factory setting)**

Jumper wire		Remote control unit signal code	
JM 1	JM 2		
Connect	Connect	A	◆
Disconnect	Connect	B	
Connect	Disconnect	C	
Disconnect	Disconnect	D	

CEILING TYPE
AB∗A45L

■ FUNCTION SETTING

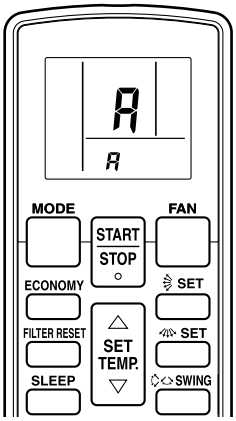
- This procedure changes to the function settings used to control the indoor unit according to the installation conditions. Incor settings can cause the indoor unit malfunction.
- After the power is turned on, perform the “FUNCTION SETTING” according to the installation conditions using the remote control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

Entering the Function Setting Mode

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

STEP 1
Setting the Remote Control Unit Signal Code

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



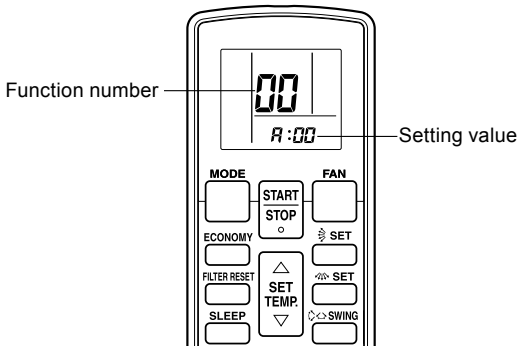
1 Press the SET TEMP. (▲) (▼) button to change the signal code between A → b → C → d. Match the code on the display to the air conditioner signal code. (initially set to A) (If the signal code does not need to be selected, press the MODE button and proceed to STEP 2.)
2 Press the TIMER MODE button and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

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

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

STEP 2
Selecting the Function Number and Setting Value

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



⚠CAUTION

After turning off the power, wait 10 seconds or more before turning on it again.
The FUNCTION SETTING doesn’t become effective if it doesn’t do so.

Setting the Ceiling Height

• Select the setting values in the table below according to the height of the ceiling.
(The unit is factory-set to “00”)

Setting Description	Function Number	Setting Value
Standard (2.5m to 3.0m)	20	00
High ceiling (3.0m or more)		01

CEILING TYPE
AB∗A45L

Setting the Filter Sign

- The indoor unit has a sign to inform the user that it is time to clean the filter.
- Select the time setting for the filter sign display interval in the table below according to the amount of dust or debris in the room. (The unit is factory-set to “00”).
- If you do not wish the filter sign to be displayed, select the setting value for “No indication”.

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

Setting the Cooler Room Temperature Correction

- Depending on the installed environment, the room temperature sensor may require a correction.
  The settings may be selected as shown in the table below.
  (The unit is factory-set to “00”.)

Setting Description	Function Number	Setting Value
Standard	30	00
Lower control		01

Setting the Heater Room Temperature Correction

- Depending on the installed environment, the room temperature sensor may require a correction.
  The settings may be changed as shown in the table below.
  (The unit is factory-set to “00”.)
  The air conditioner signal code is set to A prior to shipment.
  Contact your retailer to change the signal code.

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

Setting Other Functions

- The following settings are also possible, depending on the operating conditions.
  (The unit is factory-set to “00”.)

AUTO Restart

Setting Description	Function Number	Setting Value
Yes	40	00
No		01

Setting record

- Record any changes to the settings in the following table.

Setting	Setting Value
Ceiling height	
Filter sign	
Cooler room temperature correction	
Heater room temperature correction	
Auto restart	

After completing the FUNCTION SETTING, be sure to turn off the power and turn it on again.

