

INDOOR UNIT

1. FLOOR TYPE :

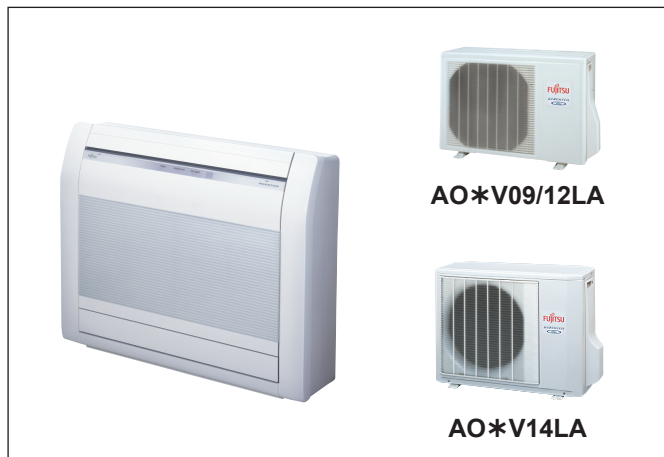
AG*F09LAC

AG*F12LAC

AG*F14LAC

1. FEATURE

■ **MODEL : AG*F09LAC**
AG*F12LAC
AG*F14LAC



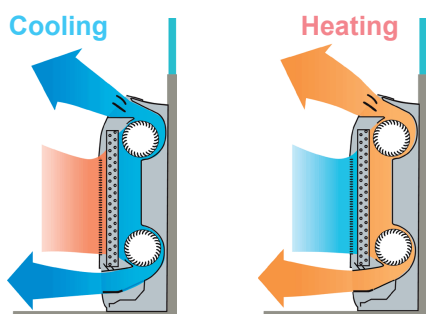
■ FEATURES

● Energy Efficiency Classification A

Europe Energy Efficiency Classification A achieved

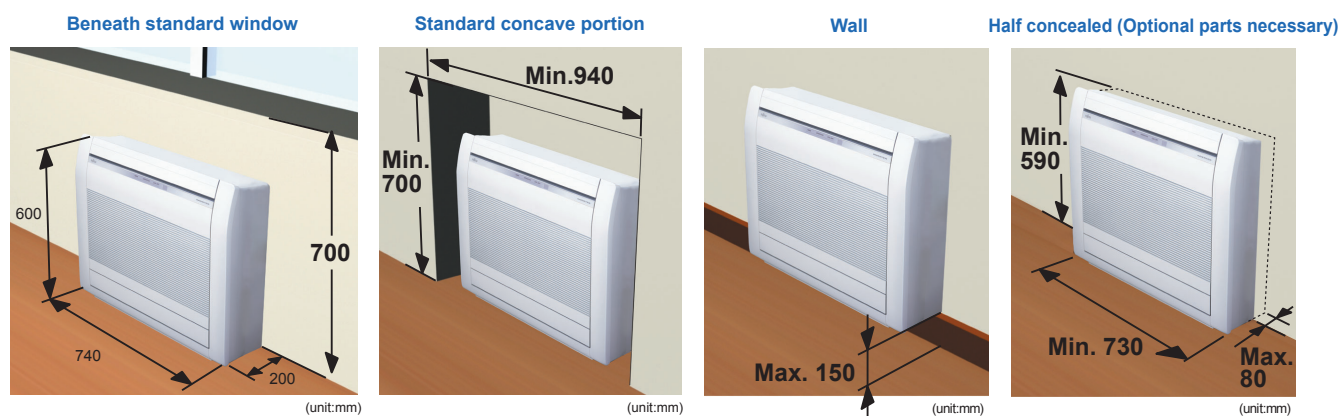
● Up and down twin fan operation

Up to every corner of the room especially around the feet is heated evenly by two-direction up and down discharge.

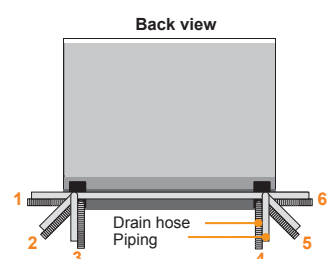


● Flexible & easy installation

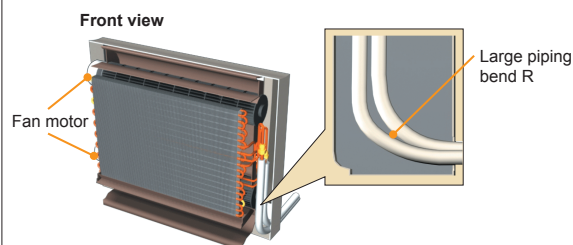
Piping space is wide and connection work is easy.



Choice of 6-direction drain & piping connection

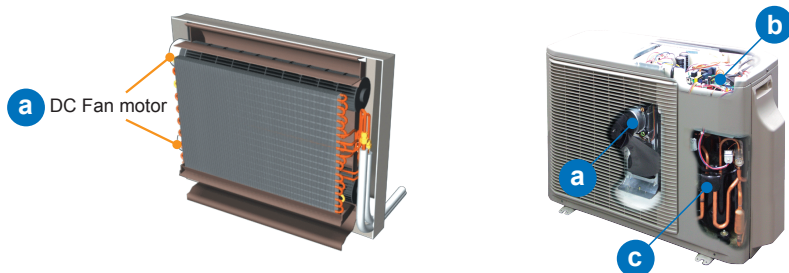


Space is wide and piping work is easy



● **ALL DC**

- a DC fan motor
- b V-PAM control
- c DC rotary compressor



● **Super quiet operation**

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

● **Inner drying operation**

This model is equipped with an inner drying function. After the power is turned off, the dry operation starts inside the air conditioner. This prevents the growth of mold and bacteria inside the air conditioner.

● **Economy mode**

Limits the maximum operation current, and performs operation with the power consumption suppressed.

● **10°C heating operation**

Operates in the 10°C heating mode so that the room does not become too cold even when you are absent during the winter, etc.

● **Low ambient outdoor temperature design**

Low ambient outdoor temperature design

Cooling	-10 to 43°C
Heating	-15 to 24°C

● **Air conditioner filter feature**

Apple-catechin filter



Long-life ion deodorization filter



2. REMOTE CONTROLLER

2-1. WIRELESS REMOTE CONTROLLER

■ FEATURES



- * Four kinds of timer setup (ON / OFF / PROGRAM / SLEEP) are possible.
- * Four kinds of timers. Easy operation.

● Built-in timers

Select from four different timer programs (On/Off/Program/Sleep).

● Program timer

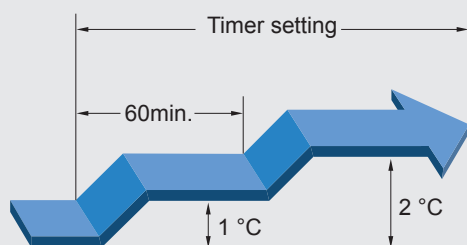
The program timer operates the ON and OFF timer once within a 24 hour period.

● Sleep timer

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

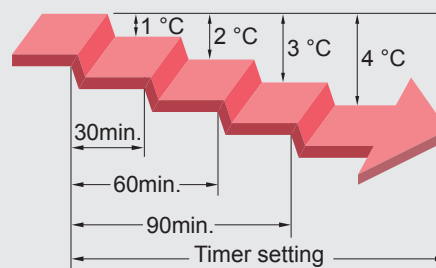
Cooling operation/dry operation

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

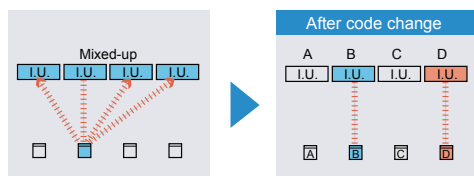


Heating operation

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



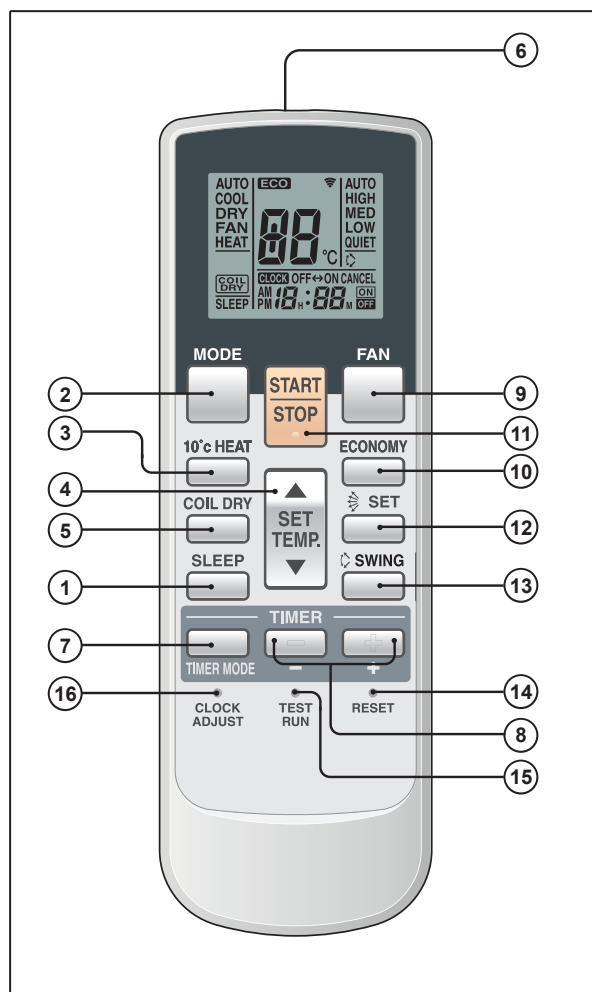
● Switching remote controller signal code



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

*I.U.=Indoor unit

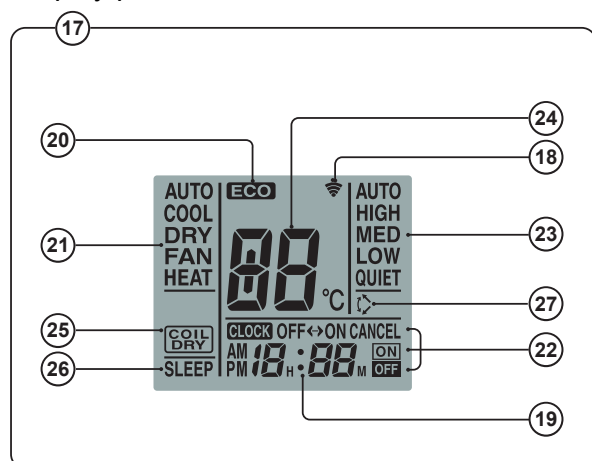
FUNCTIONS



- ① SLEEP button
- ② MODE button
- ③ 10°C HEAT button
- ④ SET TEMP. button (▲ / ▼)
- ⑤ COIL DRY button
- ⑥ Signal Transmitter
- ⑦ TIMER MODE button
- ⑧ TIMER SET (+ / -) button
- ⑨ FAN CONTROL button
- ⑩ ECONOMY button
- ⑪ START/STOP button
- ⑫ SET button
- ⑬ SWING button
- ⑭ RESET button
- ⑮ TEST RUN button

- This button is used when installing the conditioner, and should not be used under normal conditions, as it will cause the air conditioner's thermostat function to operate incorrectly.
- If this button is pressed during normal operation, the unit will switch to test operation mode, and the Indoor Unit's OPERATION Indicator Lamp and TIMER Indicator Lamp will begin to flash simultaneously.
- To stop the test operation mode, press the START/STOP button to stop the air conditioner.

