

AIR CONDITIONER

Wall Mounted type

DESIGN & TECHNICAL MANUAL

INDOOR



AS*G09LLCA
AS*G12LLCA

OUTDOOR



AO*G09LLC
AO*G12LLC

FUJITSU GENERAL LIMITED

1.INDOOR UNIT

WALL MOUNTED TYPE :

AS*G09LLCA

AS*G12LLCA

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1. FEATURES

■ MODEL

AS*G09LLCA / AO*G09LLC
AS*G12LLCA / AO*G12LLC



■ FEATURES

● Energy efficiency class

	MODEL	
	AS*G09LLCA	AS*G12LLCA
Cooling	A++	A++
Heating(Average)	A	A

● Super quiet operation

Top class low noise operation by new airflow construction.
Our quiet operation makes the more comfortable environment
in a bed room and a study room, etc.

Fan speed

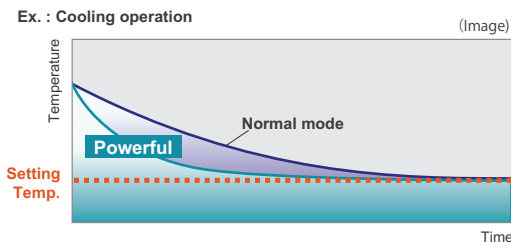
Quiet

Noise level

22dB(A)

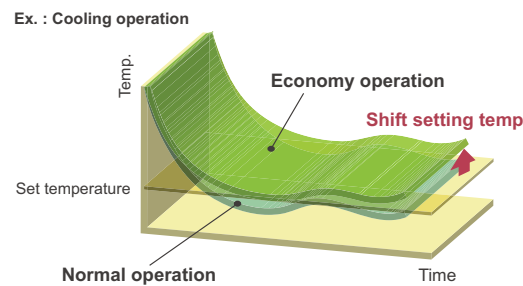
● Powerful operation

Reach the setting temperature quickly.



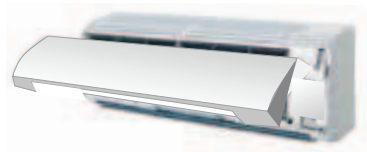
● Economy operation

Setting temp. is shifted by 1°C automatically.



● Easy maintenance

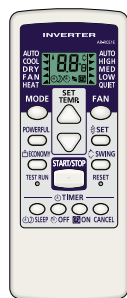
Removable & washable panel



● Corresponds to maximum 15m long piping

2. WIRELESS REMOTE CONTROLLER

■ FEATURES



- * Three kinds of timer setup (ON/OFF/SLEEP) are possible.
- * Four kinds of timer. 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.

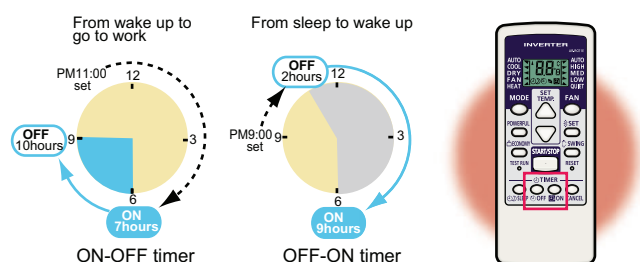
● Built-in timers

Select from three different timer programs (ON/OFF/SLEEP).

● ON-OFF Programmable timer

You can set an integrated ON-OFF or OFF-ON timer suitable for your life style.
(Setting time: 0.5, 1, 1.5, 2, 2.5, -----9.5, 10, 11, 12 hours)

Example of how to set the program timer.

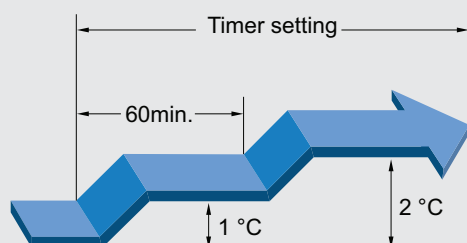


● Sleep timer

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

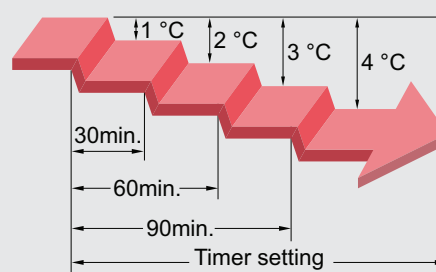
Cooling operation/dry operation

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.

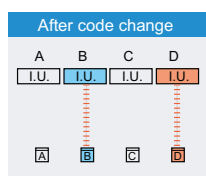
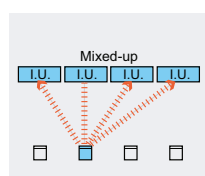


Heating operation

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.



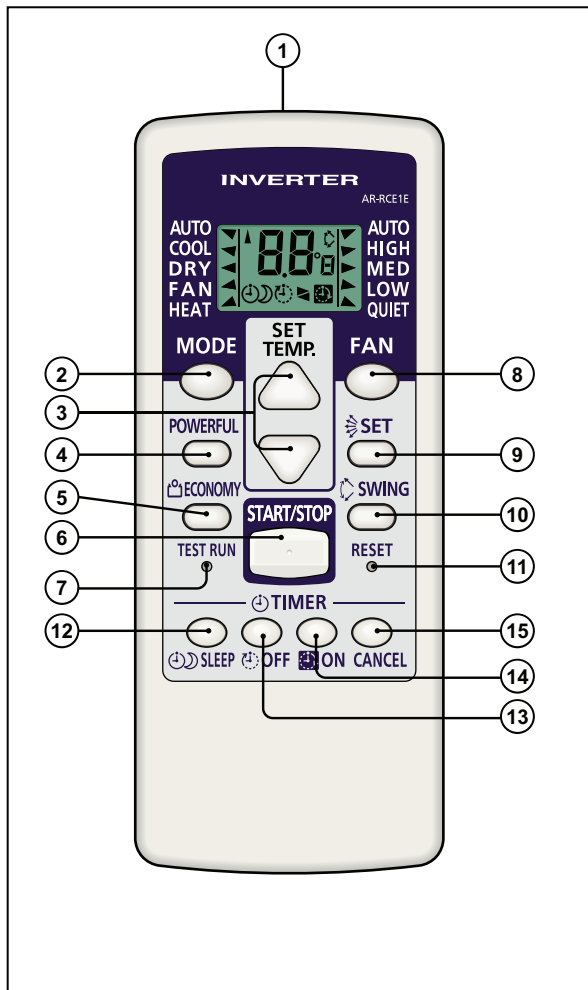
● Switching remote controller signal code



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

*I.U.=Indoor unit

FUNCTIONS



- 1 **Signal transmitter**
- 2 **MODE button**
- 3 **SET TEMP. button (▲ / ▼)**
- 4 **POWERFULL button**
- 5 **ECONOMY button**
- 6 **START/STOP button**
- 7 **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.

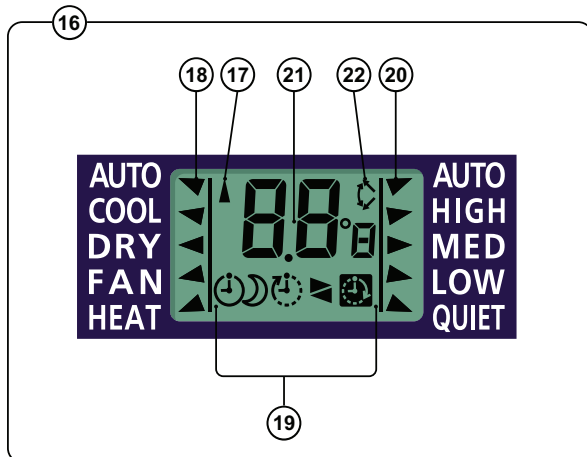
- 8 **FAN button**
- 9 **SET button**
- 10 **SWING button**
- 11 **RESET button**

————— **TIMER** —————

- 12 **SLEEP TIMER button**
- 13 **OFF TIMER button**
- 14 **ON TIMER button**
- 15 **TIMER CANCEL button**

16 **Remote controller display** —————

Display panel



- 17 **Transmit indicator**
- 18 **Operation mode display**
- 19 **Timer mode display**
 - SLEEP TIMER mark:** ☹☹
 - OFF TIMER mark:** ☹
 - OFF-ON TIMER mark:** ☹▶☹
 - ON-OFF TIMER mark:** ☹◀☹
 - ON TIMER Mark:** ☹
- 20 **Fan speed display**
- 21 **Temperature and time display**
 - It displays the temperature setting.
 - However, when making the Timer setting, it will display the Timer time.
 - (The temperature setting will reappear after finishing the timer setting)
- 22 **Swing display**

