

AIR CONDITIONER

**Wall mounted type**

## DESIGN & TECHNICAL MANUAL

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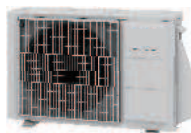
INDOOR



ASBG18KMBA  
ASBG24KMBA

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OUTDOOR



AOBG18KMCA



AOBG24KMCA

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**FUJITSU GENERAL LIMITED**

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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**

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**WALL MOUNTED TYPE:**

**ASBG18KMBA**

**ASBG24KMBA**

# 1. Specifications

Type				Wall mounted			
				Inverter, Heat pump			
Model name				ASBG18KMBA	ASBG24KMBA		
Power supply				220 V~ 60 Hz			
Power supply intake				Outdoor unit			
Available voltage range				198—242 V			
Capacity	Cooling	Rated	kW	5.27	7.03		
			Btu/h	18,000	24,000		
		Min.—Max.	kW	0.9—5.8	0.9—8.0		
	Heating	Rated	Btu/h	3,100—19,800	3,100—27,300		
			kW	5.27	7.03		
		Min.—Max.	kW	0.9—5.8	0.9—8.0		
Input power	Cooling	Rated	kW	1.59	1.96		
			Btu/h	18,000	24,000		
		Min.—Max.	kW	0.17—1.83	0.27—2.78		
	Heating	Rated	Btu/h	1.36	1.81		
			kW	0.9—5.8	0.9—8.0		
		Min.—Max.	kW	0.25—1.8	0.28—3.16		
Current	Cooling	Rated	A	7.4	9.1		
	Heating		A	6.6	8.4		
EER	Cooling	kW/kW		3.31	3.59		
COP	Heating			3.88	3.88		
Sensible capacity	Cooling	kW	4.17	5.25			
Power factor	Cooling	%	98	98			
	Heating	%	94	98			
Moisture removal		L/h (pints/h)	2.1 (3.7)	3.5 (6.2)			
Maximum operating current*1	Cooling	A		9.0	13.5		
	Heating			10.5	16.0		
Fan	Airflow rate	Cooling	HIGH	880	1,040		
			MED	740	900		
			LOW	620	740		
			QUIET	480	580		
		Heating	HIGH	880	1,040		
			MED	740	900		
			LOW	620	740		
			QUIET	480	580		
	Type × Qty	Crossflow fan × 1					
	Motor output	W					
Sound pressure level*2	Cooling	dB (A)	HIGH	43	49		
			MED	37	42		
			LOW	33	37		
			QUIET	26	32		
	Heating	dB (A)	HIGH	42	48		
			MED	37	42		
			LOW	33	37		
			QUIET	27	32		
			Dimensions (H × W × D)		mm	Main: 378 × 832 × 26.6	Main: 378 × 832 × 26.6
			Fin pitch			Sub: 84 × 832 × 13.3	Sub: 168 × 832 × 13.3
Rows × Stages			Main: 2 × 18	Main: 2 × 18			
Pipe type			Sub: 1 × 4	Sub: 1 × 8			
Fin type			Copper tube				
Material			Aluminum				
Enclosure			Polystyrene				
Color			White + Pearl white (painted)				
Dimensions (H × W × D)		mm	Approximate color of Munsell N9.25/				
Net			320 × 998 × 238				
Gross		329 × 1,090 × 420					
Weight	Net	kg	13.5	14.0			
	Gross	kg	17.5	18.0			
Connection pipe	Size	Liquid	Ø6.35 (Ø1/4)				
		Gas	Ø12.70 (Ø1/2)				
	Method	Flare					
Material		PVC					
Tip diameter		mm	Ø12.0 (I.D.), Ø16.0 (O.D.)				
Operation range	Cooling	°C	18 to 32				
	Heating	%RH	80 or less				
		°C	16 to 30				
Remote controller				Wireless (Option: Wired, Mobile app*3 [FGLair™])			

## NOTES:

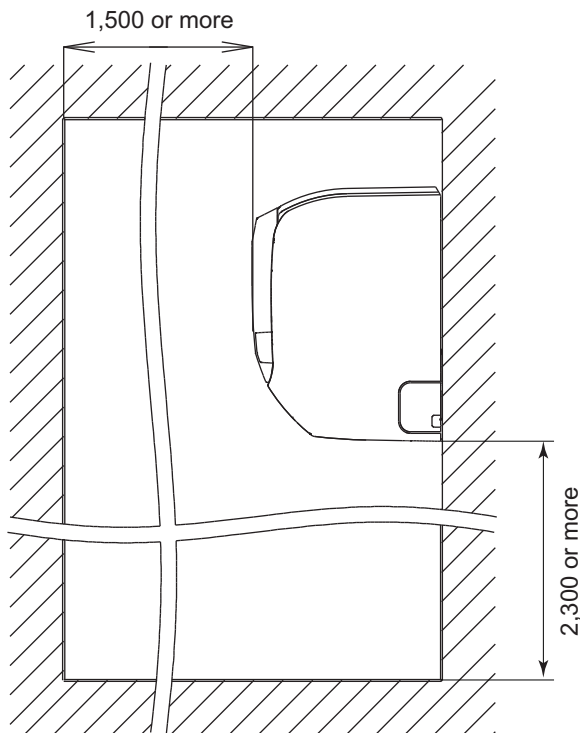
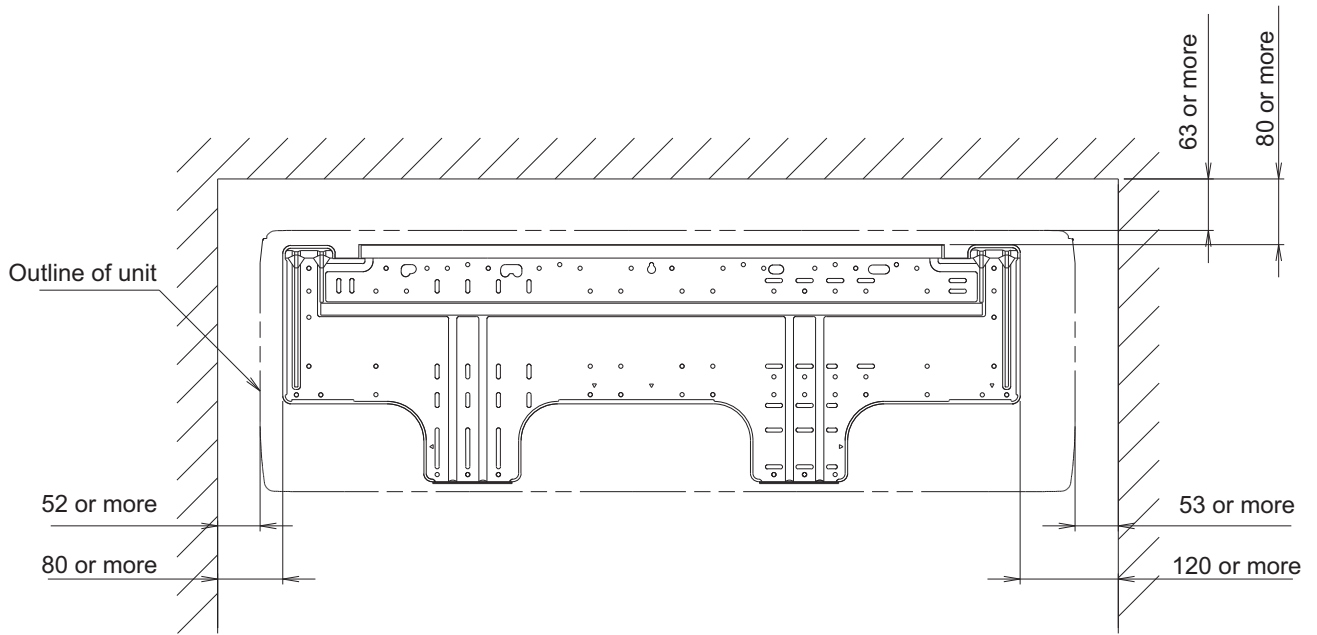
- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 27°CDB/19°CWB, and outdoor temperature of 35°CDB/24°CWB.
  - Heating: Indoor temperature of 20°CDB/15°CWB, and outdoor temperature of 7°CDB/6°CWB.
  - Pipe length: 5 m, Height difference: 0 m. (Between outdoor 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.



## ■ Installation space requirement

Provide sufficient installation space for product safety.

