Refrigerant R410A

INVERTER

AIR CONDITIONER

Wall Mounted type

DESIGN & TECHNICAL MANUAL

INDOOR



AS∗G09LTCB
AS∗G12LTCB
AS∗G14LTCB

OUTDOOR



AO∗G09LTCN



AO∗G12LTCN
AO∗G14LTCN

FUJITSU GENERAL LIMITED

1. INDOOR UNIT

WALL MOUNTED TYPE :

AS∗G09LTCB
AS∗G12LTCB
AS∗G14LTCB

DTR_AS057E_01
2011.09.21

WALL MOUNTED TYPE
AS∗G09-14LT

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WALL MOUNTED TYPE
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1. FEATURE

■ MODEL

AS∗G09LTCB / AO∗G09LTCN
AS∗G12LTCB / AO∗G12LTCN
AS∗G14LTCB / AO∗G14LTCN



■ FEATURES

● Energy-Efficiency classification A

Europe Energy-Efficiency classification A achieved

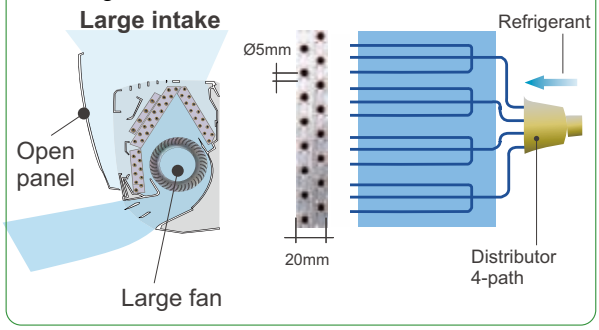
● Thin & Slim design

Thin and slim design is realized by Ø5mm heat exchanger and high efficiency wind blower.



H282 X W870 X D185

Big open panel and High density multi path heat exchanger

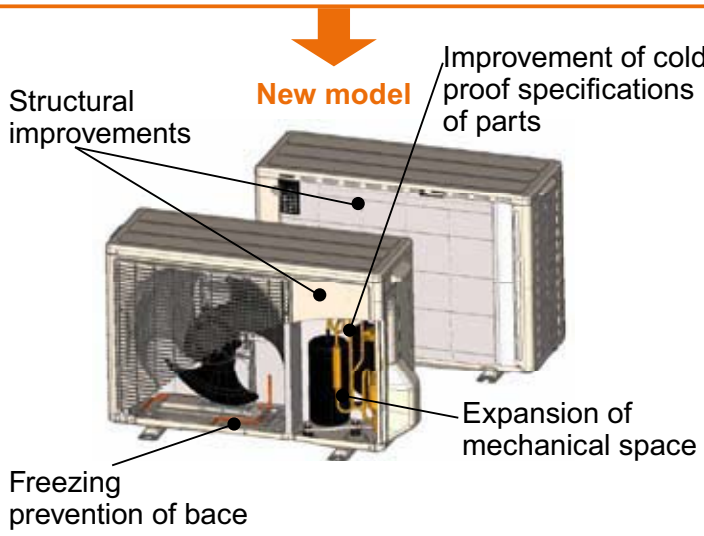


● Low outdoor air temperature correspondence

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

Heating
-25 to 24°C

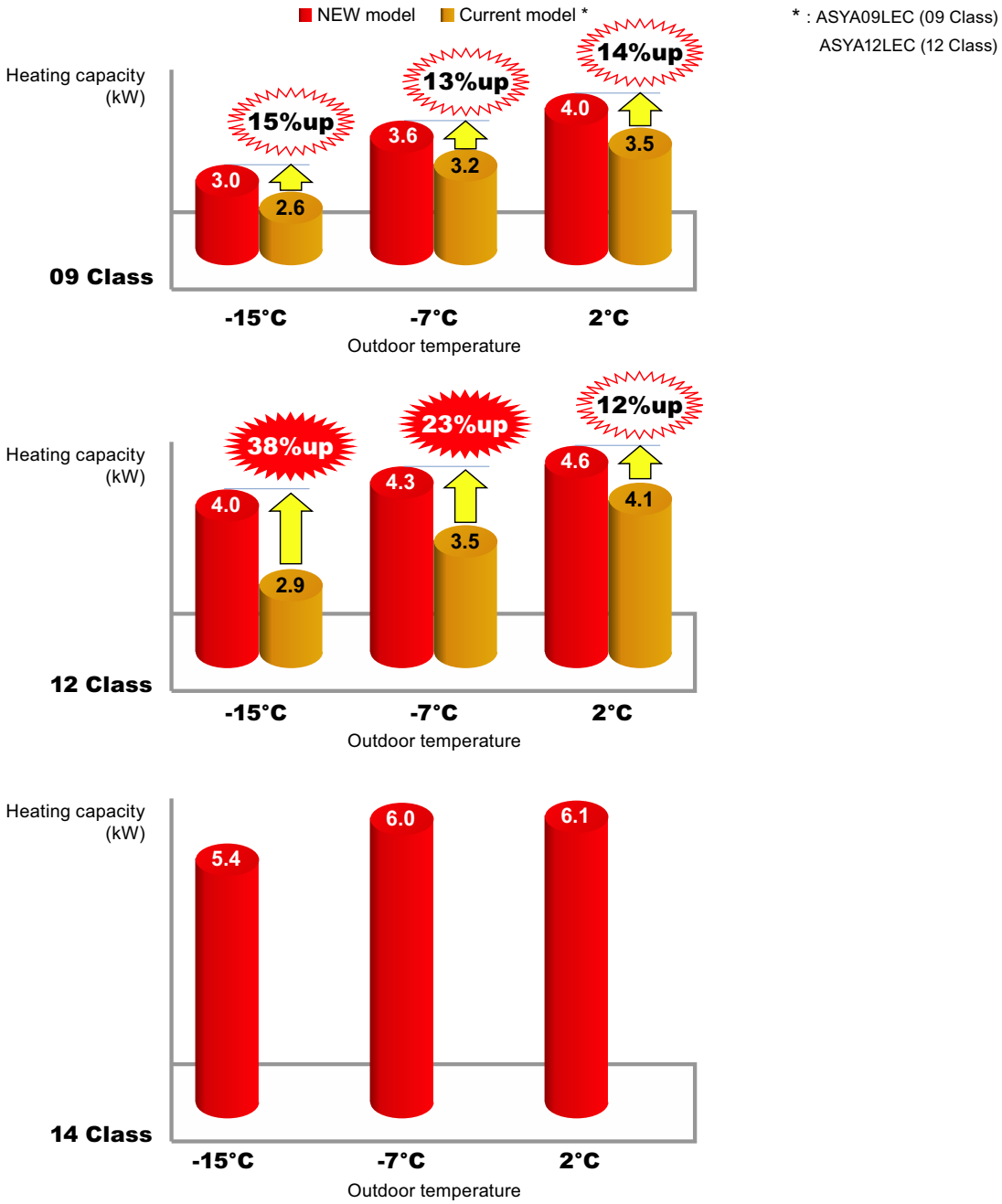
Specification improvement that can be operated under extreme low outdoor temperature (-25°C) without trouble



WALL MOUNTED TYPE
AS∗G09-14LT

● Powerful heating at low outdoor temperature

Keeping the high heating capacity at low outdoor temperature.



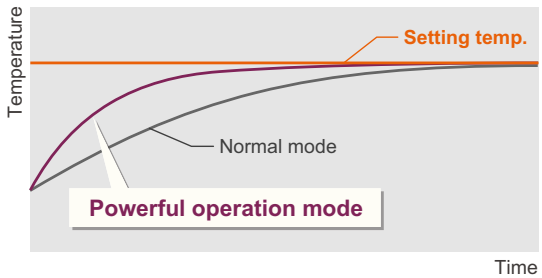
● Powerful operation

***Only available with Wireless RC.**

Powerful operation is boosted with the maximum full power and strong airflow. Rapid cooling and heating makes the room comfortable quickly.

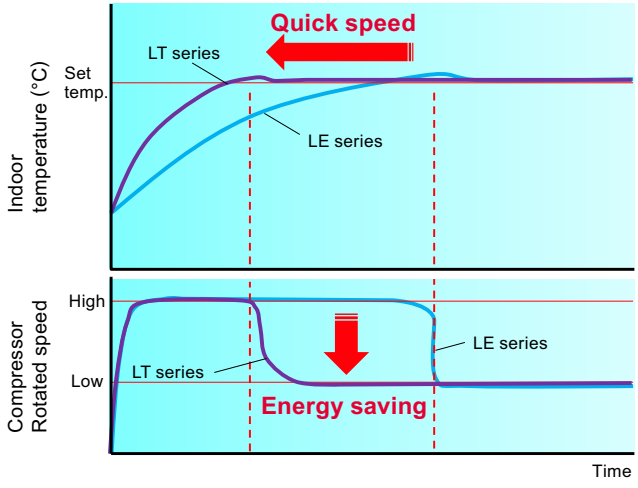
Caution

Powerful mode operates for 6 minutes or more, and stops automatically if reaching set temperature or 20 minutes pass.



● Powerful heating capacity

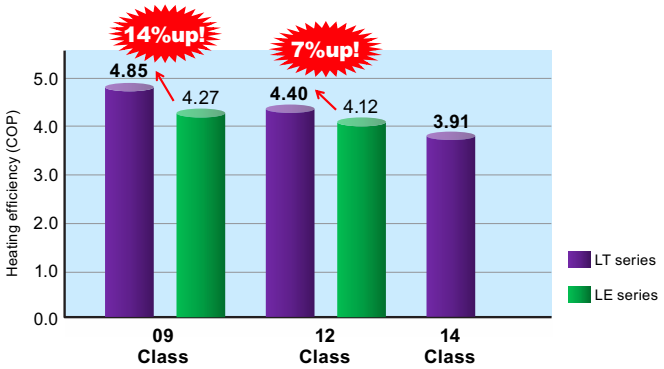
Quick speed heating & Energy saving at low ambient !



WALL MOUNTED TYPE
AS∗G09-14LT

● High energy saving

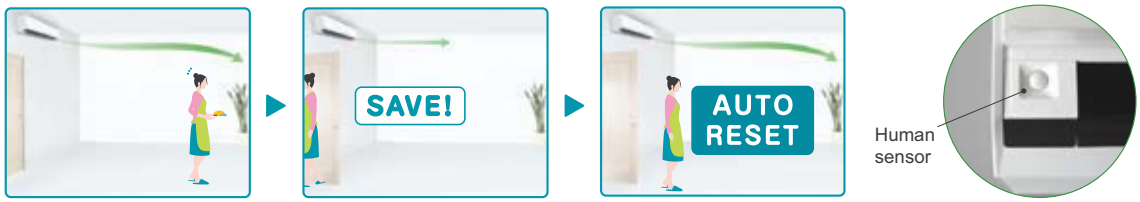
High COP is realized by using Large heat exchanger, DC rotary compressor, and inverter technology.



● Energy saving control

Human sensor catches movements of people in a room, and operates with lower capacity when the room is empty. When people come back to the room, it automatically returns to previous operating mode.

Energy saving operation by detecting someone's movement

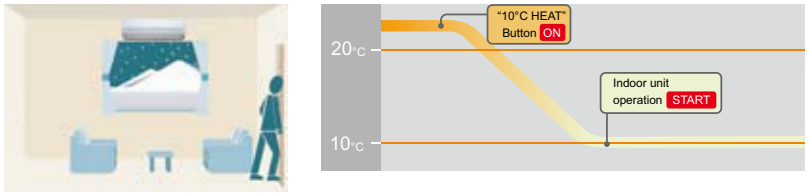


● 10°C HEAT Operation *Only available with Wireless RC.

The room temperature can be set to go no lower than 10°C,
thus ensuring that the room does not get too cold when not occupied

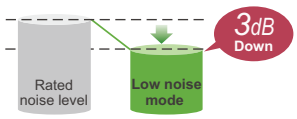
Caution)

- When the room temperature is higher than 10°C, "**10°C HEAT**" operation does not start. Operation starts and maintains the room temperature at 10°C when the temperature drops below 10°C.
- When "**10°C HEAT**" operation stops, the room set temperature quickly returns to the preset temperature.



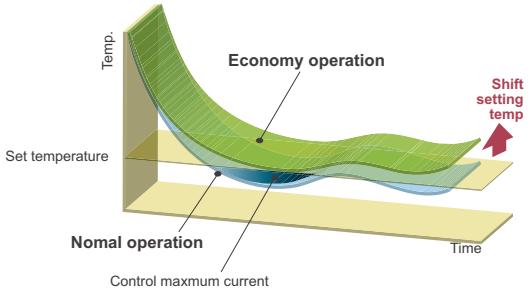
● Outdoor unit low noise *Only available with Wireless RC.

When air-conditioner operates in large capacity, operation noise of outdoor unit will be suppressed. In case of room temperature being close to setting temperature, operation noise might not decrease.



● 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.

WALL MOUNTED TYPE
AS∗G09-14LT

2. WIRELESS REMOTE CONTROLLER

■ FEATURES



∗ 3 Mode timer setup
(Weekly / Program / Sleep) are possible.

∗ Easy operation.

∗ Easy to change signal code (4 patterns) by button operation.

● Built-in timers

Select from Three different timer programs (Weekly / Program / Sleep).

● Weekly timer

Weekly timer can be easily set by wireless remote controller.
ON, OFF can be set up to 4 times in 1 day and up to 28 times in 1 week.

● Program timer

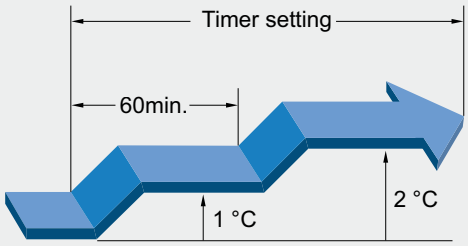
The program timer operates the on and off timer once within a 24 hour period.

● 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.

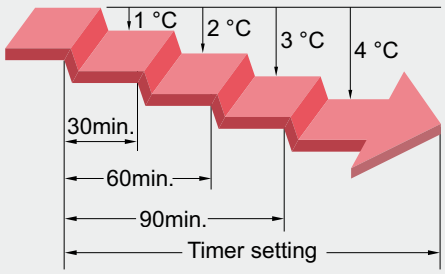
Cooling operation/dry operation

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

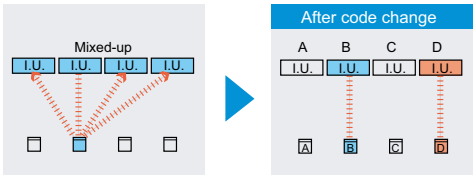
When the sleep timer is set, the set temperature automatically drops 1 °C every 30 minutes. The set temperature can drop to a maximum of 4 °C.



● Simple function setting

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

● Switching remote controller signal code

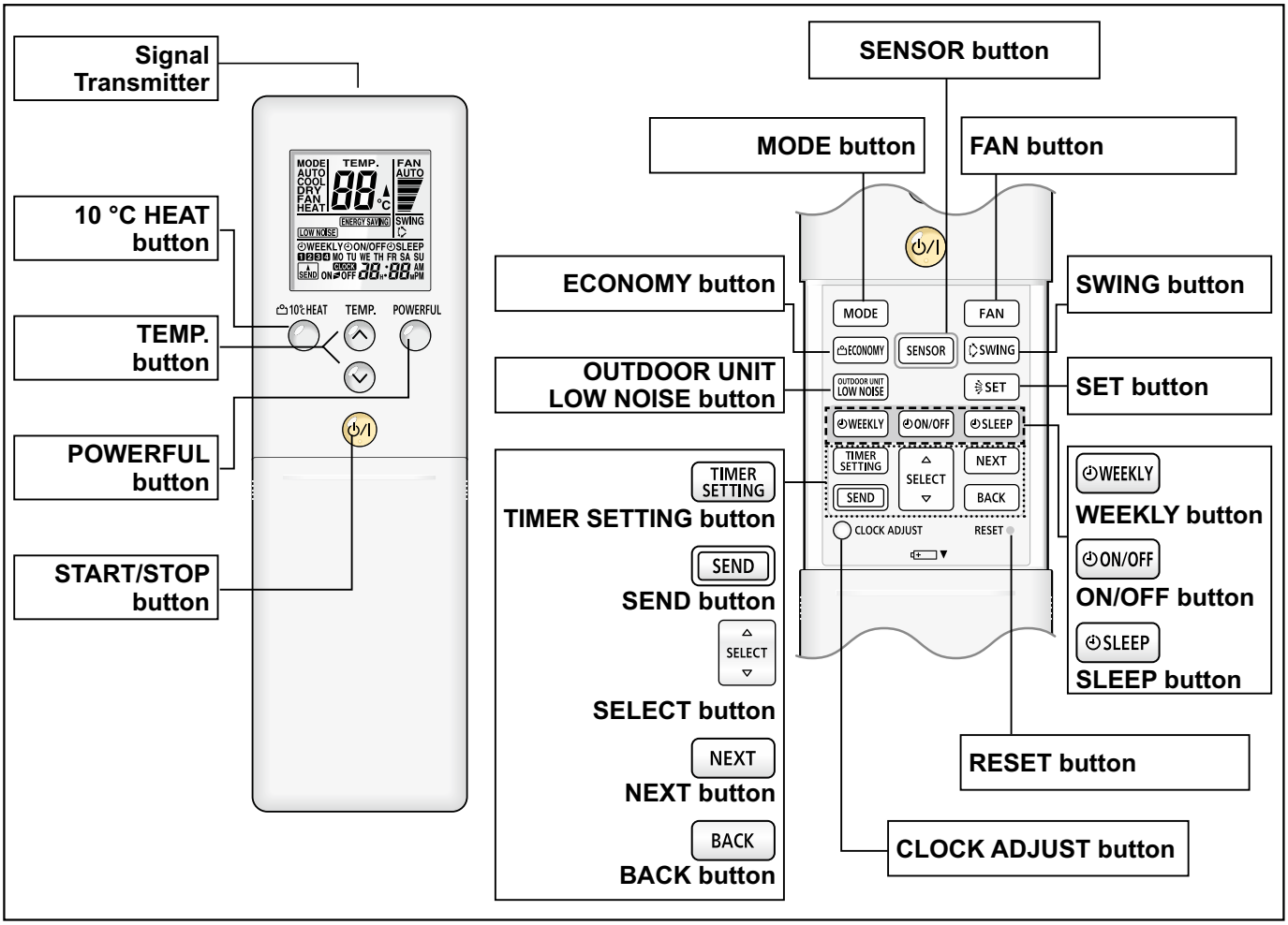


• Code selector switch eliminates unit being wrongly switched.
(Up to 4 codes can be set.)