SPECIFICATION

SIZE	(H x W x D mm)	139×56×18
WEIGHT	(g)	70

3. SPECIFICATIONS

Type				WALL MOUNTED			
				INVERTER HEAT PUMP			
Model name				AS*G09LLCA	AS*G12LLCA		
Power source				230V~ 50Hz			
Available voltage range				198-264V~ 50Hz			
Capacity	Cooling	Rated	kW	2.50	3.40		
			Btu/h	8,500	11,600		
		Min-Max	kW	0.9 - 3.0	0.9-3.8		
			Btu/h	3,100 - 10,200	3,100-13,000		
	Heating	Rated	kW	3.20	4.00		
			Btu/h	10,900	13,600		
		Min-Max	kW	0.9 - 3.6	0.9-4.6		
			Btu/h	3,100 - 12,300	3,100-15,700		
Input power	Cooling	Rated	kW	0.745	1.015		
		Min-Max		0.24 - 1.06	0.23 - 1.30		
	Heating	Rated		0.865	1.080		
		Min-Max		0.21 - 1.00	0.21 - 1.85		
Current	Cooling	Rated	A	4.0	4.7		
	Heating			4.7	5.1		
EER		Cooling	kW/kW	3.36	3.35		
COP		Heating		3.70	3.70		
Sensible capacity		Cooling	kW	1.6	2.2		
Power factor		Cooling	%	81	94		
		Heating		80	92		
Moisture removal			l/h (pints/h)	1.3 (2.3)	1.8 (3.2)		
Maximum operating current *1		Cooling	A	6.0	7.0		
		Heating		6.0	9.5		
Fan	Air flow rate	Cooling	High	m³/h	720		
			Med		600		
			Low		420		
			Quiet		325		
		Heating	High		740		
			Med		600		
			Low		450		
			Quiet		325		
		Type × Q'ty			Cross flow fan × 1		
		Motor output			W	30	
	Sound pressure level	Cooling	High	dB(A)	43		
			Med		38		
Low			33				
Quiet			22				
Heating		High	43				
		Med	38				
		Low	33				
		Quiet	22				
Heat exchanger type	Dimensions (H × W × D)		mm	256 × 630 × 20			
	Fin pitch			1.1			
	Rows 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	262 × 820 × 206			
	Gross			263 × 870 × 328			
Weight	Net		kg	7.5			
	Gross			9.5			
Connection pipe	Size	Liquid	mm	Φ6.35 (Φ1/4 in)			
		Gas		Φ9.52 (Φ3/8 in)			
	Method		Flare				
Operation range		Cooling	°C	18 to 32			
			%RH	80 or less			
		Heating	°C	16 to 30			
Remote controller type				Wireless			
Drain hose	Material			PP+LLDPE			
	Size			mm			
				Ø13.8(I.D.), Ø15.8 to Ø16.7(O.D.)			

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

Model name			AS*G09LLCA		AS*G12LLCA	
Energy efficiency class	Cooling			A++	A++	
	Heating(Average)			A	A	
Pdesign	Cooling	kW	2.5(35°C)		3.4(35°C)	
	Heating(Average)		2.3(-10°C)		3.4(-10°C)	
SEER	Cooling	kWh/kWh	6.10		6.20	
SCOP	Heating(Average)		3.46		3.43	
Annual energy consumption	QCE	kWh/a	143		192	
	QHE(Average)		932		1388	
Sound power level	Cooling	High	dB(A)	59		59
	Heating			60		60

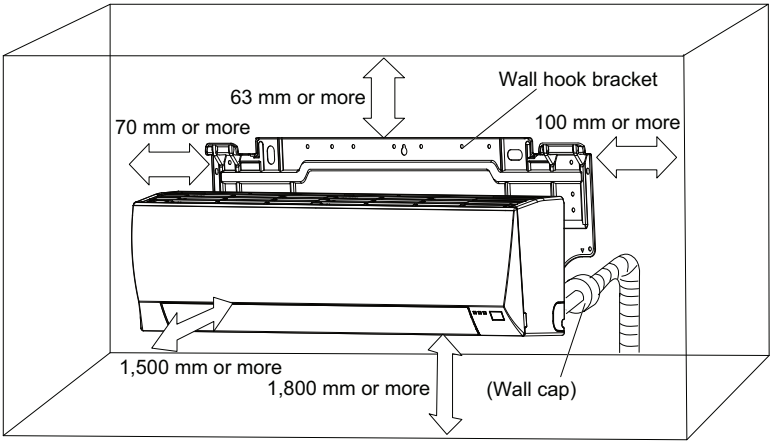
4. DIMENSIONS

■ MODEL: AS*G09LLCA, AS*G12LLCA

(Unit : mm)

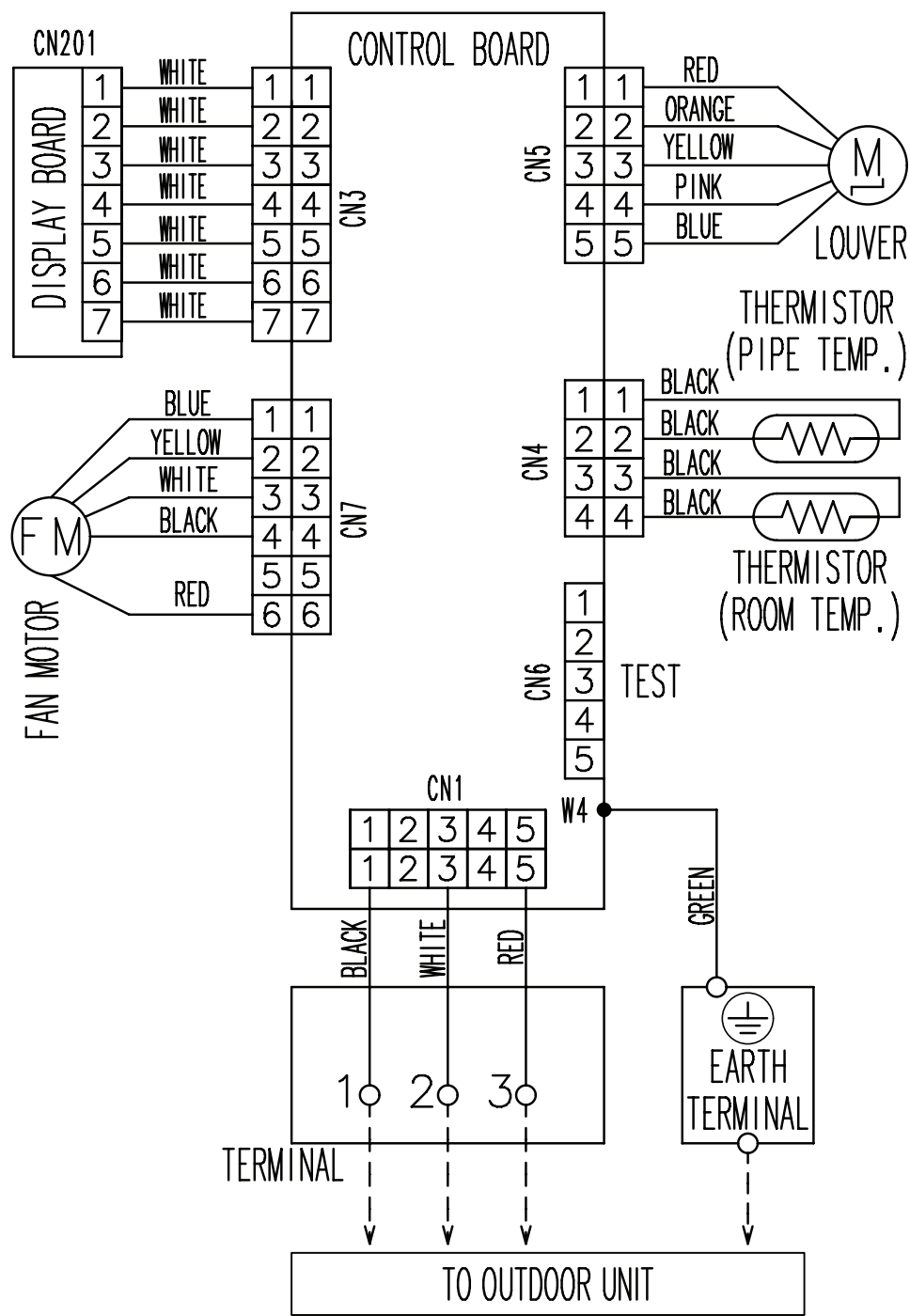


■ INSTALLATION PLACE



5. WIRING DIAGRAMS

■ MODEL: AS*G09LLCA, AS*G12LLCA



6. CAPACITY TABLE

6-1. COOLING CAPACITY

■ MODEL: AS*G09LLCA

AFR	12.0
-----	------

		Indoor temperature																							
		°CDB	18			21			23			25			27			29			32				
		°CWB	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	2.27	1.55	0.51	2.40	1.64	0.51	2.71	1.85	0.57	2.80	1.92	0.60	2.91	1.99	0.61	3.03	2.07	0.60	3.15	2.15	0.61			
	25	2.15	1.61	0.58	2.28	1.61	0.57	2.56	1.61	0.65	2.67	1.61	0.66	2.77	1.61	0.67	2.88	1.61	0.68	2.99	1.61	0.69			
	30	2.00	1.37	0.63	2.10	1.44	0.61	2.35	1.61	0.68	2.49	1.71	0.69	2.62	1.80	0.71	2.70	1.85	0.70	2.78	1.91	0.69			
	35	1.85	1.44	0.69	1.93	1.44	0.65	2.14	1.44	0.70	2.31	1.44	0.73	2.50	1.60	0.75	2.53	1.44	0.72	2.58	1.44	0.69			
	40	1.60	1.09	0.63	1.68	1.15	0.61	1.88	1.28	0.65	2.01	1.37	0.66	2.15	1.46	0.66	2.23	1.52	0.65	2.32	1.58	0.63			
	43	1.35	1.06	0.57	1.44	1.06	0.57	1.63	1.06	0.59	1.72	1.06	0.59	1.82	1.06	0.58	1.94	1.06	0.58	2.06	1.06	0.57			

