

AIR CONDITIONER

Duct type

DESIGN & TECHNICAL MANUAL

INDOOR



ARXG09KLLAP
ARXG12KLLAP
ARXG14KLLAP



ARXG18KLLAP

OUTDOOR



AOYG09KBTB
AOYG12KBTB
AOYG14KBTB



AOYG18KBTB

FUJITSU GENERAL LIMITED

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Part 1. INDOOR UNIT

DUCT TYPE:

ARXG09KLLAP

ARXG12KLLAP

ARXG14KLLAP

ARXG18KLLAP

1. Specifications

Type			Duct					
			Inverter heat pump					
Model name			ARXG09KLLAP	ARXG12KLLAP	ARXG14KLLAP	ARXG18KLLAP		
Power supply			230 V ~ 50 Hz					
Power supply intake			Outdoor unit					
Available voltage range			198—264 V					
Capacity	Cooling	Rated	kW	2.5	3.5	4.3	5.2	
			Btu/h	8,500	11,900	14,700	17,700	
		Min.—Max.	kW	0.90—3.20	0.90—4.40	0.90—5.40	0.90—5.90	
		Btu/h	3,100—10,900	3,100—15,000	3,100—18,400	3,100—20,100		
	Heating	Rated	kW	3.2	4.1	5.0	6.0	
			Btu/h	10,900	14,000	17,000	20,500	
Min.—Max.		kW	0.90—4.70	0.90—5.70	0.90—6.50	0.90—7.50		
	Btu/h	3,100—16,000	3,100—19,500	3,100—22,100	3,100—25,600			
Input power	Cooling	Rated	kW	0.6	0.93	1.28	1.55	
		Max.		1.82	2.24	2.35	2.79	
	Heating	Rated		0.79	1.08	1.32	1.62	
		Max.		1.82	2.24	2.35	2.79	
Current	Cooling	Rated	A	3.1	4.1	5.6	6.8	
	Heating			4.0	4.8	5.8	7.1	
Power factor	Cooling			84.2	98.6	99.4	99.1	
	Heating			85.9	97.8	99.0	99.2	
EER	Cooling		kW/kW	4.17	3.76	3.36	3.35	
COP	Heating			4.05	3.80	3.79	3.70	
Moisture removal			L/h (pints/h)	0.7 (1.2)	1.3 (2.3)	1.5 (2.6)	2.0 (3.5)	
Maximum operating current *1	Cooling			7.9	9.7	10.2	12.1	
	Heating			7.9	9.7	10.2	12.1	
Fan	Airflow rate	Cooling	m ³ /h	HIGH	600	650	800	940
				MED	550	600	700	880
				LOW	500	550	600	820
				QUIET	450	480	480	750
		Heating		HIGH	600	650	800	940
				MED	550	600	700	880
				LOW	500	550	600	820
				QUIET	450	480	480	750
	Type × Q'ty				Sirocco fan × 2		Sirocco fan × 3	
	Motor output		W		81			
Recommended static pressure range			Pa	0 to 90				
Sound pressure level *2	Cooling	HIGH	dB (A)	28	29	32	32	
		MED		27	28	30	30	
		LOW		26	26	28	29	
		QUIET		25	25	26	27	
	Heating	HIGH		28	29	32	32	
		MED		26	28	30	30	
		LOW		25	26	28	29	
		QUIET		24	24	25	27	
Heat exchanger type	Dimensions (H × W × D)		mm	294 × 500 × 39.9			294 × 700 × 39.9	
	Fin pitch			1.3				
	Rows × Stages			3 × 14				
	Pipe type			Copper tube				
	Fin type			Aluminum				
Enclosure	Material		Steel sheet					
	Color		—					
Dimensions (H × W × D)	Net		mm	198 × 700 × 620			198 × 900 × 620	
	Gross			276 × 968 × 772			276 × 1,168 × 772	
Weight	Net		kg	17			20	
	Gross			22			26	
Connection pipe	Size	Liquid	mm (in)	Ø 6.35 (Ø 1/4)				
		Gas		Ø 9.52 (Ø 3/8)			Ø 12.70 (Ø 1/2)	
	Method		Flare					
Drain hose	Material		PVC					
	Size		Ø 25 (I.D.), Ø 32 (O.D.)					
Operation range	Cooling			18 to 32				
				80 or less				
	Heating			16 to 30				
Remote control (Option)			Wired remote controller, Wireless remote controller, Mobile app*3 (FGLair™)					

NOTES:

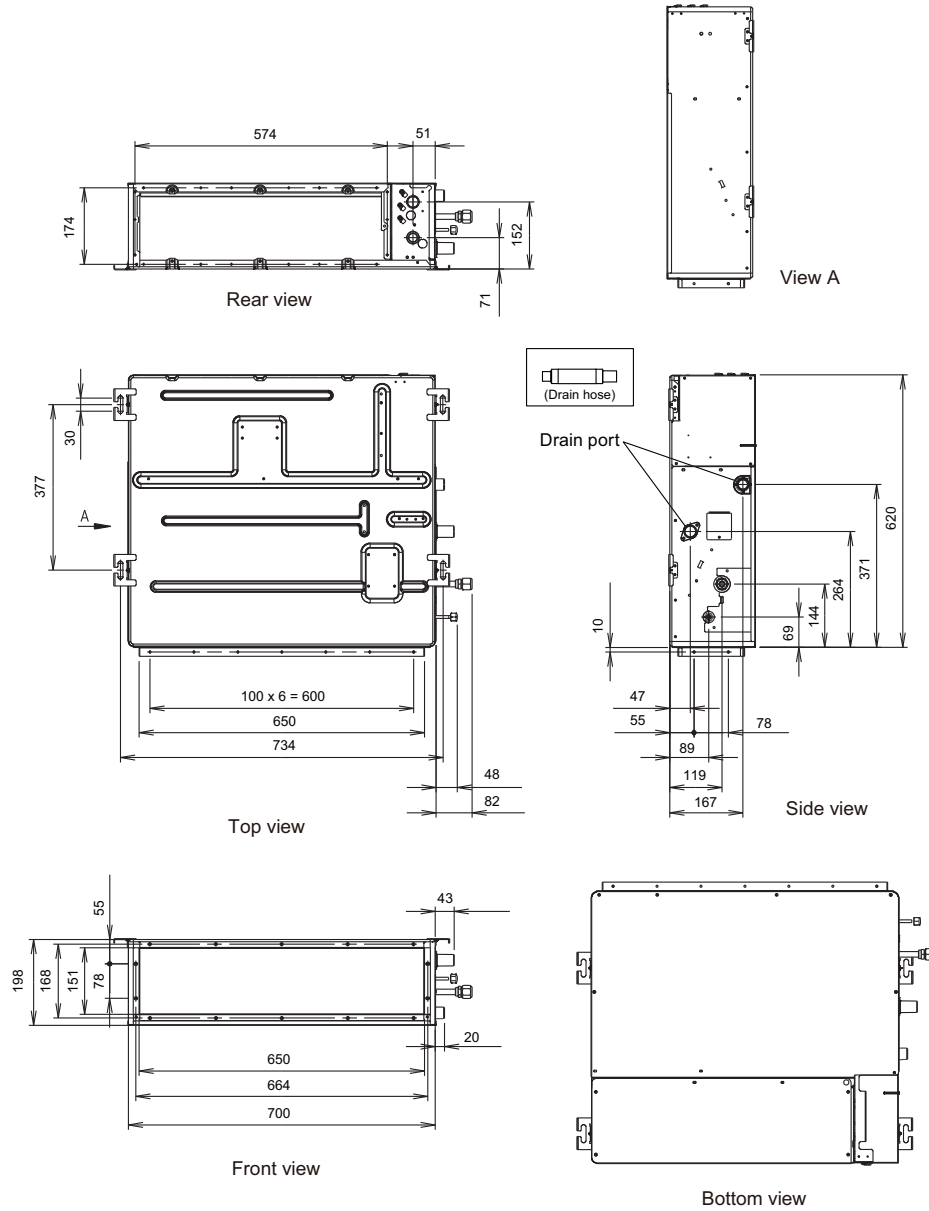
- Specifications are based on the following conditions:
 - Cooling: Indoor temperature of 27 °CDB/19 °CWB, and outdoor temperature of 35 °CDB/24 °CWB.
 - Heating: Indoor temperature of 20 °CDB/15 °CWB, and outdoor temperature of 7 °CDB/6 °CWB.
 - Standard static pressure; 25 Pa
 - Pipe length: 5 m, Height difference: 0 m. (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: Maximum operating current is the total current of the indoor unit and the outdoor unit.
- *2: Sound pressure level:
 - Measured values in manufacturer's anechoic chamber.
 - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.
- *3: Available on Google Play™ store or on App Store®. Optional WLAN adapter is also required. For details, refer to the setting manual.

Specifications for ErP Lot10							
Model name		ARXG09KLLAP	ARXG12KLLAP	ARXG14KLLAP	ARXG18KLLAP		
Energy efficiency class	Cooling	A ⁺⁺	A ⁺⁺	A ⁺	A ⁺⁺		
	Heating (Average)	A ⁺	A ⁺	A	A ⁺		
Pdesign	Cooling	kW	2.5 (35°C)	3.5 (35°C)	4.3 (35°C)	5.2 (35°C)	
	Heating (Average)		2.6 (-10°C)	3.4 (-10°C)	3.8 (-10°C)	4.4 (-10°C)	
SEER	Cooling	kWh/kWh	6.20	6.10	5.80	6.20	
SCOP	Heating (Average)		4.30	4.00	3.90	4.10	
Annual energy consumption	QCE	kWh/a	141	201	259	293	
	QHE (Average)		845	1,189	1,362	1,501	
Sound power level	Cooling	HIGH	dB (A)	57	58	60	58
	Heating			57	58	60	58

2. Dimensions

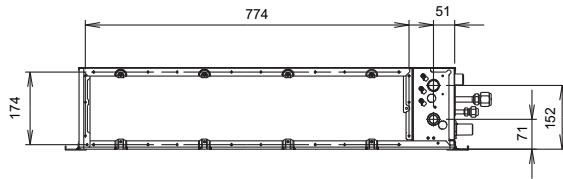
2-1. Models: ARXG09KLLAP, ARXG12KLLAP, and ARXG14KLLAP

Unit: mm

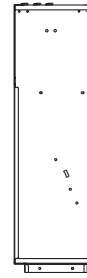


2-2. Model: ARXG18KLLAP

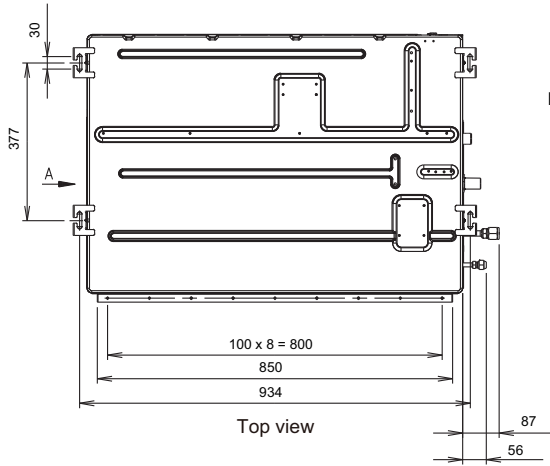
Unit: mm



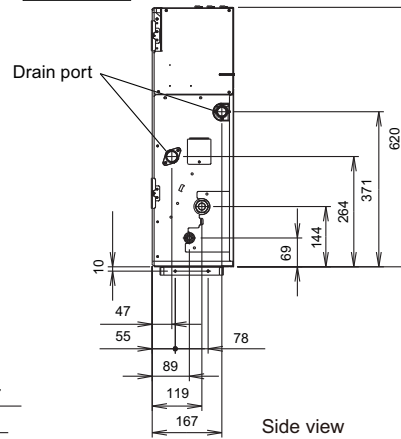
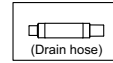
Rear view



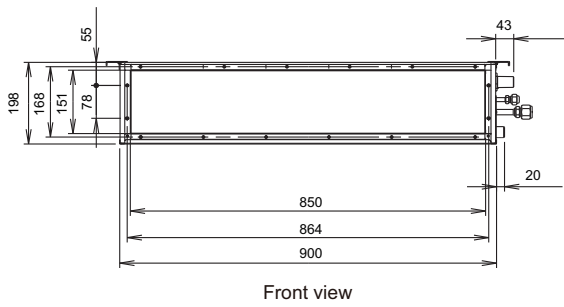
View A



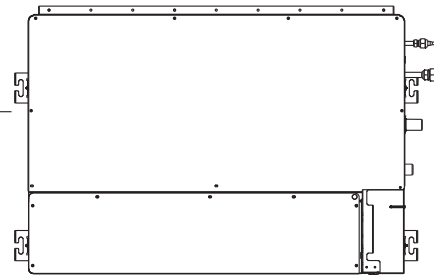
Top view



Side view



Front view

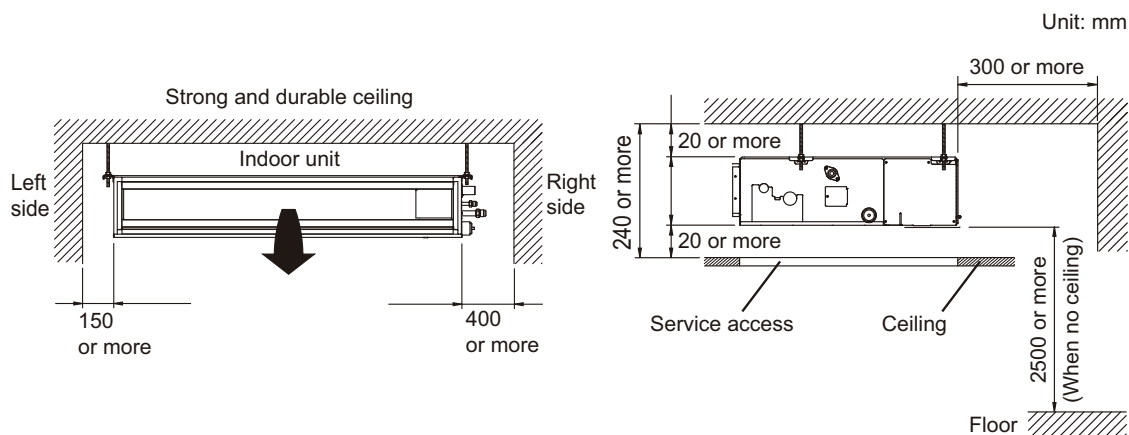


Bottom view

2-3. Installation space requirement

Provide sufficient installation space for product safety.

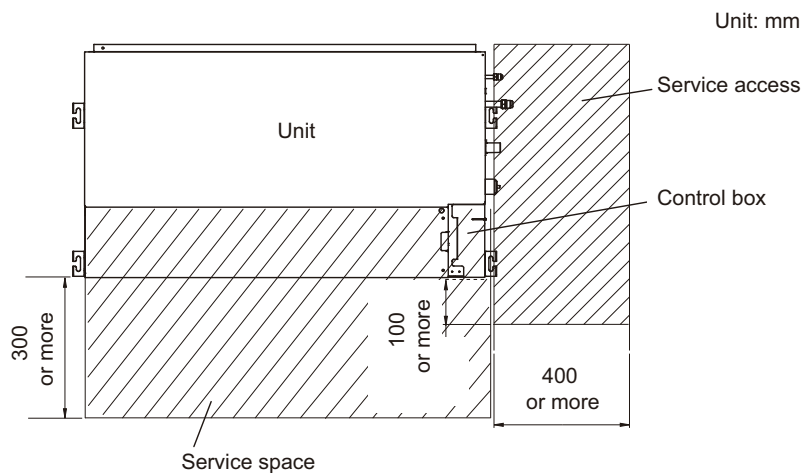
In ceiling-concealed installations:



2-4. Maintenance space requirement

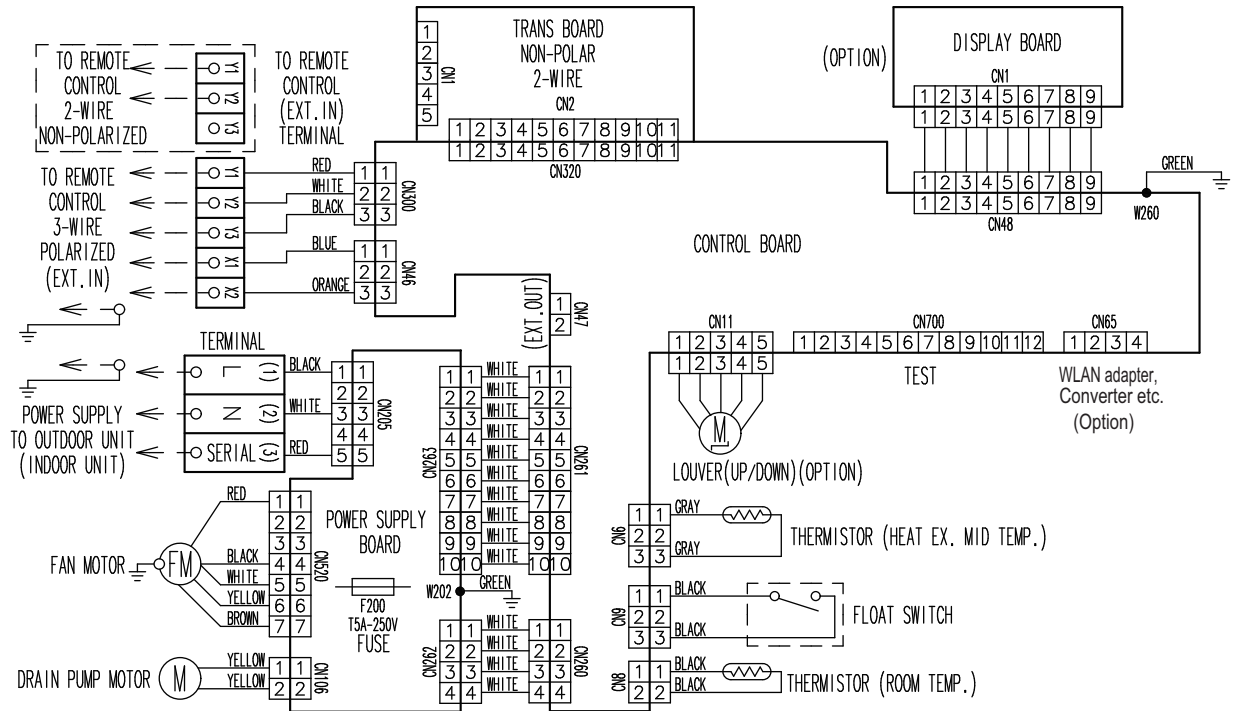
For future maintenance and service access, provide sufficient maintenance space.

NOTE: Do not place any wiring or illumination in the maintenance space, as they will impede service.



3. Wiring diagrams

3-1. Models: ARXG09KLLAP, ARXG12KLLAP, ARXG14KLLAP, and ARXG18KLLAP



Model: ARXG18KLLAP

AFR	m ³ /h	940
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		Indoor temperature																				
		18			21			23			25			27			29			32		
		°CWB			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
		kW			kW			kW			kW			kW			kW					
	-15	4.17	3.38	0.47	4.65	3.40	0.48	4.80	3.69	0.48	5.12	3.70	0.49	5.28	4.00	0.49	5.60	3.98	0.49	5.91	4.24	0.50
	-10	4.20	3.40	0.41	4.68	3.42	0.41	4.84	3.72	0.41	5.16	3.73	0.42	5.32	4.03	0.42	5.64	4.01	0.42	5.96	4.28	0.43
	0	3.99	3.32	0.63	4.44	3.34	0.64	4.60	3.63	0.64	4.90	3.64	0.65	5.05	3.93	0.65	5.35	3.91	0.66	5.66	4.17	0.66
	5	3.91	3.29	0.67	4.36	3.31	0.68	4.50	3.60	0.68	4.80	3.61	0.69	4.95	3.90	0.69	5.25	3.88	0.70	5.54	4.14	0.70
	10	4.05	3.35	0.45	4.51	3.37	0.46	4.67	3.66	0.46	4.98	3.68	0.47	5.13	3.97	0.47	5.44	3.95	0.47	5.75	4.21	0.48
	15	3.92	3.31	0.56	4.36	3.33	0.57	4.51	3.62	0.57	4.81	3.63	0.58	4.96	3.92	0.58	5.26	3.90	0.59	5.56	4.16	0.59
	20	4.83	3.65	1.07	5.39	3.68	1.09	5.57	4.00	1.09	5.94	4.01	1.10	6.12	4.33	1.11	6.49	4.31	1.12	6.85	4.59	1.13
	25	4.59	3.51	1.22	5.11	3.53	1.23	5.29	3.84	1.24	5.64	3.85	1.25	5.81	4.16	1.26	6.16	4.14	1.27	6.51	4.41	1.29
	30	4.35	3.38	1.36	4.84	3.40	1.38	5.01	3.69	1.39	5.34	3.70	1.40	5.50	4.00	1.41	5.83	3.98	1.42	6.16	4.24	1.44
	35	4.11	3.23	1.50	4.58	3.25	1.52	4.73	3.54	1.53	5.04	3.55	1.54	5.20	3.83	1.55	5.51	3.81	1.57	5.82	4.06	1.58
40	3.68	3.16	1.36	4.10	3.18	1.38	4.24	3.45	1.39	4.52	3.46	1.40	4.66	3.74	1.41	4.94	3.73	1.42	5.22	3.97	1.44	
46	2.58	2.58	1.02	2.87	2.73	1.04	2.97	2.96	1.04	3.16	2.97	1.05	3.26	3.21	1.06	3.46	3.20	1.07	3.65	3.41	1.08	

DUCT TYPE ARXG09-18KLLAP

DUCT TYPE ARXG09-18KLLAP

4-2. Heating capacity

NOTE: Values mentioned in the table are calculated based on the maximum capacity.