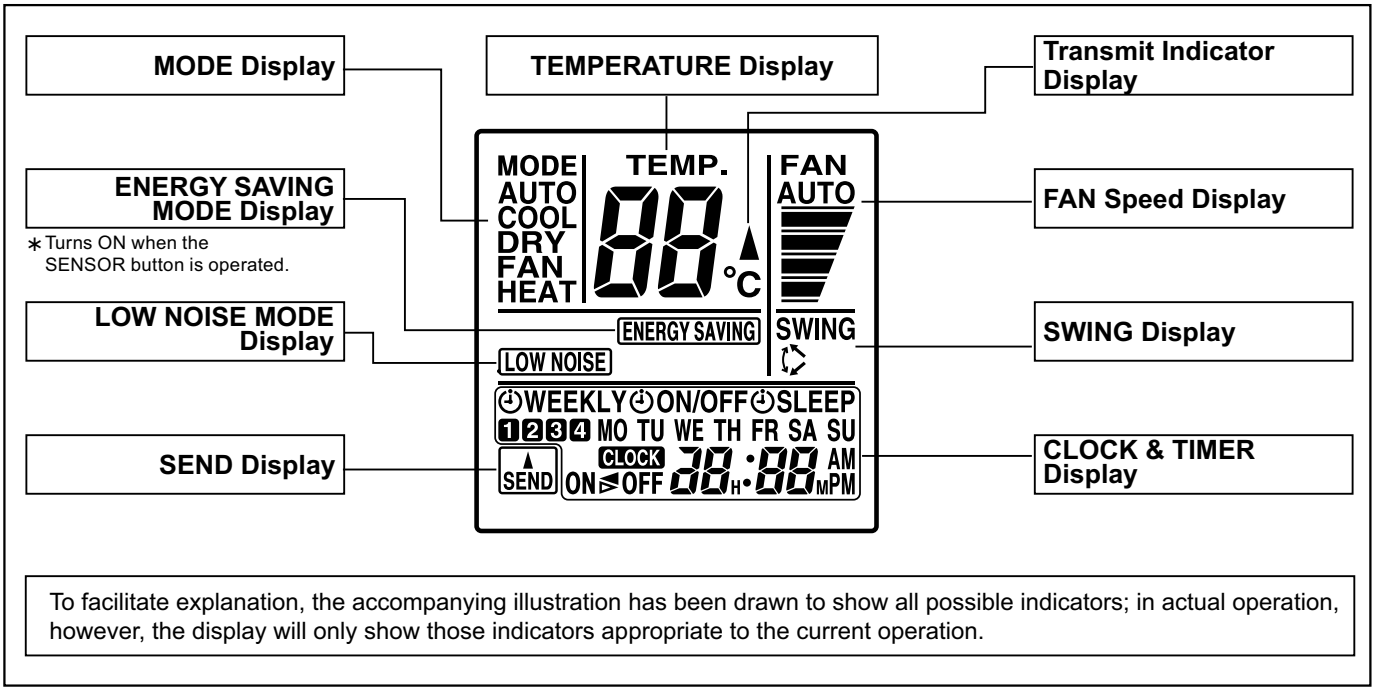
*I.U.=Indoor unit

WALL MOUNTED TYPE
AS∗G09-14LT

■ FUNCTIONS



Display panel



To facilitate explanation, the accompanying illustration has been drawn to show all possible indicators; in actual operation, however, the display will only show those indicators appropriate to the current operation.

■ SPECIFICATION

SIZE	(H x W x D mm)	205 x 61 x 17
WEIGHT	(g)	122
ACCESSORY		Holder

WALL MOUNTED TYPE
AS∗G09-14LT

3. SPECIFICATIONS

Type					WALL MOUNTED INVERTER HEAT PUMP		
Model name					AS∗G09LTCB	AS∗G12LTCB	AS∗G14LTCB
Power source					230V~ 50Hz		
Available voltage range					198-264V~ 50Hz		
European energy label				Cooling	A	A	A
				Heating	A	A	A
Capacity	Cooling	Rated		kW	2.50	3.50	4.20
				Btu/h	8,500	11,900	14,300
		Min-Max		kW	0.9-3.5	1.1-4.0	0.9-5.4
				Btu/h	3,100-11,900	3,800-13,600	3,100-18,400
	Heating	Rated		kW	3.20	4.00	5.40
				Btu/h	10,900	13,600	18,400
		Min-Max		kW	0.9-5.4	0.9-6.5	0.9-7.0
				Btu/h	3,100-18,400	3,100-22,200	3,100-23,900
Input power	Cooling	Rated		kW	0.505	0.850	1.160
		Min-Max			0.25-1.26	0.20-1.70	0.18-2.16
	Heating	Rated			0.660	0.910	1.380
		Min-Max			0.25-2.28	0.20-2.62	0.17-3.30
Current	Cooling	Rated		A	2.6	4.0	5.1
		Max			6.5	9.0	9.5
	Heating	Rated			3.3	4.3	6.1
		Max			10.0	11.5	14.5
EER	Cooling			kW/kW	4.95	4.12	3.62
COP	Heating				4.85	4.40	3.91
SENSIBLE CAPACITY	Cooling			kW	1.62	2.28	2.78
POWER FACTOR	Cooling			%	84	92	99
	Heating				87	92	98
Moisture removal				l/h(pints/h)	1.3(2.3)	1.8(3.2)	2.1(3.7)
FAN	Airflow rate	Cooling	High	m^3/h	800	850	900
			Med		640	670	740
			Low		550	550	570
			Quiet		330	330	390
		Heating	High		800	850	950
			Med		670	710	740
			Low		550	550	600
			Quiet		330	330	430
	Type× Q'ty				Cross flow fanx1		
	Motor output			W	29		
Sound pressure level		Cooling	High	dB(A)	42	43	45
			Med		36	37	40
			Low		32	32	33
			Quiet		21	21	25
		Heating	High		42	43	45
			Med		37	38	40
			Low		32	32	34
			Quiet		21	21	27
Heat exchanger type		Dimensions (H×W×D)		mm	320x690x20 Sub 84x690x13.3		
		Fin pitch			1.1 Sub 1.4		
		Rows Stages			2x20 Sub 1x4		
		Pipe type			Copper		
		Fin type			Aluminium		
Enclosure		Material			Polystyrene		
		Colour			White Approximate colour of MUNSELL N9.3/		
Dimensions (H×W×D)	Net			mm	282x870x185		
	Gross				247x920x373		
Weight	Net			kg	9.5		
	Gross				12		
Connection pipe	Size	Liquid		mm	Ø6.35(Ø1/4in)		
		Gas			Ø9.52(Ø3/8in)		Ø12.70(Ø1/2in)
	Method				Flare		
Operation range		Cooling		°C	18 to 32		
				%RH	80 or less		
		Heating		°C	16 to 30		
Remote controller type					Wireless		
Drain pipe	Material				PP+LLDPE		
	Size			mm	Outer diameter:15.8 to 16.7 Inner diameter:13.8		

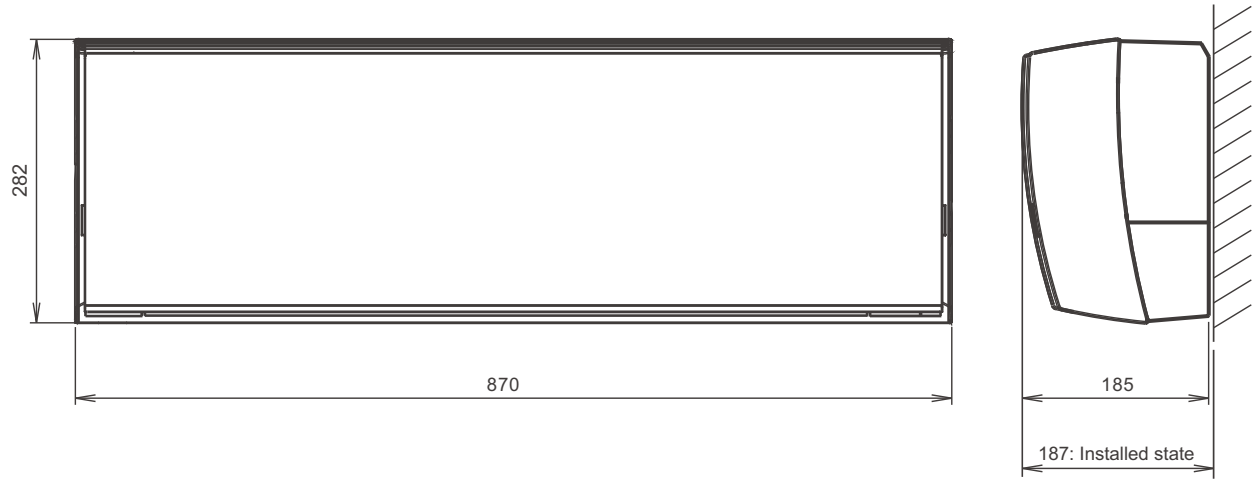
Note:
Specifications are based on the following conditions
Cooling:Indoor temperature of 27 °CDB/19 °CWB.and outdoor temperature of 35 °CDB/24 °CWB.
Heating:Indoor temperature of 20 °CDB/15 °CWB.and outdoor temperature of 7° CDB/6 °CWB.
Pipe length:5m,Height difference:0m(Outdoor unit-Indoor unit)
The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

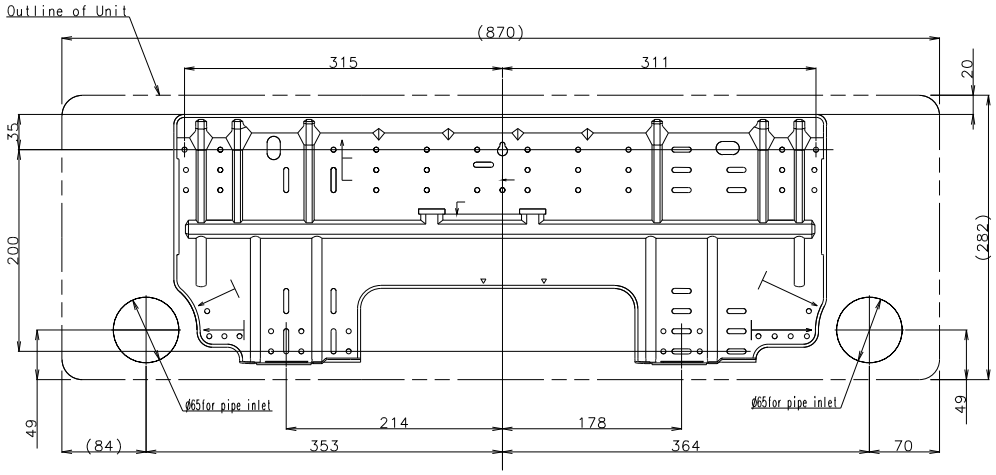
WALL MOUNTED TYPE
AS∗G09-14LT

4. DIMENSIONS

■ MODEL: AS∗G09LT, AS∗G12LT, AS∗G14LT

(Unit : mm)

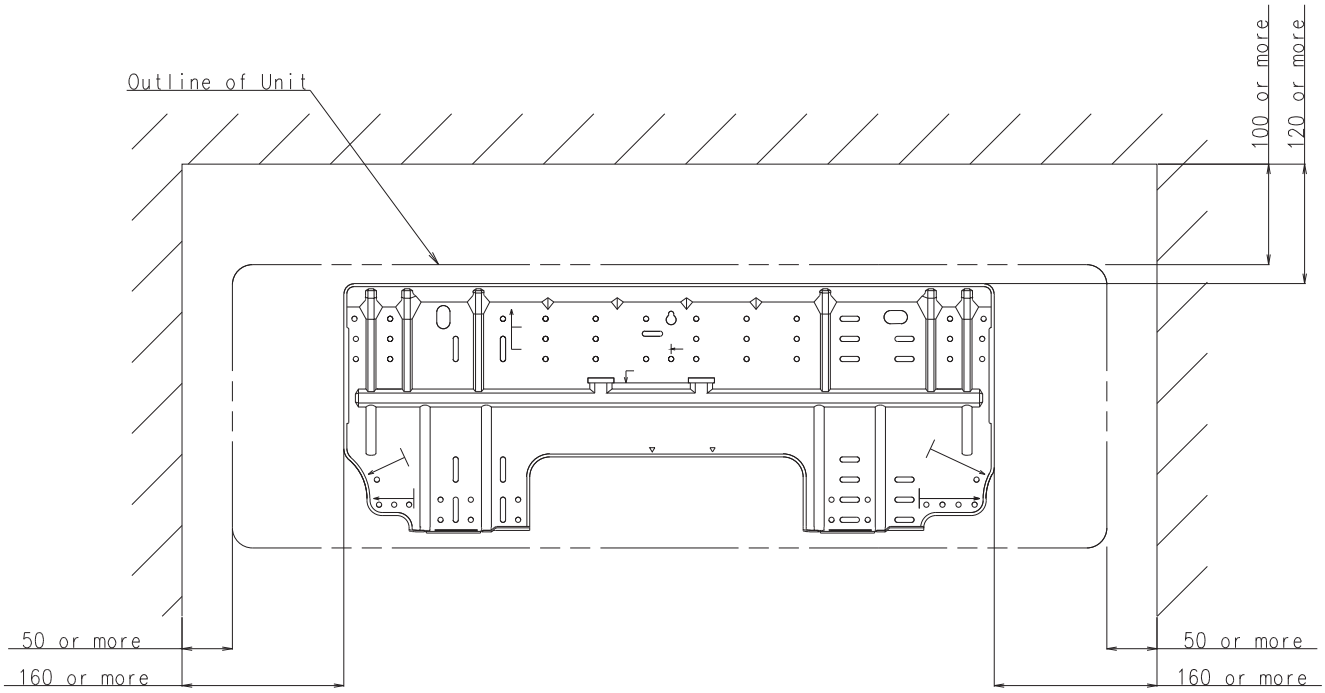


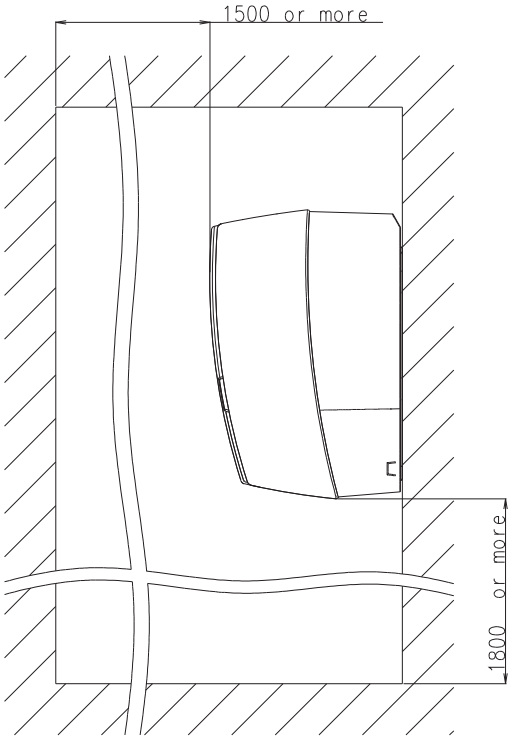


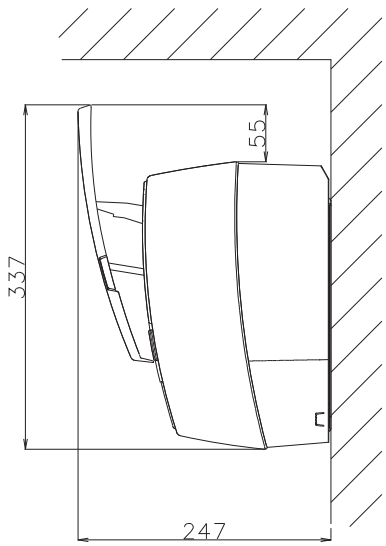
WALL MOUNTED TYPE
AS∗G09-14LT

■ INSTALLATION PLACE

(Unit : mm)



