

AIR CONDITIONER

Floor type

DESIGN & TECHNICAL MANUAL

INDOOR



AG*G09LVCA
AG*G12LVCA
AG*G14LVCA

OUTDOOR



AO*G09LVCA
AO*G12LVCA



AO*G14LVLA

FUJITSU GENERAL LIMITED

1.INDOOR UNIT

FLOOR TYPE :

AG*G09LVCA

AG*G12LVCA

AG*G14LVCA

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1. FEATURES

MODEL

AG*G09LVCA / AO*G09LVCA
 AG*G12LVCA / AO*G12LVCA
 AG*G14LVCA / AO*G14LVLA



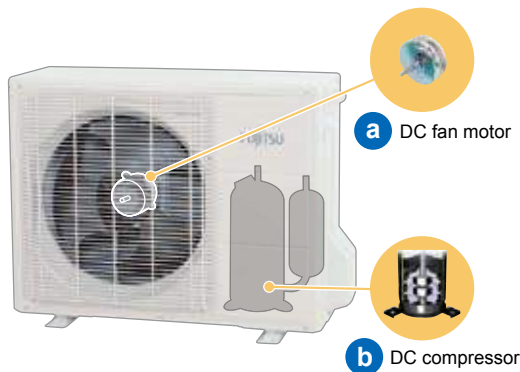
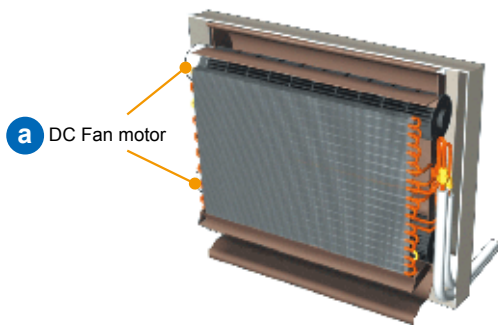
FEATURES

Energy efficiency class

	MODEL		
	AG*G09LVCA	AG*G12LVCA	AG*G14LVCA
Cooling	A++	A++	A++
Heating	A+	A+	A+

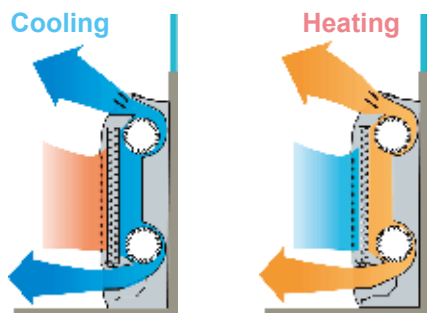
All DC

- a DC fan motor
- b DC compressor



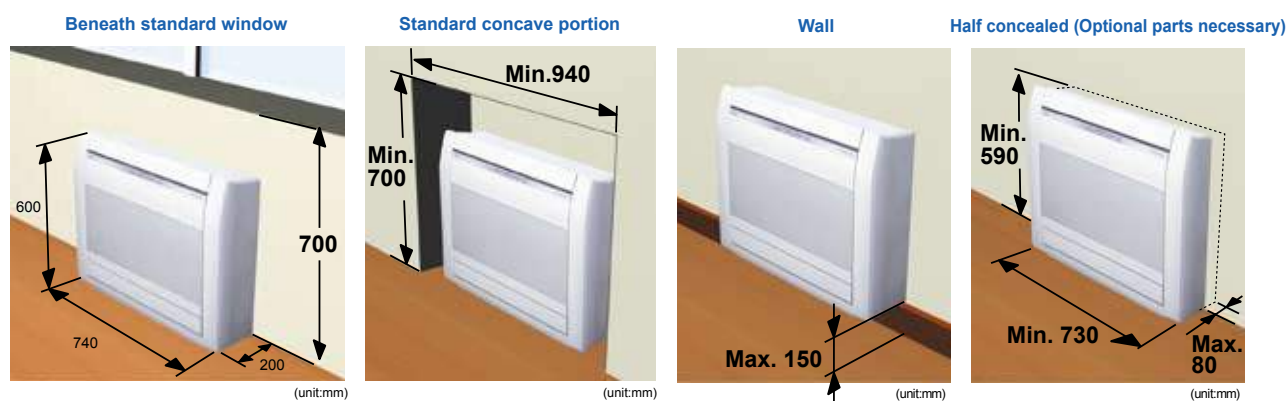
Up and down twin fan operation

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

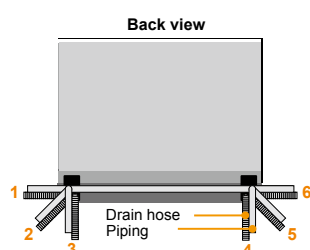


● Flexible & easy installation

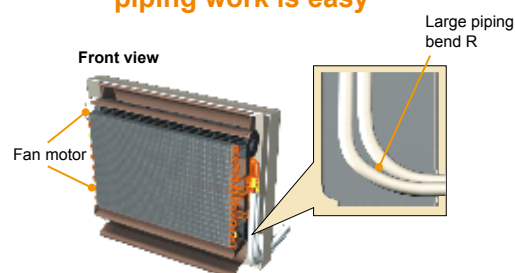
Piping space is wide and connection work is easy.



Choice of 6-direction drain & piping connection



Space is wide and piping work is easy



● Super quiet operation

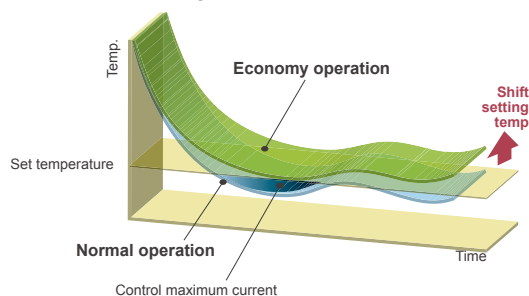
Airflow mode can be set in 4 steps and more detailed airflow setting is possible.

● 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.

● Economy operation

Example : Cooling operation



- Economy operation is energy saving, as the set temperature of indoor unit is shifted by 1 °C and the maximum electric value of the outdoor unit is suppressed.

● Air conditioner filter feature

Apple-catechin filter



Ion deodorization filter



2. WIRELESS REMOTE CONTROLLER

■ FEATURES



- * 4 mode timer setup available (ON / OFF / PROGRAM / SLEEP).
- * Easy operation.
- * Easy to change signal code (max. 4 units) 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

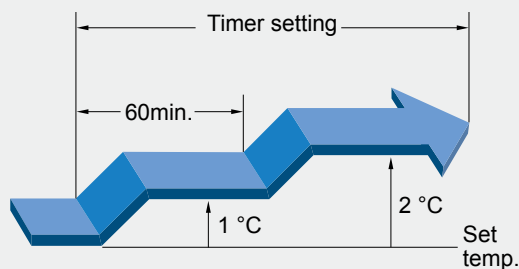
The program timer operates the on and off timer once within a 24 hour period.

● 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.

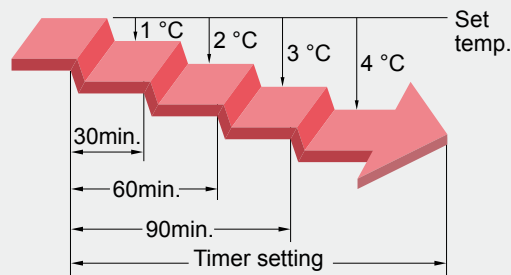
Cooling operation/dry operation

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.

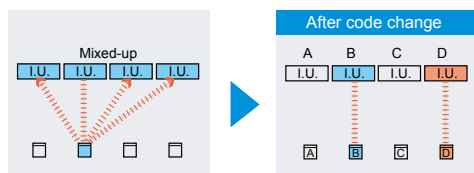


Heating operation

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.



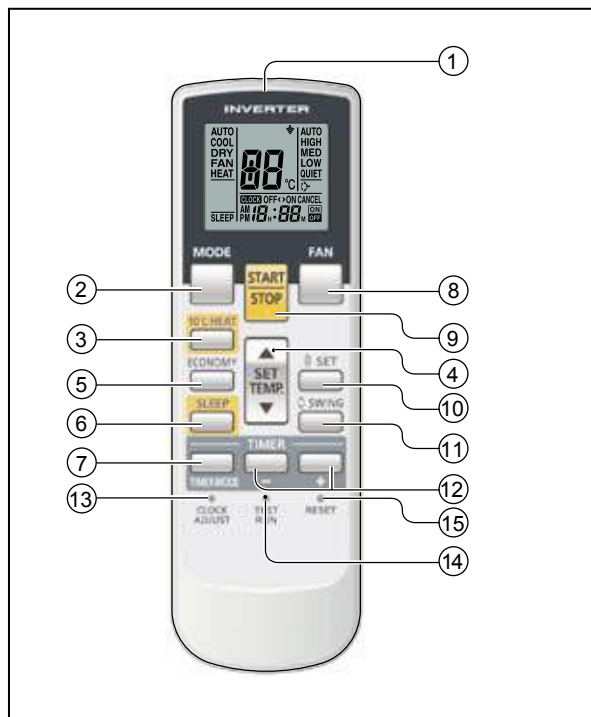
● Switching remote controller signal code



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

*I.U.=Indoor unit

FUNCTIONS



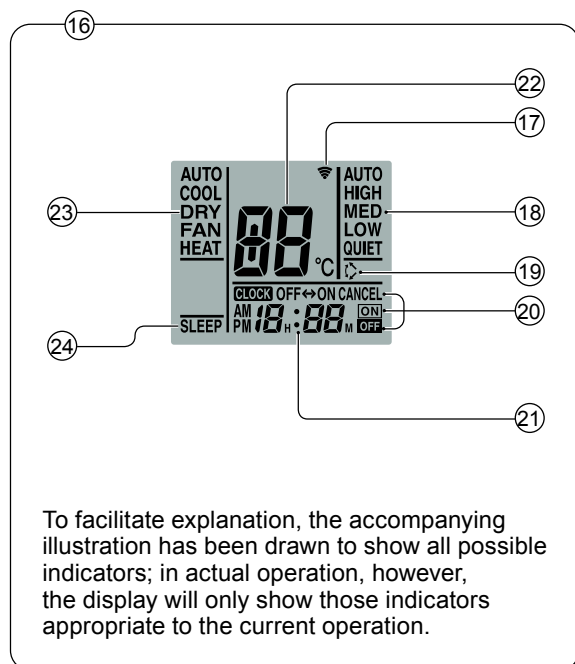
- 1 Signal transmitter
- 2 MODE button
- 3 10°C HEAT button
- 4 SET TEMP. button (▲ / ▼)
- 5 ECONOMY button
- 6 SLEEP button
- 7 TIMER MODE button
- 8 FAN button
- 9 START/STOP button
- 10 SET button
- 11 SWING button
- 12 TIMER set (+ / -) button
- 13 CLOCK ADJUST button
- 14 TEST RUN button

•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 SRART/STOP button to stop the air conditioner.

Display panel



- 15 RESET button
- 16 Remote controller display
- 17 Transmit indicator
- 18 Fan speed indicator
- 19 Swing indicator
- 20 Timer mode indicator
- 21 Clock indicator
- 22 Temperature set indicator
- 23 Operation mode indicator
- 24 Sleep indicator

Functions will be different due to type of indoor unit. For details, refer to the operation manual.