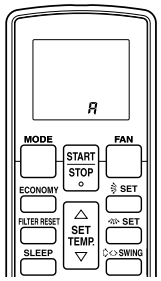
1-13. SELECTING THE REMOTE CONTROL UNIT CODE

When two or more air conditioners are installed in a room and the remote control unit is operating an air conditioner other than the one you wish to set, change the signal code of the remote control unit to operate only the air conditioner you wish to set (four selections possible).
When two or more air conditioners are installed in a room, please contact your retailer to set the individual air conditioner signal codes.

- Confirm the setting of the remote control unit signal code and the printed circuit board setting.
  If these are not confirmed, the remote control unit cannot be used to operate for the air conditioner.

Selecting the Remote Control Unit Signal Code

Use the following steps to select the signal code of the remote control unit. (Note that the air conditioner cannot receive a signal code if the air conditioner has not been set for the signal code.)



1 Press the START/STOP button until only the clock is displayed on the remote control unit display.
2 Press the MODE button for at least five seconds to display the current signal code (initially set to A).
3 Press the SET TEMP. (▲) (▼) button to change the signal code between A → b → C → d.
  Match the code on the display to the air conditioner signal code.
4 Press the MODE button again to return to the clock display.
  The signal code will be changed.

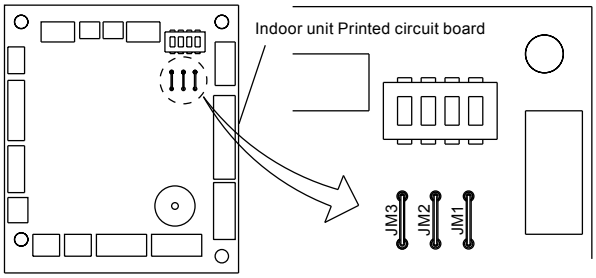
If no buttons are pressed within 30 seconds after the signal code is displayed, the system returns to the original clock display. In this case, start again from step 1.

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

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

Indoor unit setting

Jumper wire		Remote control unit signal code
JM 1	JM 2	
Connect	Connect	A (Primary setting)
Disconnect	Connect	B
Connect	Disconnect	C
Disconnect	Disconnect	D

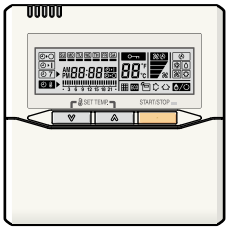
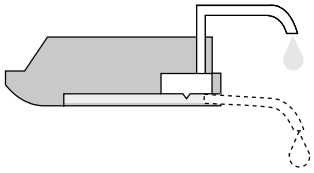
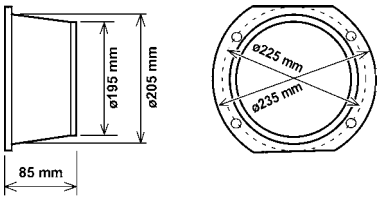
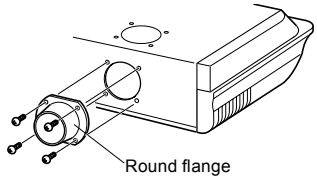
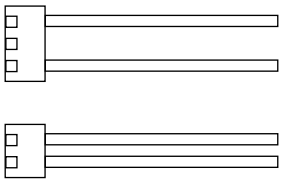
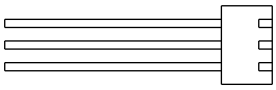


⚠CAUTION

When cutting off the jumper wire, be careful not to damage the other parts within the printed circuit board.

CEILING TYPE
AB∗A45L

1-14. OPTIONAL PARTS

Exterior	Parts name	Model No.	Summary
	Wired remote controller	UTB-∗UD	Unit control is performed by wired remote controller
	Drain Pump unit	UTR-DPB24T	Optional drain lift-up mechanism allows more flexible installation.
	Round flange	UTD-RF204	Round flange is used when the fresh air duct is installed. 
	External connect kit	UTY-XWZX	Use to connect with various peripheral devices and air conditioner PC board.
	External control set	UTD-ECS5A	Use to connect with various peripheral devices and air conditioner PC board.