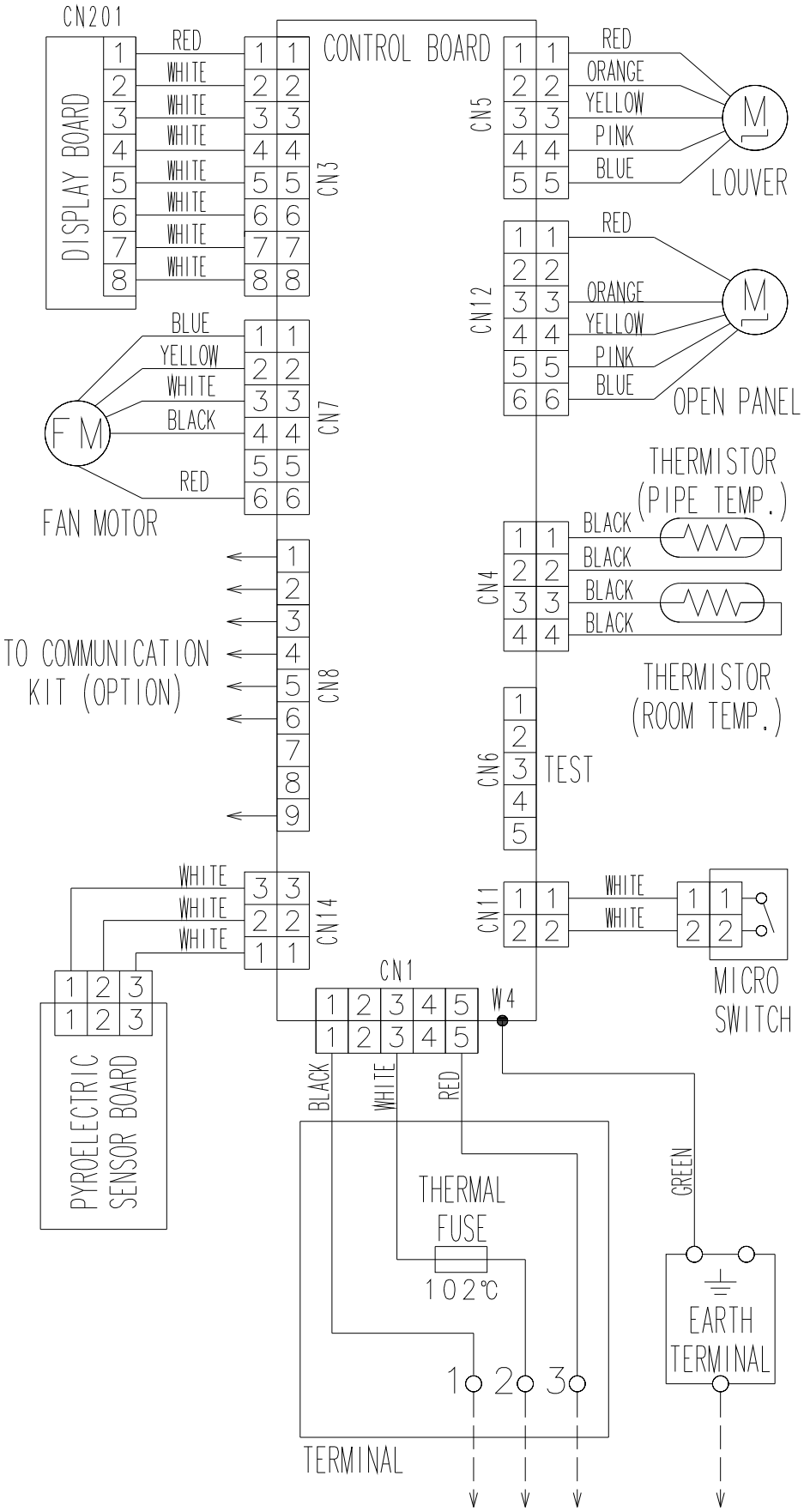




WALL MOUNTED TYPE
AS∗G09-14LT

5. WIRING DIAGRAMS

■ MODEL: AS∗G09LT, AS∗G12LT, AS∗G14LT



WALL MOUNTED TYPE
AS∗G09-14LT

6. CAPACITY TABLE

6-1. COOLING CAPACITY

■ MODEL: AS∗G09LT

AFR	13.3

		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	2.34	1.62	0.35	2.61	1.63	0.36	2.70	1.77	0.36	2.87	1.78	0.37	2.96	1.92	0.37	3.14	1.91	0.37	3.32	2.04	0.37
	25	2.22	1.54	0.40	2.48	1.55	0.40	2.56	1.68	0.41	2.73	1.69	0.41	2.81	1.82	0.41	2.98	1.82	0.42	3.15	1.93	0.42
	30	2.10	1.45	0.44	2.34	1.46	0.45	2.42	1.59	0.45	2.58	1.60	0.46	2.66	1.72	0.46	2.82	1.72	0.46	2.98	1.83	0.47
	35	1.98	1.37	0.49	2.20	1.38	0.49	2.28	1.50	0.50	2.43	1.50	0.50	2.50	1.62	0.51	2.65	1.61	0.51	2.80	1.72	0.52
	40	1.76	1.22	0.49	1.96	1.23	0.49	2.03	1.33	0.50	2.16	1.34	0.50	2.23	1.44	0.50	2.36	1.44	0.51	2.50	1.53	0.51
	43	1.63	1.13	0.49	1.82	1.14	0.49	1.88	1.24	0.50	2.00	1.24	0.50	2.07	1.34	0.50	2.19	1.33	0.51	2.31	1.42	0.51

■ MODEL: AS∗G12LT

AFR	14.2

		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	3.28	2.28	0.58	3.65	2.30	0.59	3.77	2.50	0.59	4.02	2.50	0.60	4.15	2.70	0.60	4.40	2.69	0.61	4.64	2.87	0.62
	25	3.12	2.17	0.66	3.47	2.18	0.67	3.59	2.37	0.67	3.83	2.38	0.68	3.95	2.57	0.68	4.18	2.56	0.69	4.42	2.72	0.70
	30	2.95	2.05	0.74	3.28	2.06	0.75	3.40	2.24	0.75	3.62	2.25	0.76	3.73	2.43	0.77	3.96	2.42	0.77	4.18	2.57	0.78
	35	2.77	1.93	0.82	3.08	1.94	0.83	3.19	2.11	0.84	3.40	2.11	0.85	3.50	2.28	0.85	3.71	2.27	0.86	3.92	2.42	0.87
	40	2.34	1.72	0.76	2.60	1.73	0.77	2.69	1.88	0.78	2.87	1.88	0.79	2.96	2.03	0.79	3.14	2.02	0.80	3.31	2.16	0.81
	43	2.15	1.59	0.76	2.40	1.60	0.78	2.48	1.74	0.78	2.64	1.75	0.79	2.72	1.89	0.79	2.89	1.88	0.80	3.05	2.00	0.81

■ MODEL: AS∗G14LT

AFR	15.0

		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	3.91	2.76	0.81	4.35	2.78	0.82	4.50	3.02	0.82	4.80	3.03	0.83	4.95	3.27	0.84	5.24	3.26	0.85	5.54	3.47	0.85
	25	3.72	2.63	0.91	4.15	2.65	0.93	4.29	2.88	0.93	4.57	2.89	0.94	4.71	3.12	0.94	5.00	3.11	0.95	5.28	3.31	0.96
	30	3.53	2.50	1.01	3.93	2.51	1.03	4.07	2.73	1.03	4.34	2.74	1.04	4.47	2.96	1.05	4.74	2.95	1.06	5.01	3.14	1.07
	35	3.32	2.35	1.12	3.70	2.36	1.14	3.82	2.56	1.14	4.07	2.57	1.15	4.20	2.78	1.16	4.45	2.77	1.17	4.70	2.95	1.18
	40	2.92	2.06	1.10	3.25	2.07	1.12	3.36	2.25	1.13	3.58	2.26	1.14	3.69	2.44	1.14	3.91	2.43	1.15	4.13	2.59	1.17
	43	2.66	1.88	1.09	2.96	1.89	1.10	3.06	2.05	1.11	3.26	2.06	1.12	3.36	2.22	1.13	3.56	2.22	1.14	3.77	2.36	1.15

AFR : Air Flow Rate (m^3/min)
TC : Total Capacity (kW)
SHC : Sensible Heat Capacity (kW)
IP : Input Power (kW)

WALL MOUNTED TYPE
AS∗G09-14LT

6-2. HEATING CAPACITY

■ MODEL: AS∗G09LT

AFR	13.3

			Indoor temperature									
		(°CDB)	16		18		20		22		24	
	(°CDB)	(°CWB)	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-25	-26	2.31	1.17	2.26	1.19	2.20	1.21	2.15	1.24	2.09	1.26
	-20	-21	2.84	1.24	2.77	1.26	2.70	1.29	2.63	1.32	2.57	1.34
	-15	-16	3.36	1.31	3.28	1.34	3.20	1.37	3.12	1.39	3.04	1.42
	-10	-11	3.89	1.40	3.79	1.43	3.70	1.46	3.61	1.49	3.52	1.51
	-5	-7	4.25	1.45	4.15	1.48	4.04	1.51	3.94	1.54	3.84	1.57
	0	-2	4.36	1.44	4.26	1.47	4.16	1.50	4.05	1.53	3.95	1.56
	5	3	5.17	1.50	5.04	1.53	4.92	1.56	4.80	1.59	4.67	1.62
	7	6	5.67	1.54	5.54	1.57	5.40	1.61	5.27	1.64	5.13	1.67
	10	8	6.27	1.51	6.12	1.54	5.97	1.57	5.82	1.60	5.67	1.63
	15	10	6.49	1.41	6.34	1.44	6.18	1.47	6.03	1.50	5.88	1.53

■ MODEL: AS∗G12LT

AFR	14.2

			Indoor temperature									
		(°CDB)	16		18		20		22		24	
	(°CDB)	(°CWB)	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-25	-26	3.68	2.00	3.59	2.04	3.50	2.08	3.41	2.12	3.33	2.17
	-20	-21	4.10	2.02	4.00	2.06	3.90	2.10	3.80	2.14	3.71	2.18
	-15	-16	4.62	2.02	4.51	2.06	4.40	2.10	4.29	2.15	4.18	2.19
	-10	-11	4.69	1.94	4.57	1.98	4.46	2.02	4.35	2.06	4.24	2.10
	-5	-7	4.77	1.87	4.66	1.91	4.54	1.95	4.43	1.99	4.32	2.02
	0	-2	4.89	1.80	4.77	1.84	4.66	1.88	4.54	1.91	4.42	1.95
	5	3	6.07	1.86	5.92	1.90	5.78	1.94	5.64	1.98	5.49	2.02
	7	6	6.83	1.92	6.66	1.96	6.50	2.00	6.34	2.04	6.18	2.08
	10	8	7.54	1.94	7.36	1.98	7.18	2.02	7.00	2.06	6.82	2.10
	15	10	7.82	1.95	7.63	1.99	7.44	2.03	7.26	2.07	7.07	2.11

■ MODEL: AS∗G14LT

AFR	15.8

			Indoor temperature									
		(°CDB)	16		18		20		22		24	
	(°CDB)	(°CWB)	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-25	-26	4.73	2.09	4.61	2.14	4.50	2.18	4.39	2.22	4.28	2.27
	-20	-21	5.15	2.11	5.02	2.16	4.90	2.20	4.78	2.24	4.66	2.29
	-15	-16	5.67	2.14	5.54	2.19	5.40	2.23	5.27	2.27	5.13	2.32
	-10	-11	6.06	2.18	5.92	2.23	5.78	2.27	5.63	2.32	5.49	2.36
	-5	-7	6.32	2.28	6.17	2.33	6.02	2.38	5.87	2.43	5.72	2.48
	0	-2	6.38	2.48	6.23	2.53	6.08	2.58	5.93	2.63	5.77	2.68
	5	3	6.97	2.32	6.81	2.37	6.64	2.42	6.47	2.47	6.31	2.52
	7	6	7.35	2.17	7.18	2.21	7.00	2.26	6.83	2.31	6.65	2.35
	10	8	8.12	1.94	7.93	1.98	7.74	2.02	7.54	2.06	7.35	2.10
	15	10	8.42	1.95	8.22	1.99	8.02	2.03	7.82	2.07	7.62	2.11

AFR : Air Flow Rate (m^3/min)
TC : Total Capacity (kW)
IP : Input Power (kW)

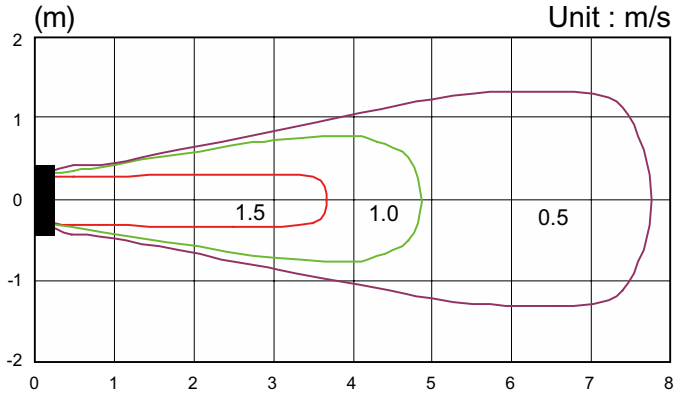
WALL MOUNTED TYPE
AS∗G09-14LT

7. FAN PERFORMANCE

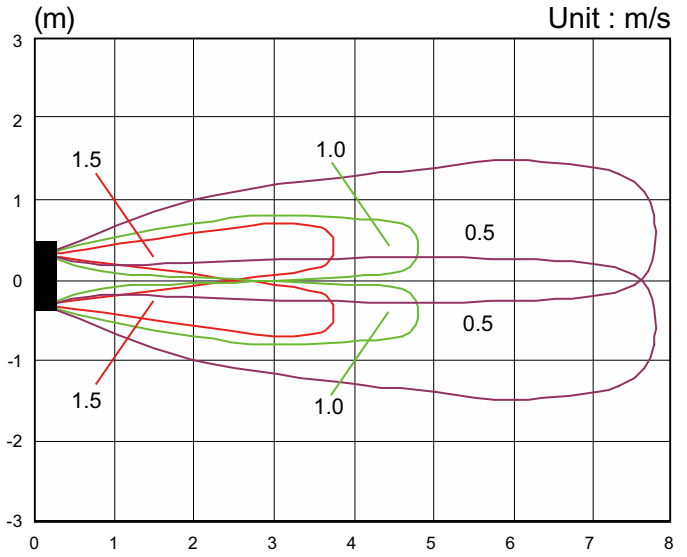
7-1. AIR VELOCITY DISTRIBUTION

■ MODEL: AS∗G09LT

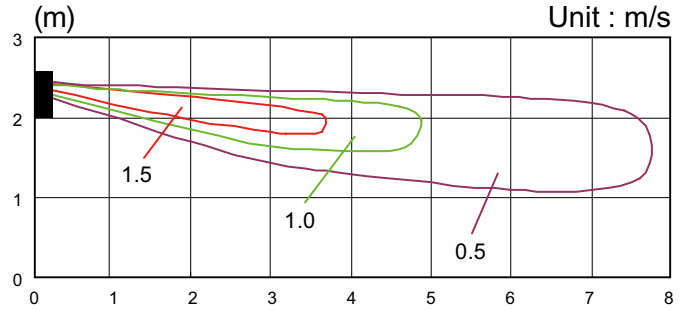
Note:
Fan speed : High
Operation mode : FAN



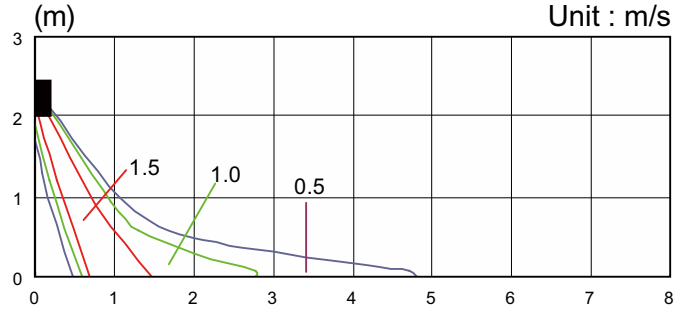
TOP VIEW
Vertical flap : Up
Horizontal flap : Center



TOP VIEW
Vertical flap : Up
Horizontal flap : Right & Left



SIDE VIEW
Vertical flap : Up
Horizontal flap : Center

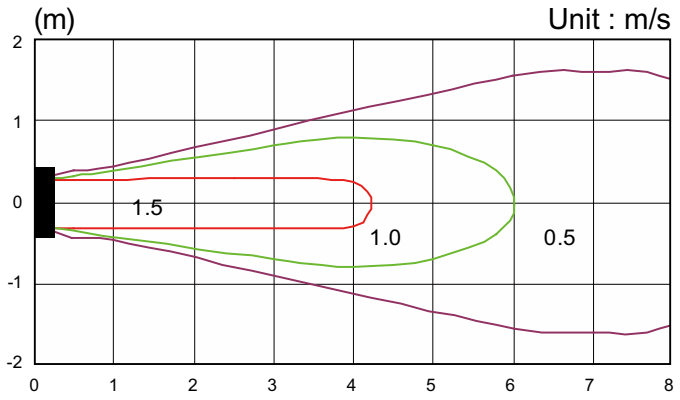


SIDE VIEW
Vertical flap : Down
Horizontal flap : Center

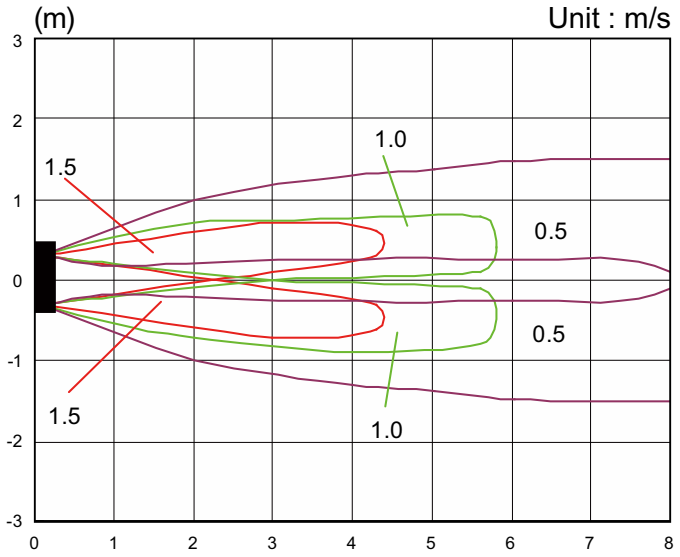
WALL MOUNTED TYPE
AS∗G09-14LT

Note:
Fan speed : High
Operation mode : FAN

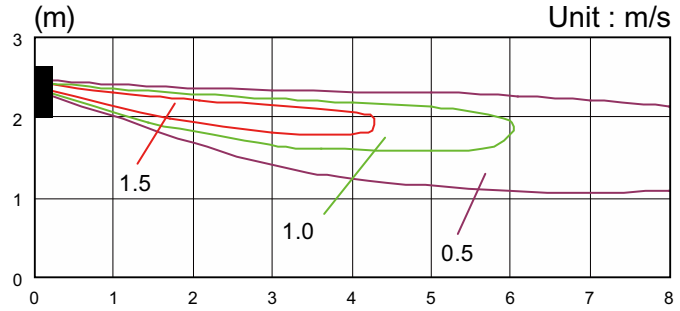
■MODEL: AS∗G12LT



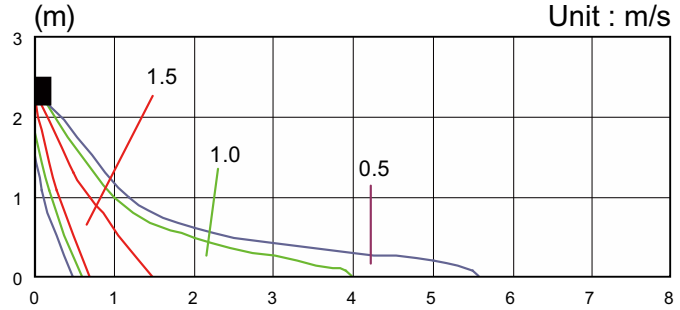
TOP VIEW
Vertical flap : Up
Horizontal flap : Center