■ MODEL: AS*G12LLCA

AFR	12.0
-----	------

		Indoor temperature																							
		°CDB	18			21			23			25			27			29			32				
		°CWB	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	2.66	1.84	0.55	3.09	2.14	0.65	3.57	2.47	0.77	3.75	2.59	0.78	3.92	2.72	0.79	4.06	2.81	0.79	4.19	2.90	0.79			
	25	2.54	1.75	0.64	2.94	2.03	0.74	3.40	2.35	0.87	3.56	2.46	0.88	3.73	2.57	0.89	3.86	2.66	0.90	3.99	2.75	0.90			
	30	2.54	1.76	0.81	2.84	1.96	0.87	3.18	2.20	0.94	3.37	2.34	0.97	3.56	2.47	0.99	3.70	2.56	0.99	3.83	2.65	0.99			
	35	2.55	1.76	0.98	2.73	1.89	0.99	2.97	2.05	1.02	3.18	2.20	1.06	3.40	2.20	1.02	3.53	2.44	1.09	3.67	2.53	1.08			
	40	2.26	1.56	0.95	2.43	1.68	0.96	2.66	1.84	0.98	2.84	1.96	0.99	3.02	2.09	1.01	3.18	2.20	1.01	3.34	2.31	1.01			
	43	1.97	1.37	0.91	2.14	1.48	0.93	2.35	1.63	0.93	2.49	1.73	0.93	2.64	1.83	0.92	2.83	1.96	0.93	3.02	2.09	0.94			

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

6-2. HEATING CAPACITY

■ MODEL: AS*G09LLCA

AFR	12.3
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			Indoor temperature									
		°CDB	16		18		20		22		24	
Outdoor temperature	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
	-15	-16	2.37	0.97	2.15	0.97	1.93	0.96	1.89	0.97	1.84	0.98
	-10	-11	2.35	0.98	2.27	0.98	2.18	0.98	2.21	0.99	2.24	1.00
	-5	-7	2.60	1.00	2.52	1.00	2.43	1.00	2.49	1.00	2.54	1.00
	0	-2	2.87	1.00	2.97	1.01	3.07	1.01	2.98	1.01	2.88	1.01
	5	3	3.29	1.01	3.31	1.01	3.34	1.01	3.24	1.03	3.15	1.06
	7	6	3.70	1.01	3.65	1.01	3.60	1.00	3.51	1.05	3.41	1.10
	10	8	3.83	0.99	3.77	0.99	3.71	0.99	3.62	1.01	3.53	1.04
	15	10	3.95	0.97	3.89	0.97	3.82	0.97	3.73	0.97	3.64	0.97

■ MODEL: AS*G12LLCA

AFR	12.3
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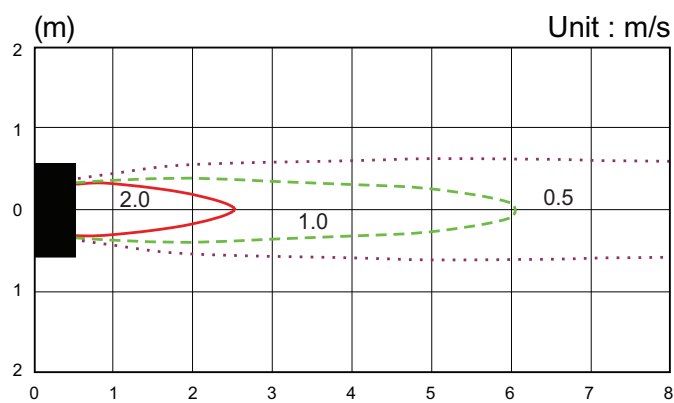
			Indoor temperature									
		°CDB	16		18		20		22		24	
Outdoor temperature	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
	-15	-16	3.01	1.54	3.04	1.57	3.07	1.59	3.04	1.58	3.00	1.57
	-10	-11	3.73	1.64	3.68	1.66	3.62	1.68	3.59	1.71	3.56	1.73
	-5	-7	4.26	1.75	4.24	1.79	4.22	1.82	4.18	1.87	4.13	1.92
	0	-2	4.94	1.95	4.89	1.96	4.83	1.97	4.70	1.97	4.56	1.97
	5	3	5.12	1.90	4.92	1.91	4.72	1.91	4.74	1.91	4.77	1.91
	7	6	5.30	1.85	4.95	1.85	4.60	1.84	4.79	1.85	4.98	1.85
	10	8	5.35	1.72	5.13	1.72	4.91	1.72	4.95	1.72	4.98	1.72
	15	10	5.39	1.59	5.31	1.59	5.22	1.59	5.10	1.59	4.98	1.58

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

7. FAN PERFORMANCE AND CAPACITY

7-1. AIR VELOCITY DISTRIBUTION

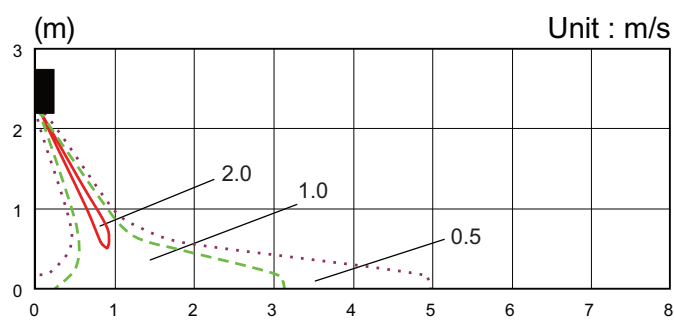
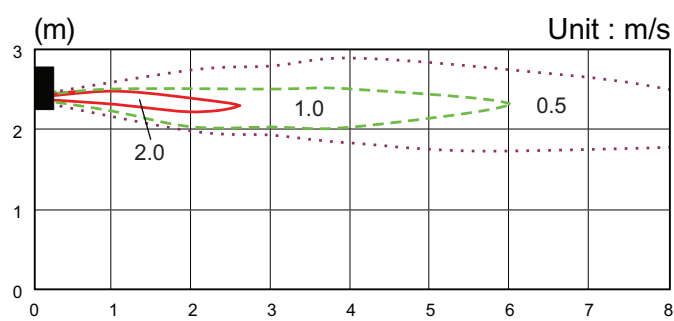
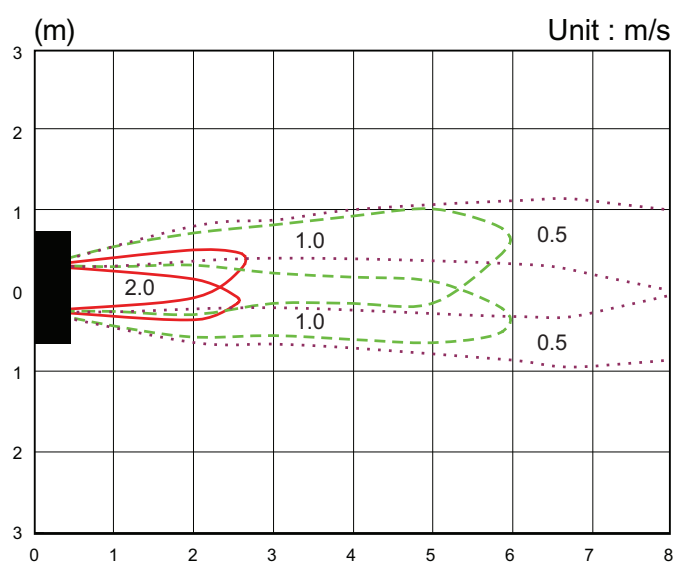
■ MODEL: AS*G09LLCA, AS*G12LLCA



Note:

Fan speed: High

Operation mode: Fan



7-2. AIR FLOW

■ MODEL: AS*G09LLCA

● Cooling

Fan speed	Number of rotations (r.p.m)	Air flow	
HIGH	1320	720	m³/h
		200	l/s
		424	CFM
MED	1120	600	m³/h
		167	l/s
		353	CFM
LOW	840	420	m³/h
		117	l/s
		247	CFM
QUIET	700	325	m³/h
		90	l/s
		191	CFM

● Heating

Fan speed	Number of rotations (r.p.m)	Air flow	
HIGH	1360	740	m³/h
		206	l/s
		436	CFM
MED	1120	600	m³/h
		167	l/s
		353	CFM
LOW	900	450	m³/h
		125	l/s
		265	CFM
QUIET	700	325	m³/h
		90	l/s
		191	CFM

MODEL: AS*G12LLCA

●Cooling

Fan speed	Number of rotations (r.p.m)	Air flow	
HIGH	1320	720	m³/h
		200	l/s
		424	CFM
MED	1120	600	m³/h
		167	l/s
		353	CFM
LOW	840	420	m³/h
		117	l/s
		247	CFM
QUIET	700	325	m³/h
		90	l/s
		191	CFM