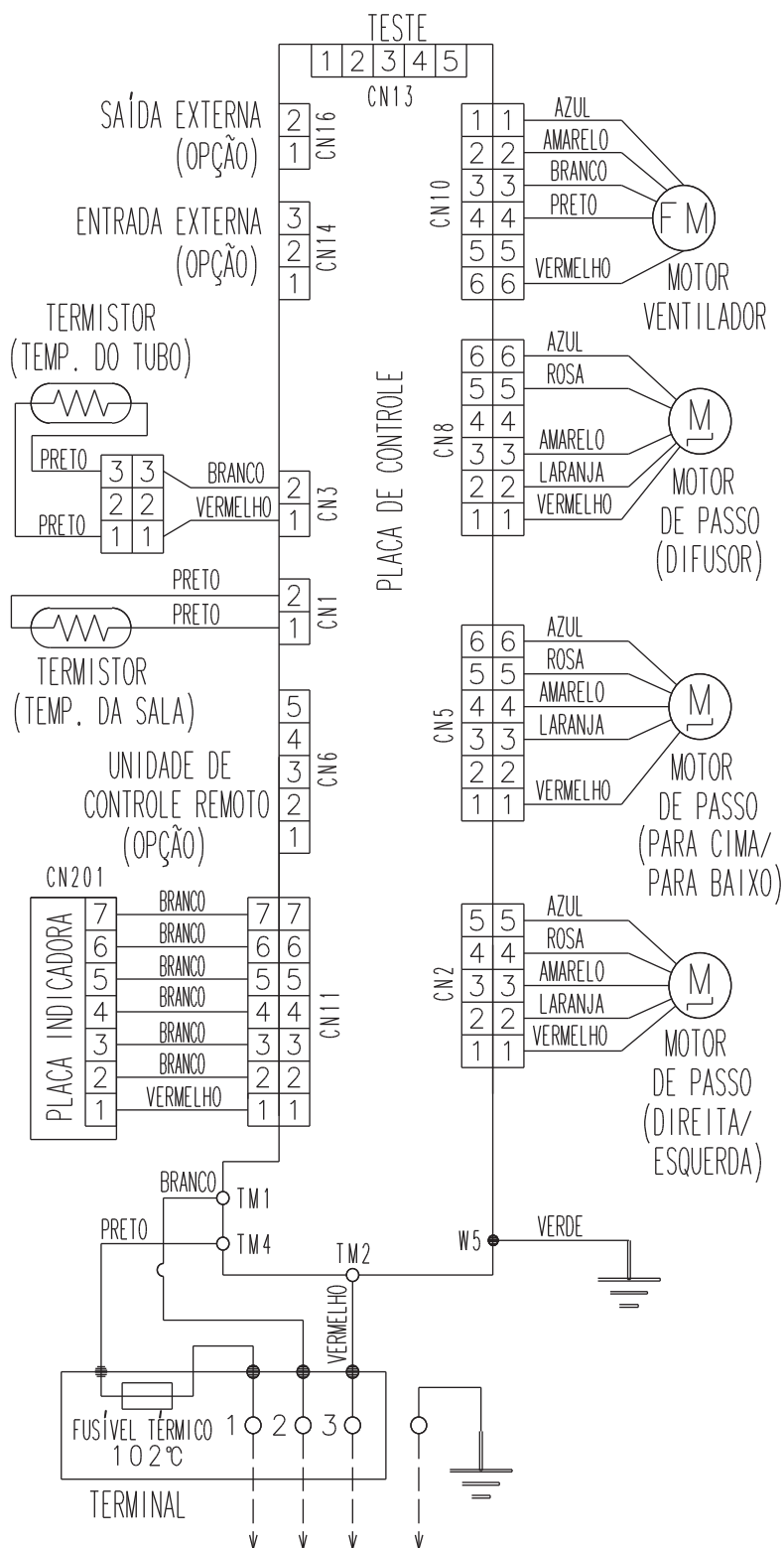
Unit: mm





### 3. Wiring diagrams

#### 3-1. Models: ASBG18KMBA and ASBG24KMBA



## 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: ASBG18KMBA

AFR		m <sup>3</sup> /h		880																				
Outdoor temperature	Indoor temperature																							
	°CDB			18			21			23			25			27			29			32		
	°CWB			12			15			16			18			19			21			23		
	°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					
18	3.57	3.37	0.65	3.84	3.52	0.64	4.02	3.62	0.63	4.20	3.72	0.63	4.38	3.82	0.62	4.58	3.89	0.62	4.87	3.99	0.62			
20	4.87	4.03	1.14	5.26	4.18	1.15	5.51	4.28	1.15	5.77	4.38	1.15	6.03	4.49	1.16	6.30	4.54	1.15	6.72	4.63	1.15			
25	4.69	3.94	1.28	5.06	4.09	1.29	5.30	4.19	1.30	5.54	4.28	1.31	5.79	4.38	1.32	6.07	4.45	1.33	6.50	4.55	1.34			
30	4.50	3.84	1.41	4.86	3.99	1.44	5.10	4.09	1.46	5.34	4.20	1.47	5.58	4.30	1.49	5.85	4.36	1.51	6.25	4.47	1.53			
35	4.31	3.74	1.53	4.63	3.88	1.55	4.84	3.98	1.56	5.06	4.07	1.58	5.27	4.17	1.59	5.56	4.25	1.63	6.00	4.37	1.69			
40	3.67	3.42	1.32	3.89	3.55	1.32	4.04	3.63	1.32	4.19	3.72	1.32	4.34	3.81	1.32	4.55	3.88	1.32	4.88	3.99	1.32			
46	2.59	2.59	0.98	2.78	2.78	0.98	2.91	2.91	0.98	3.04	3.04	0.98	3.17	3.17	0.98	3.29	3.29	0.98	3.48	3.48	0.98			
50	2.34	2.34	0.96	2.51	2.51	0.96	2.63	2.63	0.96	2.74	2.74	0.96	2.85	2.85	0.96	2.95	2.95	0.96	3.09	3.09	0.96			

#### ■ Model: ASBG24KMBA

AFR		m <sup>3</sup> /h		1,040																				
Outdoor temperature	Indoor temperature																							
	°CDB			18			21			23			25			27			29			32		
	°CWB			12			15			16			18			19			21			23		
	°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					
18	4.21	3.94	0.67	4.55	4.11	0.66	4.77	4.23	0.66	4.99	4.34	0.65	5.21	4.45	0.65	5.45	4.53	0.64	5.81	4.64	0.63			
20	6.37	5.15	1.38	6.88	5.32	1.39	7.22	5.44	1.40	7.56	5.55	1.41	7.90	5.67	1.42	8.28	5.73	1.42	8.84	5.82	1.42			
25	6.13	5.01	1.54	6.62	5.18	1.57	6.95	5.29	1.58	7.28	5.41	1.60	7.60	5.52	1.61	7.99	5.59	1.62	8.56	5.70	1.63			
30	5.89	4.87	1.69	6.36	5.04	1.72	6.68	5.16	1.74	7.00	5.27	1.77	7.32	5.39	1.79	7.67	5.45	1.80	8.19	5.55	1.82			
35	5.63	4.72	1.82	6.09	4.90	1.87	6.41	5.01	1.90	6.72	5.13	1.93	7.03	5.25	1.96	7.39	5.33	1.99	7.94	5.44	2.02			
40	5.35	4.56	1.97	5.73	4.71	1.97	5.98	4.81	1.97	6.23	4.91	1.97	6.49	5.00	1.97	6.75	5.06	1.97	7.14	5.13	1.97			
46	3.85	3.76	1.45	4.15	3.93	1.45	4.35	4.04	1.45	4.55	4.16	1.45	4.75	4.27	1.45	4.97	4.35	1.45	5.30	4.46	1.45			
50	3.50	3.50	1.45	3.74	3.74	1.45	3.91	3.85	1.45	4.07	3.96	1.45	4.23	4.07	1.45	4.44	4.16	1.45	4.76	4.28	1.45			

## 4-2. Heating capacity

### ■ Model: ASBG18KMBA

AFR	m <sup>3</sup> /h	880
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		Indoor temperature										
		16		18		20		22		24		
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	
Outdoor temperature	°CDB	°CWB	kW		kW		kW		kW		kW	
	-15	-16	3.02	1.22	2.98	1.24	2.93	1.27	2.89	1.28	2.84	1.30
	-10	-11	3.57	1.35	3.51	1.37	3.46	1.40	3.43	1.41	3.39	1.42
	-5	-7	4.11	1.48	4.10	1.48	4.08	1.49	4.01	1.51	3.94	1.53
	0	-2	4.84	1.58	4.81	1.60	4.79	1.63	4.72	1.66	4.66	1.69
	5	3	5.57	1.69	5.53	1.73	5.49	1.77	5.43	1.81	5.37	1.86
	7	6	6.03	1.78	5.92	1.79	5.80	1.80	5.77	1.86	5.74	1.91
	10	8	6.24	1.77	6.20	1.82	6.17	1.88	6.10	1.94	6.04	1.99
	15	10	4.18	0.87	4.16	0.87	4.15	0.87	4.12	0.90	4.09	0.94
	20	15	4.70	0.84	4.67	0.86	4.63	0.89	4.60	0.93	4.57	0.97
24	18	5.12	0.82	5.07	0.86	5.02	0.90	4.99	0.95	4.95	0.99	

### ■ Model: ASBG24KMBA

AFR	m <sup>3</sup> /h	1,040
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		Indoor temperature										
		16		18		20		22		24		
		TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	
Outdoor temperature	°CDB	°CWB	kW		kW		kW		kW		kW	
	-15	-16	5.59	2.64	5.44	2.69	5.29	2.74	5.15	2.80	5.00	2.85
	-10	-11	6.15	2.70	5.99	2.76	5.83	2.80	5.66	2.87	5.51	2.93
	-5	-7	6.72	2.79	6.54	2.85	6.36	2.86	6.19	2.97	6.01	3.02
	0	-2	7.28	2.84	7.09	2.91	6.90	2.93	6.71	3.02	6.52	3.08
	5	3	7.84	2.87	7.64	2.93	7.43	2.99	7.23	3.05	7.02	3.10
	7	6	8.44	3.03	8.22	3.10	8.00	3.16	7.78	3.19	7.56	3.19
	10	8	8.50	2.86	8.28	2.92	8.06	3.02	7.84	3.03	7.62	3.10
	15	10	8.15	2.42	7.94	2.47	7.72	2.61	7.51	2.57	7.29	2.62
	20	15	8.35	2.18	8.14	2.22	7.91	2.31	7.69	2.31	7.48	2.31
24	18	8.46	2.14	8.24	2.18	8.01	2.23	7.79	2.27	7.57	2.31	