Model: ARXG09KLLAP

AFR		m ³ /h		600								
		Indoor temperature										
Outdoor temperature	°CDB	°CWB	16		18		20		22		24	
			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-15	-16		3.35	1.26	3.27	1.28	3.19	1.31	3.11	1.34	3.03	1.36
-10	-11		3.71	1.31	3.62	1.33	3.53	1.36	3.44	1.39	3.35	1.41
-5	-7		4.06	1.35	3.97	1.38	3.87	1.41	3.77	1.44	3.68	1.47
0	-2		4.42	1.40	4.32	1.43	4.21	1.46	4.10	1.49	4.00	1.52
5	3		4.79	1.45	4.67	1.48	4.56	1.51	4.45	1.54	4.33	1.57
7	6		4.94	1.46	4.82	1.49	4.70	1.52	4.58	1.55	4.47	1.58
10	8		5.17	1.49	5.04	1.52	4.92	1.55	4.80	1.58	4.67	1.61
15	10		5.10	1.29	4.98	1.31	4.86	1.34	4.74	1.37	4.62	1.39
20	15		5.16	1.16	5.03	1.19	4.91	1.21	4.79	1.23	4.66	1.25
24	18		5.42	1.17	5.29	1.20	5.16	1.22	5.03	1.24	4.90	1.26

Model: ARXG12KLLAP

AFR		m ³ /h		650								
		Indoor temperature										
Outdoor temperature	°CDB	°CWB	16		18		20		22		24	
			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-15	-16		3.87	1.55	3.78	1.58	3.69	1.61	3.60	1.64	3.51	1.67
-10	-11		4.35	1.62	4.24	1.66	4.14	1.69	4.04	1.72	3.93	1.76
-5	-7		4.83	1.69	4.72	1.72	4.60	1.76	4.49	1.80	4.37	1.83
0	-2		5.31	1.76	5.19	1.79	5.06	1.83	4.93	1.87	4.81	1.90
5	3		5.79	1.82	5.65	1.86	5.51	1.90	5.37	1.94	5.23	1.98
7	6		5.99	1.84	5.84	1.88	5.70	1.92	5.56	1.96	5.42	2.00
10	8		6.13	1.80	5.99	1.84	5.84	1.88	5.69	1.92	5.55	1.96
15	10		6.37	1.74	6.22	1.77	6.07	1.81	5.92	1.85	5.77	1.87
20	15		6.15	1.43	6.01	1.46	5.86	1.49	5.71	1.52	5.57	1.54
24	18		6.09	1.27	5.95	1.29	5.80	1.32	5.66	1.35	5.51	1.37

Model: ARXG14KLLAP

AFR		m ³ /h		800								
		Indoor temperature										
Outdoor temperature	°CDB	°CWB	16		18		20		22		24	
			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-15	-16		4.54	1.81	4.43	1.85	4.32	1.89	4.21	1.93	4.10	1.97
-10	-11		5.05	1.86	4.93	1.90	4.81	1.94	4.69	1.98	4.57	2.02
-5	-7		5.58	1.91	5.44	1.95	5.31	1.99	5.18	2.03	5.04	2.07
0	-2		6.09	1.95	5.95	1.99	5.80	2.03	5.66	2.07	5.51	2.11
5	3		6.62	2.00	6.46	2.04	6.30	2.08	6.14	2.12	5.99	2.16
7	6		6.83	2.01	6.66	2.05	6.50	2.09	6.34	2.13	6.18	2.17
10	8		6.96	1.94	6.80	1.98	6.63	2.02	6.46	2.06	6.30	2.10
15	10		7.21	1.83	7.04	1.87	6.87	1.91	6.70	1.95	6.53	1.98
20	15		7.09	1.56	6.92	1.60	6.75	1.63	6.58	1.66	6.41	1.69
24	18		7.47	1.56	7.29	1.60	7.11	1.63	6.93	1.66	6.75	1.69

Model: ARXG18KLLAP

AFR		m ³ /h		940								
		Indoor temperature										
Outdoor temperature	°CDB	°CWB	16		18		20		22		24	
			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-15	-16		5.05	1.70	4.93	1.73	4.81	1.77	4.69	1.81	4.57	1.84
-10	-11		5.69	1.81	5.56	1.85	5.42	1.89	5.28	1.93	5.15	1.97
-5	-7		6.33	1.92	6.18	1.96	6.03	2.00	5.88	2.04	5.73	2.08
0	-2		6.97	2.04	6.81	2.08	6.64	2.12	6.47	2.16	6.31	2.20
5	3		7.61	2.14	7.43	2.19	7.25	2.23	7.07	2.27	6.89	2.32
7	6		7.88	2.18	7.69	2.22	7.50	2.27	7.31	2.32	7.13	2.36
10	8		8.51	2.27	8.30	2.31	8.10	2.36	7.90	2.41	7.70	2.45
15	10		8.46	2.00	8.26	2.04	8.06	2.08	7.86	2.12	7.66	2.15
20	15		7.96	1.57	7.77	1.61	7.58	1.64	7.39	1.67	7.20	1.70
24	18		8.40	1.56	8.20	1.60	8.00	1.63	7.80	1.66	7.60	1.69

5. Fan performance

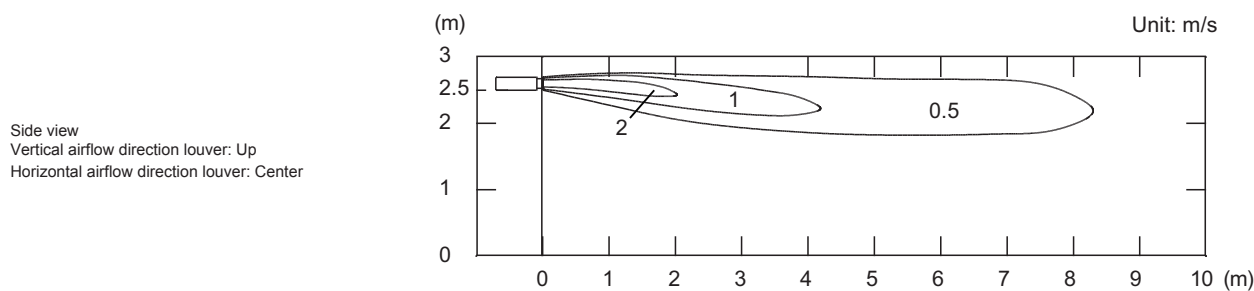
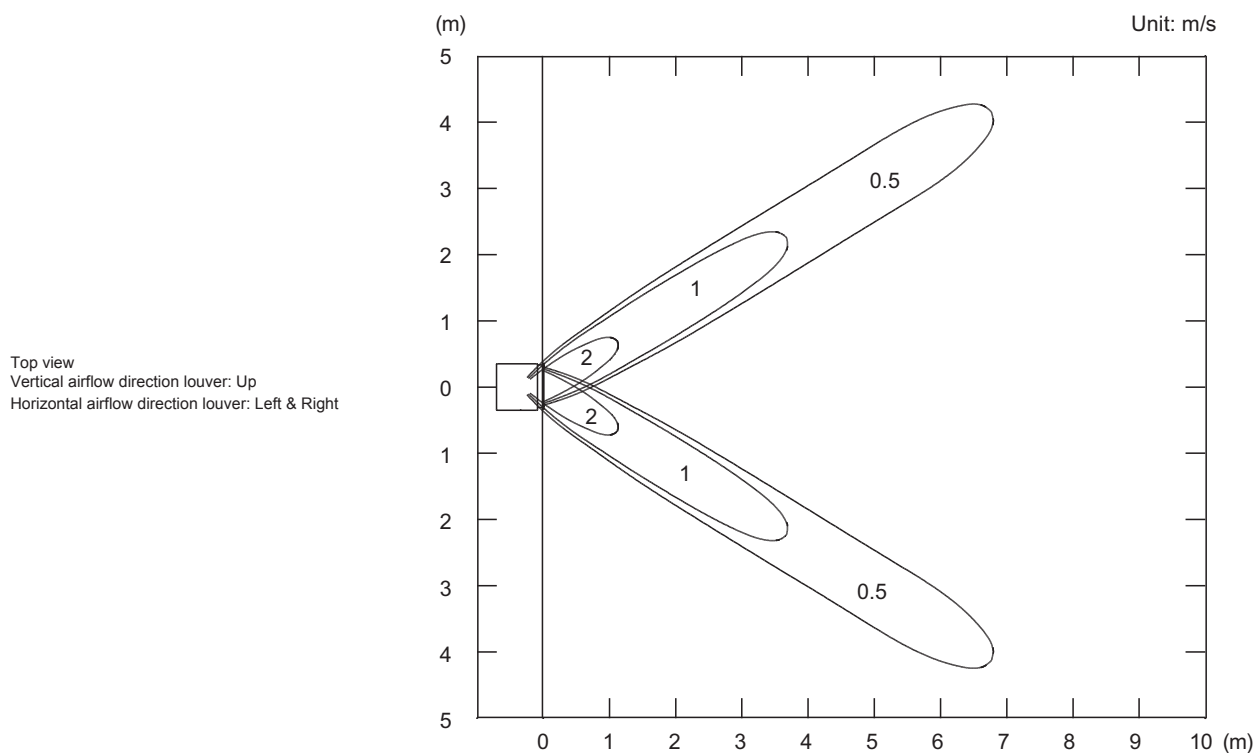
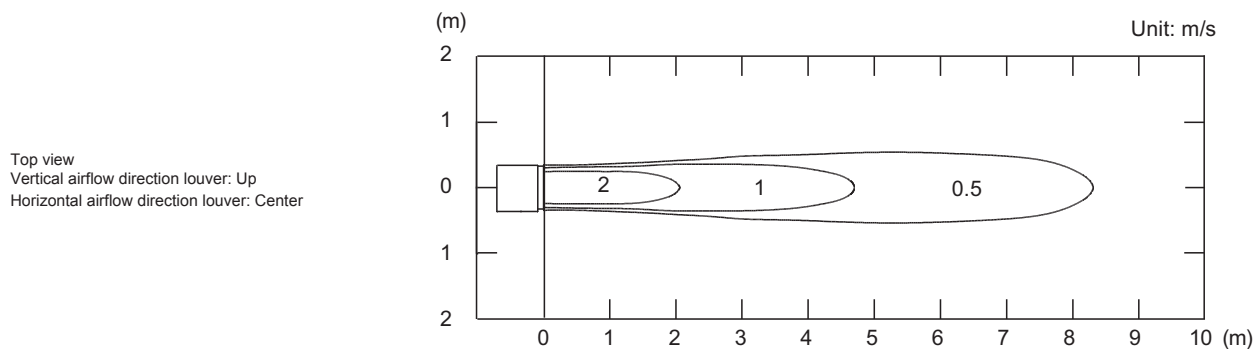
5-1. Air velocity and temperature distributions

■ Model: ARXG09KLLAP

NOTE: This data is measured installing the Auto louver grille kit (option).

Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

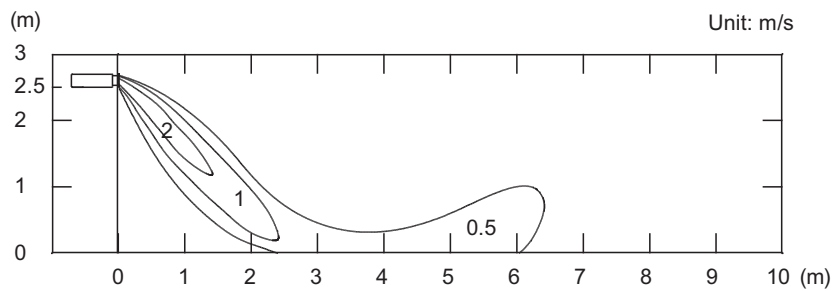
- Air velocity distribution



Measuring conditions	Fan speed	Operation mode
	HIGH	HEAT

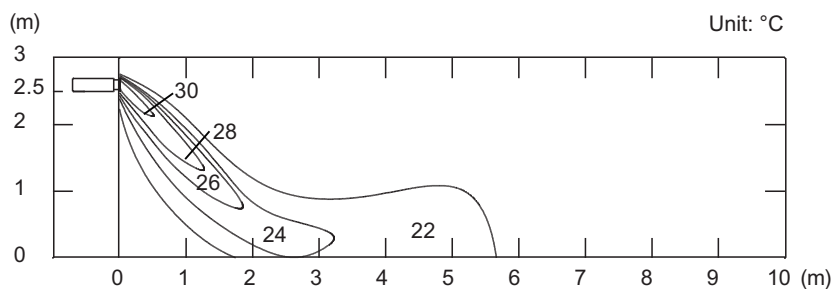
• Air velocity distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



• Air temperature distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



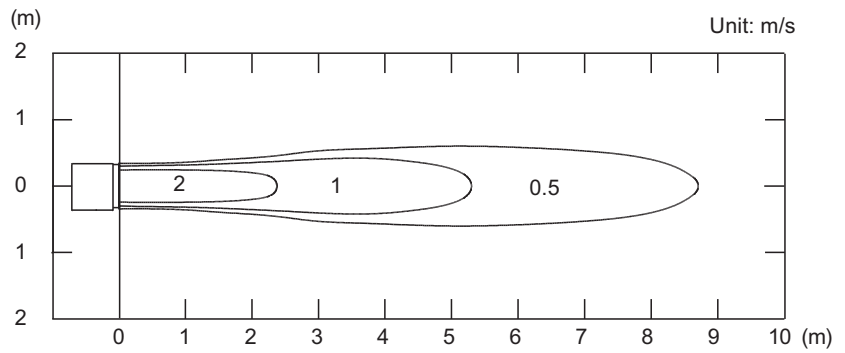
Model: ARXG12KLLAP

NOTE: This data is measured installing the Auto louver grille kit (option).

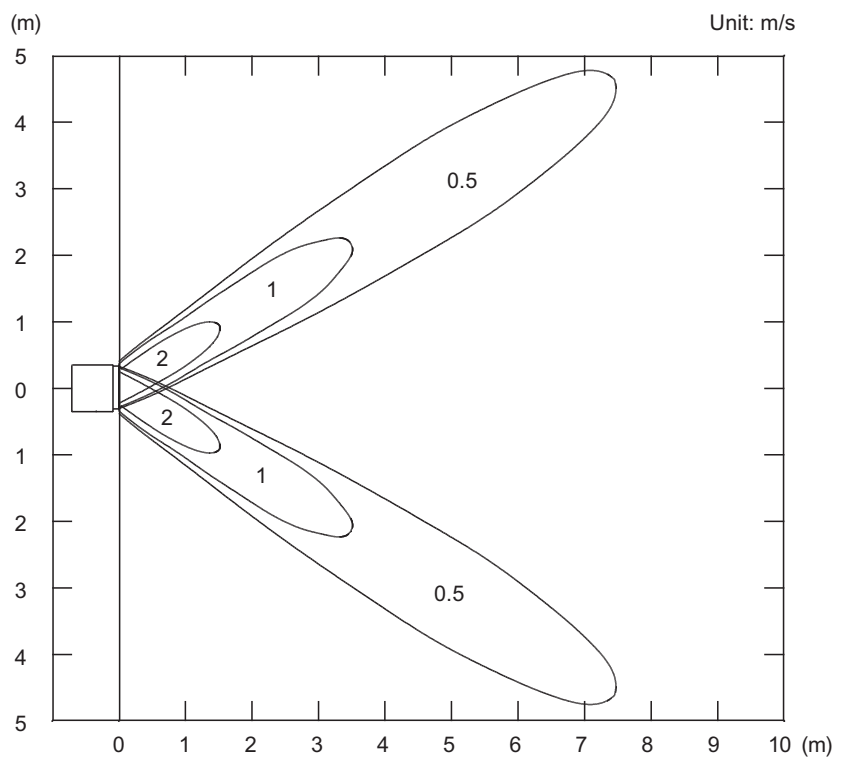
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- Air velocity distribution

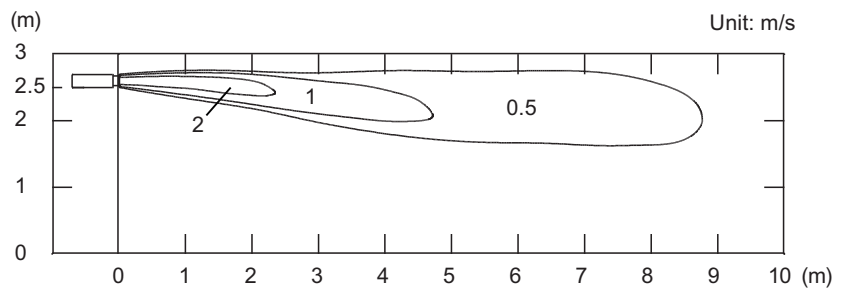
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



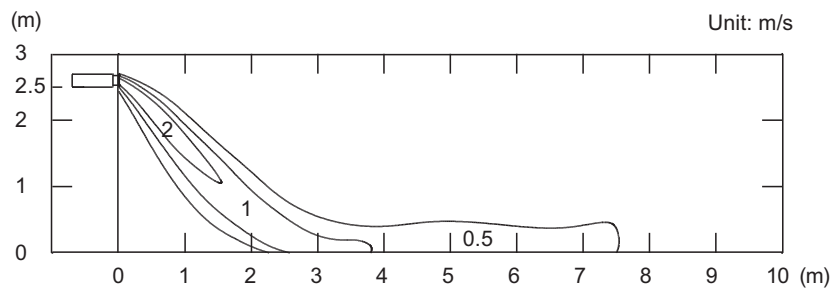
Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Measuring conditions	Fan speed	Operation mode
	HIGH	HEAT

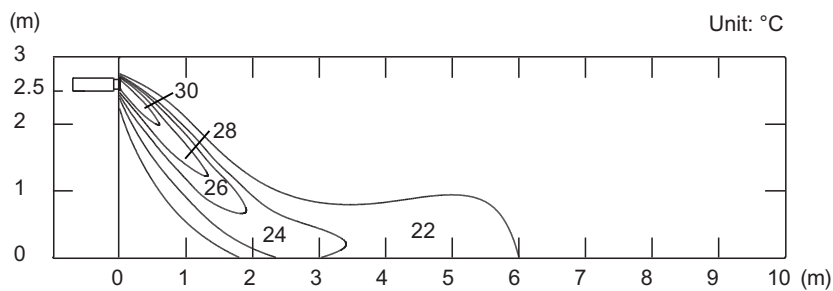
• Air velocity distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



• Air temperature distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center

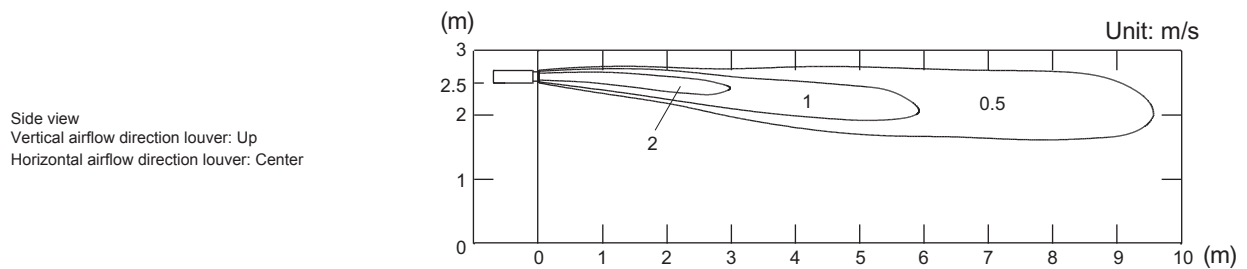
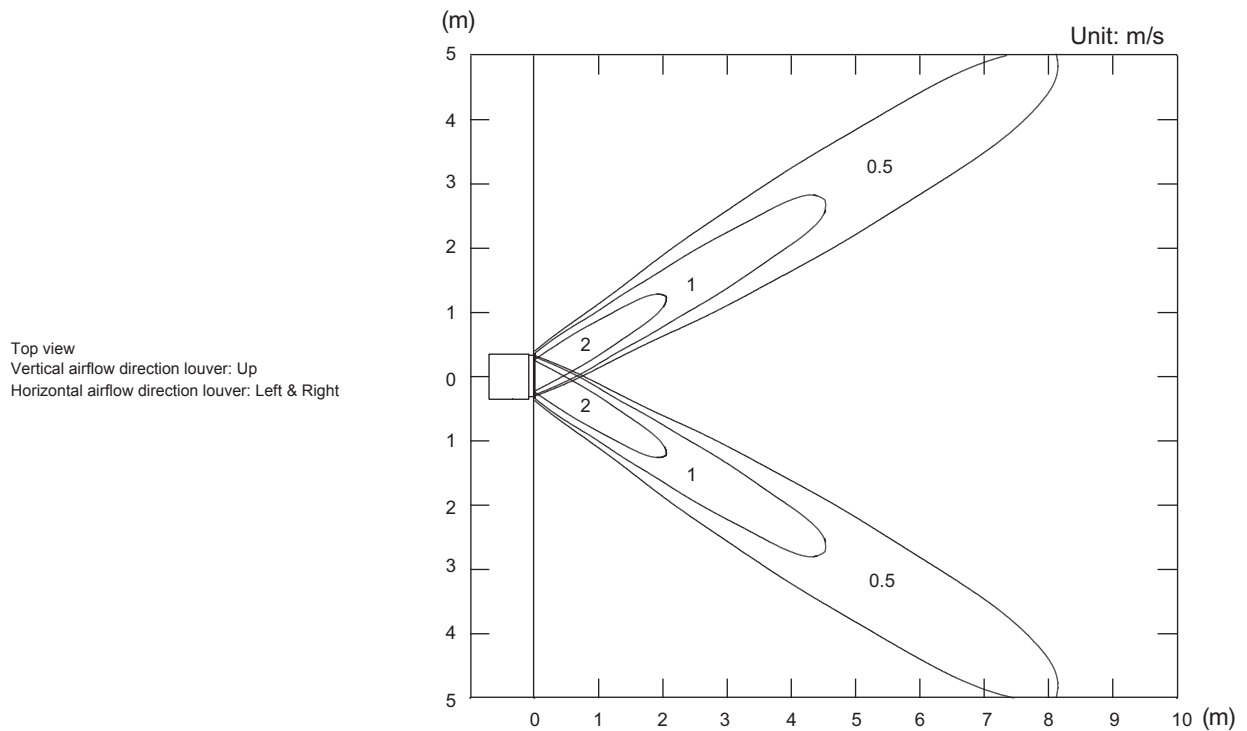
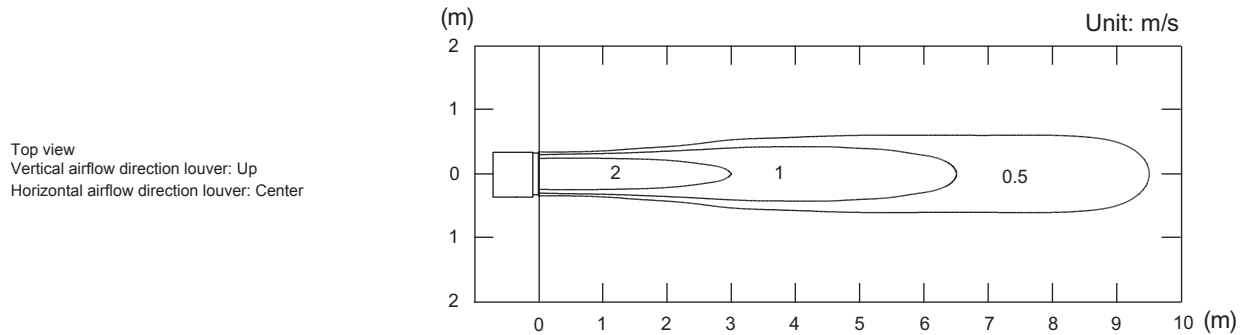


Model: ARXG14KLLAP

NOTE: This data is measured after installing optional Auto louver grille kit.

- Air velocity distribution

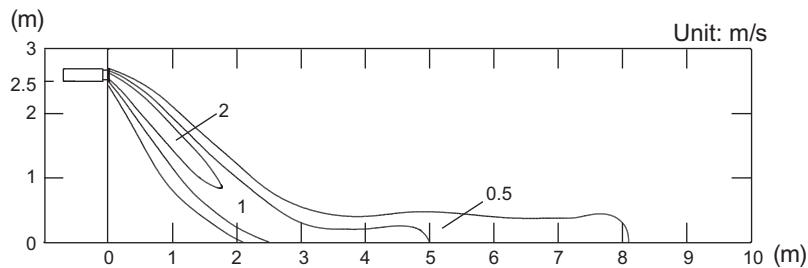
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN



• Air velocity distribution

Measuring conditions	Fan speed	Operation mode
	HIGH	HEAT

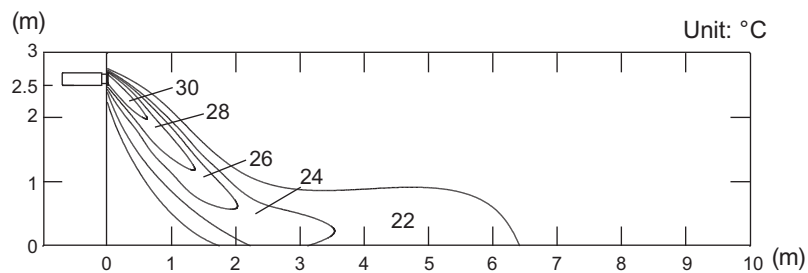
Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



• Air temperature distribution

Measuring conditions	Fan speed	Operation mode
	HIGH	HEAT

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



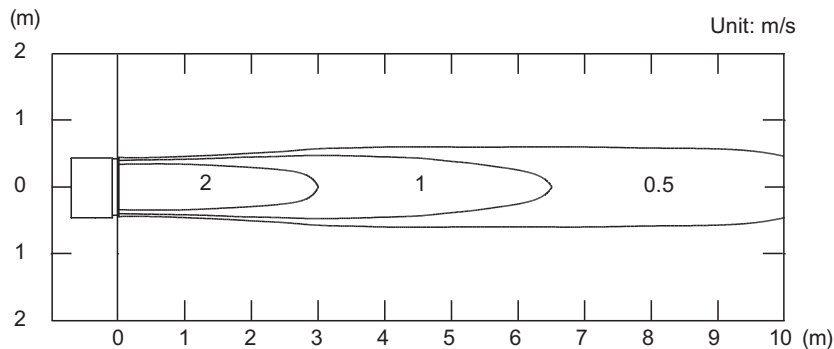
Model: ARXG18KLLAP

NOTE: This data is measured installing the Auto louver grille kit (option).