2. OUTDOOR UNIT

SINGLE TYPE :

AO*A45LBTL

D2D_AO052E/01
2009.04.30

CONTENTS

2. OUTDOOR UNIT

2-1. SPECIFICATIONS

Type				INVERTER HEATPUMP
Model name				AO∗A45LBTL
Power source				230V ~ 50Hz
Available voltage range				198-264V ~ 50Hz
Starting current			A	15.0
Fan	Airflow rate	Cooling	m^3/h	6600
		Heating		6600
	Type × Q'ty			Propeller × 2
	Motor output		W	103 × 2
Sound pressure level		Cooling	dB(A)	55
		Heating		56
Heat exchanger type		Dimensions (H × W × D)	mm	1260 × 900 × 36.4
		Fin pitch		1.30
		Rows x Stages		2 × 60
		Pipe type		Copper
		Fin type		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 (Approximate colour of MUNSELL 10 YR 7.5 / 1.0)
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	Ø 9.52 (Ø 3/8 in.)
		Gas		Ø 15.88 (Ø 5/8 in.)
	Method			Flare
	Max. length		m	50(chargeless:20)
	Max. height difference			30
Operation range		Cooling	˚C	-15 to 46
		Heating		-15 to 24

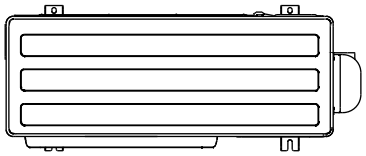
Note :
Specifications are based on the following conditions.
Cooling : Indoor temperature of 27 ˚CDB / 19 ˚CWB.and outdoor temperature of 35 ˚CDB / 24 ˚CWB.
Heating : Indoor temperature of 20 ˚CDB / 15 ˚CWB.and outdoor temperature of 7 ˚CDB / 6 ˚CWB.
Pipe length : 7.5 m, Height difference : 0 m.(Outdoor unit - Indoor unit)

OUTDOOR UNIT
AO∗A45L

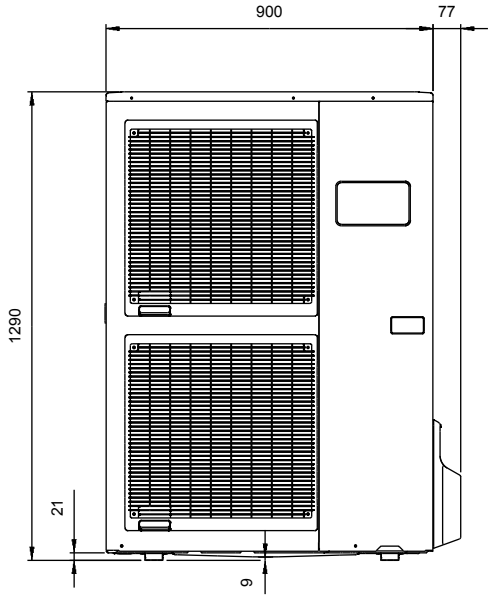
2-2. DIMENSIONS

■ MODEL: AO∗A45L

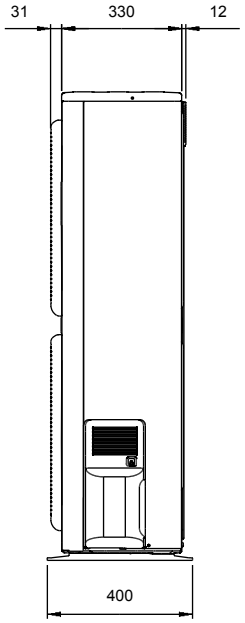
(Unit : mm)



