

AIR CONDITIONER

Wall Mounted type

DESIGN & TECHNICAL MANUAL

INDOOR



AS*A09LEC
AS*A12LEC

OUTDOOR



AO*R09LECN
AO*R12LECN

FUJITSU GENERAL LIMITED

1.INDOOR UNIT

WALL MOUNTED TYPE :

AS*A09LEC

AS*A12LEC

CONTENTS

1. INDOOR UNIT

1. FEATURE.....	01 - 01
2. WIRELESS REMOTE CONTROLLER.....	01 - 04
3. SPECIFICATIONS.....	01 - 06
4. DIMENSIONS	01 - 07
5. WIRING DIAGRAMS.....	01 - 09
6. CAPACITY TABLE	01 - 10
6-1. COOLING CAPACITY	01 - 10
6-2. HEATING CAPACITY	01 - 11
7. FAN PERFORMANCE AND CAPACITY	01 - 12
7-1. AIR VELOCITY DISTRIBUTION.....	01 - 12
7-2. AIR FLOW.....	01 - 13
8. OPERATION NOISE.....	01 - 14
8-1. NOISE LEVEL CURVE	01 - 14
8-2. SOUND LEVEL CHECK POINT	01 - 15
9. ELECTRIC CHARACTERISTICS.....	01 - 16
10. SAFETY DEVICES	01 - 17
11-1. EXTERNAL INPUT	01 - 18
11-2. EXTERNAL OUTPUT	01 - 19
12. FUNCTION SETTING	01 - 20
12-1. INDOOR UNIT (Setting by remote controller).....	01 - 20
13. OPTIONAL PARTS	01 - 23

1. FEATURE

■ MODEL

AS*A09LEC / AO*R09LECN

AS*A12LEC / AO*R12LECN



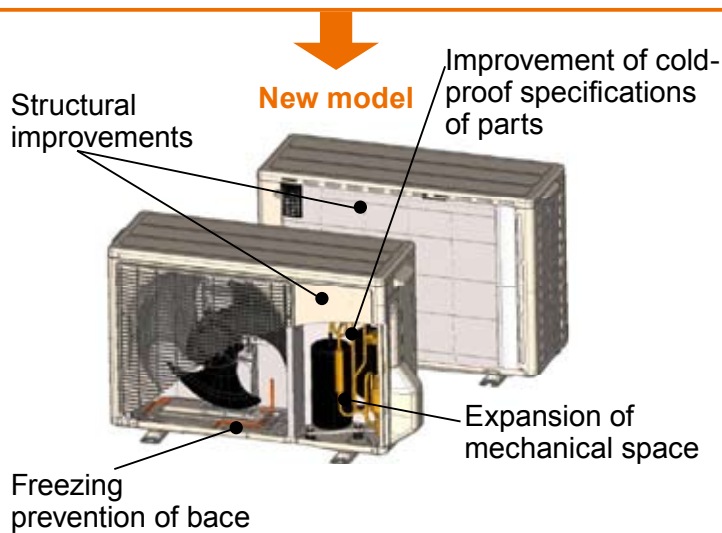
■ FEATURES

● Low outdoor air temperature correspondence

Corresponds to heating operation at -25°C outdoor air temperature

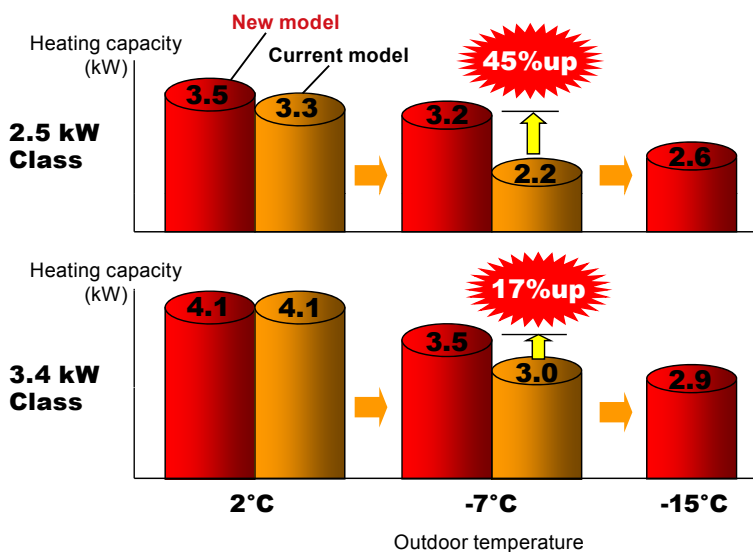
Heating
-25 to 24°C

Specification improvement that can be operated under extreme low outdoor temperature (-25°C) without trouble



● Powerful Heating at low outdoor temperature

Keeping the high heating capacity at low outdoor temperature.



● Energy-Efficiency classification A

Europe Energy-Efficiency classification A achieved

● ALL DC

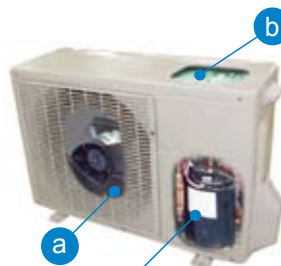


a DC fan motor

b PAM control

When operation starts, the machine operates at high voltage and high power and when operation stabilizes, the set temperature is maintained at low voltage.

c DC compressor



Front view

● Super quiet

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

Fan speed	Noise level
Quiet	21dB(A)

● Easy maintenance

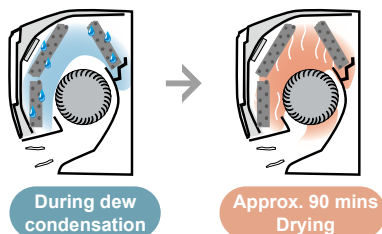
Easy maintenance and always clean. Troublesome maintenance has been made easy.

Since the front panel is easy to remove, maintenance is also easy.



● Inner drying operation

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



● Corresponds to maximum 20m long piping

● Air conditioner filter features



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

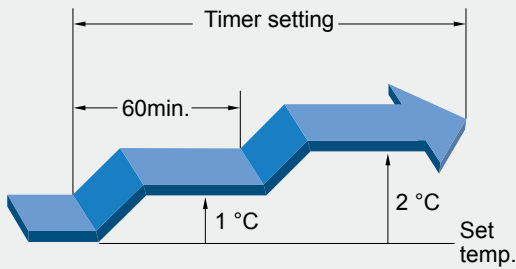
The program timer operates the on and off timer once within a 24 hour period.

● Sleep timer

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

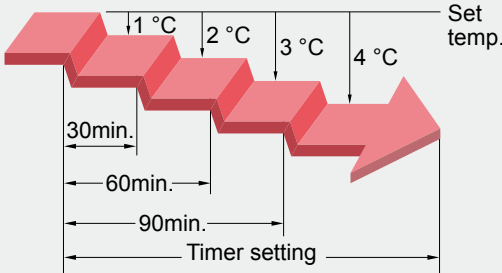
Cooling operation/dry operation

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.

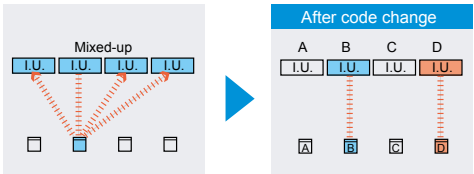


Heating operation

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.



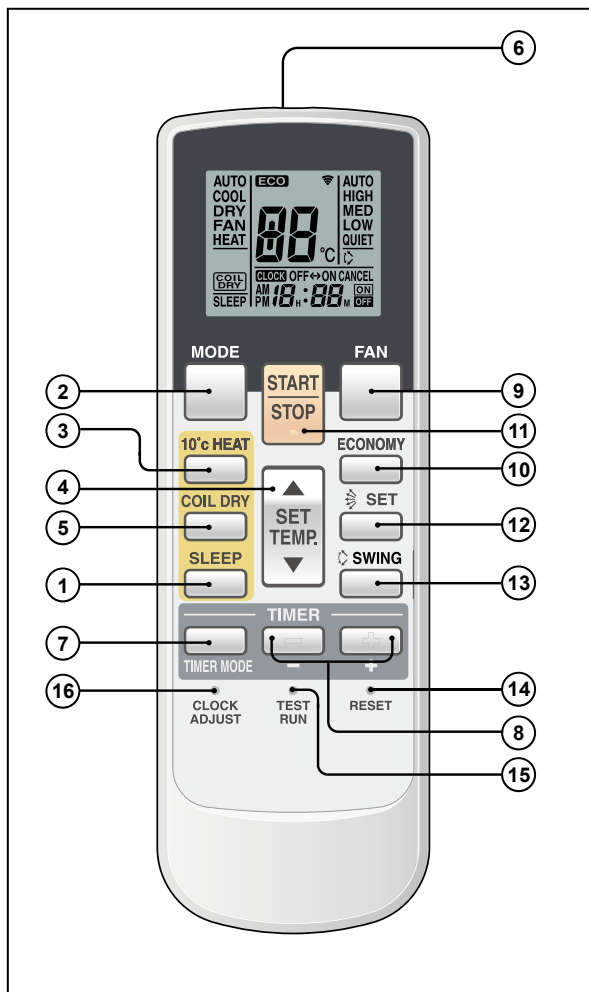
● Switching remote controller signal code



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

*I.U.=Indoor unit

FUNCTIONS

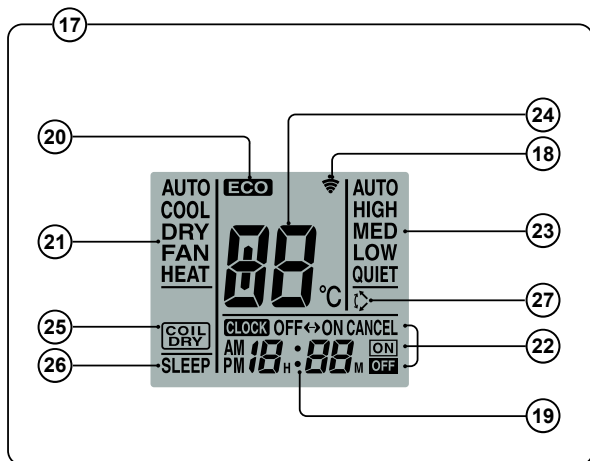


- 1 **START/STOP button**
- 2 **MODE button**
- 3 **10°C HEAT button**
- 4 **SET TEMP. button (▲ / ▼)**
- 5 **COIL DRY button**
- 6 **Signal transmitter**
- 7 **TIMER MODE button**
- 8 **TIMER SET (⊕ / ⊖) button**
- 9 **FAN button**
- 10 **ECONOMY button**
- 11 **START/STOP button**
- 12 **SET button**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

- This button is used when installing the air conditioner, and should not be used under normal conditions, as it will cause the indoor unit's thermostat function to operate incorrectly.
- If this button is pressed during normal operation, the indoor 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.