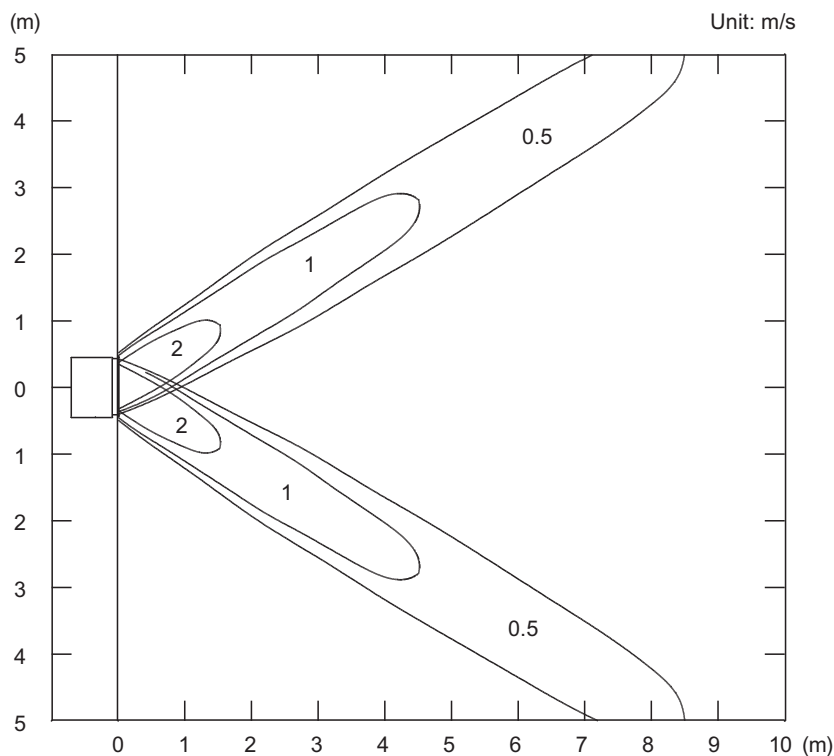
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- Air velocity distribution

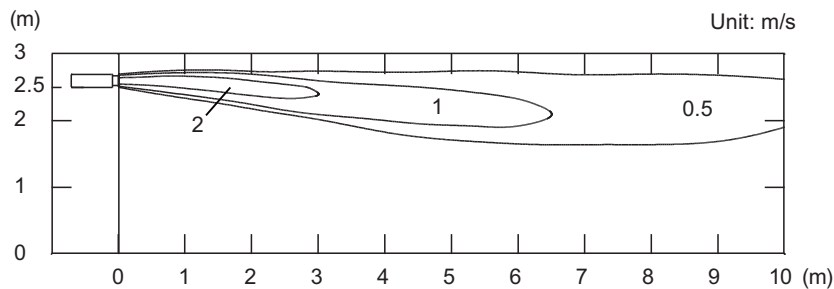
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



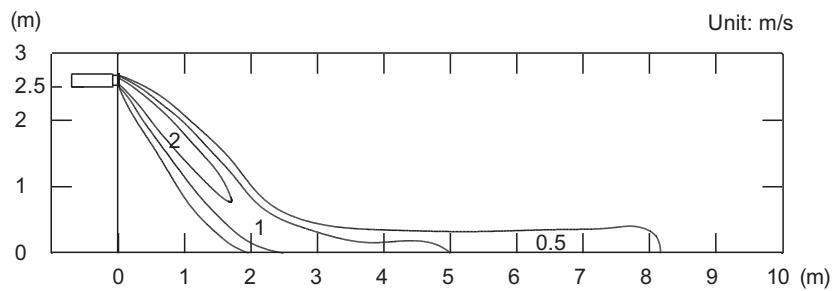
Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Measuring conditions	Fan speed	Operation mode
	HIGH	HEAT

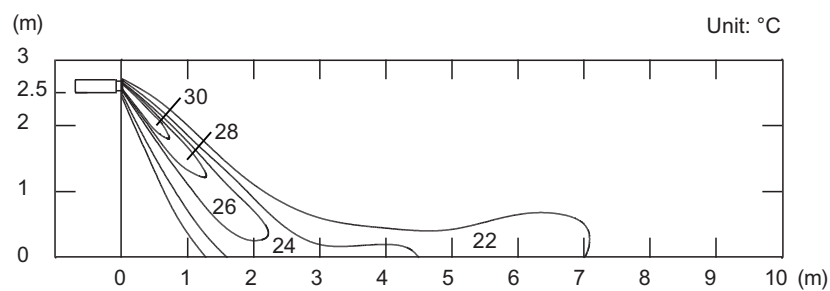
• Air velocity distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



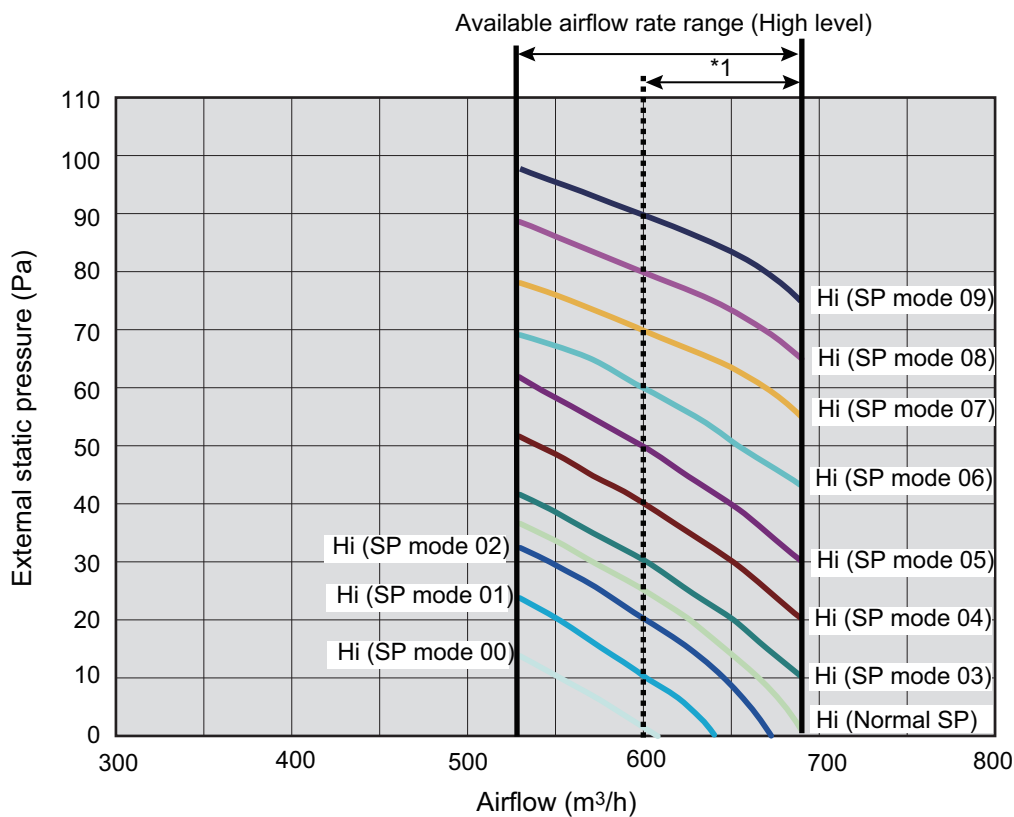
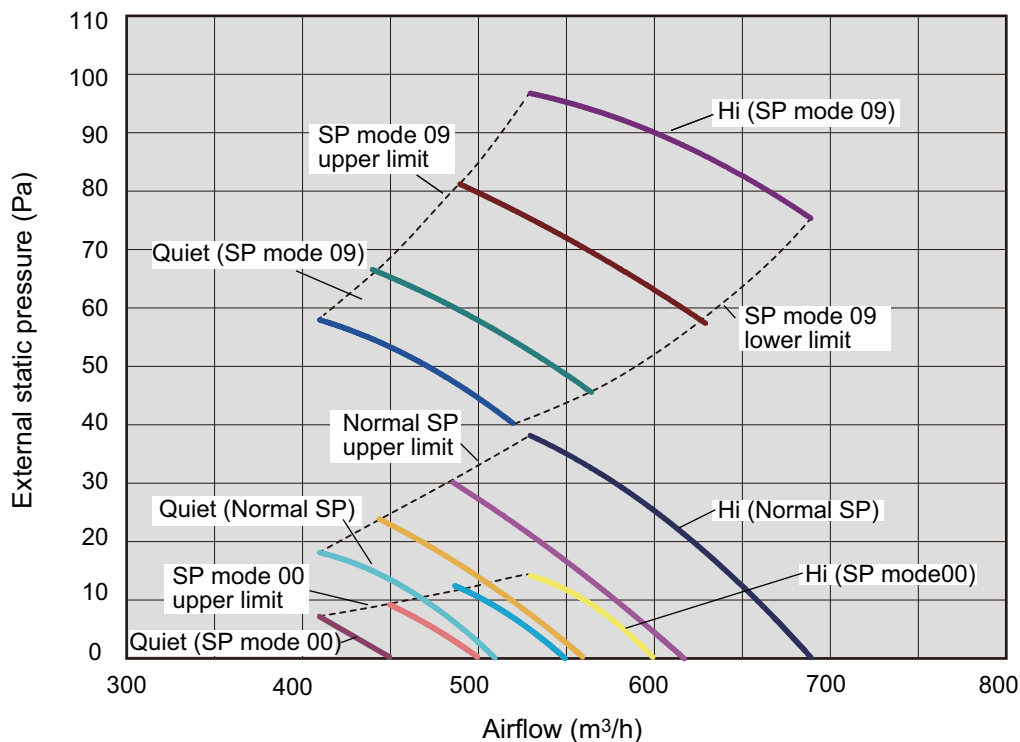
• Air temperature distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



5-2. Fan performance curve

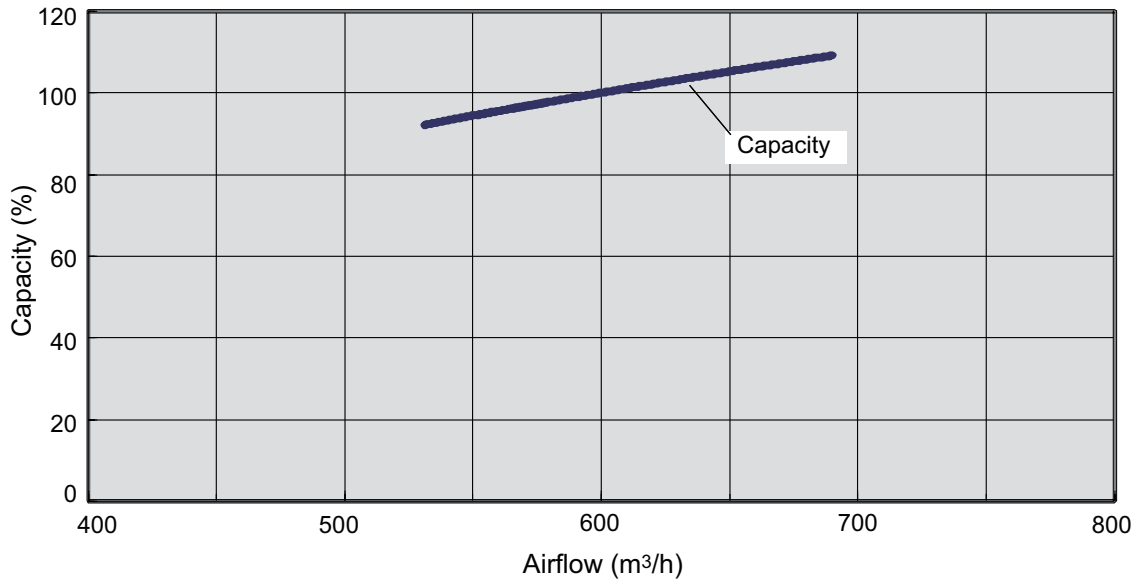
Model: ARXG09KLLAP



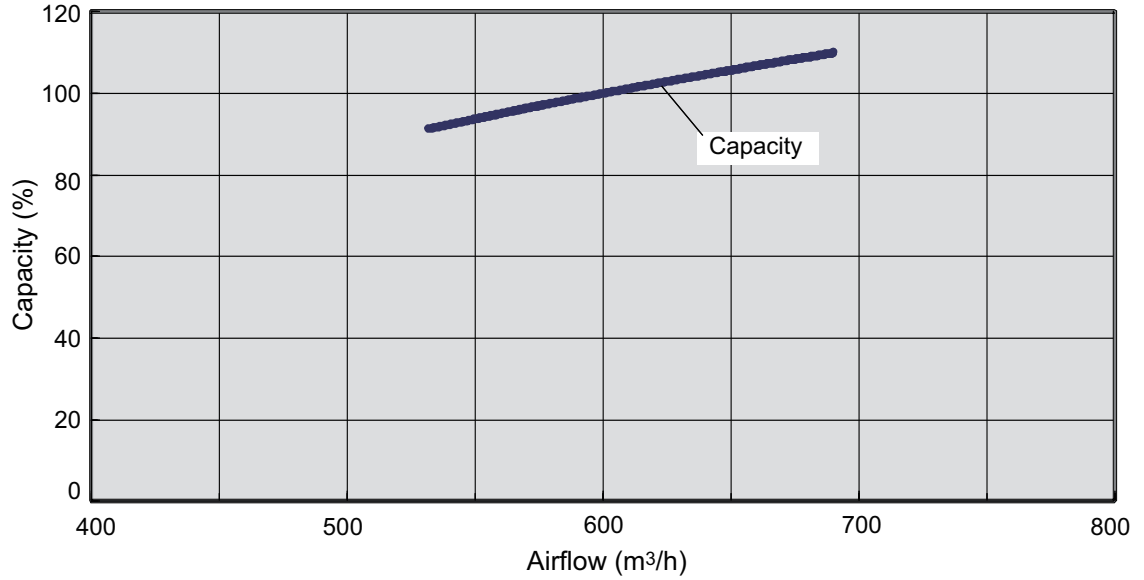
*1: Available airflow rate range when Auto louver grille (option) is installed.
 Fan speed: HIGH
 Vertical airflow direction louver: Up

● Characteristics of air volume and capacity

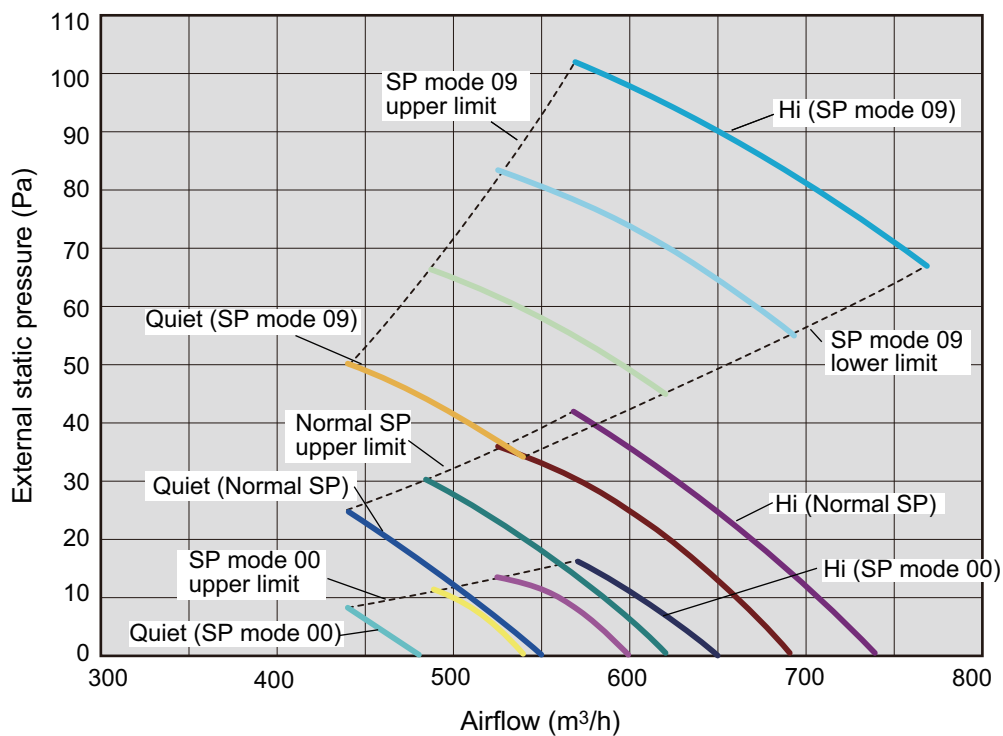
• Cooling



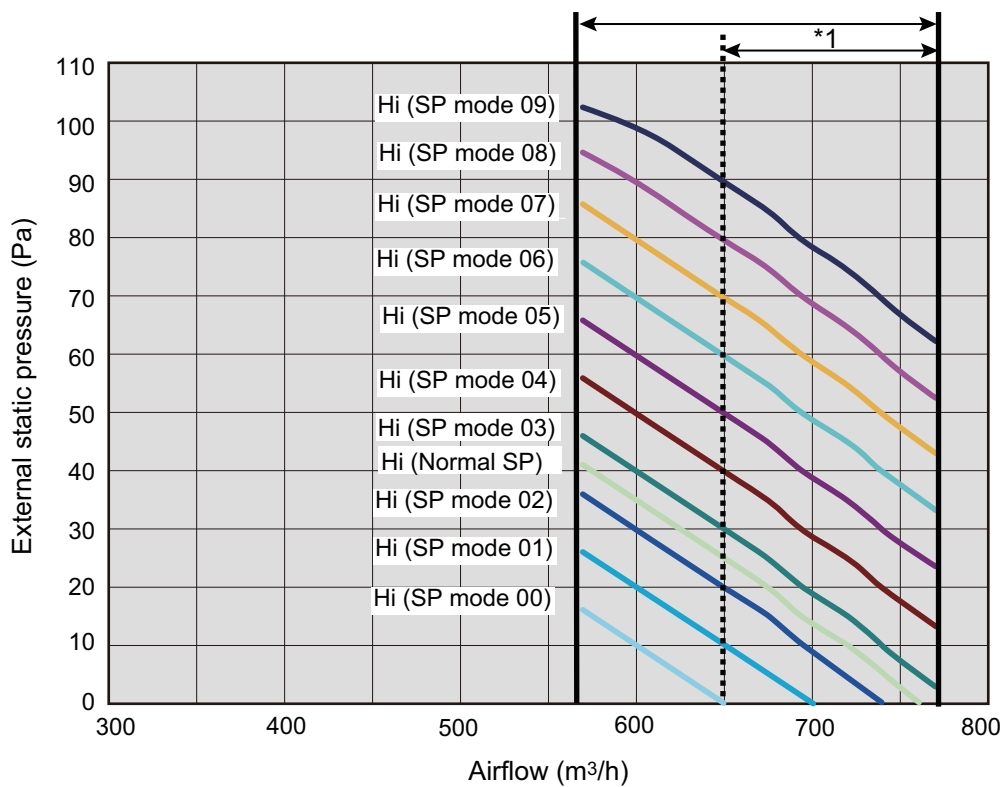
• Heating



Model: ARXG12KLLAP



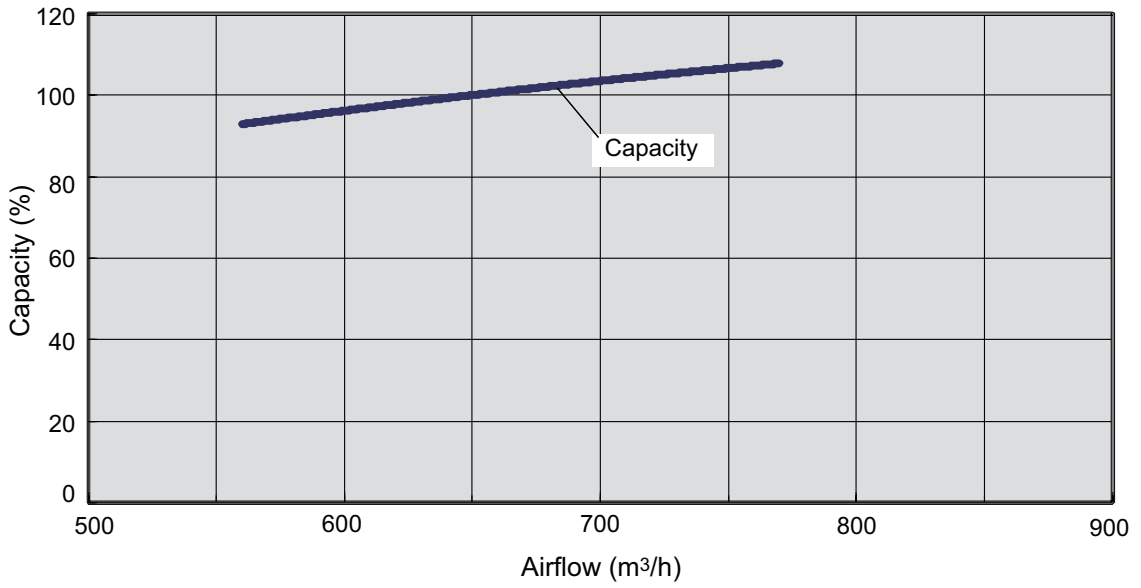
Available airflow rate range (High level)



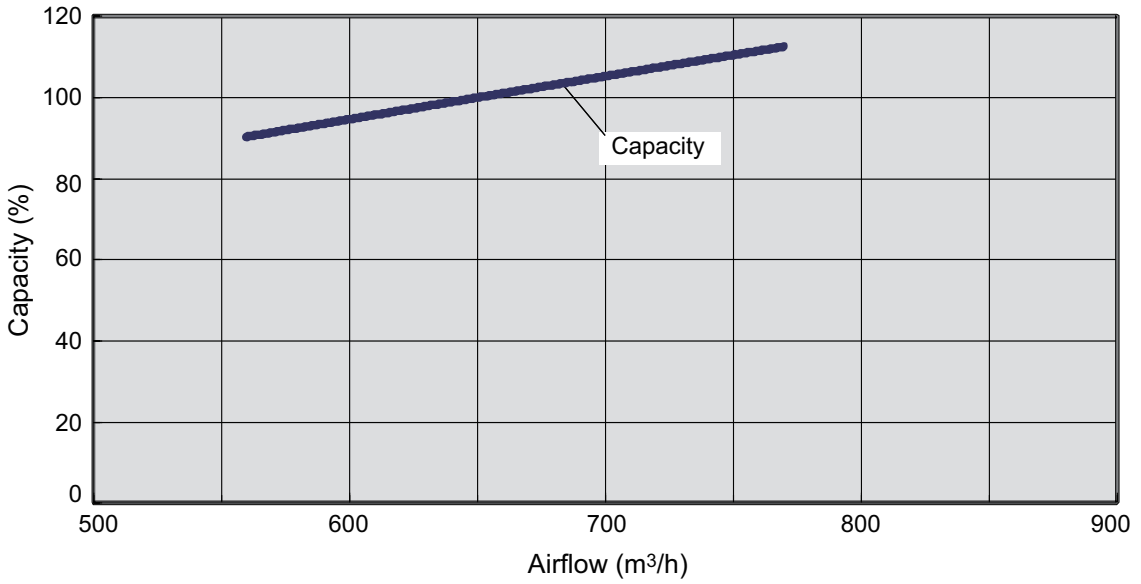
*1: Available airflow rate range when Auto louver grille (option) is installed.
Fan speed: HIGH
Vertical airflow direction louver: Up