TOP VIEW
Vertical flap : Up
Horizontal flap : Right & Left



SIDE VIEW
Vertical flap : Up
Horizontal flap : Center

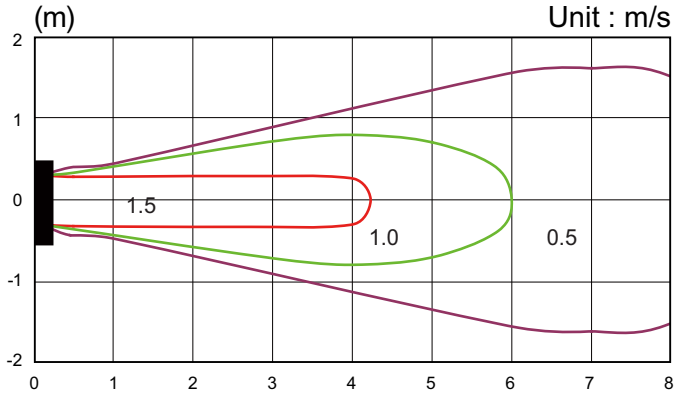


SIDE VIEW
Vertical flap : Down
Horizontal flap : Center

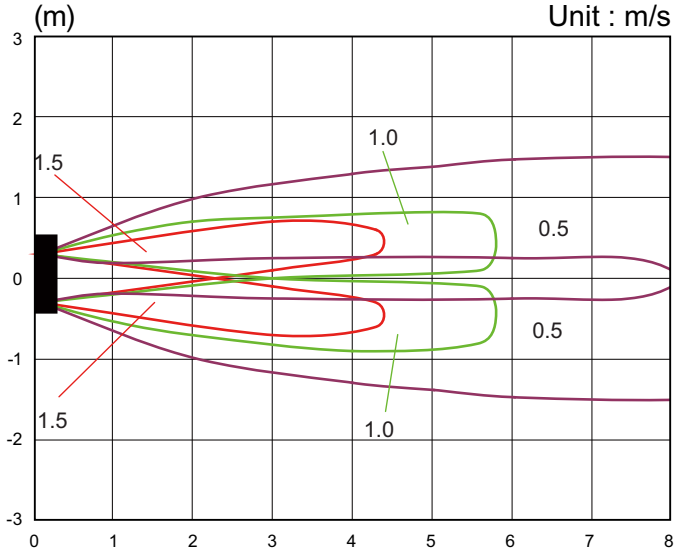
WALL MOUNTED TYPE
AS∗G09-14LT

Note:
Fan speed : High
Operation mode : FAN

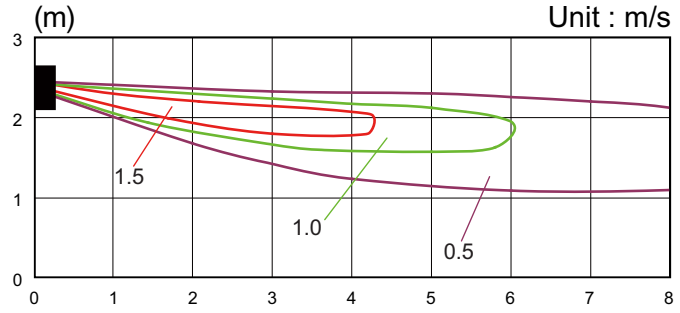
■MODEL: AS∗G14LT



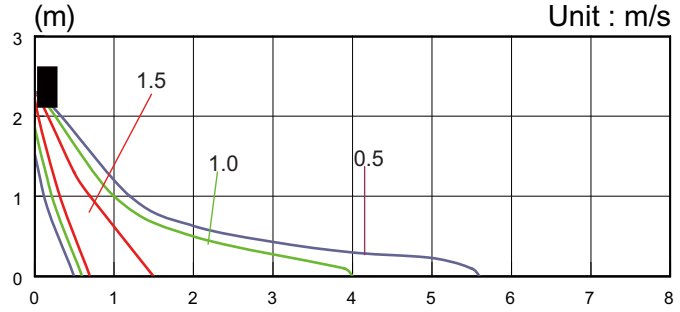
TOP VIEW
Vertical flap : Up
Horizontal flap : Center



TOP VIEW
Vertical flap : Up
Horizontal flap : Right & Left



SIDE VIEW
Vertical flap : Up
Horizontal flap : Center



SIDE VIEW
Vertical flap : Down
Horizontal flap : Center

WALL MOUNTED TYPE
AS∗G09-14LT

7-2. AIR FLOW

■ MODEL: AS∗G09LT

● Cooling

Fan speed	Number of rotations (r.p.m.)	Air flow	
HIGH	1300	800	m^3/h
		222	l/s
		471	CFM
MED	1080	640	m^3/h
		178	l/s
		376	CFM
LOW	960	550	m^3/h
		153	l/s
		324	CFM
QUIET	650	330	m^3/h
		92	l/s
		194	CFM

● Heating

Fan speed	Number of rotations (r.p.m.)	Air flow	
HIGH	1300	800	m^3/h
		222	l/s
		471	CFM
MED	1120	670	m^3/h
		186	l/s
		394	CFM
LOW	960	550	m^3/h
		153	l/s
		324	CFM
QUIET	650	330	m^3/h
		92	l/s
		194	CFM

WALL MOUNTED TYPE
AS∗G09-14LT

■MODEL: AS∗G12LT

●Cooling

Fan speed	Number of rotations (r.p.m.)	Air flow	
HIGH	1370	850	m^3/h
		236	l/s
		500	CFM
MED	1120	670	m^3/h
		186	l/s
		394	CFM
LOW	960	550	m^3/h
		153	l/s
		324	CFM
QUIET	650	330	m^3/h
		92	l/s
		194	CFM

●Heating

Fan speed	Number of rotations (r.p.m.)	Air flow	
HIGH	1370	850	m^3/h
		236	l/s
		500	CFM
MED	1180	710	m^3/h
		197	l/s
		418	CFM
LOW	960	550	m^3/h
		153	l/s
		324	CFM
QUIET	650	330	m^3/h
		92	l/s
		194	CFM

WALL MOUNTED TYPE
AS∗G09-14LT

■MODEL: AS∗G14LT

●Cooling

Fan speed	Number of rotations (r.p.m.)	Air flow	
HIGH	1440	900	m^3/h
		250	l/s
		529	CFM
MED	1220	740	m^3/h
		206	l/s
		435	CFM
LOW	980	570	m^3/h
		158	l/s
		335	CFM
QUIET	740	390	m^3/h
		108	l/s
		229	CFM

●Heating

Fan speed	Number of rotations (r.p.m.)	Air flow	
HIGH	1510	950	m^3/h
		264	l/s
		559	CFM
MED	1220	740	m^3/h
		206	l/s
		435	CFM
LOW	1030	600	m^3/h
		167	l/s
		353	CFM
QUIET	790	430	m^3/h
		119	l/s
		253	CFM

