FUJITSU

REFRIGERANT R32
INVERTER

AIR CONDITIONER

Wall mounted type

DESIGN & TECHNICAL MANUAL

INDOOR

ASBG09KMBA
ASBG12KMBA

OUTDOOR

AOBG09KMCA
AOBG12KMCA

FUJITSU GENERAL LIMITED

DR_AS180EF_01
2023.01.20

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- Product specifications and design are subject to change without notice for future improvement.
- For further details, please check with our authorized dealer.

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Part 1. INDOOR UNIT

WALL MOUNTED TYPE:
ASBG09KMBA
ASBG12KMBA

WALL MOUNTED
ASBG09-12KMBA

1. Specifications

Type					Wall mounted	
					Inverter, Heat pump	
Model name					**ASBG09KMBA**	**ASBG12KMBA**
Power supply					220 V~ 60 Hz	
Power supply intake					Outdoor unit	
Available voltage range					198—242 V	
Capacity		Cooling	Rated	kW	2.64	3.52
				Btu/h	9,000	12,000
			Min.—Max.	kW	0.5—3.2	0.9—3.8
				Btu/h	1,700—10,900	3,100—13,000
		Heating	Rated	kW	2.64	3.52
				Btu/h	9,000	12,000
			Min.—Max.	kW	0.5—3.2	0.9—3.8
				Btu/h	1,700—10,900	3,100—13,000
Input power		Cooling	Rated	kW	0.69	0.94
			Min.—Max.		0.15—1.20	0.16—1.29
		Heating	Rated		0.59	0.82
			Min.—Max.		0.25—1.15	0.25—1.31
Current		Cooling	Rated	A	3.5	4.7
		Heating			3.3	4.2
EER		Cooling		kW/kW	3.83	3.74
COP		Heating			4.47	4.29
Sensible capacity		Cooling		kW	2.47	2.96
Power factor		Cooling		%	90	91
		Heating			81	89
Moisture removal				L/h (pints/h)	1.1 (1.9)	
Maximum operating current*1		Cooling		A	6.5	
		Heating			9.0	
Fan	Airflow rate	Cooling	HIGH	m^3/h	640	750
			MED		560	640
			LOW		480	480
			QUIET		310	310
		Heating	HIGH		640	750
			MED		560	640
			LOW		520	520
			QUIET		330	330
	Type × Qty				Crossflow fan × 1	
	Motor output			W	35	
Sound pressure level*2		Cooling	HIGH	dB (A)	40	43
			MED		36	40
			LOW		32	
			QUIET		21	
		Heating	HIGH		40	43
			MED		36	38
			LOW		33	
			QUIET		22	
Heat exchanger		Dimensions (H × W × D)		mm	Main: 320 × 630 × 20 Sub: 84 × 630 × 13.3	
		Fin pitch			Main: 1.1 Sub: 1.4	
		Rows × Stages			Main: 2 × 20 Sub: 1 × 4	
		Pipe type			Copper tube	
		Fin type			Aluminum	
Enclosure		Material			Polystyrene	
		Color			White Approximate color of Munsell N9.25/	
Dimensions (H × W × D)		Net		mm	268 × 840 × 203	
		Gross			270 × 884 × 336	
Weight		Net		kg	8.0	
		Gross			10.5	
Connection pipe		Size	Liquid	mm (in)	Ø6.35 (Ø1/4)	
			Gas		Ø9.52 (Ø3/8)	
		Method			Flare	
Drain hose		Material			PP+HDPE	
		Tip diameter		mm	Ø13.8 (I.D.), Ø15.0 to Ø16.8 (O.D.)	
Operation range		Cooling		°C	18 to 32	
				%RH	80 or less	
		Heating		°C	16 to 30	
Remote controller					Wireless (Option: Wired, Mobile app*3 [AIRSTAGE Mobile])	

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. (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: Maximum current is maximum value when operated within the operation range.
- *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.

WALL MOUNTED
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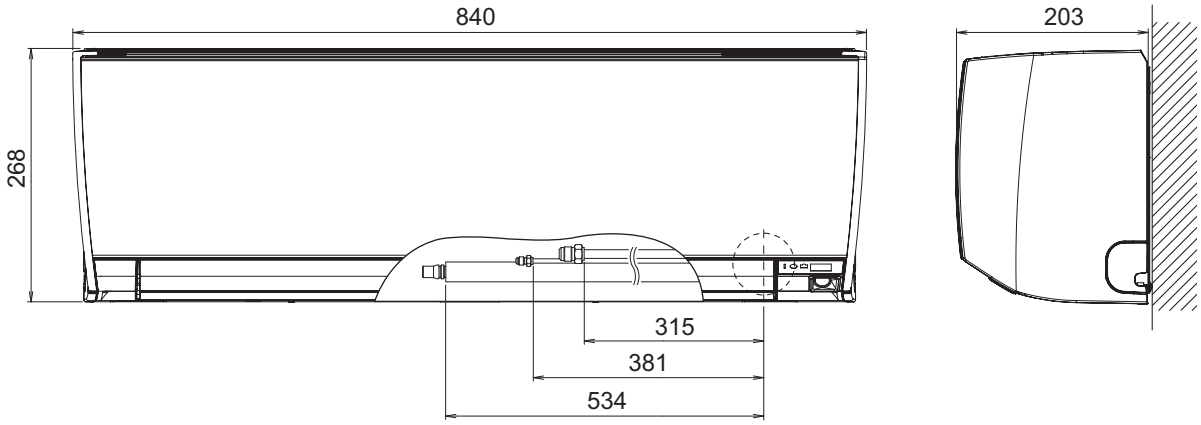
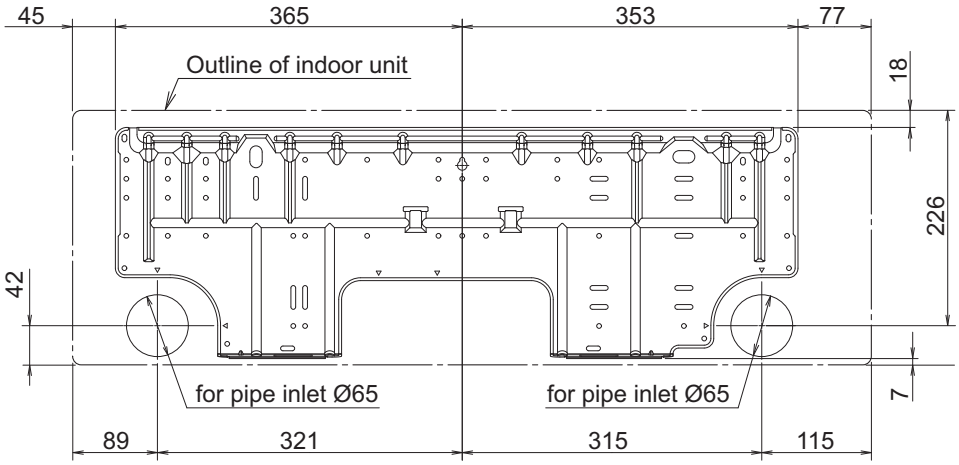
2. Dimensions

2-1. Models: ASBG09KMBA and ASBG12KMBA

Unit: mm



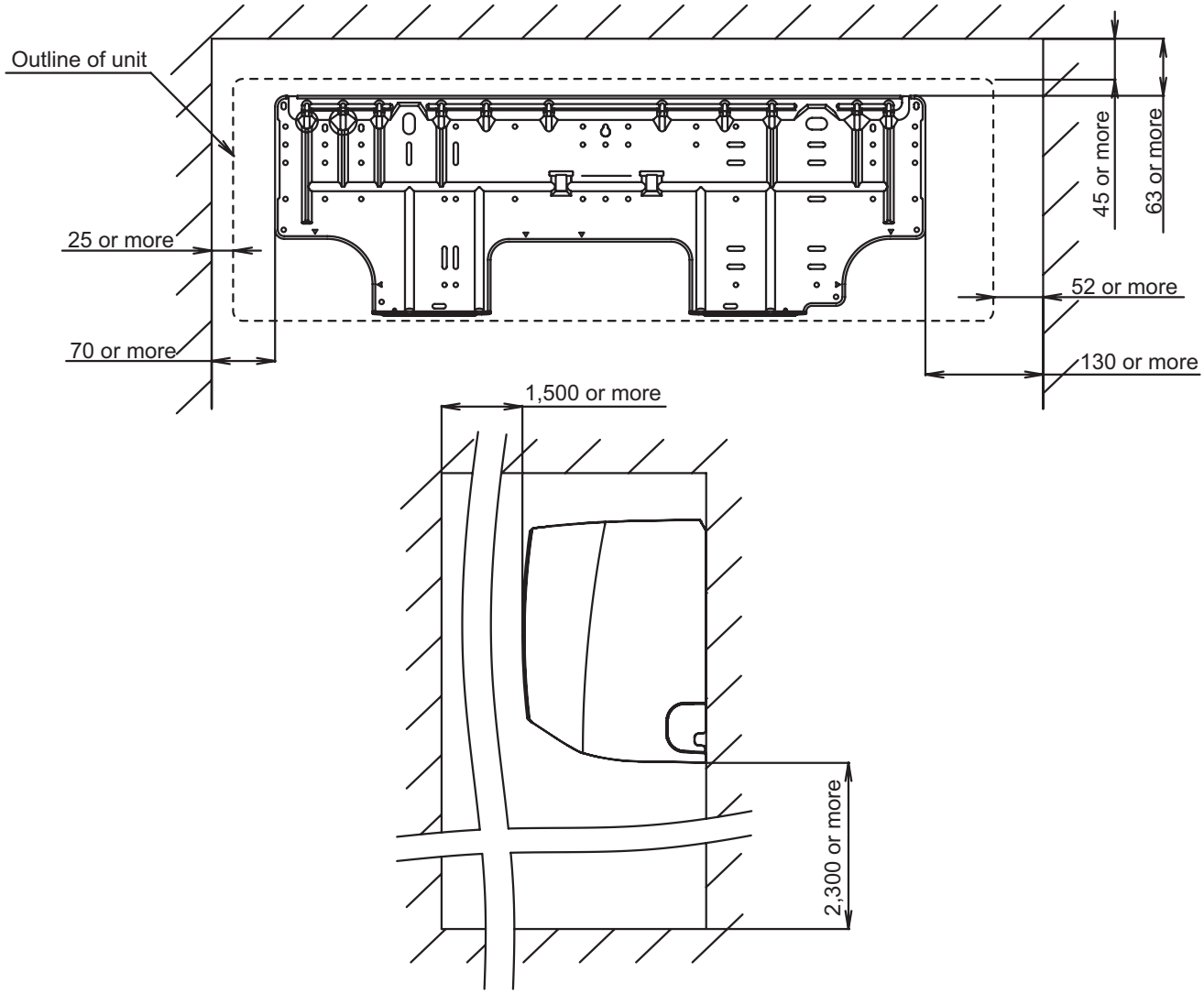


WALL MOUNTED
ASBG09-12KMBA

■ Installation space requirement

Provide sufficient installation space for product safety.