Display panel



- ⑰ Remote Control Unit Display
- ⑱ Transmit Indicator
- ⑲ Clock Display
- ⑳ ECONOMY Display
- ㉑ Operating Mode Display
- ㉒ Timer Mode Display
- ㉓ Fan Speed Display
- ㉔ Temperature SET Display
- ㉕ COIL DRY Display
- ㉖ SLEEP Display
- ㉗ SWING Display

SPECIFICATION

SIZE (H x W x D mm)	176 x 56 x 18
WEIGHT (g)	110
ACCESSORY	Holder

3. SPECIFICATIONS

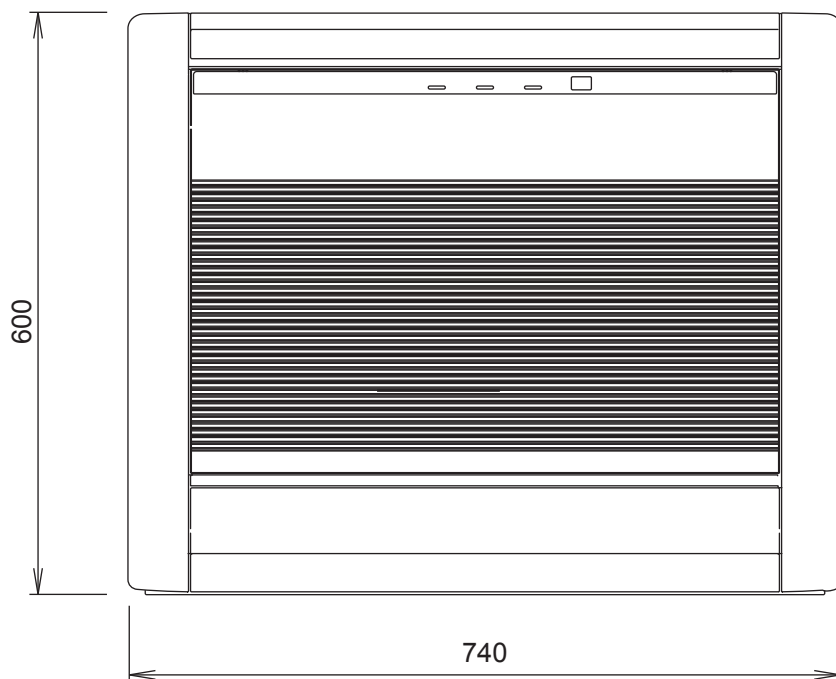
Type			FLOOR TYPE				
			INVERTER HEAT PUMP				
Model name			AG*F09LAC	AG*F12LAC	AG*F14LAC		
Power source			230V~ 50Hz				
Available voltage range			198 - 264V~ 50Hz				
European energy label			Cooling	A	A	A	
			Heating	A	A	A	
Capacity	Cooling	Rated	kW	2.60	3.50	4.20	
			BTU/h	8,900	11,900	14,300	
		Min-Max	kW	0.9 - 3.5	0.9 - 4.0	0.9 - 5.0	
	BTU/h		3,100 - 11,900	3,100 - 13,600	3,100 - 17,100		
	Heating	Rated	kW	3.50	4.50	5.20	
			BTU/h	11,900	15,400	17,700	
Min-Max		kW	0.9 - 5.5	0.9 - 6.6	0.9 - 8.0		
	BTU/h	3,100 - 18,800	3,100 - 22,500	3,100 - 27,300			
Input power	Cooling	Rated	kW	0.53	0.94	1.14	
		Min-Max		0.25 - 1.35	0.25 - 1.40	0.25 - 1.90	
	Heating	Rated		0.79	1.19	1.44	
		Min-Max		0.25 - 2.10	0.25 - 2.15	0.25 - 2.95	
Current	Cooling	Rated	A	2.6	4.4	5.2	
		Max		7.0	7.0	9.0	
	Heating	Rated		3.8	5.5	6.4	
		Max		10	10.0	13.5	
EER		Cooling	kW/kW	4.91	3.72	3.68	
COP		Heating		4.43	3.78	3.61	
SENSIBLE CAPACITY		Cooling	kW	2.33	2.66	3.15	
POWER FACTOR		Cooling	%	90	93	96	
		Heating		90	94	98	
Moisture removal			l/h (pints/h)	1.3 (2.7)	1.8 (3.8)	2.1 (4.4)	
Fan	Airflow rate	Cooling (UPPER : LOWER)	High	m ³ /h	570	570	650
			Med		460	460	520
			Low		360	360	400
			Quiet		270	270	270
		Heating (UPPER : LOWER)	High		600	600	650
			Med		480	480	520
			Low		370	370	390
			Quiet		270	270	270
	Type × Q'ty			Cross flow fan × 2			
	Motor output			W	42	42	42
Sound pressure level	Cooling	High	dB(A)	40	40	44	
		Med		35	35	38	
		Low		29	29	31	
		Quiet		22	22	22	
	Heating	High		40	40	43	
		Med		35	35	37	
		Low		29	29	29	
		Quiet		22	22	22	
Heat exchanger type		Dimensions (H × W × D)	mm	378 × 550 × 26.6			
		Fin pitch		1.2			
		Rows × Stages		2 × 18			
		Pipe type		Copper			
		Fin type		Aluminium			
Enclosure		Material	Polystyrene				
		Colour	White				
Dimensions (H × W × D)	Net	mm	600 × 740 × 200				
	Gross		700 × 820 × 310				
Weight	Net	kg(lb.)	14 (31)				
	Gross		17 (37)				
Connection pipe	Size	Liquid Gas	mm	φ6.35 (φ 1/4 in.)			
				Method	φ9.52 (φ 3/8 in.)	φ 12.70 (φ 1/2 in.)	
Operation range		Cooling	°C	18 to 32			
			%RH	80 or less			
		Heating	°C	30 or less			
Remote controller type			Wireless				
Drain pipe	Material	PP+LLDPE					
	Size	mm	Outer diameter : 29 / Inner diameter : 13.6				

Note :
 Specifications are based on the following conditions.
 Cooling : Indoor temperature of 27°CDB/19°CWB. and outdoor temperature of 35°CDB/24°CWB.
 Heating : Indoor temperature of 20°CDB/15°CWB. and outdoor temperature of 7°CDB/6°CWB.
 Pipe length : 5 m, Height difference : 0 m. (Outdoor unit - Indoor unit)
 The maximum current is the maximum value when operated within the operation range (temperature).

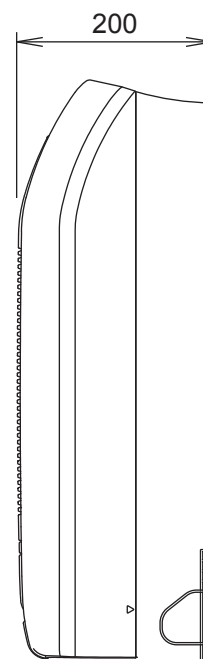
4. DIMENSIONS

■ MODEL : AG*F09LA, AG*F12LA, AG*F14LA

(Unit : mm)

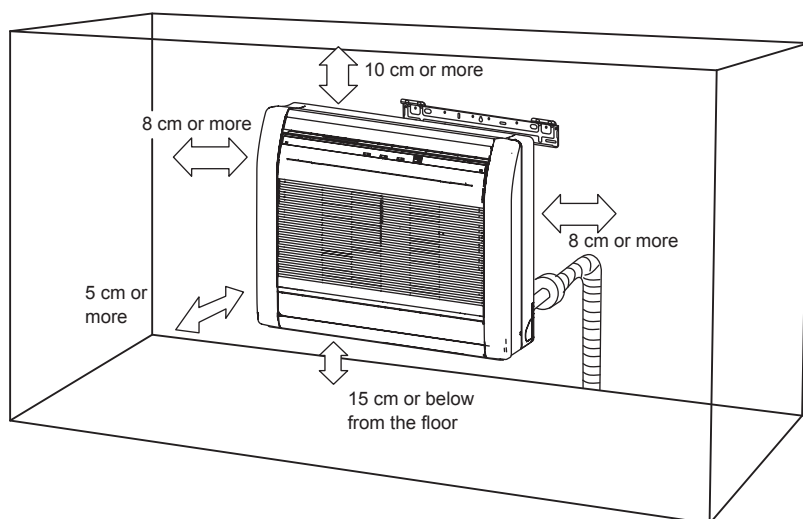


Front view



Side view

■ INSTALLATION PLACE



6. CAPACITY TABLE

6-1. COOLING CAPACITY

MODEL : AG*F09LA

AFR	9.5
-----	-----

		Indoor temperature																				
		18			21			23			25			27			29			32		
		12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	20	1.99	1.88	0.25	2.21	1.89	0.25	2.29	2.05	0.26	2.44	2.06	0.26	2.51	2.23	0.26	2.67	2.22	0.26	2.82	2.36	0.27
	25	2.27	2.15	0.41	2.53	2.16	0.42	2.61	2.35	0.42	2.79	2.35	0.43	2.87	2.54	0.43	3.04	2.53	0.43	3.22	2.70	0.44
	30	2.16	2.05	0.46	2.41	2.06	0.47	2.49	2.24	0.47	2.66	2.24	0.48	2.74	2.42	0.48	2.90	2.41	0.48	3.07	2.57	0.49
	35	2.05	1.94	0.51	2.29	1.95	0.52	2.37	2.12	0.52	2.52	2.13	0.53	2.60	2.30	0.53	2.76	2.29	0.54	2.91	2.44	0.54
	40	1.90	1.80	0.53	2.12	1.81	0.54	2.19	1.97	0.55	2.34	1.98	0.55	2.41	2.13	0.55	2.56	2.13	0.56	2.70	2.26	0.57
	43	1.87	1.77	0.54	2.08	1.78	0.55	2.15	1.93	0.55	2.30	1.94	0.56	2.37	2.10	0.56	2.51	2.09	0.57	2.65	2.22	0.57

MODEL : AG*F12LA

AFR	9.5
-----	-----

		Indoor temperature																				
		18			21			23			25			27			29			32		
		12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	20	2.67	2.17	0.45	2.98	2.19	0.45	3.08	2.38	0.45	3.28	2.39	0.46	3.38	2.58	0.46	3.59	2.57	0.47	3.79	2.73	0.47
	25	3.05	2.48	0.74	3.40	2.50	0.75	3.52	2.72	0.75	3.75	2.73	0.76	3.87	2.94	0.76	4.10	2.93	0.77	4.33	3.12	0.78
	30	2.91	2.37	0.82	3.24	2.38	0.83	3.36	2.59	0.84	3.58	2.60	0.85	3.69	2.81	0.85	3.91	2.79	0.86	4.13	2.98	0.87
	35	2.76	2.25	0.91	3.08	2.26	0.92	3.18	2.46	0.93	3.39	2.47	0.94	3.50	2.66	0.94	3.71	2.65	0.95	3.92	2.83	0.96
	40	2.56	2.08	0.95	2.86	2.10	0.96	2.95	2.28	0.97	3.15	2.29	0.98	3.25	2.47	0.98	3.44	2.46	0.99	3.63	2.62	1.00
	43	2.52	2.05	0.96	2.80	2.06	0.97	2.90	2.24	0.98	3.09	2.25	0.99	3.19	2.43	0.99	3.38	2.42	1.00	3.57	2.57	1.01

MODEL : AG*F14LA

AFR	10.8
-----	------

		Indoor temperature																				
		18			21			23			25			27			29			32		
		12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	20	3.42	2.61	0.62	3.81	2.63	0.63	3.94	2.86	0.63	4.20	2.87	0.64	4.33	3.10	0.64	4.59	3.08	0.65	4.85	3.28	0.66
	25	3.66	2.80	0.91	4.08	2.81	0.92	4.22	3.06	0.93	4.50	3.07	0.93	4.64	3.31	0.94	4.91	3.30	0.95	5.19	3.51	0.96
	30	3.50	2.67	1.00	3.90	2.69	1.02	4.03	2.92	1.02	4.30	2.93	1.03	4.43	3.16	1.04	4.69	3.15	1.05	4.96	3.36	1.06
	35	3.32	2.53	1.10	3.70	2.55	1.12	3.82	2.77	1.12	4.07	2.78	1.13	4.20	3.00	1.14	4.45	2.99	1.15	4.70	3.18	1.16
	40	2.94	2.25	1.14	3.28	2.26	1.16	3.39	2.46	1.17	3.61	2.47	1.18	3.73	2.66	1.19	3.95	2.65	1.20	4.17	2.82	1.21
	43	2.78	2.12	1.16	3.10	2.13	1.17	3.20	2.32	1.18	3.41	2.33	1.19	3.52	2.51	1.20	3.73	2.50	1.21	3.94	2.67	1.22

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

6-2. HEATING CAPACITY

■ MODEL : AG*F09LA

AFR	10.0
-----	------

		Indoor temperature										
		°CDB	16		18		20		22		24	
Outdoor temperature	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
	-15	-16	2.36	0.64	2.31	0.65	2.25	0.66	2.19	0.68	2.14	0.69
	-10	-11	2.60	0.67	2.54	0.69	2.48	0.70	2.41	0.72	2.35	0.73
	-5	-7	2.94	0.71	2.87	0.72	2.80	0.74	2.73	0.75	2.66	0.77
	0	-2	3.43	0.75	3.34	0.77	3.26	0.79	3.18	0.80	3.10	0.82
	5	3	3.80	0.80	3.71	0.82	3.62	0.84	3.53	0.85	3.44	0.87
	7	6	3.67	0.76	3.59	0.77	3.50	0.79	3.41	0.81	3.32	0.82
	10	8	4.22	0.77	4.12	0.78	4.02	0.80	3.92	0.82	3.82	0.83
15	10	4.22	0.72	4.12	0.74	4.02	0.75	3.92	0.77	3.82	0.79	