- 16 **CLOCK ADJUST button**

Display panel



- 17 **Remote controller 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

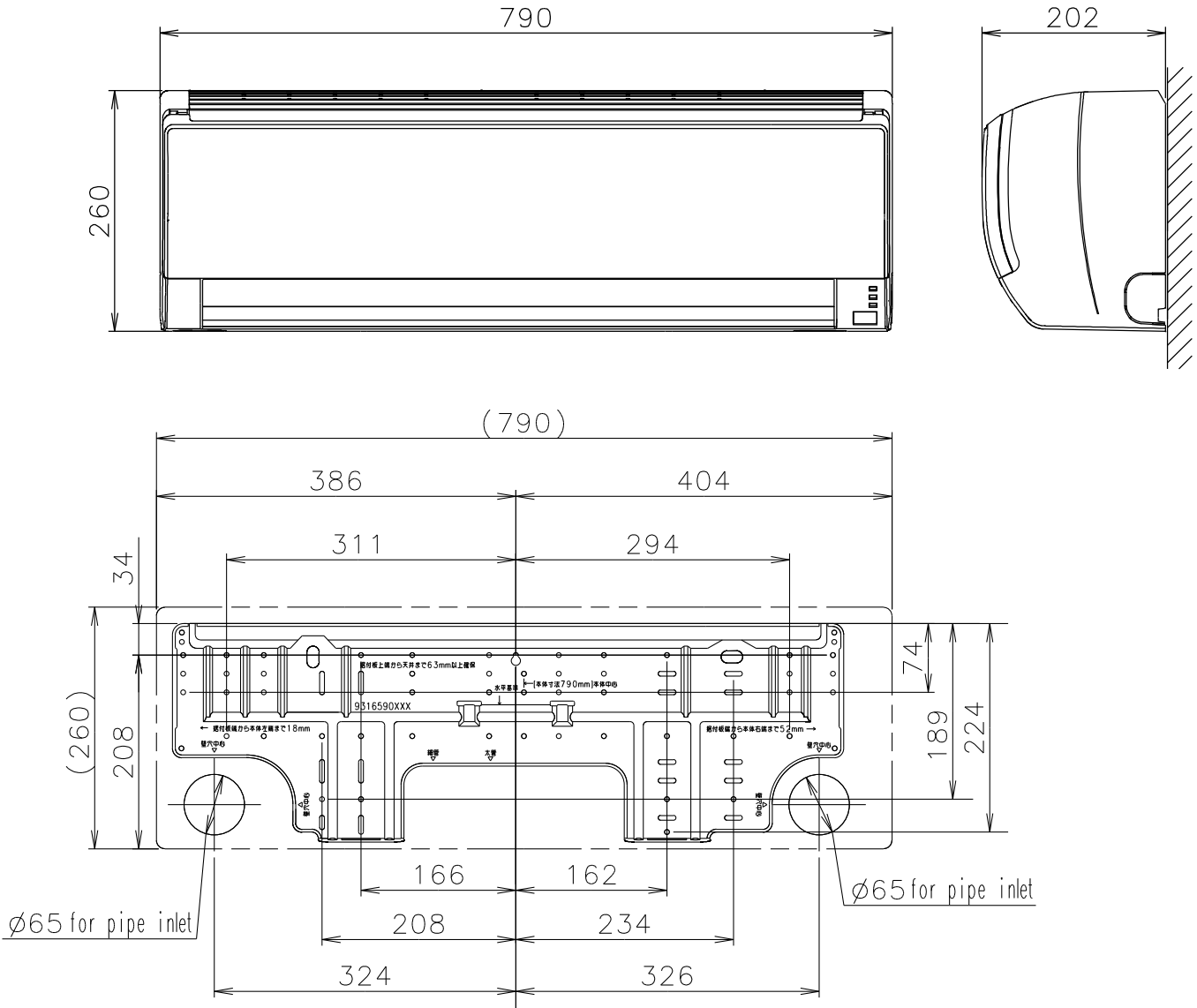
Type				WALL MOUNTED			
				INVERTER HEAT PUMP			
Model name				AS★A09LEC		AS★A12LEC	
Power source				230V~ 50Hz			
Available voltage range				198-264V ~ 50Hz			
European energy label				Cooling	A	A	
				Heating	A	A	
Capacity	Cooling	Rated	kW	2.50	3.40		
			BTU/h	8,500	11,600		
		Min-Max	kW	0.5 - 3.2	0.9 - 3.9		
			BTU/h	1,700 - 10,900	3,100 - 13,300		
	Heating	Rated	kW	3.20	4.00		
			BTU/h	10,900	13,600		
		Min-Max	kW	0.5 - 4.5	0.9 - 5.6		
			BTU/h	1,700 - 15,300	3,100 - 19,100		
Input power	Cooling	Rated	kW	0.63	0.895		
		Min-Max		0.25 - 1.27	0.25 - 1.40		
	Heating	Rated		0.75	0.97		
		Min-Max		0.25 - 1.60	0.25 - 1.99		
Current	Cooling	Rated	A	3.2	4.3		
		Max		6.0	6.5		
	Heating	Rated		3.7	4.6		
		Max		9.5	9.0		
	EER			Cooling	kW/kW	3.97	3.80
	COP			Heating		4.27	4.12
SENSIBLE CAPACITY		Cooling	kW	1.60	2.20		
POWER FACTOR		Cooling	%	87	91		
		Heating		89	92		
Moisture removal				l/h (pints/h)	1.3 (2.7)	1.8 (3.8)	
Fan	Airflow rate	Cooling	High	m³/h	735		
			Med		595		
			Low		425		
			Quiet		285		
		Heating	High		735		
			Med		595		
			Low		425		
			Quiet		285		
	Type × Q'ty			Cross flow fan×1			
	Motor output			W	30		
Sound pressure level		Cooling	High	dB(A)	43		
			Med		38		
			Low		33		
			Quiet		21		
		Heating	High		43		
			Med		38		
			Low		33		
			Quiet		21		
Heat exchanger type		Dimensions (H × W × D)		mm	256 × 630 × 20		
		Fin pitch			1.1		
		Rows x Stages			2 × 16		
		Pipe type			Copper		
		Fin type			Aluminium		
Enclosure		Material			Polystyrene		
		Colour			White Approximate colour of MUNSELL N 9.25/		
Dimensions (H×W ×D)		Net		mm	260 × 790 × 202		
		Gross			259 × 840 × 328		
Weight		Net		kg(lb.)	7.5 (17)		
		Gross			9.5 (20)		
Connection pipe		Size	Liquid	mm	Φ6.35 (Φ 1/4 in.)		
			Gas		Φ9.52 (Φ 3/8 in.)		
		Method			Flare		
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: 21 / 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)

4. DIMENSIONS

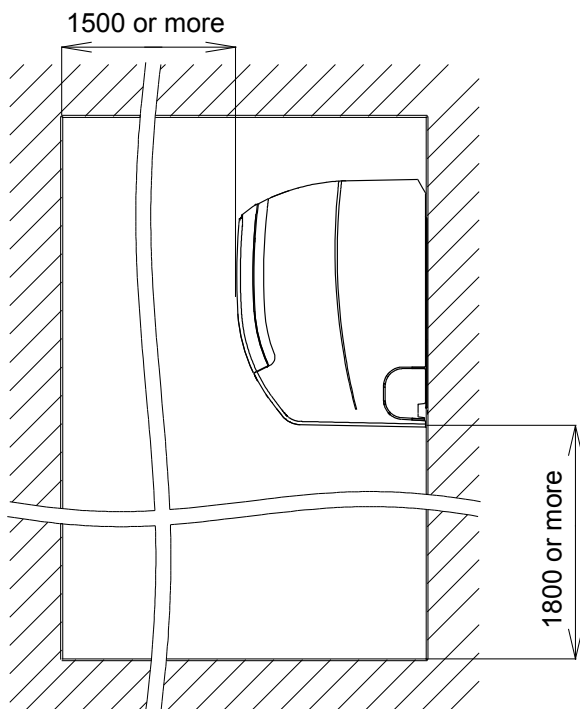
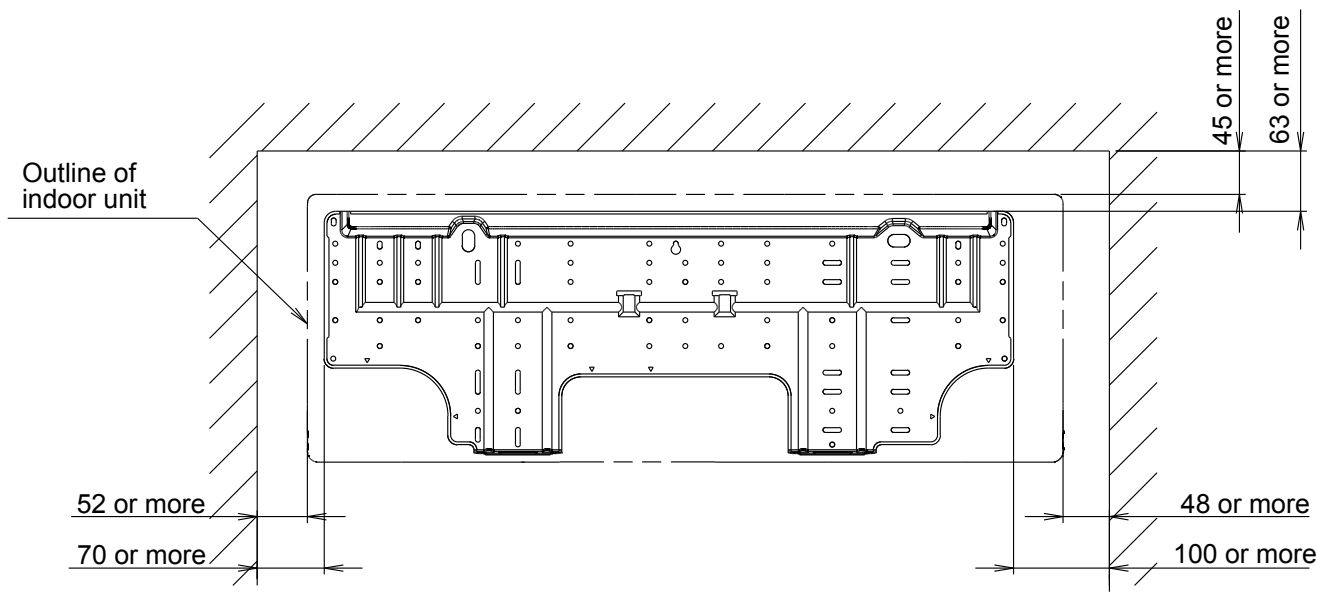
MODEL: AS-A09LE, AS-A12LE

(Unit : mm)