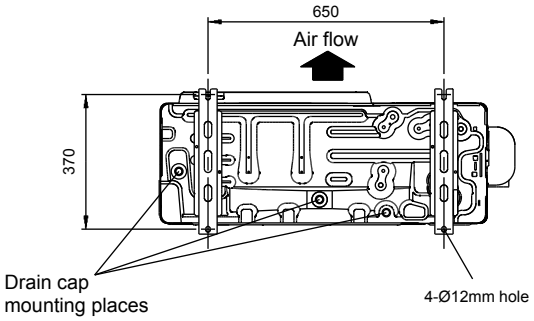
Top view



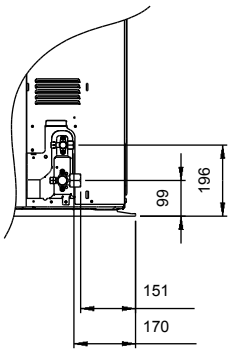
Front view



Side view

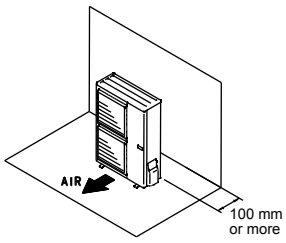


Bottom view

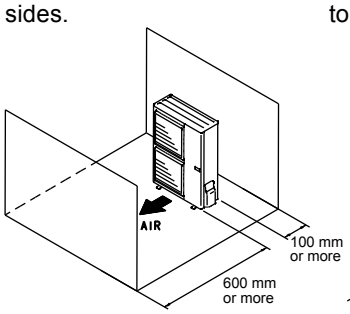


■ MOUNTING POSITION

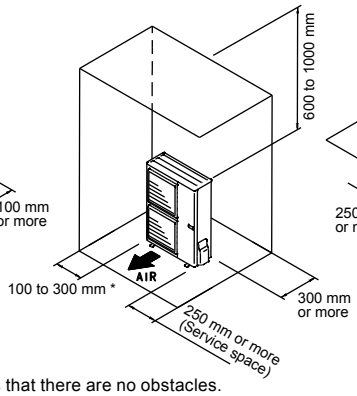
When there are obstacles at the back or front side.



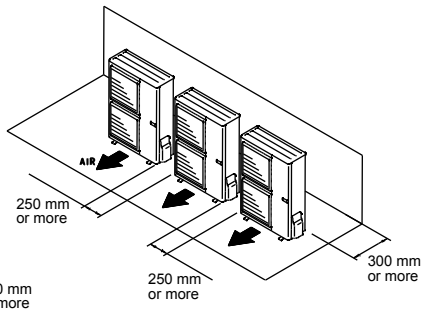
When there are obstacles at the back and front sides.