■ MODEL : AG*F12LA

AFR	10.0
-----	------

		Indoor temperature										
		°CDB	16		18		20		22		24	
Outdoor temperature	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
	-15	-16	3.04	0.96	2.97	0.98	2.89	1.00	2.82	1.02	2.75	1.04
	-10	-11	3.34	1.01	3.26	1.04	3.18	1.06	3.10	1.08	3.02	1.10
	-5	-7	3.78	1.06	3.69	1.09	3.60	1.11	3.51	1.13	3.42	1.15
	0	-2	4.40	1.14	4.30	1.16	4.20	1.18	4.09	1.21	3.99	1.23
	5	3	4.89	1.21	4.77	1.24	4.66	1.26	4.54	1.29	4.42	1.31
	7	6	4.72	1.14	4.61	1.17	4.50	1.19	4.39	1.21	4.27	1.24
	10	8	5.43	1.16	5.30	1.18	5.17	1.20	5.04	1.23	4.91	1.25
15	10	5.43	1.09	5.30	1.11	5.17	1.14	5.04	1.16	4.91	1.18	

■ MODEL : AG*F14LA

AFR	10.8
-----	------

		Indoor temperature										
		°CDB	16		18		20		22		24	
Outdoor temperature	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
	-15	-16	3.53	1.44	3.45	1.47	3.37	1.50	3.28	1.53	3.20	1.56
	-10	-11	3.67	1.54	3.58	1.57	3.50	1.60	3.41	1.63	3.32	1.67
	-5	-7	4.18	1.61	4.08	1.64	3.98	1.68	3.88	1.71	3.78	1.74
	0	-2	4.84	1.72	4.72	1.75	4.61	1.79	4.49	1.82	4.38	1.86
	5	3	5.35	1.72	5.23	1.76	5.10	1.80	4.97	1.83	4.84	1.87
	7	6	5.46	1.38	5.33	1.41	5.20	1.44	5.07	1.47	4.94	1.50
	10	8	5.14	1.39	5.02	1.42	4.89	1.45	4.77	1.48	4.65	1.51
15	10	5.42	1.16	5.29	1.19	5.16	1.21	5.03	1.24	4.90	1.26	

AFR : Air Flow Rate (m³/min)

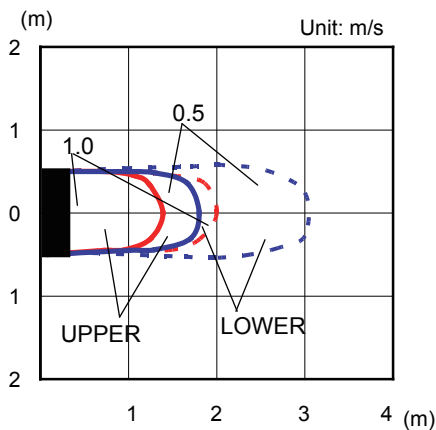
TC : Total Capacity (kW)

IP : Input Power (kW)

7. FAN PERFORMANCE

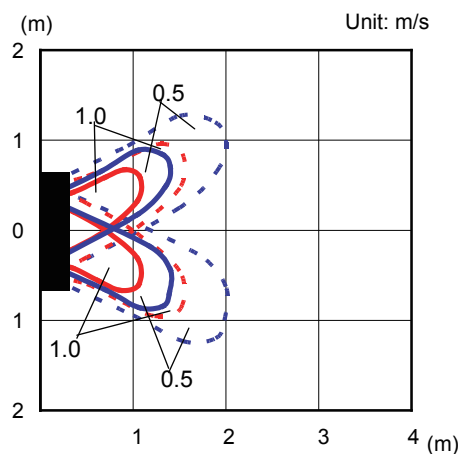
7-1. AIR VELOCITY DISTRIBUTION

■ MODEL : AG*F09LA, AG*F12LA, AG*F14LA

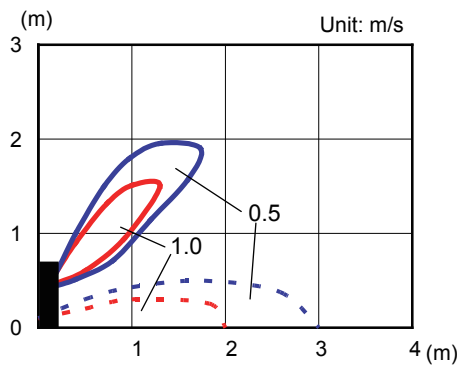


TOP VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER :Center

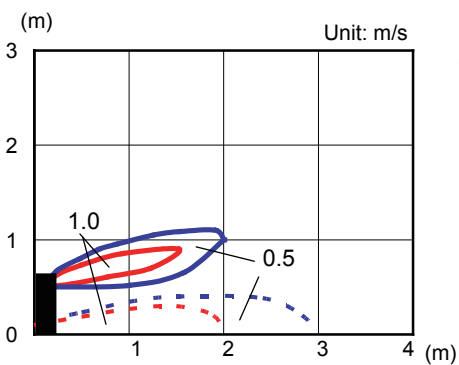
Note :
Fan speed : H i
Operation : FAN
Voltage : 230V
Fan select : UPPER&LOWER
———— : UPPER FAN
- - - - - : LOWER FAN



TOP VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER :Right & Left



SIDE VIEW
FLOW CONTROL PANEL : Vert.
LOUVER :Center



SIDE VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER :Center

7-2. AIR FLOW

■ MODEL : AG*F09LA, AG*F12LA

● COOLING

Fan speed	Number of rotations [r.p.m] (UPPER/LOWER)	Air flow	
HIGH	1190/1000	570	m ³ /h
		158	l/s
		335	CFM
MED	1000/850	460	m ³ /h
		128	l/s
		271	CFM
LOW	820/690	360	m ³ /h
		100	l/s
		212	CFM
QUIET	660/560	270	m ³ /h
		75	l/s
		159	CFM

● HEATING

Fan speed	Number of rotations [r.p.m] (UPPER/LOWER)	Air flow	
HIGH	1240/1040	600	m ³ /h
		167	l/s
		353	CFM
MED	1040/880	480	m ³ /h
		133	l/s
		282	CFM
LOW	840/700	370	m ³ /h
		103	l/s
		218	CFM
QUIET	660/560	270	m ³ /h
		75	l/s
		159	CFM

■ MODEL : AG*F14LA

● COOLING

Fan speed	Number of rotations [r.p.m] (UPPER/LOWER)	Air flow	
HIGH	1330/1120	650	m ³ /h
		181	l/s
		383	CFM
MED	1100/930	520	m ³ /h
		144	l/s
		306	CFM
LOW	890/750	400	m ³ /h
		111	l/s
		235	CFM
QUIET	660/560	270	m ³ /h
		75	l/s
		159	CFM

● HEATING

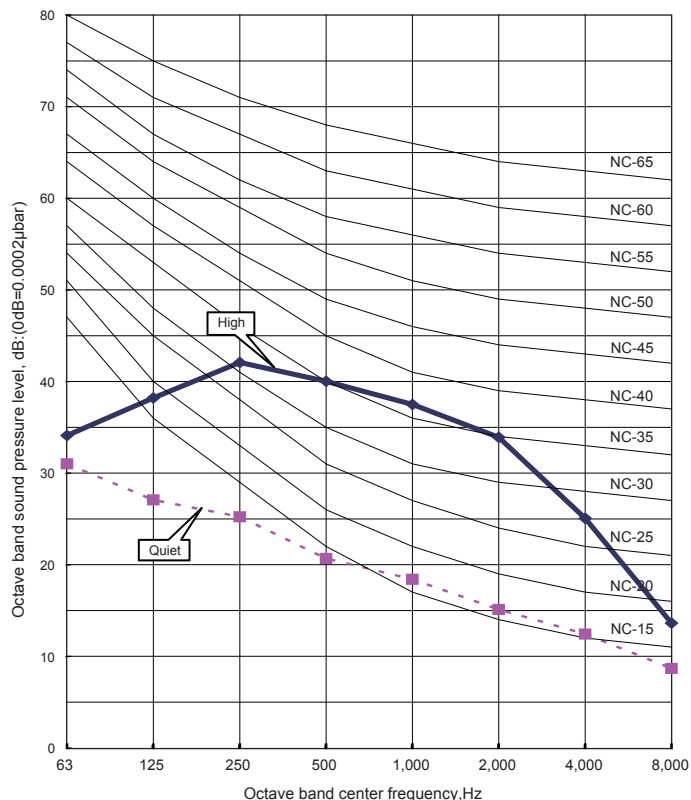
Fan speed	Number of rotations [r.p.m] (UPPER/LOWER)	Air flow	
HIGH	1330/1120	650	m ³ /h
		181	l/s
		383	CFM
MED	1100/930	520	m ³ /h
		144	l/s
		306	CFM
LOW	860/730	390	m ³ /h
		108	l/s
		230	CFM
QUIET	660/560	270	m ³ /h
		75	l/s
		159	CFM