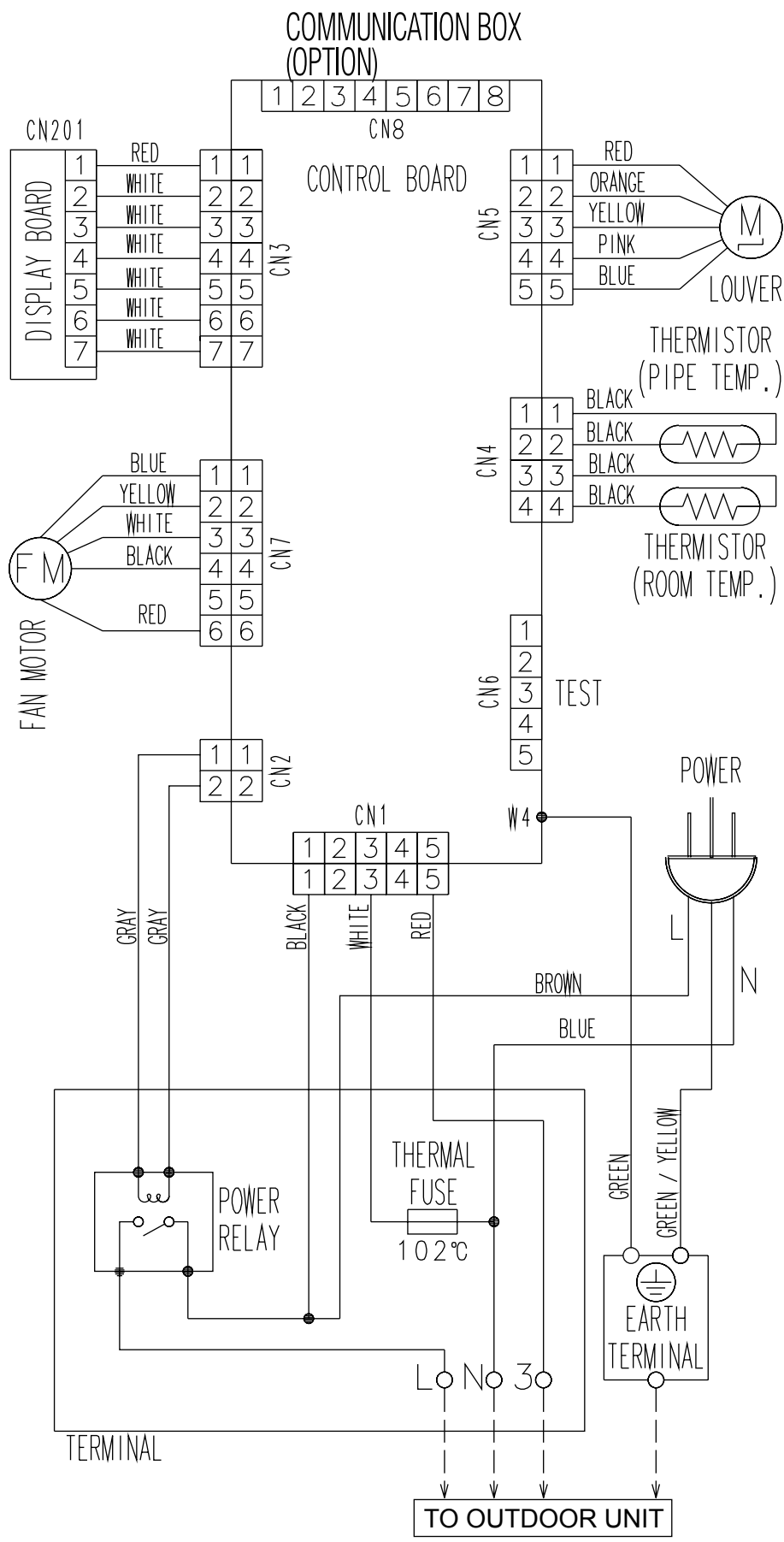
■ INSTALLATION PLACE

(Unit : mm)



5. WIRING DIAGRAMS

■ MODEL: AS-A09LE, AS-A12LE



6. CAPACITY TABLE

6-1. COOLING CAPACITY

MODEL: AS-A09LE

AFR	12.5
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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
	10	2.22	1.52	0.24	2.48	1.53	0.25	2.56	1.66	0.25	2.73	1.67	0.25	2.81	1.80	0.25	2.98	1.79	0.25	3.15	1.91	0.26
	15	2.22	1.52	0.21	2.47	1.53	0.22	2.56	1.66	0.22	2.73	1.67	0.22	2.81	1.80	0.22	2.98	1.79	0.22	3.15	1.91	0.23
	20	2.33	1.59	0.43	2.59	1.60	0.44	2.68	1.74	0.44	2.86	1.75	0.44	2.95	1.89	0.45	3.12	1.88	0.45	3.30	2.00	0.45
	25	2.22	1.51	0.49	2.47	1.52	0.50	2.55	1.66	0.50	2.72	1.66	0.51	2.80	1.79	0.51	2.97	1.79	0.51	3.14	1.90	0.52
	30	2.10	1.43	0.55	2.34	1.44	0.56	2.42	1.57	0.56	2.58	1.57	0.57	2.66	1.70	0.57	2.82	1.69	0.57	2.98	1.80	0.58
	35	1.98	1.35	0.61	2.20	1.36	0.62	2.28	1.48	0.62	2.43	1.48	0.63	2.50	1.60	0.63	2.65	1.59	0.64	2.80	1.70	0.64
	40	1.84	1.26	0.67	2.05	1.27	0.68	2.12	1.38	0.69	2.26	1.38	0.69	2.33	1.49	0.70	2.47	1.49	0.70	2.61	1.58	0.71
	43	1.72	1.18	0.68	1.92	1.19	0.69	1.99	1.29	0.69	2.12	1.29	0.70	2.18	1.40	0.70	2.31	1.39	0.71	2.44	1.48	0.72

MODEL: AS-A12LE

AFR	12.5
-----	------

		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
	10	2.92	2.02	0.27	3.25	2.03	0.27	3.36	2.21	0.27	3.58	2.21	0.27	3.70	2.39	0.28	3.92	2.38	0.28	4.14	2.54	0.28
	15	2.83	1.95	0.35	3.15	1.96	0.35	3.25	2.14	0.35	3.47	2.14	0.36	3.58	2.31	0.36	3.79	2.30	0.36	4.01	2.46	0.37
	20	3.13	2.17	0.60	3.49	2.18	0.60	3.61	2.37	0.61	3.85	2.38	0.61	3.97	2.57	0.62	4.21	2.56	0.62	4.44	2.72	0.63
	25	3.00	2.07	0.68	3.34	2.09	0.69	3.45	2.27	0.70	3.68	2.27	0.70	3.80	2.46	0.71	4.02	2.45	0.71	4.25	2.61	0.72
	30	2.85	1.97	0.77	3.17	1.98	0.78	3.28	2.15	0.79	3.50	2.16	0.80	3.61	2.33	0.80	3.82	2.32	0.81	4.04	2.48	0.82
	35	2.69	1.86	0.86	2.99	1.87	0.88	3.09	2.03	0.88	3.30	2.04	0.89	3.40	2.20	0.895	3.60	2.19	0.90	3.81	2.33	0.91
	40	2.47	1.71	0.92	2.75	1.72	0.94	2.84	1.87	0.94	3.03	1.87	0.95	3.12	2.02	0.96	3.31	2.01	0.97	3.50	2.14	0.98
	43	2.27	1.57	0.92	2.53	1.58	0.93	2.62	1.72	0.93	2.79	1.72	0.94	2.88	1.86	0.95	3.05	1.85	0.96	3.22	1.98	0.97

AFR : Air flow rate (m³/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: AS*A09LE

AFR	12.5
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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
	-25	-26	2.88	1.07	2.81	1.09	2.74	1.11	2.68	1.14	2.61	1.16
	-20	-21	3.21	1.28	3.13	1.31	3.05	1.34	2.98	1.36	2.90	1.39
	-15	-16	3.48	1.50	3.39	1.53	3.31	1.56	3.23	1.59	3.15	1.62
	-10	-11	3.75	1.71	3.66	1.75	3.57	1.78	3.48	1.82	3.39	1.85
	-5	-7	4.03	1.70	3.94	1.73	3.84	1.77	3.75	1.80	3.65	1.84
	0	-2	4.14	1.70	4.04	1.73	3.94	1.77	3.84	1.80	3.74	1.84
	5	3	4.64	1.70	4.53	1.73	4.42	1.77	4.31	1.80	4.20	1.84
	7	6	5.04	1.70	4.92	1.73	4.80	1.77	4.68	1.80	4.56	1.84
	10	8	5.38	1.70	5.25	1.73	5.12	1.77	4.99	1.80	4.87	1.84
	15	10	5.69	1.70	5.55	1.73	5.42	1.77	5.28	1.80	5.15	1.84

■ MODEL: AS*A12LE

AFR	12.5
-----	------

			Indoor temperature									
		°CDB	16		18		20		22		24	
Outdoor temperature	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	-25	-26	3.07	1.09	3.00	1.12	2.92	1.14	2.85	1.16	2.78	1.18
	-20	-21	3.35	1.28	3.27	1.31	3.19	1.34	3.11	1.36	3.03	1.39
	-15	-16	3.73	1.47	3.64	1.50	3.56	1.54	3.47	1.57	3.38	1.60
	-10	-11	4.22	1.66	4.12	1.70	4.02	1.73	3.92	1.77	3.82	1.80
	-5	-7	4.65	1.73	4.54	1.77	4.43	1.80	4.32	1.84	4.20	1.87
	0	-2	4.81	1.88	4.69	1.92	4.58	1.96	4.47	2.00	4.35	2.04
	5	3	5.64	1.68	5.51	1.71	5.37	1.75	5.24	1.78	5.10	1.82
	7	6	5.88	1.70	5.74	1.73	5.60	1.77	5.46	1.80	5.32	1.84
	10	8	6.18	1.71	6.03	1.75	5.88	1.78	5.74	1.82	5.59	1.85
	15	10	6.42	1.72	6.26	1.75	6.11	1.79	5.96	1.83	5.81	1.86

AFR : Air flow rate (m³/min)
TC : Total capacity (kW)
PI : Power Input (kW)