●Heating

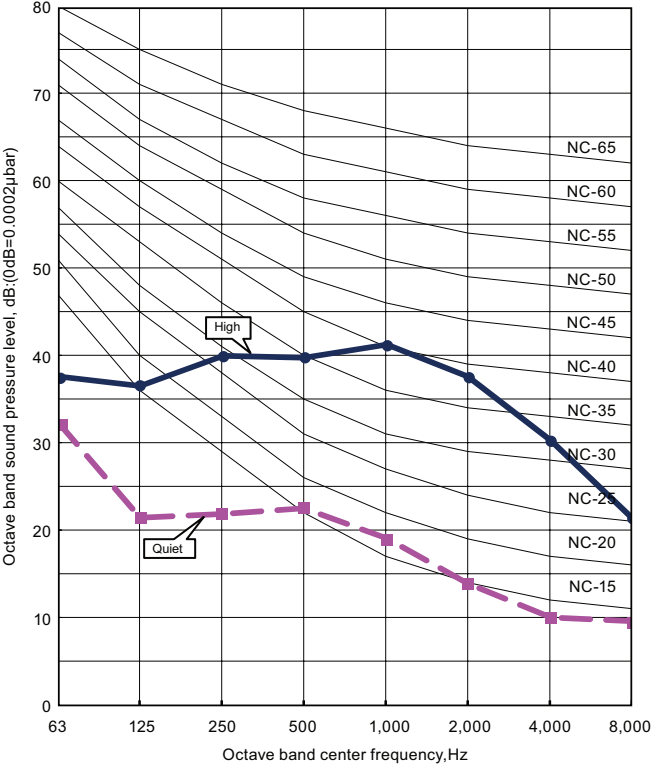
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HIGH	1360	740	m³/h
		206	l/s
		436	CFM
MED	1120	600	m³/h
		167	l/s
		353	CFM
LOW	900	450	m³/h
		125	l/s
		265	CFM
QUIET	700	325	m³/h
		90	l/s
		191	CFM

8. OPERATION NOISE (SOUND PRESSURE)

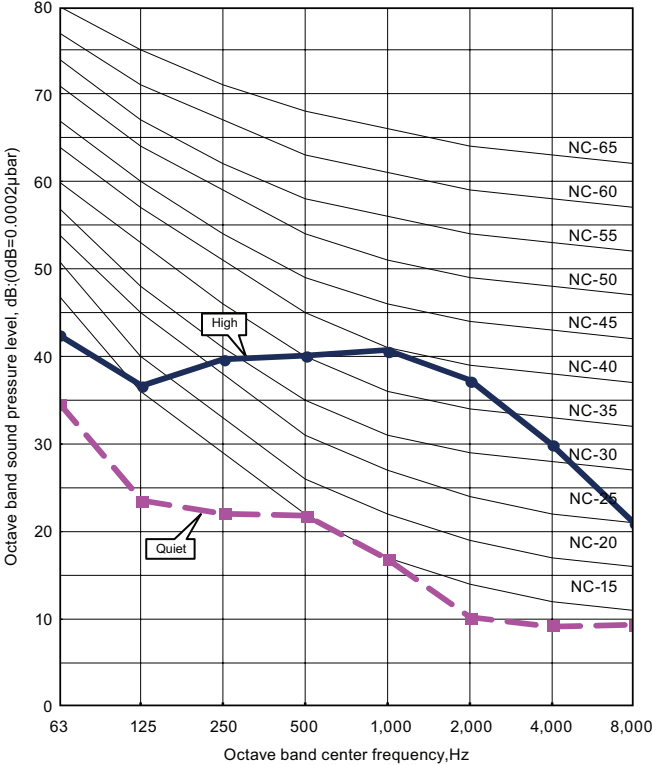
8-1. NOISE LEVEL CURVE

■ MODEL: AS*G09LLCA

● Cooling

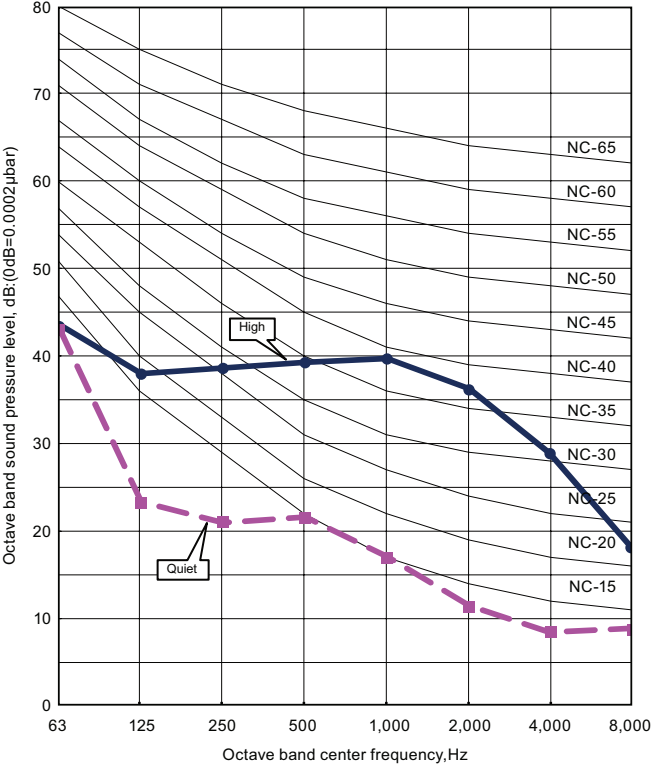


● Heating

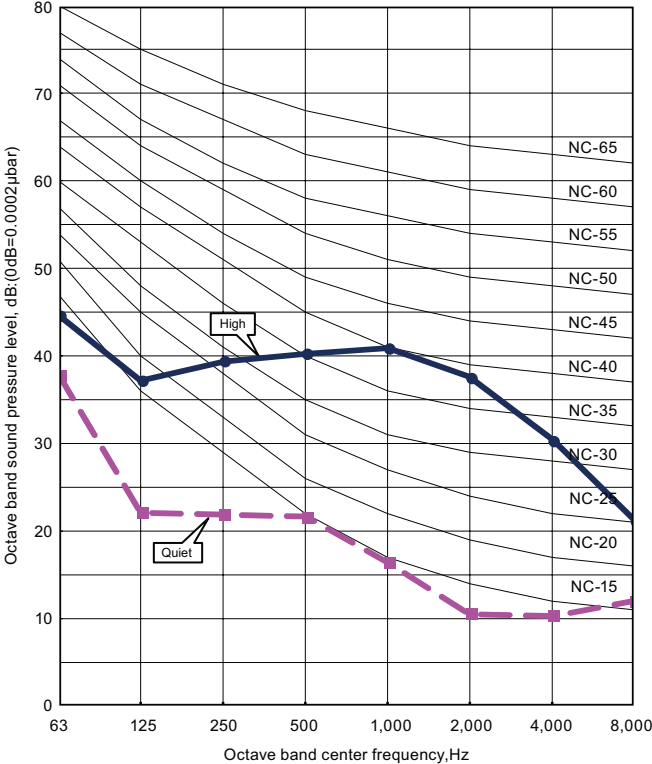


■ MODEL: AS*G12LLCA

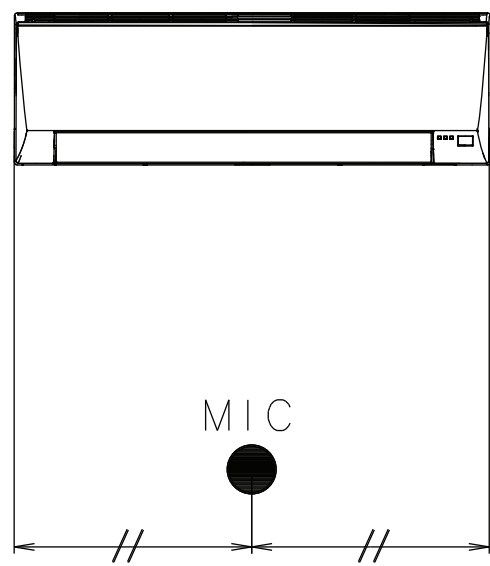
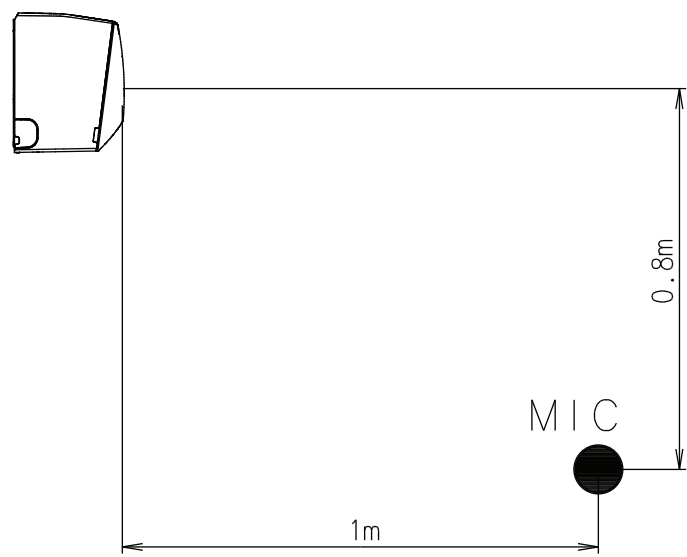
● Cooling



● Heating



8-2. SOUND LEVEL CHECK POINT



9. ELECTRIC CHARACTERISTICS

Model Name			AS*G09LLCA	AS*G12LLCA
Power Supply	Voltage	V	230 ~	
	Frequency	Hz	50	
Max. Operating Current		A	0.3	
*)Wiring Spec	Connection Cable	mm ²	1.5	
	Limited wiring length	m	21	

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

10. SAFETY DEVICES

	Protection form	Model	
		AS*G09LLCA	AS*G12LLCA
Circuit protection	Current fuse (PCB)	250V 3.15A	
Fan motor protection	Terminal protection program	OFF: 160 ± 25 °C ON: 110 ± 25 °C	

11. FUNCTION SETTINGS

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

■ FUNCTION SETTING METHOD (for Wireless remote controller)

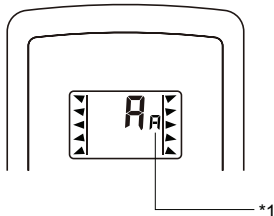
Entering the Function Setting Mode

- While pressing the FAN button and SET TEMP. (▲) button 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 code that is set through this process are applicable only to the signal in the FUNCTION SETTING. For details on how to set the signal code 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 MODE button to accept the signal code, and proceed to STEP 2.