SPECIFICATION

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

3. SPECIFICATIONS

Type				FLOOR TYPE				
				INVERTER HEAT PUMP				
Model name				AG*G09LVCA	AG*G12LVCA	AG*G14LVCA		
Power source				230 V~ 50 Hz				
Available voltage range				198-264V				
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		
	Heating	Rated	Btu/h	3,100-11,900	3,100-13,600	3,100-17,100		
			kW	3.50	4.50	5.20		
		Min.-Max.	Btu/h	11,900	15,400	17,700		
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
		Heating		Rated	A	3.8	5.5	6.4
EER	Cooling		kW/kW	4.91	3.72	3.68		
COP	Heating		kW/kW	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 (2.3)	1.8 (3.2)	2.1 (3.7)		
Maximum operating current *	Cooling	Max.	A	7.0	7.0	9.0		
	Heating			10.0	10.0	13.5		
Fan	Airflow rate	Cooling (UPPER : LOWER)	m ³ /h	High	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	16 × 2	16 × 2	16 × 2	
Sound pressure level	Cooling	dB (A)	High	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			600 × 740 × 200				
	Gross			700 × 820 × 310				
Weight	Net			14				
	Gross			17				
Connection pipe	Size	Liquid	mm	Ø 6.35 (Ø 1/4 in.)				
		Gas		Ø 9.52 (Ø 3/8 in.)	Ø 12.70 (Ø 1/2 in.)			
	Method	Flare						
Operation range	Cooling	°C	18 to 32					
		%RH	80 or less					
	Heating	°C	30 or less					
Remote controller type	Wireless							
Drain hose	Material		PP + LLDPE					
	Size		mm	Ø 13.8 (I.D.), Ø 15.8 to Ø 16.7 (O.D.)				

NOTES:

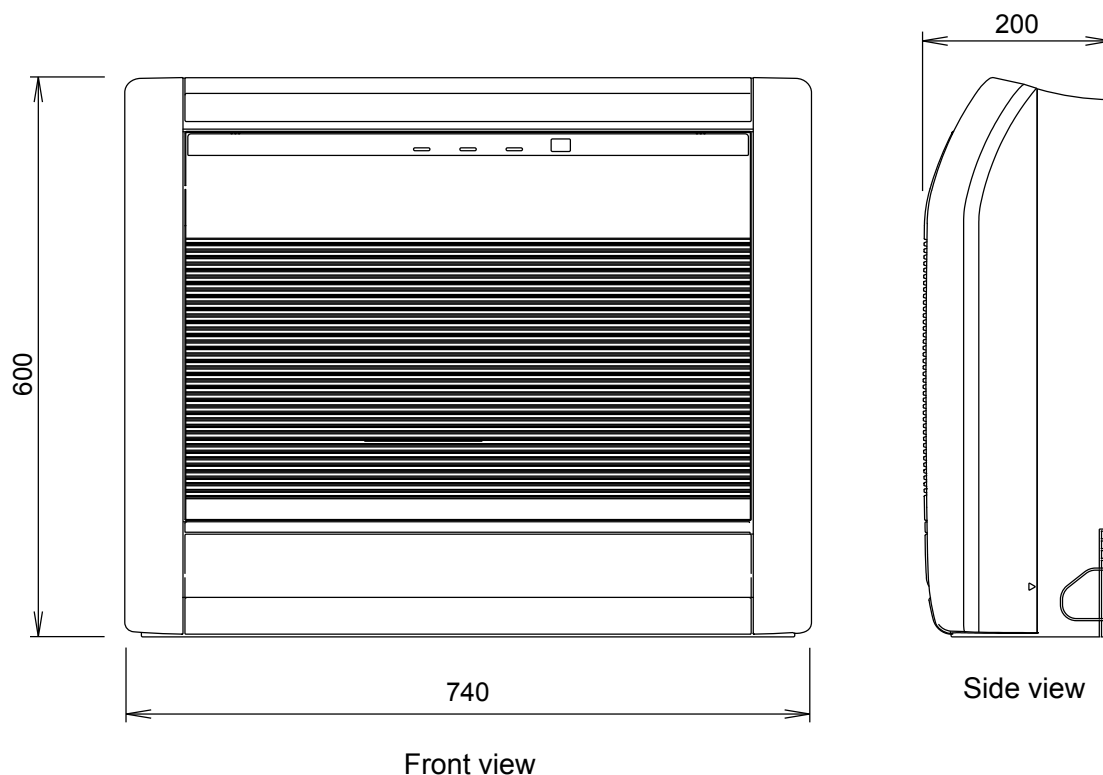
- Specifications are based on the following conditions:
Cooling : Indoor temperature of 27 °CDB/19 °CWB and outdoor temperature of 35 °CDB/24 °CWB
Heating : Indoor temperature of 20 °CDB/15 °CWB and outdoor temperature of 7 °CDB/6 °CWB
Pipe length : 5 m, Height difference : 0 m (Outdoor unit-Indoor unit)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

Model name		AG*G09LVCA	AG*G12LVCA	AG*G14LVCA		
Energy efficiency class	Cooling	A++	A++	A++		
	Heating (Average)	A+	A+	A+		
Pdesign	Cooling	kW	2.6 (35 °C)	3.5 (35 °C)	4.2 (35 °C)	
	Heating (Average)		2.9 (-10 °C)	3.8 (-10 °C)	4.7 (-10 °C)	
SEER	Cooling	kWh/kWh	7.00	6.50	6.40	
SCOP	Heating (Average)		4.20	4.00	4.00	
Annual energy consumption	QCE	kWh/a	130	188	230	
	QHE (Average)		967	1330	1645	
Sound power level	Cooling	High	dB (A)	55	55	58
	Heating			56	56	58

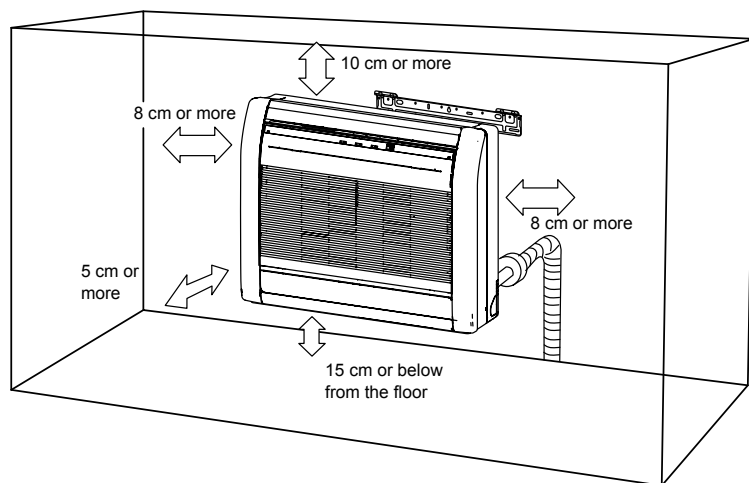
4. DIMENSIONS

■ MODEL: AG*G09LVCA, AG*G12LVCA, AG*G14LVCA

(Unit : mm)



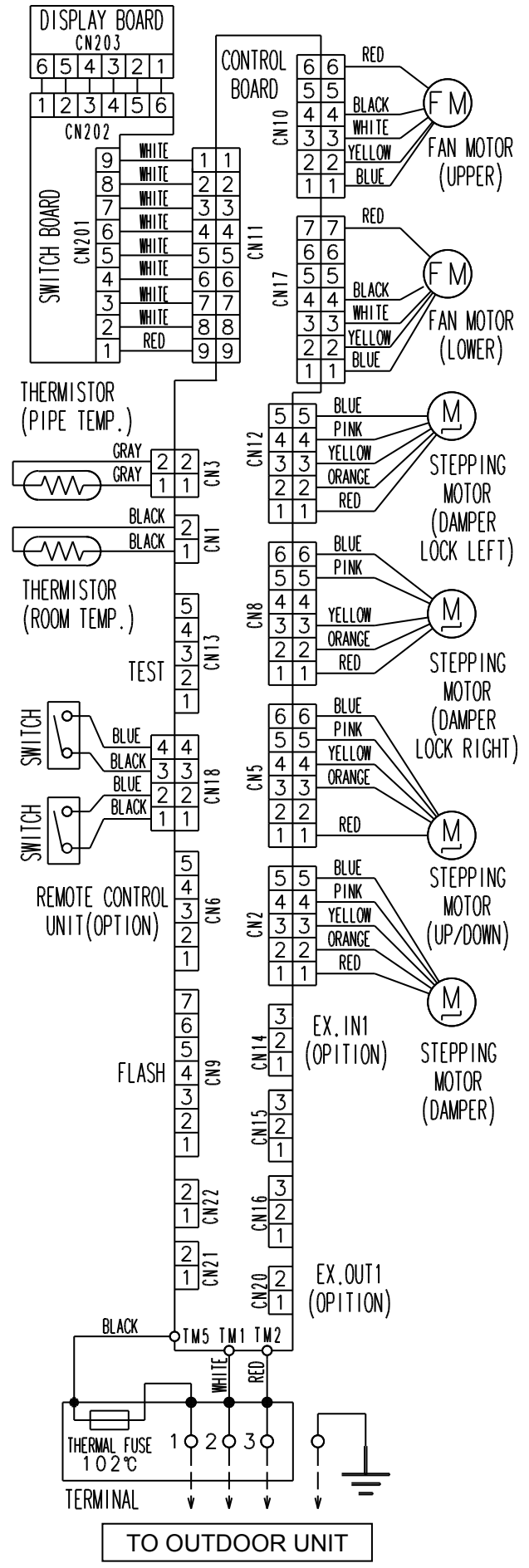
■ INSTALLATION PLACE



		AG*G09LVCA	AG*G12LVCA	AG*G14LVCA
Refrigerant pipe flare connection	Liquid	Ø 6.35 mm (Ø 1/4 in.)		
	Gas	Ø 9.52 mm (Ø 3/8 in.)	Ø 12.7 mm (Ø 1/2 in.)	
Drain hose connection	Drain hose	Ø 13.8 (I.D.), Ø 15.8 to Ø 16.7 (O.D.) Drain hose : L=600 mm		

5. WIRING DIAGRAMS

■ MODEL: AG*G09LVCA, AG*G12LVCA, AG*G14LVCA



6. CAPACITY TABLE

6-1. COOLING CAPACITY

MODEL: AG*G09LVCA

AFR	9.5
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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	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*G12LVCA

AFR	9.5
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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	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*G14LVCA

AFR	10.8
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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	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: Airflow Rate (m³/min.)
 TC: Total Capacity (kW)
 SHC: Sensible Heat Capacity (kW)
 IP: Input Power (kW)

6-2. HEATING CAPACITY

This table is created using the maximum capacity.