● Characteristics of air volume and capacity

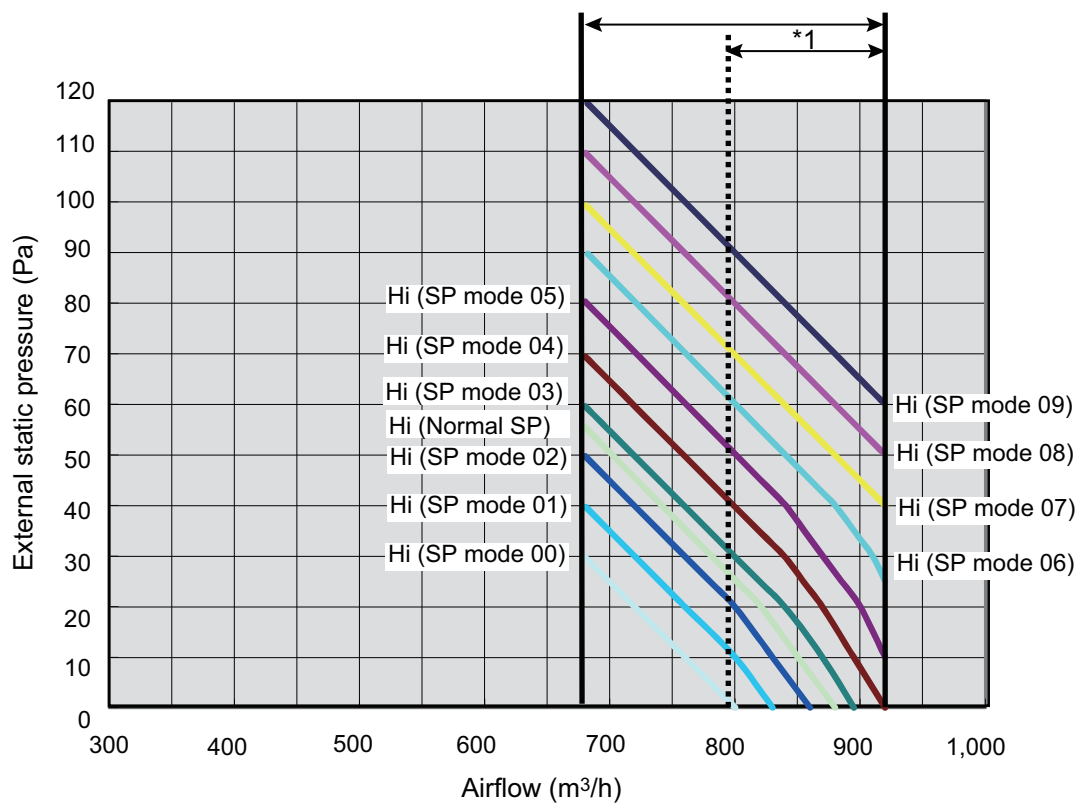
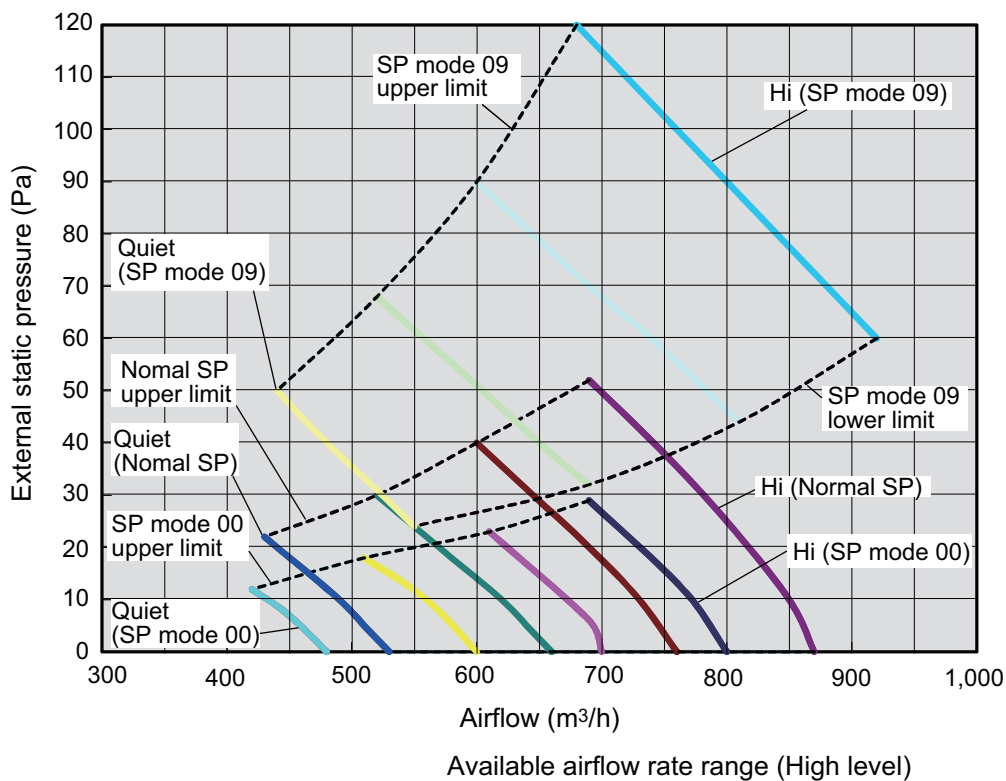
• Cooling



• Heating



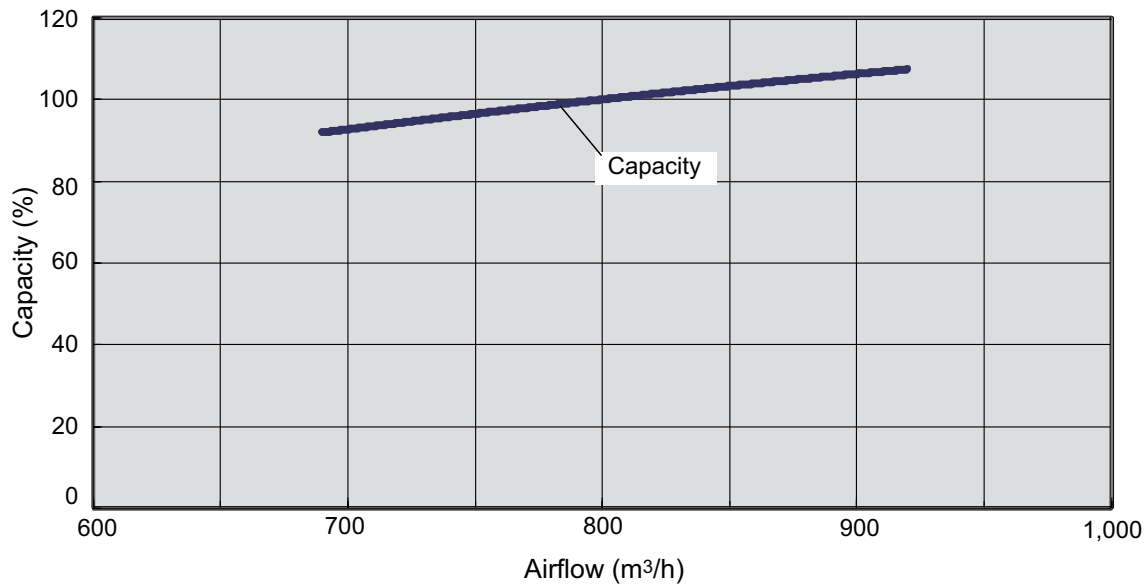
Model: ARXG14KLLAP



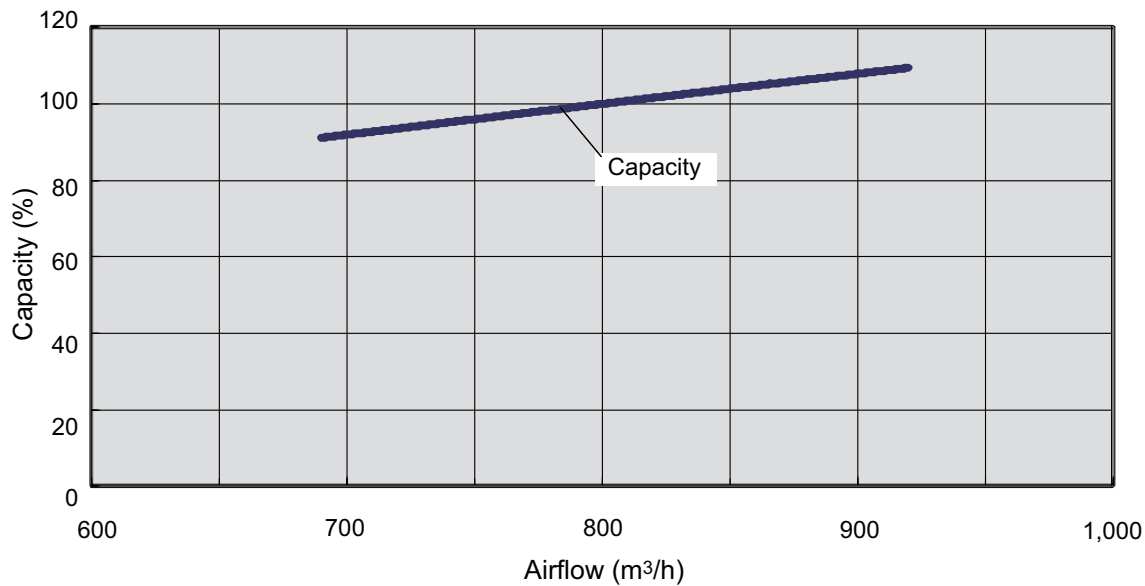
*1: Available airflow rate range when Auto louver grille (option) is installed.
 Fan speed: HIGH
 Vertical airflow direction louver: Up

● Characteristics of air volume and capacity

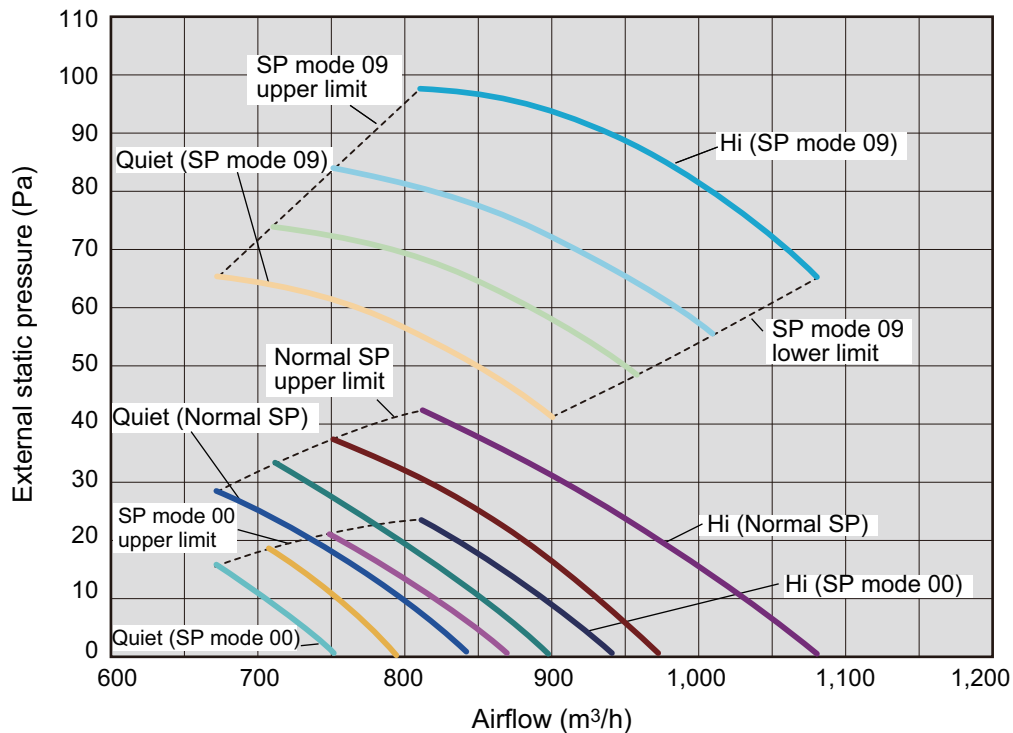
• Cooling



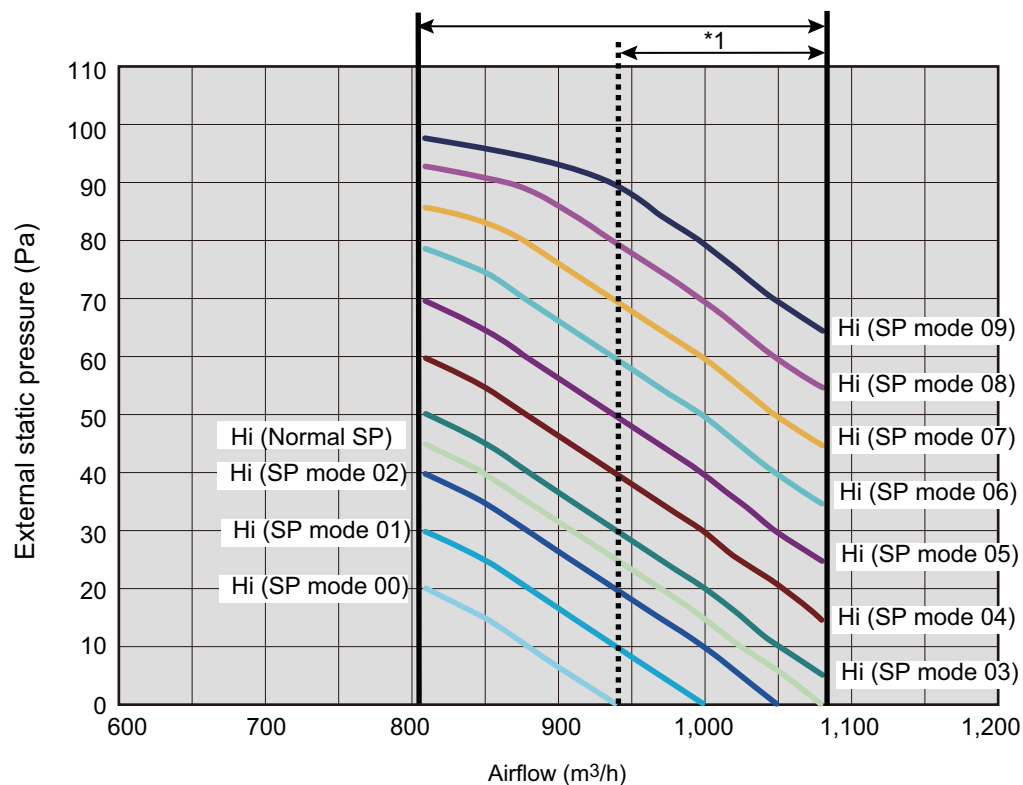
• Heating



Model: ARXG18KLLAP



Available airflow rate range (High level)



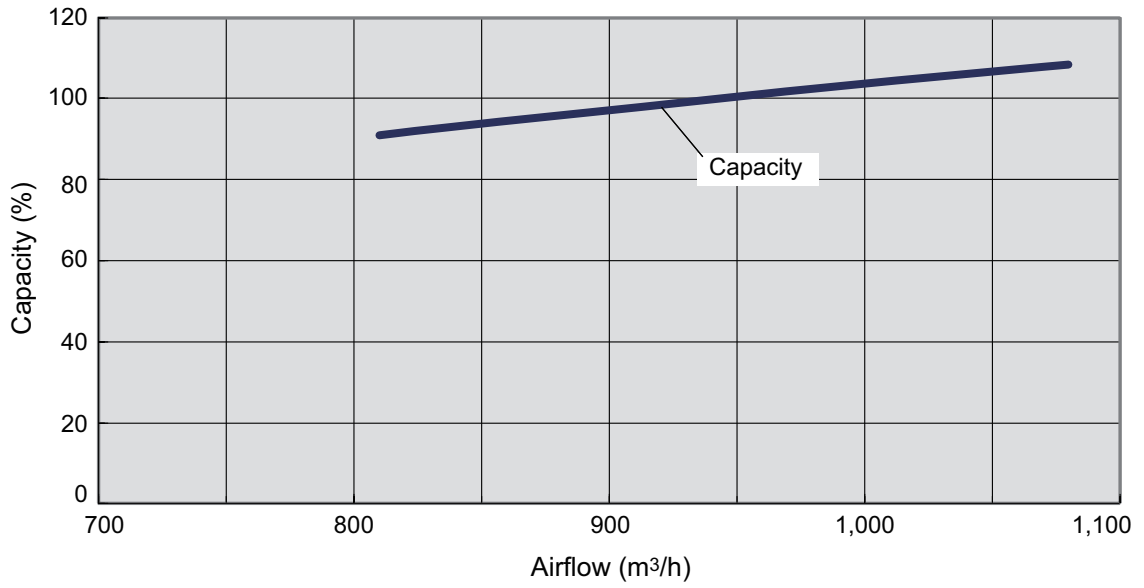
*1: Available airflow rate range when Auto louver grille (option) is installed.

Fan speed: HIGH

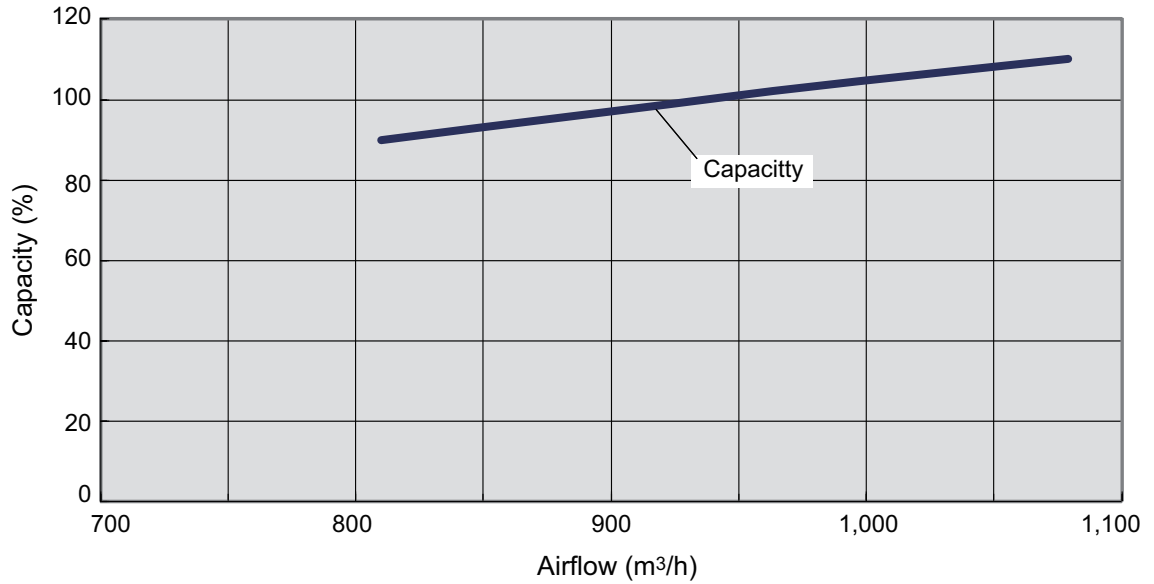
Vertical airflow direction louver: Up

● Characteristics of air volume and capacity

• Cooling



• Heating



5-3. Airflow

Conversion factor:

- $1 \text{ m}^3/\text{h} = 0.2778 \text{ l/s} = 0.5886 \text{ CFM}$
- $3.6 \text{ m}^3/\text{h} = 1 \text{ l/s}$
- $1.699 \text{ m}^3/\text{h} = 1 \text{ CFM}$

■ Model: ARXG09KLLAP

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	600
	l/s	167
	CFM	353
MED	m^3/h	550
	l/s	153
	CFM	324
LOW	m^3/h	500
	l/s	139
	CFM	294
QUIET	m^3/h	450
	l/s	125
	CFM	265

● Heating

Fan speed	Airflow	
HIGH	m^3/h	600
	l/s	167
	CFM	353
MED	m^3/h	550
	l/s	153
	CFM	324
LOW	m^3/h	500
	l/s	139
	CFM	294
QUIET	m^3/h	450
	l/s	125
	CFM	265

■ Model: ARXG12KLLAP

● Cooling

Fan speed	Airflow	
HIGH	m ³ /h	650
	l/s	181
	CFM	383
MED	m ³ /h	600
	l/s	167
	CFM	353
LOW	m ³ /h	550
	l/s	153
	CFM	324
QUIET	m ³ /h	480
	l/s	133
	CFM	283

● Heating

Fan speed	Airflow	
HIGH	m ³ /h	650
	l/s	181
	CFM	383
MED	m ³ /h	600
	l/s	167
	CFM	353
LOW	m ³ /h	550
	l/s	153
	CFM	324
QUIET	m ³ /h	480
	l/s	133
	CFM	283

■ Model: ARXG14KLLAP

● Cooling

Fan speed	Airflow	
HIGH	m ³ /h	800
	l/s	222
	CFM	471
MED	m ³ /h	700
	l/s	194
	CFM	412
LOW	m ³ /h	600
	l/s	167
	CFM	353
QUIET	m ³ /h	480
	l/s	133
	CFM	283

● Heating

Fan speed	Airflow	
HIGH	m ³ /h	800
	l/s	222
	CFM	471
MED	m ³ /h	700
	l/s	194
	CFM	412
LOW	m ³ /h	600
	l/s	167
	CFM	353
QUIET	m ³ /h	480
	l/s	133
	CFM	283

■ Model: ARXG18KLLAP

● Cooling

Fan speed	Airflow	
HIGH	m ³ /h	940
	l/s	261
	CFM	553
MED	m ³ /h	880
	l/s	244
	CFM	518
LOW	m ³ /h	820
	l/s	228
	CFM	483
QUIET	m ³ /h	750
	l/s	208
	CFM	441

● Heating

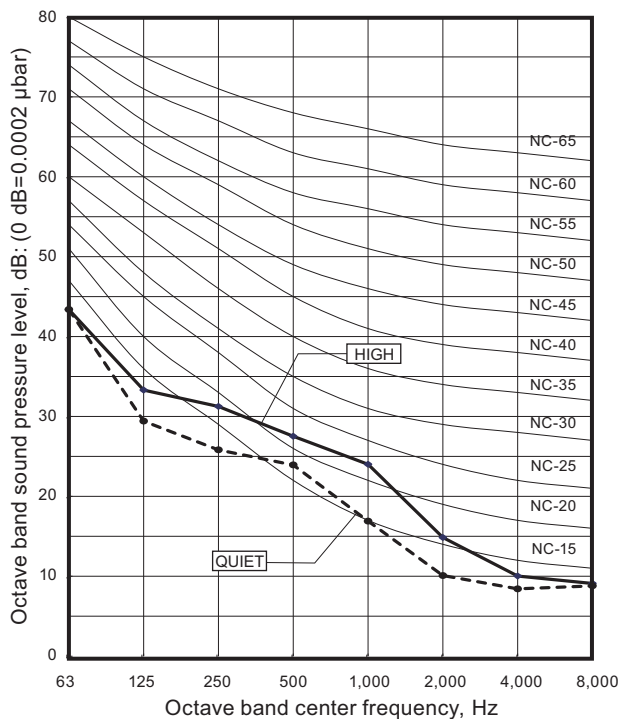
Fan speed	Airflow	
HIGH	m ³ /h	940
	l/s	261
	CFM	553
MED	m ³ /h	880
	l/s	244
	CFM	518
LOW	m ³ /h	820
	l/s	228
	CFM	483
QUIET	m ³ /h	750
	l/s	208
	CFM	441