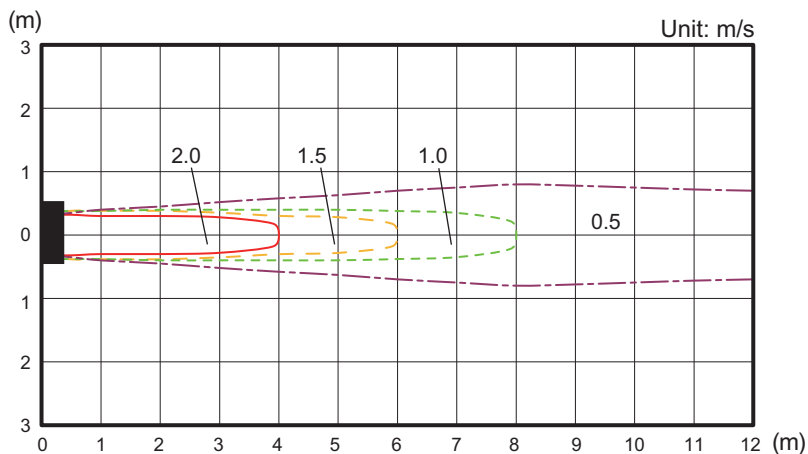
# 5. Fan performance

## 5-1. Air velocity distributions

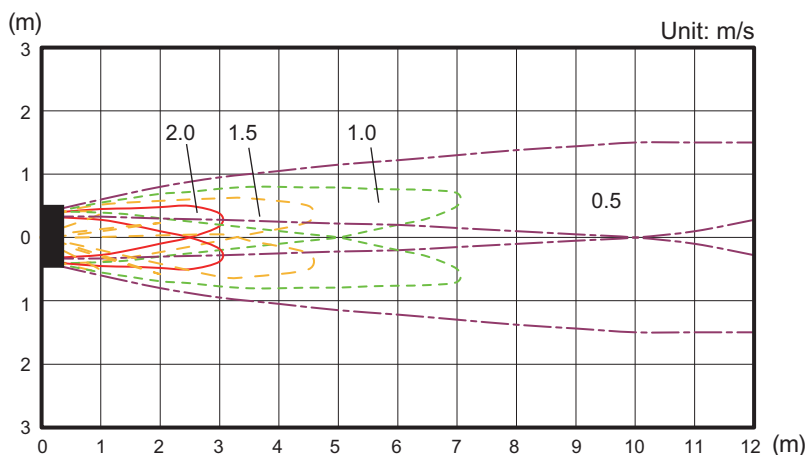
### Model: ASBG18KMBA

Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

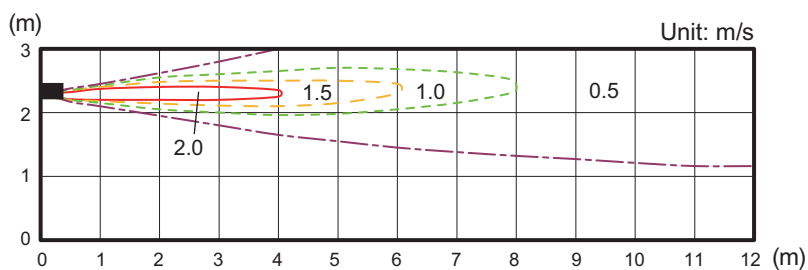
Top view  
Horizontal louver: Up  
Vertical louver: Center



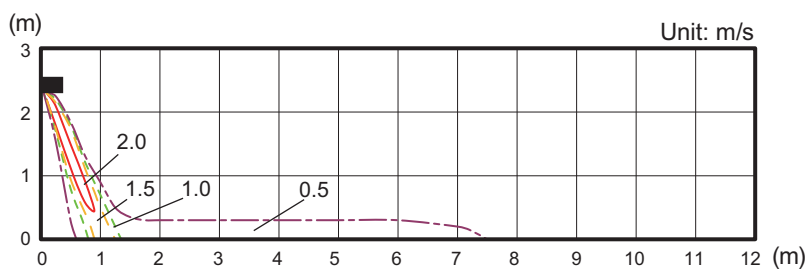
Top view  
Horizontal louver: Up  
Vertical louver: Left & Right



Side view  
Horizontal louver: Up  
Vertical louver: Center



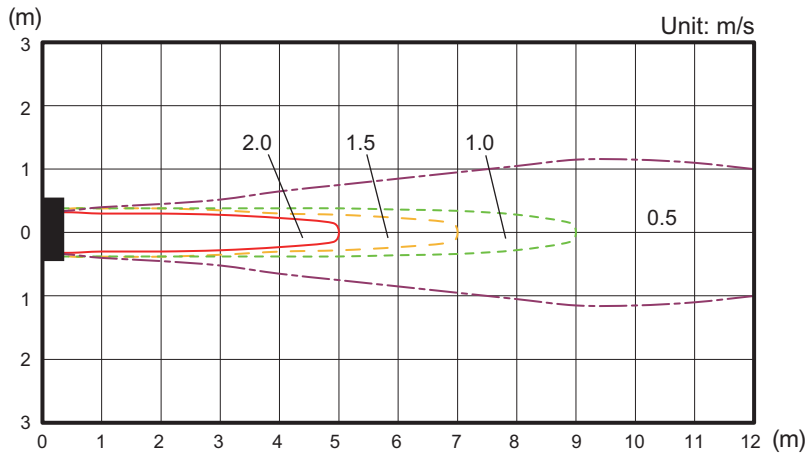
Side view  
Horizontal louver: Down  
Vertical louver: Center



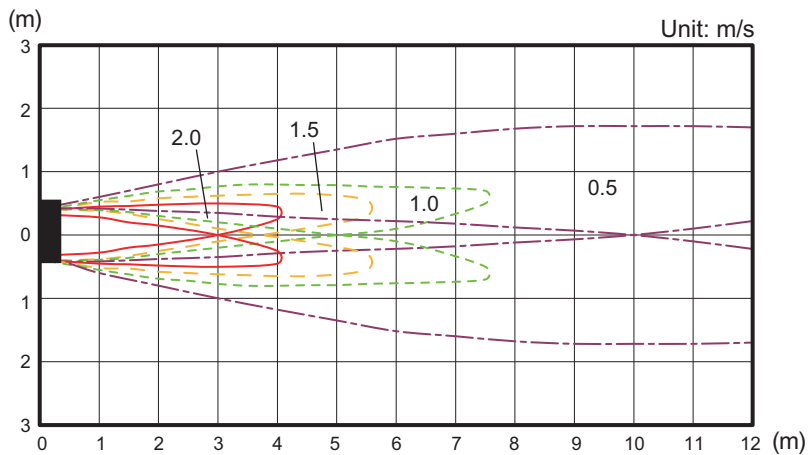
# Model: ASBG24KMBA

Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

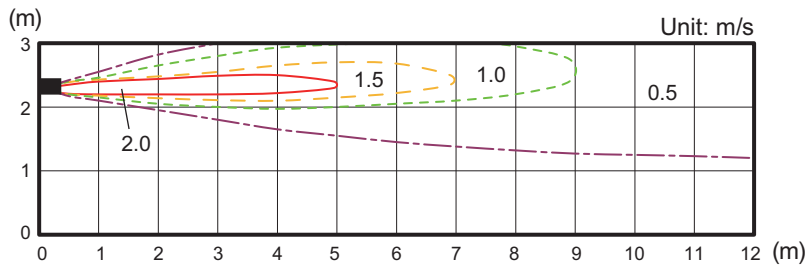
Top view  
Horizontal louver: Up  
Vertical louver: Center



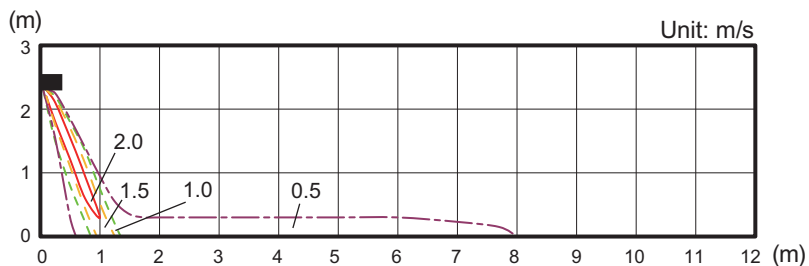
Top view  
Horizontal louver: Up  
Vertical louver: Left & Right



Side view  
Horizontal louver: Up  
Vertical louver: Center



Side view  
Horizontal louver: Down  
Vertical louver: Center



## 5-2. Airflow

### ■ Model: ASBG18KMBA

#### ● Cooling

Fan speed	Airflow	
HIGH	m <sup>3</sup> /h	880
	l/s	244
	CFM	518
MED	m <sup>3</sup> /h	740
	l/s	206
	CFM	436
LOW	m <sup>3</sup> /h	620
	l/s	172
	CFM	365
QUIET	m <sup>3</sup> /h	480
	l/s	133
	CFM	283

#### ● Heating

Fan speed	Airflow	
HIGH	m <sup>3</sup> /h	880
	l/s	244
	CFM	518
MED	m <sup>3</sup> /h	740
	l/s	206
	CFM	436
LOW	m <sup>3</sup> /h	620
	l/s	172
	CFM	365
QUIET	m <sup>3</sup> /h	480
	l/s	133
	CFM	283

## ■ Model: ASBG24KMBA

### ● Cooling

Fan speed	Airflow	
HIGH	m <sup>3</sup> /h	1,040
	l/s	289
	CFM	612
MED	m <sup>3</sup> /h	900
	l/s	250
	CFM	530
LOW	m <sup>3</sup> /h	740
	l/s	206
	CFM	436
QUIET	m <sup>3</sup> /h	580
	l/s	161
	CFM	341

### ● Heating

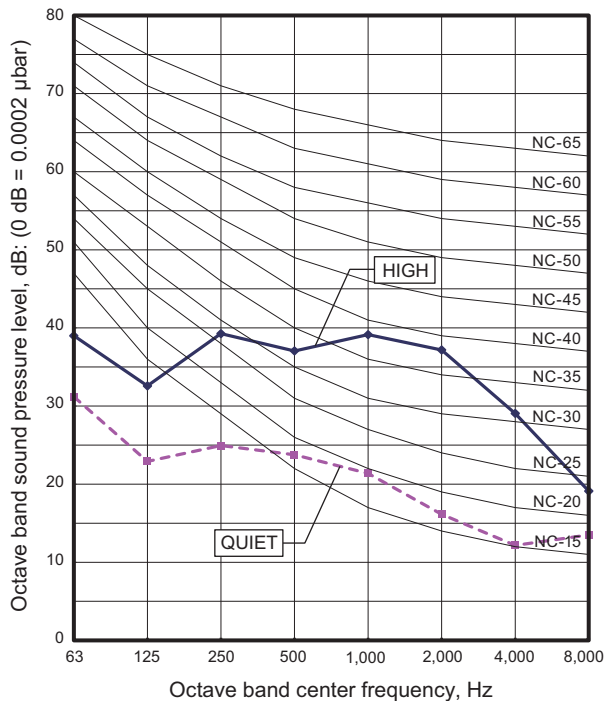
Fan speed	Airflow	
HIGH	m <sup>3</sup> /h	1,040
	l/s	289
	CFM	612
MED	m <sup>3</sup> /h	900
	l/s	250
	CFM	530
LOW	m <sup>3</sup> /h	740
	l/s	206
	CFM	436
QUIET	m <sup>3</sup> /h	580
	l/s	161
	CFM	341