8. OPERATION NOISE

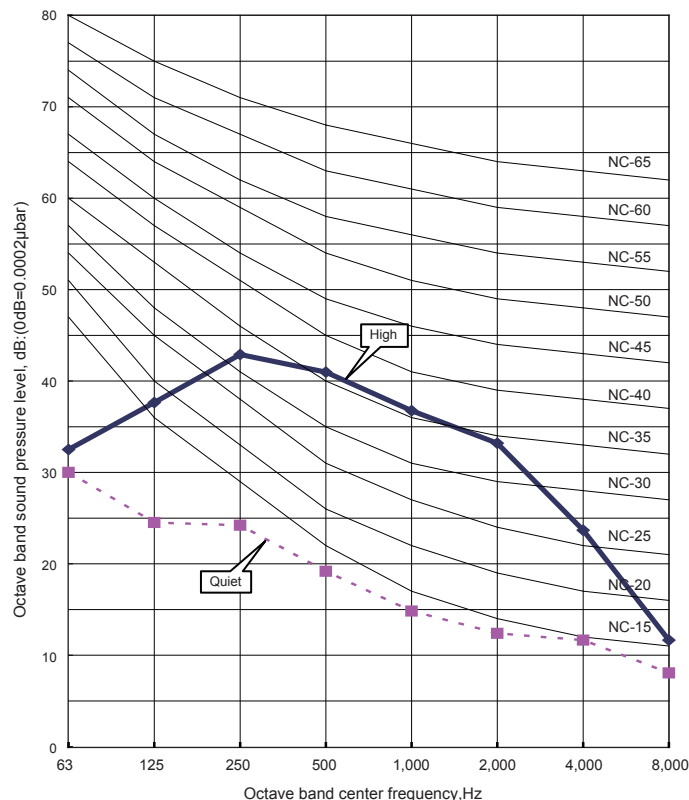
8-1. NOISE LEVEL CURVE

MODEL : AG*F09LA

● COOLING

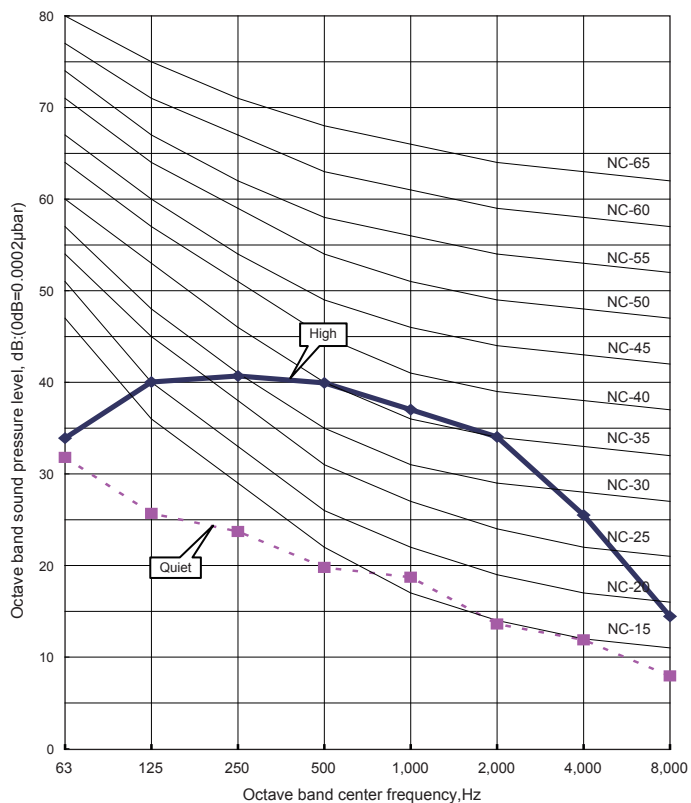


● HEATING

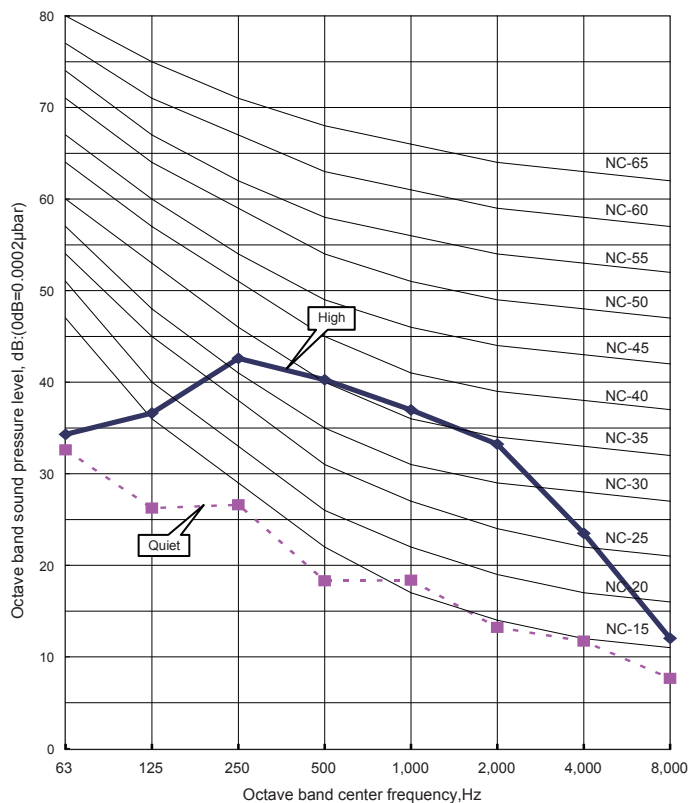


MODEL : AG*F12LA

● COOLING

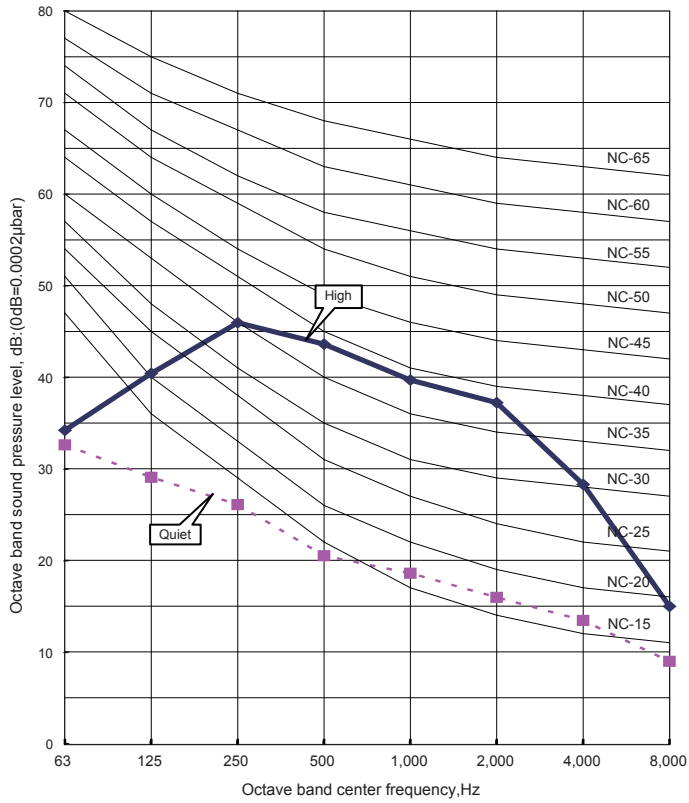


● HEATING

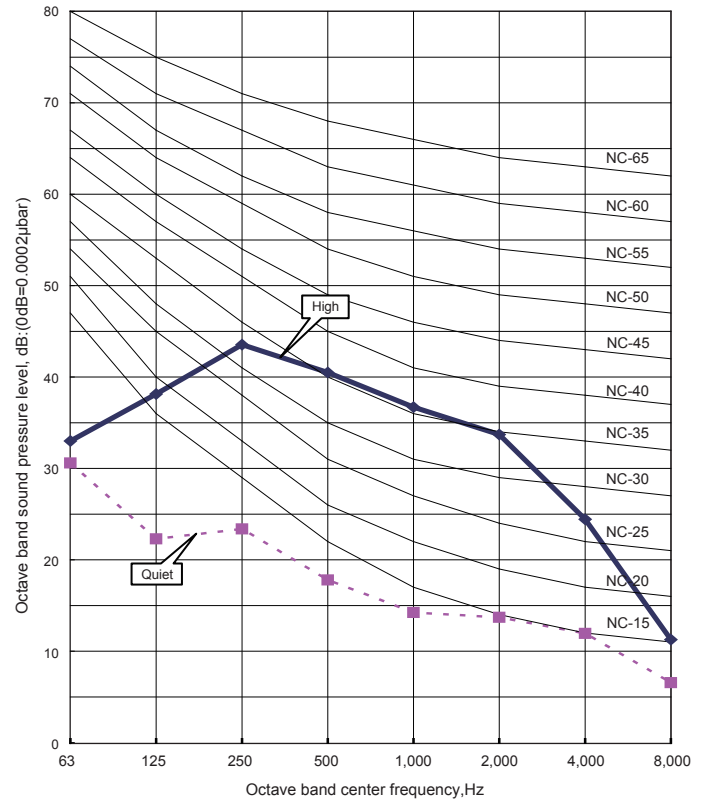


MODEL : AG*F14LA

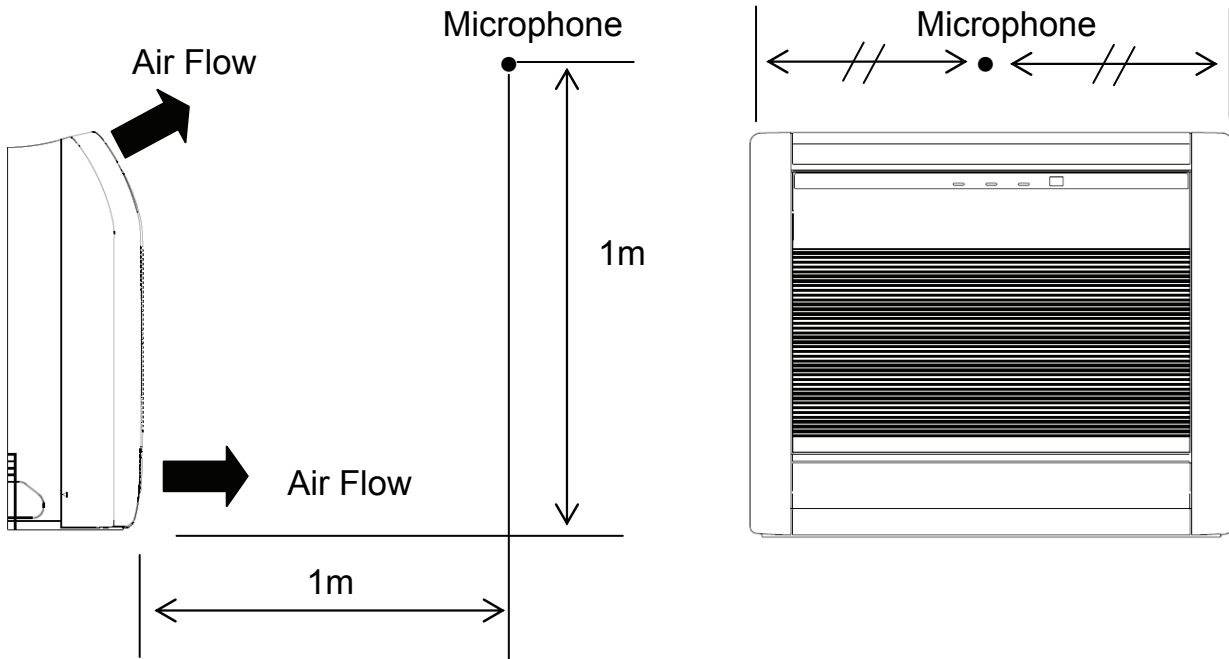
● COOLING



● HEATING



8-2. SOUND LEVEL CHECK POINT



9. ELECTRIC CHARACTERISTICS

Model Name			AG*F09LA	AG*F12LA	AG*F14LA
Power Supply	Voltage	V	230~		
	Frequency	Hz	50		
Max Operating Current		A	0.6	0.6	0.6
*1)Wiring Spec.	Circuit breaker	A	0.7	0.7	0.7
	Connection Cable	mm ²	1.5 - 2.5	1.5 - 2.5	1.5 - 2.5
	Limited wiring length	m	21	21	21

*1) Wiring Spec.

Selected Sample

(Selected based on Japan Electrotechnical Standard and Codes Committee E0005)

10. SAFETY DEVICES

	Protection form	Model		
		AG*F09LA	AG*F12LA	AG*F14LA
Circuit protection	Current fuse (PCB)	3.15A 250V		
Terminal protection	Current fuse	3A 250V		
Fan motor protection	Thermal protection program	100^{+15}_{-10} °C OFF 95^{+5}_{-10} °C ON		

11. FUNCTION SETTING

11-1. INDOOR UNIT (Setting by remote controller)

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

■ PREPARATION

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

■ FUNCTION SETTING METHOD (for Wireless remote controller)

Entering the Function Setting Mode

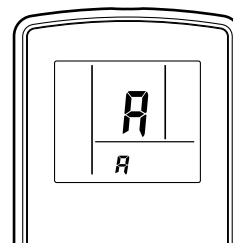
- While pressing the FAN button and SET TEMP. (▲) simultaneously, press the RESET button to enter the function setting mode.

STEP 1

Setting the Remote controller Signal Code

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

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



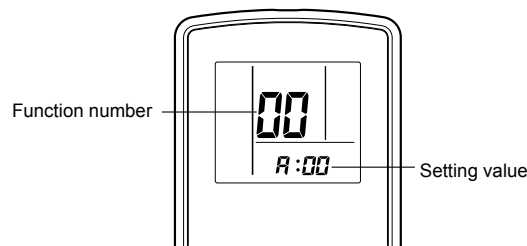
The air conditioner signal code is set to A prior to shipment.

The remote controller resets to signal code A when the batteries in the remote controller are replaced. If you use a signal code other than signal code A, reset the signal code after replacing the batteries.
If you do not know the air conditioner signal code setting, try each of the signal codes ($\overline{A} \rightarrow \overline{b} \rightarrow \overline{c} \rightarrow \overline{d}$) 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.

■ FUNCTION DETAILS

	Functions	Floor
1)	Cooler room temperature correction	●
2)	Heater room temperature correction	●
3)	Embedding the indoor unit in a wall	●
4)	Auto restart	●
5)	Indoor room temperature sensor switching function	●
6)	Remote controller signal code	●

1) Cooler room temperature correction

Depending on the installed environment, the room temperature sensor may require a correction.

The settings may be selected as shown in the table below.

(◆... Factory setting)

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

2) Heater room temperature correction

Depending on the installed environment, the room temperature sensor may require a correction.

The settings may be changed as shown in the table below.

(◆... Factory setting)

	Setting description	Function number	Setting value
◆	Standard	31	00
	Lower control		01
	Slightly warmer control		02
	Warmer control		03

3) Embedding the indoor unit in a wall

(◆... Factory setting)

	Setting description	Function number	Setting value
◆	Standard	23	00
	—		01
	In a wall		02

4) Auto restart

Enable or disable automatic system restart after a power outage.

(◆... Factory setting)

Setting description	Function number	Setting value
◆ Yes	40	00
No		01

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

5) Indoor room temperature sensor switching function

(Only for Wired remote controller)

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

(◆... Factory setting)

Setting description	Function number	Setting value
◆ No	42	00
Yes		01

*If setting value is "00" :
Room temperature is controlled by the indoor unit temperature sensor.

*If setting value is "01" :
Room temperature is controlled by either indoor unit temperature sensor or remote controller unit sensor.

6) Remote controller signal code

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

(◆... Factory setting)

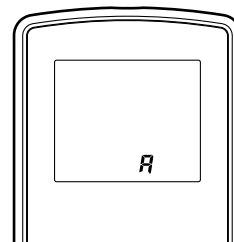
Setting description	Function number	Setting value
◆ A	44	00
B		01
C		02
D		03

■ REMOTE CONTROLLER SIGNAL CODE SETTING

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

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

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

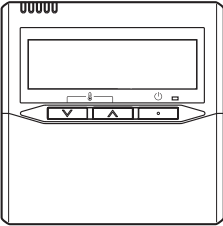
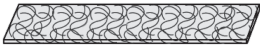
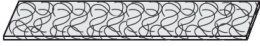
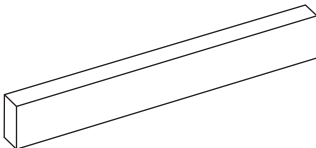
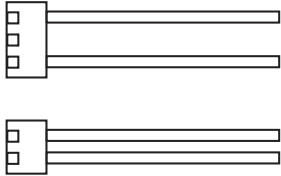


If no buttons are pressed within 30 seconds after the signal code is displayed, the system returns to the original clock display. In this case, start again from step 1.