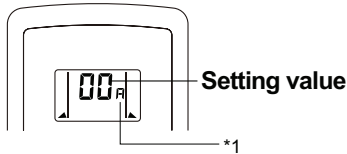
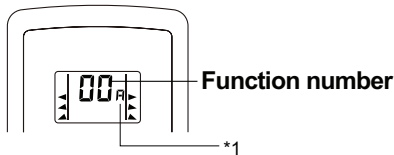
The air conditioner signal code is set to $\overline{A}$ prior to shipment.
Contact your retailer to change the signal code.

The remote controller resets to signal code $\overline{A}$ when the batteries in the remote controller are replaced. If you use a signal code other than signal code $\overline{A}$, 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 SLEEP button, then after you hear the beep emitted from the indoor unit, press the START/STOP button 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.

Note :

*1) Small "A" is displayed on the right of the signal code during the FUNCTION SETTING.

FUNCTION DETAILS

	Functions	Wall mounted
1)	Filter sign	●
2)	Cooler room temperature correction	●
3)	Heater room temperature correction	●
4)	Auto restart	●
5)	Remote controller signal code	●
6)	Indoor unit fun control for energy saving	●

1) 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. If you do not wish the filter sign to be displayed, select the setting value for "No indication".

(◆... Factory setting)

Setting description	Function number	Setting value
Standard	11	00
Long interval		01
Short interval		02
No indication		03

The filter sign interval time is different according to Indoor unit type as follows.

Setting description	Wall mounted
Standard	400 hours
Long interval	1000 hours
Short interval	200 hours

2) 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

3) 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

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) 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

6) Indoor unit fan control for energy saving(Only cooling mode)

Enable or disable indoor unit fan control when the outdoor unit is stopped.

(◆... Factory setting)

	Setting description	Function number	Setting value
◆	No	49	00
	Yes		01

*If setting value is "00":
When the outdoor unit is stopped, the indoor unit fan operates following the setting on the remote controller continuously.

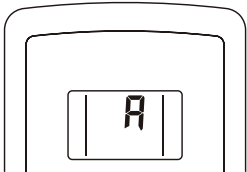
*If setting value is "01":
When the outdoor unit is stopped, the indoor unit fan operates at very low speed intermittently.

■ 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 MODE button for at least five seconds to display the current signal code (initially set to **A**).
2. 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.
3. Press the MODE button again. The signal code will be changed.

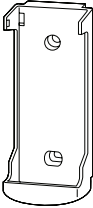


If no buttons are pressed within 30 seconds after the signal code is displayed, the display returns to the original status. In this case, start again from step 1.

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
	Remote controller holder	UTZ-RXLA	Wall or pillar mountable, and holds the remote controller.

2.OUTDOOR UNIT

SINGLE TYPE :

AO*G09LLC

AO*G12LLC

CONTENTS

2. OUTDOOR UNIT

1. SPECIFICATIONS.....	02 - 01
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4. WIRING DIAGRAMS.....	02 - 05
5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE	02 - 06
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8. OPERATION NOISE (SOUND PRESSURE).....	02 - 10
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9. ELECTRIC CHARACTERISTICS.....	02 - 12
10. SAFETY DEVICES	02 - 13
11. OPTIONAL PARTS	02 - 14

1. SPECIFICATIONS

Type				INVERTER COOLING & HEATING		
Model name				AO*G09LLC	AO*G12LLC	
Power source				230V~ 50Hz		
Available voltage range				198-264V~ 50Hz		
Starting current			A	4.7	5.1	
Fan	Air flow rate	Cooling	m³/h	1,710	1,850	
		Heating		1,680	1,820	
	Type × Q'ty			Propeller fan × 1		
	Motor output			W	26	
Sound pressure level		Cooling	dB(A)	47	51	
		Heating		48	52	
Sound power level		Cooling	dB(A)	63	65	
		Heating		63	65	
Heat exchanger type		Dimensions (H × W × D)	mm	650 × 504 × 18.2	650 × 504 × 18.2 350 × 504 × 18.2	
		Fin pitch		1.4	1.4	
		Rows x Stages		1 × 24	1.5 × 24	
		Pipe type		Copper		
		Fin type		Aluminium		
		Compressor	Type × Q'ty			Rotary × 1
Motor output			W	700	700	
Refrigerant		Type (Global Warming Potential)		R410A (1975)		
		Charge	g	650	750	
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	535 × 663 × 293	535 × 663 × 293	
	Gross			590 × 790 × 395	590 × 790 × 395	
Weight	Net		kg	24	26	
	Gross			27	28	
Connection pipe	Size	Liquid	mm	Φ6.35 (Φ 1/4 in.)		
		Gas		Φ9.52 (Φ 3/8 in.)		
	Method			Flare		
	Pre-charge length			10		
	Max. length			15		
	Max. height difference			10		
Operation range		Cooling	°C	18 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)

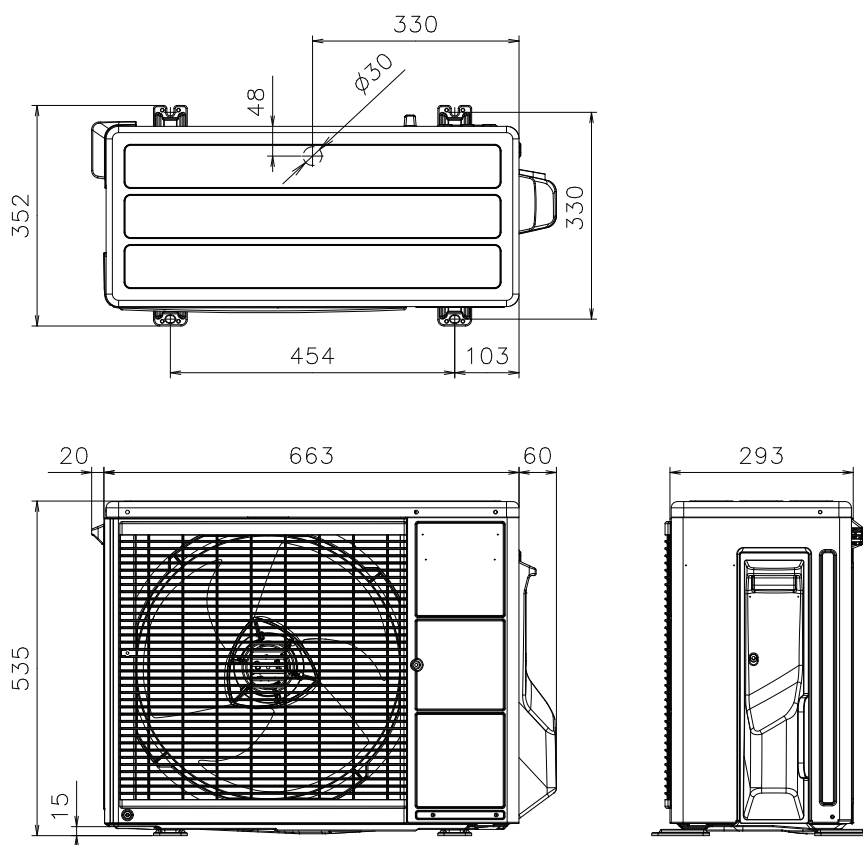
The protective function might work when using it out the operation range.

2. DIMENSIONS

■ MODEL: AO*G09LLC, AO*G12LLC

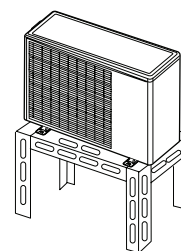
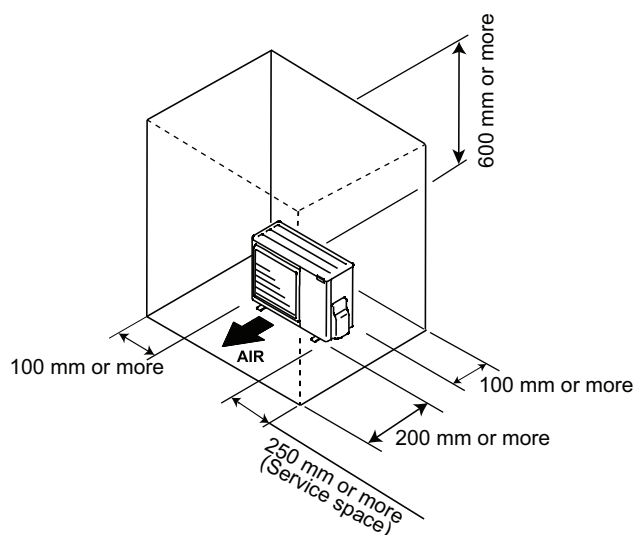
(Unit : mm)