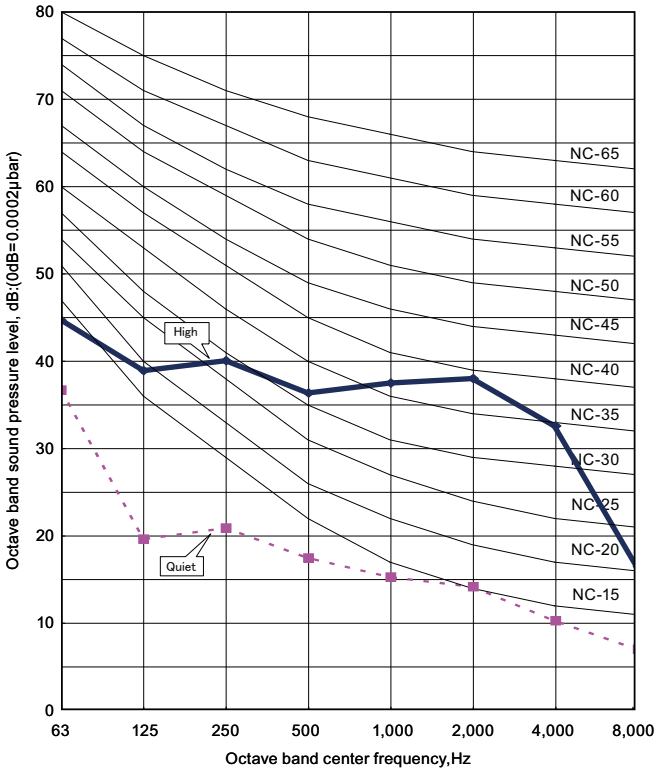
WALL MOUNTED TYPE
AS∗G09-14LT

8. OPERATION NOISE

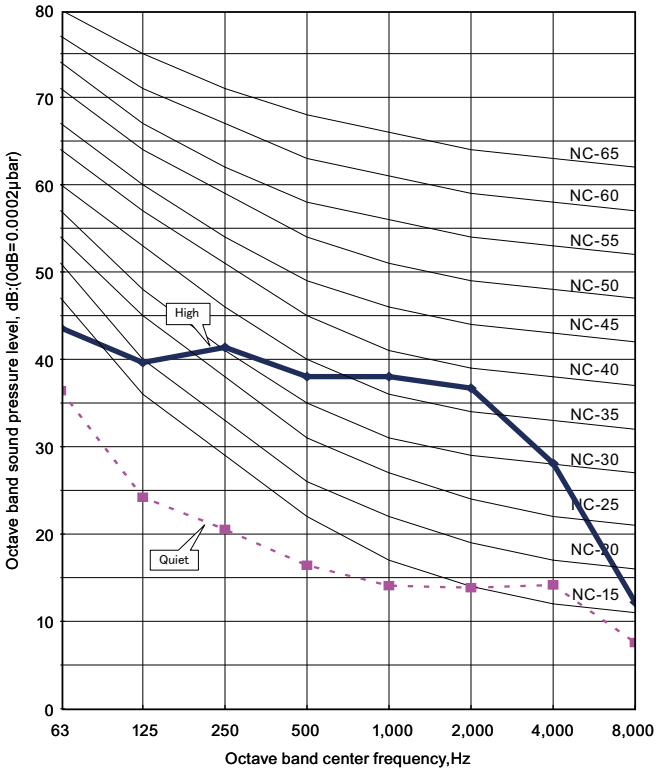
8-1. NOISE LEVEL CURVE

■ MODEL: AS∗G09LT

● Cooling

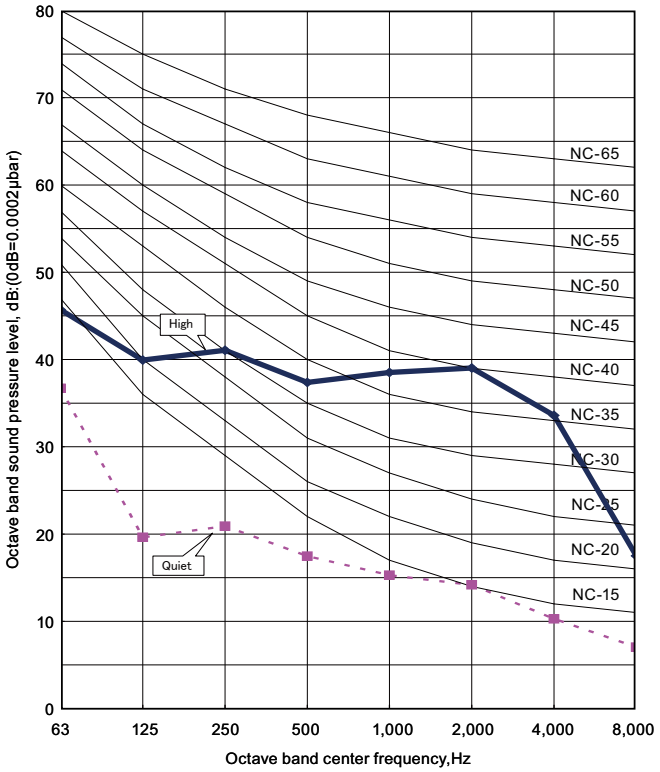


● Heating

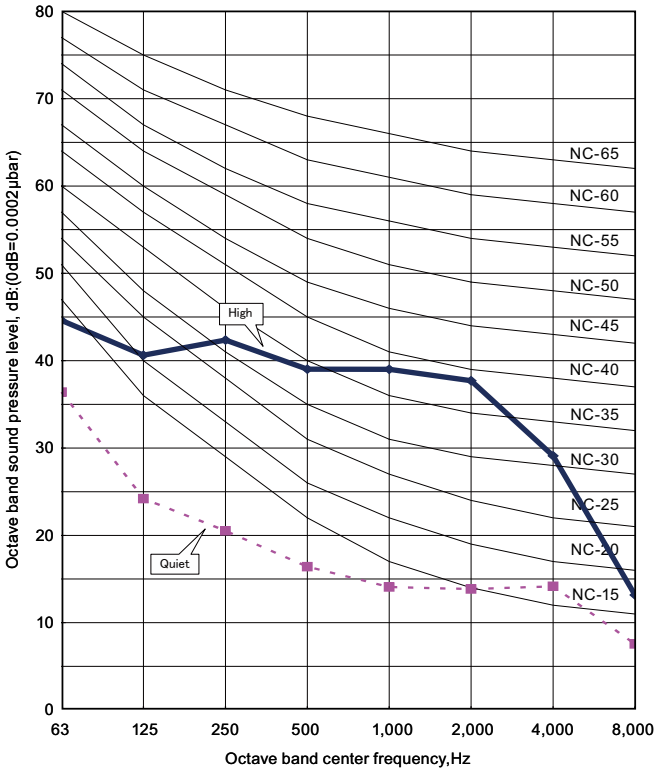


■ MODEL: AS∗G12LT

● Cooling



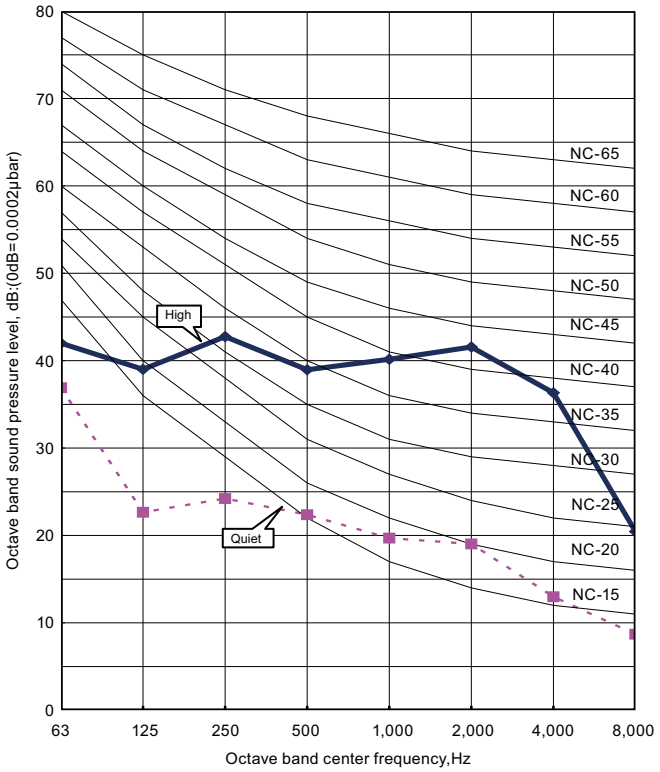
● Heating



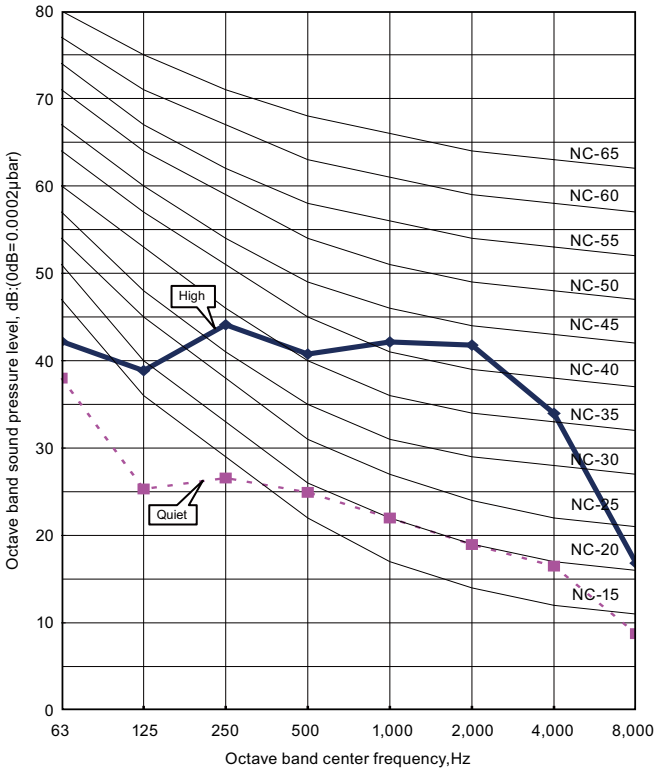
WALL MOUNTED TYPE
AS∗G09-14LT

■MODEL: AS∗G14LT

●Cooling

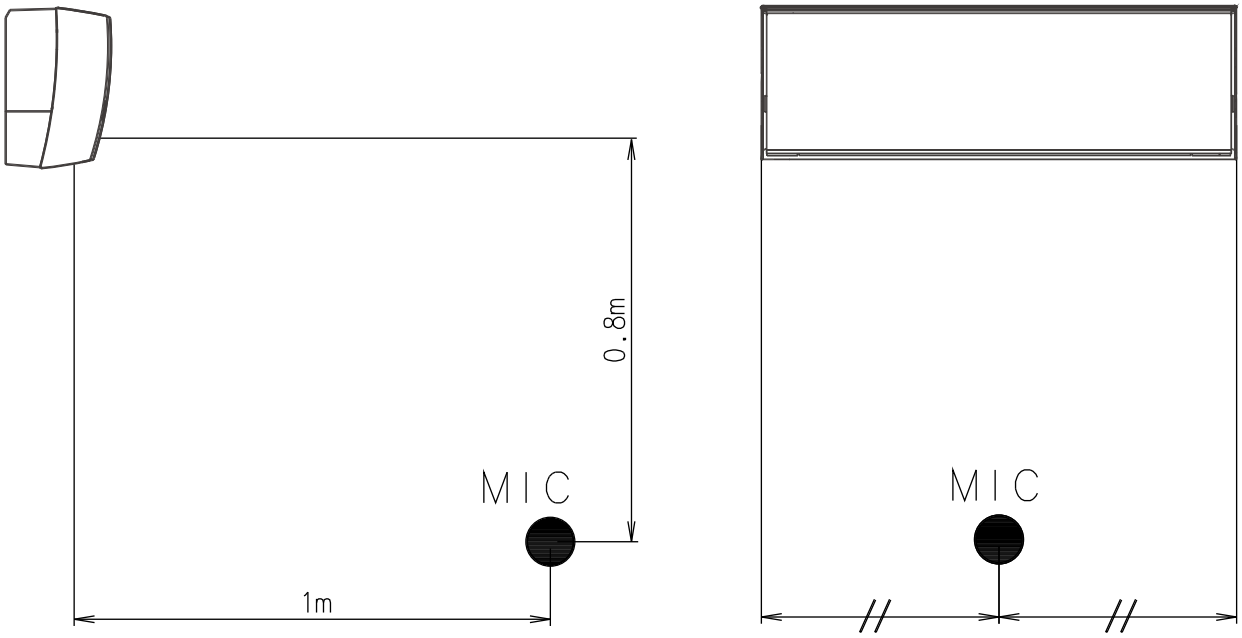


●Heating



WALL MOUNTED TYPE
AS∗G09-14LT

8-2. SOUND LEVEL CHECK POINT



WALL MOUNTED TYPE
AS∗G09-14LT

9. ELECTRIC CHARACTERISTICS

Model name			AS∗G09LT	AS∗G12LT	AS∗G14LT
Power supply	Voltage	V	230~		
	Frequency	Hz	50		
Max. operating current		A	0.4		
*1)Wiring Spec.	Connection cable	mm^2	1.5		
	Limited wiring length	m	21		

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

WALL MOUNTED TYPE
AS∗G09-14LT

10. SAFETY DEVICES

	Protection form	Model
		AS∗G09LT AS∗G12LT AS∗G14LT
Circuit protection	Current fuse (PCB)	3.15A 250V
Terminal protection	Current (thermal) fuse	3A 250V
Fan motor protection	Thermal protector program	100^{+15}_{-10}°C OFF 95^{+5}_{-10}°C ON

WALL MOUNTED TYPE
AS∗G09-14LT

11. EXTERNAL INPUT & OUTPUT

Connector	INPUT	OUTPUT	REMARKS
CNA01	Control input	-	See external input/output settings for details.
CNB01	-	Operation status output	
CNB02	-	Error status output	

11-1. EXTERNAL INPUT

■ CONTROL INPUT (Operation/Stop or Forced stop)

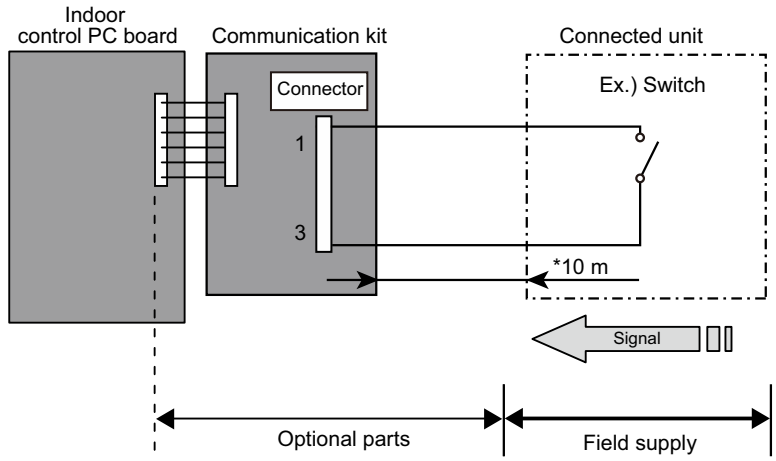
The air conditioner can be remotely operated by means of the following on-site work.

"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.

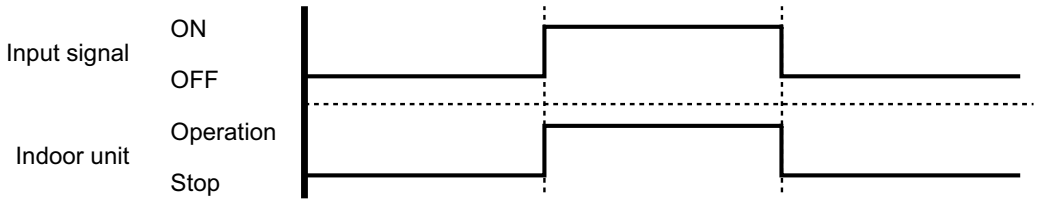
Unit operation	Initial starting after turned power on	Other than initial starting
Operation mode	Auto changeover	Mode at previous operation
Set temperature	24°C	Temperature at previous operation
Air flow mode	AUTO	Mode at previous operation
Up-down air direction (swing)	Standard air direction (swing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

● Circuit diagram example



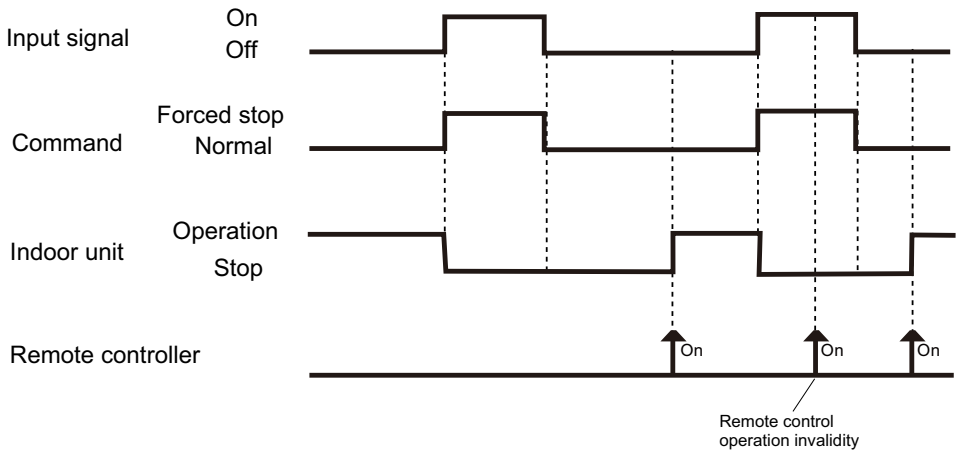
* Make the distance from the PC board to the connected unit within 10m.
Contact capacity : 24VDC or more, 10mA or more.
Please use the non-polar relays and switches.

● When function setting is "Operation/Stop" mode



WALL MOUNTED TYPE
AS∗G09-14LT

● When function setting is "Forced stop" mode

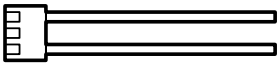


● Parts (Optional)

Parts name	Model name
External connect kit	UTY-XWZXZ5
Communication kit	UTY-TWBXF

*For operating the EXTERNAL function, the Compact wall mounted type requires the communication kit in addition to the wire (UTY-XWZXZ5).

Wire (External input) : UTY-XWZXZ5



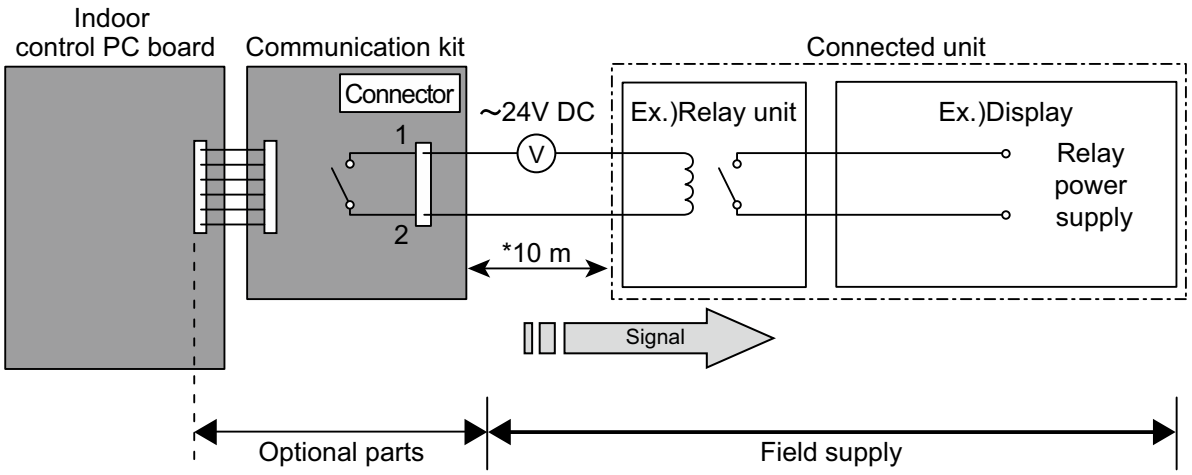
WALL MOUNTED TYPE
AS∗G09-14LT

11-2. EXTERNAL OUTPUT

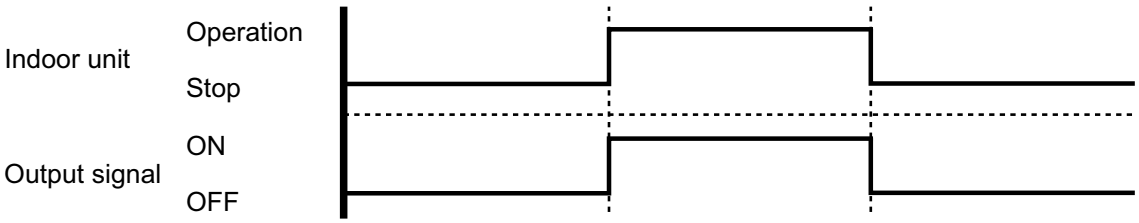
■ OPERATION STATUS OUTPUT

An air conditioner operation status signal can be output.

● Circuit diagram example



* Make the distance from the PC board to the connected unit within 10m.
Relay spec. : Max.24VDC, 10mA to less than 500mA.



● Parts (Optional)

Parts name	Model name
External connect kit	UTY-XWZXZ5
Communication kit	UTY-TWBXF

*For operating the EXTERNAL function, the wall mounted type requires the communication kit in addition to the wire (UTY-XWZXZ5).

Wire (External output) : UTY-XWZXZ5

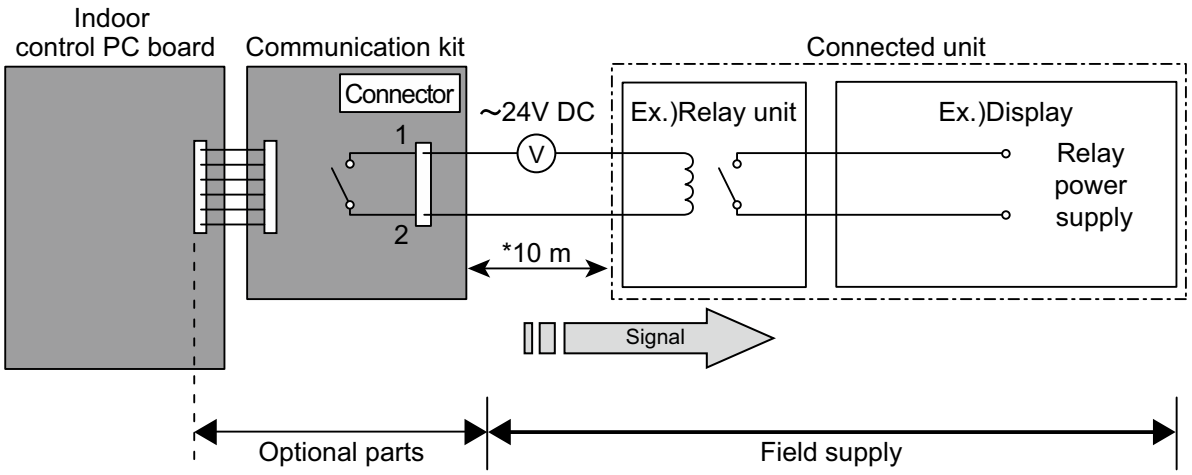


WALL MOUNTED TYPE
AS∗G09-14LT

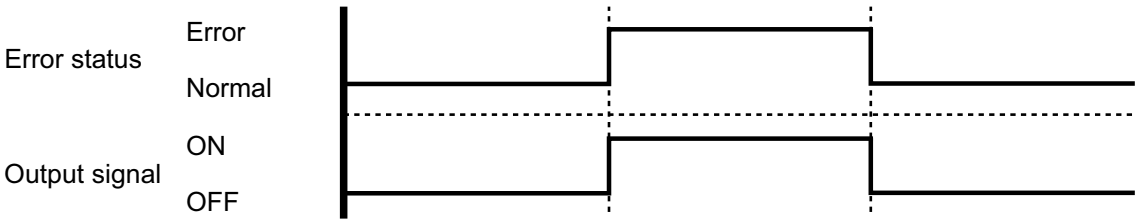
■ ERROR STATUS OUTPUT

An air conditioner error status signal can be output.

● Circuit diagram example



* Make the distance from the PC board to the connected unit within 10m.
Relay spec. : Max.24VDC, 10mA to less than 500mA.



● Parts (Optional)

Parts name	Model name
External connect kit	UTY-XWZXZ5
Communication kit	UTY-TWBXF

*For operating the EXTERNAL function, the wall mounted type requires the communication kit in addition to the wire (UTY-XWZXZ5).

Wire (External output) : UTY-XWZXZ5



WALL MOUNTED TYPE
AS∗G09-14LT

12. FUNCTION SETTING

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

■ PREPARATION

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

■ FUNCTION SETTING METHOD (for Wireless remote controller)

Perform the “FUNCTION SETTING” according to the installation conditions using the remote controller.

⚠CAUTION
Confirm whether the wiring work for Outdoor unit has been finished.
Confirm that the cover for the electrical enclosure on the outdoor unit is in place.

- This procedure changes to the function settings used to control the indoor unit 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.
- Refer to the installation manual enclosed with the remote control unit when the wired remote control unit (option) is used.
- Adjust the signal code of the indoor unit and the signal code of the remote controller.

Entering the Function Setting Mode

While pressing the POWERFUL button and SET TEMP. (∧) simultaneously, press the RESET button to enter the function setting mode.

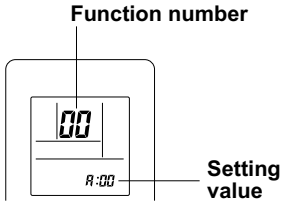
Selecting the Function Number and Setting Value

(1) Press the SET TEMP. (∧ / ∨) buttons to select the function number.
(Press the 10°C HEAT button to switch between the left and right digits.)

(2) Press the POWERFUL button to proceed to setting the value.
(Press the POWERFUL button again to return to the function number selection.)

(3) Press the SET TEMP. (∧ / ∨) buttons to select the setting value.
(Press the 10°C HEAT button to switch between the left and right digits.)

(4) Press the MODE button, in the order listed to confirm the settings.
Please confirm that the beep sounds.



(5) Next, please press START/STOP (⏻ / I) button. Please confirm that the beep sounds.

(6) Press the RESET button to cancel the function setting mode.

(7) 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 does not become active unless the power is turned off then on again.

WALL MOUNTED TYPE
AS∗G09-14LT

■ FUNCTION DETAILS

	Functions	Compact wall mounted
1)	Filter sign	●
2)	Cooler room temperature correction	●
3)	Heater room temperature correction	●
4)	Auto restart	●
5)	Indoor room temperature sensor switching function	●
6)	Remote controller signal code	●
7)	External input control	●

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	Compact 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

WALL MOUNTED TYPE
AS∗G09-14LT

4) Auto restart

Enable or disable automatic system restart after a power outage.