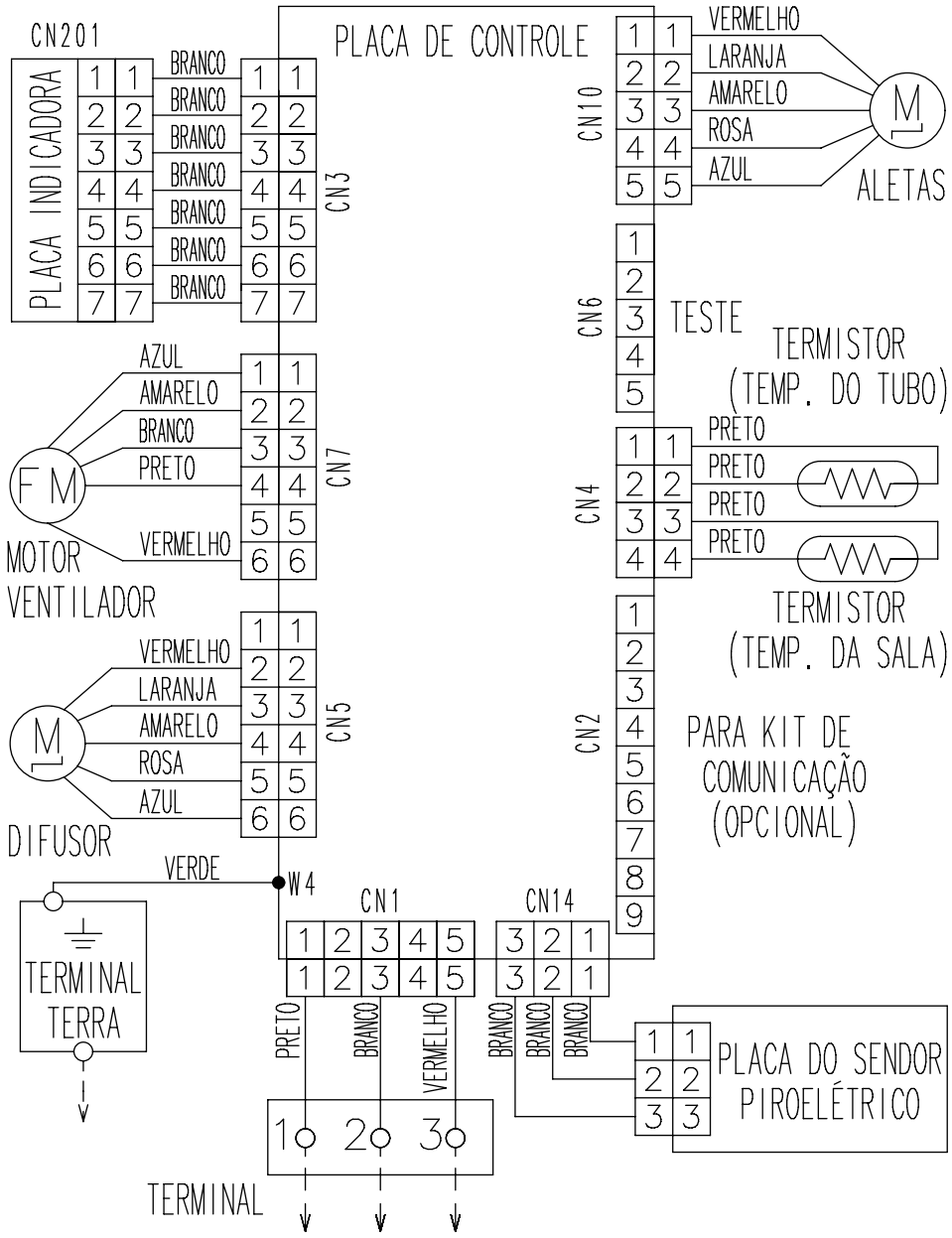
Unit: mm



WALL MOUNTED
ASBG09-12KMBA

3. Wiring diagrams

3-1. Models: ASBG09KMBA and ASBG12KMBA



WALL MOUNTED
ASBG09-12KMBA

4. Capacity table

Capacity tables show each of following values calculated based on the outdoor temperature and the indoor temperature, under given Airflow Rate (AFR):

For cooling capacity: Total Capacity (TC), Sensible Heat Capacity (SHC), and Input Power (IP)
For heating capacity: Total Capacity (TC) and Input Power (IP)

4-1. Cooling capacity

■ Model: ASBG09KMBA

AFR	m^3/h	640

		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
		kW			kW			kW			kW			kW			kW			kW		
	18	2.49	2.33	0.56	2.70	2.42	0.55	2.85	2.48	0.55	2.99	2.54	0.55	3.05	2.61	0.55	3.28	2.66	0.54	3.49	2.75	0.53
	20	2.46	2.33	0.56	2.67	2.42	0.56	2.82	2.48	0.55	2.96	2.54	0.55	3.02	2.61	0.55	3.24	2.66	0.54	3.46	2.75	0.54
	25	2.37	2.31	0.59	2.58	2.39	0.59	2.72	2.45	0.58	2.85	2.51	0.58	2.91	2.58	0.58	3.13	2.63	0.57	3.33	2.72	0.56
	30	2.27	2.23	0.64	2.47	2.35	0.63	2.60	2.41	0.63	2.73	2.47	0.62	2.79	2.54	0.63	2.99	2.58	0.61	3.19	2.67	0.61
	35	2.15	2.11	0.70	2.34	2.29	0.69	2.46	2.35	0.69	2.58	2.40	0.69	2.64	2.47	0.69	2.83	2.51	0.68	3.02	2.60	0.67
	40	2.01	1.98	0.78	2.19	2.15	0.77	2.30	2.27	0.77	2.42	2.32	0.76	2.47	2.39	0.77	2.65	2.43	0.75	2.83	2.51	0.75
	46	1.83	1.83	0.90	1.99	1.99	0.89	2.09	2.09	0.89	2.20	2.15	0.88	2.25	2.21	0.89	2.41	2.25	0.87	2.57	2.33	0.86
	50	1.59	1.59	0.78	1.73	1.73	0.77	1.82	1.82	0.77	1.92	1.92	0.76	1.96	1.96	0.77	2.10	1.99	0.75	2.24	2.06	0.74

■ Model: ASBG12KMBA

AFR	m^3/h	750

		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
		kW			kW			kW			kW			kW			kW			kW		
	18	2.77	2.67	0.62	3.01	2.75	0.62	3.16	2.81	0.62	3.32	2.86	0.61	3.41	2.92	0.61	3.63	2.97	0.61	3.87	3.05	0.60
	20	3.28	2.85	0.74	3.56	2.94	0.73	3.75	2.99	0.73	3.93	3.05	0.73	4.05	3.12	0.72	4.30	3.17	0.72	4.58	3.25	0.71
	25	3.16	2.77	0.81	3.43	2.85	0.80	3.61	2.91	0.80	3.79	2.97	0.80	3.90	3.03	0.79	4.15	3.08	0.79	4.41	3.16	0.78
	30	3.02	2.70	0.88	3.28	2.79	0.88	3.45	2.84	0.87	3.62	2.90	0.87	3.72	2.96	0.86	3.96	3.01	0.86	4.21	3.09	0.86
	35	2.86	2.71	0.97	3.10	2.79	0.96	3.26	2.84	0.96	3.42	2.90	0.95	3.52	2.96	0.94	3.74	3.01	0.94	3.99	3.09	0.94
	40	2.67	2.62	1.05	2.90	2.70	1.05	3.05	2.75	1.04	3.20	2.81	1.04	3.29	2.86	1.03	3.50	2.91	1.03	3.73	2.99	1.02
	46	2.42	2.42	1.17	2.63	2.63	1.16	2.76	2.73	1.15	2.90	2.78	1.15	2.98	2.84	1.13	3.17	2.89	1.14	3.38	2.96	1.13
	50	2.00	2.00	0.95	2.17	2.17	0.94	2.29	2.29	0.94	2.40	2.40	0.93	2.47	2.38	0.92	2.63	2.42	0.92	2.80	2.49	0.92

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4-2. Heating capacity

■ Model: ASBG09KMBA

AFR	m^3/h	640

			Indoor temperature									
			16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	1.71	0.90	1.71	0.93	1.70	0.93	1.70	0.97	1.69	0.99
	-10	-11	2.06	0.95	2.05	0.98	2.04	0.98	2.04	1.02	2.03	1.05
	-5	-7	2.40	1.00	2.39	1.02	2.38	1.03	2.38	1.07	2.37	1.10
	0	-2	2.75	1.05	2.74	1.07	2.72	1.08	2.72	1.12	2.71	1.15
	5	3	3.09	1.09	3.08	1.12	3.06	1.13	3.06	1.18	3.05	1.20
	7	6	3.23	1.11	3.22	1.14	3.20	1.15	3.20	1.20	3.19	1.22
	10	8	3.43	1.14	3.42	1.17	3.40	1.18	3.40	1.23	3.39	1.25
	15	10	3.54	1.15	3.53	1.17	3.51	1.18	3.51	1.23	3.50	1.26
	20	15	3.88	1.16	3.86	1.18	3.84	1.20	3.84	1.24	3.83	1.27
	24	18	4.06	1.16	4.05	1.19	4.02	1.20	4.02	1.25	4.01	1.28

■ Model: ASBG12KMBA

AFR	m^3/h	750

			Indoor temperature									
			16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	2.07	1.03	2.05	1.05	2.02	1.06	2.01	1.10	1.99	1.13
	-10	-11	2.48	1.08	2.46	1.11	2.42	1.12	2.41	1.16	2.39	1.19
	-5	-7	2.89	1.14	2.87	1.16	2.83	1.17	2.82	1.22	2.79	1.25
	0	-2	3.31	1.19	3.28	1.22	3.23	1.23	3.22	1.28	3.19	1.31
	5	3	3.72	1.24	3.69	1.27	3.64	1.29	3.62	1.33	3.59	1.36
	7	6	3.89	1.27	3.85	1.30	3.80	1.31	3.79	1.36	3.75	1.39
	10	8	4.14	1.30	4.10	1.33	4.04	1.34	4.03	1.39	3.99	1.42
	15	10	4.11	1.21	4.07	1.24	4.02	1.25	4.00	1.29	3.96	1.32
	20	15	4.33	1.15	4.29	1.18	4.23	1.19	4.21	1.24	4.18	1.26
	24	18	4.41	1.11	4.38	1.14	4.31	1.15	4.30	1.19	4.26	1.22

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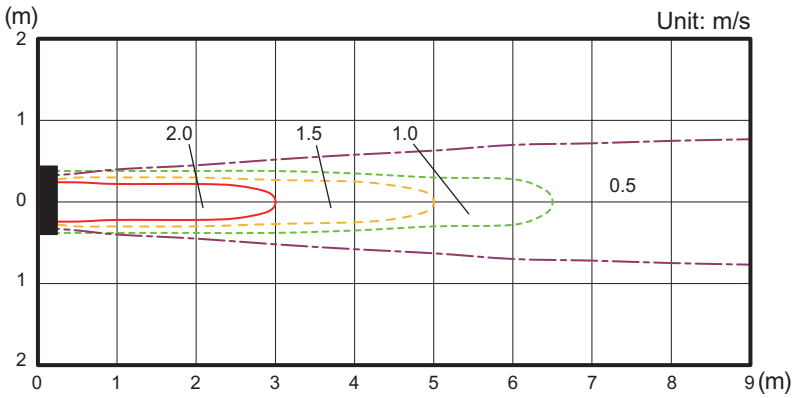
5. Fan performance

5-1. Air velocity distributions

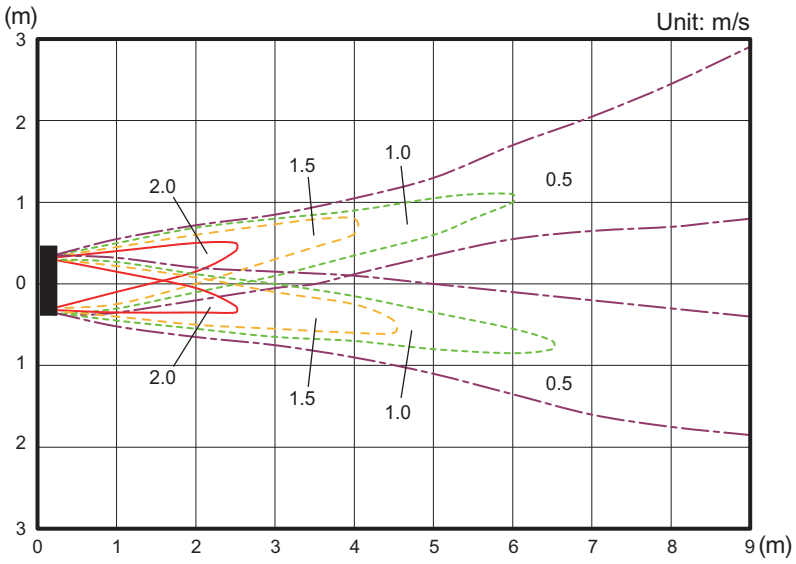
■ Model: ASBG09KMBA

Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

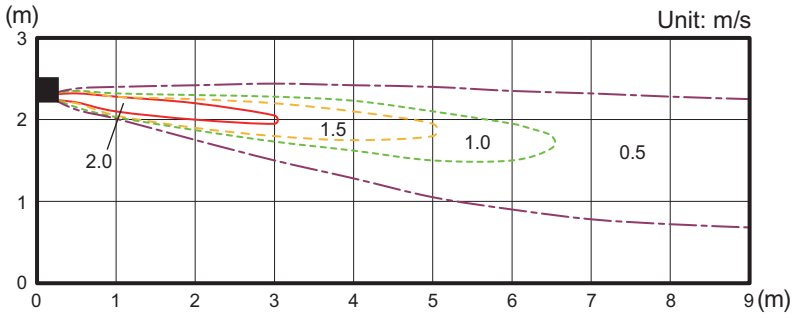
Top view
Horizontal louver: Up
Vertical louver: Center



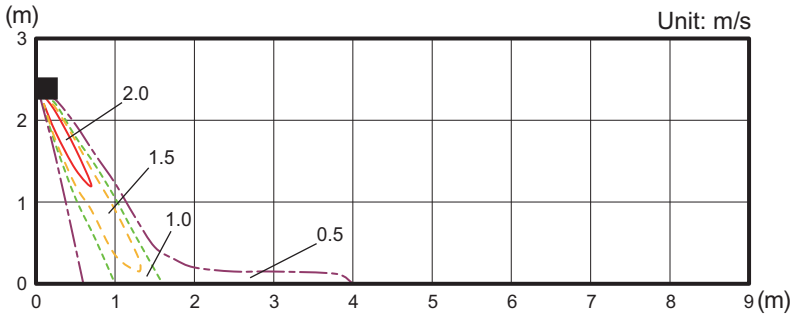
Top view
Horizontal louver: Up
Vertical louver: Left & Right