OUTDOOR UNIT
AO*G09-12LLC



OUTDOOR UNIT
AO*G09-12LLC

■ INSTALLATION PLACE



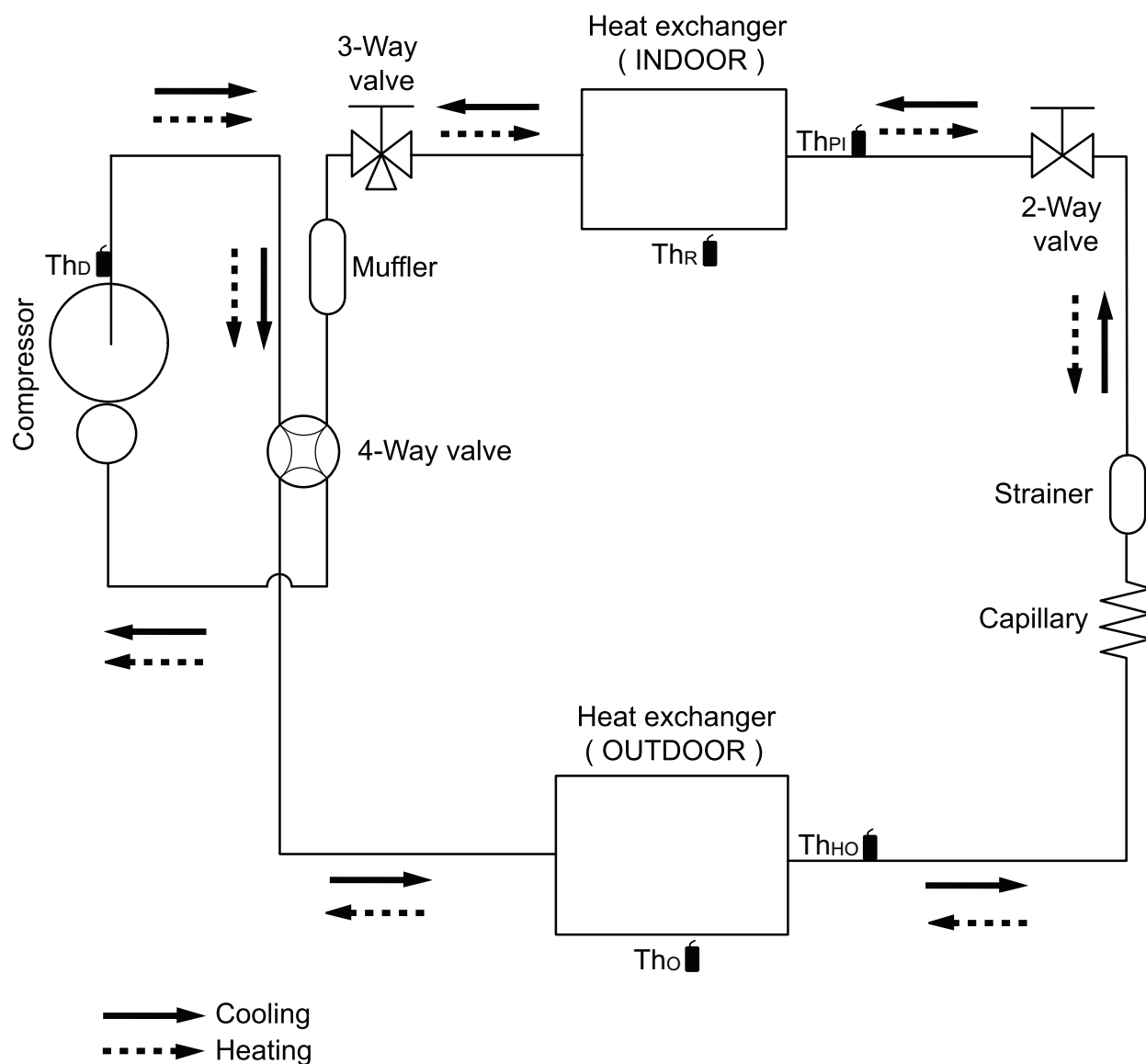
CAUTION

- When the outdoor temperature is 0 °C or less, do not use the accessory drain pipe and drain cap. If the drain pipe and drain cap are used, the drain water in the pipe may freeze in extremely cold weather. (Reverse cycle model only)
- In areas with heavy snowfall, if the intake and outlet of outdoor unit is blocked with snow, it might become difficult to get warm and it is likely to cause breakdown. Please construct a canopy and a pedestal or place the unit on a high stand (local configured).

If the space is larger than stated, the condition will be the same as without any obstacles.

3. REFRIGERANT CIRCUIT

■ MODEL: AO*G09LLC

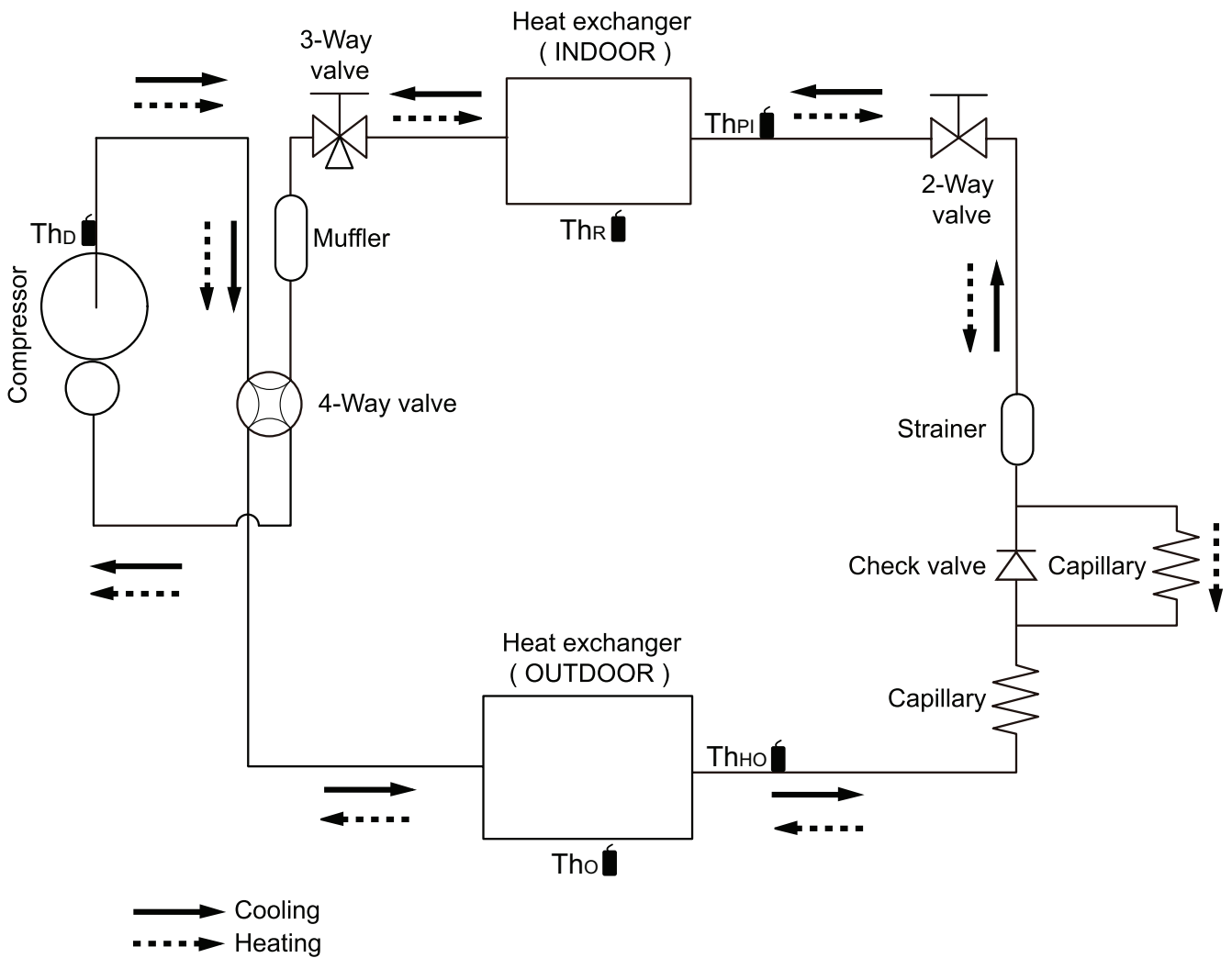


Refrigerant pipe diameter

Liquid : 1/4" (6.35 mm)

Gas : 3/8" (9.52 mm)

■ MODEL: AO*G12LLC



Th_D : Thermistor (Discharge Temp.)

Th_o : Thermistor (Outdoor Temp.)

Th_{HO} : Thermistor (Heat Exchanger Out Temp.)

Th_R : Thermistor (Room Temp.)

Th_{PI} : Thermistor (Pipe Temp.)