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

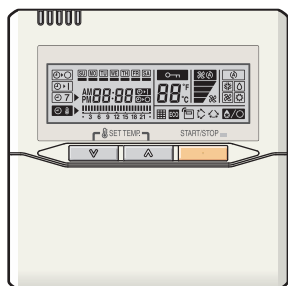
The remote controller resets to signal code A when the batteries in the remote controller are replaced. If you use a signal code other than signal code A, reset the signal code after replacing the batteries. If you do not know the air conditioner signal code setting, try each of the signal codes (**A**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

12. OPTIONAL PARTS

Exterior	Parts name	Model No.	Summary
	Wired remote controller	UTB-＊UD	Unit control is performed by wired remote controller .
	Apple-catechin filter	UTR-FC03-2	Fine dust, invisible mold spores, and harmful microorganisms are absorbed onto the filter by static electricity , and further growth is inhibited and deactivated by the polyphenol ingredient extracted from apples.
	Ion deodorisation filter	UTR-FC03-3	The filter deodorizes by powerfully decomposing absorbed odors using the oxidizing and reducing effects of ions generated by the ultra fine-particle ceramic.
	Half concealed kit	UTR-STA	Using the Unit installing of half concealed.
	External connect kit	UTY-XWZX	Use to connect with various peripheral devices and air conditioner PC board.

12-1. WIRED REMOTE CONTROLLER

FEATURES



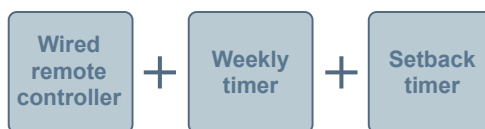
- * Various timer setup (ON / OFF / WEEKLY) are possible.
- * Equipped with weekly timer as standard function.
(2 times Start / Stop per day for a week)
- * When setting up a timer, operation mode and a temperature setup can be changed.
- * When a failure occurs, the error code is displayed.
- * Error indication.
- * Economy operation are possible.
- * Easy installation with a slim shape with no bulge in the back.

Simple function setting

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

High performance and compact size

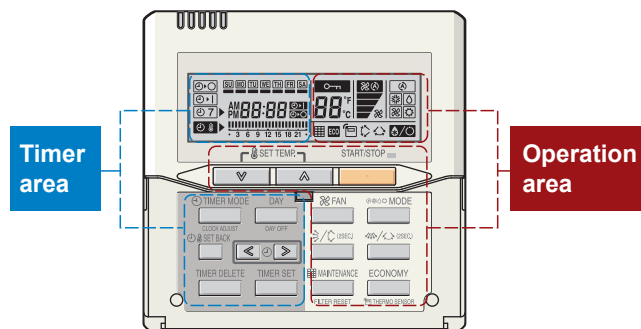
Three functions are combined in one unit.



Built-in timers

Weekly timer	Setback timer
<p>Possible to set ON/OFF time to operate twice each day of the week.</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Easy-to-understand time bar display</div> <p>Screen after setup</p> <p>Setup screen example (Set to Wednesday: 8:00 to 20:00.)</p>	<p>Possible to set temperature for two time spans and for each day of the week.</p> <p>Setup screen example (Set from Sunday to Saturday: 12:00 to 15:00, 28 °C.)</p>
At "Weekly timer" + "Set back timer" setup	

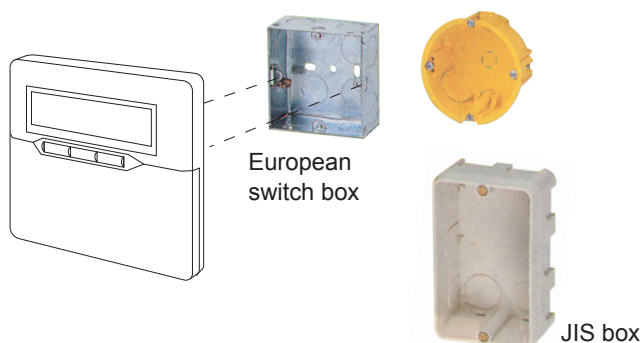
Easy-to-understand operation



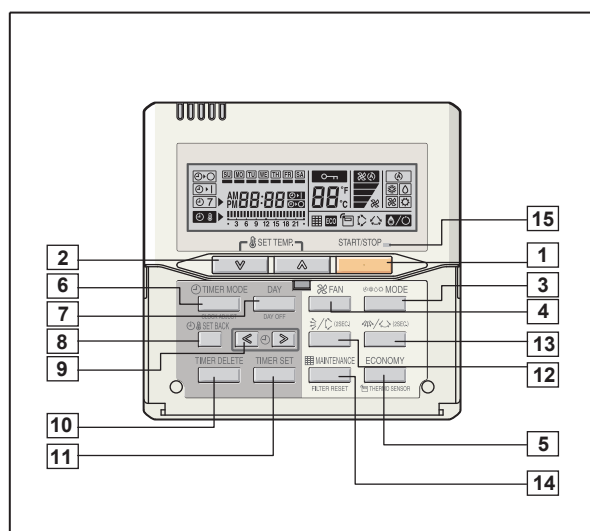
[Variable timer control]
The operation/display sections are zoned according to time and operation, enabling variable programming to match application.

Simple installation

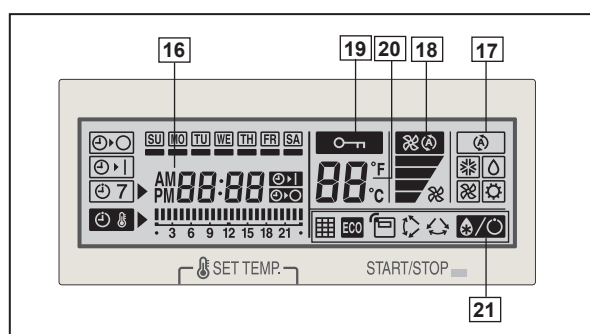
Components are compatible with standard switch boxes. Flat back construction allows equipment to be installed wherever it is needed.



FUNCTIONS

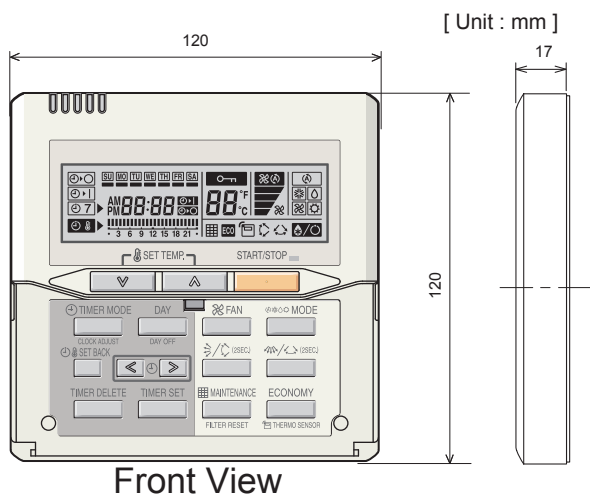


Display panel



- 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 to 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*1)
Push for two seconds to change the swing mode.
- 14 Filter button*1)
- 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
 - ECO Economy display
 - ↕ Vertical swing display
 - ↔ Horizontal swing display
 - ☐ Filter display

DIMENSION



Front View

SPECIFICATION

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

*1) Button number 13 and 14 can not be operated.

12-2. EXTERNAL CONNECT KIT

This kit allows to operate the air conditioner, such as stopping and starting, using an external device, and output the operation status of the air conditioner.

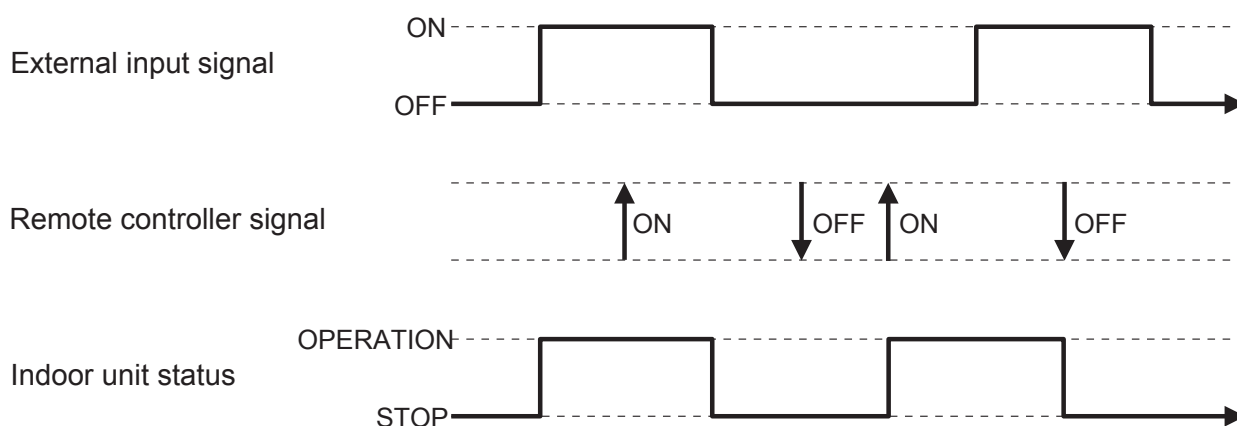
- Only operation and stop signals will be output.
Use the remote control to check the operation mode, temperature, and airflow.
Check the error information on the display area of the main unit.
- Operation mode, temperature, and airflow cannot be set by external input. Use the remote controller to set.
- If the air-conditioner is activated by external input, it will operate in the settings before stop. To change the settings, use the remote controller.