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



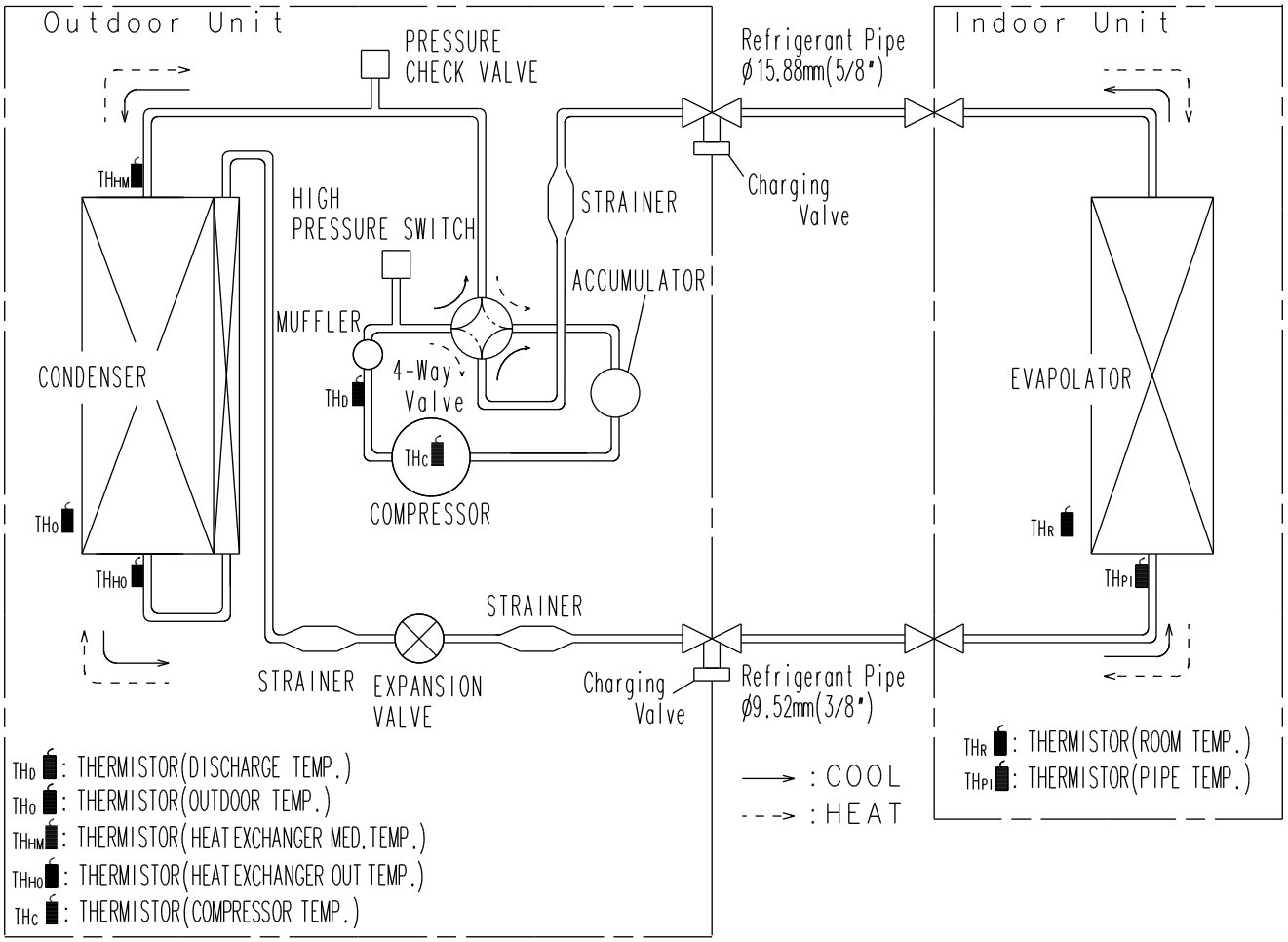
When there are obstacles at the back side with the installation of more than one unit.