# 6. Operation noise (sound pressure)

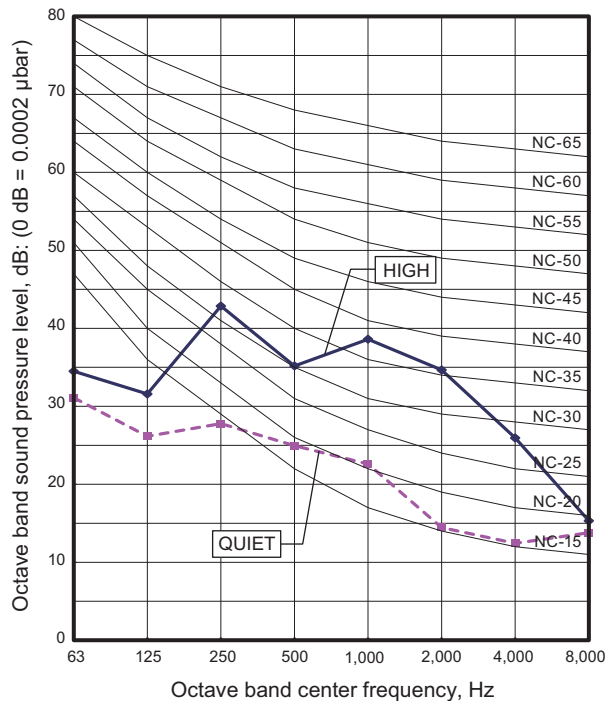
## 6-1. Noise level curve

### Model: ASBG18KMBA

#### Cooling

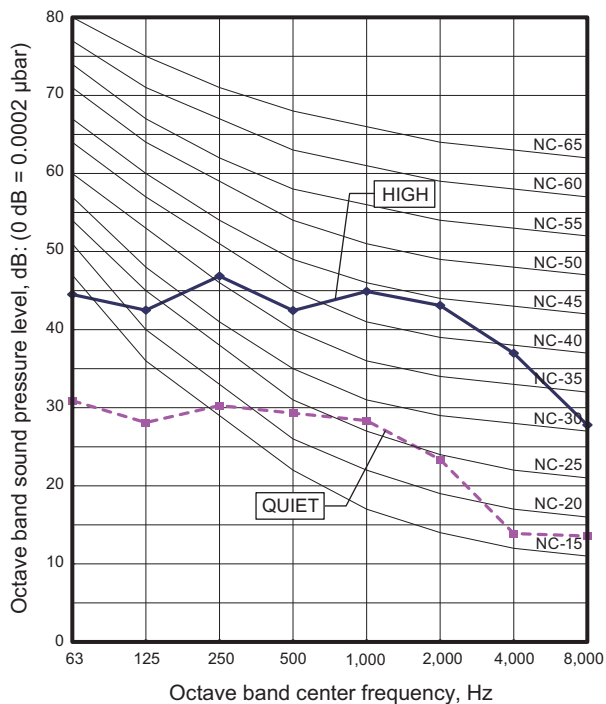


#### Heating

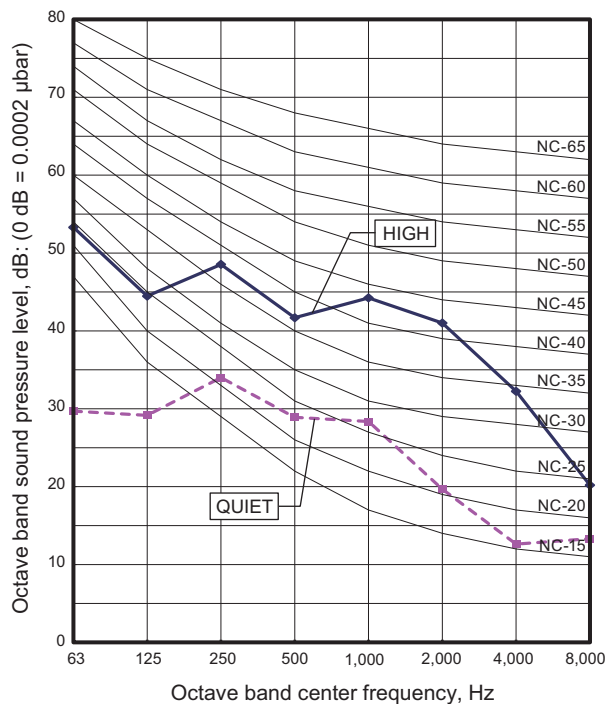


### Model: ASBG24KMBA

#### Cooling

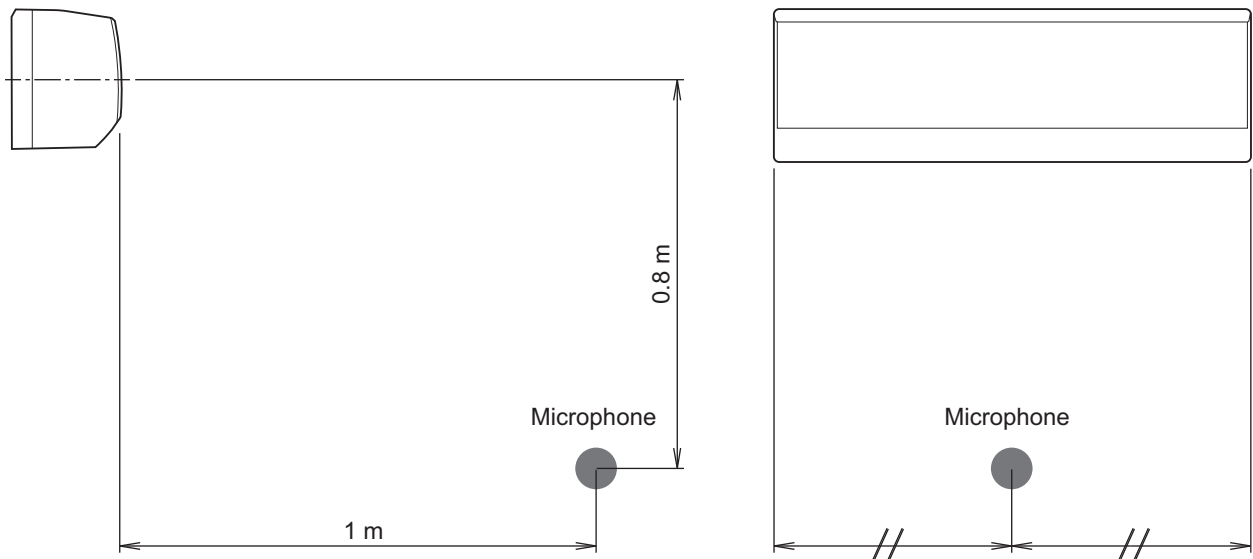


#### Heating





## 6-2. Sound level check point



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

## 7. Safety devices

Type of protection	Protection form		Model	
			ASBG18K MBA	ASBG24K MBA
Circuit protection	Current fuse (PCB*)		250 V, 3.15 A	
Terminal protection	Current (thermal) fuse		250 V, 3.1 A	
Fan motor protection	Thermal protector program	Activate	150 ±15°C Fan motor stop	
		Reset	120 ±15°C Fan motor restart	

\*PCB: Printed Circuit Board

## 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
CN14	Control input	—	See external input/output settings for details.
CN16	—	Operation 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 should be used. Maximum length of cable is 150 m.
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- The wire connection should be separate from the power cable line.

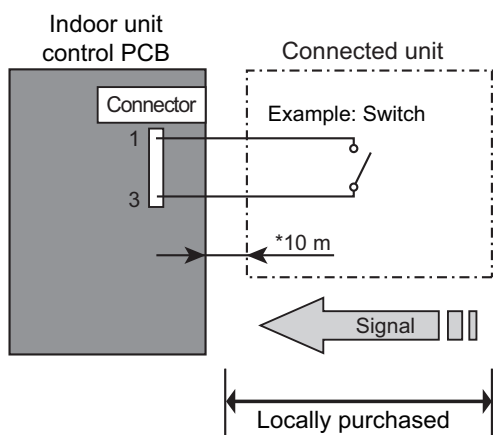
#### ■ Control input (Operation/Stop)

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.