Side view
Horizontal louver: Up
Vertical louver: Center



Side view
Horizontal louver: Down
Vertical louver: Center



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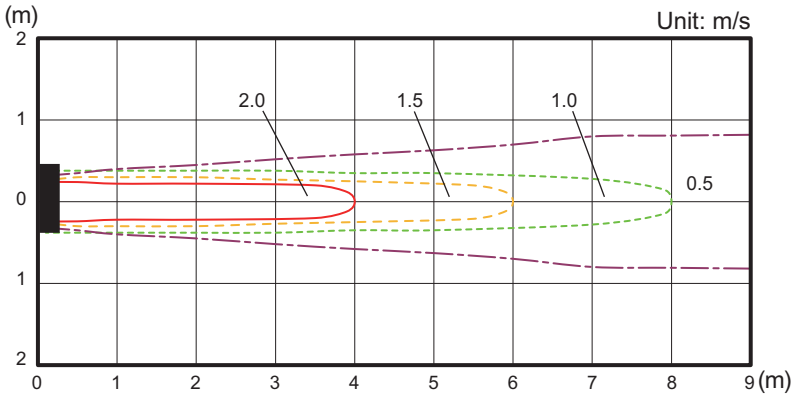
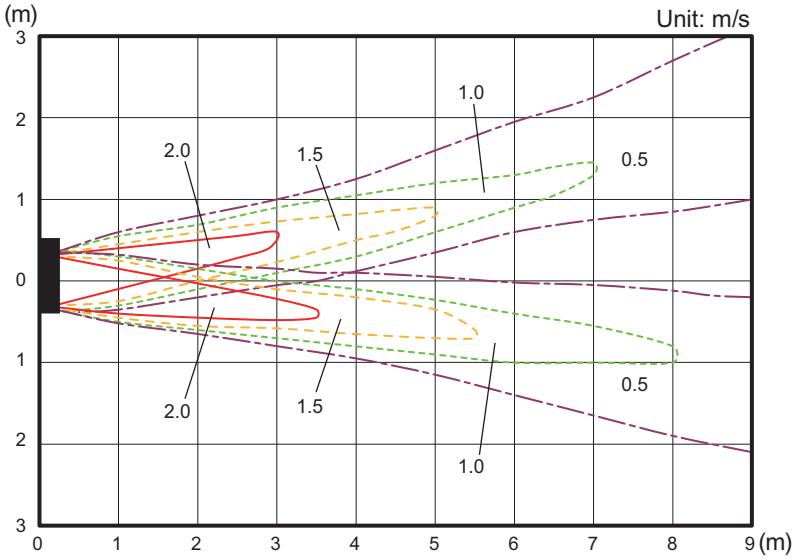
■ Model: ASBG12KMBA

Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

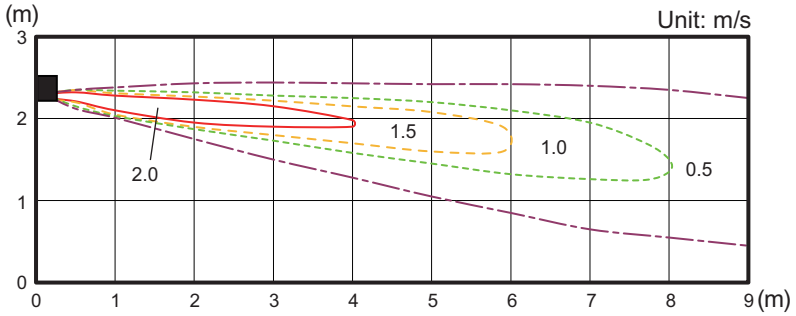
Top view
Horizontal louver: Up
Vertical louver: Center



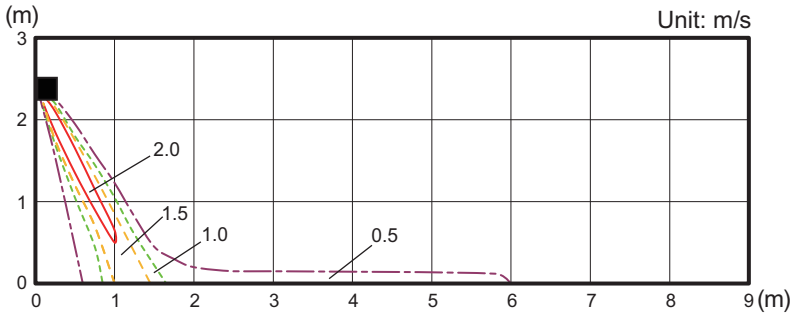
Top view
Horizontal louver: Up
Vertical louver: Left & Right



Side view
Horizontal louver: Up
Vertical louver: Center



Side view
Horizontal louver: Down
Vertical louver: Center



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5-2. Airflow

■ Model: ASBG09KMBA

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	640
	l/s	178
	CFM	377
MED	m^3/h	560
	l/s	156
	CFM	330
LOW	m^3/h	480
	l/s	133
	CFM	283
QUIET	m^3/h	310
	l/s	86
	CFM	182

● Heating

Fan speed	Airflow	
HIGH	m^3/h	640
	l/s	156
	CFM	377
MED	m^3/h	560
	l/s	156
	CFM	330
LOW	m^3/h	520
	l/s	144
	CFM	306
QUIET	m^3/h	330
	l/s	92
	CFM	194

WALL MOUNTED
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■ Model: ASBG12KMBA

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	750
	l/s	208
	CFM	441
MED	m^3/h	640
	l/s	178
	CFM	377
LOW	m^3/h	480
	l/s	133
	CFM	283
QUIET	m^3/h	310
	l/s	86
	CFM	182

● Heating

Fan speed	Airflow	
HIGH	m^3/h	750
	l/s	178
	CFM	441
MED	m^3/h	640
	l/s	178
	CFM	377
LOW	m^3/h	520
	l/s	144
	CFM	306
QUIET	m^3/h	330
	l/s	92
	CFM	194

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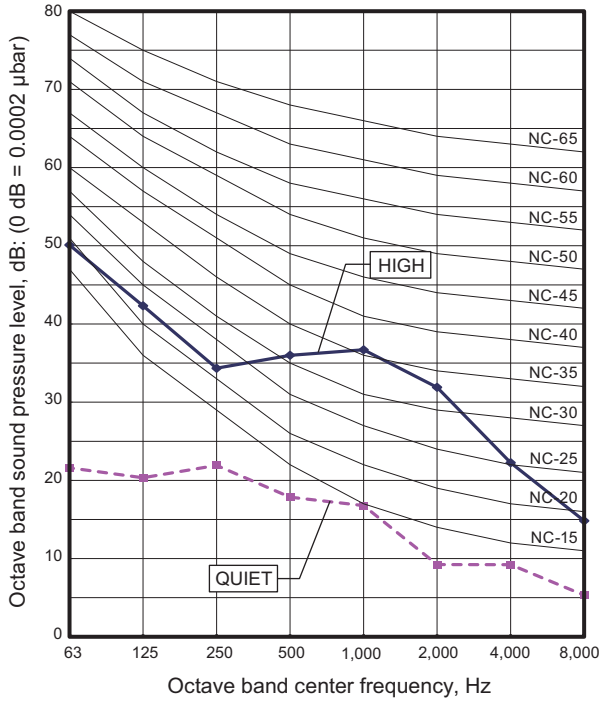
6. Operation noise (sound pressure)

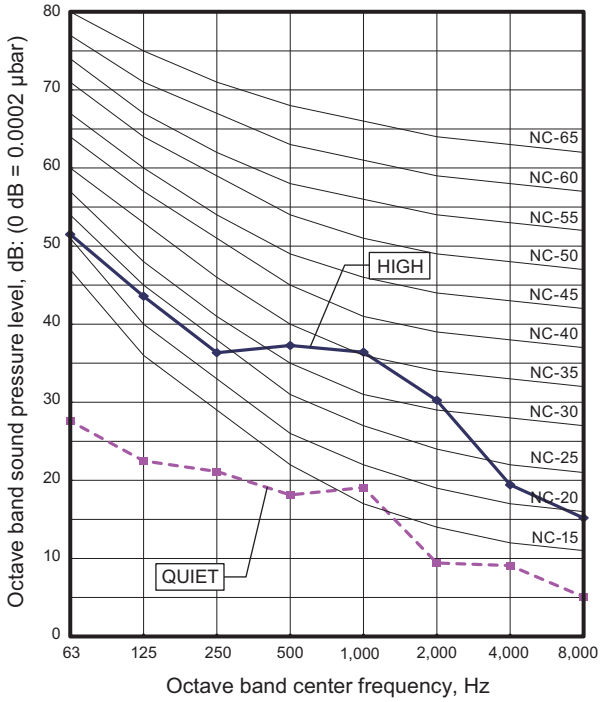
6-1. Noise level curve

■ Model: ASBG09KMBA

● Cooling

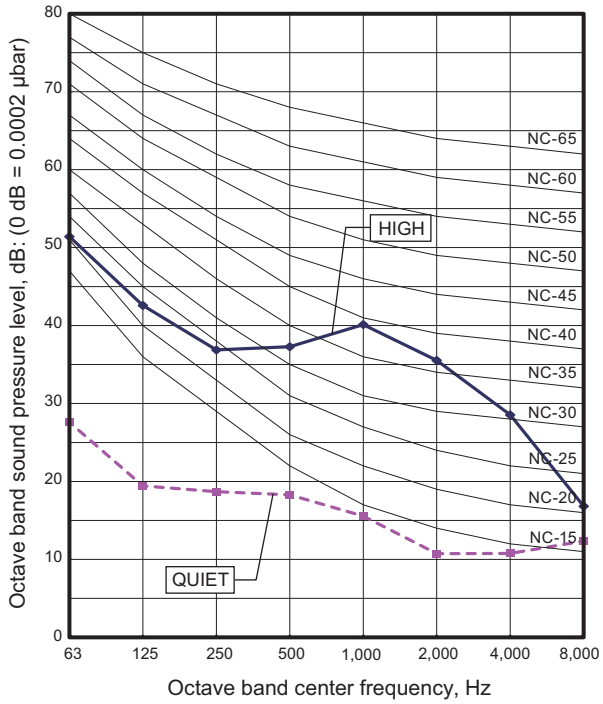


● Heating

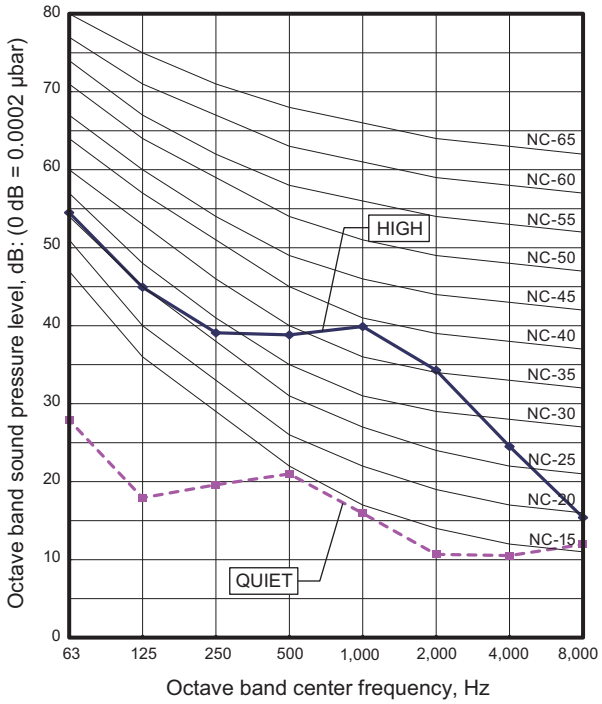


■ Model: ASBG12KMBA

● Cooling



● Heating



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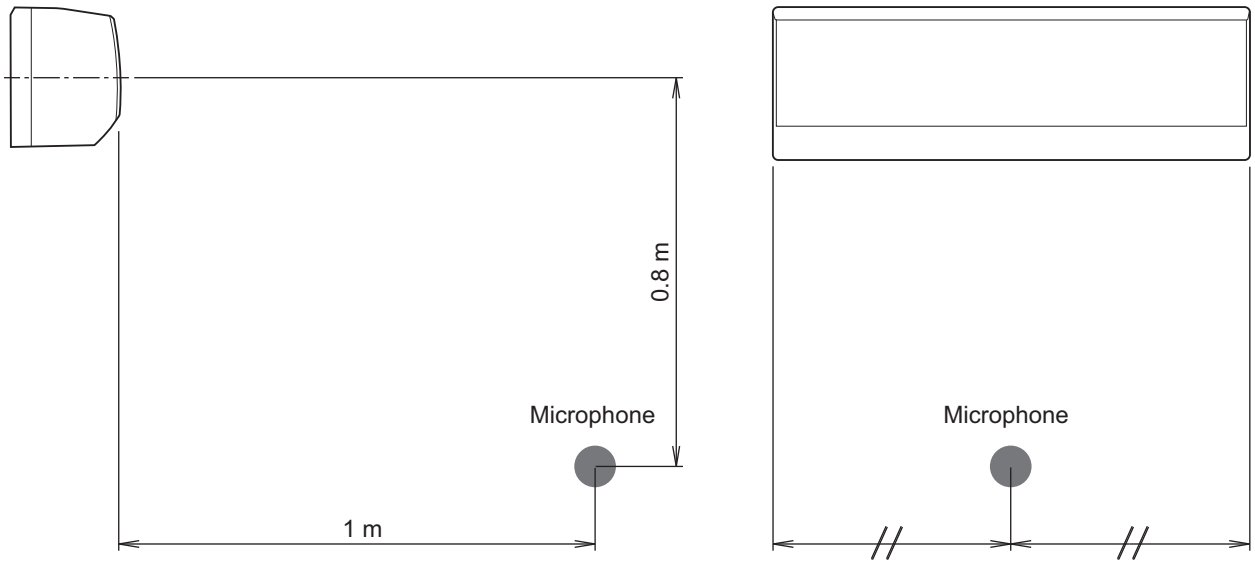
6-2. Sound level check point