12-2-1. CONTROL INPUT SETTING

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

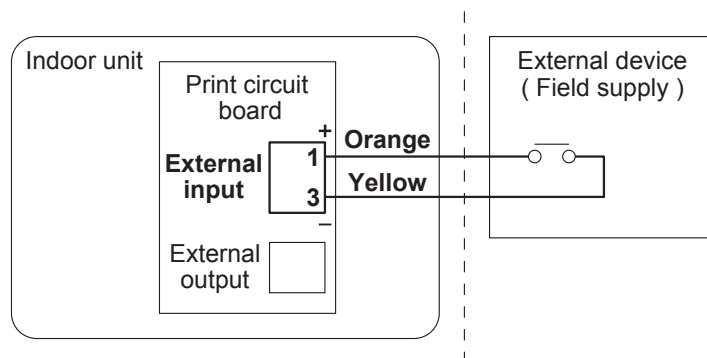
● Signal specification

- No voltage ON/OFF continuous signal.
- Contact capacity : DC12V 10mA

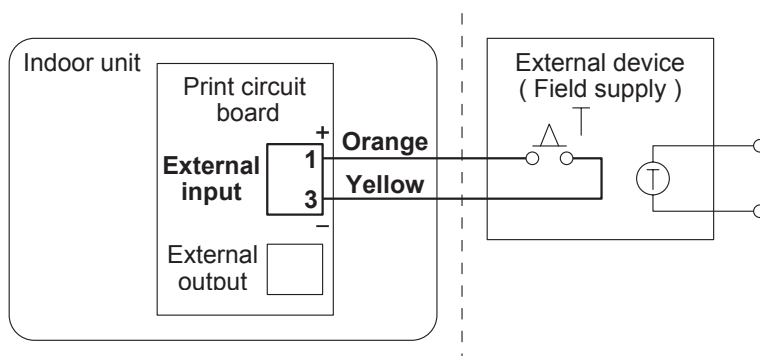


● Installation example

- For remote operation



- For external timer operation

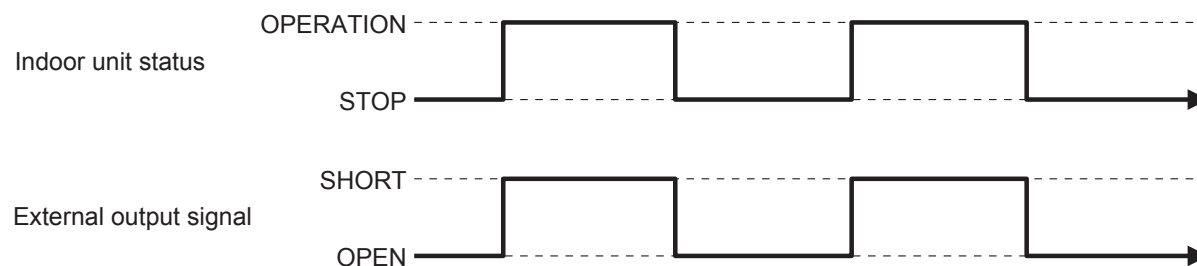


12-2-2. Operating output setting

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

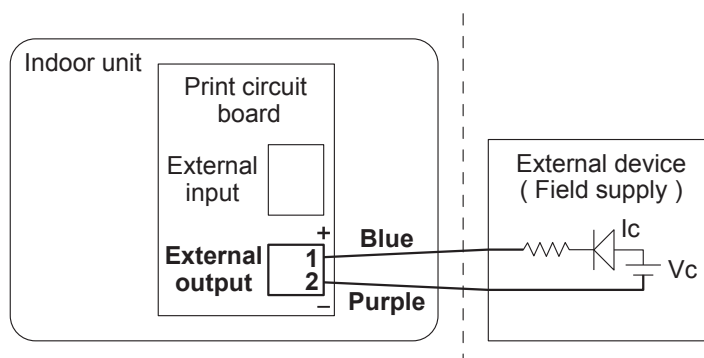
● Signal specification

- No voltage contact.
- Contact capacity : Max. DC24V 10mA to 1A or less



● Installation example

For operation display



OUTDOOR UNIT

2. SINGLE TYPE :

AO * V09LAC

AO * V12LAC

AO * V14LAC

1. SPECIFICATIONS

OUTDOOR UNIT
AO*V09-12-14LA

OUTDOOR UNIT
AO*V09-12-14LA

Type			INVERTER HEAT PUMP			
Model name			AO * V09LAC	AO * V12LAC	AO * V14LAC	
Power source			230V~ 50Hz			
Available voltage range			198 - 264V~ 50Hz			
Starting current		A	3.8	5.5	6.4	
Fan	Airflow rate	Cooling	m ³ /h	1,680	1,680	1,910
		Heating		1,490	1,680	1,750
	Type × Q'ty			Propeller fan × 1	Propeller fan × 1	Propeller fan × 1
	Motor output		W	33	33	56
Sound pressure level	Cooling	dB(A)	47	48	50	
	Heating		48	49	50	
Heat exchanger type	Dimensions (H × W × D)		mm	504 × 850 × 36.4	504 × 850 × 36.4	546 × 876 × 36.4
	Fin pitch			1.40	1.40	1.30
	Rows × Stages			2 × 24	2 × 24	2 × 26
	Pipe type			Copper	Copper	Copper
	Fin type			Aluminium	Aluminium	Aluminium
Compressor	Type × Q'ty			Rotary × 1	Rotary × 1	Rotary × 1
	Motor output		W	750	750	1,100
Refrigerant	Type			R410A	R410A	R410A
	Charge	g	1,050	1,050	1,150	
Refrigerant oil	Type			ESTER OIL	ESTER OIL	ESTER OIL
Enclosure	Material			Steel	Steel	Steel
	Colour			Beige	Beige	Beige
Dimensions (H × W × D)	Net		mm	540 × 790 × 290	540 × 790 × 290	578 × 790 × 300
	Gross			648 × 910 × 380	648 × 910 × 380	648 × 910 × 380
Weight	Net		kg(lb.)	36 (79)	36 (79)	40 (88)
	Gross			40 (88)	40 (88)	44 (97)
Connection pipe	Size	Liquid	mm	Φ6.35 (Φ 1/4 in.)		
		Gas		Φ9.52 (Φ 3/8 in.)	Φ 12.70 (Φ 1/2 in.)	
	Method			Flare		
	Max. length		m	20 (chargeless : 15)		
	Max. height difference			15		
Operation range	Cooling	°C	-10 to 43			
	Heating		-15 to 24			

Note :

Specifications are based on the following conditions.

Cooling : Indoor temperature of 27°CDB/19°CWB. and outdoor temperature of 35°CDB/24°CWB.

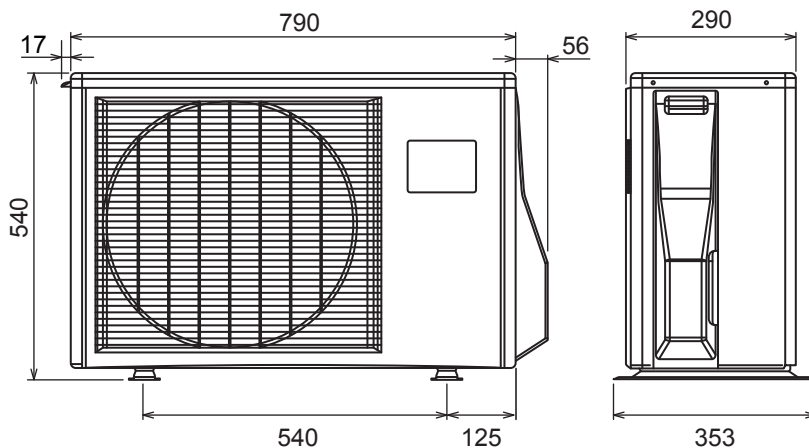
Heating : Indoor temperature of 20°CDB/15°CWB. and outdoor temperature of 7°CDB/6°CWB.

Pipe length : 5 m, Height difference : 0 m. (Outdoor unit - Indoor unit)

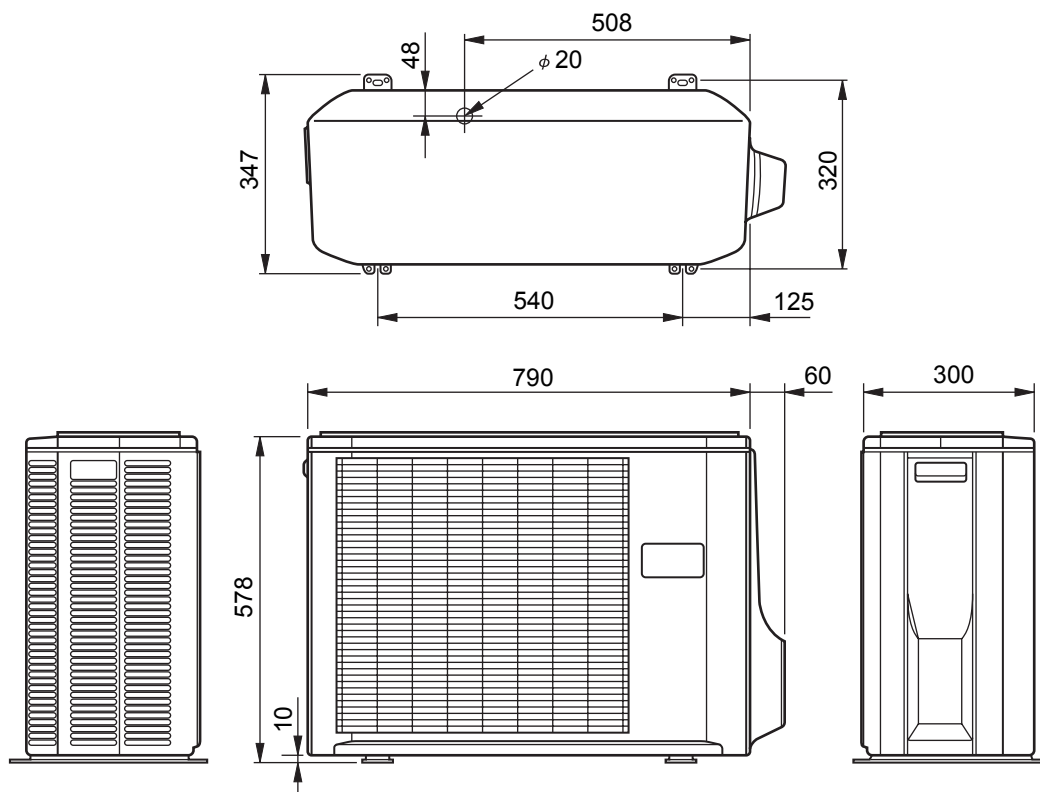
2. DIMENSIONS

■ MODEL : AO*V09LA, AO*V12LA

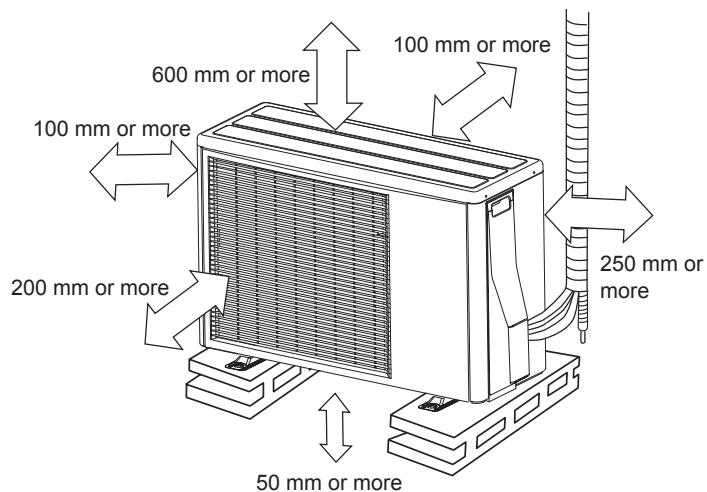
(Unit : mm)