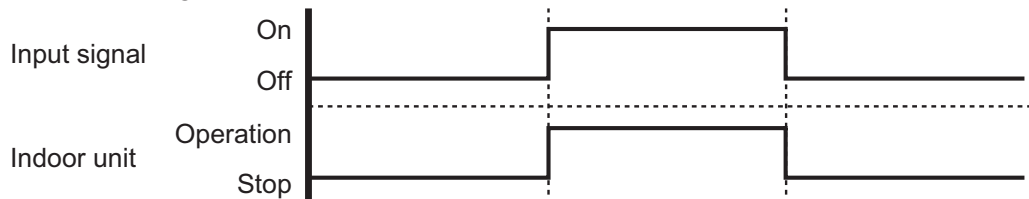
Unit operation	Initial setting after power is on	Starting mode other than initial setting
Operation mode	Auto changeover	Mode at previous operation
Set temperature	24 °C	Temperature at previous operation
Airflow mode	AUTO	Mode at previous operation
Air direction (swing)	Standard air direction (swing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



## ● Optional part

Part name	Model name	Exterior
External Connect Kit	UTY-XWZX	External input wire 

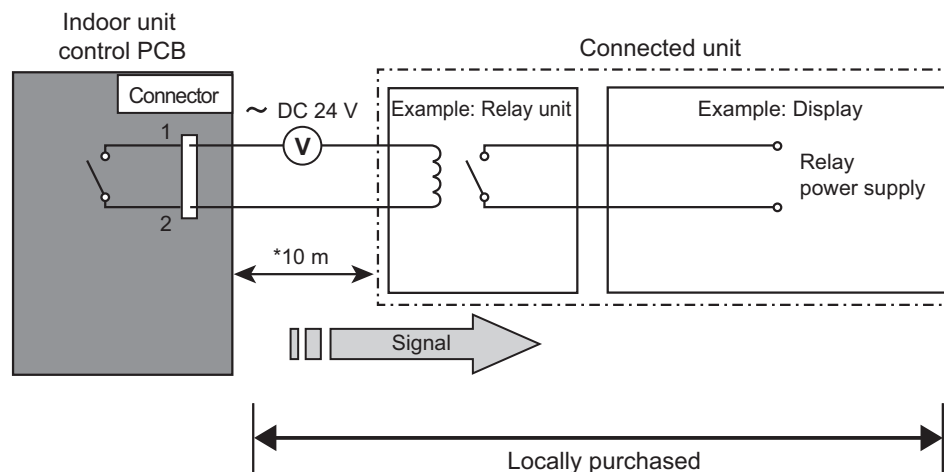
## 8-2. External output

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.

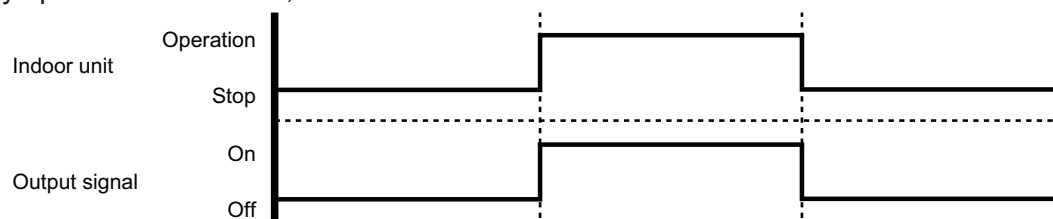
### ■ Operation status output

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.



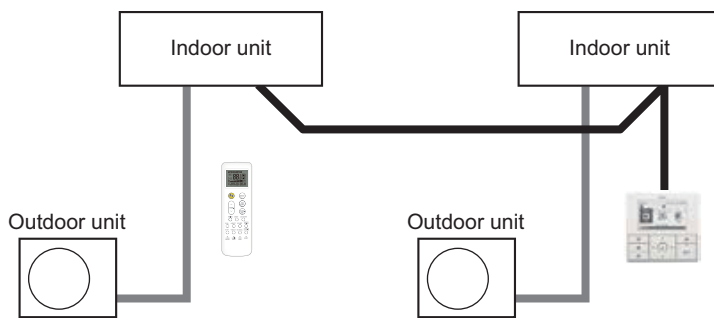
#### ● Optional part

Part name	Model name	Exterior
External Connect Kit	UTY-XWZX	External output wire 

## 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.

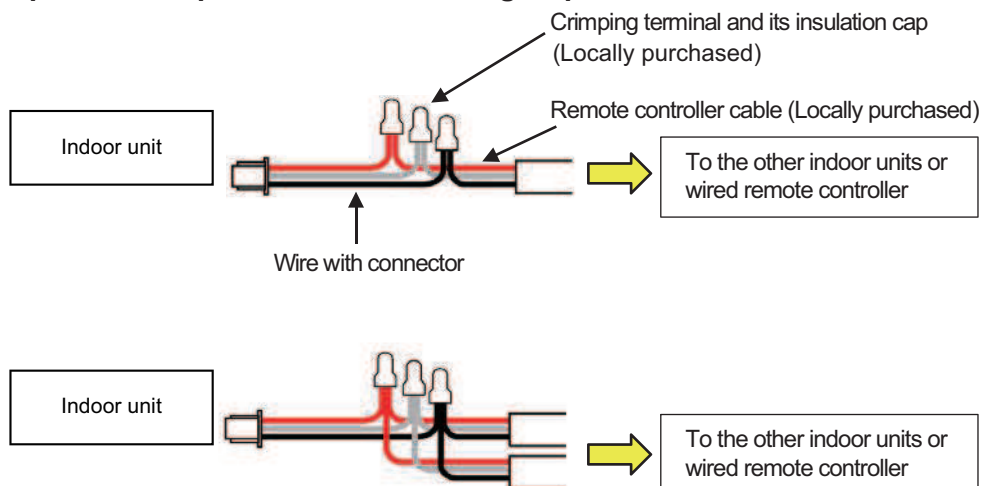
- **Maximum wiring length of the remote controller cable:** 300 m  
Even if the maximum wiring length of the product itself is specified as longer than 300 m, the maximum length of the remote controller cable will be 300 m if the system is group-connected.  
When total wiring length is longer than 100 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 <sup>2</sup>
100 or less	0.3—0.8
100—200	0.5—0.8
200—300	0.8

- **Required parts for group connection**

- 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.)

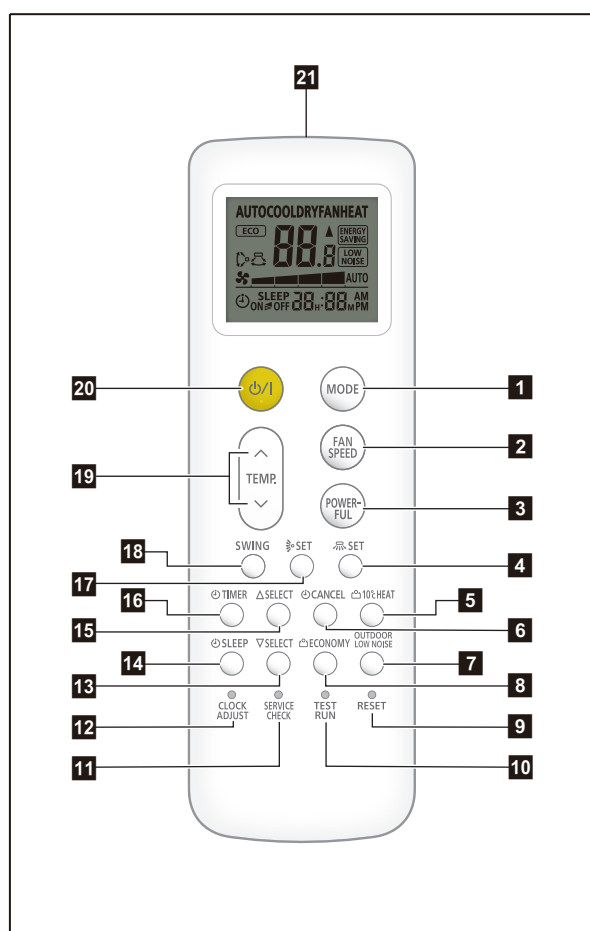
## 9-2. Remote controller address setting procedure for wireless remote controllers

1. Enter the function setting mode of the wireless remote controller. For details, refer to "[Function settings](#)" on page 22.
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)

## 10. Remote controller

### 10-1. Wireless remote controller

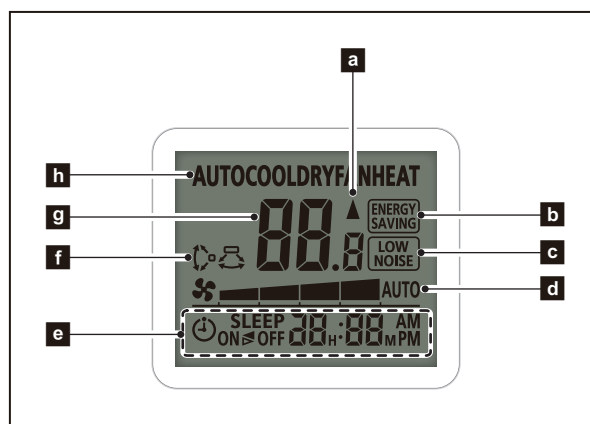
#### Overview



- 1 MODE button
- 2 FAN SPEED button
- 3 POWERFUL button
- 4 SET button (Left/right airflow)
- 5 10 °C HEAT button
- 6 CANCEL button
- 7 OUTDOOR LOW NOISE button
- 8 ECONOMY 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

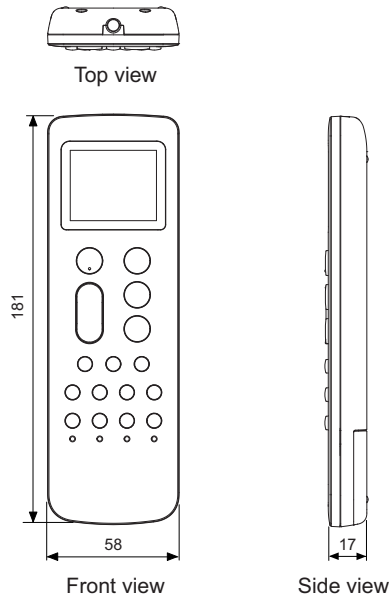
To facilitate explanation, the accompanying illustration has been drawn to show all possible indicators; in actual operation, however, the display will only show those indicators appropriate to the current operation.



# Specifications

## Controller

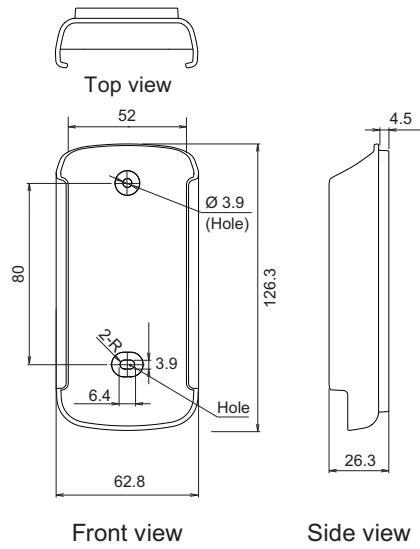
Unit: mm



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

## 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. (^) (v) 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. (^) (v) 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.