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

WALL MOUNTED
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7. Safety devices

Type of protection	Protection form		Model	
			ASBG09KMBA	ASBG12KMBA
Circuit protection	Current fuse (PCB*)		250 V, 3.15 A	
Fan motor protection	Thermal protector program	Activate	170 $^{+25}_{-30}$°C Fan motor stop	
		Reset	145 $^{+25}_{-30}$°C Fan motor restart	

*PCB: Printed Circuit Board

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8. External input and output

With using external input and output functions, this product can be operated inter-connectedly with an external device.

Connector	Input	Output	Remarks
CNA01	Control input	—	See external input/output settings for details.
CNB01	—	Operation status output	
CNB02	—	Error status output	

8-1. External input

With using external input function, some functions on this product can be controlled from an external device.

- “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.

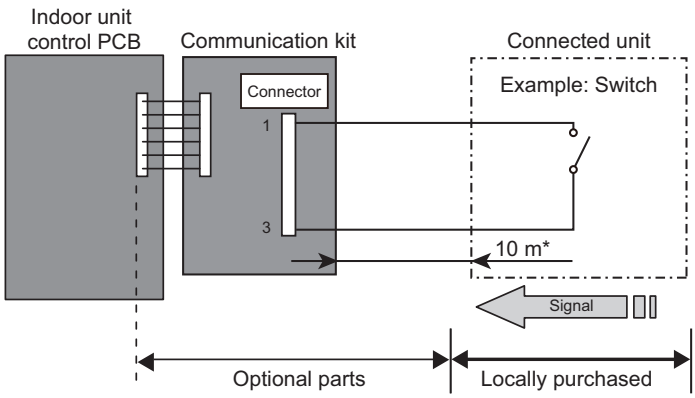
■ Control input (Operation/Stop or Forced stop)

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

Unit operation is started at the following contents by adding the contact input of a commercially available on/off switch to a connector on the external control PCB and turning it on.

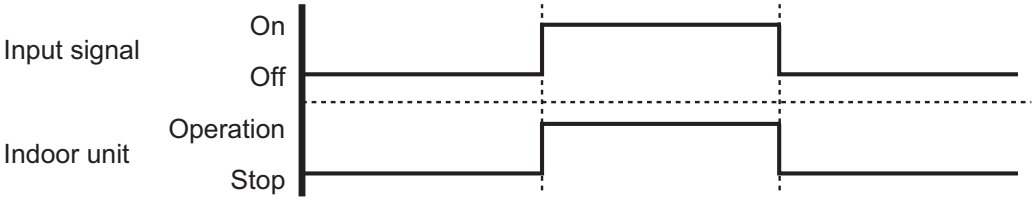
Unit operation	Initial setting after power is on	Starting mode other than initial setting
Operation mode	Auto changeover	Mode at previous operation
Set temperature	24 °C	Temperature at previous operation
Airflow mode	AUTO	Mode at previous operation
Air direction (swing)	Standard air direction (swing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

- **Circuit diagram example:**



- Contact capacity: DC 24 V or more, 10 mA or more.
- *: Make the distance from the PCB to the connected unit within 10 m.
- Use non-polar relays and switches.

- **When function setting is “Operation/Stop” mode:**



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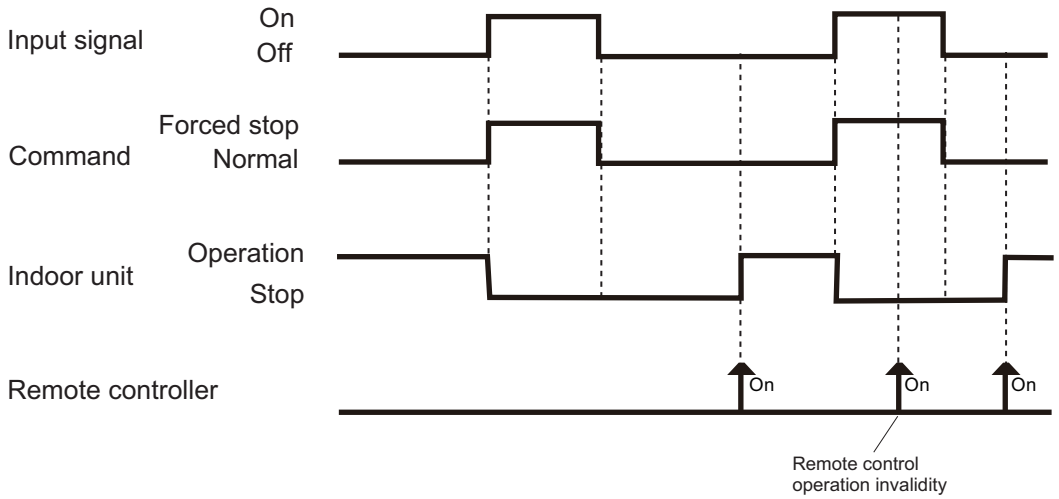
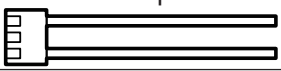
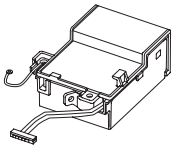
- **When function setting is “Forced stop” mode:**



- **Optional part:**

Part name	Model name	Exterior
External Connect Kit	UTY-XWZXZ5	External input wire 
Communication Kit	UTY-XCBXZ2	

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

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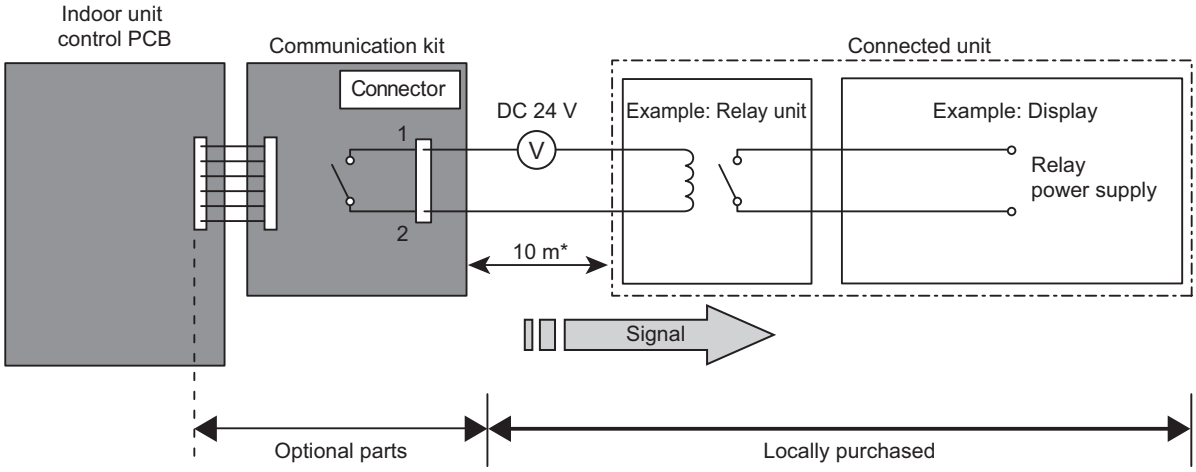
8-2. External output

With using external output function, operating status of this product can be transmitted to the external device, and also, this product can be inter-connected with the external device.

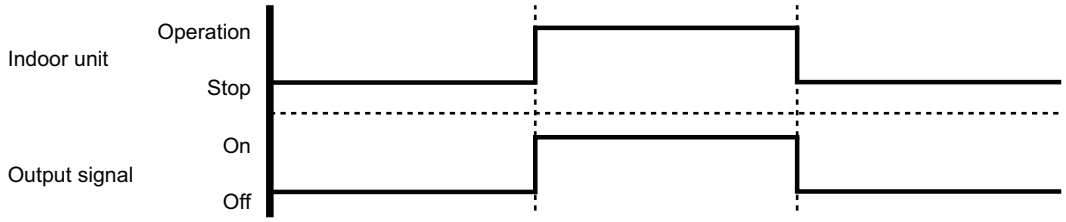
■ Operation status output

Air conditioner operation status signal can be output.

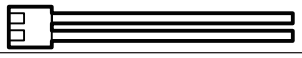
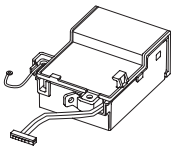
- **Circuit diagram example:**



– *: Make the distance from the PCB to the connected unit within 10 m.
– Relay spec: Max. DC 24 V, 10 mA to less than 500 mA.



- **Optional part:**

Part name	Model name	Exterior
External Connect Kit	UTY-XWZXZ5	External output wire 
Communication Kit	UTY-XCBXZ2	

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

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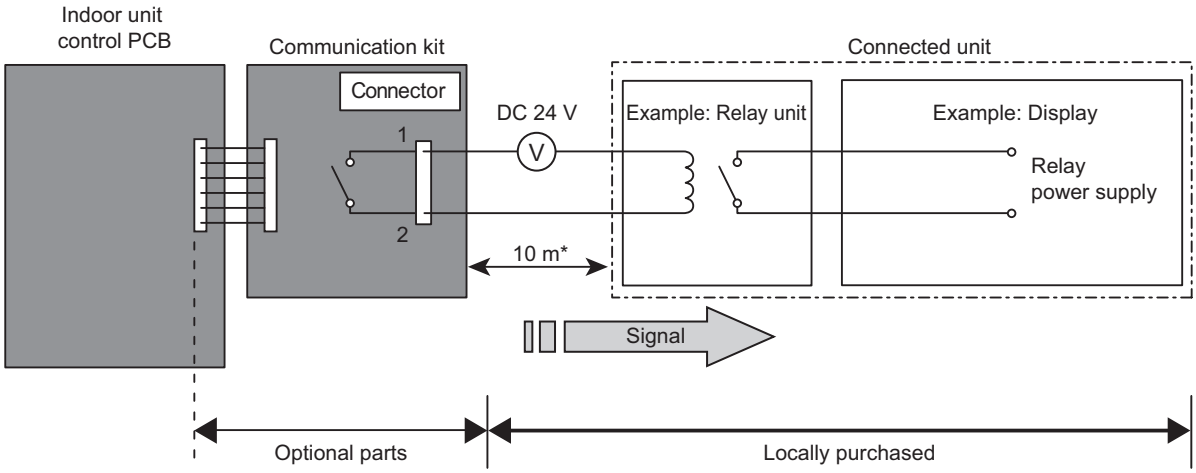
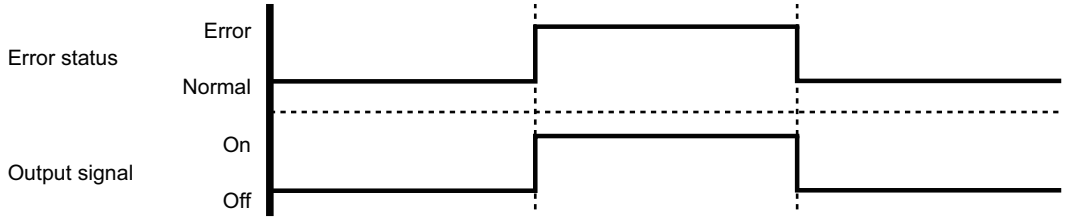
■ Error status output

Air conditioner error status signal can be output.

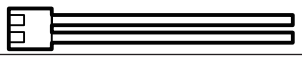
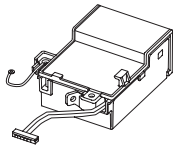
- **Circuit diagram example:**



– *: Make the distance from the PCB to the connected unit within 10 m.
– Relay spec: Max. DC 24 V, 10 mA to less than 500 mA.