■ MODEL : AO*V14LA

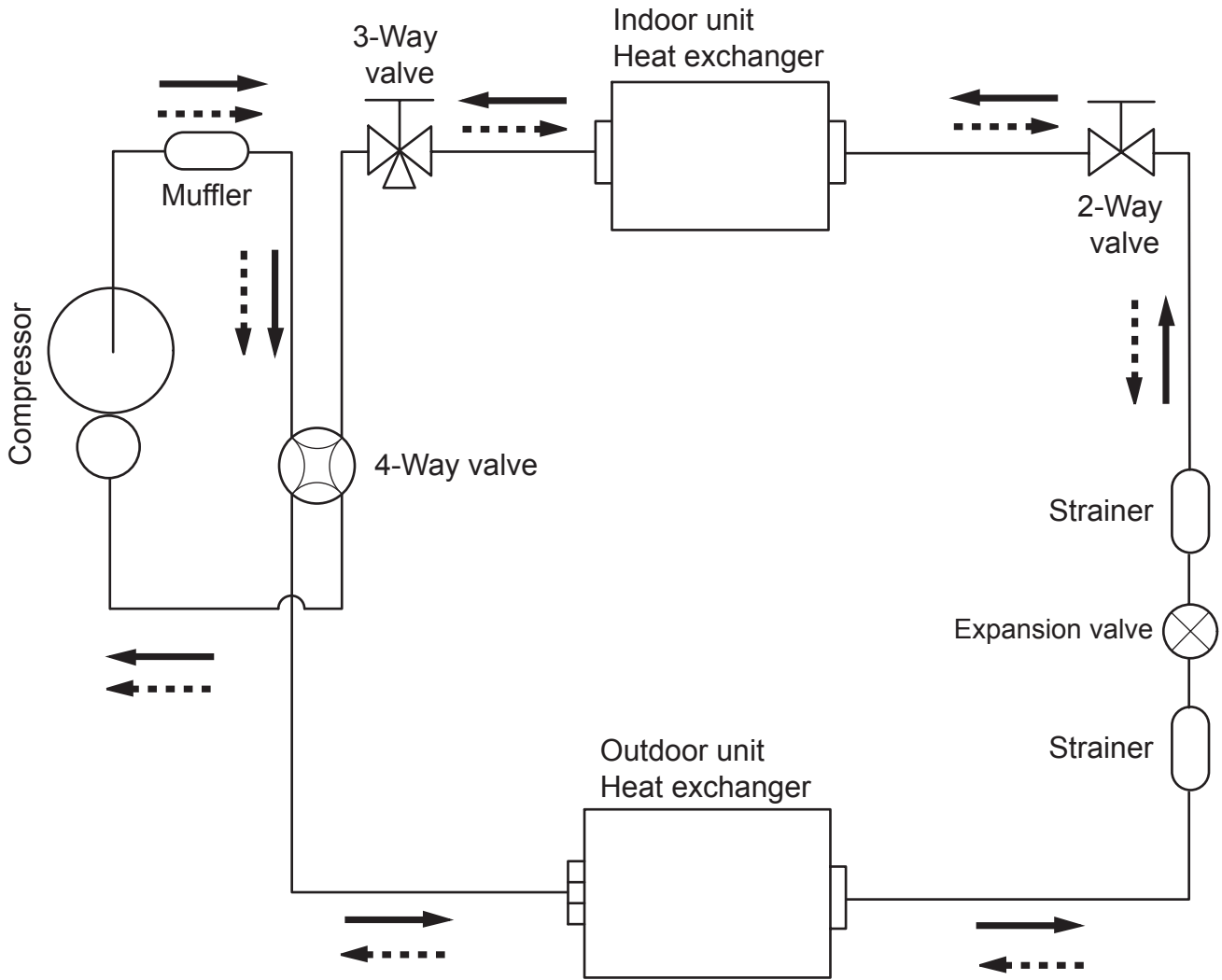


■ INSTALLATION PLACE



3. REFRIGERANT CIRCUIT

■ MODEL : AO*V09LA, AO*V12LA, AO*V14LA



Refrigerant direction

————> Cooling

.....> Heating

OUTDOOR UNIT
AO*V09-12-14LA

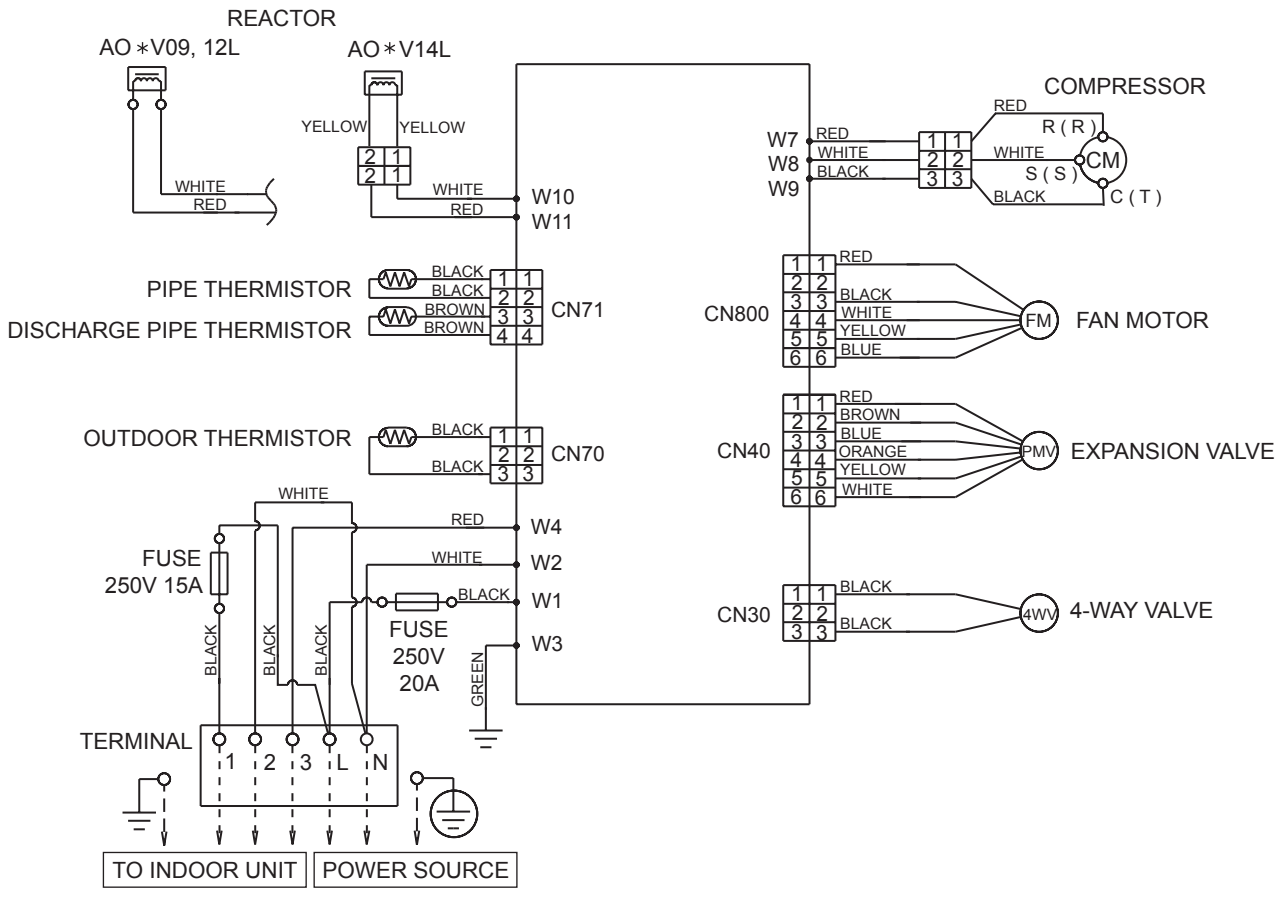
OUTDOOR UNIT
AO*V09-12-14LA

4. WIRING DIAGRAMS

■ MODEL : AO*V09LA, AO*V12LA, AO*V14LA

OUTDOOR UNIT
AO*V09-12-14LA

OUTDOOR UNIT
AO*V09-12-14LA



5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

MODEL : AO *V09LA, AO *V12LA

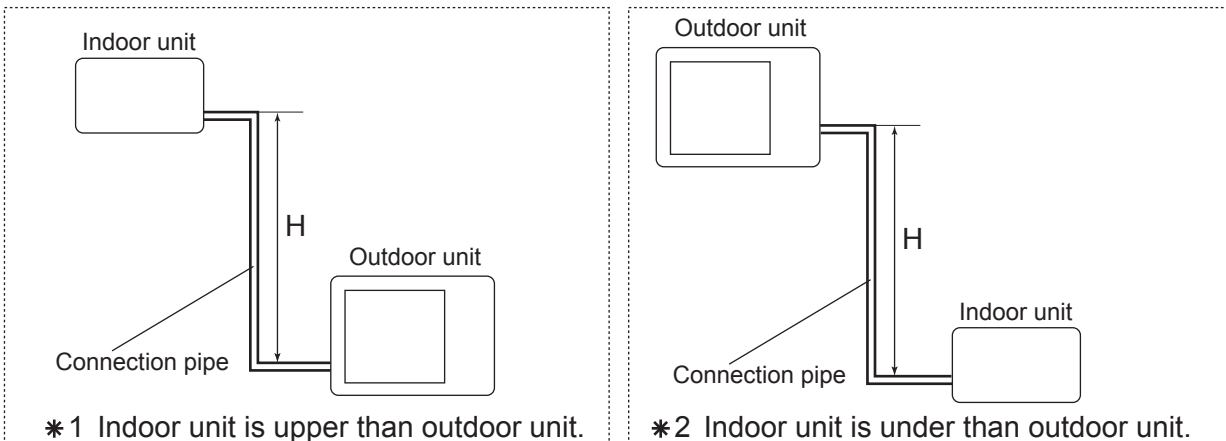
OUTDOOR UNIT
AO*V09-12-14LA

OUTDOOR UNIT
AO*V09-12-14LA

COOLING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	* 1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.915	0.905
		10	-	-	0.955	0.922	0.912
		7.5	-	0.974	0.959	0.926	0.916
		5	0.992	0.978	0.963	0.930	0.920
	0		1.000	0.986	0.971	0.937	0.927
	* 2 Indoor unit is under than outdoor unit	-5	1.000	0.986	0.971	0.937	0.927
		-7.5	-	0.986	0.971	0.937	0.927
		-10	-	-	0.971	0.937	0.927
-15		-	-	-	0.937	0.927	

HEATING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	* 1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.863	0.846
		10	-	-	0.944	0.863	0.846
		7.5	-	0.978	0.944	0.863	0.846
		5	1.000	0.978	0.944	0.863	0.846
	0		1.000	0.978	0.944	0.863	0.846
	* 2 Indoor unit is under than outdoor unit	-5	0.995	0.973	0.939	0.858	0.842
		-7.5	-	0.971	0.937	0.856	0.840
		-10	-	-	0.934	0.854	0.838
-15		-	-	-	0.794	0.778	

Height difference H

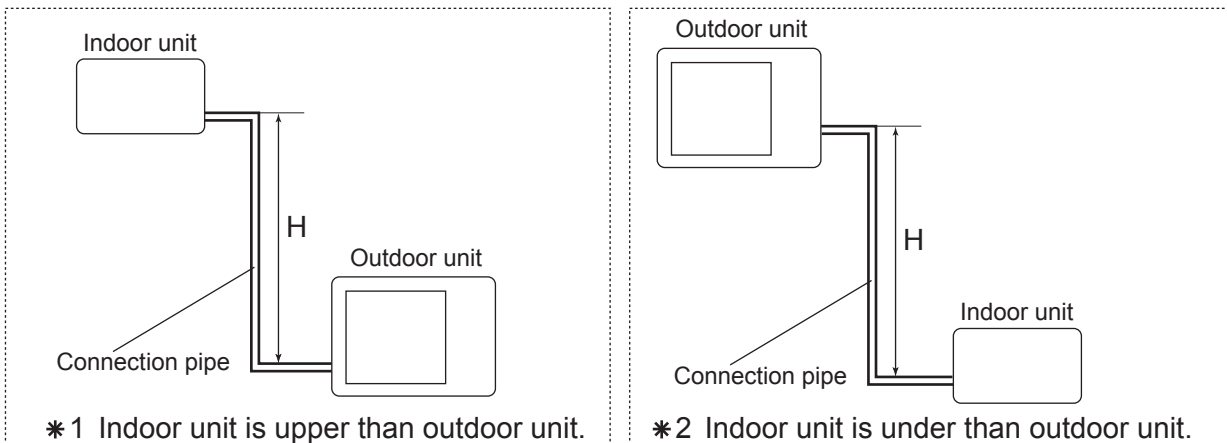


■ MODEL : AO*V14LA

COOLING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	* 1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.950	0.946
		10	-	-	0.976	0.958	0.954
		7.5	-	0.984	0.980	0.962	0.958
		5	0.992	0.988	0.984	0.966	0.962
	0		1.000	0.996	0.992	0.974	0.969
	* 2 Indoor unit is under than outdoor unit	-5	1.000	0.996	0.992	0.974	0.969
		-7.5	-	0.996	0.992	0.974	0.969
		-10	-	-	0.992	0.974	0.969
		-15	-	-	-	0.974	0.969

HEATING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	* 1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.853	0.824
		10	-	-	0.943	0.853	0.824
		7.5	-	0.982	0.943	0.853	0.824
		5	1.000	0.982	0.943	0.853	0.824
	0		1.000	0.982	0.943	0.853	0.824
	* 2 Indoor unit is under than outdoor unit	-5	0.995	0.977	0.938	0.848	0.820
		-7.5	-	0.975	0.936	0.846	0.818
		-10	-	-	0.933	0.844	0.816
		-15	-	-	-	0.785	0.758

Height difference H



6. ADDITIONAL CHARGE CALCULATION

■ MODEL : AO * V09LA, AO * V12LA, AO * V14LA

MODEL		AO * V09LA	AO * V12LA	AO * V14LA
Refrigerant type		R410A	R410A	R410A
Refrigerant amount	g	1,050	1,050	1,150

● REFRIGERANT CHARGE

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

7. AIR FLOW

■ MODEL : AO*V09LA, AO*V12LA, AO*V14LA

● COOLING

MODEL	AO * V09LA		AO * V12LA		AO * V14LA	
Number of rotations	r.p.m.	760	r.p.m.	760	r.p.m.	820
Air flow	m ³ /h	1680	m ³ /h	1680	m ³ /h	1910
	l/s	467	l/s	467	l/s	531
	CFM	989	CFM	989	CFM	1124

● HEATING

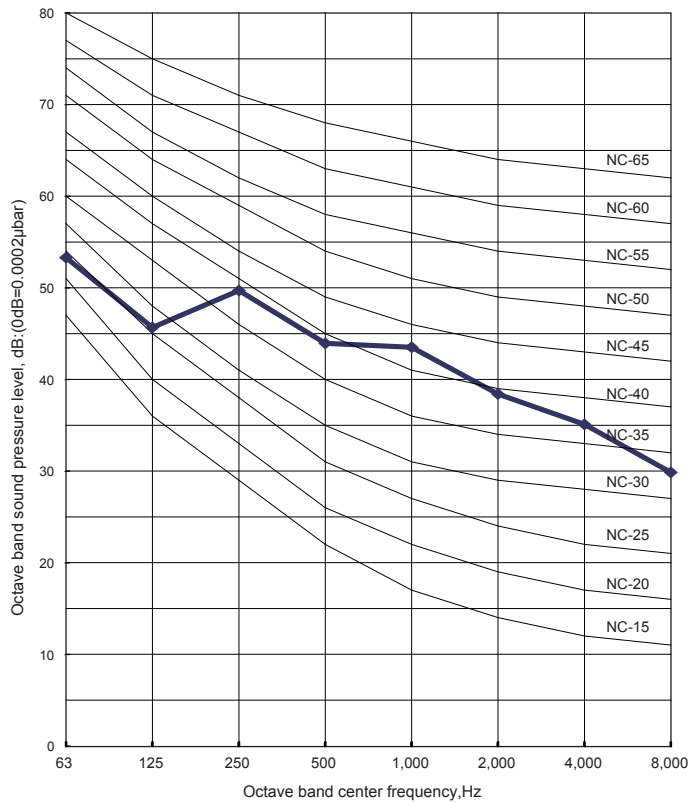
MODEL	AO * V09LA		AO * V12LA		AO * V14LA	
Number of rotations	r.p.m.	680	r.p.m.	760	r.p.m.	750
Air flow	m ³ /h	1490	m ³ /h	1680	m ³ /h	1750
	l/s	414	l/s	467	l/s	486
	CFM	877	CFM	989	CFM	1030