Function number  
Setting value



#### **⚠ 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.

## ■ 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.

## 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.

**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.

## 11-2. Custom code setting for wireless remote controller

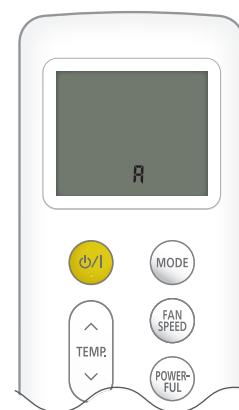
To interconnect the air conditioner and the wireless remote controller, assignment of the custom code for the wireless remote controller is required.

**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  $\overline{A}$ .)
3. Press the TEMP. ( $\wedge$ ) ( $\vee$ ) buttons to change the custom code between  $\overline{A} \rightarrow \overline{B} \rightarrow \overline{C} \rightarrow \overline{D}$ . Match the code on the display to the air conditioner custom code. (Initially set to  $\overline{A}$ .)
4. Press the MODE button again to return to the clock display. The custom code will be changed.




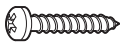
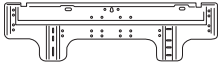

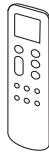


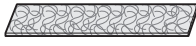
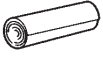



### NOTES:

- 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  $\overline{A}$  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 ( $\overline{A} \rightarrow \overline{B} \rightarrow \overline{C} \rightarrow \overline{D}$ ) until you find the code which operates the air conditioner.

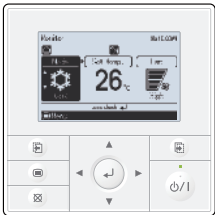
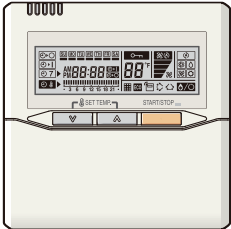

## 12. Accessories

### 12-1. Models: ASBG18KMBA and ASBG24KMBA

Part name	Exterior	Qty	Part name	Exterior	Qty
Operation manual		1	Drain hose insulation		1
Installation manual		1	Self-tapping screw (large)		8
Wall hook bracket		1	Self-tapping screw (small)		2
Remote controller		1	Filter holder		2
Remote controller holder		1	Ion deodorization filter		1
Cloth tape		1	Apple-catechin filter		1

## 13. Optional parts

### 13-1. Controllers

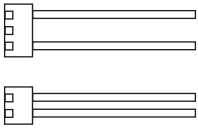

Exterior	Part name	Model name	Summary
	Wired Remote Controller	UTY-RVNYM	Large and full-dot liquid crystal screen, wide and large keys easy to press, user-intuitive arrow key. Wire type: Polar 3-wire  Connecting point: CN6 on Main PCB
	Wired Remote Controller	UTY-RNNYM	Room temperature can be controlled by detecting the temperature accurately with thermo sensor. Wire type: Polar 3-wire  Connecting point: CN6 on Main PCB
	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  Connecting point: CN6 on Main PCB

#### 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.



## 13-2. Others

Exterior	Part name	Model name	Summary
	External Connect Kit	UTY-XWZX	<p>Use to connect with various peripheral devices and air conditioner PCB.</p> <p>Connecting point: CN14 (external input) and CN16 (external output) on Main PCB</p>
	WLAN Adapter	UTY-TFNXZ2	<p>Remotely manage an air conditioning system using mobile devices such as smartphones and tablets.</p> <p>Appropriate application for each region is required to use this option. For details, contact FGL sales company.</p> <p>Connecting point: CN6 on Main PCB</p>



# **Part 2. OUTDOOR UNIT**

---

**SINGLE TYPE:**

**AOBG18KMCA**

**AOBG24KMCA**

# 1. Specifications

Type			Inverter, Heat pump			
Model name			AOBG18KMCA	AOBG24KMCA		
Power supply			220 V~ 60 Hz			
Power supply intake			Outdoor unit			
Available voltage range			198—242 V			
Starting current			A	7.4	9.1	
Fan	Airflow rate	Cooling	m <sup>3</sup> /h	1,890	3,150	
		Heating		1,820	2,770	
	Type × Qty	Propeller fan × 1				
Motor output		W	23	49		
Sound pressure level*1	Cooling		dB (A)	50	56	
	Heating			51	54	
Heat exchanger type	Dimensions (H × W × D)		mm	Main 1: 504 × 881 × 18.19 Main 2: 504 × 851 × 18.19	Main 1: 672 × 881 × 18.20 Main 2: 672 × 851 × 18.20	
	Fin pitch			Main 1: 1.3 Main 2: 1.3	Main 1: 1.3 Main 2: 1.3	
	Rows × Stages			Main 1: 1 × 24 Main 2: 1 × 24	Main 1: 1 × 32 Main 2: 1 × 32	
	Pipe type		Copper tube			
	Fin type		Type (Material)		Aluminum	
			Surface treatment		Blue fin	
Compressor	Type		DC rotary	DC twin rotary		
	Motor output		W	900	1,060	
Refrigerant	Type		R32			
	Charge		g	950	1,250	
Refrigerant oil	Type		Polyolester (RB68A)	RmM68AF		
	Amount		cm <sup>3</sup>	340	400	
Enclosure	Material		Steel sheet			
	Color		Beige Approximate color of Munsell 10YR 7.5/1.0			
Dimensions (H × W × D)	Net		mm	542 × 799 × 290	716 × 820 × 315	
	Gross			602 × 940 × 375	776 × 961 × 450	
Weight	Net		kg	32	41	
	Gross			36	46	
Connection pipe	Size	Liquid	mm (in)	Ø6.35 (Ø1/4)		
		Gas		Ø12.70 (Ø1/2)		
	Method		Flare			
	Pre-charge length		m	15		
	Max. length			20	30	
	Max. height difference			15	25	
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.