(◆... Factory setting)

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

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

5) Indoor room temperature sensor switching function

(Only for Wired remote controller)

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

(◆... Factory setting)

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

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

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

6) Remote controller signal code

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

(◆... Factory setting)

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

7) 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 forbidden)		01
	Forced stop mode		02

WALL MOUNTED TYPE
AS∗G09-14LT

■ REMOTE CONTROLLER SIGNAL CODE SETTING

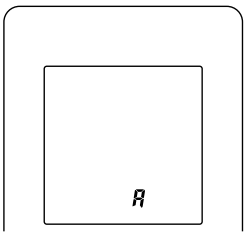
Use the following steps to select the signal code of the remote controller. (Note that the air conditioner cannot receive a signal code if the air conditioner has not been set for the signal code.)

(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 5 seconds to display the current signal code (initially set to A).

(3) Press the SET TEMP. (∧ / ∨) buttons to change the signal code between A → b → C → d.
Match the code on the display to the air conditioner signal code.

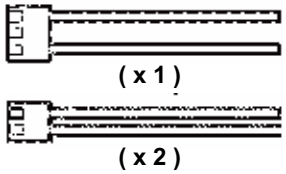
(4) Press the MODE button again to return to the clock display. The signal code will be changed.



- 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.

WALL MOUNTED TYPE
AS∗G09-14LT

13. OPTIONAL PARTS

Exterior	Parts name	Model No.	Summary
	Wired remote controller	UTY-RNNYM	Unit control is performed by wired remote controller. *Optional communication kit is necessary for the installation.
	Simple remote controller	UTY-RSNYM	Unit control is performed by simple remote controller. *Optional communication kit is necessary for the installation.
	Communication kit	UTY-TWBXF	Use to connect with optional devices and air conditioner PC board.
	External connect kit	UTY-XWZXZ5	Required when external device is connected. *Optional communication kit is necessary for the installation.
	Apple-catechin filter	UTR-FA16	Fine dust, invisible mold spores, and harmful microorganisms are absorbed onto the fi lter by static electricity, and further growth is inhibited and deactivated by the polyphenol ingredient extracted from apples.
	Ion deodorisation 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.

2. OUTDOOR UNIT

SINGLE TYPE :

AO∗G09LTCN
AO∗G12LTCN
AO∗G14LTCN

DTR_AO092E_01
2011.09.21

CONTENTS

2. OUTDOOR UNIT

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6. ADDITIONAL CHARGE CALCULATION ..... 02 - 11
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10. SAFETY DEVICES ..... 02 - 17

OUTDOOR UNIT
AO∗G09-14LT

1. SPECIFICATIONS

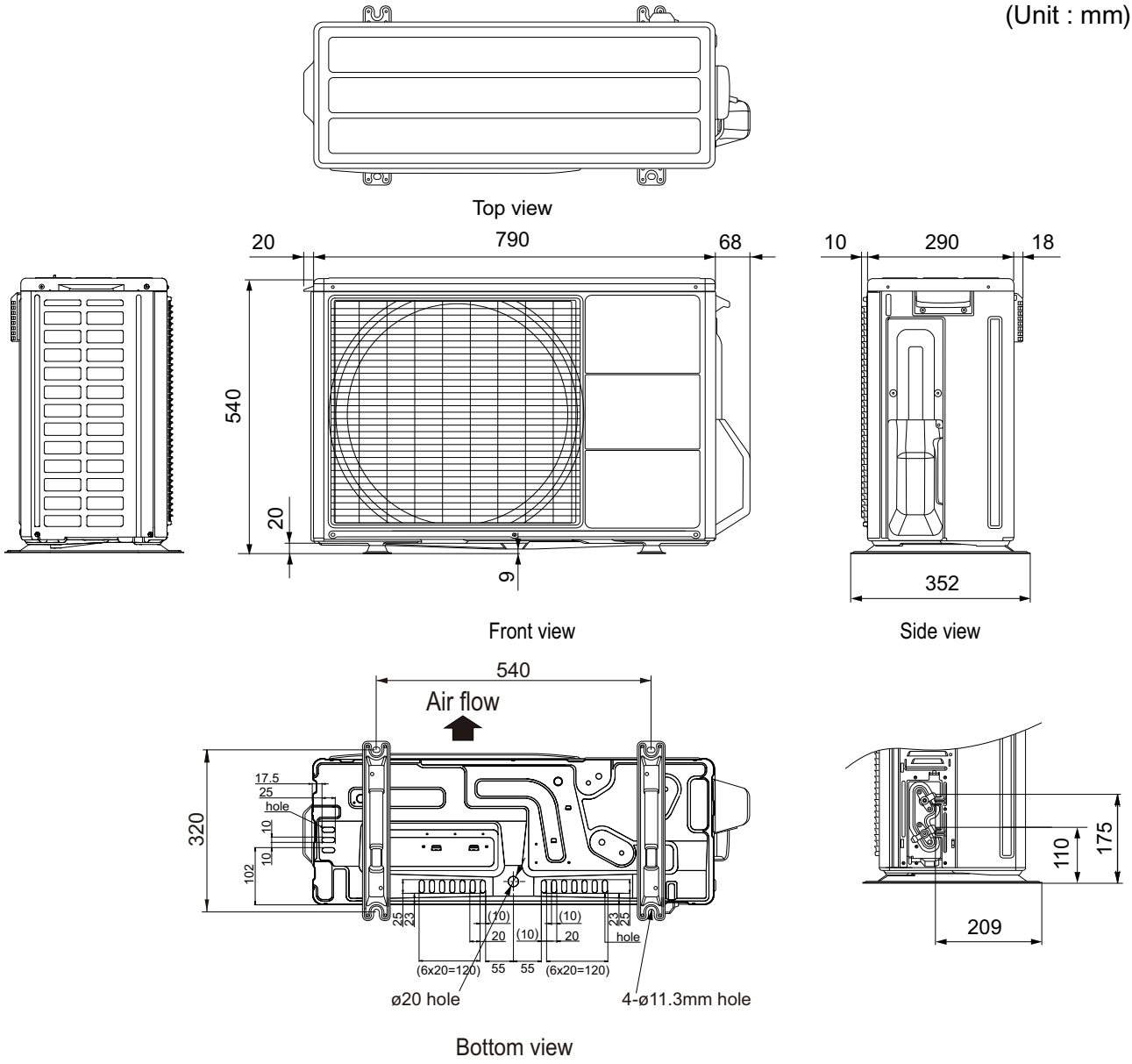
Type				INVERTER HEAT PUMP		
Model name				AO∗G09LTCN	AO∗G12LTCN	AO∗G14LTCN
Power sourse				230V ~ 50Hz		
Available voltage range				198-264V ~ 50Hz		
Starting current			A	3.3	4.3	6.1
Fan	Airflow rate	Cooling	m^3/h	1,700	2,050	
		Heating		1,700	2,000	
	Type×Q'ty			Propeller fan×1		
	Motor output		W	50	115	
Sound pressure level		Cooling	dB(A)	48		50
		Heating		49		50
Heat exchanger type		Dimensions(H×W×D)	mm	504 × 896 × 36.4	588 × 881 × 36.4	
		Fin pitch		1.3	1.3	
		Rows×Stages		2 × 24	2 × 28	
		Pipe type		Copper		
		Fin Type		Aluminium		
Compressor	Type×Q'ty			Rotary × 1		
	Motor output		W	850		1,000
Refrigerant		Type		R410A		
		Charge	g	1,050	1,200	1,250
Refrigerant oil		Type		POE(VG74)		
Enclosure		Material		Steel		
		Colour		Beige Approximate colour of MUNSELL 10YR7.5/1.0		
Dimensions (H×W×D)	Net		mm	540 × 790 × 290	620 × 790 × 290	
	Gross			633 × 945 × 395	713 × 945 × 395	
Weight	Net		kg	36	40	
	Gross			40	43	
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		-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)
The maximum current is the maximum value when the operated within the operation range (temperature).
The protective function might work when using it outside the operation range.

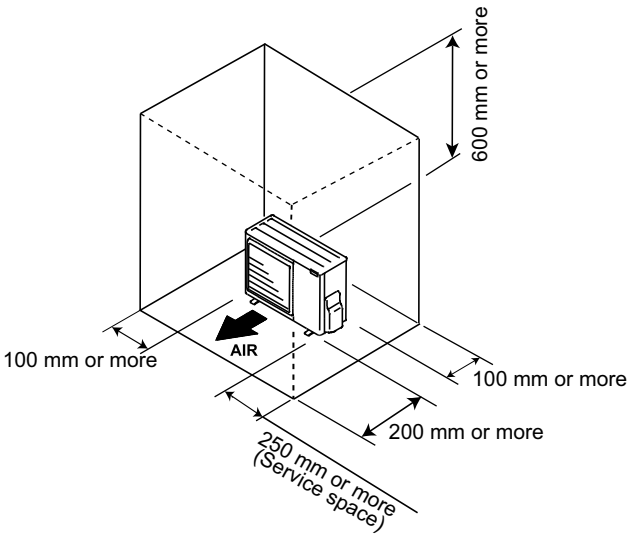
2. DIMENSIONS

■ MODEL: AO∗G09LT

(Unit : mm)

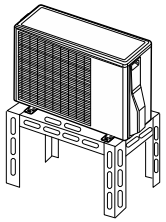


■ INSTALLATION PLACE



⚠ CAUTION

In the area 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 of the break-down. Construct a canopy or baffle board stand.

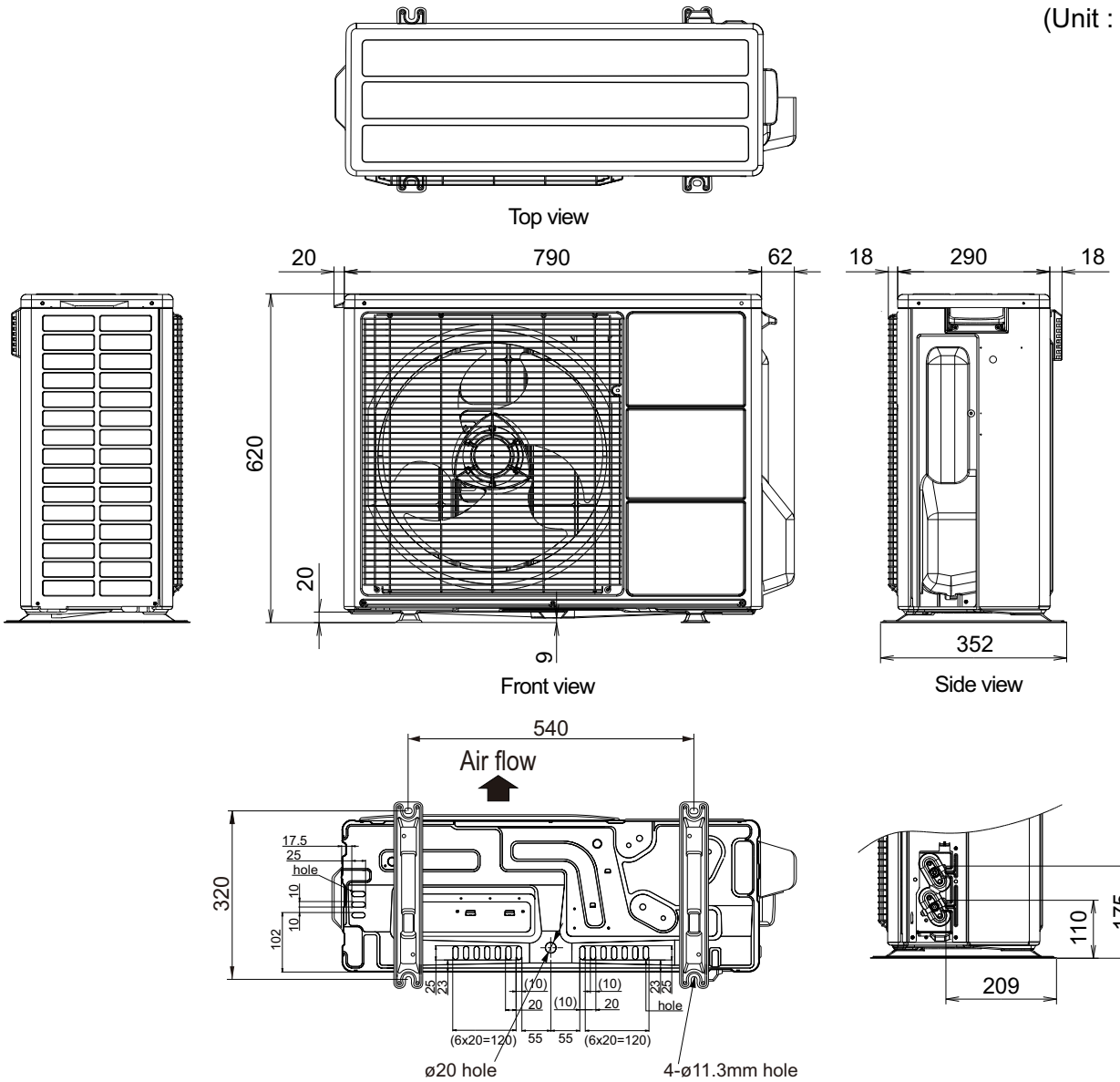


If the space is larger that is stated, the condition will be the same as that are no obstacles.

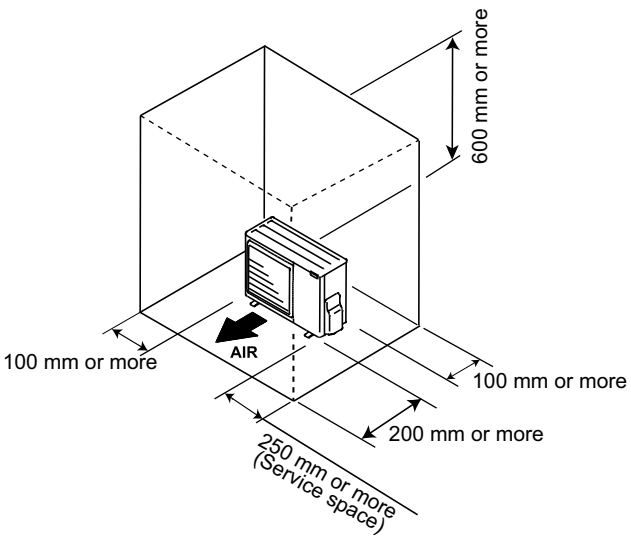
OUTDOOR UNIT
AO∗G09-14LT

■ MODEL: AO∗G12LT, AO∗G14LT

(Unit : mm)

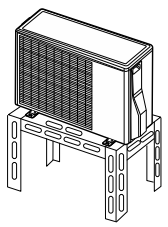


■ INSTALLATION PLACE



⚠ CAUTION

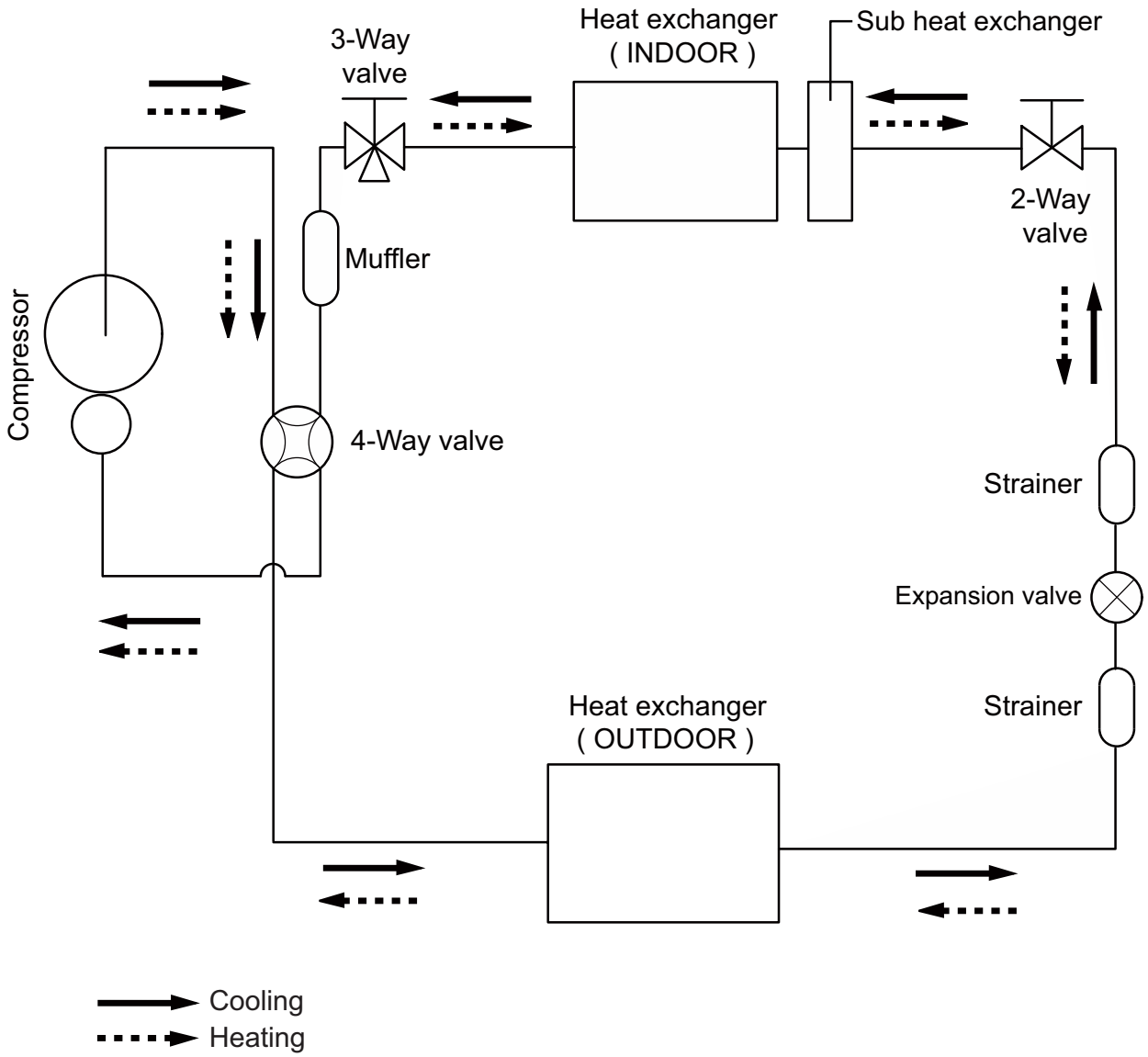
In the area with heavy snowfall, if the intake and outlet of outdoor unit is blocked with snow, it might become difficult to get warm and it is likely to cause of the break-down. Construct a canopy or baffle board stand.