- **Optional part:**

Part name	Model name	Exterior
External Connect Kit	UTY-XWZXZ5	External output wire 
Communication Kit	UTY-XCBXZ2	

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

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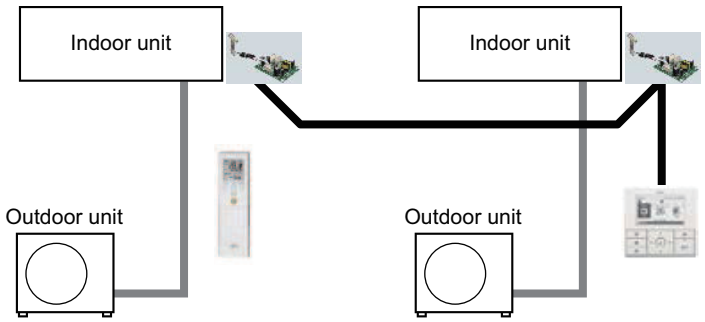
9. Group connection

Wiring regulation on the remote controllers in the multi-split systems are reviewed and allowed for group connection.

Example of group connection



*Exterior of each device shown above might be different from the actual one.

NOTES:

- Group connection is applicable for models that are produced in 2013 or later in following products:
  - KM series other than the following models in wall-mounted type
    - ASBH27KMTA
    - ASBH31KMTA
  - LM/LF series in wall-mounted type
  - Floor type
- Connection is possible only on products of the same wire type.
- Up to 16 indoor units can be controlled by using one wired remote controller.

9-1. Precautions on creating a group connection

Take precautions on items described in this section when creating a group connection.

- **Maximum wiring length of the remote controller cable:** 300 m
  Even if the maximum wiring length of the product itself is specified as longer than 300 m, the maximum length of the remote controller cable will be 300 m if the system is group-connected.
  When total wiring length is longer than 100 m, the cable diameter needs to be changed as follows:

Total wiring length of remote controller cable Unit: m	Cross section of cable Unit: mm^2
100 or less	0.3—0.8
100—200	0.5—0.8
200—300	0.8

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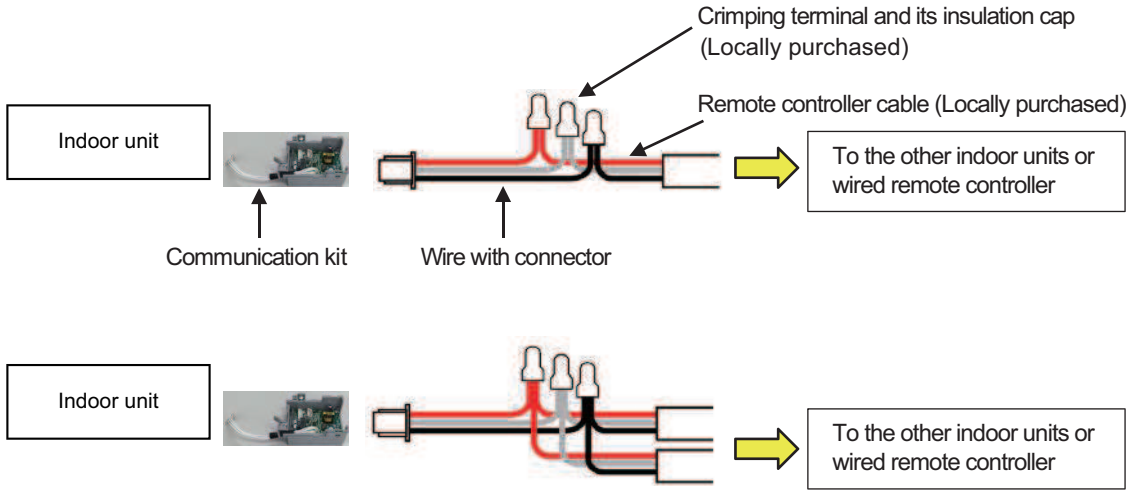
- **Required parts for group connection**
  - Optional part:

Indoor unit type	Communication Kit
Wall mounted	UTY-XCBXZ2

As for the optional parts, "Others" on page 30

- Service part: Wire with connector (Service part no. 9705932012)

Wiring example for multiple remote control or group control:



NOTES:

- Conceal the wirings of the group connection inside of the wall or by means of trunking at the thickness of 1-mm or more to prevent electrical shocks when getting in touch with the cables under certain circumstances.
- When using the Communication kit for wall mounted type, store the crimping terminals inside the Communication kit.
- In the wireless remote controllers for the group connection, its remote controller address can be set by its own. For the details, refer to following section “Remote controller address setting procedure for wireless remote controllers”.
  An error is displayed immediately just turning on the power to effect the settings of the group connection. However the error will automatically disappear when the subsequent function setting is completed.
- Bundle the wires with a cable tie to prevent external pressures apply on the crimping terminals. (Ensure that the tensile strength for the splicing position is 10 N or above.)

9-2. Remote controller address setting procedure for wireless remote controllers

1. Enter the function setting mode of the wireless remote controller. For details, refer to "Function settings " on page 23.
2. Select the function number “00” (Remote controller address setting), and then select any of the number (Setting value) from 00 to 15. (Factory setting: 00)

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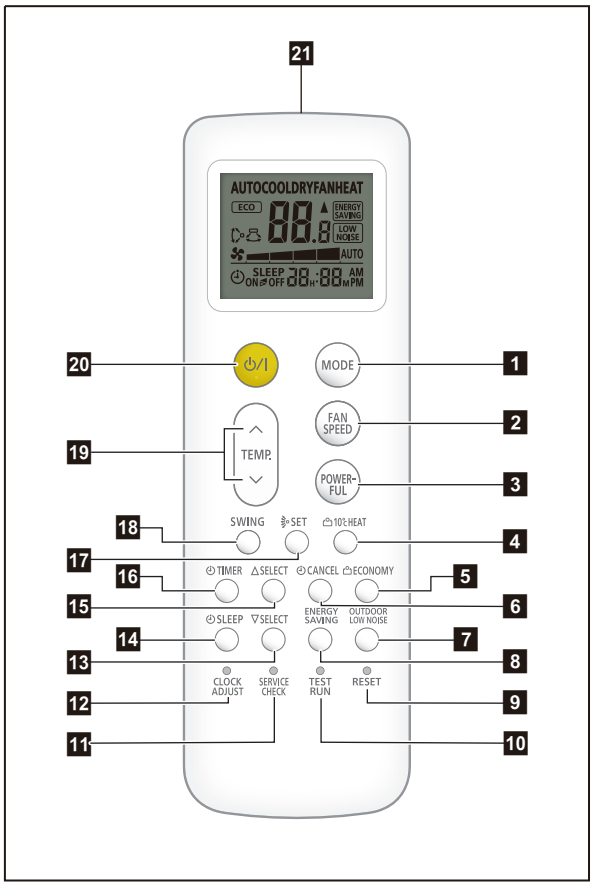
10. Remote controller

10-1. Wireless remote controller

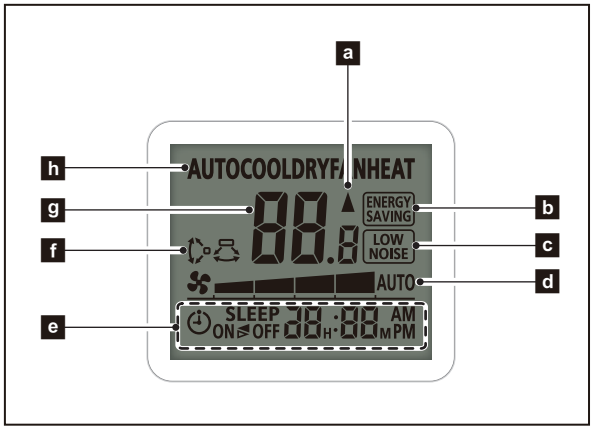
■ Overview



1. MODE button
2. FAN SPEED button
3. POWERFUL button
4. 10 °C HEAT button
5. ECONOMY button
6. CANCEL button
7. OUTDOOR LOW NOISE button
8. ENERGY SAVING button
9. RESET button
10. TEST RUN button
11. SERVICE CHECK button
12. CLOCK ADJUST button
13. SELECT (Down) button
14. SLEEP button
15. SELECT (Up) button
16. TIMER button
17. SET button (Up/down airflow)
18. SWING button
19. TEMP. (Up/down) button
20. START/STOP button
21. Signal transmitter

NOTE: Functions may differ by type of the indoor unit. For details, refer to the operation manual.

Display panel



a. Signal transmit indicator
b. ENERGY SAVING mode indicator
c. LOW NOISE mode indicator
d. Fan speed indicator
e. Clock and Timer indicator
f. Swing indicator
g. Temperature indicator
h. Operating mode indicator

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.

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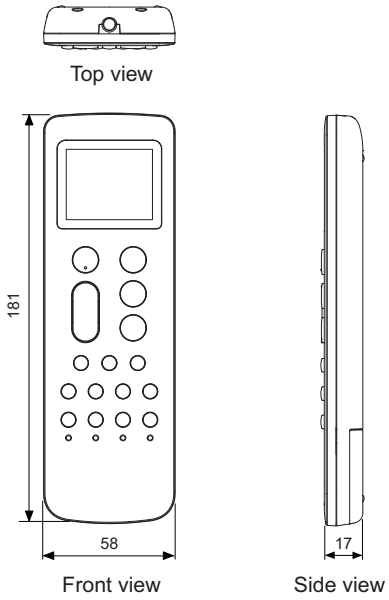
■ Specifications

● Controller

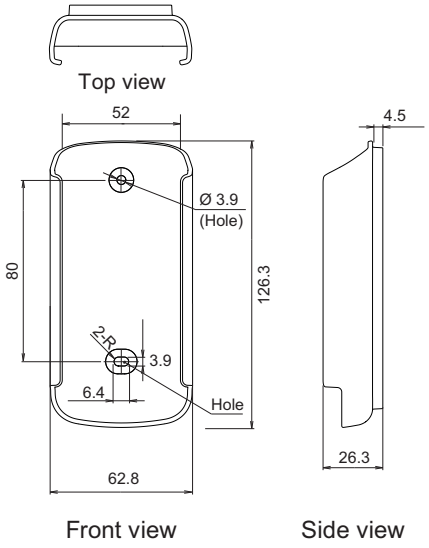
Unit: mm



Size (H × W × D)	mm	181 × 58 × 17
Weight	g	116 (without batteries)

● Holder

Unit: mm



Size (H × W × D)	mm	126.3 × 62.8 × 26.3
Weight	g	28

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11. 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.

11-1. 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 wireless remote controller

The function number and the associated setting value are displayed on the LCD of the remote controller. Follow the instructions written in the local setup procedure supplied with the remote controller, and select appropriate setting according to the installation environment.

Before connecting the power supply of the indoor unit, reconfirm following items:

- Cover for the electrical enclosure on the outdoor unit is in place.
- There is no wiring mistake.
- Piping air tightness test and vacuuming have been performed firmly.
- All the necessary wiring work for outdoor unit has been finished.

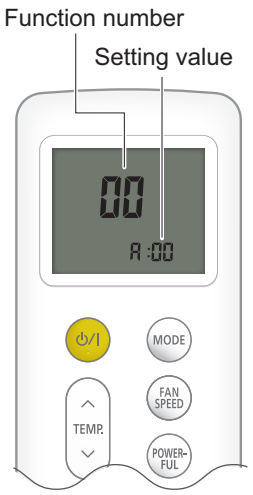
After reconfirming the items listed above, connect the power supply of the indoor unit.

NOTES:

- Settings will not be changed if invalid numbers or setting values are selected.
- When optional wired remote controller is used, refer to the installation manual enclosed with the remote controller.

Entering function setting mode:

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



Selecting the function number and setting value:

1. Press MODE button.
2. Press the TEMP. (∧) (∨) buttons to select the function number. (Press MODE button to switch between the left and right digits.)
3. Press the FAN SPEED button to proceed to value setting. (Press FAN SPEED button again to return to the function number selection.)
4. Press the TEMP. (∧) (∨) buttons to select the setting value. (Press MODE button to switch between the left and right digits.)
5. Press the POWERFUL button once. Please confirm the beeping sound.
6. Press the START/STOP button once to fix the Function setting. Please confirm the beeping sound.
7. Press the RESET button to cancel the function setting mode.
8. After completing the function setting, be sure to disconnect the power supply and then reconnect it.

⚠ CAUTION

After disconnecting the power supply, wait 30 seconds or more before reconnecting it. The function setting will not become active unless the power supply is disconnected and then reconnected.