6. Operation noise (sound pressure)

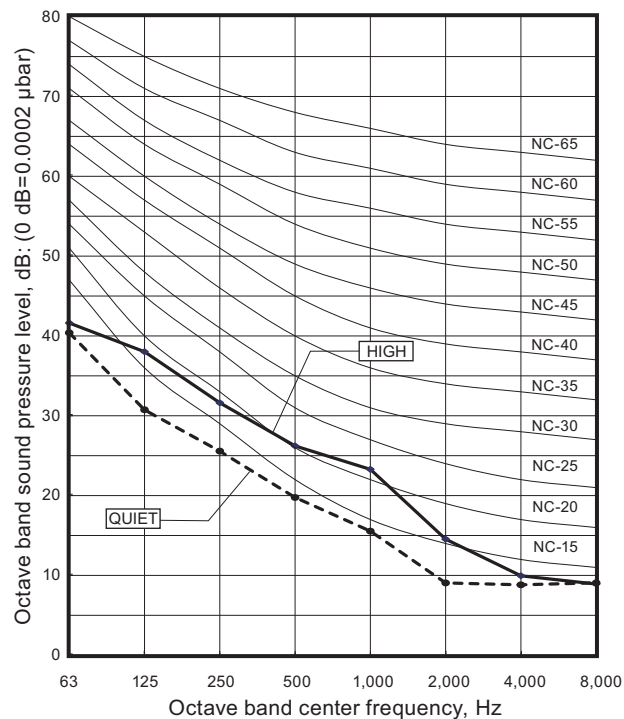
6-1. Noise level curve

Model: ARXG09KLLAP

● Cooling

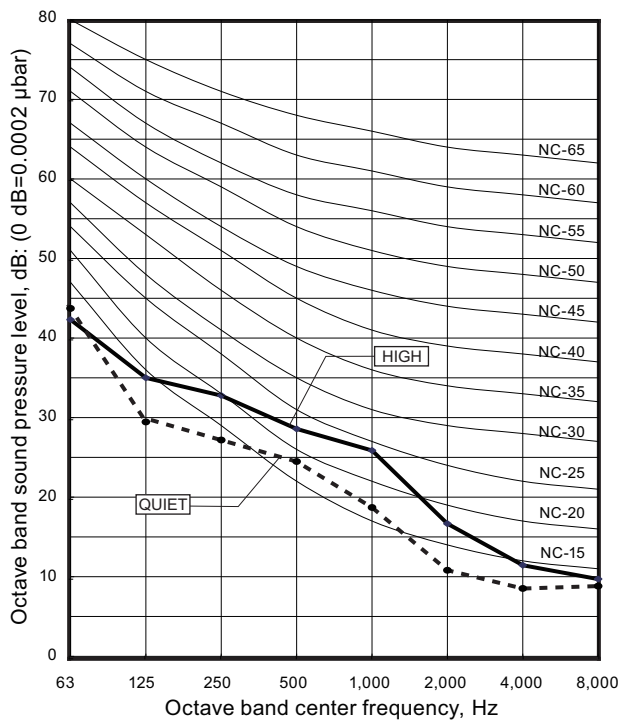


● Heating

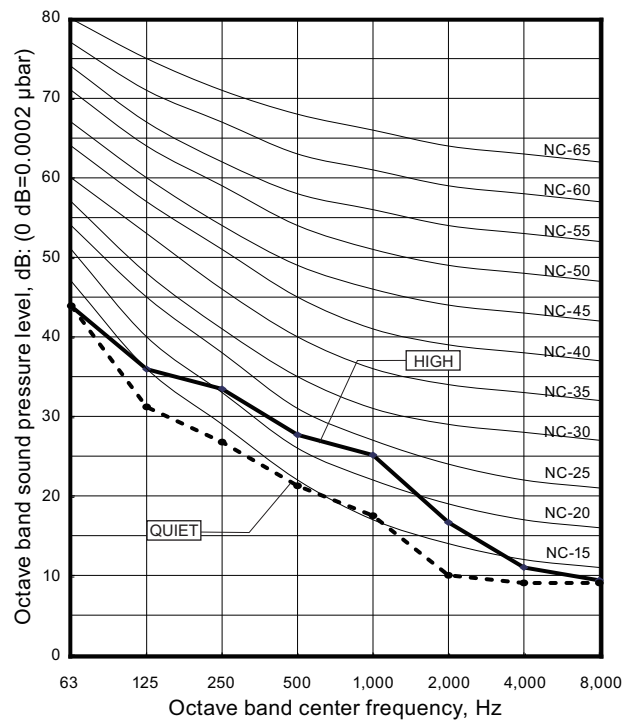


Model: ARXG12KLLAP

● Cooling

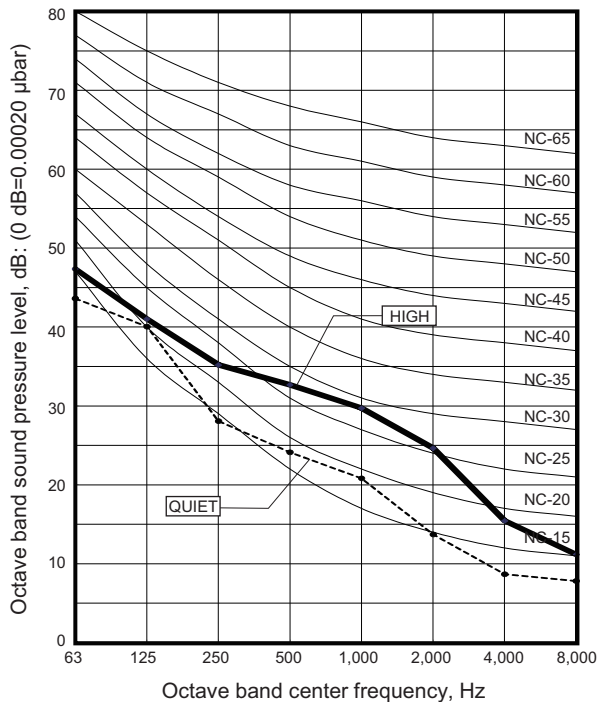


● Heating

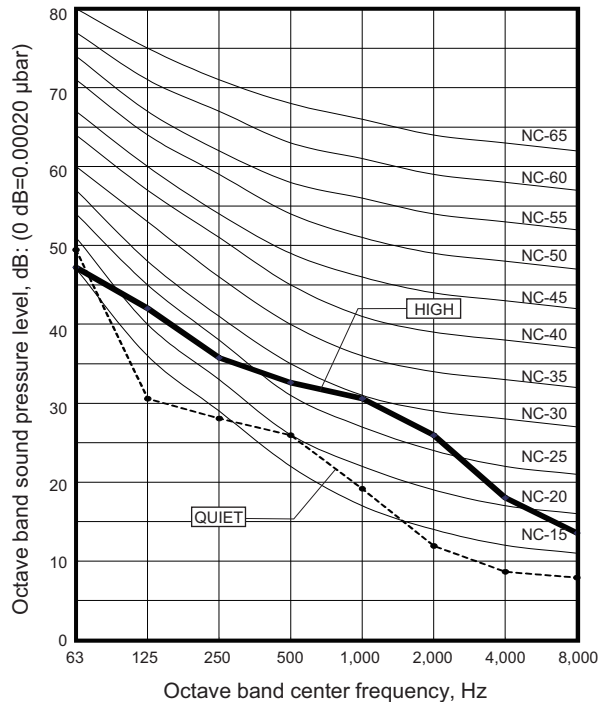


■ Model: ARXG14KLLAP

● Cooling

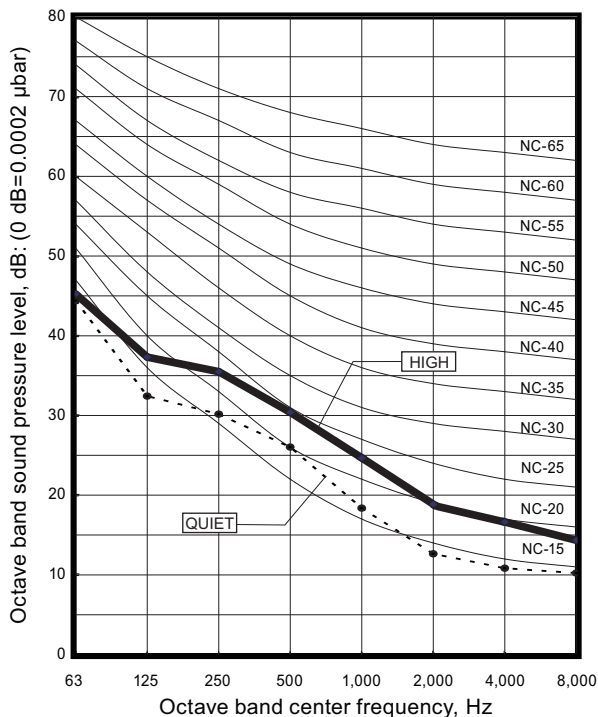


● Heating

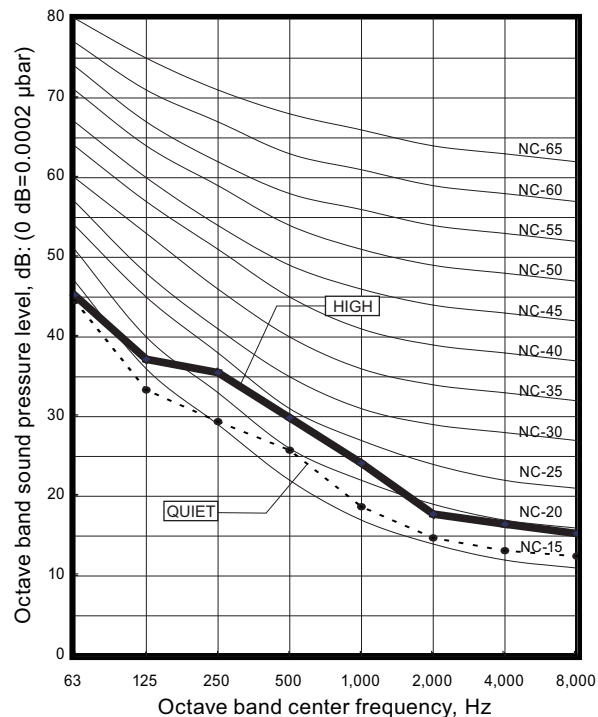


■ Model: ARXG18KLLAP

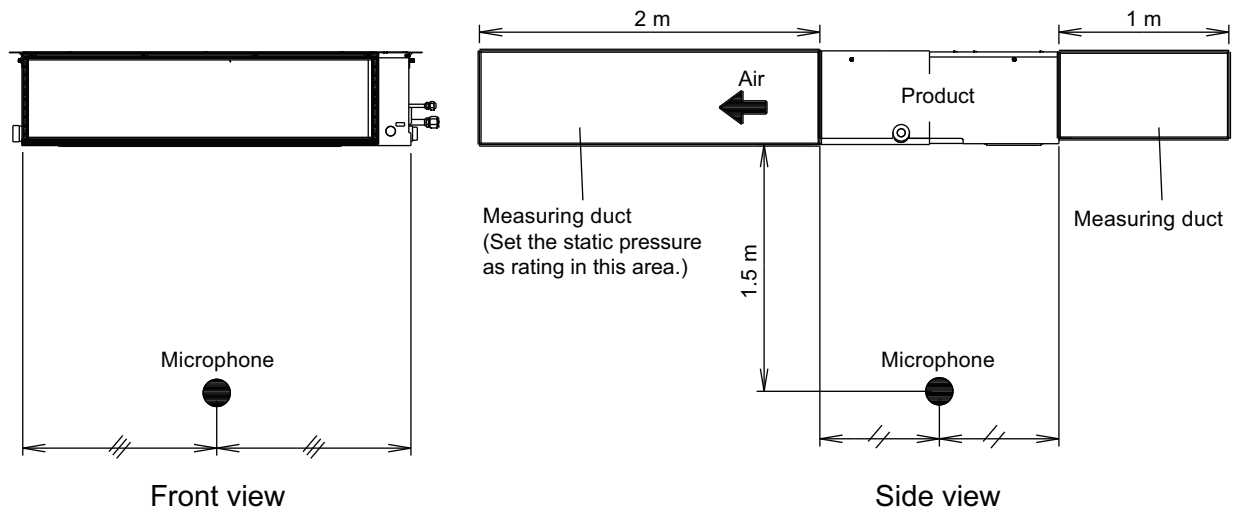
● Cooling



● Heating



6-2. Sound level check point

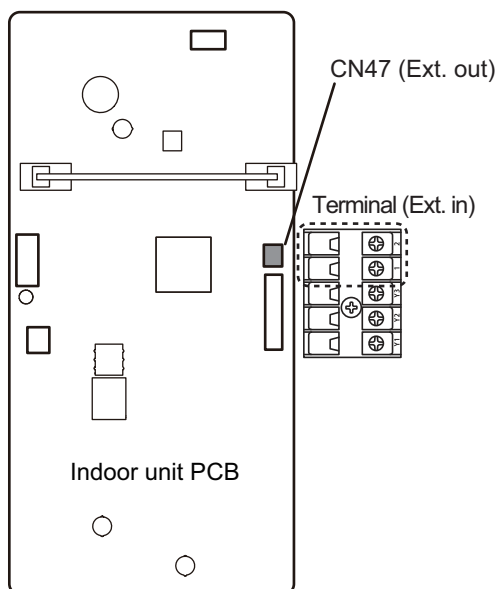


7. Safety devices

Type of protection	Protection form		Model
			ARXG09KLLAP ARXG12KLLAP ARXG14KLLAP ARXG18KLLAP
Circuit protection	Current fuse (PCB*)		250 V, 5 A
Fan motor protection	Thermal protection program	Activate	135 ± 15 °C Fan motor stop
		Reset	115 ± 15 °C Fan motor restart
	Current protection		1.31—1.71 A

*: Printed Circuit Board

8. External input and output

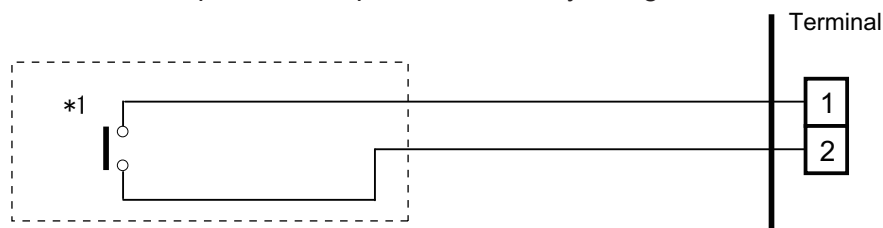


External input and output		Connector	Input select	Input signal	External connect kit (Optional parts)
External input	Operation/Stop Forced stop	Terminal	Dry contact	Edge	—
External output	Operation status	CN47	—	—	UTY-XWZXZG
	Error status				
	Indoor unit fan operation status				
	External heater output				

8-1. External input

- “Operation/Stop” mode or “Forced stop” mode can be selected with function setting of indoor unit.
- A twisted pair cable (22AWG) should be used. Maximum length of cable is 150 m.
- The wire connection should be separate from the power cable line.

Indoor unit functions such as Operation/Stop can be done by using indoor unit terminals.



*1: The switch can be used on the following condition: DC 12 V to 24 V, 1 mA to 15 mA.

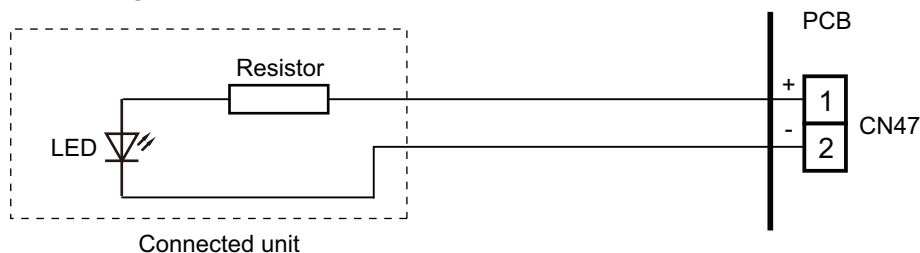
8-2. External output

Use an external output cable with appropriate external dimension, depending on the number of cables to be installed.

- A twisted pair cable (22AWG) should be used. Maximum length of cable is 25 m.
- Output voltage: High DC 12 V \pm 2 V, Low 0 V.
- Permissible current: 50 mA
- For details, refer to ["Combination of external input and output"](#) on page 37.

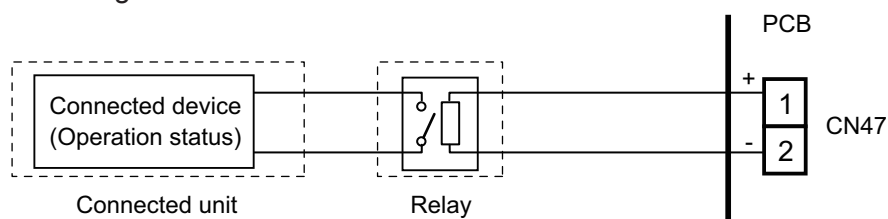
● When indicator, etc. are connected directly

Example: Function setting 60 is set to "00"



● When connecting with a device equipped with a power supply

Example: Function setting 60 is set to "00"



8-3. Combination of external input and output

By combining the function setting of the indoor unit, you can select various combinations of functions.

Combination examples of external input and output are as follows:

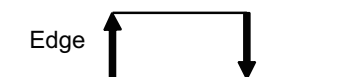
Mode	Function setting	External input	External output
		Terminal	CN47
0	60—00	Operation/Stop	
1—8	60—01 to 60—08	(Setting prohibited)	
9	60—09	Operation/Stop	Error status
10	60—10	Operation/Stop	Indoor unit fan operation status
11	60—11	Operation/Stop	External heater output

NOTE: Input of Operation/Stop depends on the setting of function setting 46.

- 00: Operation/Stop mode 1 (R.C. enabled)
- 01: (Setting prohibited)
- 02: Forced stop
- 03: Operation/Stop mode 2 (R.C. disabled)

■ Input signal type

- Indoor unit
Input signal type is only "Edge".

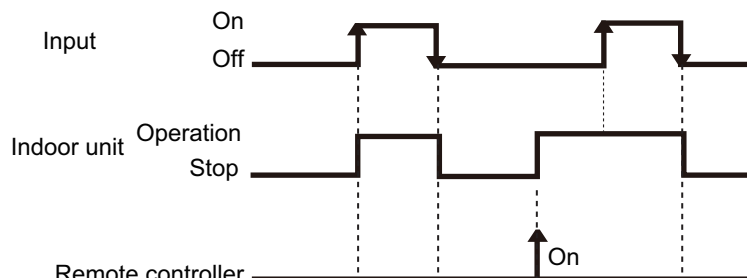


8-4. Details of function

■ Control input function

- When function setting is "Operation/Stop" mode 1

Function setting	External input	Input signal	Command
46—00	Terminal	Off → On	Operation
		On → Off	Stop

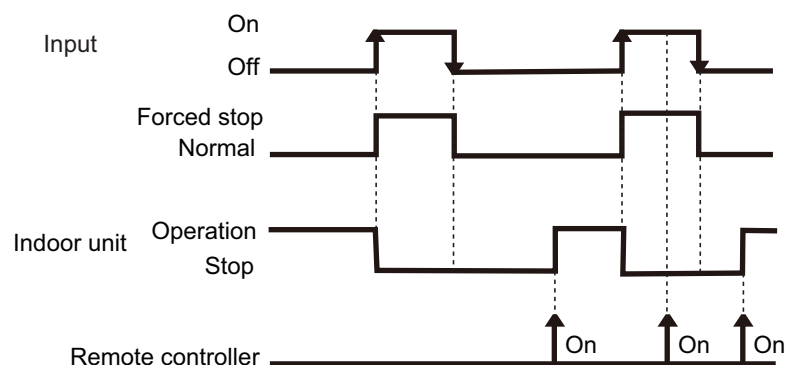


NOTES:

- The last command has priority.
- The indoor units within the same remote controller group operates in the same mode.

- When function setting is "Forced stop" mode

Function setting	External input	Input signal	Command
46—02	Terminal	Off → On	Forced stop
		On → Off	Normal

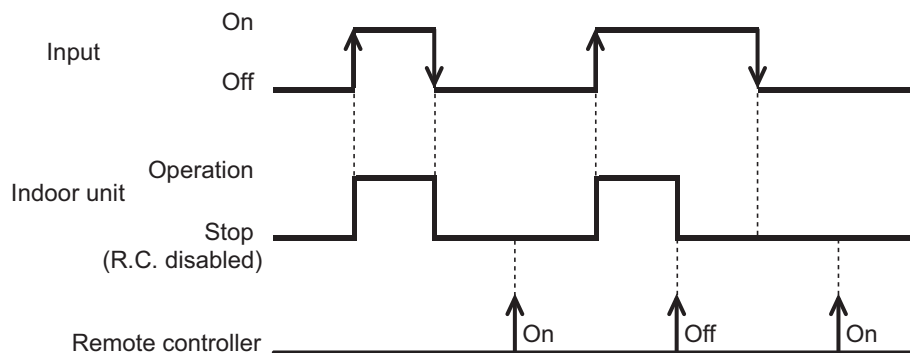


NOTES:

- When the forced stop is triggered, indoor unit stops and Operation/Stop operation by the remote controller is restricted.
- When forced stop function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

- When function setting is "Operation/Stop" mode 2

Function setting	External input	Input signal	Command
46—03	Terminal	Off → On	Operation
		On → Off	Stop (R.C. disabled)

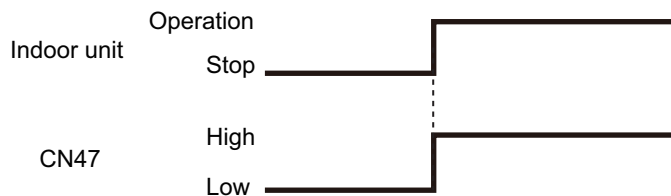


NOTE: When "Operation/Stop" mode 2 function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

Control output function

Function setting	External output	Output signal	Command
60—00	CN47	Low → High	Operation
		High → Low	Stop

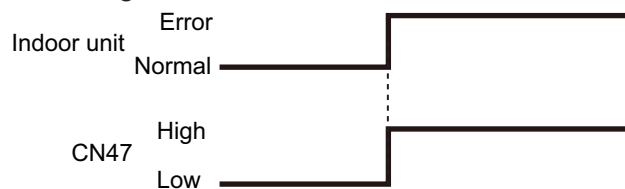
The output is low when the unit is stopped.



Error status

Function setting	External output	Output signal	Command
60—09	CN47	Low → High	Error
		High → Low	Normal

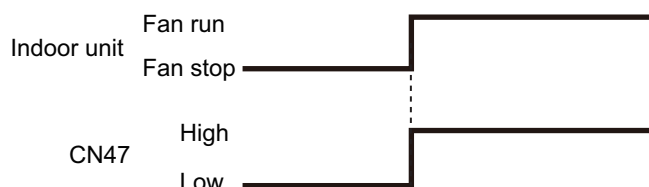
The output is ON when an error is generated for the indoor unit.



Indoor unit fan operation status

Function setting	External output	Output signal	Command
60—10	CN47	Low → High	Fan run
		High → Low	Fan stop

Output signal	Condition
On	The indoor unit fan is operating.
Low → High	
Off	The fan is stopped or during cold air prevention. During thermostat off when in dry mode operation.
High → Low	



External heater output

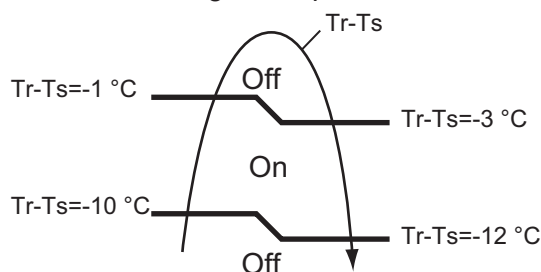
Function setting	External output	Output signal	Command
60—11	CN47	Low → High	Heater on
		High → Low	Heater off

Output signal	Condition
Low → High	Heater turns on as shown in diagram of heating temperature
Off → On	
High → Low	Heater turns off as shown in diagram of heating temperature
On → Off	<ul style="list-style-type: none"> • Other than Heating mode • Error occurred • Forced thermo off • Fan stop protection

Specifications of the signal output performance are as shown as follows:

Example When set temperature (T_s) is set at 22 °C;

- And room temperature (T_r) increase above 12 °C, signal output is on.
- And T_r increase above 21 °C, signal output is off.
- And T_r decrease below 19 °C, signal output is on.
- And T_r decrease below 10 °C, signal output is off.



The output also turns off in defrost operation.

9. Function settings

To adjust the functions of this product according to the installation environment, various types of function settings are available.

NOTE: Incorrect settings can cause a product malfunction.

9-1. Function settings on indoor unit

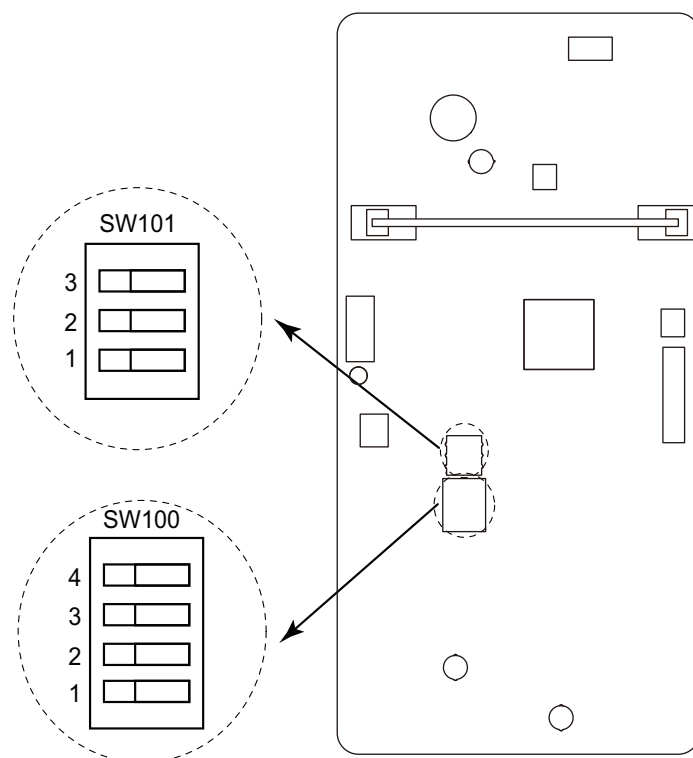
By using some components on the PCB, you can change the function settings.