■ MODEL: AG*G09LVCA

AFR	10.0
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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	2.61	0.99	2.54	1.01	2.48	1.03	2.42	1.05	2.36	1.07
	-10	-11	3.27	1.13	3.19	1.16	3.11	1.18	3.04	1.20	2.96	1.23
	-5	-7	3.91	1.29	3.82	1.32	3.72	1.34	3.63	1.37	3.54	1.40
	0	-2	4.51	1.47	4.41	1.50	4.30	1.53	4.19	1.56	4.08	1.59
	5	3	5.38	1.85	5.25	1.88	5.13	1.92	5.00	1.96	4.87	2.00
	7	6	5.20	1.74	5.08	1.78	4.95	1.81	4.83	1.85	4.71	1.89
	10	8	5.97	1.76	5.83	1.80	5.69	1.83	5.55	1.87	5.41	1.91
15	10	5.98	1.66	5.83	1.70	5.69	1.73	5.55	1.77	5.41	1.80	

■ MODEL: AG*G12LVCA

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	3.34	1.40	3.26	1.43	3.18	1.46	3.10	1.49	3.02	1.52
	-10	-11	3.91	1.52	3.82	1.55	3.73	1.58	3.63	1.62	3.54	1.65
	-5	-7	4.47	1.65	4.36	1.69	4.26	1.72	4.15	1.75	4.04	1.79
	0	-2	4.99	1.80	4.87	1.84	4.76	1.87	4.64	1.91	4.52	1.95
	5	3	5.76	2.01	5.62	2.05	5.48	2.10	5.35	2.14	5.21	2.18
	7	6	5.57	1.90	5.43	1.94	5.30	1.98	5.17	2.02	5.04	2.06
	10	8	6.39	1.92	6.24	1.96	6.09	2.00	5.94	2.04	5.78	2.08
15	10	6.39	1.81	6.24	1.85	6.09	1.89	5.94	1.93	5.79	1.96	

■ MODEL: AG*G14LVCA

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	4.21	1.98	4.11	2.02	4.01	2.06	3.91	2.10	3.81	2.14
	-10	-11	5.01	2.20	4.89	2.25	4.77	2.30	4.65	2.34	4.53	2.39
	-5	-7	5.72	2.46	5.59	2.51	5.45	2.56	5.31	2.61	5.18	2.67
	0	-2	6.44	2.72	6.28	2.78	6.13	2.83	5.98	2.89	5.82	2.95
	5	3	6.59	2.44	6.43	2.49	6.27	2.54	6.12	2.59	5.96	2.64
	7	6	6.62	2.20	6.46	2.25	6.30	2.29	6.14	2.34	5.99	2.39
	10	8	6.23	2.22	6.08	2.27	5.93	2.31	5.78	2.36	5.63	2.40
15	10	6.57	1.85	6.41	1.89	6.25	1.93	6.10	1.97	5.94	2.01	

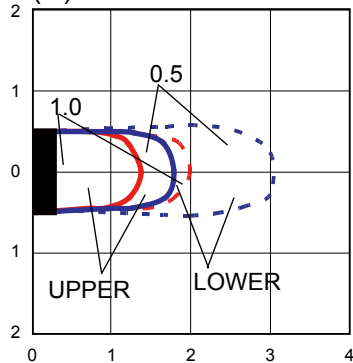
AFR: Airflow Rate (m³/min.)
 TC: Total Capacity (kW)
 IP: Input Power (kW)

7. FAN PERFORMANCE AND CAPACITY

7-1. AIR VELOCITY DISTRIBUTION

■ MODEL: AG*G09LVCA, AG*G12LVCA, AG*G14LVCA

(m) Unit : m/s



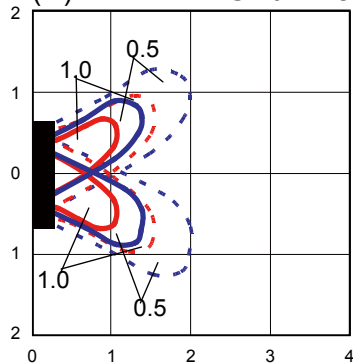
TOP VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Center

Conditions:

- Fan speed : HI
- Operation mode : FAN
- Fan select : UPPER&LOWER
- : UPPER FAN
- : LOWER FAN

(m)

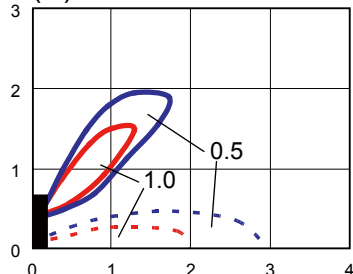
(m) Unit : m/s



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

(m)

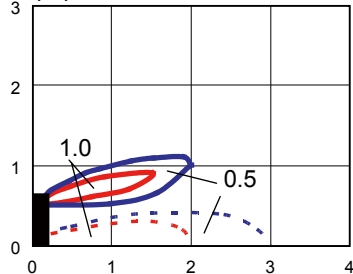
(m) Unit : m/s



SIDE VIEW
FLOW CONTROL PANEL : Vert
LOUVER : Center

(m)

(m) Unit : m/s



SIDE VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Center

(m)

7-2. AIRFLOW

■ MODEL: AG*G09LVCA, AG*G12LVCA

● Cooling

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

● Heating

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

■ MODEL: AG*G14LVCA

● Cooling

Fan speed	Number of rotations [r.p.m] (UPPER/LOWER)	Airflow	
		m³/h	l/s
HIGH	1330/1120	m³/h	650
		l/s	181
		CFM	383
MED	1100/930	m³/h	520
		l/s	144
		CFM	306
LOW	890/750	m³/h	400
		l/s	111
		CFM	235
QUIET	660/560	m³/h	270
		l/s	75
		CFM	159

● Heating

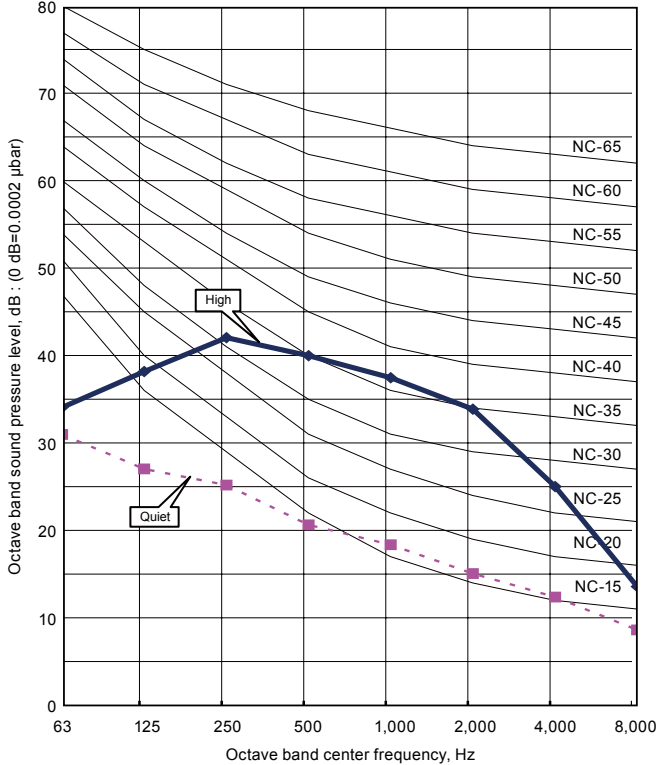
Fan speed	Number of rotations [r.p.m] (UPPER/LOWER)	Airflow	
		m³/h	l/s
HIGH	1330/1120	m³/h	650
		l/s	181
		CFM	383
MED	1100/930	m³/h	520
		l/s	144
		CFM	306
LOW	860/730	m³/h	390
		l/s	108
		CFM	230
QUIET	660/560	m³/h	270
		l/s	75
		CFM	159