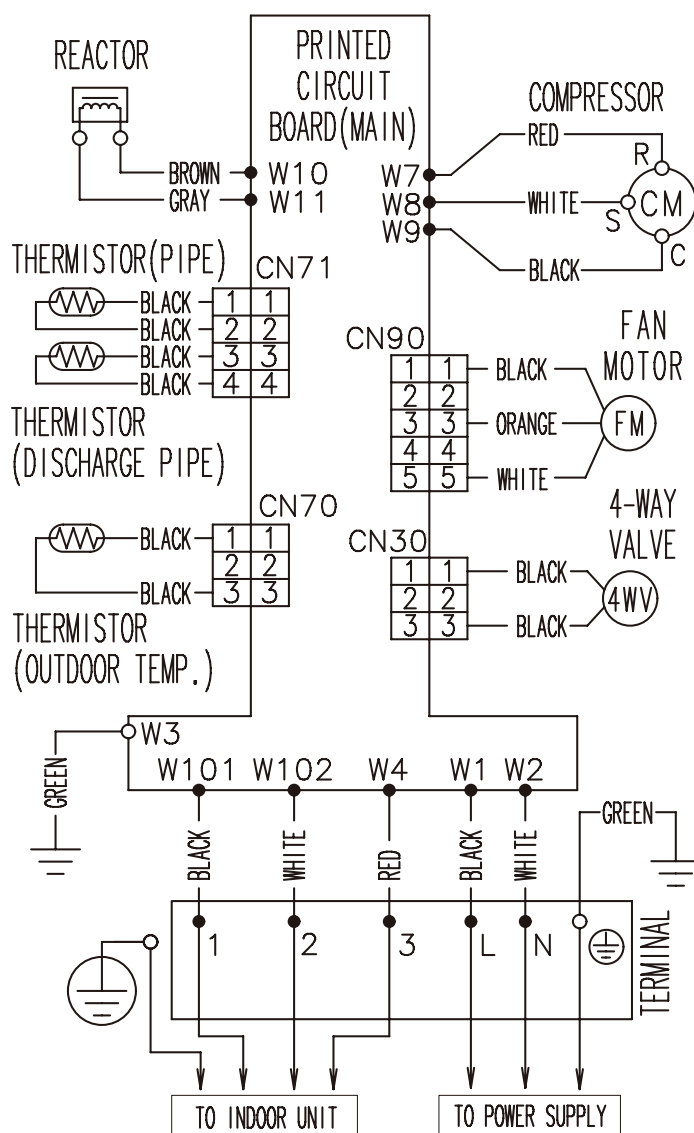
Refrigerant pipe diameter

Liquid : 1/4" (6.35 mm)

Gas : 3/8" (9.52 mm)

4. WIRING DIAGRAMS

■ MODEL: AO*G09LLC, AO*G12LLC



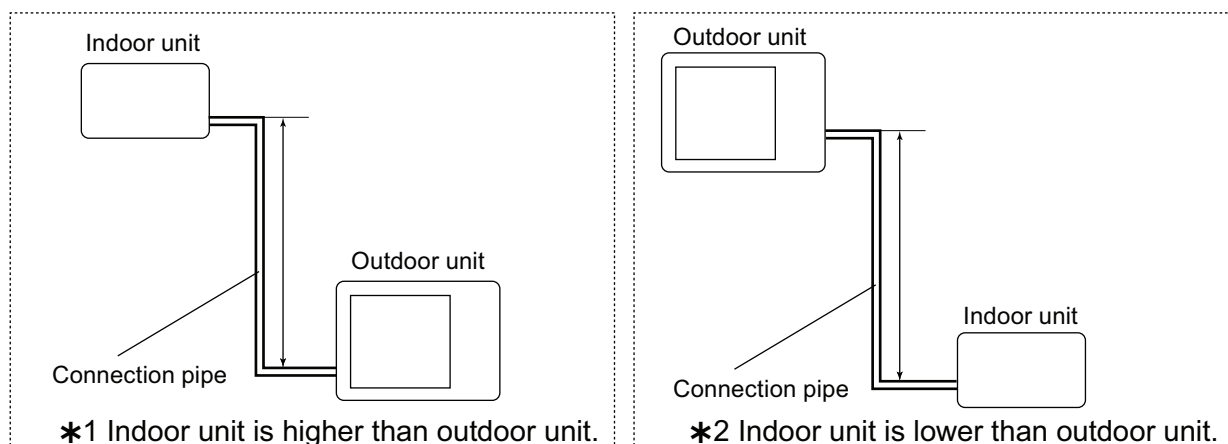
5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

■ MODEL: AO*G09LLC

COOLING			Pipe length (m)			
			5	7.5	10	15
Height difference H (m)	*1 Indoor unit is higher than outdoor unit.	10	-	-	0.980	0.944
		7.5	-	0.988	0.984	0.948
		5	0.992	0.992	0.988	0.951
		0	1.000	1.000	0.995	0.960
	*2 Indoor unit is lower than outdoor unit	-5	1.000	1.000	0.995	0.960
		-7.5	-	1.000	0.995	0.960
		-10	-	-	0.995	0.960

HEATING			Pipe length (m)			
			5	7.5	10	15
Height difference H (m)	*1 Indoor unit is higher than outdoor unit.	10	-	-	0.944	0.897
		7.5	-	0.983	0.944	0.897
		5	1.000	0.983	0.944	0.897
		0	1.000	0.983	0.944	0.897
	*2 Indoor unit is lower than outdoor unit	-5	0.995	0.978	0.939	0.892
		-7.5	-	0.976	0.937	0.891
		-10	-	-	0.935	0.889

Height difference H

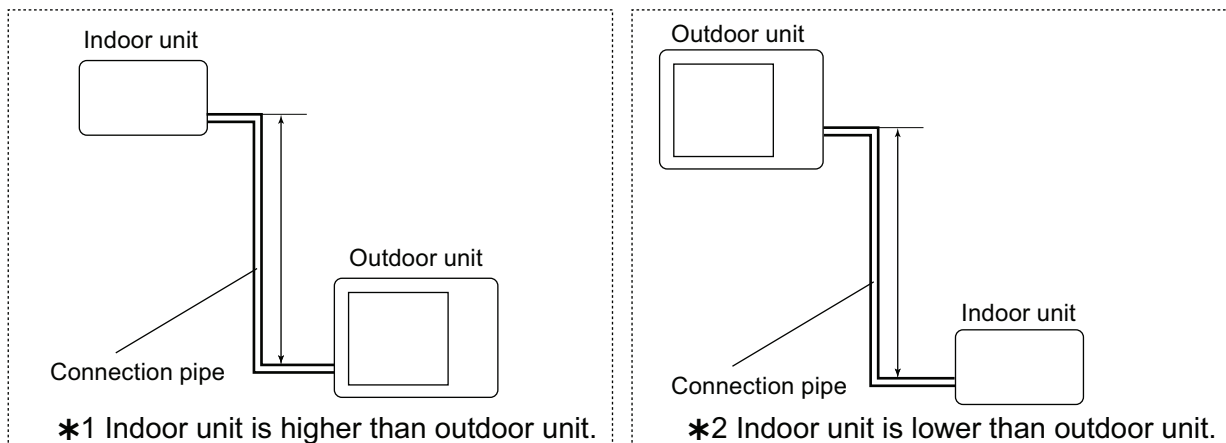


MODEL: AO*G12LLC

COOLING			Pipe length (m)			
			5	7.5	10	15
Height difference H (m)	*1 Indoor unit is higher than outdoor unit.	10	-	-	0.957	0.911
		7.5	-	0.974	0.961	0.916
		5	0.992	0.978	0.965	0.919
		0	1.000	0.986	0.972	0.927
	*2 Indoor unit is lower than outdoor unit	-5	1.000	0.986	0.972	0.927
		-7.5	-	0.986	0.972	0.927
		-10	-	-	0.972	0.927

HEATING			Pipe length (m)			
			5	7.5	10	15
Height difference H (m)	*1 Indoor unit is higher than outdoor unit.	10	-	-	0.908	0.875
		7.5	-	0.954	0.908	0.875
		5	1.000	0.954	0.908	0.875
		0	1.000	0.954	0.908	0.875
	*2 Indoor unit is lower than outdoor unit	-5	0.995	0.949	0.903	0.870
		-7.5	-	0.947	0.902	0.868
		-10	-	-	0.900	0.867

Height difference H



6. ADDITIONAL CHARGE CALCULATION

■ MODEL: AO*G09LLC

Refrigerant type		R410A
Refrigerant amount	g	650

● Refrigerant charge

Total pipe length	m	10 or less	15 (MAX)	20g/m
Additional charge	g	0	100	

■ MODEL: AO*G12LLC

Refrigerant type		R410A
Refrigerant amount	g	750

● Refrigerant charge

Total pipe length	m	10 or less	15 (MAX)	20g/m
Additional charge	g	0	100	

7. AIR FLOW

■ MODEL: AO*G09LLC

● Cooling

Number of rotations (r.p.m.)	Air flow	
740	1710	m ³ /h
	475	l/s
	1007	CFM

● Heating

Number of rotations (r.p.m.)	Air flow	
730	1680	m ³ /h
	467	l/s
	989	CFM

■ MODEL: AO*G12LLC

● Cooling

Number of rotations (r.p.m.)	Air flow	
820	1850	m ³ /h
	514	l/s
	1089	CFM

● Heating

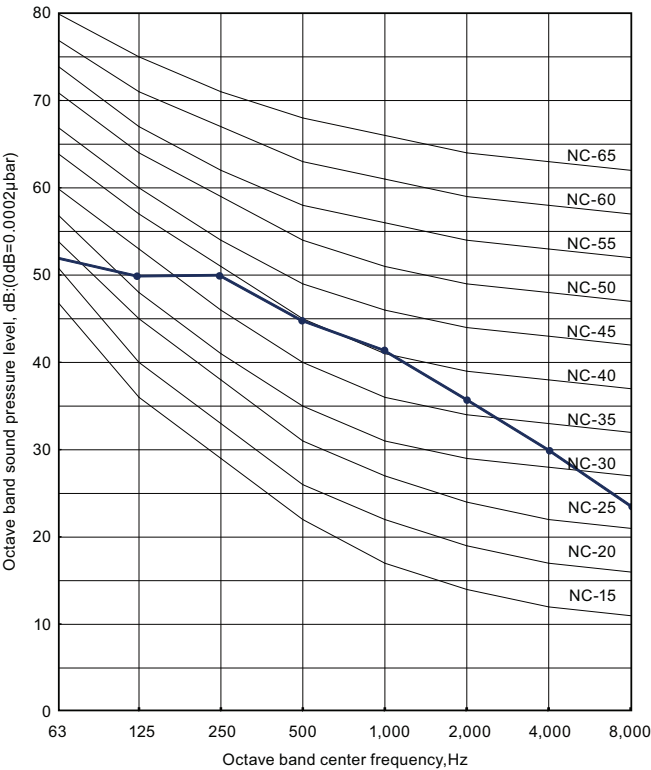
Number of rotations (r.p.m.)	Air flow	
810	1820	m ³ /h
	506	l/s
	1071	CFM