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

3. REFRIGERANT CIRCUIT

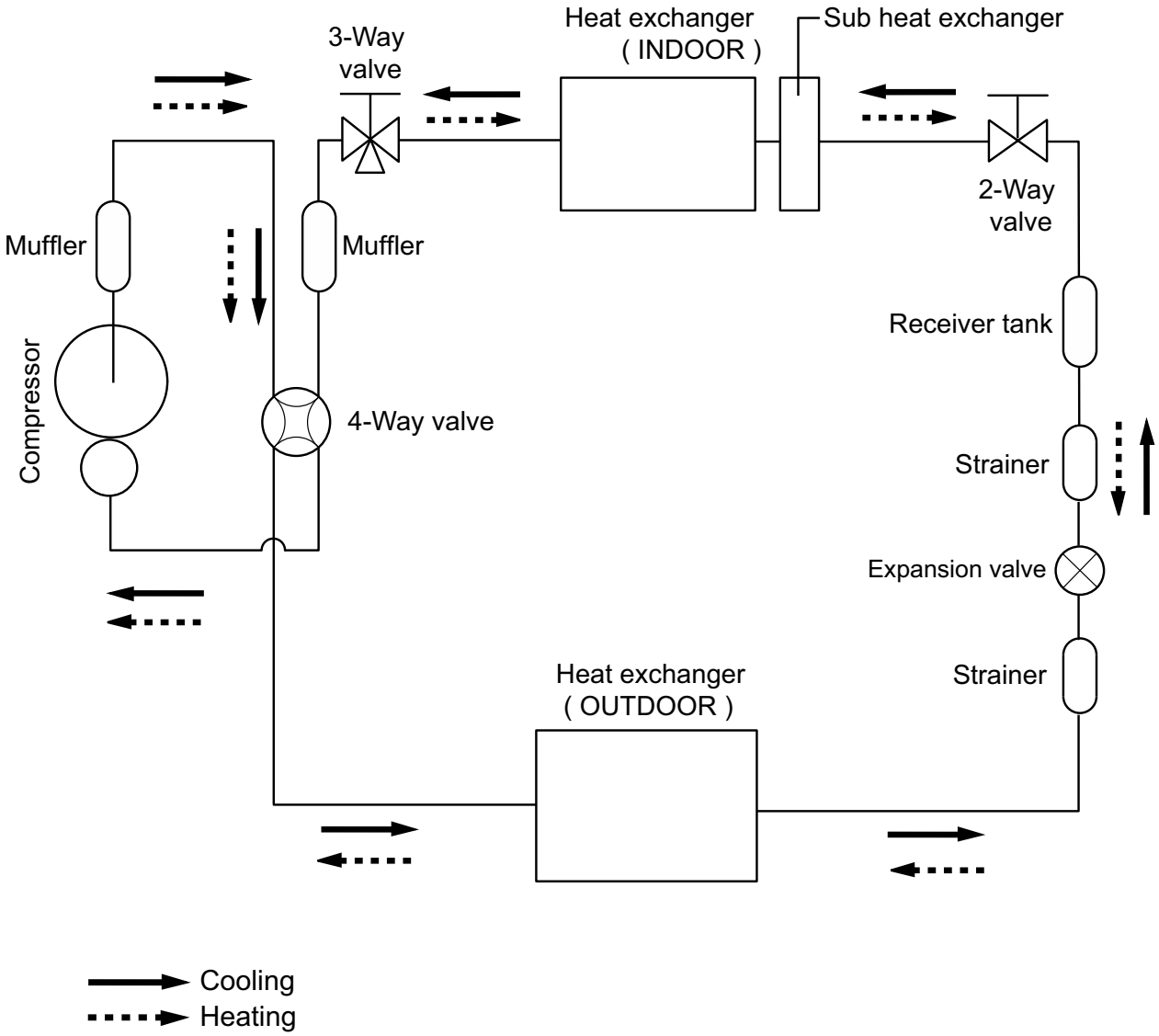
■ MODEL: AO∗G09LT, AO∗G12LT



Refrigerant pipe diameter
Liquid : 1/4" (6.35 mm)
Gas : 3/8" (9.52 mm)

OUTDOOR UNIT
AO∗G09-14LT

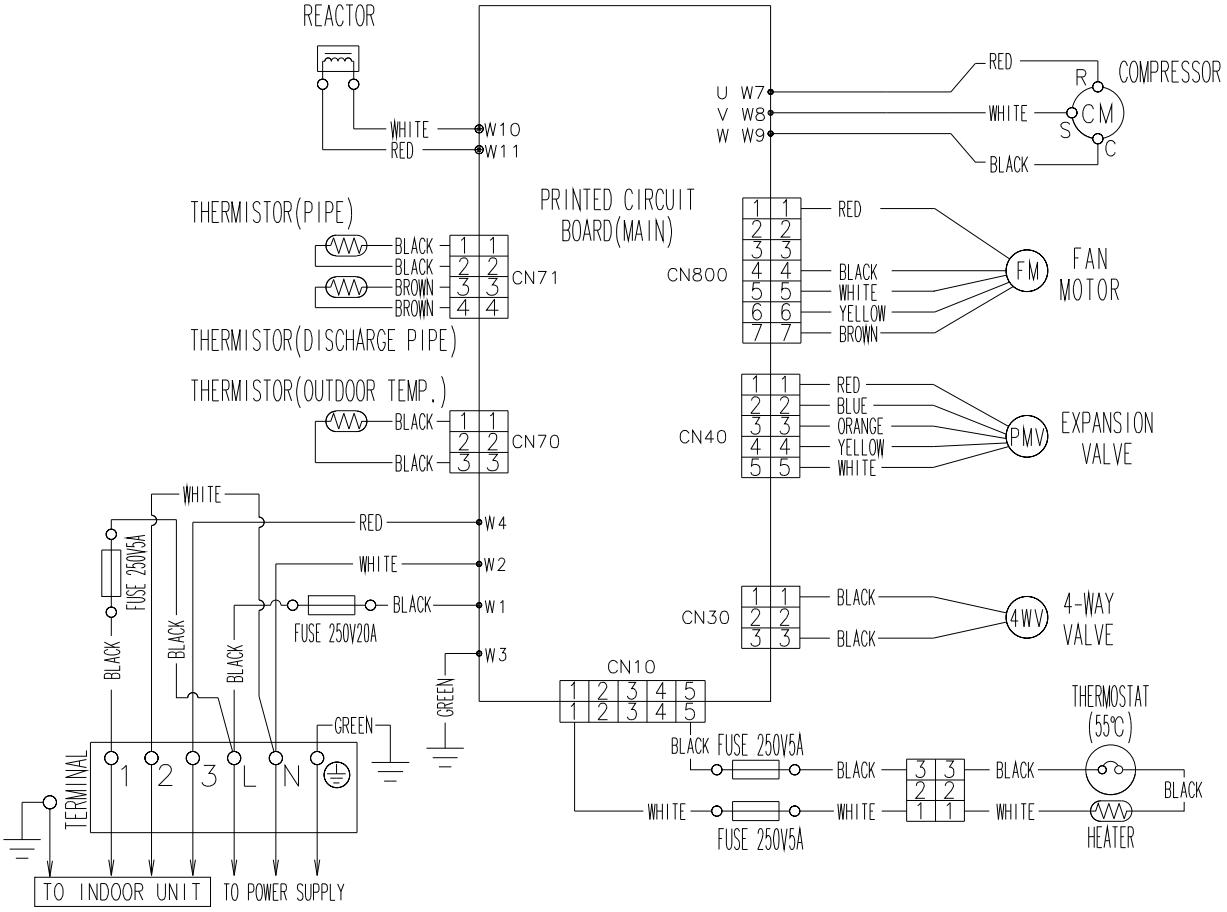
■ MODEL: AO∗G14LT



Refrigerant pipe diameter
Liquid : 1/4" (6.35 mm)
Gas : 1/2" (12.70 mm)

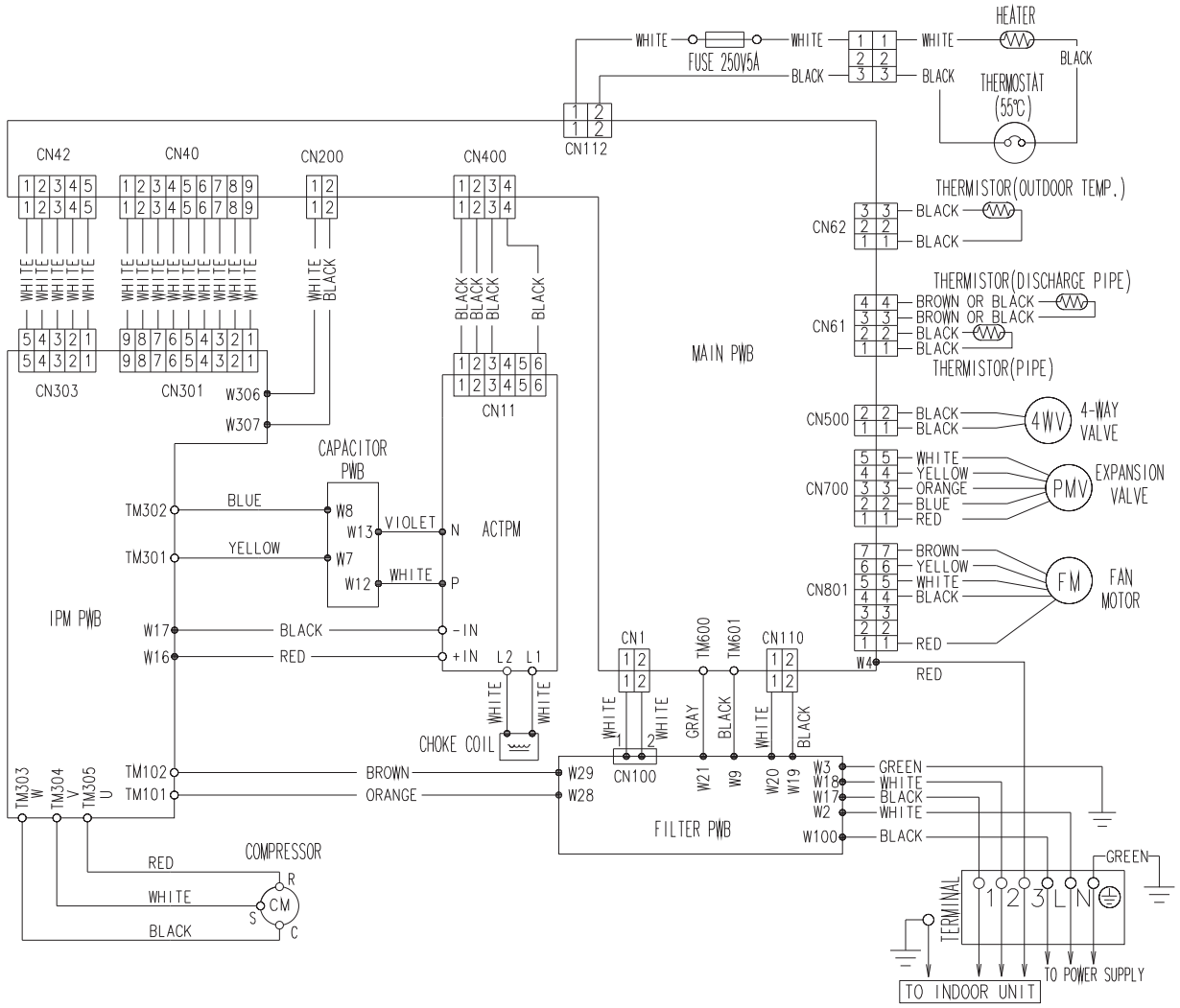
4. WIRING DIAGRAMS

■ MODEL: AO∗G09LT, AO∗G12LT



OUTDOOR UNIT
AO∗G09-14LT

■MODEL: AO*G14LT



OUTDOOR UNIT
AO*G09-14LT

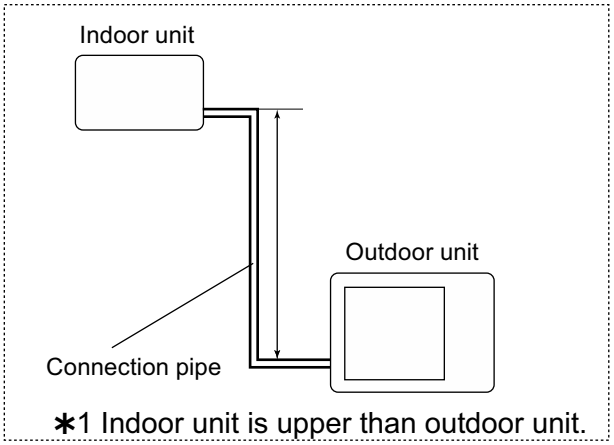
5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

■ MODEL: AO∗G09LT

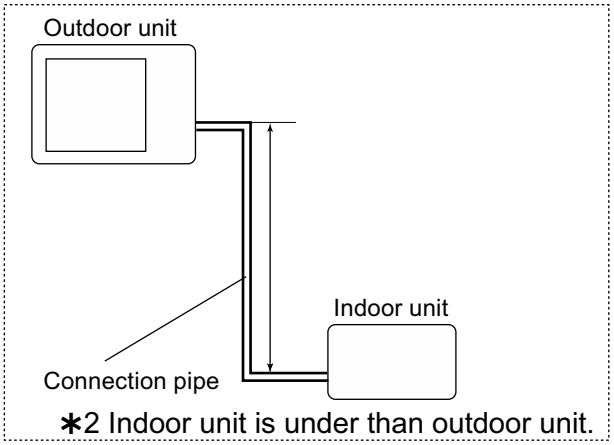
COOLING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.858	0.868
		10	-	-	0.929	0.872	0.882
		7.5	-	0.960	0.933	0.876	0.885
		5	0.992	0.964	0.937	0.879	0.889
		0	1.000	0.972	0.944	0.887	0.896
	∗2 Indoor unit is under than outdoor unit	-5	1.000	0.972	0.944	0.887	0.896
		-7.5	-	0.972	0.944	0.887	0.896
		-10	-	-	0.944	0.887	0.896
		-15	-	-	-	0.887	0.896

HEATING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.896	0.879
		10	-	-	0.968	0.890	0.879
		7.5	-	0.994	0.968	0.896	0.879
		5	1.000	0.994	0.968	0.896	0.879
		0	1.000	0.994	0.968	0.896	0.879
	∗2 Indoor unit is under than outdoor unit	-5	0.995	0.989	0.963	0.891	0.875
		-7.5	-	0.987	0.961	0.889	0.873
		-10	-	-	0.959	0.887	0.871
		-15	-	-	-	0.878	0.862

Height difference H



∗1 Indoor unit is upper than outdoor unit.



∗2 Indoor unit is under than outdoor unit.

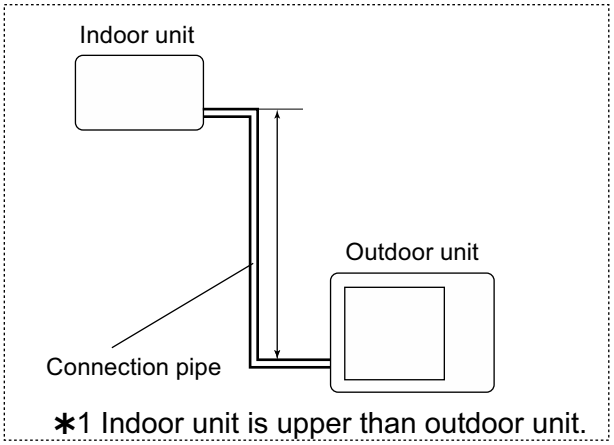
OUTDOOR UNIT
AO∗G09-14LT

■MODEL: AO∗G12LT

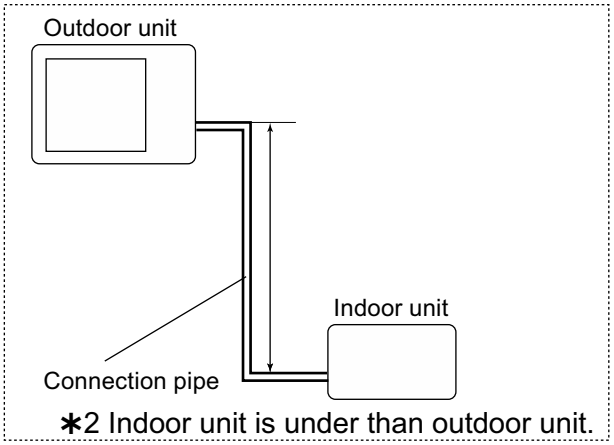
COOLING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.893	0.909
		10	-	-	0.955	0.908	0.924
		7.5	-	0.975	0.959	0.912	0.928
		5	0.992	0.979	0.963	0.916	0.931
		0	1.000	0.987	0.970	0.923	0.939
	∗2 Indoor unit is under than outdoor unit	-5	1.000	0.987	0.970	0.923	0.939
		-7.5	-	0.987	0.970	0.923	0.939
		-10	-	-	0.970	0.923	0.939
		-15	-	-	-	0.923	0.939

HEATING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.956	0.938
		10	-	-	1.004	0.956	0.938
		7.5	-	1.013	1.004	0.956	0.938
		5	1.000	1.013	1.004	0.956	0.938
		0	1.000	1.013	1.004	0.956	0.938
	∗2 Indoor unit is under than outdoor unit	-5	0.995	1.008	0.999	0.951	0.933
		-7.5	-	1.005	0.997	0.948	0.931
		-10	-	-	0.994	0.946	0.929
		-15	-	-	-	0.937	0.919

Height difference H



∗1 Indoor unit is upper than outdoor unit.