8. OPERATION NOISE (SOUND PRESSURE)

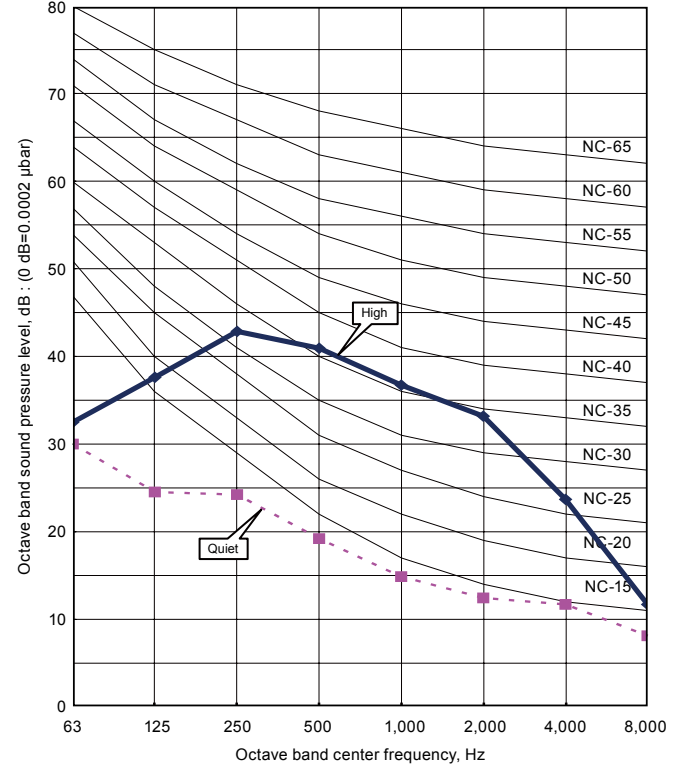
8-1. NOISE LEVEL CURVE

MODEL: AG*G09LVCA

● Cooling

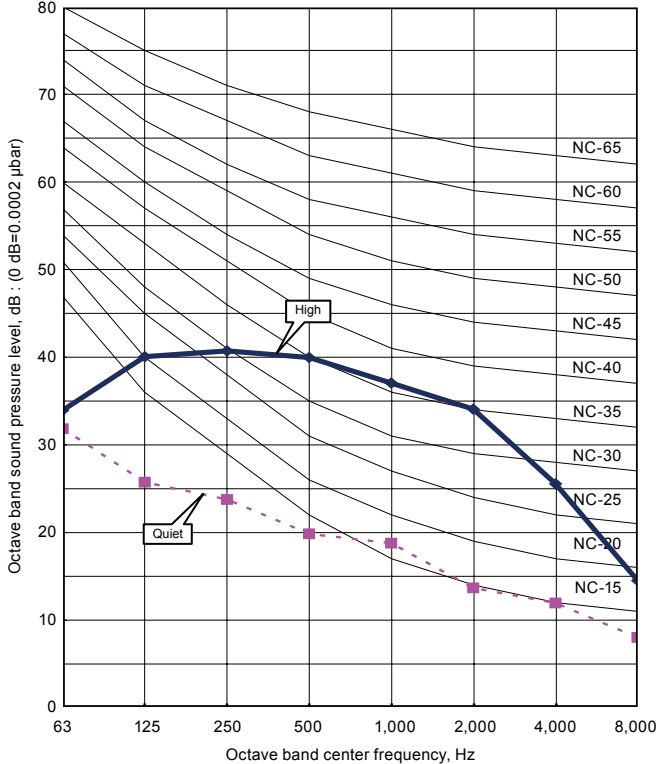


● Heating

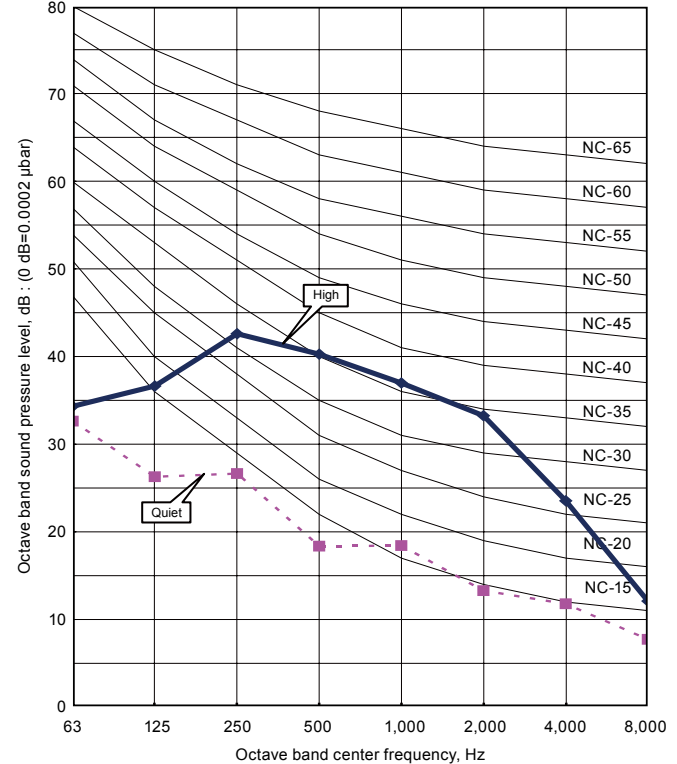


MODEL: AG*G12LVCA

● Cooling

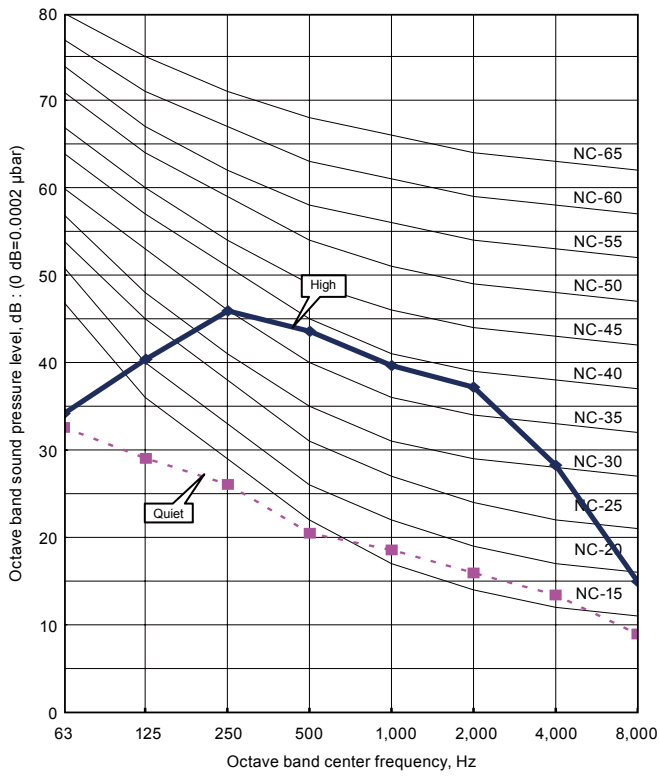


● Heating

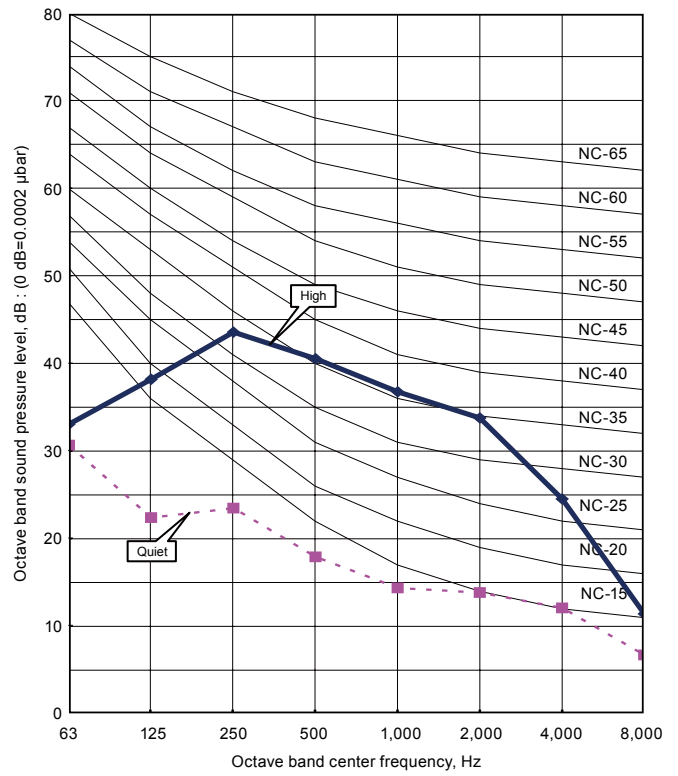


MODEL: AG*G14LVCA

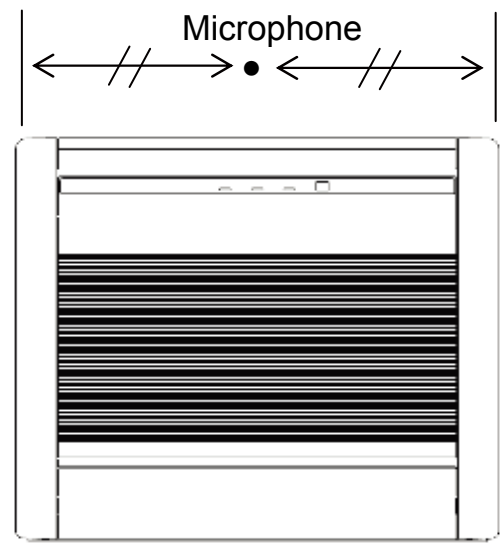
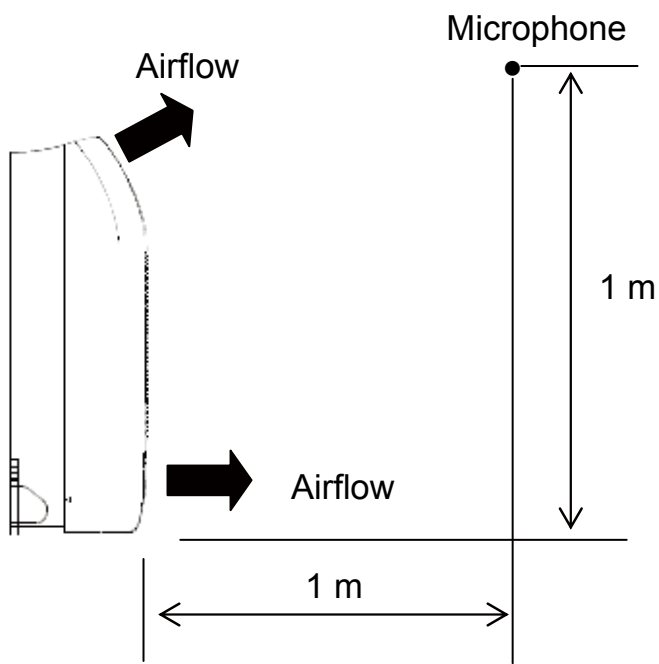
● Cooling



● Heating



8-2. SOUND LEVEL CHECK POINT



9. ELECTRIC CHARACTERISTICS

Model Name			AG*G09LVCA	AG*G12LVCA	AG*G14LVCA
Power Supply	Voltage	V	230 ~		
	Frequency	Hz	50		
Max Operating Current		A	0.7		
Wiring Spec. *	Connection Cable	mm ²	1.5		
	Limited wiring length	m	21		

*: Selected sample based on Japan Electrotechnical Standards and Codes Committee E0005.

10. SAFETY DEVICES

		Model
	Protection form	AG*G09LVCA AG*G12LVCA AG*G14LVCA
Circuit protection	Current fuse (PC board)	250 V 3.15 A
Terminal protection	Current (thermal) fuse	250 V 3 A
Fan motor protection	Terminal protection program	OFF : 150 ± 15 °C ON : 120 ± 15 °C

11. EXTERNAL INPUT & OUTPUT

Connector	INPUT	OUTPUT	REMARKS
CN14	Control input	-	See external input/output settings for details.
CN20	-	Operation status output	

11-1. EXTERNAL INPUT

■ CONTROL INPUT (Operation/Stop or Forced stop)

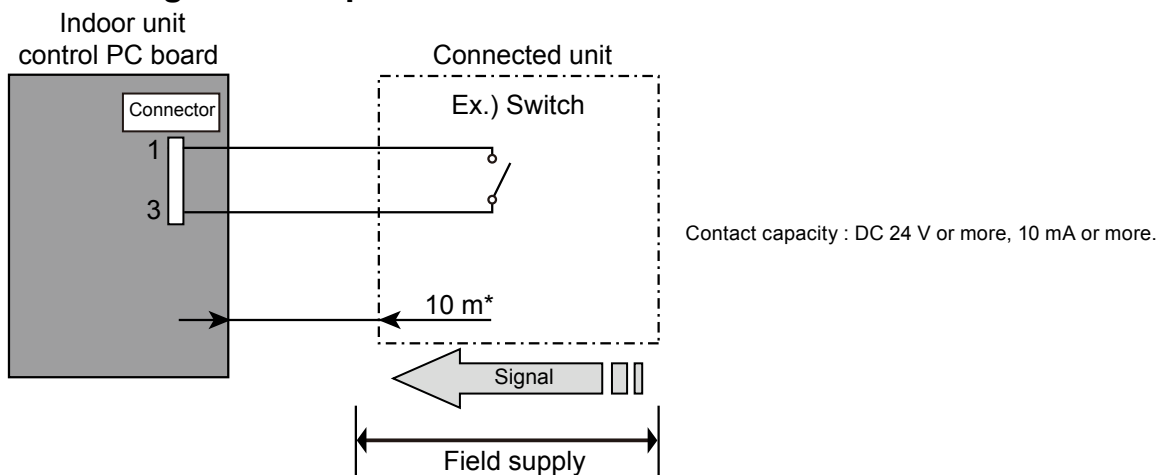
The air conditioner can be remotely operated by means of the following on-site work.

"Operation/Stop" mode or "Forced stop" mode can be selected with function setting of indoor unit.

Unit 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.

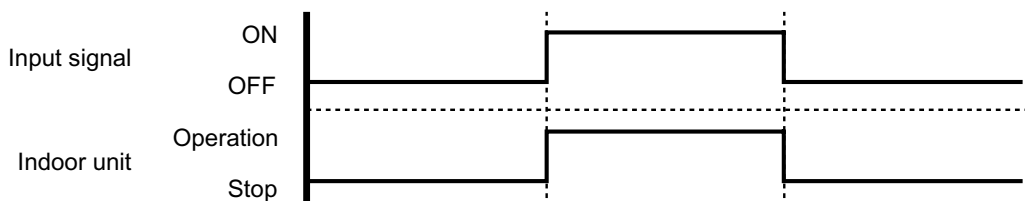
Unit operation	Initial setting after power is ON	Starting mode other than initial setting
Operation mode	Auto changeover	Mode at previous operation
Set temperature	24 °C	Temperature at previous operation
Airflow mode	AUTO	Mode at previous operation
Up-down air direction (swing)	Standard air direction (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

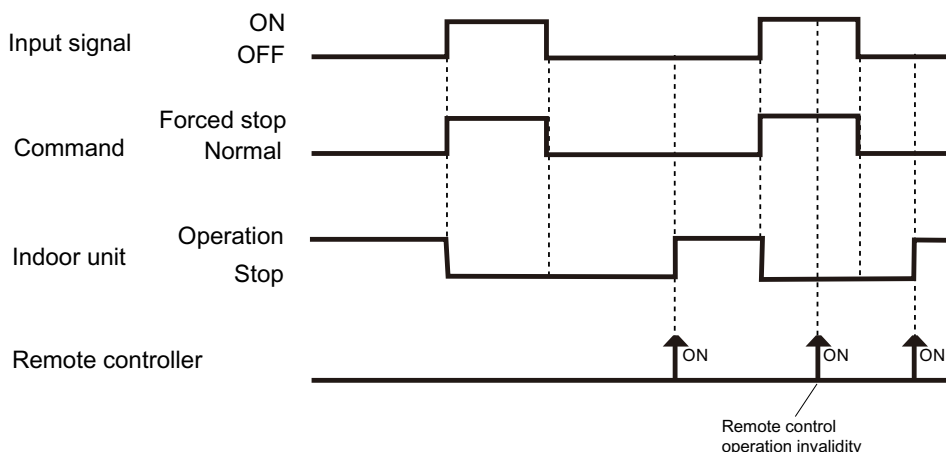


*: Make the distance from the PC board to the connected unit within 10 m.