8. OPERATION NOISE (SOUND PRESSURE)

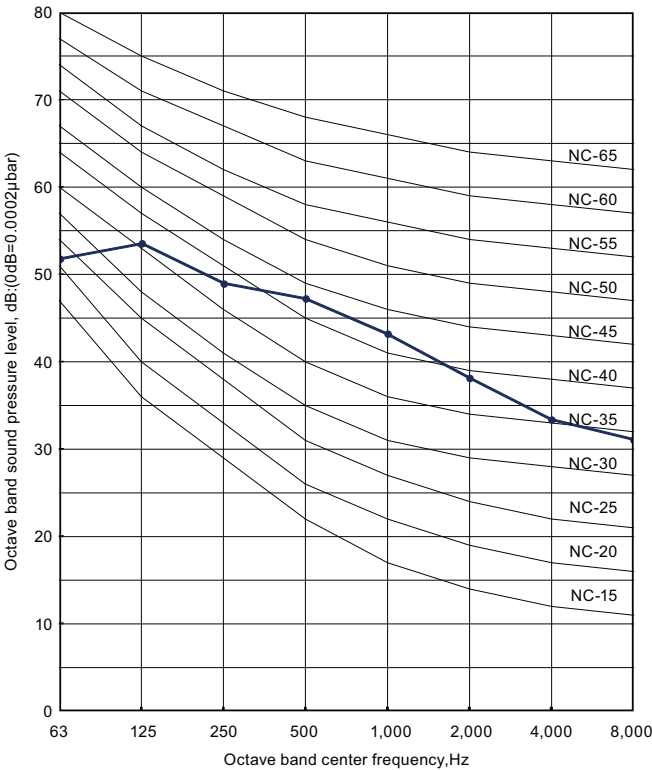
8-1. NOISE LEVEL CURVE

MODEL: AO*G09LLC

Cooling

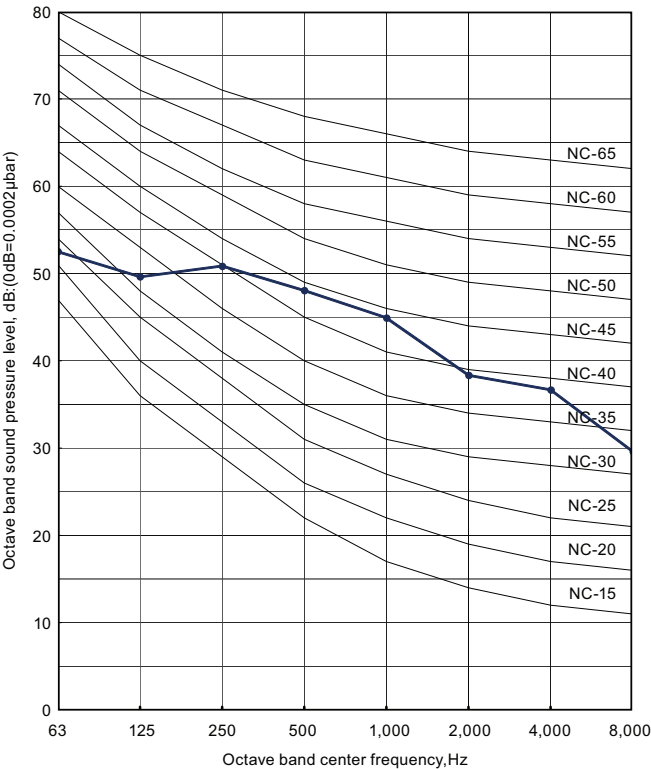


Heating

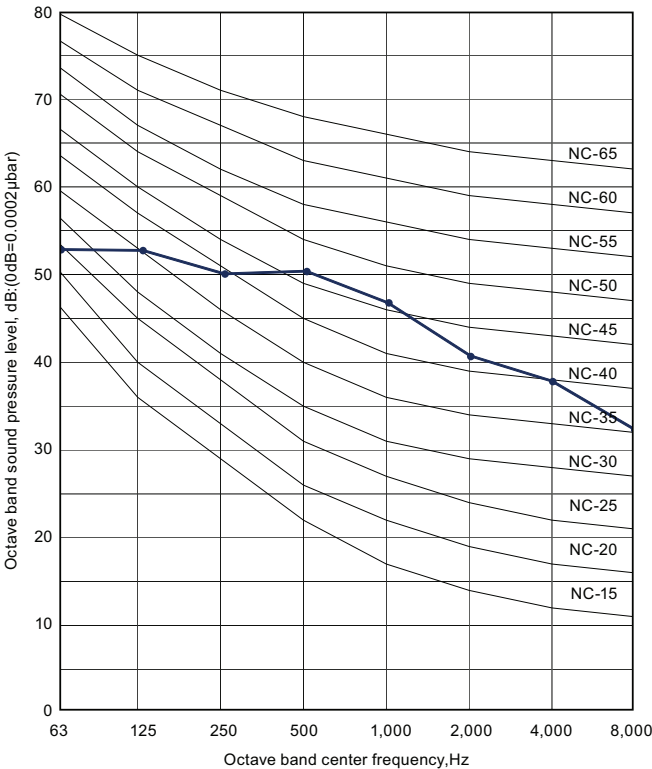


MODEL: AO*G12LLC

Cooling

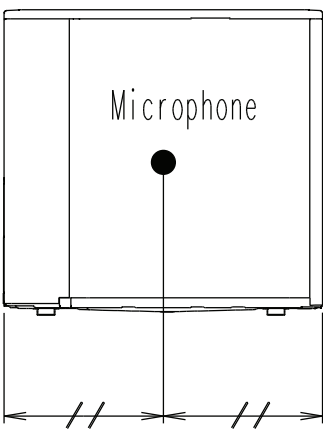
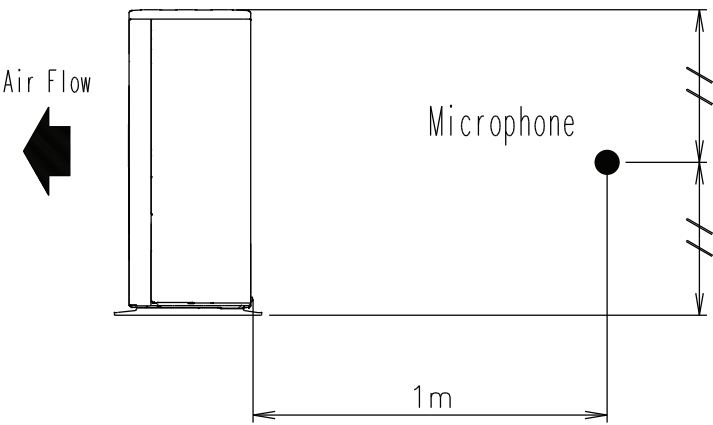


Heating



8-2. SOUND LEVEL CHECK POINT

OUTDOOR UNIT
AO*G09-12LLC



OUTDOOR UNIT
AO*G09-12LLC

9. ELECTRIC CHARACTERISTICS

Model Name			AO*G09LLC	AO*G12LLC
Power Supply	Voltage	V	230 ~	
	Frequency	Hz	50	
*1) Max. operating current		A	6.0	9.5
Starting Current		A	4.7	5.1
*2) Wiring Spec.:	Main Fuse (Circuit breaker) Current	A	20	
	Power Cable	mm ²	1.5	
	*3) Limited wiring length :	m	15	

*1) The maximum current is the total current of indoor unit and outdoor unit.

*2) Wiring Spec.:

Selected Sample

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

*3) Limited wiring length :

This is the wiring length in case voltage descent is less than 2%.

When the wiring length becomes long, please select the wiring of a more larger diameter.

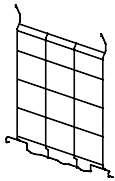
10. SAFETY DEVICES

	Protection form	Model	
		AO*G09LLC	AO*G12LLC
Circuit protection	Current fuse (MAIN PRINTED CIRCUIT BOARD)	250V 20A	
		250V 3.15A	
Fan motor protection	Terminal protection program	OFF: 135 ± 5 °C ON: 95 ± 15 °C	
Compressor protection	Terminal protection program (DISCHARGE TEMP)	OFF:110°C ON: After 7 minutes	

OUTDOOR UNIT
AO*G09-12LLC

OUTDOOR UNIT
AO*G09-12LLC

11. OPTIONAL PARTS

Exterior	Parts name	Model No.	Summary
 Net A  Net B	Protective net	UTZ-NXCA	Heat exchanger can be protected by using Protective net.