∗2 Indoor unit is under than outdoor unit.

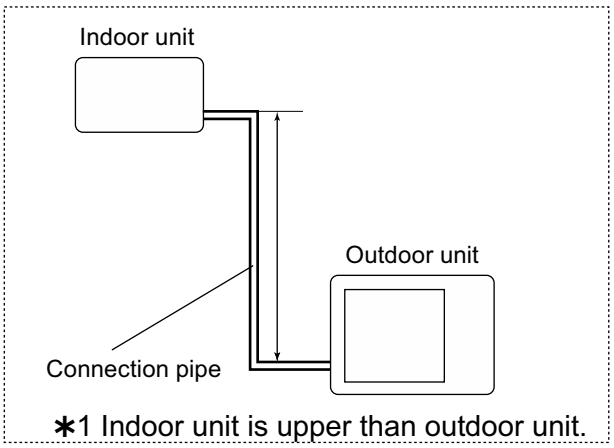
OUTDOOR UNIT
AO∗G09-14LT

■MODEL: AO∗G14LT

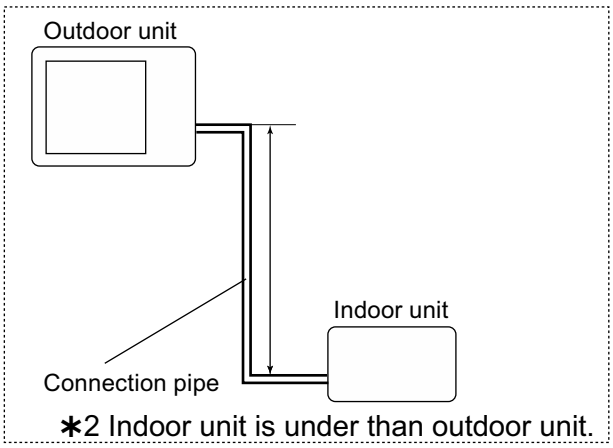
COOLING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.951	0.950
		10	-	-	0.979	0.967	0.966
		7.5	-	0.988	0.983	0.971	0.970
		5	0.994	0.992	0.987	0.975	0.974
		0	1.002	1.000	0.995	0.983	0.982
	∗2 Indoor unit is under than outdoor unit.	-5	1.002	1.000	0.995	0.983	0.982
		-7.5	-	1.000	0.995	0.983	0.982
		-10	-	-	0.995	0.983	0.982
		-15	-	-	-	0.983	0.982

HEATING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.994	0.979
		10	-	-	1.012	0.994	0.979
		7.5	-	1.000	1.012	0.994	0.979
		5	0.969	1.000	1.012	0.994	0.979
		0	0.969	1.000	1.012	0.994	0.979
	∗2 Indoor unit is under than outdoor unit.	-5	0.964	0.995	1.007	0.989	0.974
		-7.5	-	0.993	1.004	0.986	0.972
		-10	-	-	1.002	0.984	0.969
		-15	-	-	-	0.974	0.959

Height difference H



∗1 Indoor unit is upper than outdoor unit.



∗2 Indoor unit is under than outdoor unit.

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6. ADDITIONAL CHARGE CALCULATION

■ MODEL: AO∗G09LT

Refrigerant type		R410A
Refrigerant amount	g	1050

● Refrigerant charge

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

■ MODEL: AO∗G12LT

Refrigerant type		R410A
Refrigerant amount	g	1200

● Refrigerant charge

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

■ MODEL: AO∗G14LT

Refrigerant type		R410A
Refrigerant amount	g	1250

● Refrigerant charge

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

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7. AIR FLOW

■ MODEL: AO∗G09LT

● Cooling

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

● Heating

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

■ MODEL: AO∗G12LT, AO∗G14LT

● Cooling

Number of rotations (r.p.m.)	Air flow	
870	2050	m^3/h
	569	l/s
	1206	CFM

● Heating

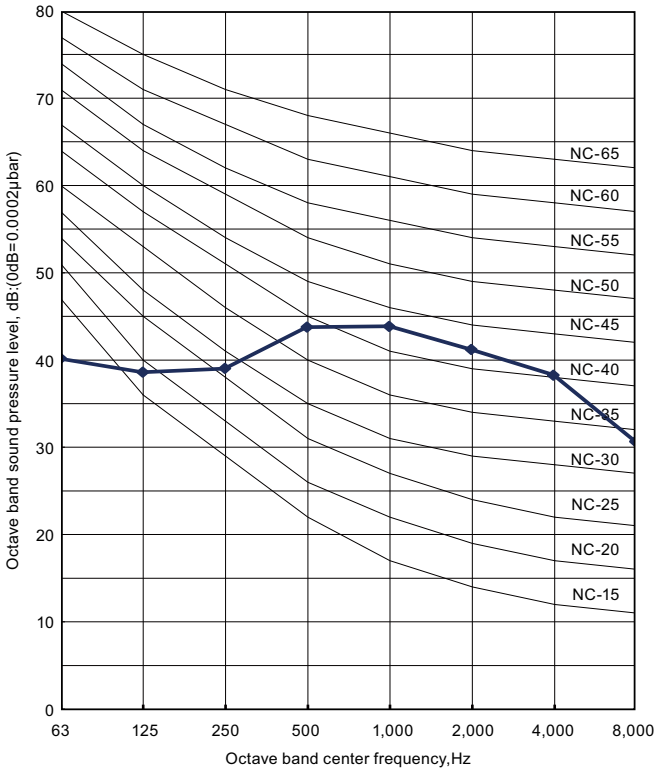
Number of rotations (r.p.m.)	Air flow	
780	2000	m^3/h
	556	l/s
	1176	CFM

8. OPERATION NOISE

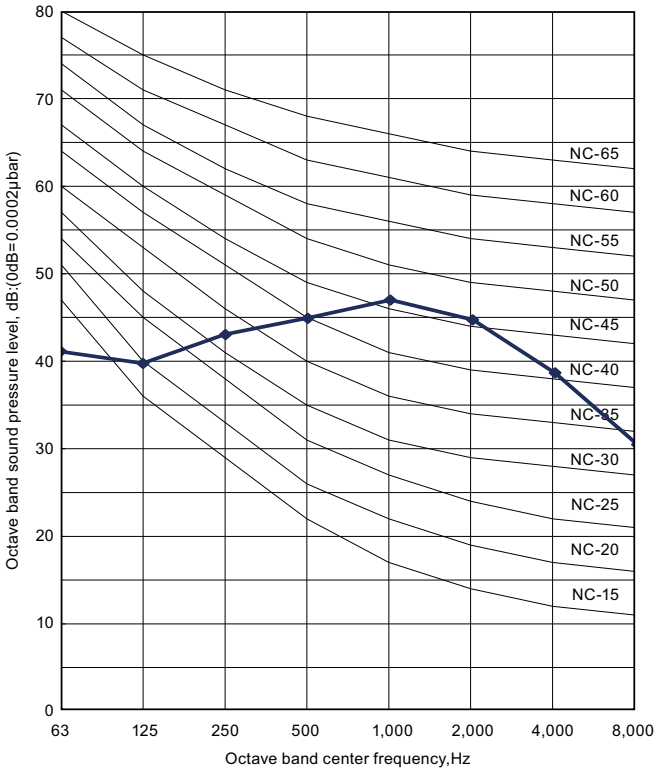
8-1. NOISE LEVEL CURVE

■ MODEL: AO∗G09LT

● Cooling

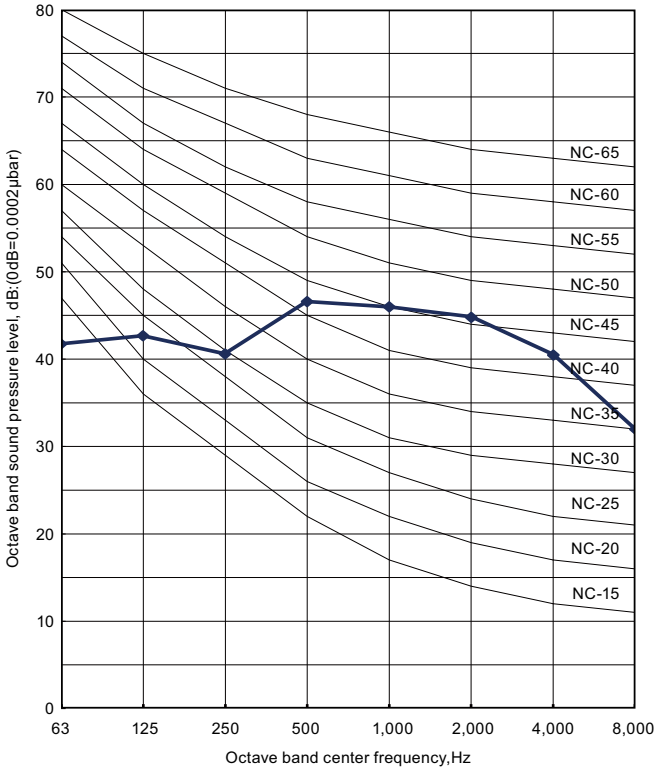


● Heating

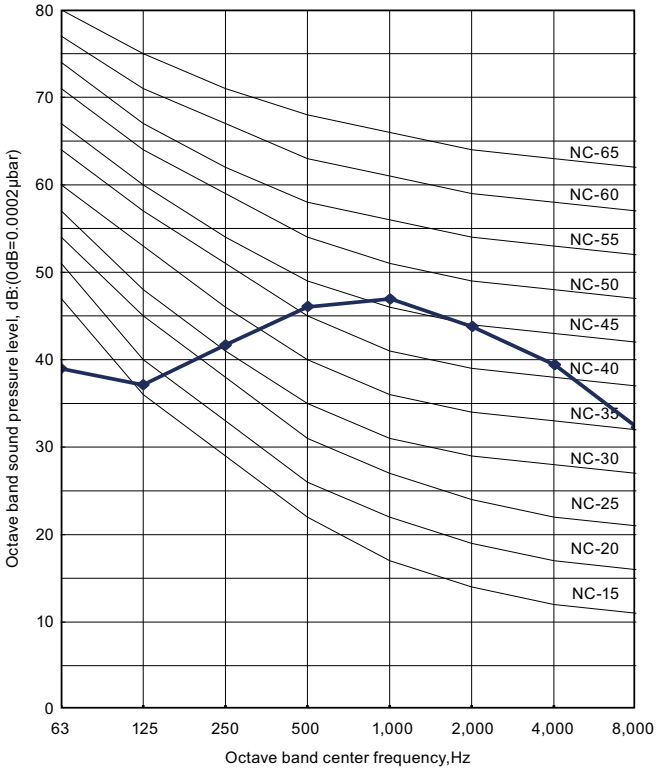


■ MODEL: AO∗G12LT

● Cooling

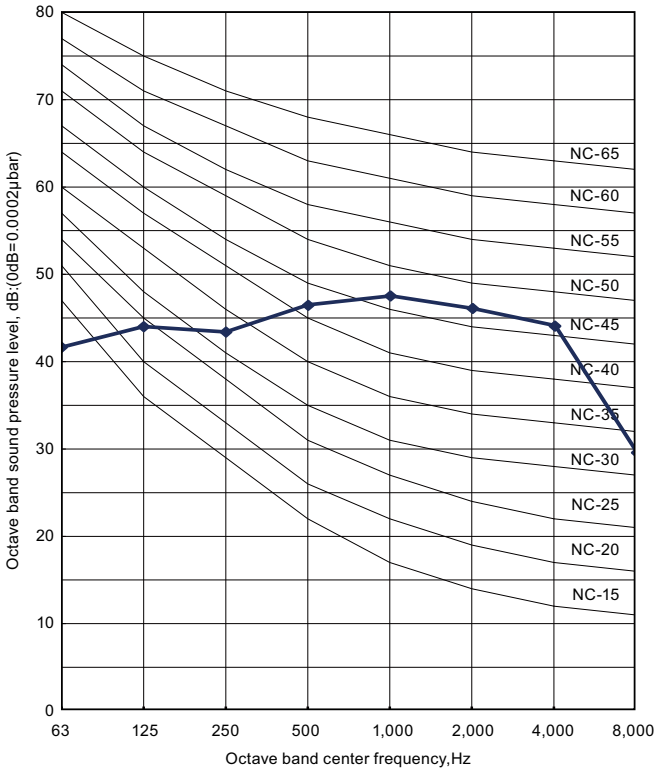


● Heating

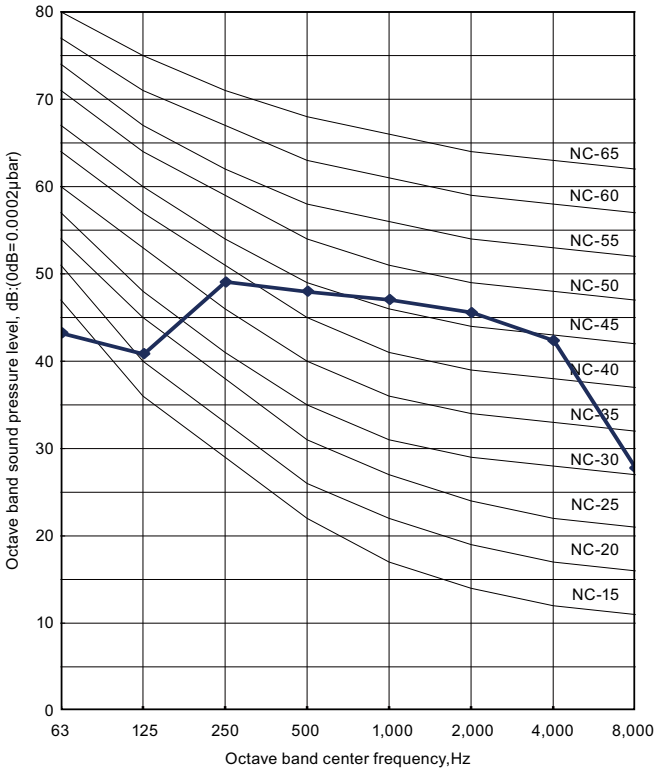


■MODEL: AO∗G14LT

●Cooling

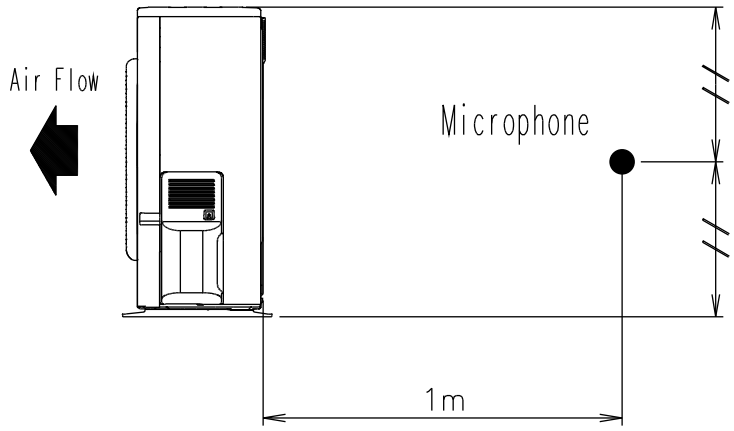


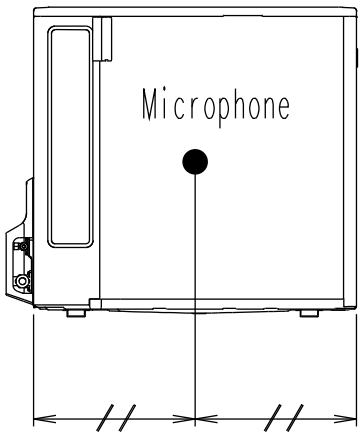
●Heating



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8-2. SOUND LEVEL CHECK POINT





OUTDOOR UNIT
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9. ELECTRIC CHARACTERISTICS

Model name			AO∗G09LT	AO∗G12LT	AO∗G14LT
Power supply	Voltage	V	230 ~		
	Frequency	Hz	50		
*1) Max operating current		A	10.0	11.5	14.5
Starting Current		A	3.3	4.3	6.1
*2) Wiring Spec.:	Main Fuse (Circuit breaker) Current	A	15		20
	Power Cable	mm^2	1.5		3.5-4.0
	*3) Limited wiring length :	m	15	13	24

*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∗G09LT	AO∗G12LT	AO∗G14LT
Circuit protection	Current fuse (NEAR THE TERMINAL)	—		20A 250V
	Current fuse (MAIN PRINTED CIRCUIT BOARD)	20A 250V		10A 250V
		5A 250V		3.15A 250V
Fan motor protection	Thermal protection program	OFF : 150°C ON : 120°C	OFF : 100±10°C ON : 95±10°C	
Compressor protection	Thermal protection program (DISCHARGE TEMP.)	OFF : 110°C ON : After 7 minutes		

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