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■ 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)	00	Remote controller address setting
2)	11	Filter sign
3)	30	Room temperature sensor control for cooling
4)	31	Room temperature sensor control for heating
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

1) Remote controller address setting

NOTE: This setting is configurable only by wireless remote controller, but not configurable by Polar 3-wired remote controller.

Multiple indoor units can be operated by using one wired remote controller.

Set the unit number of each indoor unit.

Function number	Setting value	Setting description	Factory setting
00	00	Unit no. 0	♦
	01	Unit no. 1	
	02	Unit no. 2	
	03	Unit no. 3	
	04	Unit no. 4	
	05	Unit no. 5	
	06	Unit no. 6	
	07	Unit no. 7	
	08	Unit no. 8	
	09	Unit no. 9	
	10	Unit no. 10	
	11	Unit no. 11	
	12	Unit no. 12	
	13	Unit no. 13	
	14	Unit no. 14	
	15	Unit no. 15	

NOTES:

- When connecting Polar 3-wired remote controller, set the remote controller address in the order of 0, 1, 2, ..., and 15.
- When different type of indoor units (such as wall mounted type and cassette type, cassette type and duct type, or other combinations) are connected using group control system, some functions may no longer be available.

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2) 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	♦

3) Room temperature sensor control for cooling

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

Function number	Setting value	Setting description	Factory setting
30	00	Standard	♦
	01	Slightly lower control	
	02	Lower control	
	03	Higher control	

4) Room temperature sensor control for heating

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

Function number	Setting value	Setting description	Factory setting
31	00	Standard	♦
	01	Lower control	
	02	Slightly higher control	
	03	Higher control	

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.

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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	♦
	01	(Setting prohibited)	
	02	Forced stop mode	

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.

NOTE: 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.

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11-2. Custom code setting for wireless remote controller

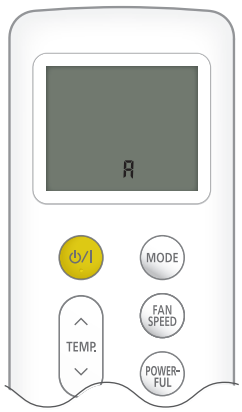
To interconnect the air conditioner and the wireless remote controller, assignment of the custom code for the wireless remote controller is required.

NOTE: Air conditioner cannot receive a signal if the air conditioner has not been set for the custom code.

When 2 or more air conditioners are installed in a room, and the remote controller is operating an air conditioner other than the one you wish to set, change the custom code of the remote controller to operate only the air conditioner you wish to set. (4 selections possible.)

Confirm the setting of the remote controller custom code and the function setting. If these do not match, the remote controller cannot be used to operate for the air conditioner.

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 custom code. (Initially set to A.)
3. Press the TEMP. (∧) (∨) buttons to change the custom code between A →b →c →d. Match the code on the display to the air conditioner custom code. (Initially set to A.)
4. Press the MODE button again to return to the clock display. The custom code will be changed.



NOTES:

- If no button is pressed within 30 seconds after the custom code is displayed, the system returns to the original clock indicator. In this case, start again from step 1.
- The air conditioner custom code is set to A prior to shipment. To change the custom code, contact your retailer.
- If you do not know the assigned code for the air conditioner, try each of the custom code (A →b →c →d) until you find the code which operates the air conditioner.

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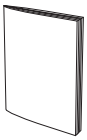
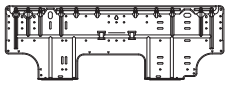
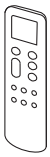
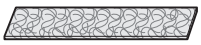
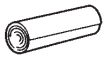
12. Accessories

12-1. Models: ASBG09KMBA and ASBG12KMBA

Part name	Exterior	Qty	Part name	Exterior	Qty
Operation manual		1	Self-tapping screw (large)		5
Installation manual		1	Self-tapping screw (small)		2
Wall hook bracket		1	Filter holder		2
Remote controller		1	Ion deodorization filter		1
Remote controller holder		1	Apple-catechin filter		1
Cloth tape		1			

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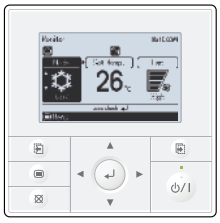
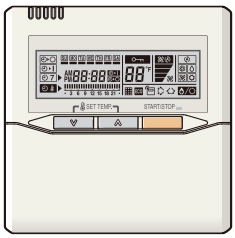
13. Optional parts

13-1. Controllers

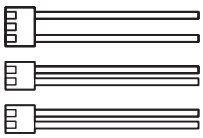
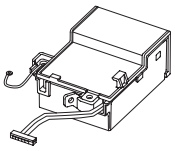
Exterior	Part name	Model name	Summary
	Wired Remote Controller	UTY-RVNYM	Large and full-dot liquid crystal screen, wide and large keys easy to press, user-intuitive arrow key. Wire type: Polar 3-wire Optional Communication Kit is necessary for installation.
	Wired Remote Controller	UTY-RNNYM	Room temperature can be controlled by detecting the temperature accurately with thermo sensor. Wire type: Polar 3-wire Optional Communication Kit is necessary for installation.
	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 Optional Communication Kit is necessary for installation.

NOTES:

- Available functions may differ by the remote controller. For details, refer to the operation manual.
- When using the group controlling system of the Wired Remote Controller, using WLAN Adapter is prohibited.

WALL MOUNTED
ASBG09-12KMBA

13-2. Others

Exterior	Part name	Model name	Summary
	External Connect Kit	UTY-XWZXZ5	Required when external device is connected.
	Communication Kit	UTY-XCBXZ2	Use to connect with optional devices and air conditioner PCB.
	WLAN Adapter	UTY-TFNXZ2	Remotely manage an air conditioning system using mobile devices such as smartphones and tablets. Appropriate application for each region is required to use this option. For details, contact FGL sales company. Optional Communication Kit is necessary for installation.

Part 2. OUTDOOR UNIT

SINGLE TYPE:

AOBG09KMCA
AOBG12KMCA

1. Specifications

Type				Inverter, Heat pump	
Model name				**AOBG09KMCA**	**AOBG12KMCA**
Power supply				220 V~ 60 Hz	
Available voltage range				198—242 V	
Starting current			A	3.5	4.7
Fan	Airflow rate	Cooling	m^3/h	1,650	1,700
		Heating		1,650	1,450
	Type × Qty			Propeller fan × 1	
	Motor output		W	23	
Sound pressure level*1		Cooling	dB (A)	46	48
		Heating		47	49
Heat exchanger type		Dimensions (H × W × D)	mm	504 × 650 × 18.19	Main 1: 504 × 630 × 18.19 Main 2: 504 × 630 × 18.19
		Fin pitch		1.3	Main 1: 1.3 Main 2: 1.3
		Rows × Stages		1 × 24	Main 1: 1 × 24 Main 2: 1 × 24
		Pipe type		Copper tube	
		Fin type	Type (Material)	Aluminum	
			Surface treatment	Blue fin	
Compressor	Type			DC rotary	
	Motor output		W	550	
Refrigerant		Type		R32	
		Charge	g	550	650
Refrigerant oil		Type		RB74AF	
		Amount	cm^3	240	
Enclosure		Material		Steel sheet	
		Color		Beige Approximate color of Munsell 10YR 7.5/1.0	
Dimensions (H × W × D)	Net		mm	541 × 663 × 290	
	Gross			602 × 804 × 375	
Weight	Net		kg	22	24
	Gross			24	27
Connection pipe	Size	Liquid	mm (in)	Ø6.35 (Ø1/4)	
		Gas		Ø9.52 (Ø3/8)	
	Method			Flare	
	Pre-charge length		m	15	
	Max. length			20	
	Max. height difference			15	
	Additional charge		g/m	20	
Operation range*2		Cooling	°C	18 to 50*3	
		Heating		-15 to 24	
Drain hose		Material		Polypropylene	
		Tip diameter	mm	Ø13.0 (I. D.), Ø16.0 to Ø16.8 (O. D.)	

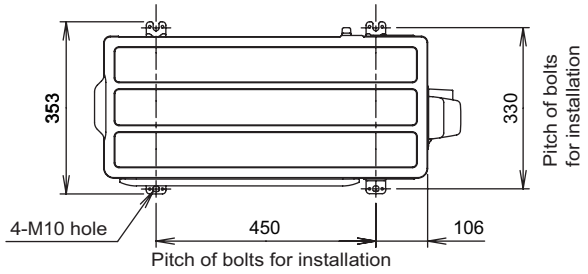
NOTES:

- 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: The protection circuits might activate to stop the unit's operation outside the temperature range.
- *3: Suction temperature of the outdoor unit.

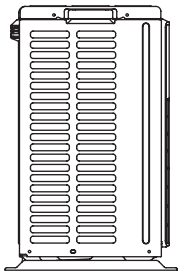
2. Dimensions

2-1. Models: AOBG09KMCA and AOBG12KMCA

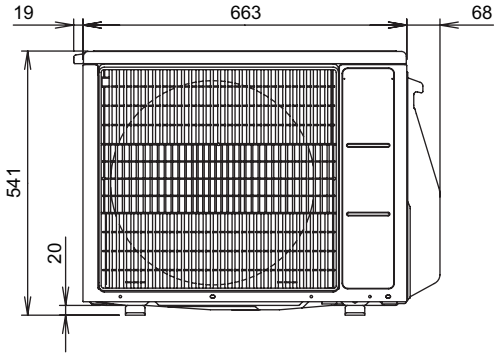
Unit: mm



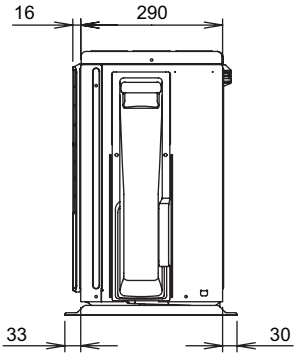
Top view



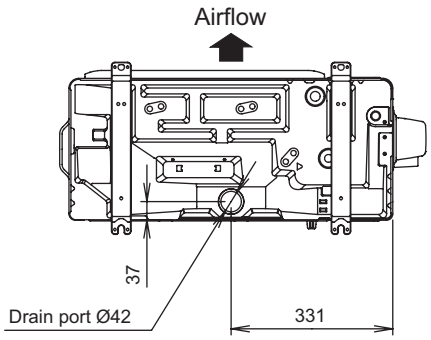
Side view



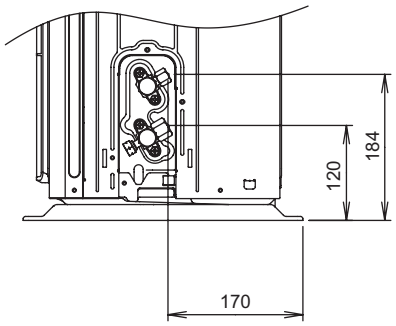
Front view



Side view



Bottom view



Side view (Valve part)

OUTDOOR UNIT
AOBG09-12KMCA

3. Installation space

3-1. Models: AOBG09KMCA and AOBG12KMCA

■ Space requirement

Provide sufficient installation space for product safety.

⚠ CAUTION

Keep the space shown in the installation examples.

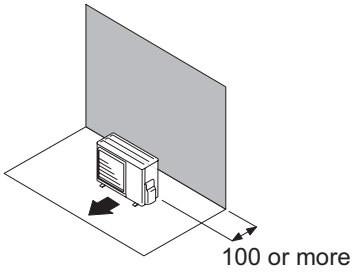
If the installation is not performed accordingly, it could cause a short circuit and result in a lack of operating performance.