Related components on the PCB and the applicable settings:

Component		Setting content	
DIP switch	SW100	1	Remote controller address setting
		2	
		3	
		4	
	SW101	1	Drainage function setting
		2	Auto louver grille setting
		3	Fan delay setting

■ Component location

Components on the indoor unit main PCB used for the function settings are located as shown in the following figure.



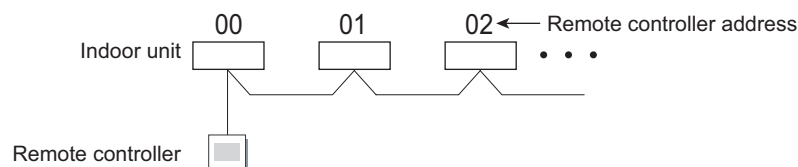
■ DIP switch setting

- **SW100: Remote controller address setting**

When operating a number of indoor units by using a wired remote controller, DIP switch setting for assigning unit number to each indoor unit is required.

The slide switches are normally set to make the unit number 00.

Remote controller address	Switch number				Factory setting
	1	2	3	4	
00	OFF	OFF	OFF	OFF	◆
01	ON	OFF	OFF	OFF	
02	OFF	ON	OFF	OFF	
03	ON	ON	OFF	OFF	
04	OFF	OFF	ON	OFF	
05	ON	OFF	ON	OFF	
06	OFF	ON	ON	OFF	
07	ON	ON	ON	OFF	
08	OFF	OFF	OFF	ON	
09	ON	OFF	OFF	ON	
10	OFF	ON	OFF	ON	
11	ON	ON	OFF	ON	
12	OFF	OFF	ON	ON	
13	ON	OFF	ON	ON	
14	OFF	ON	ON	ON	
15	ON	ON	ON	ON	



- **SW101-Switch 1: Drainage function setting**

Switch 1	Drainage function	Factory setting
ON	Disabled	
OFF	Enabled	◆

- **SW101-Switch 2: Auto louver grille setting**

When Auto louver grille kit (optional parts) is attached, set to "Enabled".

Switch 2	Auto louver grille setting	Factory setting
ON	Enabled	
OFF	Disabled	◆

- **SW101-Switch 3: Fan delay setting**

When the indoor unit is stopped while operating in conjunction with auxiliary heater, the indoor unit fan operation will continue for 1 minute.

Switch 3	Fan delay	Factory setting
ON	Enabled	
OFF	Disabled	◆

9-2. Function settings by using remote controller

Some function settings can be changed on the remote controller. After confirming the setting procedure and the content of each function setting, select appropriate functions for your installation environment.

■ Setting procedure by using remote controller

Remote controller is not attached for this product. For details of the installing remote controller, refer to following information.

- Overview information: Operating manual of the remote controller
- Setting procedure: Installation manual of the remote controller

■ Contents of function setting

Each function setting listed in this section is adjustable in accordance with the installation environment.

NOTE: Setting will not be changed if invalid numbers or setting values are selected.

● Function setting list

	Function no.	Functions
1)	11	Filter sign
2)	26	Static pressure
3)	30/31	Room temperature control for indoor unit sensor
4)	35/36	Room temperature control for wired remote controller sensor
5)	40	Auto restart
6)	42	Room temperature sensor switching
7)	44	Remote controller custom code
8)	46	External input control
9)	48	Room temperature sensor switching (Aux.)
10)	49	Indoor unit fan control for energy saving for cooling
11)	60	Switching functions for external output terminal

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).

Function number	Setting value	Setting description	Factory setting
11	00	Standard (400 hours)	
	01	Long interval (1,000 hours)	
	02	Short interval (200 hours)	
	03	No indication	◆

2) Static pressure

Select the appropriate static pressure according to the installation conditions.

Function number	Setting value	Setting description	Factory setting
26	00	0 Pa	
	01	10 Pa	
	02	20 Pa	
	03	30 Pa	
	04	40 Pa	
	05	50 Pa	
	06	60 Pa	
	07	70 Pa	
	08	80 Pa	
	09	90 Pa	
	31	Standard (25 Pa)	◆

3) Room temperature control for indoor unit sensor

Depending on the installed environment, correction of the room temperature sensor may be required. Select the appropriate control setting according to the installed environment.

The temperature correction values show the difference from the Standard setting "00" (manufacturer's recommended value).

Function number		Setting value	Setting description	Factory setting	
30 (For cooling)	31 (For heating)	00	Standard setting	◆	
		01	No correction 0.0 °C		
		02	-0.5 °C	More cooling Less heating	
		03	-1.0 °C		
		04	-1.5 °C		
		05	-2.0 °C		
		06	-2.5 °C		
		07	-3.0 °C		
		08	-3.5 °C		
		09	-4.0 °C		
		10	+0.5 °C	Less cooling More heating	
		11	+1.0 °C		
		12	+1.5 °C		
		13	+2.0 °C		
		14	+2.5 °C		
		15	+3.0 °C		
		16	+3.5 °C		
17	+4.0 °C				

4) Room temperature control for wired remote controller sensor

Depending on the installed environment, correction of the wire remote temperature sensor may be required. Select the appropriate control setting according to the installed environment.

To change this setting, set Function 42 to Both "01".

Ensure that the Thermo Sensor icon is displayed on the remote controller screen.

Function number		Setting value	Setting description	Factory setting	
35 (For cooling)	36 (For heating)	00	Standard setting	◆	
		01	No correction 0.0°C		
		02	-0.5 °C	More cooling Less heating	
		03	-1.0 °C		
		04	-1.5 °C		
		05	-2.0 °C		
		06	-2.5 °C		
		07	-3.0 °C		
		08	-3.5 °C		
		09	-4.0 °C		
		10	+0.5 °C	Less cooling More heating	
		11	+1.0 °C		
		12	+1.5 °C		
		13	+2.0 °C		
		14	+2.5 °C		
		15	+3.0 °C		
		16	+3.5 °C		
17	+4.0 °C				

5) Auto restart

Enables or disables automatic restart after a power interruption.

Function number	Setting value	Setting description	Factory setting
40	00	Enable	◆
	01	Disable	

NOTE: 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 external 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).

Function number	Setting value	Setting description	Factory setting
42	00	Indoor unit	◆
	01	Both	

00: Sensor on the indoor unit is active.

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

NOTE: Remote controller sensor must be turned on by using the remote controller.

7) Remote controller custom code

(Only for wireless remote controller)

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

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

8) External input control

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

Function number	Setting value	Setting description	Factory setting
46	00	Operation/Stop mode 1	◆
	01	(Setting prohibited)	
	02	Forced stop mode	
	03	Operation/Stop mode 2	

9) Room temperature sensor switching (Aux.)

To use the temperature sensor on the wired remote controller only, change the setting to "Wired remote controller" (01).

This function will only work if the function setting 42 is set at "Both" (01).

When the setting value is set to "Both" (00), more suitable control of the room temperature is possible by setting function setting 30 and 31 too.

Function number	Setting value	Setting description	Factory setting
48	00	Both	◆
	01	Wired remote controller	

10) 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.

Function number	Setting value	Setting description	Factory setting
49	00	Disable	
	01	Enable	
	02	Remote controller	◆

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.

02: Enable or disable this function by remote controller setting.

NOTES:

- As the factory setting, this setting is initially activated.
- Set to "00" or "01" when connecting a remote controller that cannot set the Fan control for energy saving function or connecting a network converter.
To confirm if the remote controller has this setting, refer to the operating manual of each remote controller.



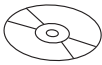
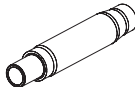


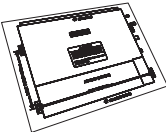
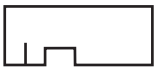



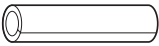

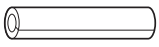
11) Switching functions for external output terminal

Functions of the external output terminal can be switched. For details, refer to “External input and output”.



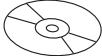
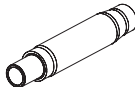


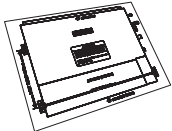




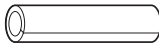

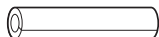
Function number	Setting value	Setting description	Factory setting
60	00	Operation status	◆
	01—08	(Setting prohibited)	
	09	Error status	
	10	Fresh air control	
	11	External heater	

10. Accessories

10-1. Models: ARXG09KLLAP, ARXG12KLLAP, and ARXG14KLLAP

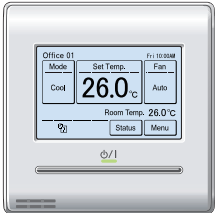
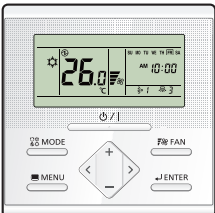
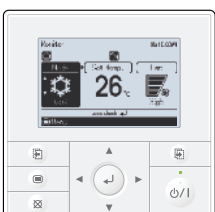
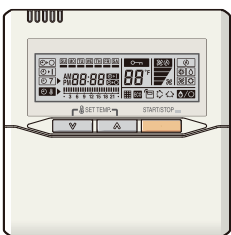



Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Operating manual		1	Filter (small)		2
Operating manual (CD-ROM)		1	Drain hose		1
Installation manual		1	Hose band		1
Installation template		1	Drain hose insulation B		1
Washer		8	Insulation (for electrical wiring)		2
Cable tie (large)		4	Coupler heat insulation (large)		1
Cable tie (medium)		3	Coupler heat insulation (small)		1


10-2. Model: ARXG18KLLAP

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Operating manual		1	Filter (large)		2
Operating manual (CD-ROM)		1	Drain hose		1
Installation manual		1	Hose band		1
Installation template		1	Drain hose insulation B		1
Washer		8	Insulation (for electrical wiring)		2
Cable tie (large)		4	Coupler heat insulation (large)		1
Cable tie (medium)		3	Coupler heat insulation (small)		1

11. Optional parts




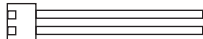




11-1. Controllers

Exterior	Part name	Model name	Summary
	Wired remote controller	UTY-RNRYZ*	Easy finger touch operation with LCD panel. Backlit LCD enables easy operation in a dark room. Wire type: Non-polar 2-wire
	Wired remote controller	UTY-RLRY	High visibility and easy operation. Room temperature can be accurately controlled using the built-in thermo sensor. Wire type: Non-polar 2-wire
	Wired remote controller	UTY-RVNYM	Large and full-dot liquid crystal screen, wide and large keys easy to press, user-intuitive arrow key. Wire type: Polar 3-wire
	Wired remote controller	UTY-RNNYM	Room temperature can be controlled by detecting the temperature accurately with built-in thermo sensor. Wire type: Polar 3-wire
	Simple remote controller	UTY-RSRY	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting, and operation mode. Wire type: Non-polar 2-wire
	Simple remote controller	UTY-RHRY	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, and temperature setting. Wire type: Non-polar 2-wire
	Simple remote controller	UTY-RSNYM	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting, and operation mode. Wire type: Polar 3-wire

Exterior	Part name	Model name	Summary
	IR receiver kit with wireless remote controller	UTY-LBTYM	Unit control is performed by wireless remote controller.

NOTE: Available functions may differ by the remote controller. For details, refer to the operation manual.

11-2. Others

Exterior	Part name	Model name	Summary
	Remote sensor unit	UTY-XSZX	Thermo-sensor for sensing the temperature of arbitrary place in the room.
	Auto louver grille kit	UTD-GXTA-W	Width: 683 mm For 09, 12, and 14 models
	Auto louver grille kit	UTD-GXTB-W	Width: 883 mm For 18 model
	External connect kit	UTY-XWZXZG	Use to connect with various peripheral devices and air conditioner PCB. For control output port.
	Wireless LAN adapter	UTY-TFSXZ1	Remotely manage an air conditioning system using mobile devices such as smartphones and tablets. For connection indoor unit with UART interface.
	Modbus converter	UTY-VMSX	For connection between indoor unit with UART interface and a Modbus open network.
	KNX converter	UTY-VKSX	For connection between indoor unit with UART interface and a KNX open network.
	External switch controller	UTY-TERX	Air conditioner switching can be controlled by connecting other external sensor switches.

NOTE: Combined use of following optional parts and Wireless LAN adapter (UTY-TFSXZ1) is not allowed.

- Modbus converter
- KNX converter

Part 2. OUTDOOR UNIT

SINGLE TYPE:

AOYG09KBTB

AOYG12KBTB

AOYG14KBTB

AOYG18KBTB

1. Specifications

OUTDOOR UNIT
AOYG09-18KBTB

OUTDOOR UNIT
AOYG09-18KBTB

Type			Inverter heat pump				
Model name			AOYG09KBTB	AOYG12KBTB	AOYG14KBTB	AOYG18KBTB	
Power supply			230 V ~ 50 Hz				
Available voltage range			198—264 V				
Starting current			A	4.0	4.8	5.8	7.1
Fan	Airflow rate	Cooling	m ³ /h	1,480	1,580	1,670	2,160
		Heating		1,410	1,520	1,580	1,830
	Type × Q'ty	Propeller fan × 1					
Motor output			W	23	23	23	49
Sound pressure level *1	Cooling	Heating	dB (A)	46	47	49	50
				46	47	49	50
Sound power level	Cooling	Heating	dB (A)	59	61	62	62
				59	61	62	62
Heat exchanger type	Dimensions (H × W × D)		mm	504 × 881 × 18.19			588 × 881 × 18.19
	Fin pitch			504 × 851 × 18.19			588 × 851 × 18.19
	Fin pitch		1.3				
	Rows × Stages		2 × 24			2 × 28	
	Pipe type		Copper tube				
	Fin type		Type (Material)		Aluminum		
		Surface treatment		PC fin			
Compressor	Type × Q'ty	W		DC rotary × 1	DC Twin rotary × 1		
	Motor output			900	810	900	
Refrigerant	Type (Global warming potential)		R32 (675)				
	Charge		g		850		1,020
Refrigerant oil	Type		RB68A		FW68S		
	Amount		cm ³		340		350
Enclosure	Material		Steel sheet				
	Color		Beige				
		Approximate color of Munsell 10YR 7.5/1.0					
Dimensions (H × W × D)	Net		mm	542 × 799 × 290			632 × 799 × 290
	Gross			602 × 940 × 375			692 × 940 × 375
Weight	Net		kg	32		33	36
	Gross			35		37	40
Connection pipe	Size	Liquid	mm (in)	Ø 6.35 (Ø 1/4)			
		Gas		Ø 9.52 (Ø 3/8)			Ø 12.70 (Ø 1/2)
	Method		Flare				
	Pre-charge length		m	15			20
	Max. length			20	25		30
Max. height difference		15		20	20		
Operation range	Cooling	Heating	°C	-15 to 46			
				-15 to 24			
Drain hose	Material		PP				
	Size		mm				Ø 13.0 (I. D.), Ø 16.0 to Ø 16.8 (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.
- Protective function might work when using it outside the operation range.
- *1: Sound pressure level
 - Measured values in manufacturer's anechoic chamber.
 - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

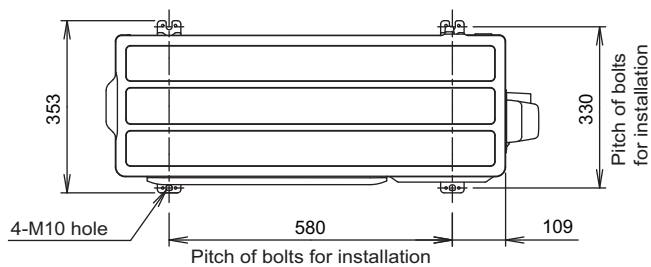
2. Dimensions

2-1. Models: AOYG09KBTB, AOYG12KBTB, and AOYG14KBTB

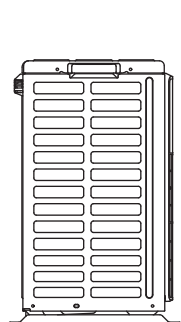
Unit: mm

OUTDOOR UNIT
AOYG09-18KBTB

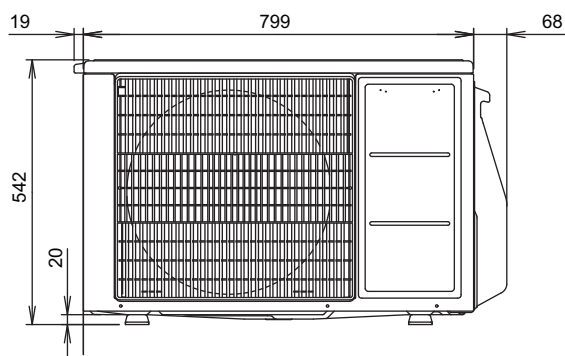
OUTDOOR UNIT
AOYG09-18KBTB



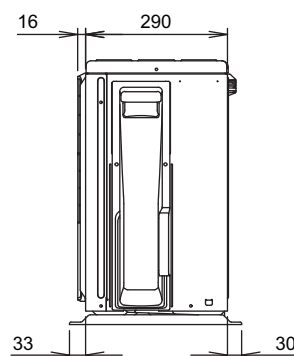
Top view



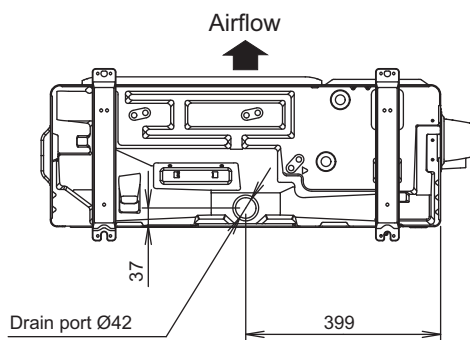
Side view



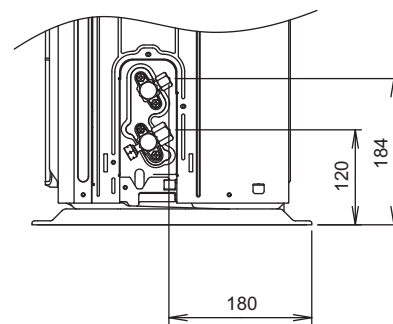
Front view



Side view



Bottom view



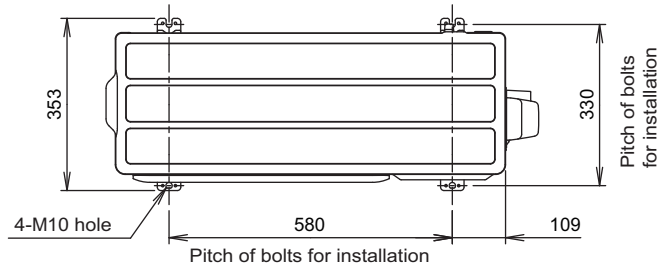
Side view (Valve part)

2-2. Model: AOYG18KBTB

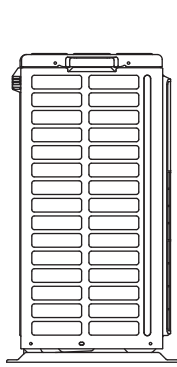
Unit: mm

OUTDOOR UNIT
AOYG09-18KBTB

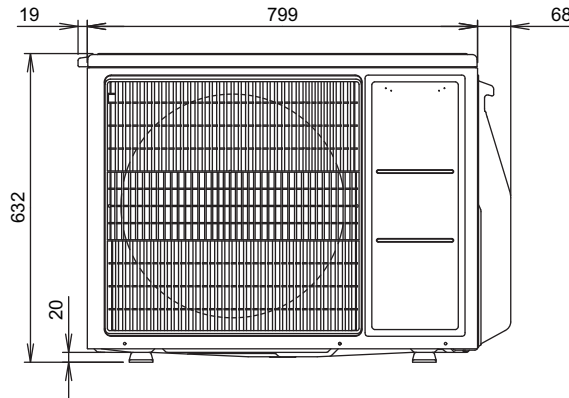
OUTDOOR UNIT
AOYG09-18KBTB



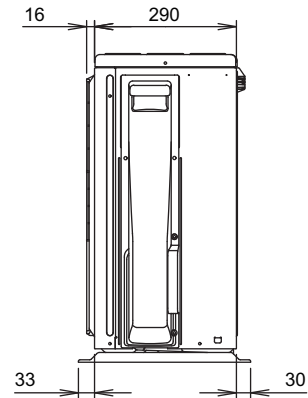
Top view



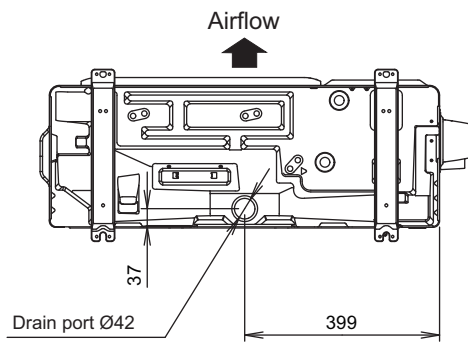
Side view



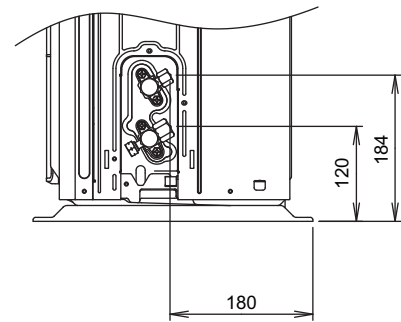
Front view



Side view



Bottom view



Side view (Valve part)

3. Installation space

3-1. Models: AOYG09KBTB, AOYG12KBTB, AOYG14KBTB, and AOYG18KBTB

■ Space requirement

Provide sufficient installation space for product safety.

⚠ CAUTION

Keep the space shown in the installation examples.

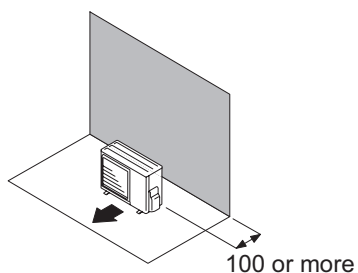
If the installation is not performed accordingly, it could cause a short circuit and result in a lack of operating performance.