8. OPERATION NOISE

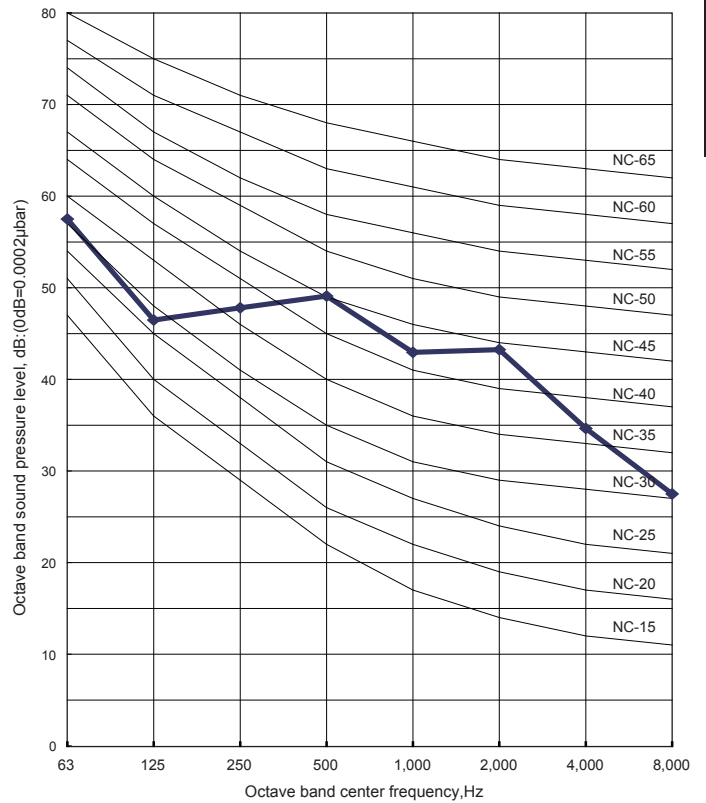
8-1. NOISE LEVEL CURVE

COOLING

MODEL : AO*V09LA

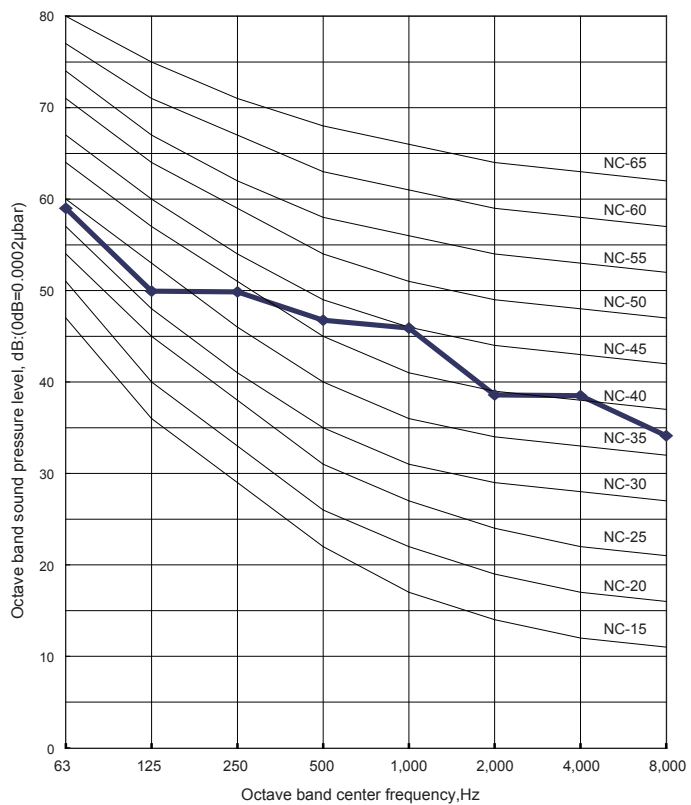


MODEL : AO*V12LA

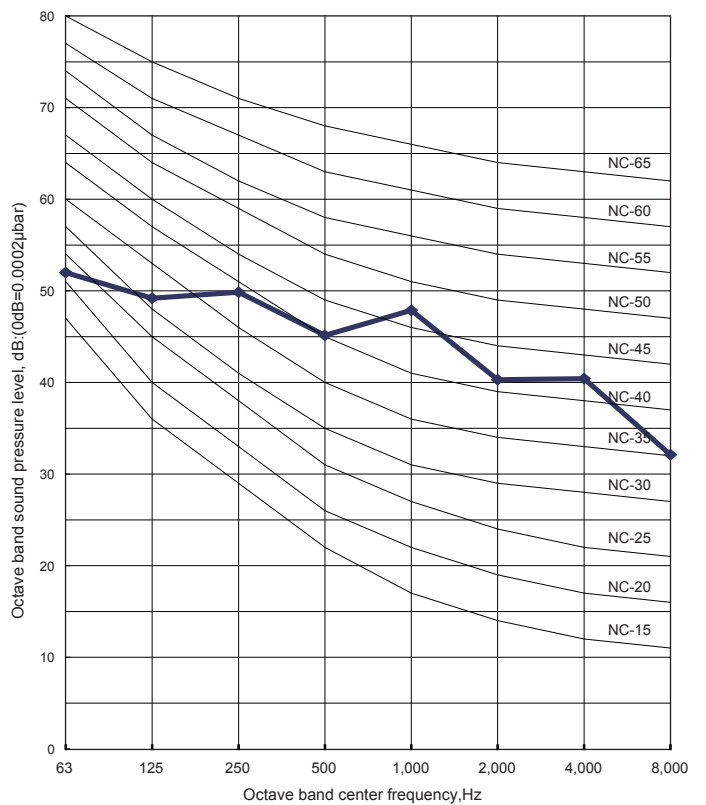


HEATING

MODEL : AO*V09LA



MODEL : AO*V12LA

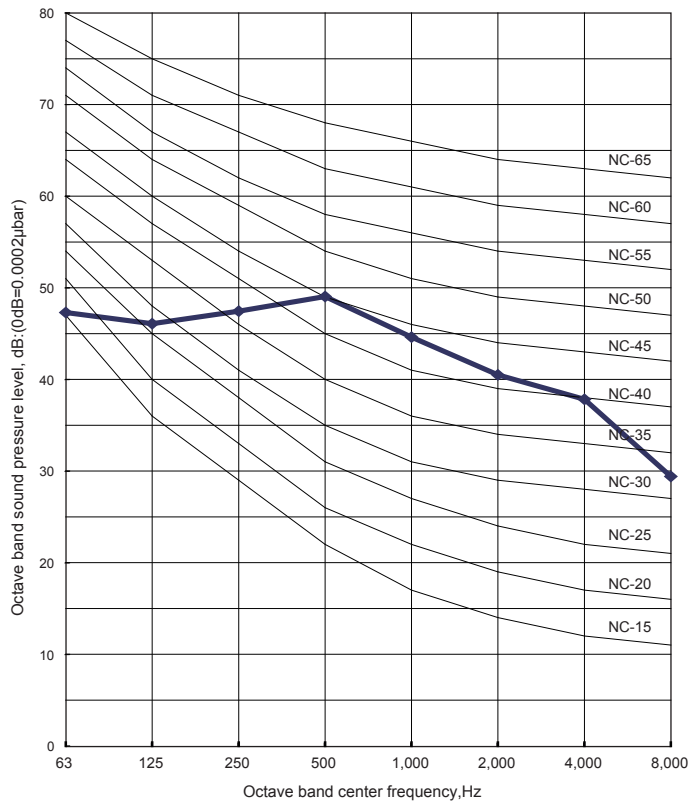


OUTDOOR UNIT
AO*V09-12-14LA

OUTDOOR UNIT
AO*V09-12-14LA

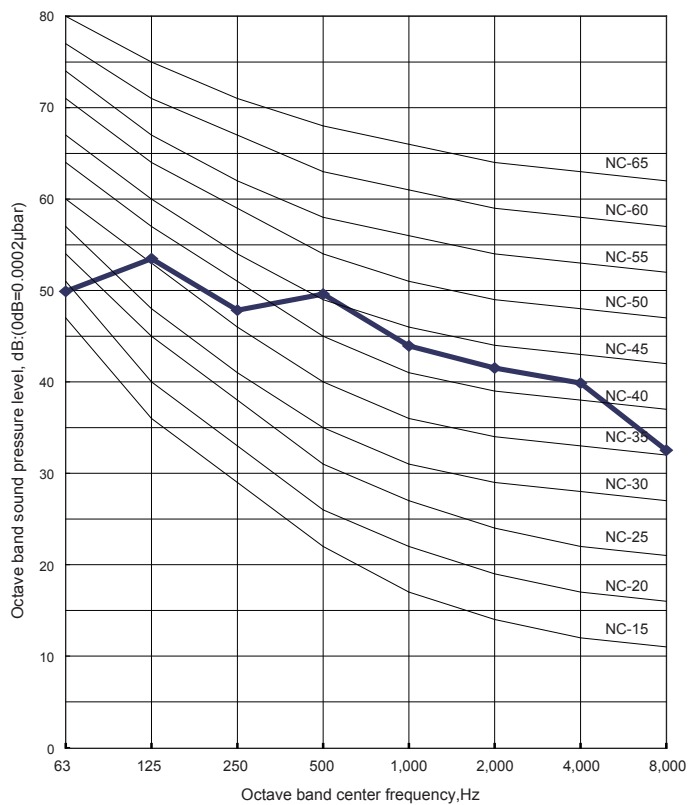
COOLING

MODEL : AO*V14LA



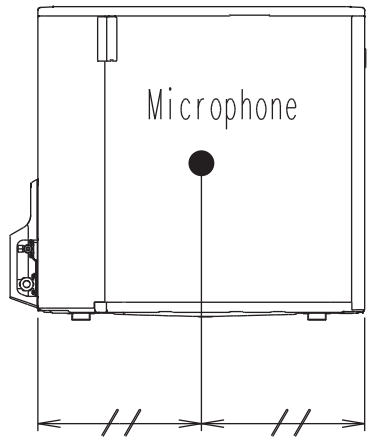
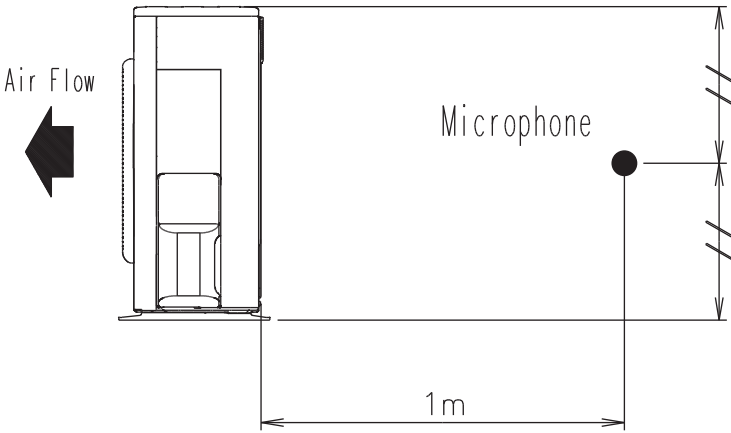
HEATING

MODEL : AO*V14LA



8-2. SOUND LEVEL CHECK POINT

OUTDOOR UNIT
AO*V09-12-14LA



OUTDOOR UNIT
AO*V09-12-14LA

9. ELECTRIC CHARACTERISTICS

Model Name			AO * V09LA	AO * V12LA	AO * V14LA
Power Supply	Voltage	V	230 ~		
	Frequency	Hz	50		
Max Operating Current		A	10.0	10.0	13.5
Starting Current		A	3.8	5.5	6.4
*1) Wiring Spec.	Main Fuse (Circuit breaker) Current	A	20	20	20
	Power Cable	mm ²	1.5 - 2.5	1.5 - 2.5	1.5 - 2.5
	*2)Limited wiring length	m	15	15	11

*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*V09-12-14LA

OUTDOOR UNIT
AO*V09-12-14LA

	Protection form	Model		
		AO * V09LA	AO * V12LA	AO * V14LA
Circuit protection	Current fuse (NEAR THE TERMINAL)	20A 250V	20A 250V	20A 250V
		5A 250V	5A 250V	5A 250V
	Current fuse (MAIN PRINTED CIRCUIT BOARD)	15A 250V	15A 250V	15A 250V
		3.15A 250V	3.15A 250V	3.15A 250V
Fan motor protection	Thermal protection program	OFF : 100 ⁺¹⁵ ₋₁₀ °C ON : 95 ⁺¹⁵ ₋₁₀ °C	OFF : 100 ⁺¹⁵ ₋₁₀ °C ON : 95 ⁺¹⁵ ₋₁₀ °C	OFF : 100 ⁺¹⁵ ₋₁₀ °C ON : 95 ⁺¹⁵ ₋₁₀ °C
Compressor protection	Thermal protection program (DISCHARGE TEMP.)	OFF : 110°C ON : After 7 minutes	OFF : 110°C ON : After 7 minutes	OFF : 110°C ON : After 7 minutes