● Single outdoor unit installation

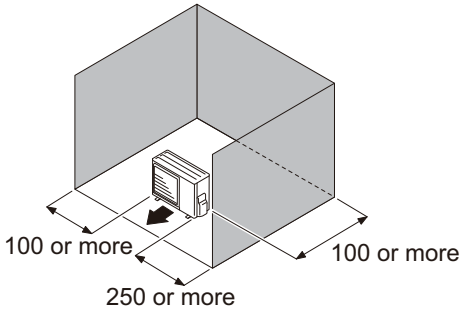
- **When the upper space is open:**

Unit: mm

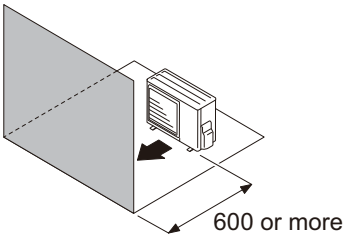
Obstacles at rear only



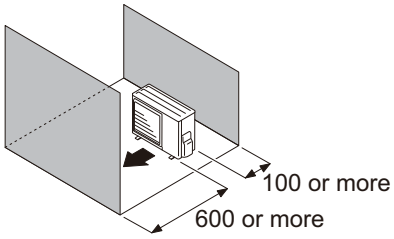
Obstacles at rear and sides



Obstacles at front



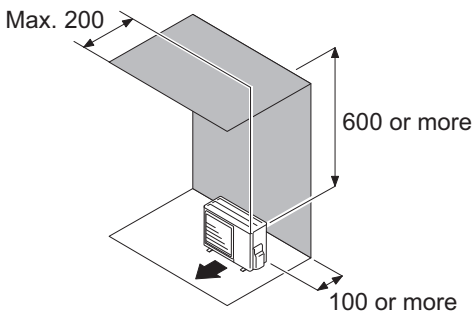
Obstacles at front and rear



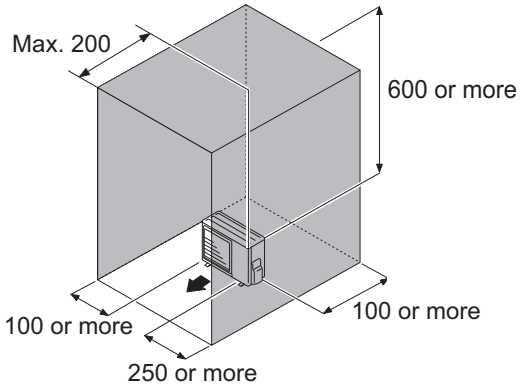
- **When an obstruction in the upper space:**

Unit: mm

Obstacles at rear and above



Obstacles at rear, sides, and above



OUTDOOR UNIT
AOBG09-12KMCA

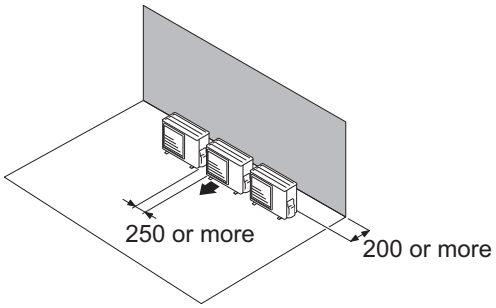
● Multiple outdoor unit installation

- 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 4 units or more are arranged in a line, provide the space as shown in the following example "**When an obstruction in the upper space:**".

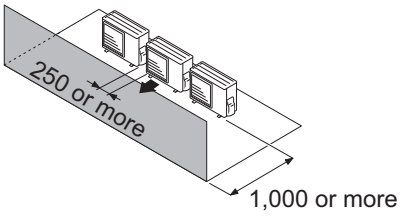
- **When the upper space is open:**

Unit: mm

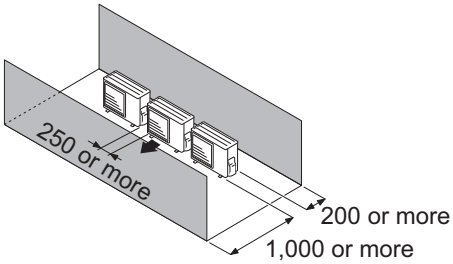
Obstacles at rear only



Obstacles at front only



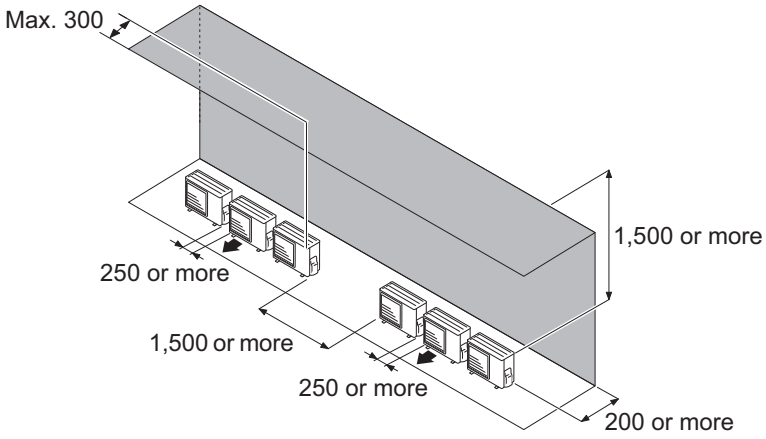
Obstacles at front and rear



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

Unit: mm

Obstacles at rear and above.

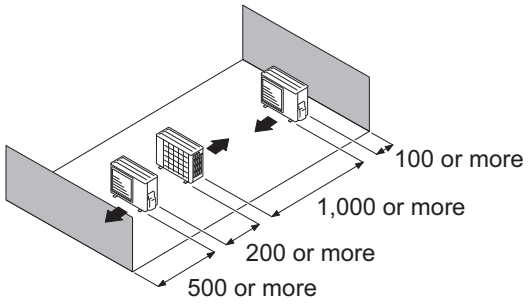


OUTDOOR UNIT
AOBG09-12KMCA

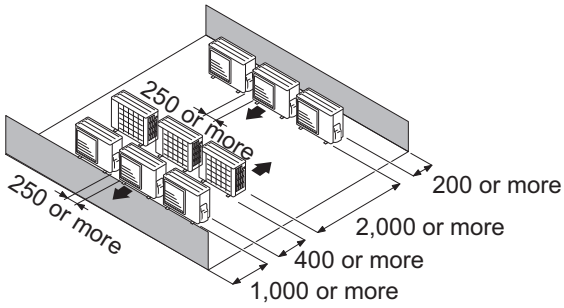
● Outdoor units installation in multi-row

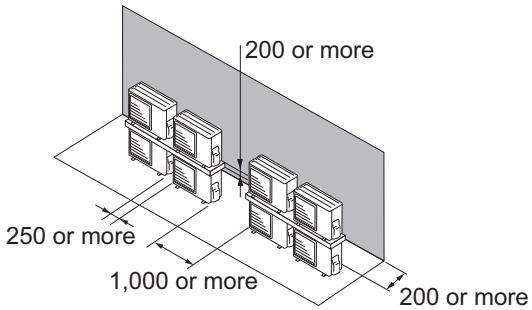
Unit: mm

Single parallel unit arrangement



Multiple parallel unit arrangement



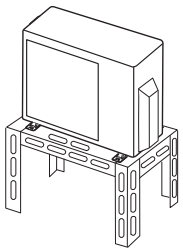


NOTES:

- 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.

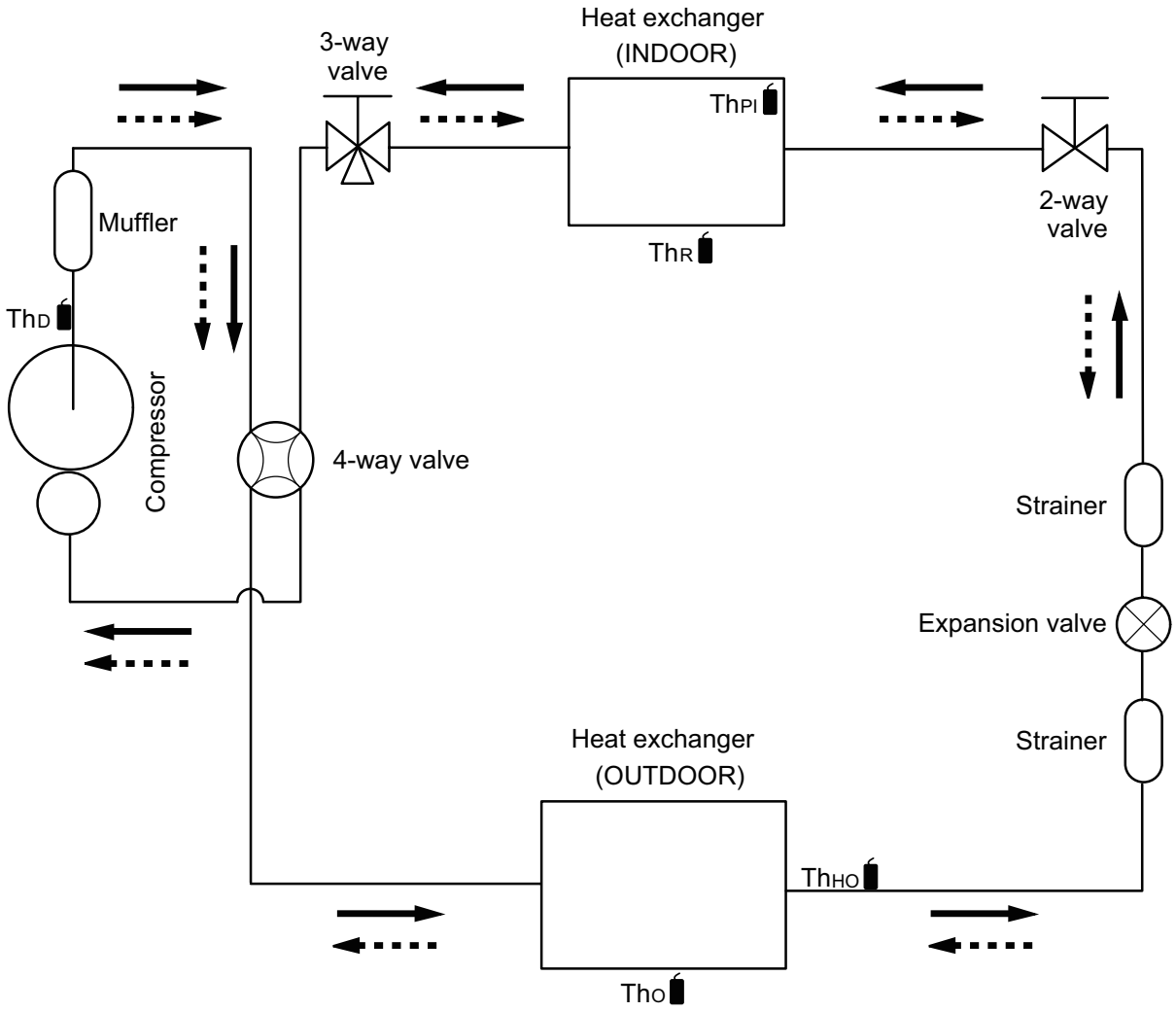
⚠ CAUTION

- 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: AOBG09KMCA and AOBG12KMCA



ThD : Thermistor (Discharge temperature)

ThO : Thermistor (Outdoor temperature)

ThHO: Thermistor (Heat exchanger out temperature)

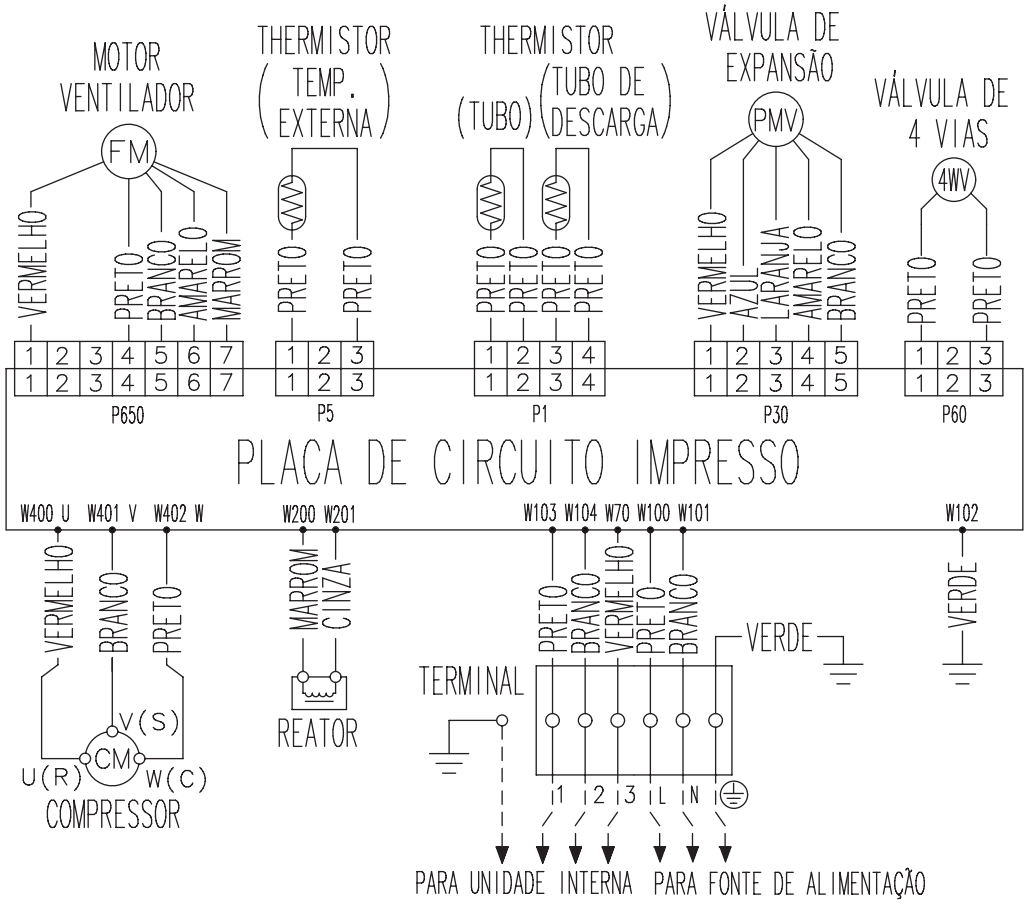
ThPI : Thermistor (Pipe temperature)