● Single outdoor unit installation

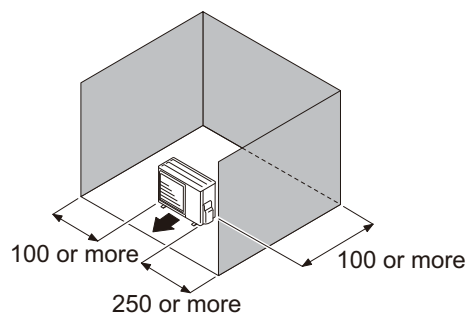
- When the upper space is open:

Unit: mm

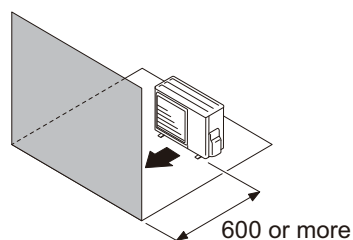
Obstacles at rear only



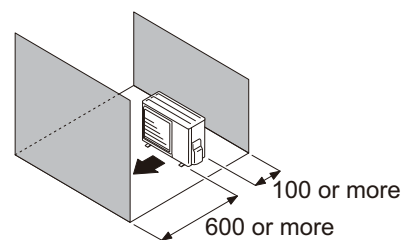
Obstacles at rear and sides



Obstacles at front



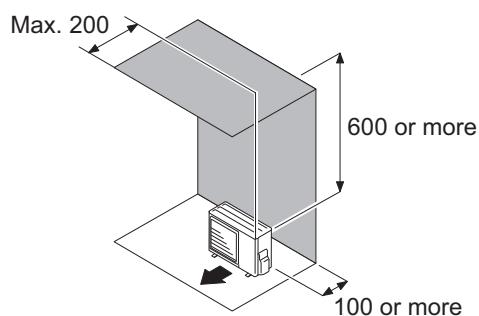
Obstacles at front and rear



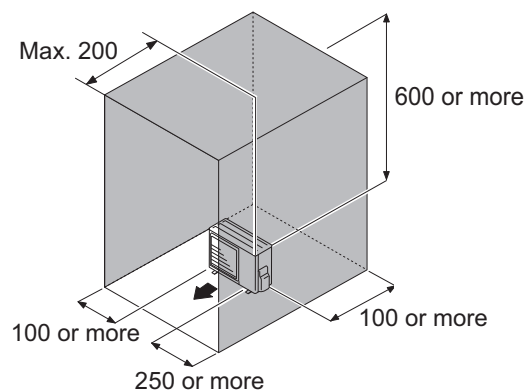
- When there is an obstruction in the upper space:

Unit: mm

Obstacles at rear and above



Obstacles at rear, sides, and above



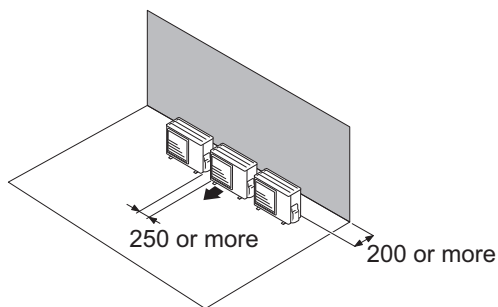
● Multiple outdoor unit installation

- Provide at least 250 mm of space between the outdoor units if multiple units are installed.
- When routing the piping from the side of an outdoor unit, provide space for piping.
- No more than 3 units must be installed side by side.
When 3 units or more are arranged in a line, provide the space as shown in the following example **“When an obstruction in the upper space:”**.

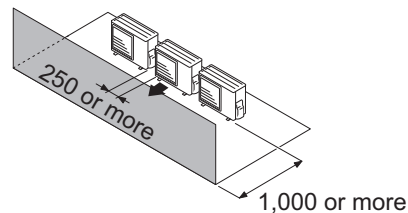
- **When the upper space is open:**

Unit: mm

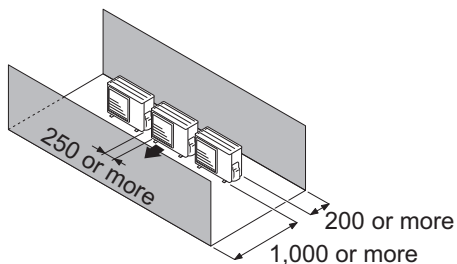
Obstacles at rear only



Obstacles at front only



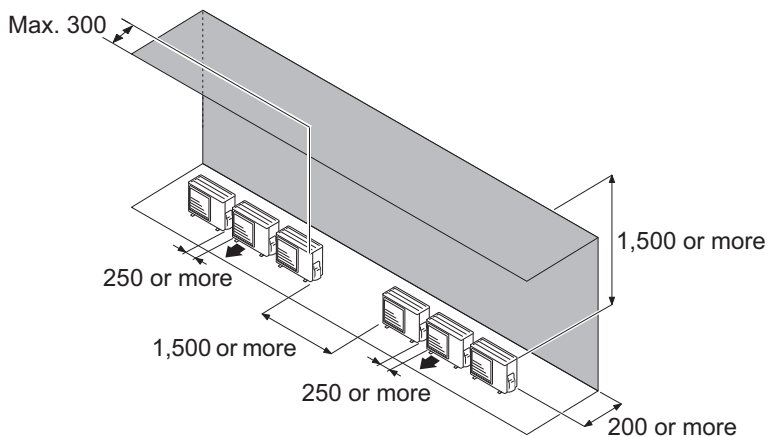
Obstacles at front and rear



- **When an obstruction in the upper space:**

Unit: mm

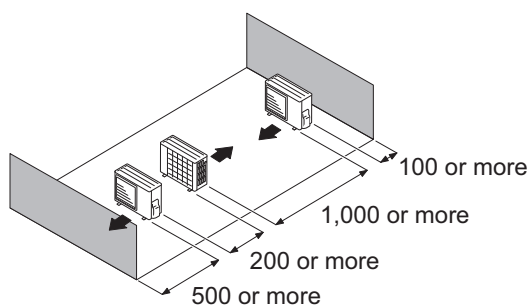
Obstacles at rear and above.



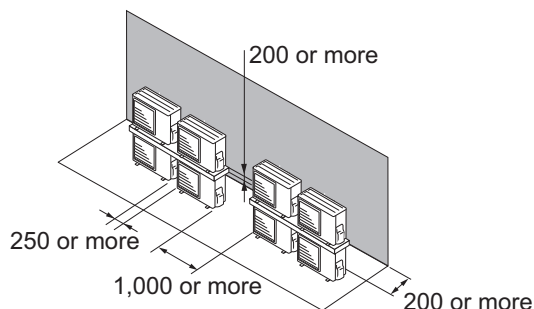
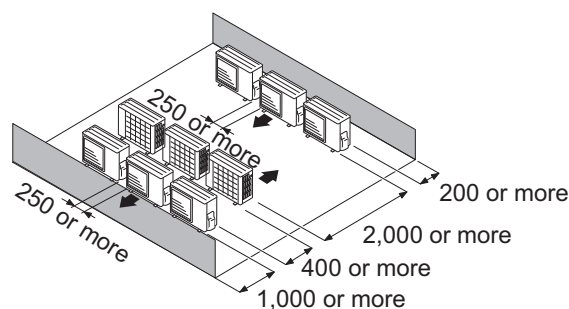
● Outdoor units installation in multi-row

Unit: mm

Single parallel unit arrangement



Multiple parallel unit arrangement

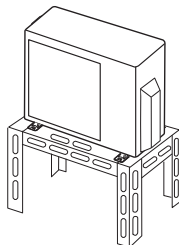


NOTES:

- If the space is larger than stated above, the condition will be the same as when there is no obstacle.
- When installing the outdoor unit, be sure to open the front and left side to obtain better operation efficiency.

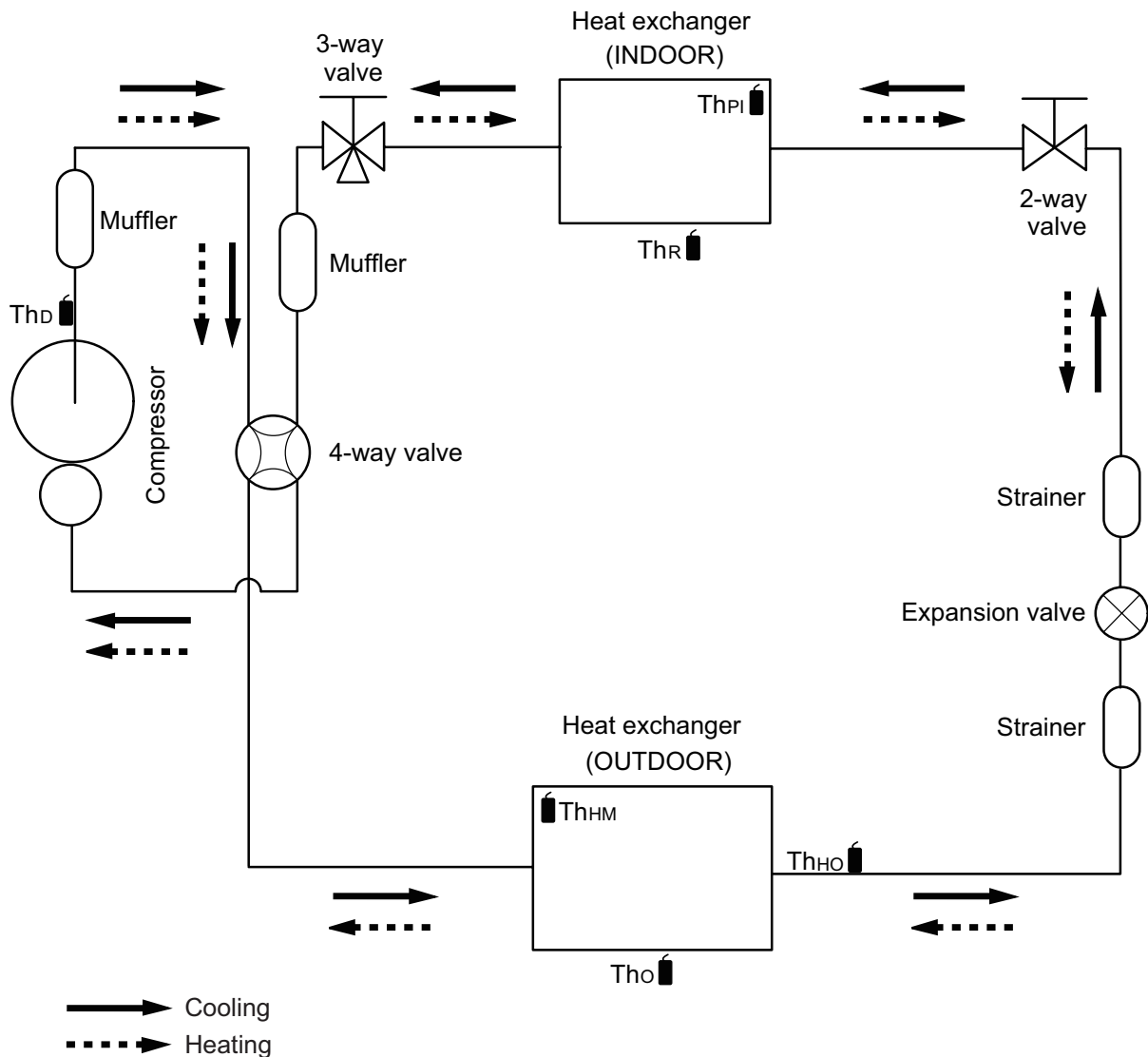
⚠ CAUTION

- Do not install the outdoor unit in two-stage where the drain water could freeze. Otherwise the drainage from the upper unit may form ice and cause a malfunction of the lower unit.
- When the outdoor temperature is 0 °C or less, do not use the accessory drain pipe and drain cap. If the drain pipe and drain cap are used, the drain water in the pipe may freeze in extremely cold climate. (For reverse cycle model only.)
- In area with heavy snowfall, if the inlet and outlet of the outdoor unit is blocked with snow, it might become difficult to get warm, and it is likely to cause product malfunction. Construct a canopy and a pedestal, or place the unit on a high stand that is locally installed.



4. Refrigerant circuit

4-1. Models: AOYG09KBTB, AOYG12KBTB, and AOYG14KBTB



Th_D : Thermistor (Discharge temperature)

Th_O : Thermistor (Outdoor temperature)

Th_{HO} : Thermistor (Heat exchanger out temperature)

Th_{HM} : Thermistor (Heat exchanger middle temperature)

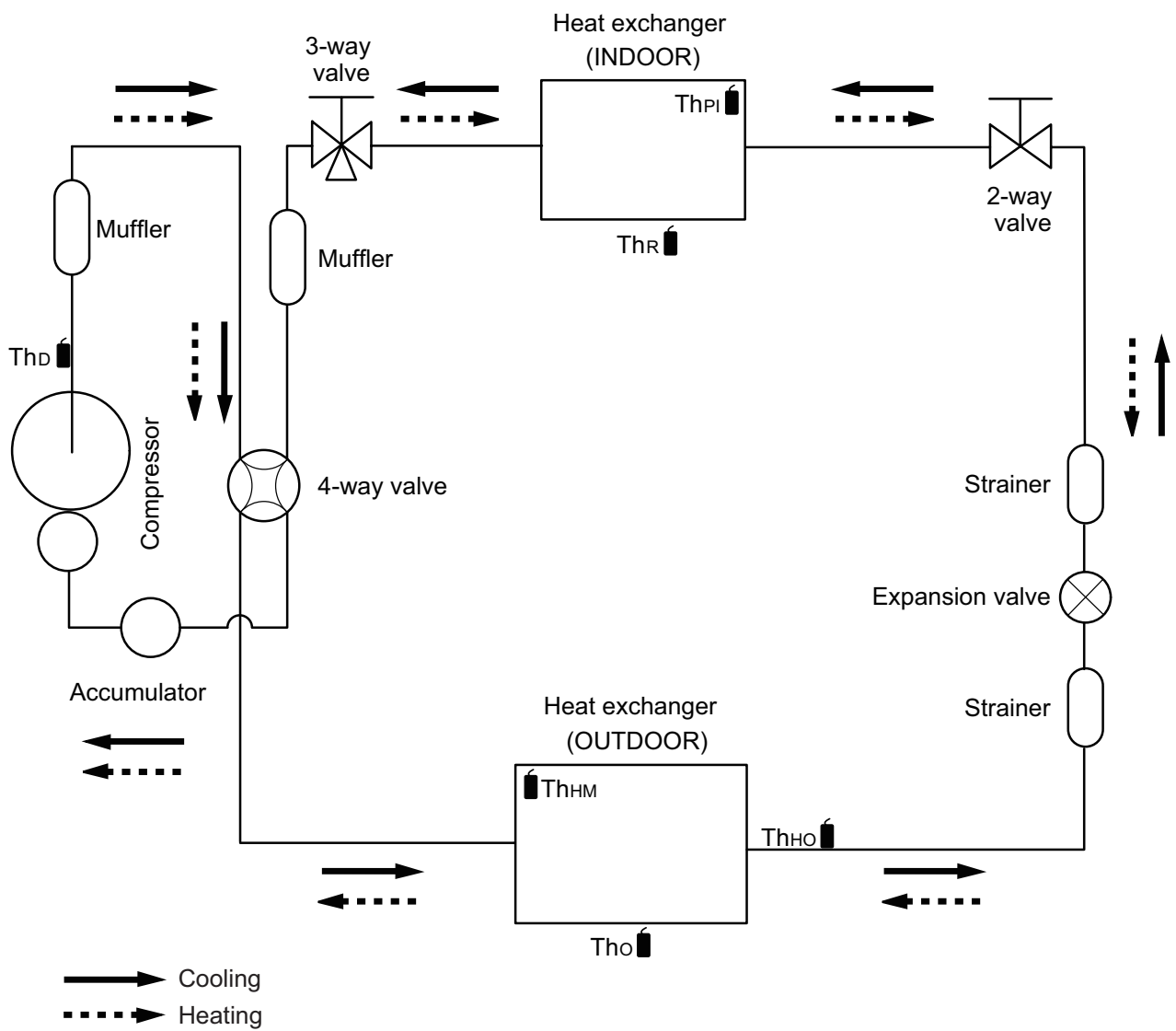
Th_R : Thermistor (Room temperature)

Th_{PI} : Thermistor (Pipe temperature)

4-2. Model: AOYG18KBTB

OUTDOOR UNIT
AOYG09-18KBTB

OUTDOOR UNIT
AOYG09-18KBTB



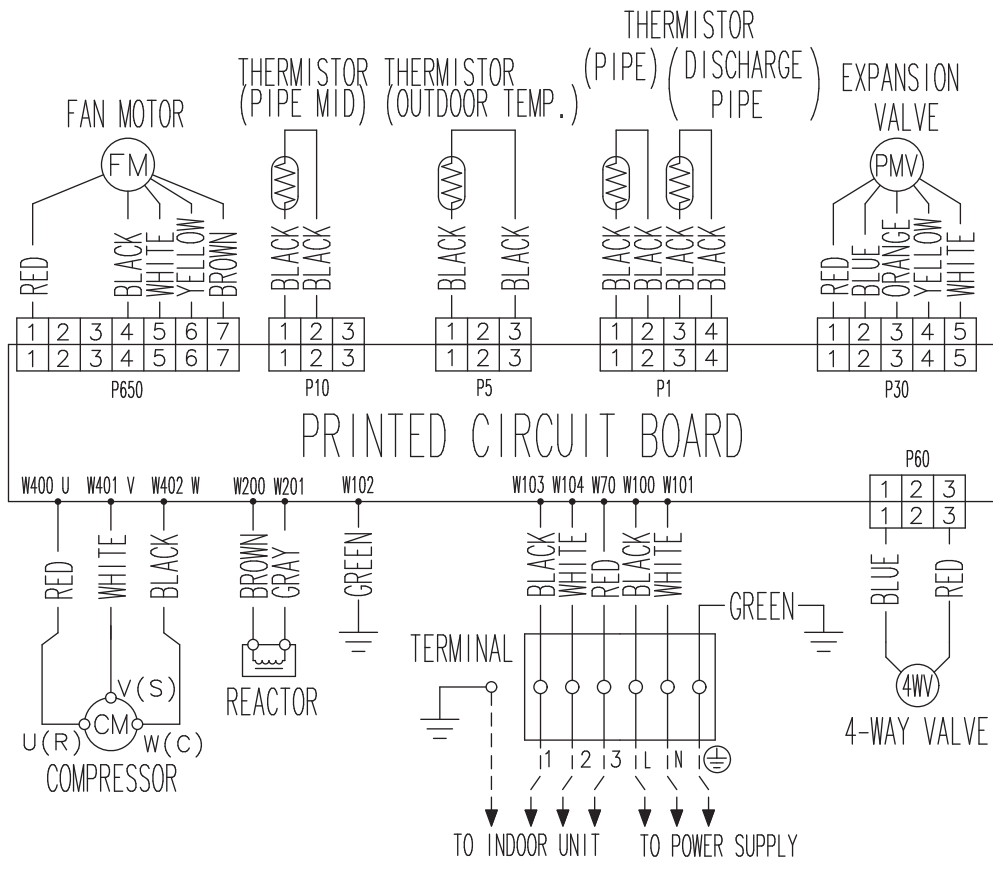
- Th_D : Thermistor (Discharge temperature)
- Th_O : Thermistor (Outdoor temperature)
- Th_{HO} : Thermistor (Heat exchanger out temperature)
- Th_{HM} : Thermistor (Heat exchanger middle temperature)
- Th_R : Thermistor (Room temperature)
- Th_{PI} : Thermistor (Pipe temperature)

5. Wiring diagrams

5-1. Model: AOYG09KBTB

OUTDOOR UNIT
AOYG09-18KBTB

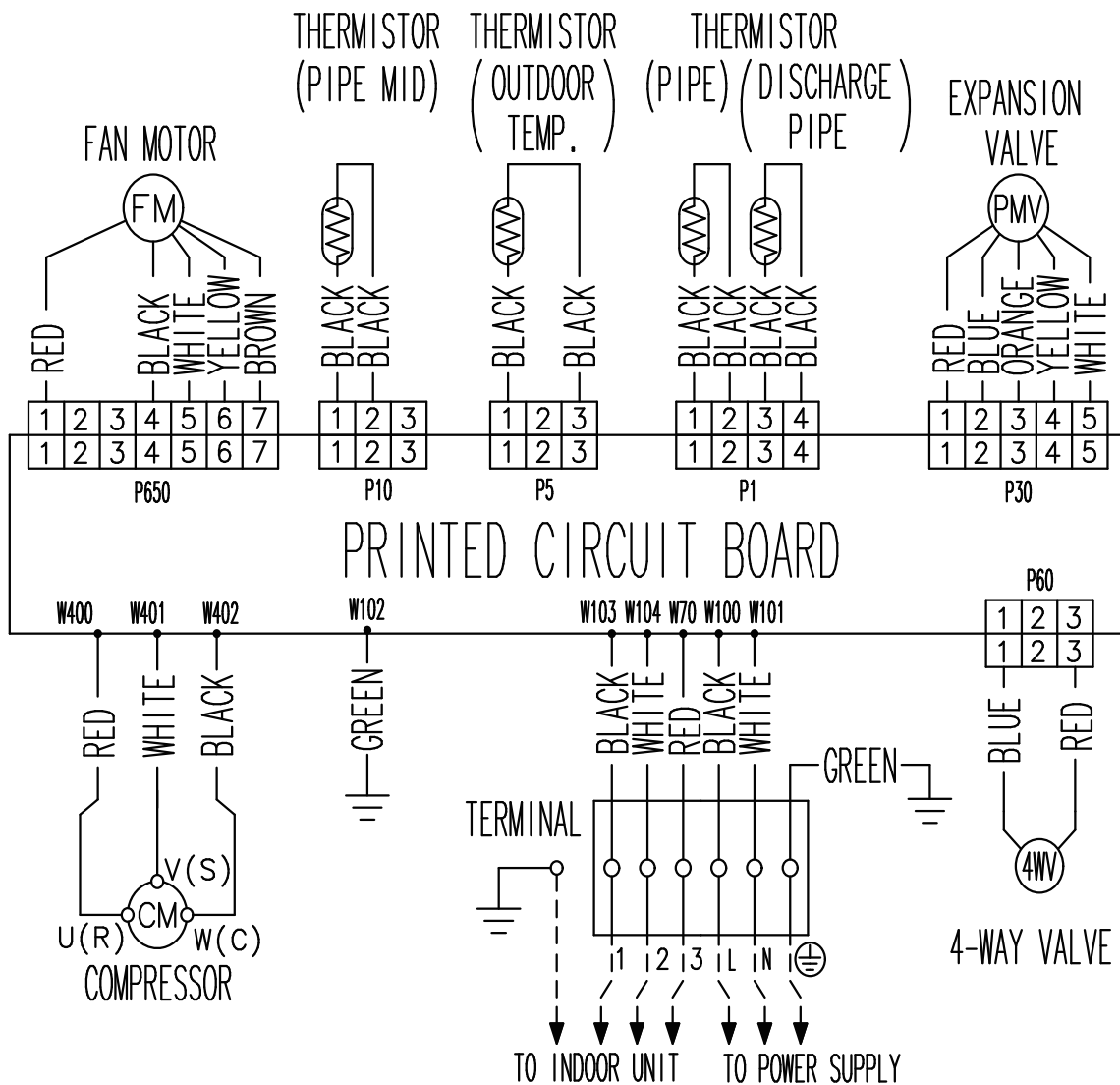
OUTDOOR UNIT
AOYG09-18KBTB



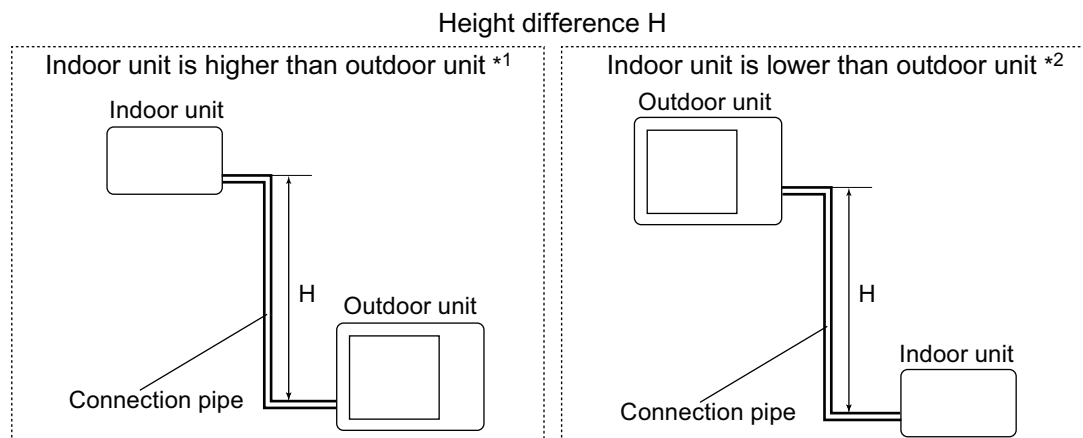
5-2. Models: AOYG12KBTB, AOYG14KBTB, and AOYG18KBTB

OUTDOOR UNIT
AOYG09-18KBTB

OUTDOOR UNIT
AOYG09-18KBTB



6. Capacity compensation rate for pipe length and height difference



6-1. Model: AOYG09KBTB

NOTE: Values mentioned in the table are calculated based on the maximum capacity.