● When function setting is "Operation/Stop" mode

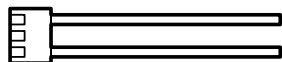


● When function setting is in "Forced stop" mode



● **Parts (Optional)**

Parts name	Model name
External connect kit	UTY-XWZX

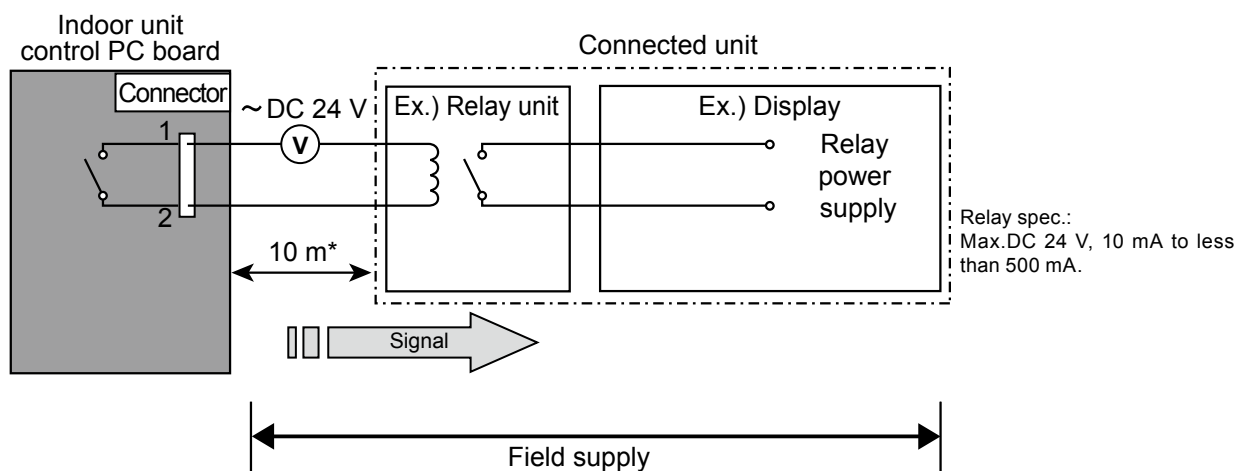


11-2. EXTERNAL OUTPUT

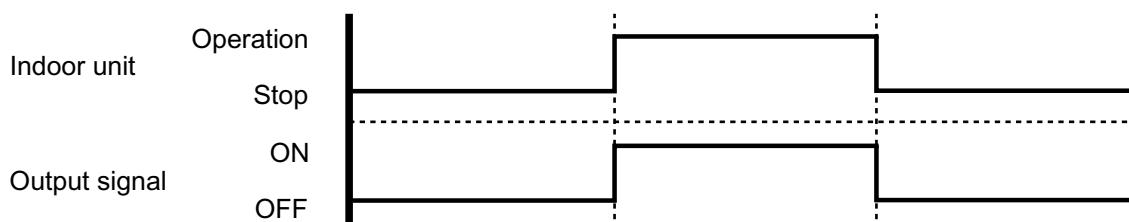
■ OPERATION STATUS OUTPUT

An air conditioner operation status signal can be output.

● Circuit diagram example

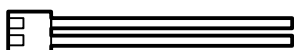


* Make the distance from the PC board to the connected unit within 10 m.



● Parts (Optional)

Parts name	Model name
External connect kit	UTY-XWZX



12. FUNCTION SETTINGS

12-1. 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 may cause an indoor unit malfunction.
- After turning on the power, perform the Function Setting according to the installation conditions by 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

- Before turning on the power of the indoor units:
 - Confirm that whether the piping air-tight test and vacuuming have been conducted.
 - Reconfirm that whether there is no miswiring.
- Turn on the power of the indoor units.

■ FUNCTION SETTING METHOD (for Wireless remote controller)

Entering the Function Setting Mode

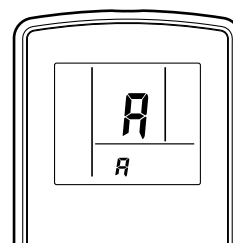
- While pressing the FAN button and SET TEMP. (▲) simultaneously, press the RESET button to enter the function setting mode.

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 REMOTE CONTROLLER SIGNAL CODE SETTING.

1. Press the SET TEMP. (▲) (▼) button to change the signal code between $\bar{A} \rightarrow \bar{b} \rightarrow \bar{c} \rightarrow \bar{d}$. Match the code on the display to the air conditioner signal code. (initially set to \bar{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.



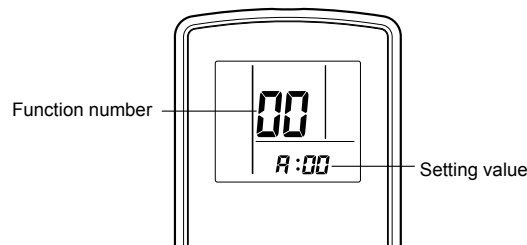
The air conditioner signal code is set to A prior to shipment.

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 ($\bar{A} \rightarrow \bar{b} \rightarrow \bar{c} \rightarrow \bar{d}$) 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 30 seconds or more before turning it on again.
The Function Setting will not become active unless the power is turned off on again.

■ CONTENTS OF FUNCTION SETTING

- Follow the instructions in the Local Setup Procedure, which is supplied with the remote controller, in accordance with the installed condition.
After turning on the power, perform the Function Setting by 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.

1)	Filter sign
2)	Vertical airflow direction range control
3)	Room temperature control for cooling
4)	Room temperature control for heating
5)	Auto restart
6)	Room temperature sensor switching
7)	Remote controller signal code
8)	External input control
9)	Indoor unit fan control for energy saving for cooling

1) Filter sign

Select appropriate intervals for displaying the filter sign on the indoor unit according to the estimated amount of dust in the air of the room.

If the indication is not required, select "No indication" (03).

(◆. . .Factory setting)

Setting Description	Function Number	Setting Value
Standard (400 hours)	11	00
Long interval (1,000 hours)		01
Short interval (200 hours)		02
◆ No indication		03

2) Vertical airflow direction range control

In a concealed installation, change the setting to "Fixed" (02) to restrict the movement of the upper air outlet so that the airflow is only towards the horizontal direction.

(◆. . .Factory setting)

Setting Description	Function Number	Setting Value
◆ Standard	23	00
(Setting prohibited)		01
Fixed (Concealed)		02

3) Room temperature control for cooling

Depending on the installed environment, correction of the room temperature sensor may be required.

Select the appropriate control setting according to the installed environment.

(◆. . .Factory setting)

Setting Description	Function Number	Setting Value
◆ Standard	30	00
Slightly lower control		01
Lower control		02
Higher control		03

4) Room temperature control for heating

Depending on the installed environment, correction of the room temperature sensor may be required.

Select the appropriate control setting according to the installed environment.

(◆ . . .Factory setting)

Setting Description	Function Number	Setting Value
◆ Standard	31	00
Lower control		01
Slightly higher control		02
Higher control		03

5) Auto restart

Enable or disable automatic restart after a power interruption.

(◆ . . .Factory setting)

Setting Description	Function Number	Setting Value
◆ Enable	40	00
Disable		01

*Auto restart is an emergency function such as for power outage etc. Do not attempt to use this function in normal operation.

Be sure to operate the unit by remote controller or other external input device.

6) Room temperature sensor switching

(Only for wired remote controller)

When using the Wired remote controller temperature sensor, change the setting to "Both" (01).

(◆ . . .Factory setting)

Setting Description	Function Number	Setting Value
◆ Indoor unit	42	00
Both		01

00: Sensor on the indoor unit is active.

01: Sensors on both indoor unit and wired remote controller is active.

7) Remote controller signal code

(Only for wireless remote controller)

The indoor unit signal code can be changed. Select the appropriate signal code.

(◆ . . .Factory setting)

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

8) External input control

"Operation/Stop" mode or "Forced stop" mode can be selected.

(◆...Factory setting)

Setting Description	Function Number	Setting Value
◆ Operation/Stop mode	46	00
(Setting prohibited)		01
Forced stop mode		02

9) Indoor unit fan control for energy saving for cooling

Enables or disables the power-saving function by controlling the indoor unit fan rotation when the outdoor unit is stopped during cooling operation.

(◆...Factory setting)

Setting Description	Function Number	Setting Value
◆ Disable	49	00
Enable		01

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

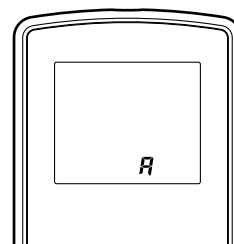
01: When the outdoor unit is stopped, the indoor unit fan operates intermittently at a very low speed

■ 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.




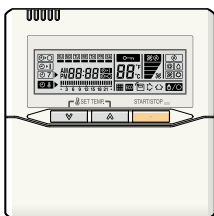

If no buttons are pressed within 30 seconds after the signal code is displayed, the system returns to the original clock display. In this case, start again from step 1.

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

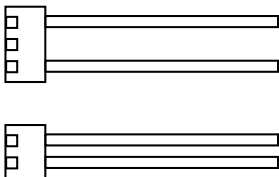
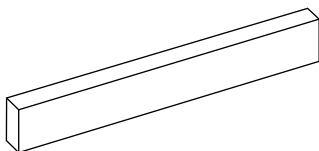
The remote controller resets to signal code A when the batteries in the remote controller are replaced. If you use a signal code other than signal code A, reset the signal code after replacing the batteries. If you do not know the air conditioner signal code setting, try each of the signal codes (**A**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

13. OPTIONAL PARTS

13-1. CONTROLLERS

Exterior	Parts name	Model No.	Summary
	Wired remote controller	UTY-RVN*M	Large and full-dot liquid crystal screen, wide and large keys easy to press, user-intuitive arrow key.
	Wired remote controller	UTY-RNN*M	The room temperature can be controlled by detecting the temperature accurately with built-in thermo sensor.
	Simple remote controller	UTY-RSN*M	Compact remote controller concentrates on the basic functions such as Start/Stop, Fan Control, Temperature Setting and Operation mode.

13-2. OTHERS

Exterior	Parts name	Model No.	Summary
	External connect kit	UTY-XWZX	Use to connect with various peripheral devices and air conditioner PC board.
	Half concealed kit	UTR-STA	Using the Unit installing of half concealed.