ThR : Thermistor (Room temperature)

OUTDOOR UNIT
AOBG09-12KMCA

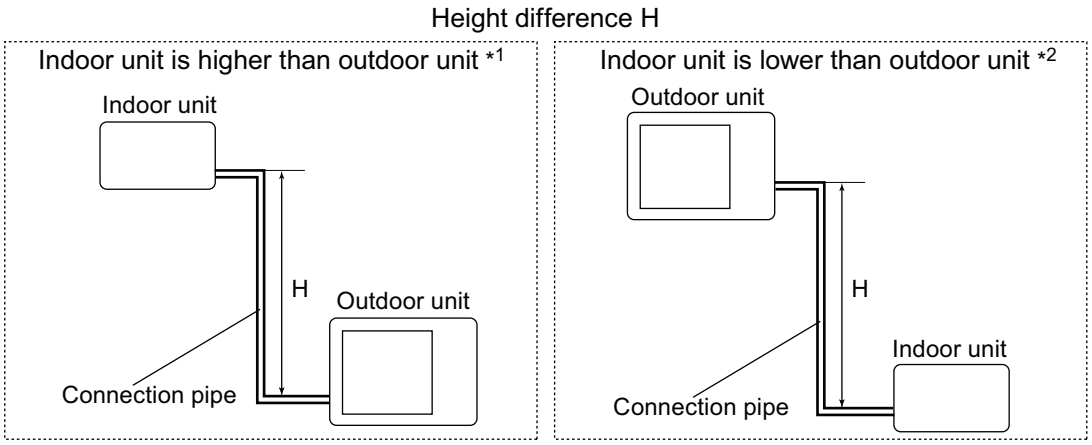
5. Wiring diagrams

5-1. Models: AOBG09KMCA and AOBG12KMCA



OUTDOOR UNIT
AOBG09-12KMCA

6. Capacity compensation rate for pipe length and height difference



6-1. Model: AOBG09KMCA

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	—	—	—	0.872	0.910
		10	—	—	0.961	0.886	0.925
		7.5	—	0.979	0.965	0.890	0.929
		5	0.992	0.983	0.969	0.893	0.933
		0	1.000	0.991	0.976	0.901	0.940
	Indoor unit is lower than outdoor unit *2	-5	1.000	0.991	0.976	0.901	0.940
		-7.5	—	0.991	0.976	0.901	0.940
		-10	—	—	0.976	0.901	0.940
		-15	—	—	—	0.901	0.940

HEATING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	Indoor unit is higher than outdoor unit *1	15	—	—	—	0.832	0.822
		10	—	—	0.917	0.832	0.822
		7.5	—	0.961	0.917	0.832	0.822
		5	1.000	0.961	0.917	0.832	0.822
		0	1.000	0.961	0.917	0.832	0.822
	Indoor unit is lower than outdoor unit *2	-5	0.955	0.956	0.912	0.828	0.818
		-7.5	—	0.954	0.910	0.826	0.816
		-10	—	—	0.908	0.824	0.814
		-15	—	—	—	0.815	0.805

6-2. Model: AOBG12KMCA

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	—	—	—	0.858	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
	Indoor unit is lower than outdoor unit *2	-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)	Indoor unit is higher than outdoor unit *1	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
	Indoor unit is lower than outdoor unit *2	-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

7. Additional charge calculation

7-1. Model: AOBG09KMCA

Refrigerant type		R32
Factory charge amount	g	550

■ Refrigerant charge

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

7-2. Model: AOBG12KMCA

Refrigerant type		R32
Factory charge amount	g	650

■ Refrigerant charge

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

OUTDOOR UNIT
AOBG09-12KMCA

8. Airflow

8-1. AOBG09KMCA

● Cooling

m^3/h	1,650
l/s	458
CFM	971

● Heating

m^3/h	1,650
l/s	458
CFM	971

8-2. AOBG12KMCA

● Cooling

m^3/h	1,700
l/s	472
CFM	1,001

● Heating

m^3/h	1,450
l/s	403
CFM	853

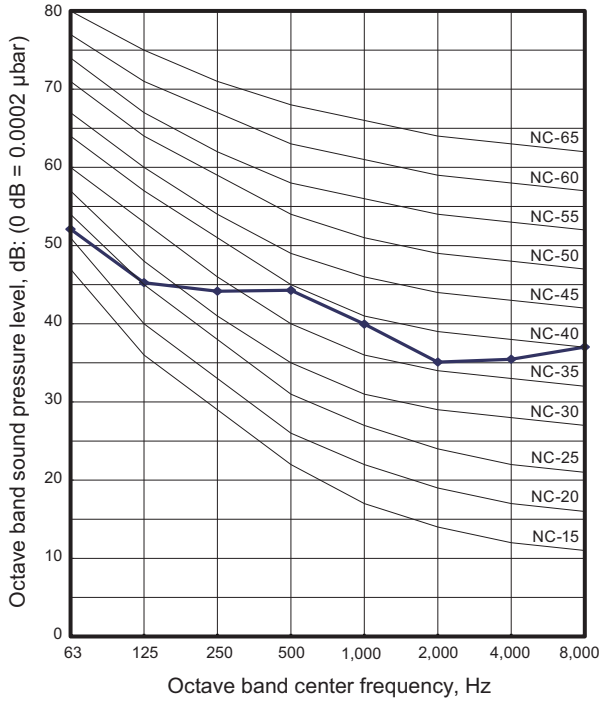
OUTDOOR UNIT
AOBG09-12KMCA

9. Operation noise (sound pressure)

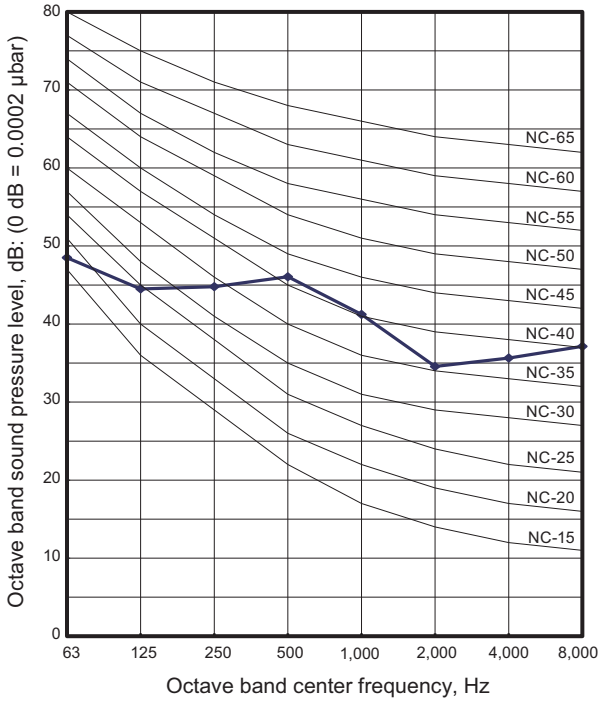
9-1. Noise level curve

■ AOBG09KMCA

● Cooling

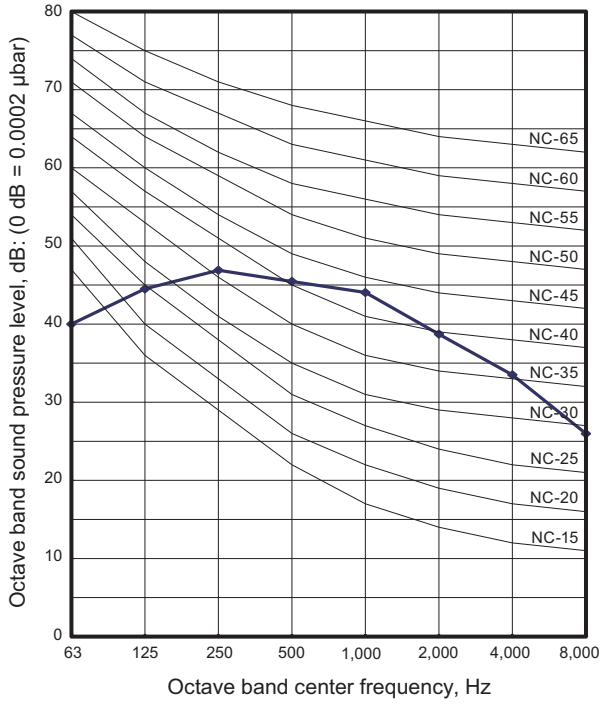


● Heating

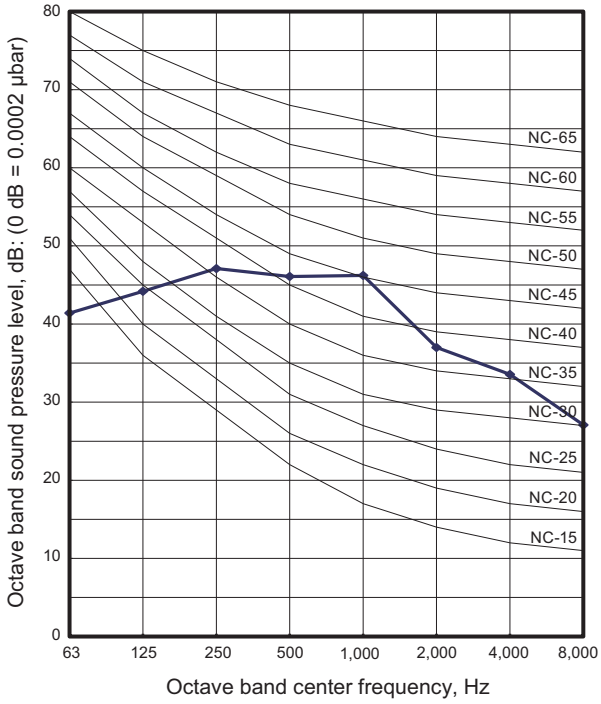


■ AOBG12KMCA

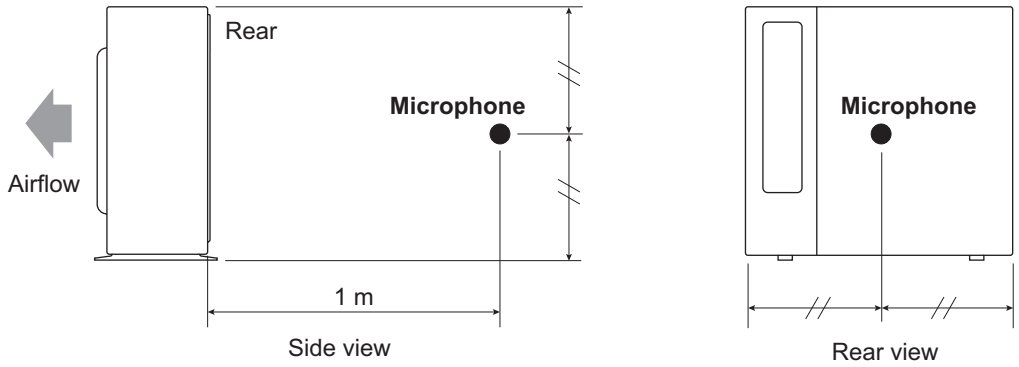
● Cooling



● Heating



9-2. Sound level check point



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

OUTDOOR UNIT
AOBG09-12KMCA

OUTDOOR UNIT
AOBG09-12KMCA

10. Electrical characteristics

Model name				AOBG09KMCA	AOBG12KMCA
Power supply	Voltage		V	220	
	Frequency		Hz	60	
Maximum operating current*1			A	9.0	
Starting current			A	3.5	4.7
Wiring spec.*2	Circuit breaker current		A	10	
	Power cable		mm^2	1.0—1.5	
	Connection cable*3	Cross-sectional area	mm^2	1.5	
		Limited wiring length	m	21	

NOTES:

- *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.

OUTDOOR UNIT
AOBG09-12KMCA

11. Safety devices

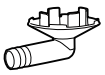
Type of protection	Protection form		Model	
			AOBG09KMCA	AOBG12KMCA
Circuit protection	Current fuse (PCB*)		250 V, 20 A	
			250 V, 5 A	
Fan motor protection	Thermal protection	Activate	103 ±18°C Fan motor stop	
		Reset	95 ±18°C Fan motor restart	
Compressor protection	Thermal protection program (Discharge temp.)	Activate	110°C Compressor stop	
		Reset	After 7 minutes Compressor restart	
	Thermal protection program (Outdoor temp.) (Only in COOL or DRY mode)	Activate	-15 °C Compressor stop	
		Reset	-10 °C Compressor restart	

*PCB: Printed Circuit Board

12. Accessories

12-1. Models: AOBG09KMCA and AOBG12KMCA

OUTDOOR UNIT
AOBG09-12KMCA

Part name	Exterior	Qty	Part name	Exterior	Qty
Installation manual		1	Drain pipe		1