7. FAN PERFORMANCE AND CAPACITY

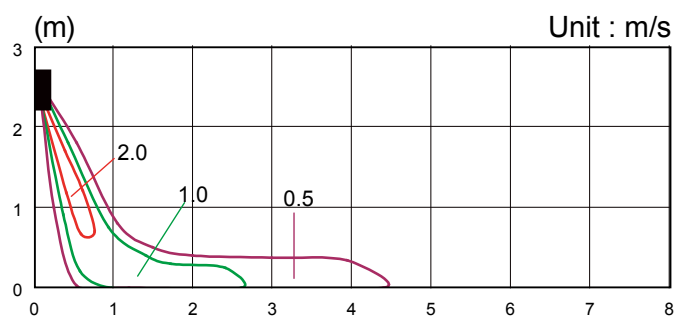
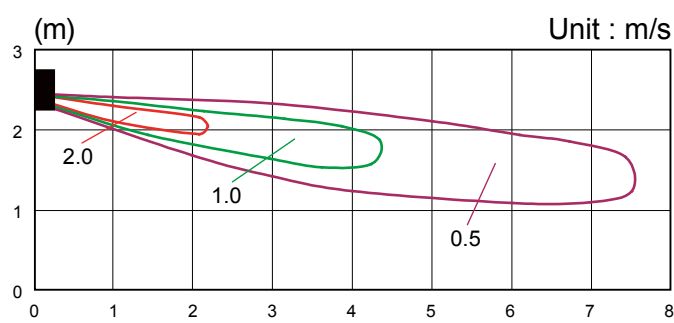
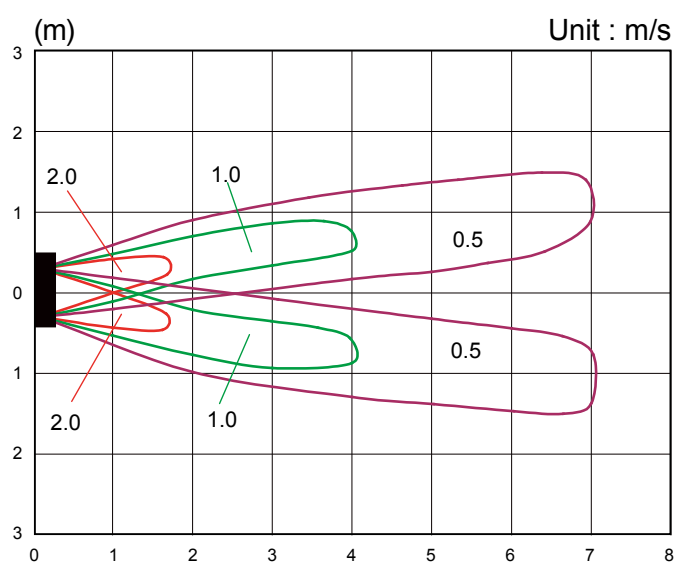
7-1. AIR VELOCITY DISTRIBUTION

■ MODEL: AS-A09LE, AS-A12LE



Note:

Fan speed:High
Operation mode:FAN
Voltage:230V



7-2. AIR FLOW

■ MODEL: AS*A09LE, AS*A12LE

● COOLING

Fan speed	Number of rotations (r.p.m)	Air flow	
HIGH	1440	735	m³/h
		204	l/s
		432	CFM
MED	1200	595	m³/h
		165	l/s
		350	CFM
LOW	920	425	m³/h
		118	l/s
		250	CFM
QUIET	680	285	m³/h
		79	l/s
		168	CFM

● HEATING

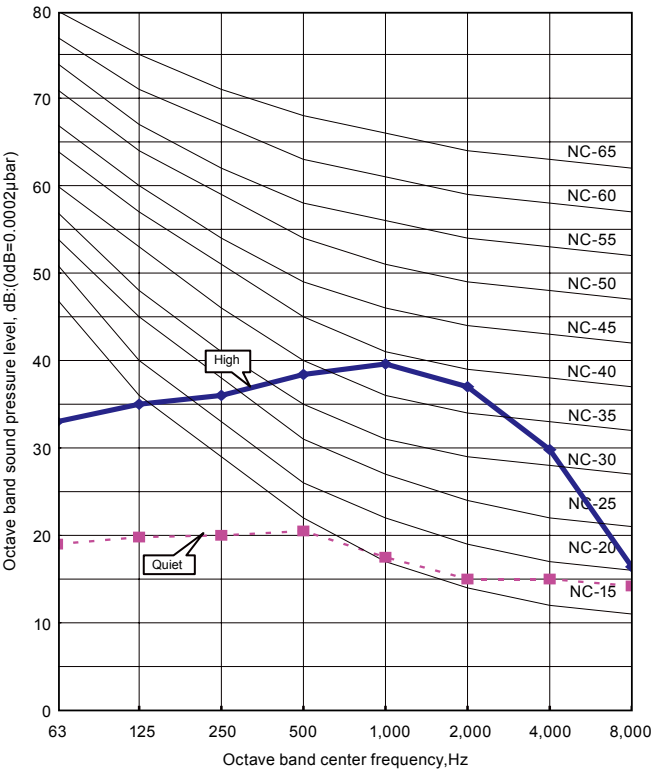
Fan speed	Number of rotations (r.p.m)	Air flow	
HIGH	1440	735	m³/h
		204	l/s
		432	CFM
MED	1200	595	m³/h
		165	l/s
		350	CFM
LOW	980	465	m³/h
		129	l/s
		274	CFM
QUIET	700	295	m³/h
		82	l/s
		174	CFM

8. OPERATION NOISE

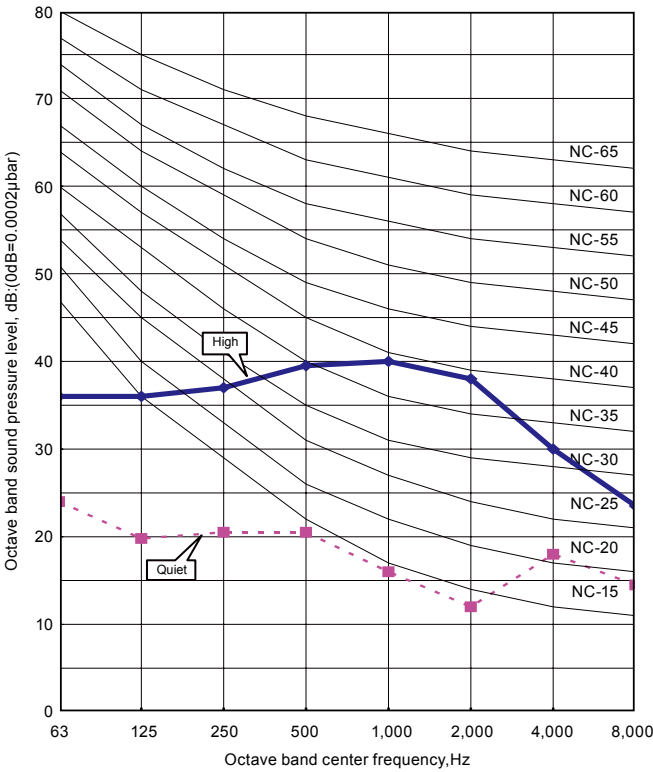
8-1. NOISE LEVEL CURVE

MODEL: AS-A09LE

COOLING

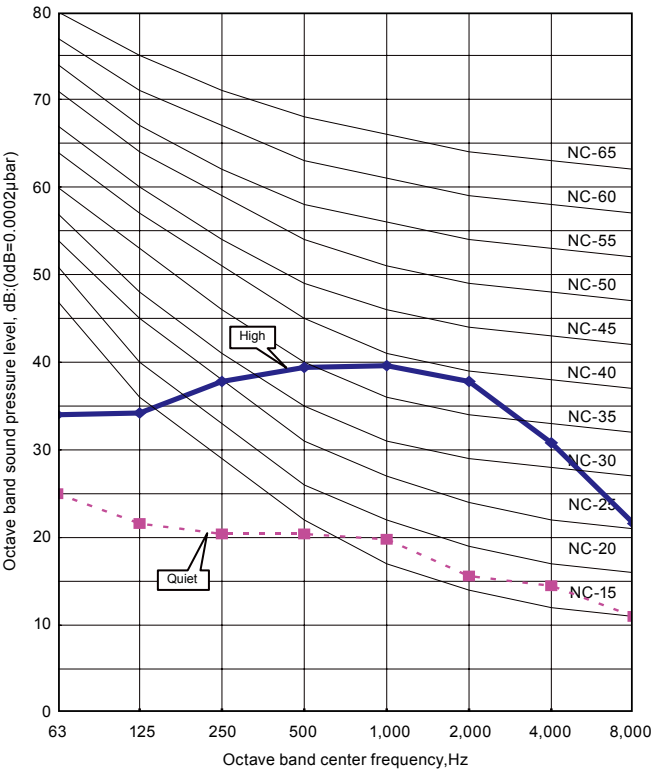


HEATING

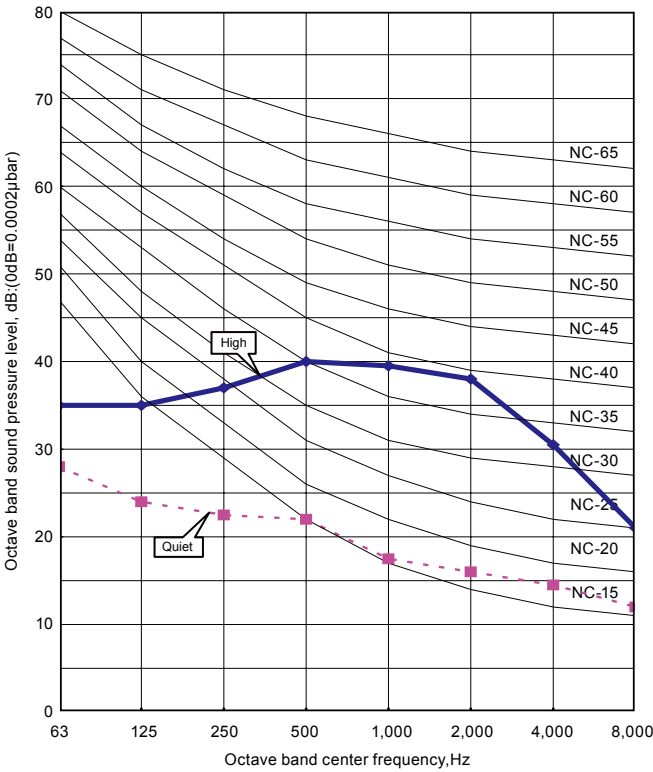


MODEL: AS-A12LE

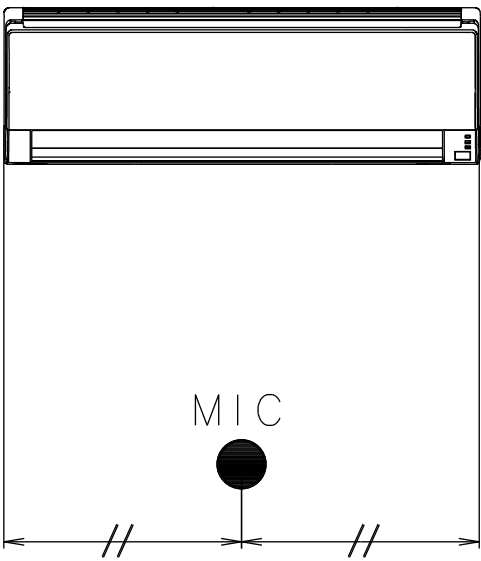
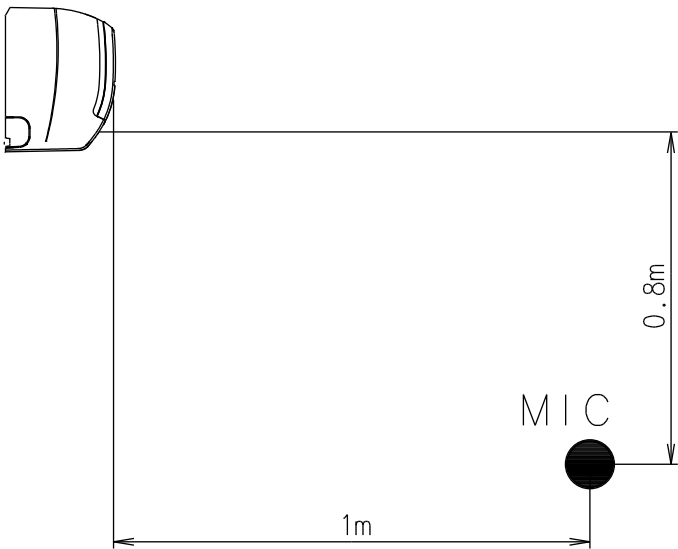
COOLING