2. OUTDOOR UNIT

SINGLE TYPE :

AO*G09LVCA

AO*G12LVCA

AO*G14LVLA

CONTENTS

2. OUTDOOR UNIT

1. SPECIFICATIONS.....	02 - 01
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4. WIRING DIAGRAMS.....	02 - 04
5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE	02 - 06
6. ADDITIONAL CHARGE CALCULATION.....	02 - 08
7. AIRFLOW	02 - 09
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8-2. SOUND LEVEL CHECK POINT	02 - 13
9. ELECTRIC CHARACTERISTICS.....	02 - 14
10. SAFETY DEVICES	02 - 15

1. SPECIFICATIONS

Type			INVERTER HEAT PUMP			
Model name			AO*G09LVCA	AO*G12LVCA	AO*G14LVLA	
Power source			230V~ 50Hz			
Available voltage range			198 - 264V~ 50Hz			
Starting current			A	3.8	5.5	
Fan	Airflow rate	Cooling	m ³ /h	1,680		
		Heating		1,490	1,680	
	Type × Q'ty			Propeller fan × 1	Propeller fan × 1	Propeller fan × 1
	Motor output		W	33		40
Sound pressure level	Cooling	dB (A)	47	48	50	
	Heating		48	49	50	
Sound power level	Cooling	dB (A)	64	64	65	
	Heating		65	65	66	
Heat exchanger type	Dimensions (H × W × D)	mm	504 × 850 × 36.4		546 × 876 × 36.4	
	Fin pitch		1.40		1.30	
	Rows × Stages	2 × 24		2 × 26		
	Pipe type	Copper				
	Fin Type	Aluminium				
Compressor	Type × Q'ty		Rotary × 1			
	Motor output		W	750	1,100	
Refrigerant	Type (Global Warming Potential)		R410A (1975)			
	Charge		g	1,050	1,150	
Refrigerant oil	Type		ESTER OIL			
Enclosure	Material		Steel			
	Colour		Beige			
Dimensions (H × W × D)	Net		540 × 790 × 290		578 × 790 × 300	
	Gross		648 × 910 × 380		660 × 935 × 400	
Weight	Net		36		40	
	Gross		40		44	
Connenction pipe	Size	Liquid	mm	Ø6.35 (Ø1/4 in.)		
		Gas		Ø9.52 (Ø3/8 in.)	Ø12.70 (Ø1/2 in.)	
	Method		Flare			
	Pre-charge length		m	15		
	Max. length			20		
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.

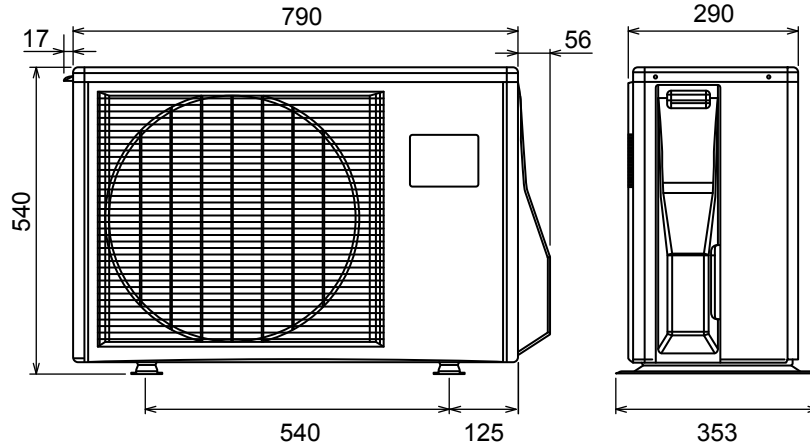
Pipe length : 5 m, Height difference : 0 m. (Outdoor unit - Indoor unit)

The protective function may work when using it outside the operation range.

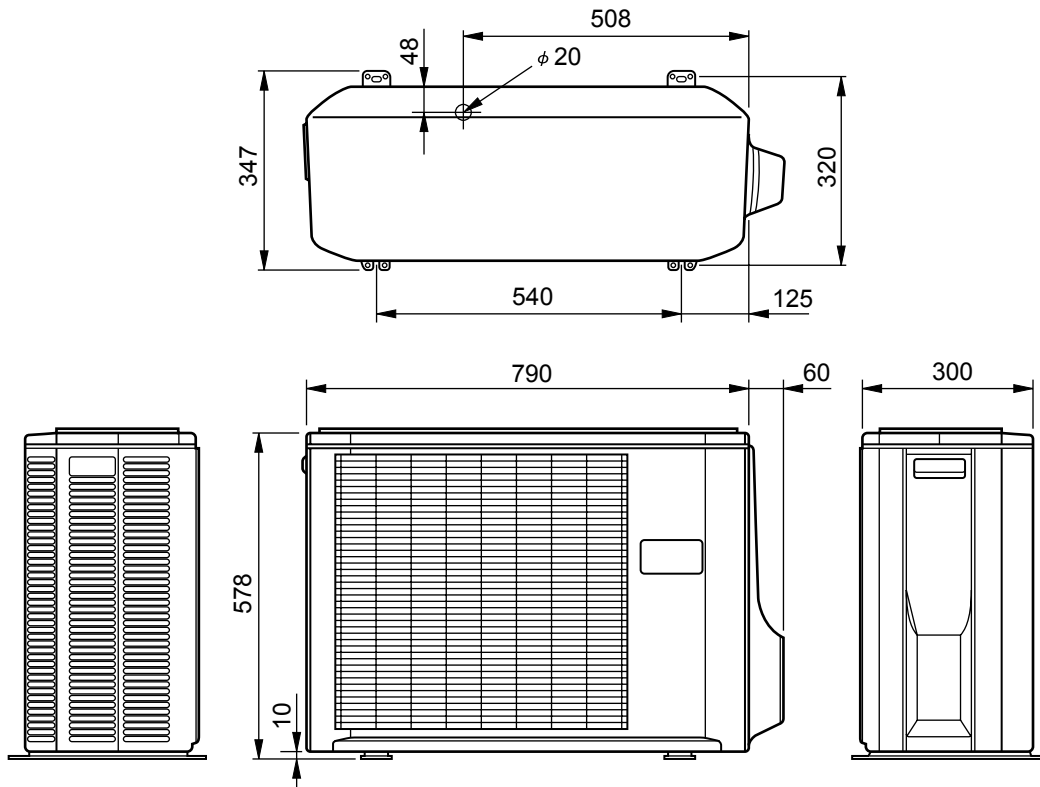
2. DIMENSIONS

■ MODEL: AO*G09LVCA, AO*G12LVCA

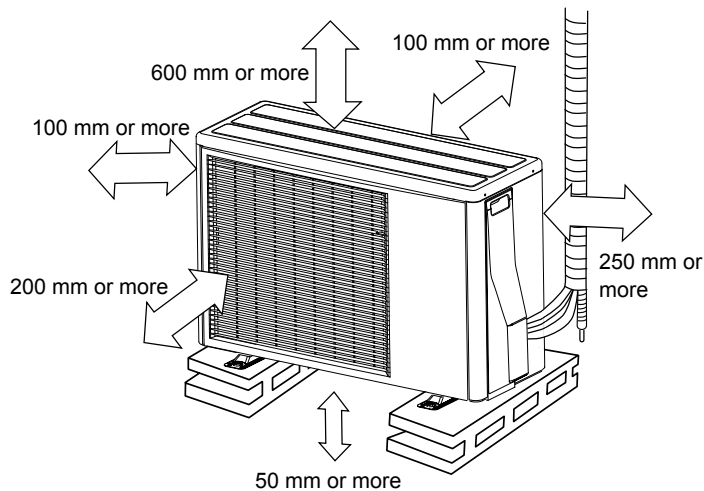
(Unit : mm)



■ MODEL: AO*G14LVLA



■ INSTALLATION PLACE

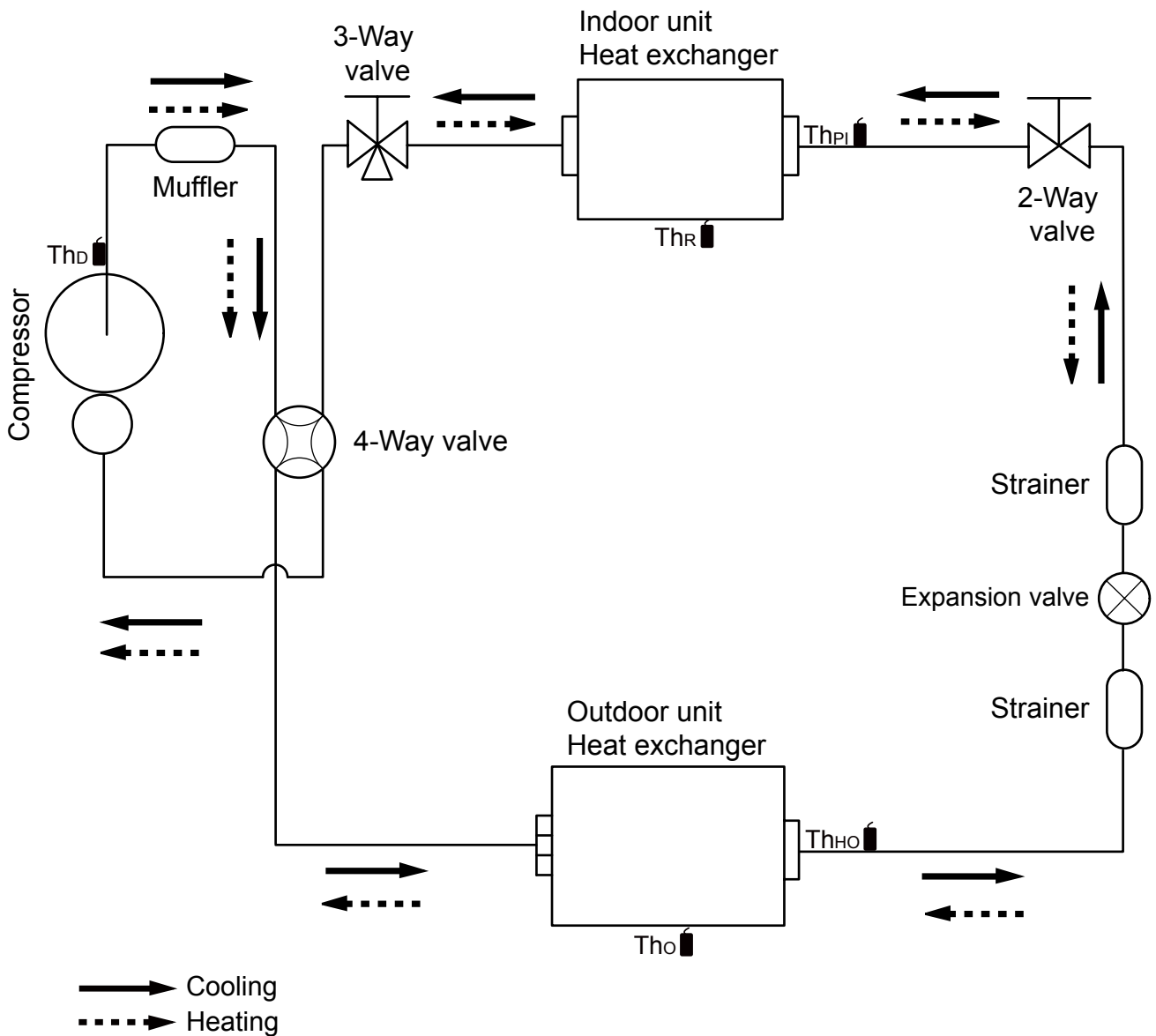


OUTDOOR UNIT
AO*G09-14LV

OUTDOOR UNIT
AO*G09-14LV

3. REFRIGERANT CIRCUIT

■ MODEL: AO*G09LVCA, AO*G12LVCA, AO*G14LVLA



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 : 6.35 mm (1/4")