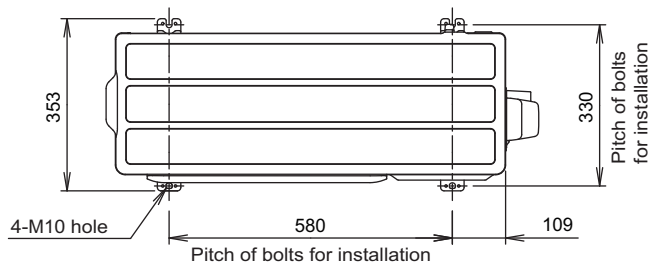
## 2. Dimensions

### 2-1. Model: AOBG18KMCA

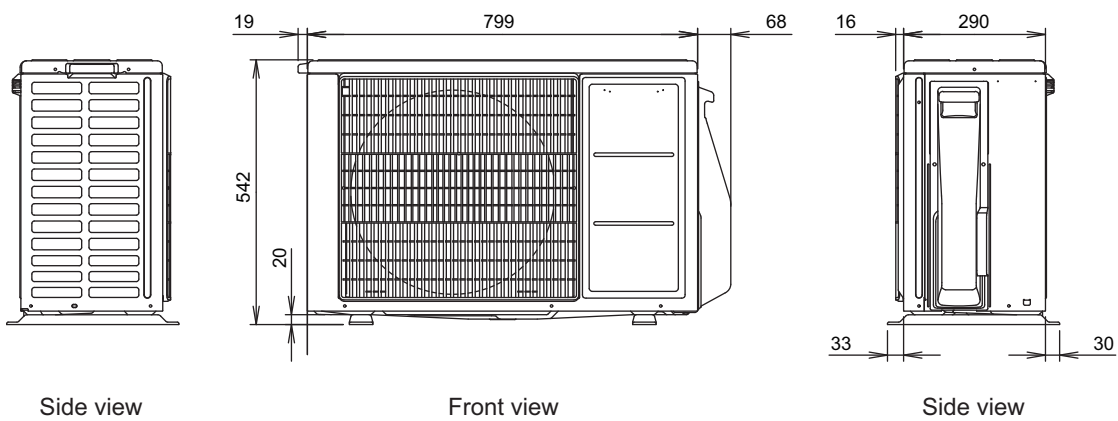
Unit: mm

OUTDOOR UNIT  
AOBG18-24KMCA

OUTDOOR UNIT  
AOBG18-24KMCA



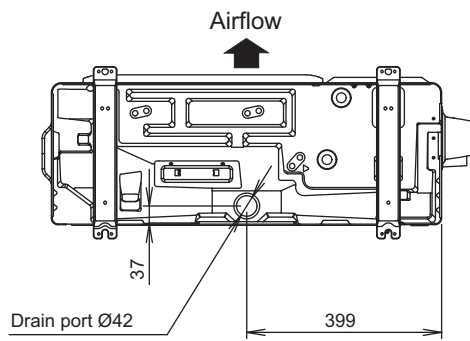
Top view



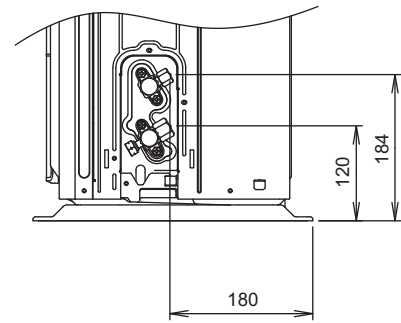
Side view

Front view

Side view



Bottom view



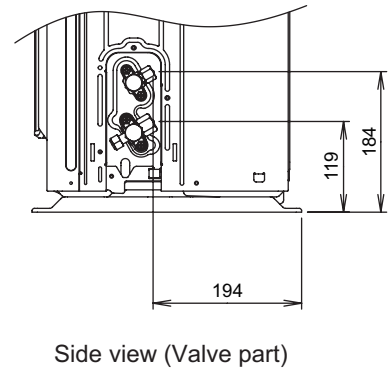
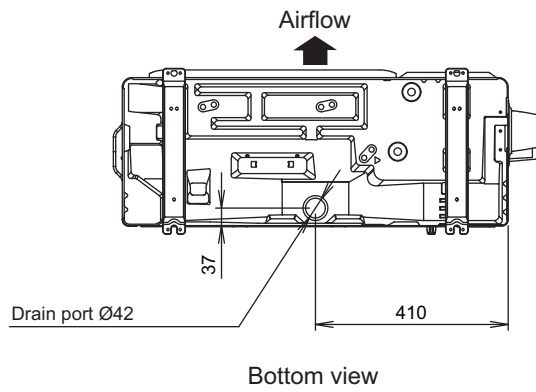
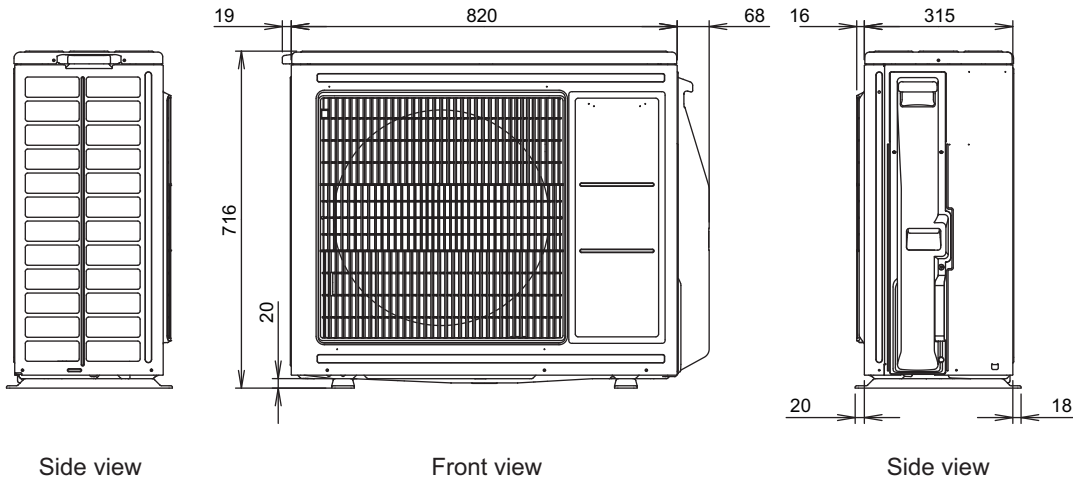
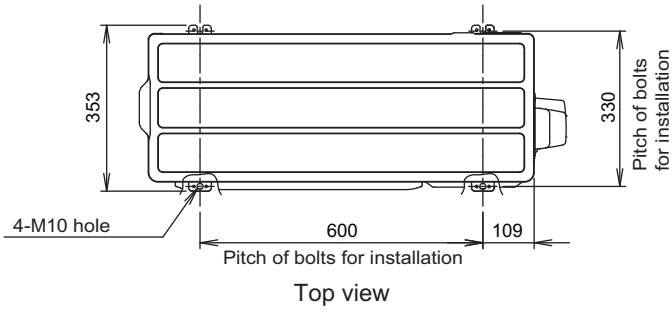
Side view (Valve part)

# 2-2. Model: AOBG24KMCA

Unit: mm

OUTDOOR UNIT  
AOBG18-24KMCA

OUTDOOR UNIT  
AOBG18-24KMCA



## 3. Installation space

### 3-1. Models: AOBG18KMCA and AOBG24KMCA

#### ■ Space requirement

Provide sufficient installation space for product safety.

#### ⚠ CAUTION

Keep the space shown in the installation examples.

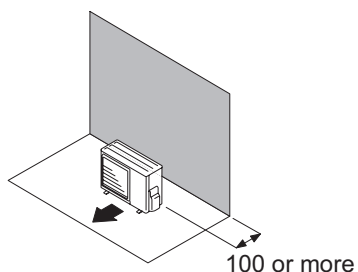
If the installation is not performed accordingly, it could cause a short circuit and result in a lack of operating performance.

#### ● Single outdoor unit installation

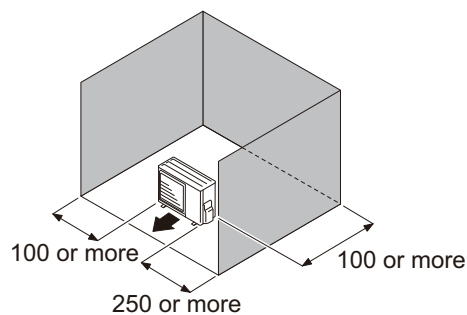
- When the upper space is open:

Unit: mm

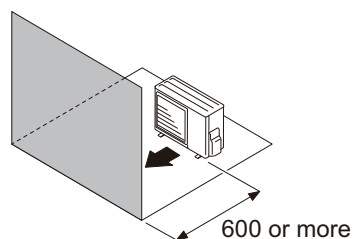
Obstacles at rear only



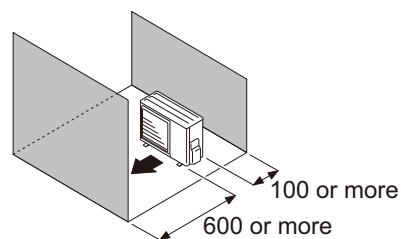
Obstacles at rear and sides



Obstacles at front



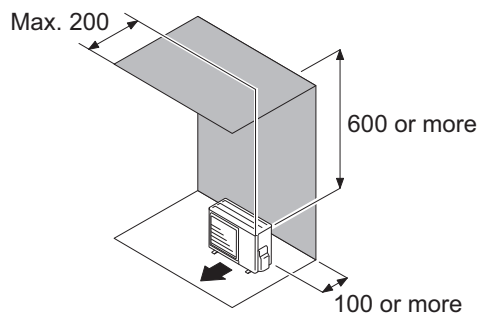
Obstacles at front and rear



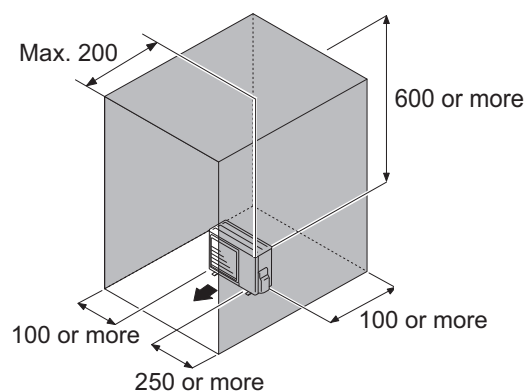
- When an obstruction in the upper space:

Unit: mm

Obstacles at rear and above



Obstacles at rear, sides, and above



## ● Multiple outdoor unit installation

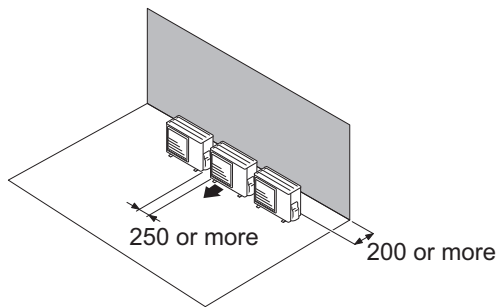
- Provide at least 250 mm of space between the outdoor units if multiple units are installed.
- When routing the piping from the side of an outdoor unit, provide space for piping.
- No more than 3 units must be installed side by side.  
When 4 units or more are arranged in a line, provide the space as shown in the following example **“When an obstruction in the upper space:”**.
- **When the upper space is open:**

OUTDOOR UNIT  
AOBG18-24KMCA

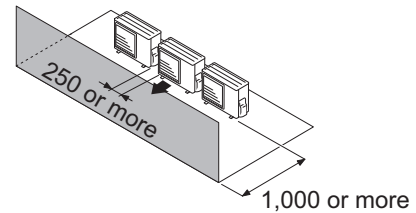
OUTDOOR UNIT  
AOBG18-24KMCA

Unit: mm

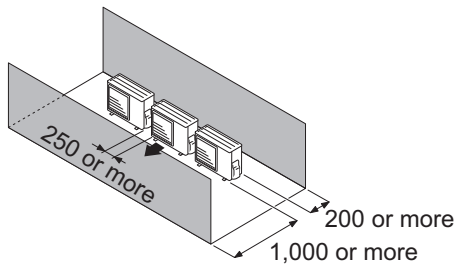
Obstacles at rear only



Obstacles at front only



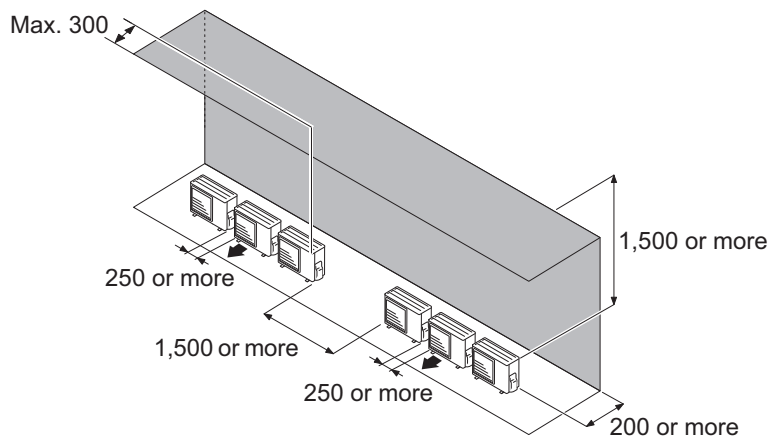
Obstacles at front and rear



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

Unit: mm

Obstacles at rear and above.