HEATING



8-2. SOUND LEVEL CHECK POINT



9. ELECTRIC CHARACTERISTICS

Model Name			AS*A09LE	AS*A12LE
Power Supply	Voltage	V	230 ~	
	Frequency	Hz	50	
Max Operating Current		A	9.5	11.0
*)Wiring Spec	Circuit breaker	A	15	
	Connection Cable	mm ²	1.5	
	Limited wiring length	m	20	

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

10. SAFETY DEVICES

	Protection form	Model	
		AS*A09LE	AS*A12LE
Circuit protection	Current fuse (PCB)	3.15A 250V	
Terminal protection	Current (thermal) fuse	3A 250V 102°C	
Fan motor protection	Terminal protection program	MAX. 120±15°C	

11. EXTERNAL INPUT & OUTPUT

Connector	INPUT	OUTPUT	REMARKS
CN303	Control input	-	See external input/output settings for details.
CN304	-	Operation status output	

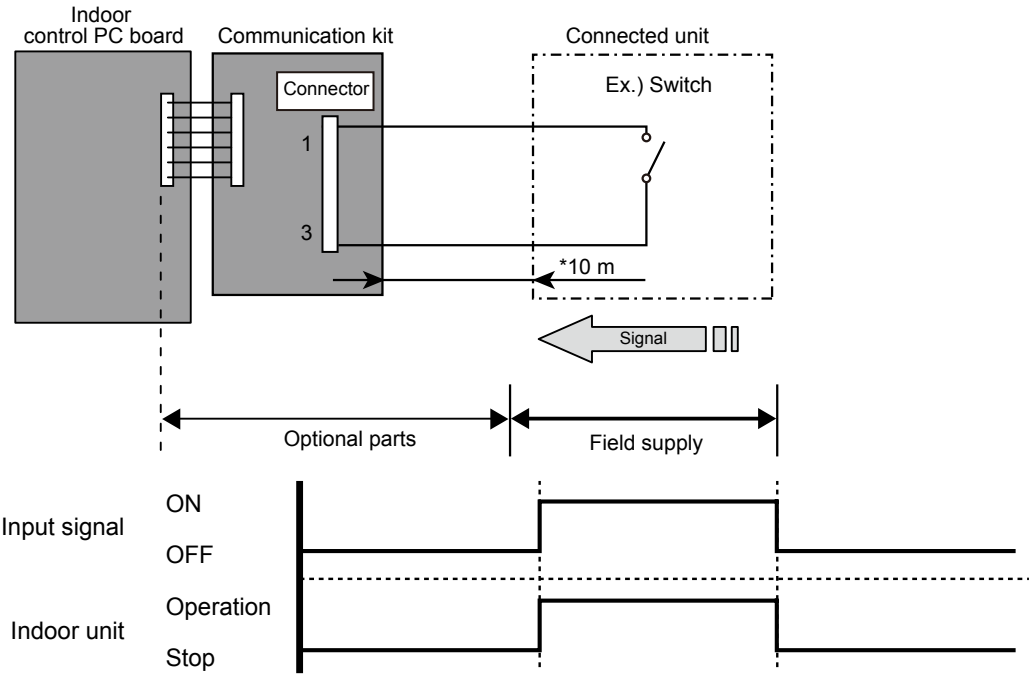
11-1. EXTERNAL INPUT

■ CONTROL INPUT (Operation/Stop)

The air conditioner can be remotely operated by means of the following on-site work.
Operation is started at the following contents by adding the contact input of a commercial ON/OFF switch to a connector on the external control PC board and turning it ON.

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

● Circuit diagram example

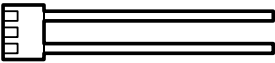


● Parts (Optional)

Parts name	Model name
External connect kit	UTY-XWZX
Communication box kit	UTY-XCBXE

* For operating the EXTERNAL INPUT function, the Compact wall mounted type requires the communication kit (UTY-XCBXE) in addition to the wire (UTY-XWZX).

Wire (External input) : UTY-XWZX

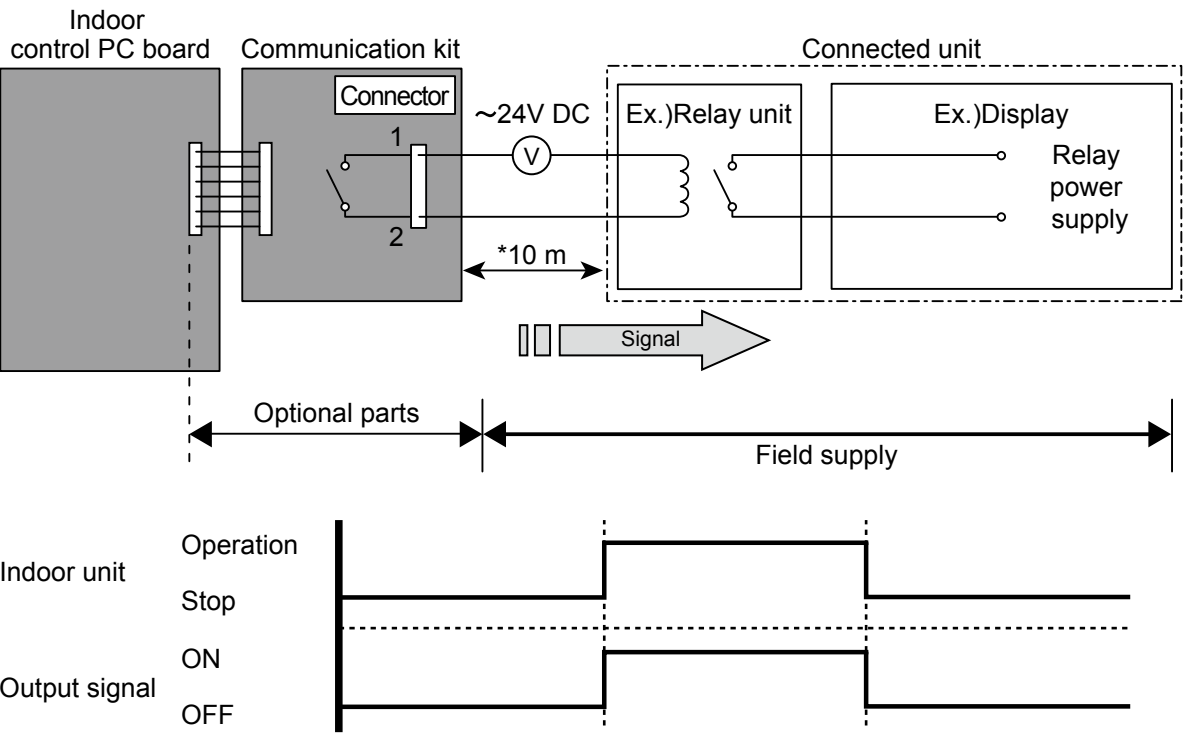


11-2. EXTERNAL OUTPUT

■ OPERATION STATUS OUTPUT

An air conditioner operation status signal can be output.

● Circuit diagram example



● Parts (Optional)

Parts name	Model name
External connect kit	UTY-XWZX
Communication box kit	UTY-XCBXE

* For operating the EXTERNAL INPUT function, the Compact wall mounted type requires the communication kit (UTY-XCBXE) in addition to the wire (UTY-XWZX).

Wire (External input) : UTY-XWZX



12. FUNCTION SETTING

12-1. INDOOR UNIT (Setting by remote controller)

- 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 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.

■ FUNCTION SETTING METHOD (for Wireless remote controller)

Entering the Function Setting Mode

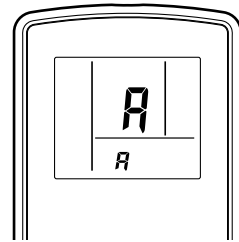
- While pressing the FAN button and SET TEMP. (▲) simultaneously, press the RESET button to enter the function setting mode.

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



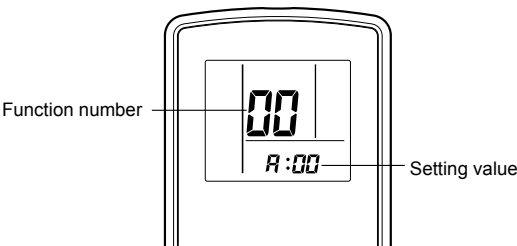
The air conditioner signal code is set to A prior to shipment.

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

■ CONTENTS OF FUNCTION SETTING

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

		Wall Mounted
1-1	Cooler room temperature correction	●
1-2	Heater room temperature correction	●
1-3	Auto Restart	●
1-4	Indoor Room Temperature Sensor	●
1-5	Remote controller Signal Code	●

1-1. 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.

(◆ . . . Factory setting)

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

1-2. 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.

(◆ . . . Factory setting)

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

The following settings are also possible, depending on the operating conditions.

1-3. Auto Restart

(◆ . . . Factory setting)

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

1-4. 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.

1-5. Setting the Remote controller Signal Code

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

(◆ . . . Factory setting)

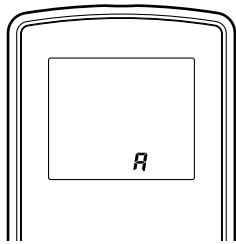
Setting Description	Function Number	Setting Value
◆ A	44	00
B		01
C		02
D		03

■ 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.

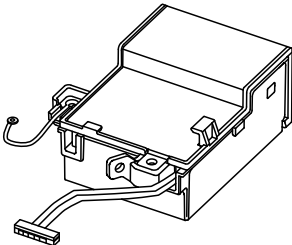
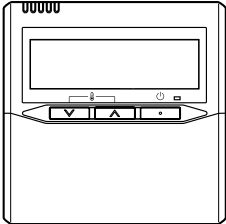
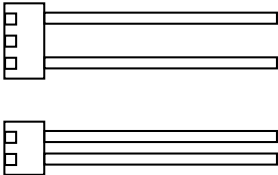


If no buttons are pressed within 30 seconds after the signal code is displayed, the system returns to the original clock display. In this case, start again from step 1.