Gas : 9.52 mm (3/8"): 09/12LVCA

12.70 mm (1/2"): 14LVLA

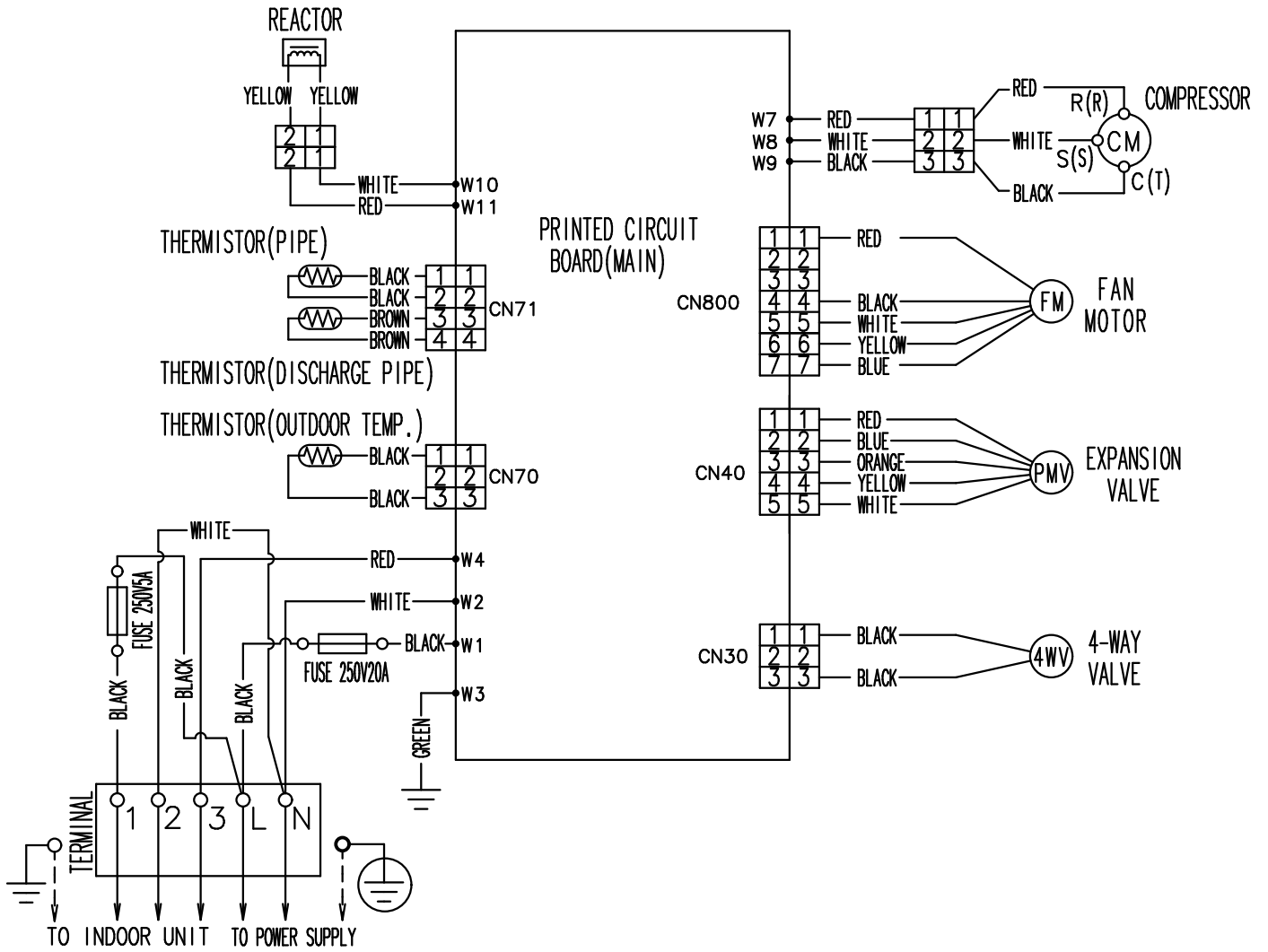
OUTDOOR UNIT
AO*G09-14LV

OUTDOOR UNIT
AO*G09-14LV

MODEL: AO*G14LVLA

OUTDOOR UNIT
AO*G09-14LV

OUTDOOR UNIT
AO*G09-14LV



5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

MODEL: AO*G09LVCA, AO*G12LVCA

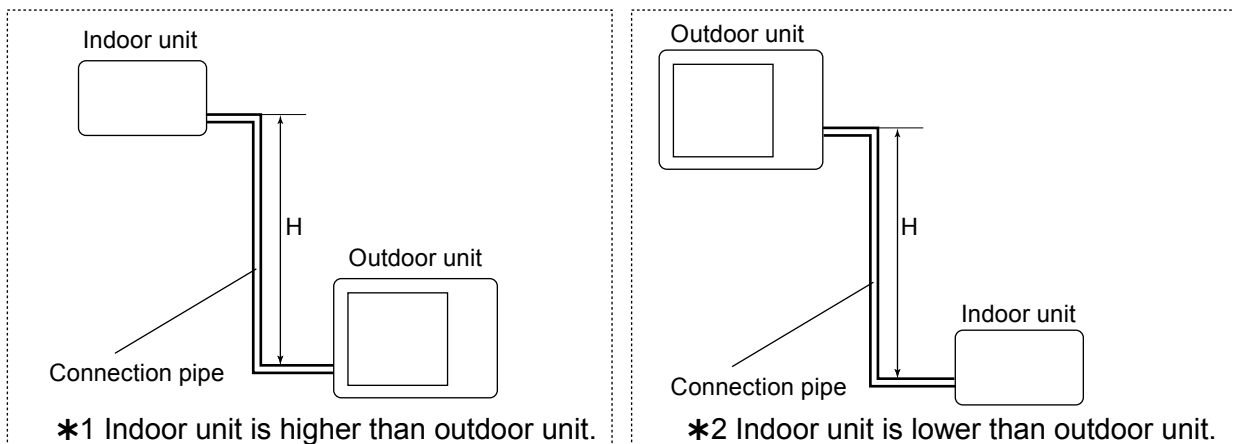
OUTDOOR UNIT
AO*G09-14LV

OUTDOOR UNIT
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COOLING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	*1 Indoor unit is higher 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 lower 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 higher 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 lower 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*G14LVLA

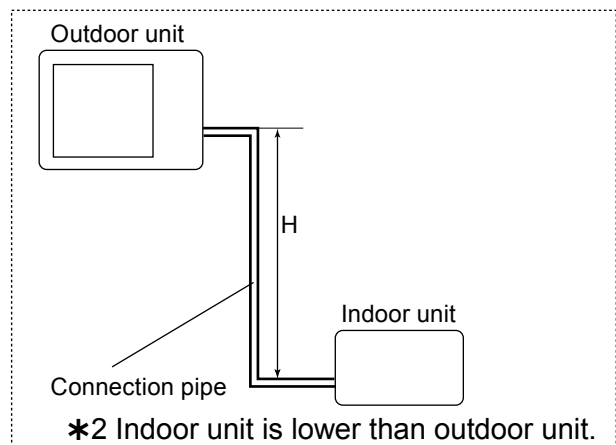
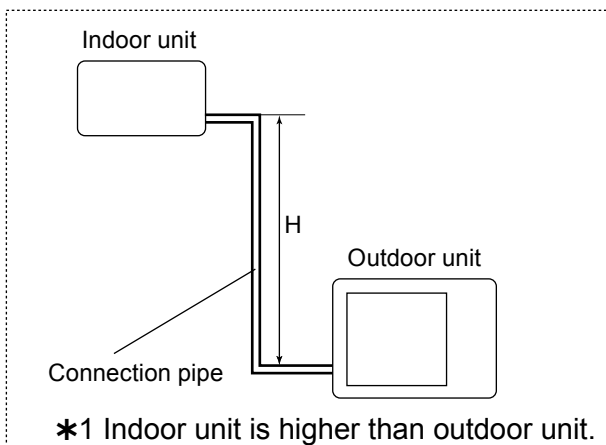
OUTDOOR UNIT
AO*G09-14LV

OUTDOOR UNIT
AO*G09-14LV

COOLING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	*1 Indoor unit is higher 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 lower 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 higher 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 lower 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*G09LVCA, AO*G12LVCA

Refrigerant type		R410A
Refrigerant amount	g	1,050

● Refrigerant charge

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

■ MODEL: AO*G14LVLA

Refrigerant type		R410A
Refrigerant amount	g	1,150

● Refrigerant charge

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

7. AIRFLOW

■ MODEL: AO*G09LVCA

● Cooling

Number of rotations (r.p.m.)	Airflow	
760	1,680	m ³ /h
	467	l/s
	989	CFM

● Heating

Number of rotations (r.p.m.)	Airflow	
680	1,490	m ³ /h
	414	l/s
	877	CFM

■ MODEL: AO*G12LVCA

● Cooling

Number of rotations (r.p.m.)	Airflow	
760	1,680	m ³ /h
	467	l/s
	989	CFM

● Heating

Number of rotations (r.p.m.)	Airflow	
760	1,680	m ³ /h
	467	l/s
	989	CFM

■ MODEL: AO*G14LVLA

● Cooling

Number of rotations (r.p.m.)	Airflow	
	820	1,910
531		l/s
1,124		CFM

● Heating

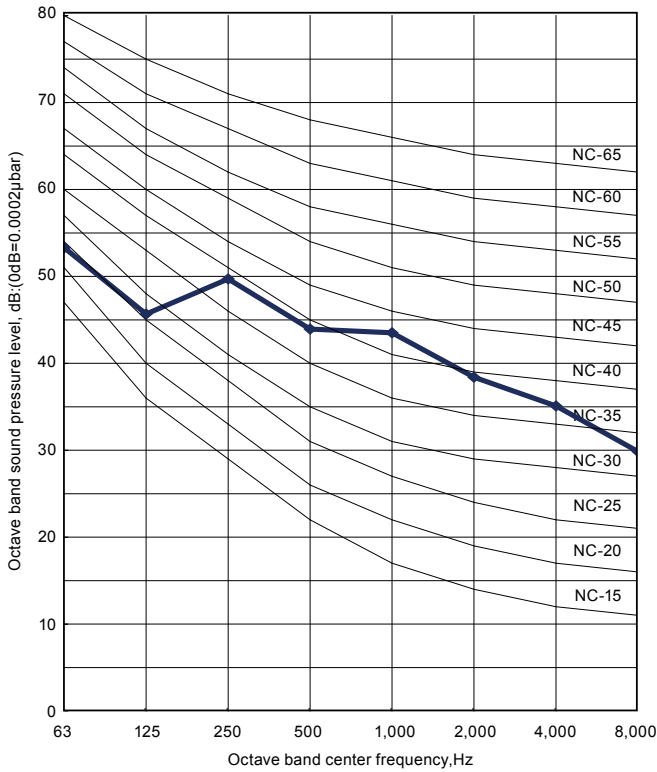
Number of rotations (r.p.m.)	Airflow	
	750	1,750
486		l/s
1,030		CFM