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

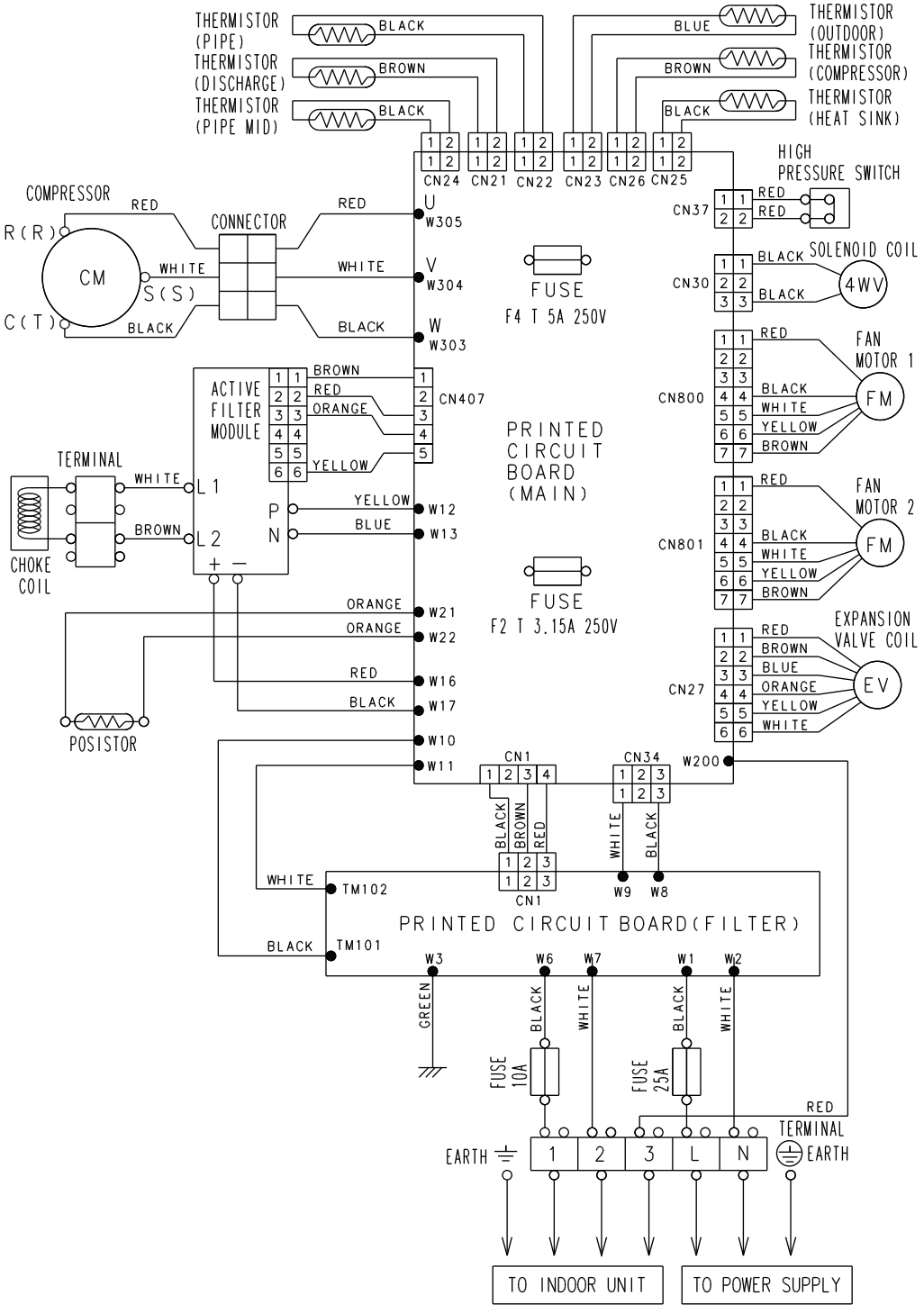
2-3. REFRIGERANT CIRCUIT

■ MODEL: AO*A45L



2-4. WIRING DIAGRAMS

■ MODEL: AO*A45L



2-5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

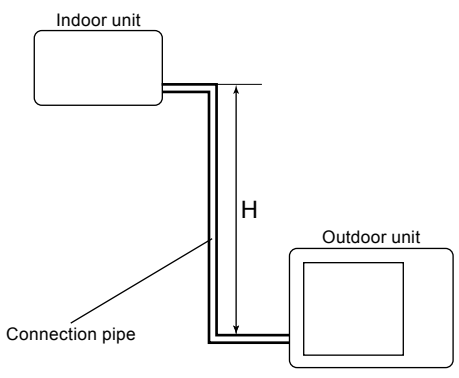
This table is created using the maximum capacity.

■ MODEL: AO∗A45L

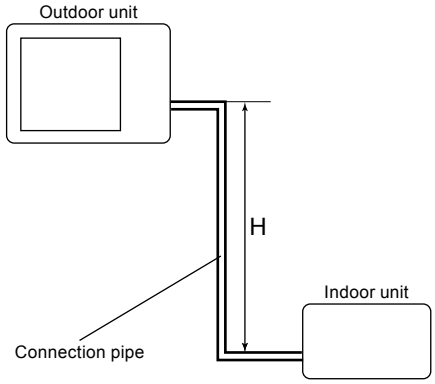
COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	30	–	–	–	–	0.893	0.890	0.870
		20	–	–	–	0.919	0.908	0.905	0.885
		10	–	–	0.979	0.934	0.923	0.920	0.899
		7.5	–	0.988	0.983	0.938	0.927	0.924	0.903
		5	1.001	0.992	0.987	0.942	0.931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