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.

13. OPTIONAL PARTS

Exterior	Parts name	Model No.	Summary
	Apple-catechin filter	UTR-FA16	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 deodorization filter	UTR-FA16-2	The filter deodorizes by powerfully decomposing absorbed odors using the oxidizing and reducing effects of ions generated by the ultra fine-particle ceramic.
	Communication box kit	UTY-XCBXE	Use to connect with optional devices and air conditioner PC board.
	Wired remote controller	UTB-＊UD	Unit control is performed by wired remote controller.
	External connect kit	UTY-XWZX	Use to connect with various peripheral devices and air conditioner PC board.

2.OUTDOOR UNIT

SINGLE TYPE :

AO*R09LECN

AO*R12LECN

CONTENTS

2. OUTDOOR UNIT

1. SPECIFICATIONS.....	02 - 01
2. DIMENSIONS	02 - 02
3. REFRIGERANT CIRCUIT	02 - 03
4. WIRING DIAGRAMS.....	02 - 04
5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFERENCE.....	02 - 05
6. ADDITIONAL CHARGE CALCULATION.....	02 - 07
7. AIR FLOW	02 - 08
8. OPERATION NOISE.....	02 - 09
8-1. NOISE LEVEL CURVE	02 - 09
8-2. SOUND LEVEL CHECK POINT	02 - 10
9. ELECTRIC CHARACTERISTICS.....	02 - 11
10. SAFETY DEVICES	02 - 12

1. SPECIFICATIONS

Type				INVERTER HEAT PUMP			
Model name				AO✱R09LECN		AO✱R12LECN	
Power source				230V~ 50Hz			
Available voltage range				198-264V ~ 50Hz			
Starting current			A	3.7		4.6	
Fan	Airflow rate	Cooling	m³/h	2,020		1,950	
		Heating		1,760		1,700	
	Type × Q'ty			Propeller fan×1			
	Motor output		W	50			
Sound pressure level		Cooling	dB(A)	48		49	
		Heating		47		48	
Heat exchanger type		Dimensions (H × W × D)	mm	508 × 896 × 22		504 × 896 × 18.2	
		Fin pitch		1.3		1.4	
		Rows x Stages		1 × 20		2 × 24	
		Pipe type		Copper			
		Fin type		Aluminium			
Compressor	Type × Q'ty			Rotary ×1			
	Motor output		W	750			
Refrigerant		Type		R410A			
		Charge	g	950		1,000	
Refrigerant oil		Type		POE(VG74)			
Enclosure		Material		Steel			
		Colour		Beige Approximate colour of MUNSELL 10YR 7.5/1.0			
Dimensions (H×W×D)	Net		mm	540 × 790 × 290			
	Gross			648 × 910 × 380			
Weight	Net		kg(lb.)	33 (72)		36 (79)	
	Gross			36 (79)		39 (85)	
Connection pipe	Size	Liquid	mm	Φ6.35 (Φ 1/4 in.)			
		Gas		Φ9.52 (Φ 3/8 in.)			
	Method			Flare			
	Max. length		m	20(chargeless:15)			
	Max. height difference			15			
Operation range		Cooling	°C	10 to 43			
		Heating		-25 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.

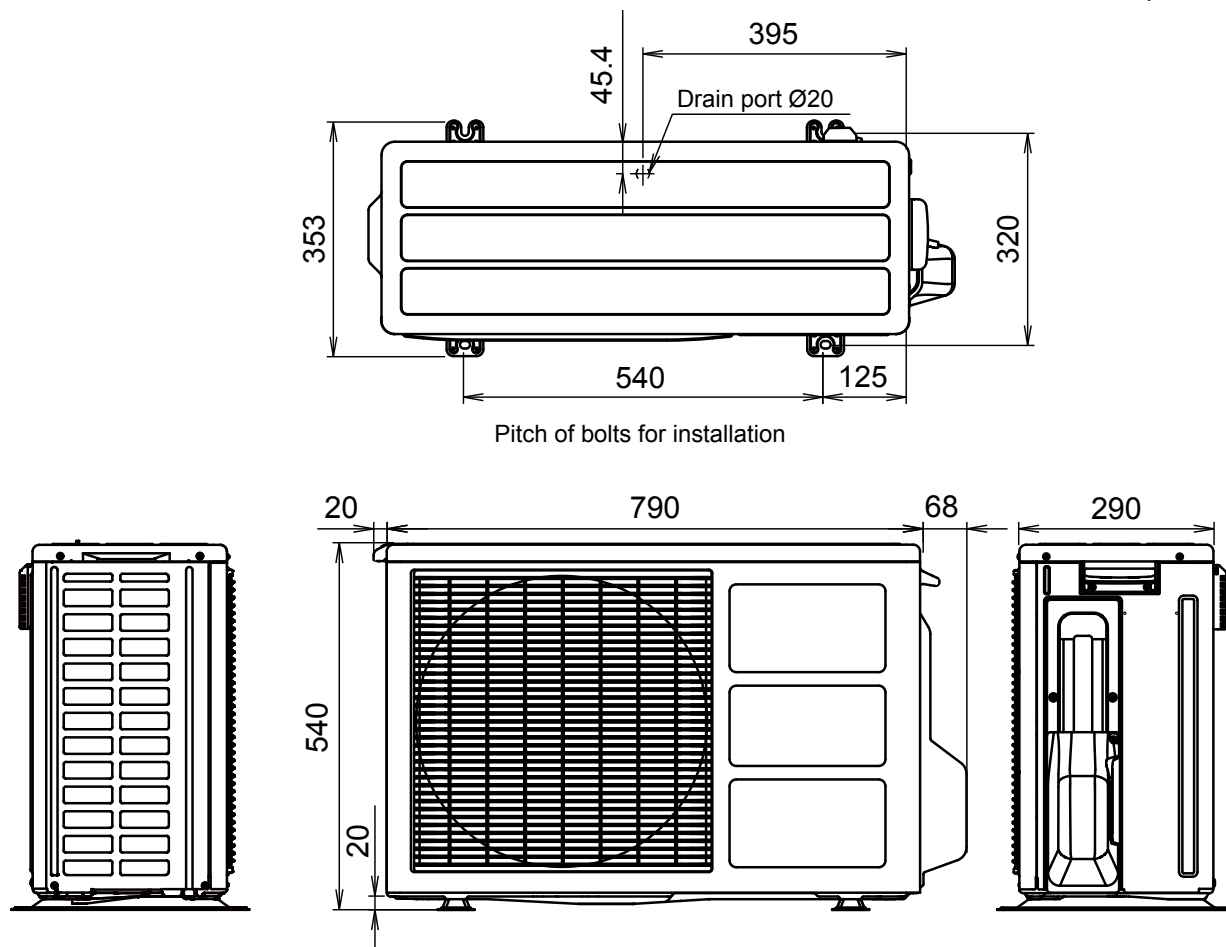
Heating : Indoor temperature of 20 °CDB / 15 °CWB.and outdoor temperature of 7 °CDB/6 °CWB.

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

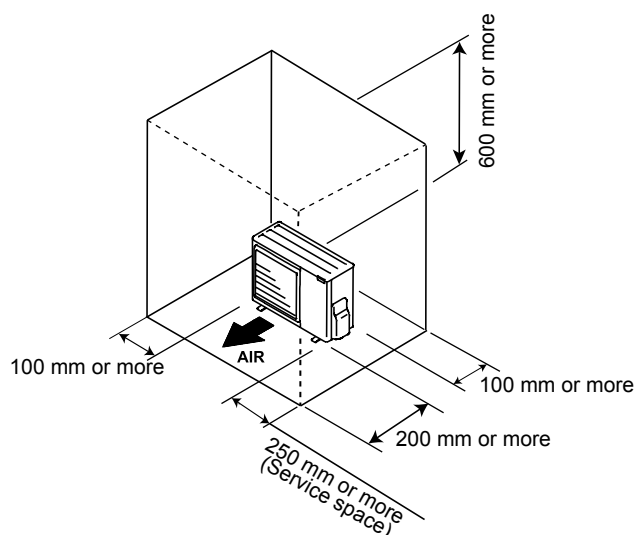
2. DIMENSIONS

■ MODEL: AO*R09LE, AO*R12LE

(Unit : mm)