COOLING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	Indoor unit is higher than outdoor unit *1	15	—	—	—	0.903	0.894
		10	—	—	0.964	0.918	0.909
		7.5	—	0.988	0.968	0.922	0.912
		5	0.992	0.992	0.972	0.925	0.916
	Indoor unit is lower than outdoor unit *2	0	1.000	1.000	0.980	0.933	0.923
		-5	1.000	1.000	0.980	0.933	0.923
		-7.5	—	1.000	0.980	0.933	0.923
		-10	—	—	0.980	0.933	0.923
		-15	—	—	—	0.933	0.923

HEATING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	Indoor unit is higher than outdoor unit *1	15	—	—	—	0.943	0.916
		10	—	—	1.010	0.943	0.916
		7.5	—	1.000	1.010	0.943	0.916
		5	1.000	1.000	1.010	0.943	0.916
		0	1.000	1.000	1.010	0.943	0.916
	Indoor unit is lower than outdoor unit *2	-5	0.995	0.995	1.005	0.939	0.912
		-7.5	—	0.993	1.002	0.936	0.909
		-10	—	—	0.999	0.934	0.907
		-15	—	—	—	0.925	0.898

6-2. Model: AOYG12KBTB

NOTE: Values mentioned in the table are calculated based on the maximum capacity.

COOLING			Pipe length (m)					
			5	7.5	10	15	20	25
Height difference H (m)	Indoor unit is higher than outdoor unit *1	20	—	—	—	—	0.879	0.851
		15	—	—	—	0.903	0.894	0.867
		10	—	—	0.964	0.918	0.909	0.881
		7.5	—	0.988	0.968	0.922	0.912	0.885
		5	0.992	0.992	0.972	0.925	0.916	0.888
	Indoor unit is lower than outdoor unit *2	0	1.000	1.000	0.980	0.933	0.923	0.895
		-5	1.000	1.000	0.980	0.933	0.923	0.895
		-7.5	—	1.000	0.980	0.933	0.923	0.895
		-10	—	—	0.980	0.933	0.923	0.895
		-15	—	—	—	0.933	0.923	0.895
	-20	—	—	—	—	0.923	0.895	

HEATING			Pipe length (m)					
			5	7.5	10	15	20	25
Height difference H (m)	Indoor unit is higher than outdoor unit *1	20	—	—	—	—	0.916	0.896
		15	—	—	—	0.943	0.916	0.896
		10	—	—	1.010	0.943	0.916	0.896
		7.5	—	1.000	1.010	0.943	0.916	0.896
		5	1.000	1.000	1.010	0.943	0.916	0.896
	Indoor unit is lower than outdoor unit *2	0	1.000	1.000	1.010	0.943	0.916	0.896
		-5	0.995	0.995	1.005	0.939	0.912	0.892
		-7.5	—	0.993	1.002	0.936	0.909	0.890
		-10	—	—	0.999	0.934	0.907	0.887
		-15	—	—	—	0.925	0.898	0.878
	-20	—	—	—	—	0.890	0.868	

6-3. Model: AOYG14KBTB

NOTE: Values mentioned in the table are calculated based on the maximum capacity.

COOLING			Pipe length (m)					
			5	7.5	10	15	20	25
Height difference H (m)	Indoor unit is higher than outdoor unit *1	20	—	—	—	—	0.932	0.930
		15	—	—	—	0.953	0.950	0.947
		10	—	—	0.983	0.968	0.966	0.962
		7.5	—	0.988	0.987	0.972	0.970	0.966
		5	0.992	0.992	0.991	0.976	0.974	0.970
	Indoor unit is lower than outdoor unit *2	0	1.000	1.000	0.999	0.984	0.982	0.978
		-5	1.000	1.000	0.999	0.984	0.982	0.978
		-7.5	—	1.000	0.999	0.984	0.982	0.978
		-10	—	—	0.999	0.984	0.982	0.978
		-15	—	—	—	0.984	0.982	0.978
	-20	—	—	—	—	0.982	0.978	

HEATING			Pipe length (m)					
			5	7.5	10	15	20	25
Height difference H (m)	Indoor unit is higher than outdoor unit *1	20	—	—	—	—	0.891	0.862
		15	—	—	—	0.918	0.891	0.862
		10	—	—	0.981	0.918	0.891	0.862
		7.5	—	1.000	0.981	0.918	0.891	0.862
		5	1.000	1.000	0.981	0.918	0.891	0.862
	Indoor unit is lower than outdoor unit *2	0	1.000	1.000	0.981	0.918	0.891	0.862
		-5	0.995	0.995	0.976	0.914	0.886	0.858
		-7.5	—	0.993	0.974	0.912	0.884	0.856
		-10	—	—	0.972	0.909	0.882	0.854
		-15	—	—	—	0.900	0.873	0.845
	-20	—	—	—	—	0.863	0.834	

6-4. Model: AOYG18KBTB

NOTE: Values mentioned in the table are calculated based on the maximum capacity.

COOLING			Pipe length (m)						
			5	7.5	10	15	20	25	30
Height difference H (m)	Indoor unit is higher than outdoor unit *1	20	—	—	—	—	0.932	0.930	0.924
		15	—	—	—	0.953	0.950	0.947	0.941
		10	—	—	0.983	0.968	0.966	0.962	0.956
		7.5	—	0.988	0.987	0.972	0.970	0.966	0.960
		5	0.992	0.992	0.991	0.976	0.974	0.970	0.964
	Indoor unit is lower than outdoor unit *2	0	1.000	1.000	0.999	0.984	0.982	0.978	0.972
		-5	1.000	1.000	0.999	0.984	0.982	0.978	0.972
		-7.5	—	1.000	0.999	0.984	0.982	0.978	0.972
		-10	—	—	0.999	0.984	0.982	0.978	0.972
		-15	—	—	—	0.984	0.982	0.978	0.972
-20	—	—	—	—	0.982	0.978	0.972		

HEATING			Pipe length (m)						
			5	7.5	10	15	20	25	30
Height difference H (m)	Indoor unit is higher than outdoor unit *1	20	—	—	—	—	0.894	0.867	0.839
		15	—	—	—	0.920	0.894	0.867	0.839
		10	—	—	0.982	0.920	0.894	0.867	0.839
		7.5	—	1.000	0.982	0.920	0.894	0.867	0.839
		5	1.000	1.000	0.982	0.920	0.894	0.867	0.839
	Indoor unit is lower than outdoor unit *2	0	1.000	1.000	0.982	0.920	0.894	0.867	0.839
		-5	0.995	0.995	0.977	0.916	0.889	0.862	0.836
		-7.5	—	0.993	0.975	0.913	0.887	0.860	0.832
		-10	—	—	0.972	0.911	0.885	0.858	0.830
		-15	—	—	—	0.902	0.876	0.849	0.821
-20	—	—	—	—	0.863	0.834	0.809		

7. Additional charge calculation

7-1. Model: AOYG09KBTB

Refrigerant type		R32
Refrigerant amount	g	850

■ Refrigerant charge

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

7-2. Models: AOYG12KBTB and AOYG14KBTB

Refrigerant type		R32
Refrigerant amount	g	850

■ Refrigerant charge

Total pipe length	m	15 or less	20	25 (Max.)	20 g/m
Additional charge	g	0	100	200	

7-3. Model: AOYG18KBTB

Refrigerant type		R32
Refrigerant amount	g	1,020

■ Refrigerant charge

Total pipe length	m	20 or less	25	30 (Max.)	20 g/m
Additional charge	g	0	100	200	

8. Airflow

8-1. Model: AOYG09KBTB

● Cooling

m ³ /h	1,480
l/s	411
CFM	871

● Heating

m ³ /h	1,410
l/s	392
CFM	830

8-2. Model: AOYG12KBTB

● Cooling

m ³ /h	1,580
l/s	439
CFM	930

● Heating

m ³ /h	1,520
l/s	422
CFM	895

8-3. Model: AOYG14KBTB

● Cooling

m ³ /h	1,670
l/s	464
CFM	983

● Heating

m ³ /h	1,580
l/s	439
CFM	930

8-4. Model: AOYG18KBTB**● Cooling**

m ³ /h	2,160
l/s	600
CFM	1,271

● Heating

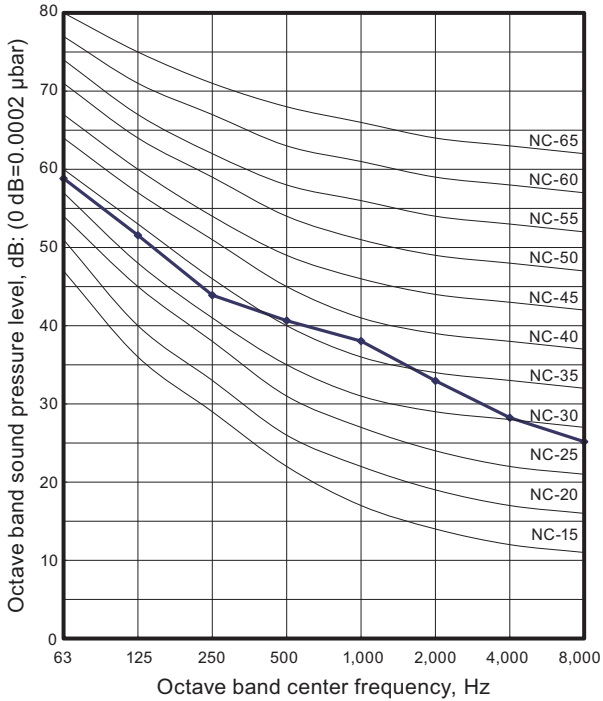
m ³ /h	1,830
l/s	508
CFM	1,077

9. Operation noise (sound pressure)

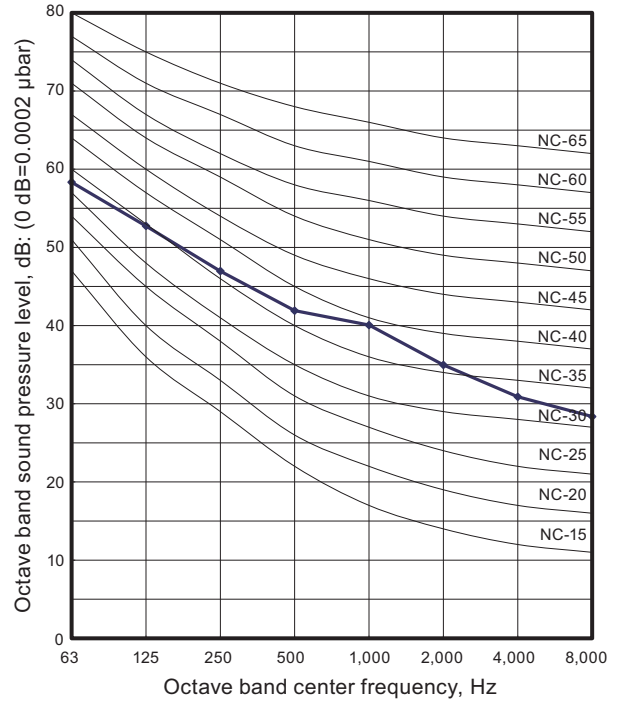
9-1. Noise level curve

Model: AOYG09KBTB

● Cooling

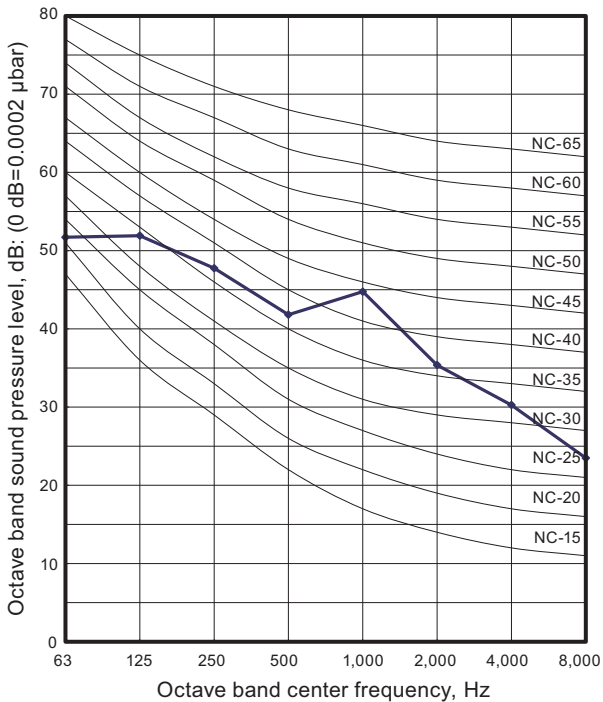


● Heating

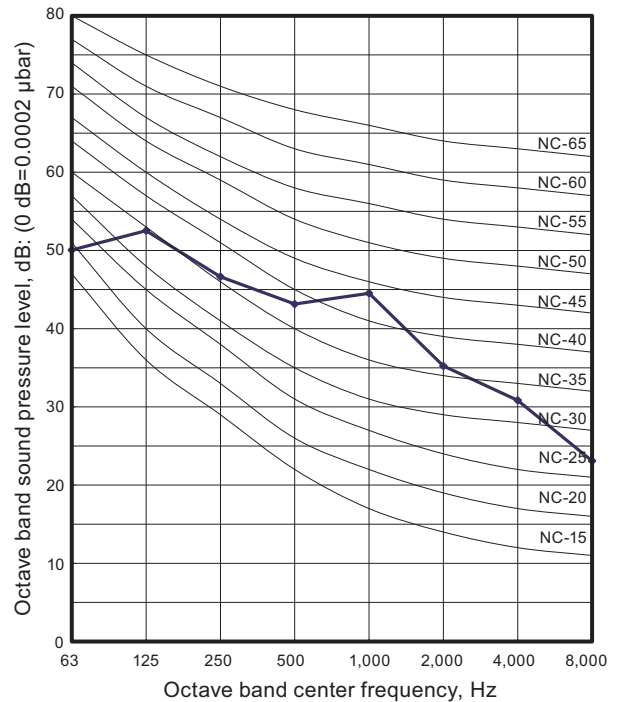


Model: AOYG12KBTB

● Cooling



● Heating

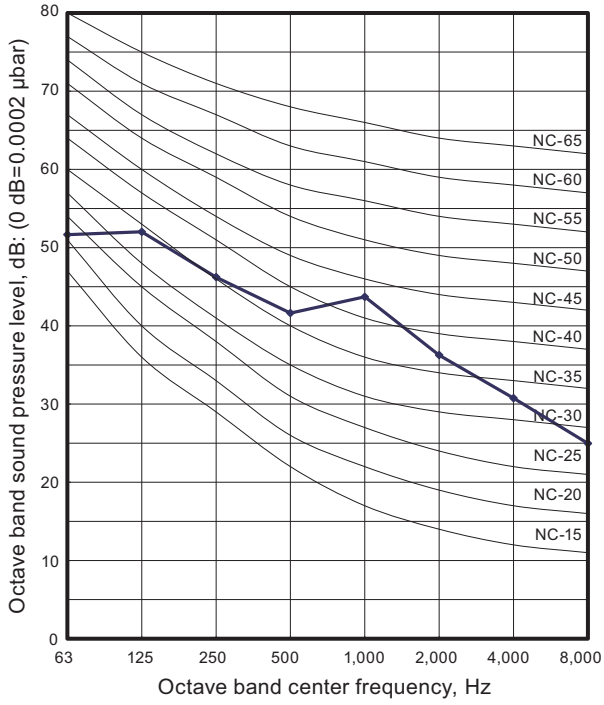


OUTDOOR UNIT
AOYG09-18KBTB

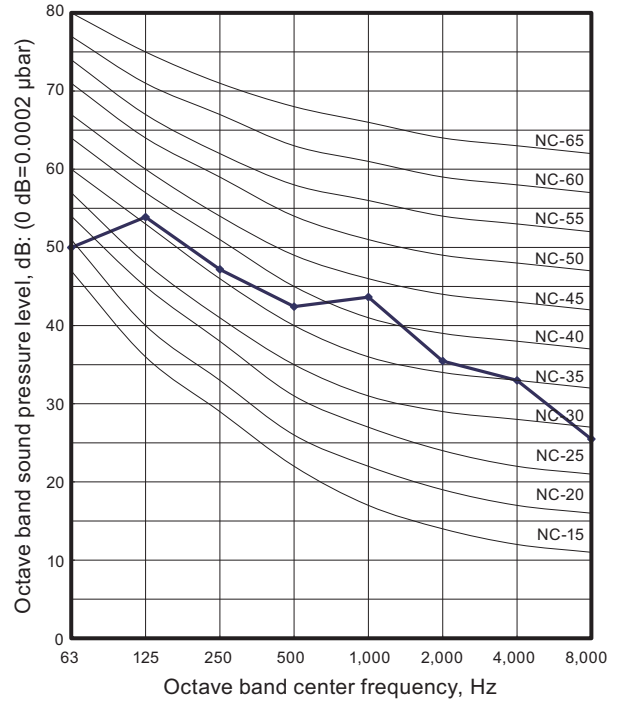
OUTDOOR UNIT
AOYG09-18KBTB

Model: AOYG14KBTB

Cooling



Heating

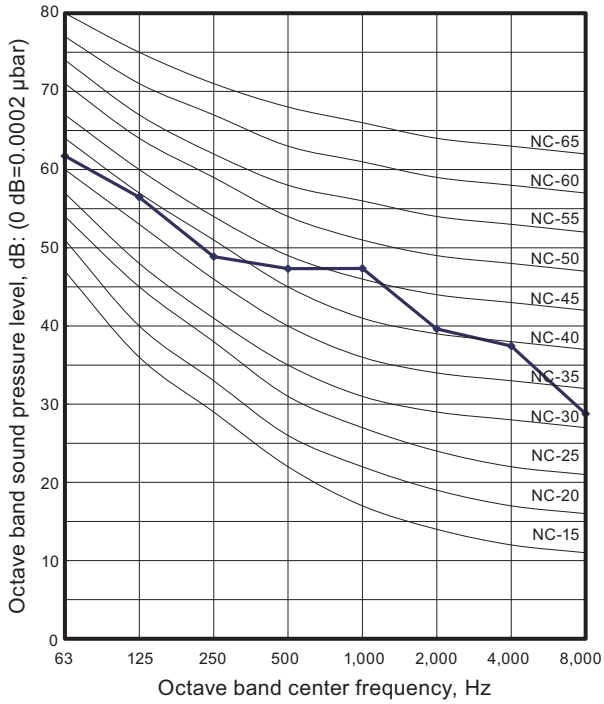


OUTDOOR UNIT
AOYG09-18KBTB

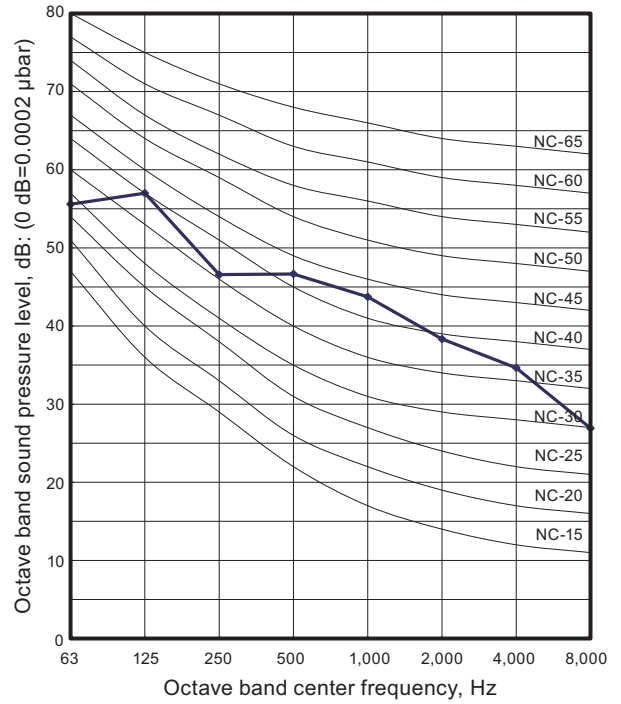
OUTDOOR UNIT
AOYG09-18KBTB

Model: AOYG18KBTB

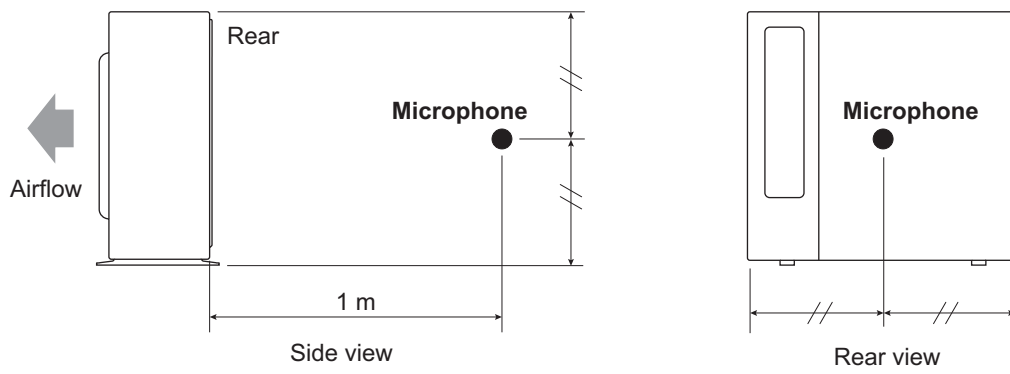
Cooling



Heating



9-2. Sound level check point



NOTE: Detailed shape of the actual outdoor unit might be slightly different from the one illustrated above.

10. Electrical characteristics

Model name			AOYG09KBTB	AOYG12KBTB	
Power supply	Voltage	V	230 ~		
	Frequency	Hz	50		
Max operating current *1		A	7.9	9.7	
Starting current		A	4.0	4.8	
Wiring spec. *2	Circuit breaker current		A	10	13
	Power cable		mm ²	1.5	
	Connection cable *3	Cross-sectional area	mm ²	1.5	
		Limited wiring length	m	21	26

Model name			AOYG14KBTB	AOYG18KBTB	
Power supply	Voltage	V	230 ~		
	Frequency	Hz	50		
Max operating current *1		A	10.2	12.1	
Starting current		A	5.8	7.1	
Wiring spec. *2	Circuit breaker current		A	13	16
	Power cable		mm ²	1.5	
	Connection cable *3	Cross-sectional area	mm ²	1.5	
		Limited wiring length	m	26	31

*1: Maximum operating current is the total current of the indoor unit and the outdoor unit.

*2: Selected sample based on Japan Electrotechnical Standards and Codes Committee E0005. As the regulations of wire size and circuit breaker differ in each country or region, select appropriate devices complied to the regional standard.

*3: Limit voltage drop to less than 2%. If voltage drop is 2% or more, increase cable conductor size.


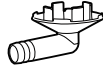
11. Safety devices

Type of protection	Protection form		Model	
			AOYG09KBTB	AOYG12KBTB
Circuit protection	Current fuse (Main PCB)		250 V, 20 A	250 V, 25 A
			250 V, 5 A	
			250 V, 3.15 A	
Fan motor protection	Terminal protection program	Activate	125 ±25 °C Fan motor stop	100 ±15 °C Fan motor stop
		Reset	100 ±25 °C Fan motor restart	95 ±10 °C Fan motor restart
Compressor protection	Terminal protection program (Discharge temp.)	Activate	110 °C Compressor stop	
		Reset	After 7 minutes Compressor restart	
	Thermal protection program (Outdoor temp.) (Only in COOL or DRY mode)	Activate	-20 °C Compressor stop	
		Reset	-15 °C Compressor restart	

Type of protection	Protection form		Model	
			AOYG14KBTB	AOYG18KBTB
Circuit protection	Current fuse (Main PCB)		250 V, 25 A	
			250 V, 5 A	
			250 V, 3.15 A	
Fan motor protection	Terminal protection program	Activate	100 ±15 °C Fan motor stop	125 ±10 °C Fan motor stop
		Reset	95 ±10 °C Fan motor restart	120 ±10 °C Fan motor restart
Compressor protection	Terminal protection program (Discharge temp.)	Activate	110 °C Compressor stop	
		Reset	After 7 minutes Compressor restart	
	Thermal protection program (Outdoor temp.) (Only in COOL or DRY mode)	Activate	-20 °C Compressor stop	
		Reset	-15 °C Compressor restart	

12. Accessories

12-1. Models: AOYG09KBTB, AOYG12KBTB, AOYG14KBTB, and AOYG18KBTB

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Drain pipe		1