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	–	–	–	–	0.971	0.950	0.927
		20	–	–	–	0.985	0.971	0.950	0.927
		10	–	–	1.016	0.985	0.971	0.950	0.927
		7.5	–	1.000	1.016	0.985	0.971	0.950	0.927
		5	0.978	1.000	1.016	0.985	0.971	0.950	0.927
		0	0.978	1.000	1.016	0.985	0.971	0.950	0.927
	∗2 Indoor unit is under than outdoor unit	-5	0.973	0.995	1.011	0.980	0.966	0.945	0.923
		-7.5	–	0.993	1.009	0.978	0.963	0.943	0.920
		-10	–	–	1.006	0.975	0.961	0.940	0.918
		-20	–	–	–	0.966	0.951	0.931	0.909
		-30	–	–	–	–	0.942	0.921	0.899

Height difference H



∗1 Indoor unit is upper than outdoor unit.



∗2 Indoor unit is under than outdoor unit.

2-6. ADDITIONAL CHARGE CALCULATION

■ MODEL : AO∗A45L

Refrigerant type		R410A
Refrigerant amount	g	3350

● Refrigerant charge

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

OUTDOOR UNIT
AO∗A45L

2-7. AIR FLOW

■ MODEL: AO∗A45L

● Cooling

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

● Heating

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

OUTDOOR UNIT
AO∗A45L

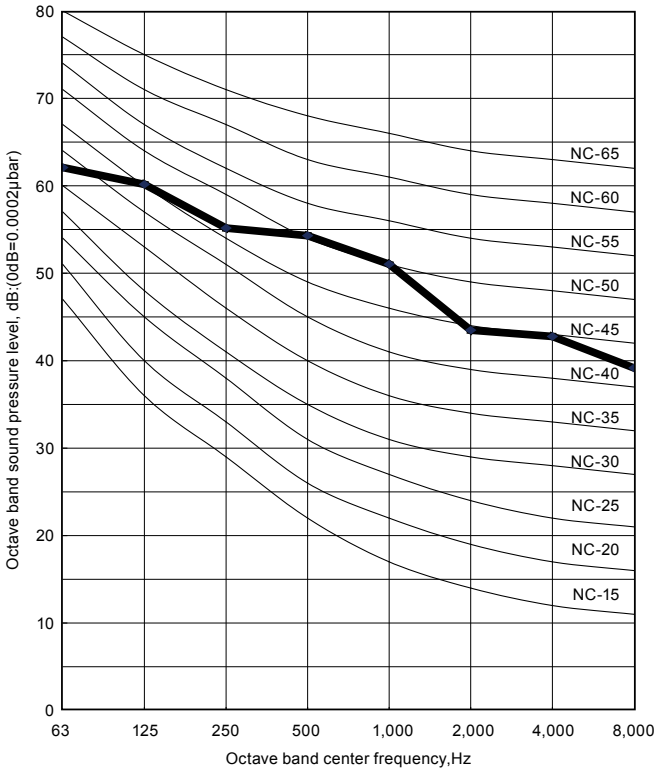
OUTDOOR UNIT
AO∗A45L

2-8. OPERATION NOISE

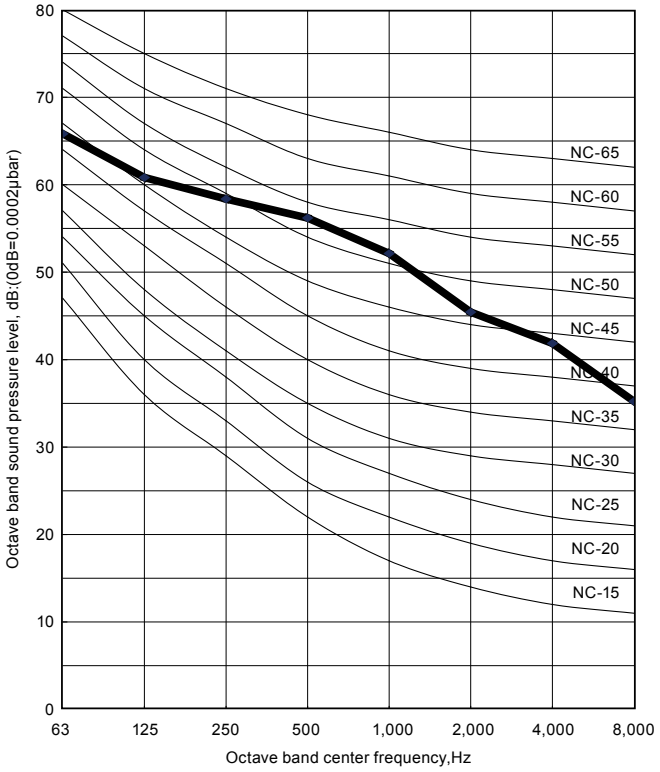
2-8-1. NOISE LEVEL CURVE

■ MODEL: AO∗A45L

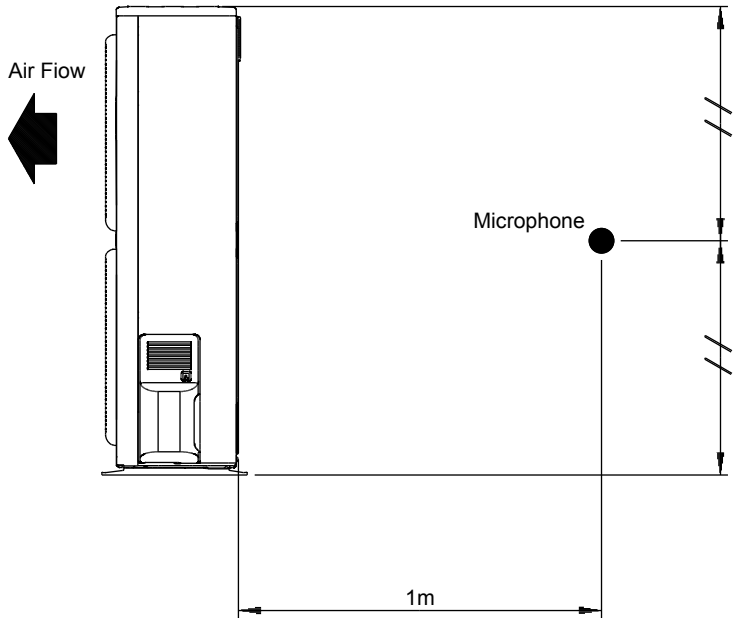
● Cooling

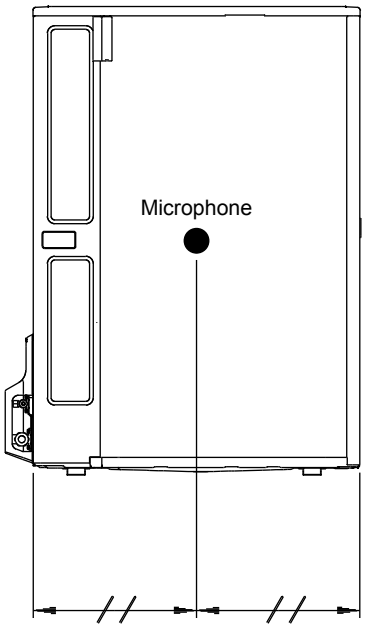


● Heating



2-8-2. SOUND LEVEL CHECK POINT





OUTDOOR UNIT
AO∗A45L

2-9. ELECTRIC CHARACTERISTICS

Model Name			AO∗A45L
Power Supply	Voltage	V	230 ~
	Frequency	Hz	50
Max. Operating Current		A	20.0
Starting Current		A	15.0
*1) Wiring Spec.	Main Fuse (Circuit breaker) Current	A	30
	Power Cable	mm^2	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.

OUTDOOR UNIT
AO∗A45L

2-10. SAFETY DEVICES

	Protection form	Model
		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

OUTDOOR UNIT
AO∗A45L