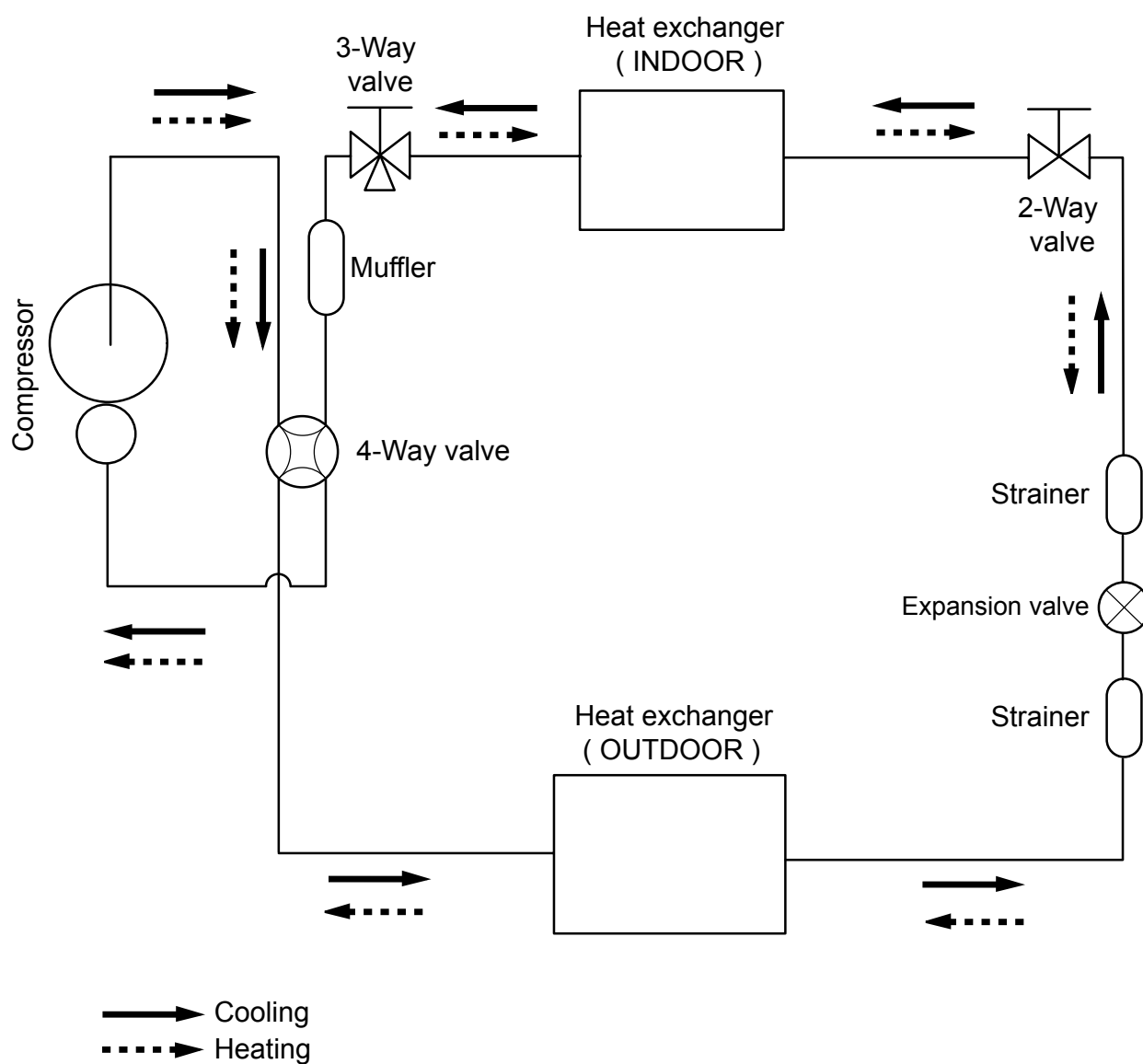
■ INSTALLATION PLACE



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

3. REFRIGERANT CIRCUIT

■ MODEL: AO*R09LE, AO*R12LE



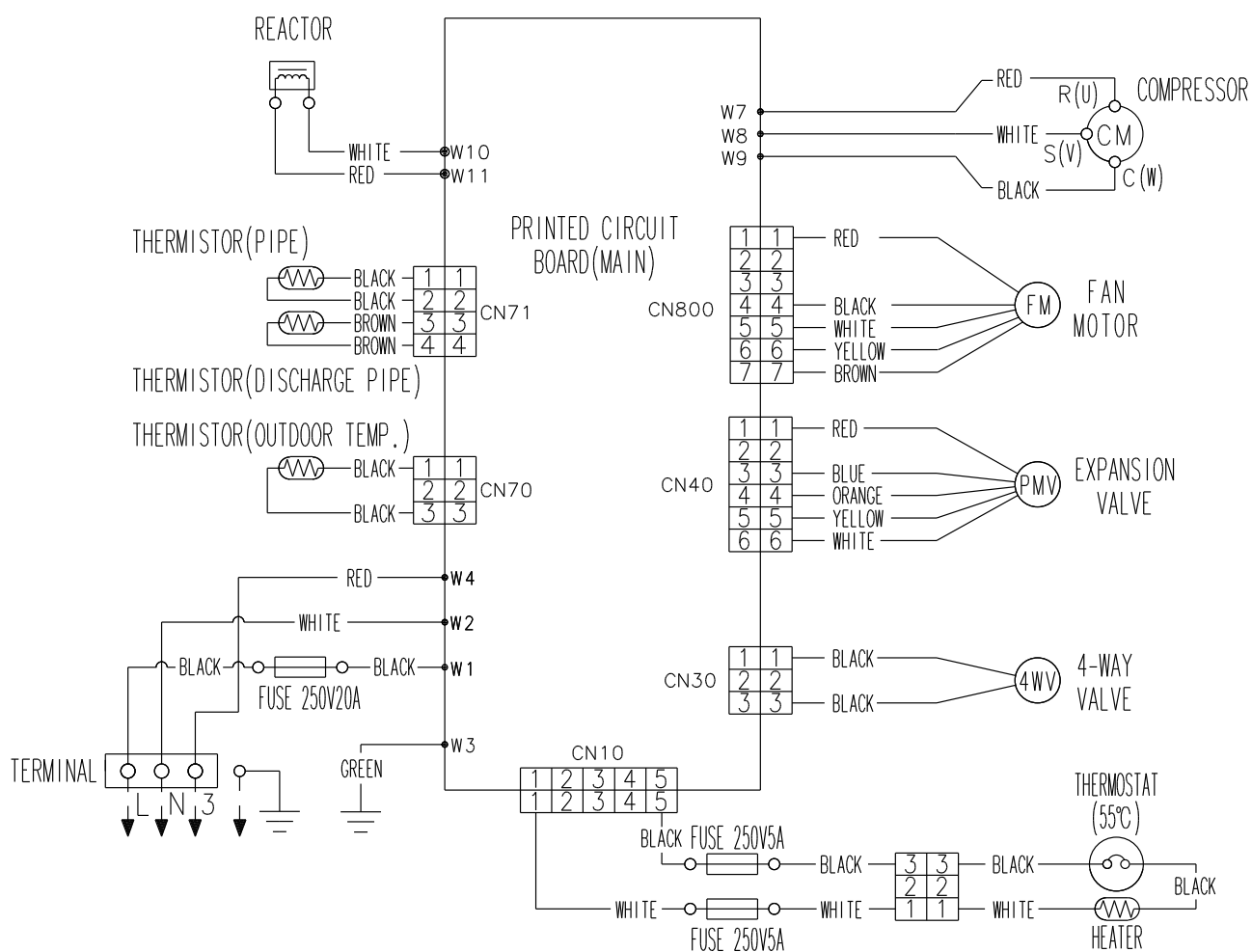
Refrigerant pipe diameter

Liquid : 1/4" (6.35 mm)

Gas : 3/8" (9.52 mm)

4. WIRING DIAGRAMS

■ MODEL: AO*R09LE, AO*R12LE



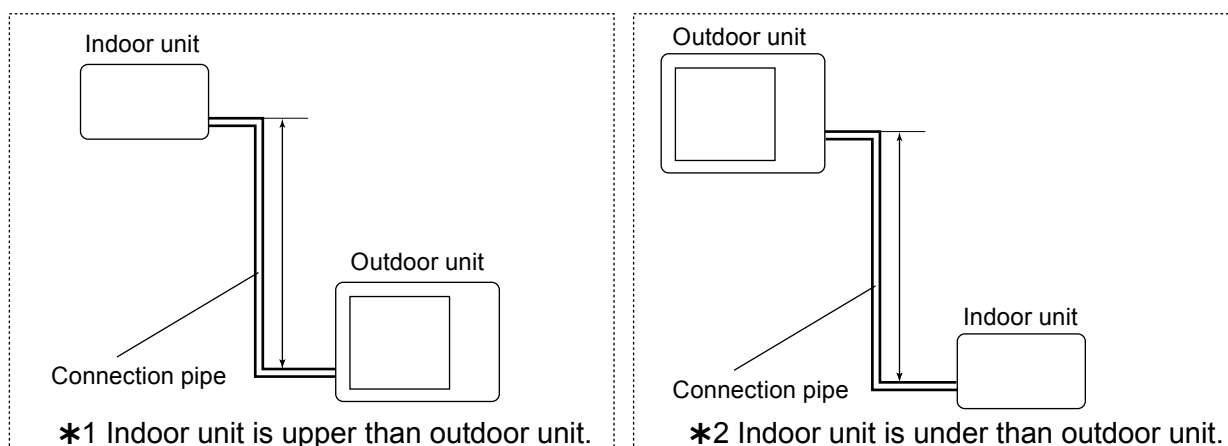
5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

■ MODEL: AO*R09LE

COOLING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	*1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.913	0.922
		10	-	-	0.963	0.928	0.937
		7.5	-	0.980	0.967	0.932	0.941
		5	0.992	0.984	0.971	0.936	0.945
		0	1.000	0.992	0.979	0.943	0.953
	*2 Indoor unit is under than outdoor unit	-5	1.000	0.992	0.979	0.943	0.953
		-7.5	-	0.992	0.979	0.943	0.953
		-10	-	-	0.979	0.943	0.953
		-15	-	-	-	0.943	0.953

HEATING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	*1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.990	0.969
		10	-	-	1.002	0.990	0.969
		7.5	-	1.001	1.002	0.990	0.969
		5	1.000	1.001	1.002	0.990	0.969
		0	1.000	1.001	1.002	0.990	0.969
	*2 Indoor unit is under than outdoor unit	-5	0.995	0.996	0.997	0.985	0.964
		-7.5	-	0.994	0.995	0.983	0.962
		-10	-	-	0.992	0.980	0.960
		-15	-	-	-	0.970	0.950

Height difference H

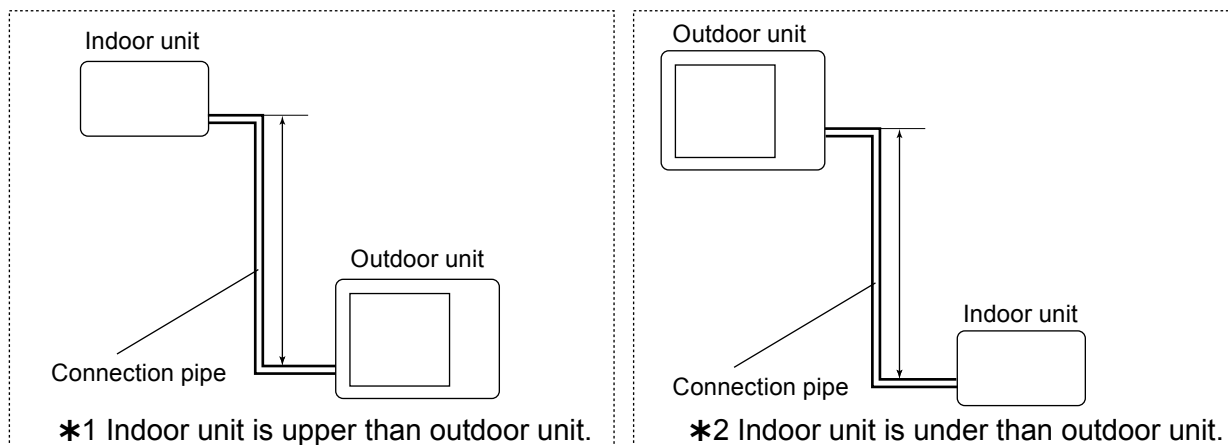


MODEL: AO*R12LE

COOLING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	*1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.882	0.880
		10	-	-	0.943	0.896	0.894
		7.5	-	0.968	0.947	0.900	0.898
		5	0.992	0.972	0.951	0.903	0.901
		0	1.000	0.980	0.958	0.911	0.909
	*2 Indoor unit is under than outdoor unit	-5	1.000	0.980	0.958	0.911	0.909
		-7.5	-	0.980	0.958	0.911	0.909
		-10	-	-	0.958	0.911	0.909
		-15	-	-	-	0.911	0.909