8. OPERATION NOISE (SOUND PRESSURE)

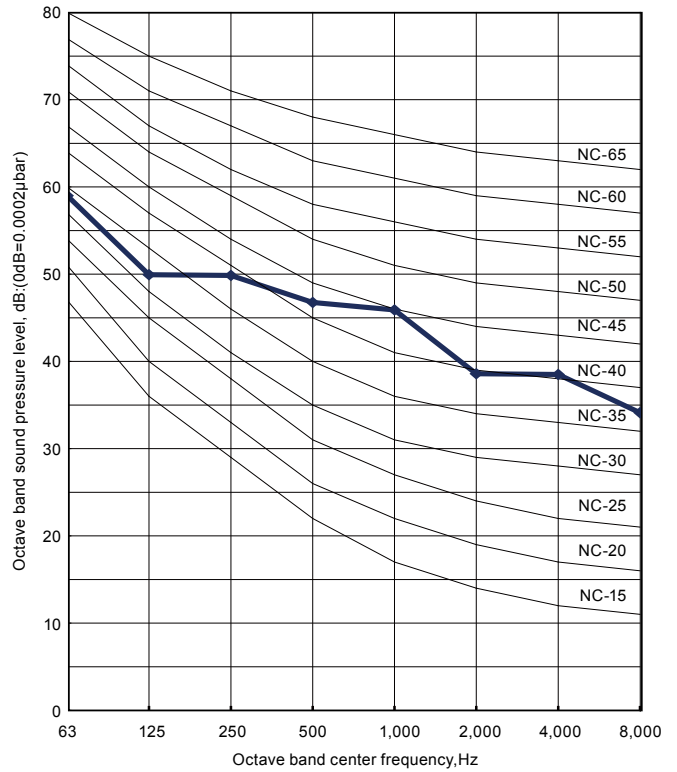
8-1. NOISE LEVEL CURVE

MODEL: AO*G09LVCA

● Cooling

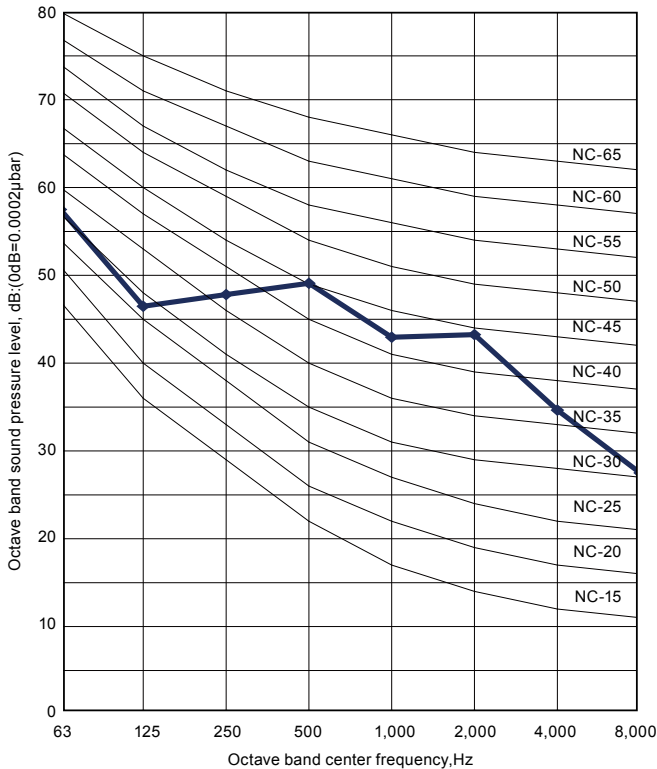


● Heating

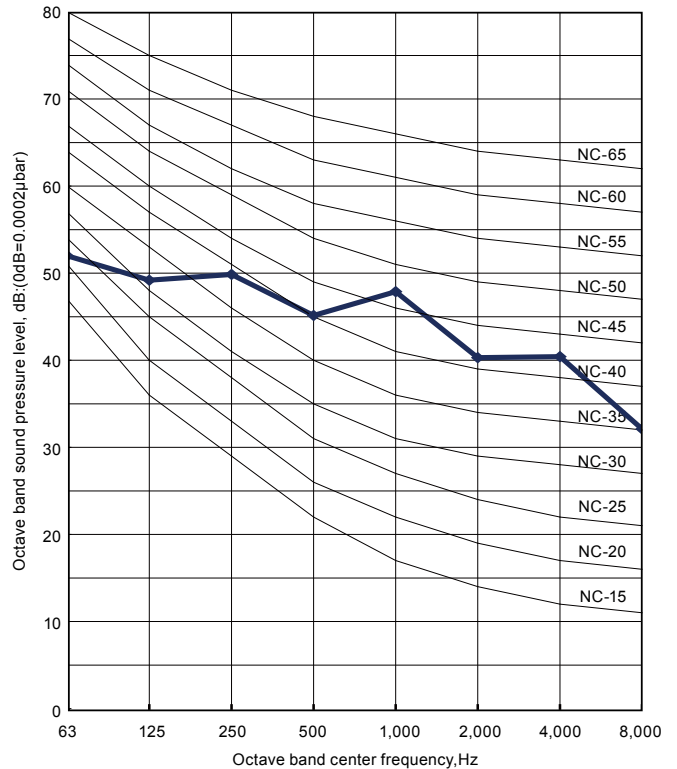


MODEL: AO*G12LVCA

● Cooling



● Heating

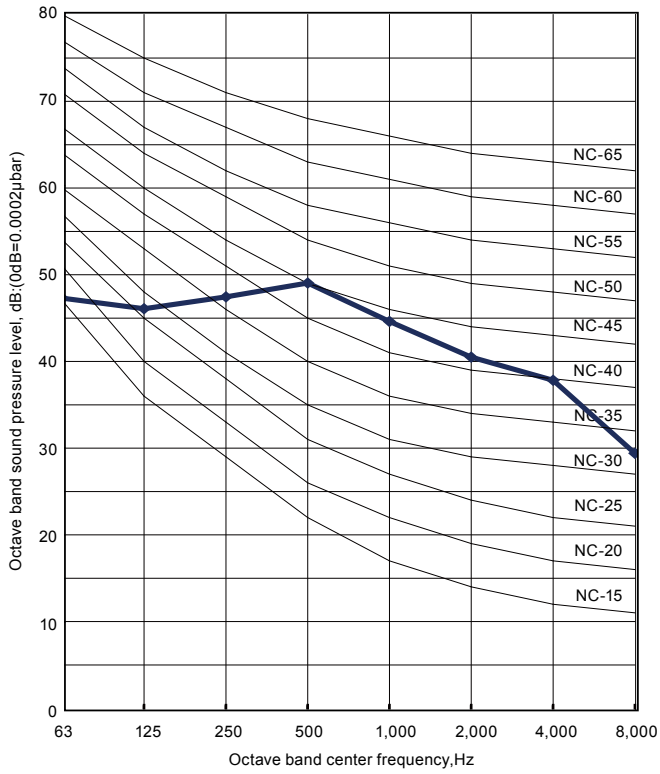


OUTDOOR UNIT
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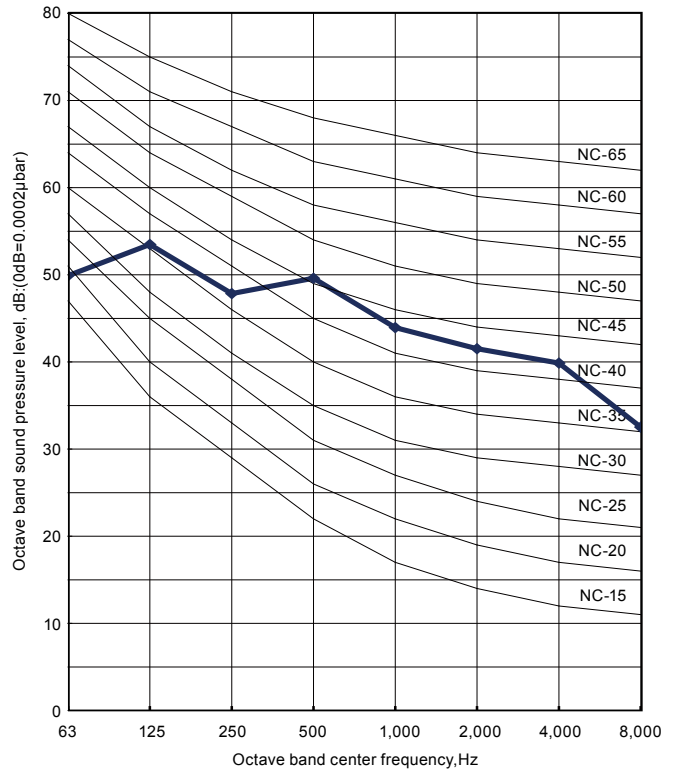
OUTDOOR UNIT
AO*G09-14LV

MODEL: AO*G14LVLA

● Cooling

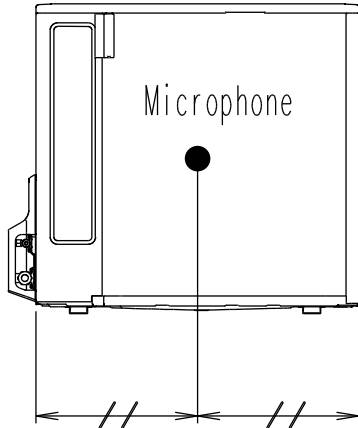
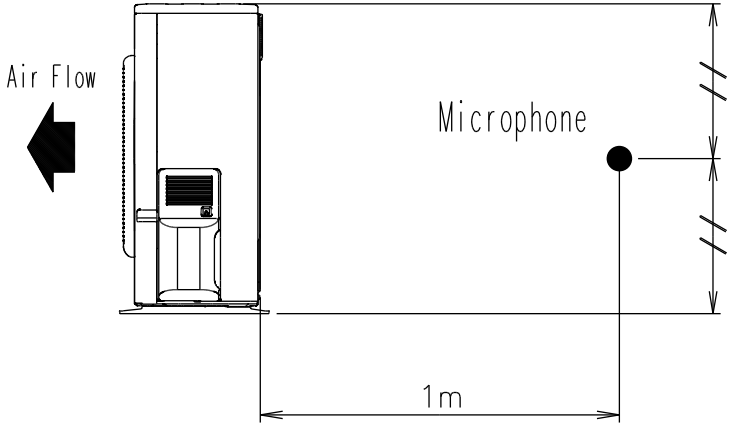


● Heating



8-2. SOUND LEVEL CHECK POINT

OUTDOOR UNIT
AO*G09-14LV



OUTDOOR UNIT
AO*G09-14LV

9. ELECTRIC CHARACTERISTICS

Model name			AO*G09LVCA	AO*G12LVCA	AO*G14LVLA
Power supply	Voltage	V	230 ~		
	Frequency	Hz	50		
*1) Max operating current		A	10.0		13.5
Starting Current		A	3.8	5.5	6.4
*2) Wiring Spec.:	Main Fuse (Circuit breaker) Current	A	20		
	Power Cable	mm ²	1.5 - 2.5		
	*3) Limited wiring length :	m	15		11

*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*G09LVCA	AO*G12LVCA	AO*G14LVLA
Circuit protection	Current fuse (Near the terminal)	250V 20A		
		250V 5A		
	Current fuse (Main printed circuit board)	250V 15A		
		250V 3.15A		
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		

OUTDOOR UNIT
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