HEATING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	*1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.952	0.932
		10	-	-	1.002	0.952	0.932
		7.5	-	1.010	1.002	0.952	0.932
		5	1.000	1.010	1.002	0.952	0.932
		0	1.000	1.010	1.002	0.952	0.932
	*2 Indoor unit is under than outdoor unit	-5	0.995	1.005	0.997	0.947	0.927
		-7.5	-	1.002	0.994	0.945	0.925
		-10	-	-	0.992	0.942	0.923
		-15	-	-	-	0.933	0.913

Height difference H



6. ADDITIONAL CHARGE CALCULATION

■ MODEL: AO*R09LE

Refrigerant type		R410A
Refrigerant amount	g	950

● REFRIGERANT CHARGE

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

■ MODEL: AO*R12LE

Refrigerant type		R410A
Refrigerant amount	g	1000

● REFRIGERANT CHARGE

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

7. AIR FLOW

■ MODEL: AO*R09LE

● COOLING

Number of rotations (r.p.m)	Air flow	
850	2020	m ³ /h
	561	l/s
	1189	CFM

● HEATING

Number of rotations (r.p.m)	Air flow	
750	1760	m ³ /h
	489	l/s
	1036	CFM

■ MODEL: AO*R12LE

● COOLING

Number of rotations (r.p.m)	Air flow	
850	1950	m ³ /h
	542	l/s
	1148	CFM

● HEATING

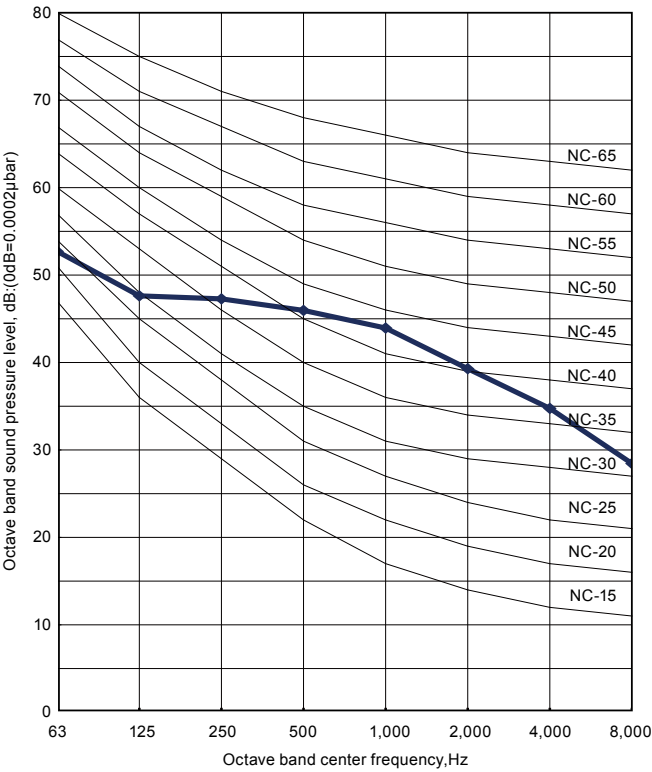
Number of rotations (r.p.m)	Air flow	
750	1700	m ³ /h
	472	l/s
	1000	CFM

8. OPERATION NOISE

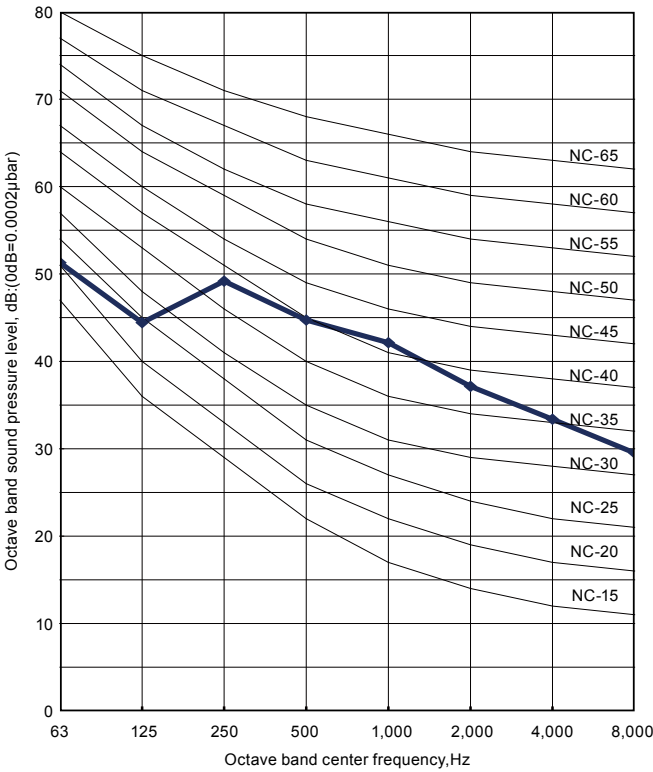
8-1. NOISE LEVEL CURVE

MODEL: AO*R09LE

COOLING

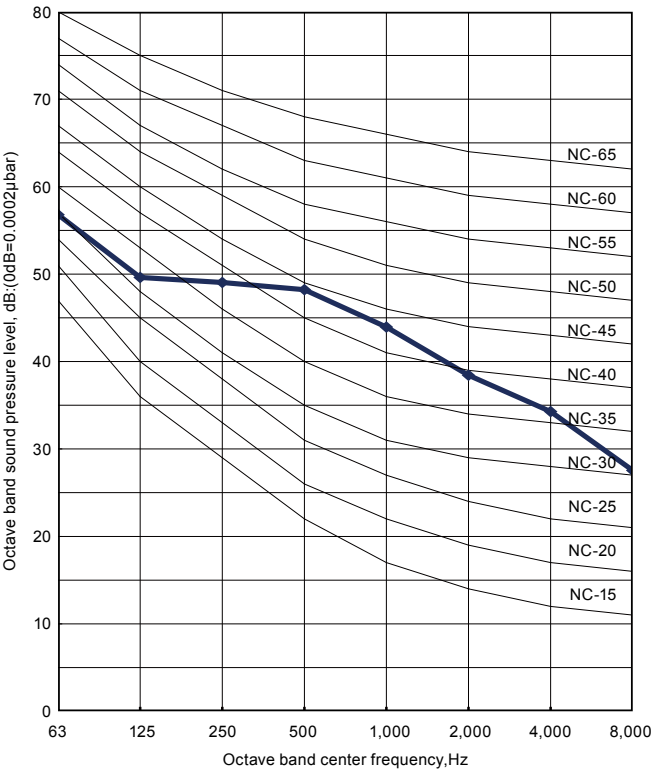


HEATING

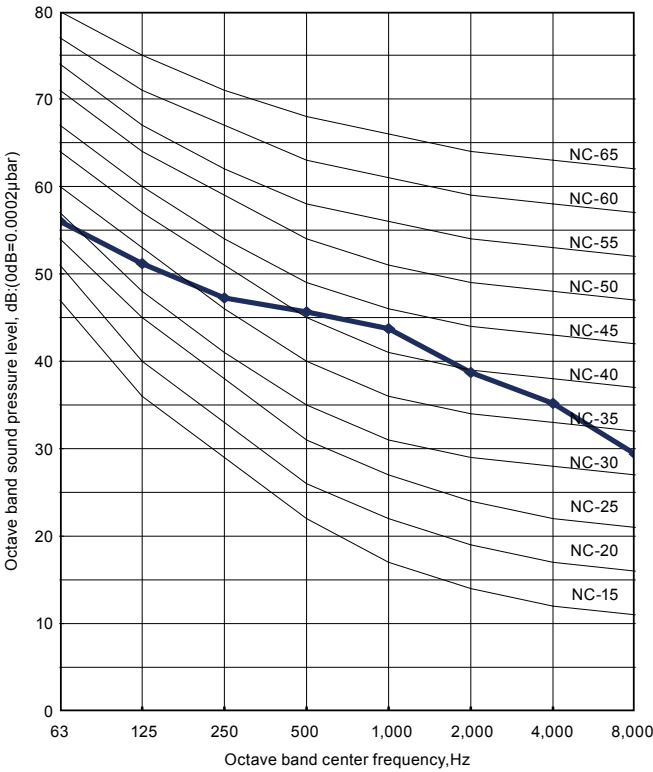


MODEL: AO*R12LE

COOLING

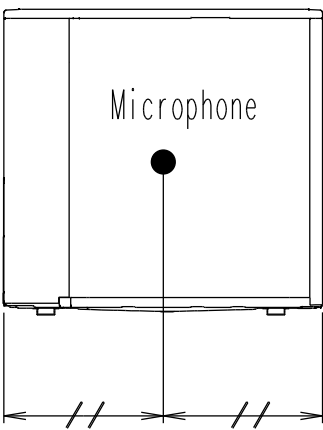
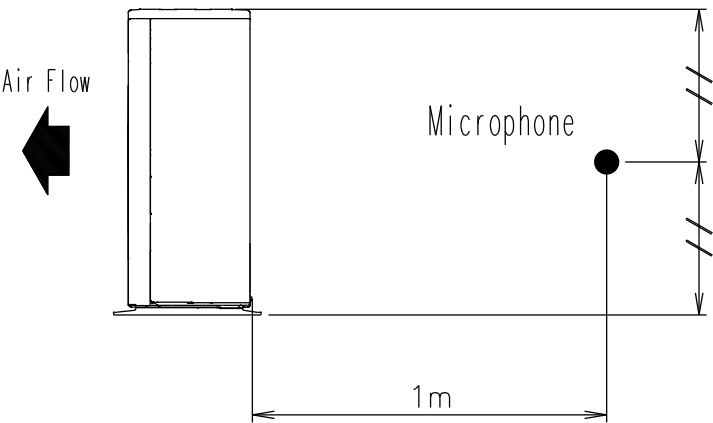


HEATING



8-2. SOUND LEVEL CHECK POINT

OUTDOOR UNIT
AO*R09-12LE



OUTDOOR UNIT
AO*R09-12LE

9. ELECTRIC CHARACTERISTICS

Model Name			AO*R09LE	AO*R12LE
Power Supply	Voltage	V	230 ~	
	Frequency	Hz	50	
Starting Current		A	3.2	4.0

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

OUTDOOR UNIT
AO*R09-12LE

OUTDOOR UNIT
AO*R09-12LE

10. SAFETY DEVICES

	Protection form	Model	
		AO*R09LE	AO*R12LE
Circuit protection	Current fuse (NEAR THE TERMINAL)	20A 250V	
	Current fuse (MAIN PRINTED CIRCUIT BOARD)	3.15A 250V	
Fan motor protection	Thermal protection program	OFF:100 ⁺¹⁵ ₋₁₀ °C ON:95 ⁺¹⁵ ₋₁₀ °C	
Compressor protection	Thermal protection program (DISCHARGE TEMP.)	OFF:110°C ON: After 7 minutes	
Heater protection	Current fuse	5A 250V (2pcs)	
	Thermal protection switch (HEATER TEMP.)	OFF:55 ⁺³ ₋₃ °C ON:45 ⁺⁴ ₋₄ °C	