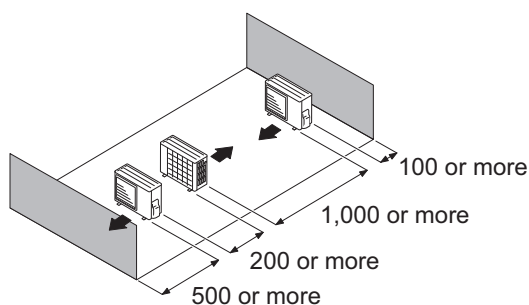




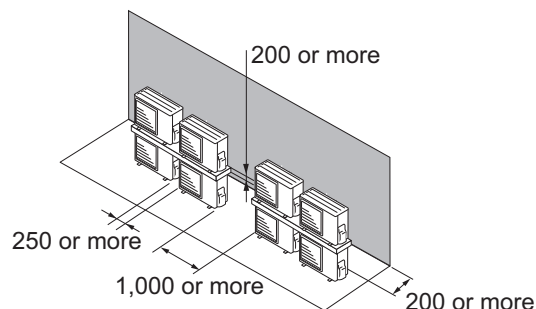
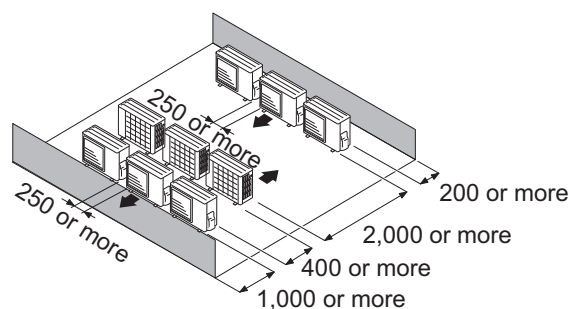
## ● Outdoor units installation in multi-row

Unit: mm

Single parallel unit arrangement



Multiple parallel unit arrangement

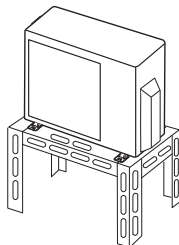


### NOTES:

- 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.

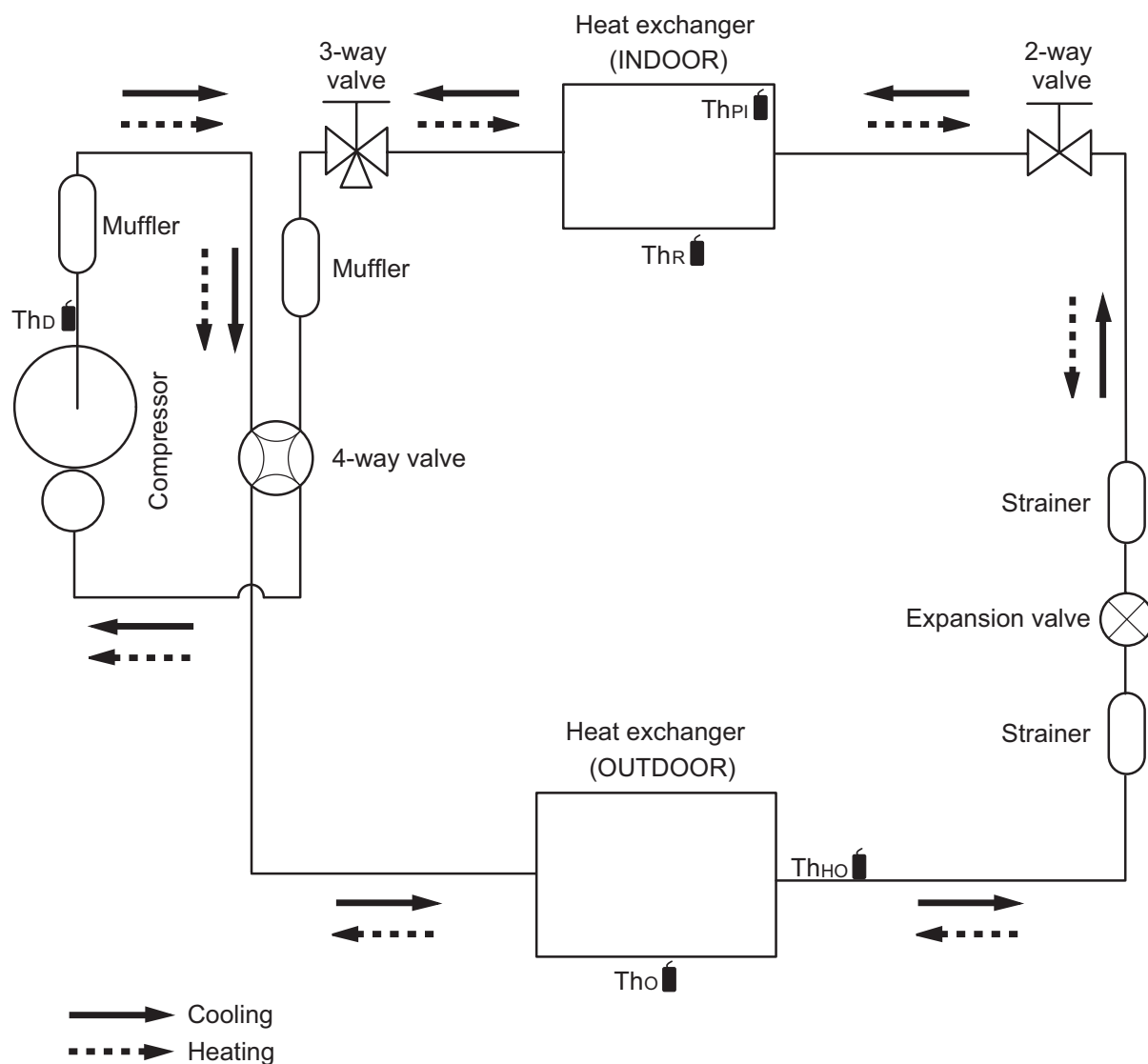
### ⚠ CAUTION

- 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. Model: AOBG18KMCA



ThD : Thermistor (Discharge temperature)

Tho : Thermistor (Outdoor temperature)

Tho : Thermistor (Heat exchanger out temperature)

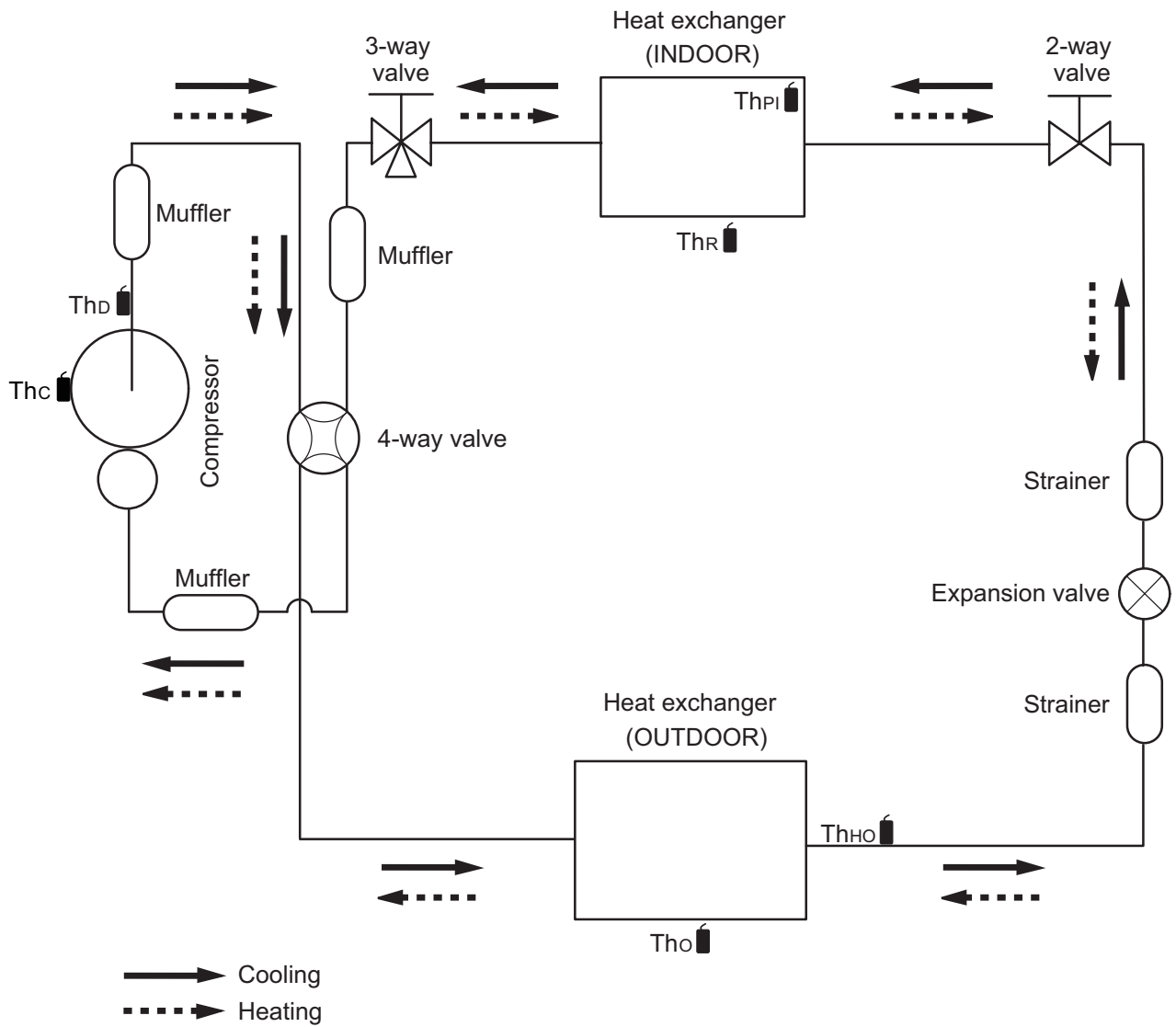
ThPI : Thermistor (Pipe temperature)

ThR : Thermistor (Room temperature)

## 4-2. Model: AOBG24KMCA

OUTDOOR UNIT  
AOBG18-24KMCA

OUTDOOR UNIT  
AOBG18-24KMCA



Thc : Thermistor (Compressor temperature)

Thd : Thermistor (Discharge temperature)

Tho : Thermistor (Outdoor temperature)

ThHo : Thermistor (Heat exchanger out temperature)

ThPi : Thermistor (Pipe temperature)

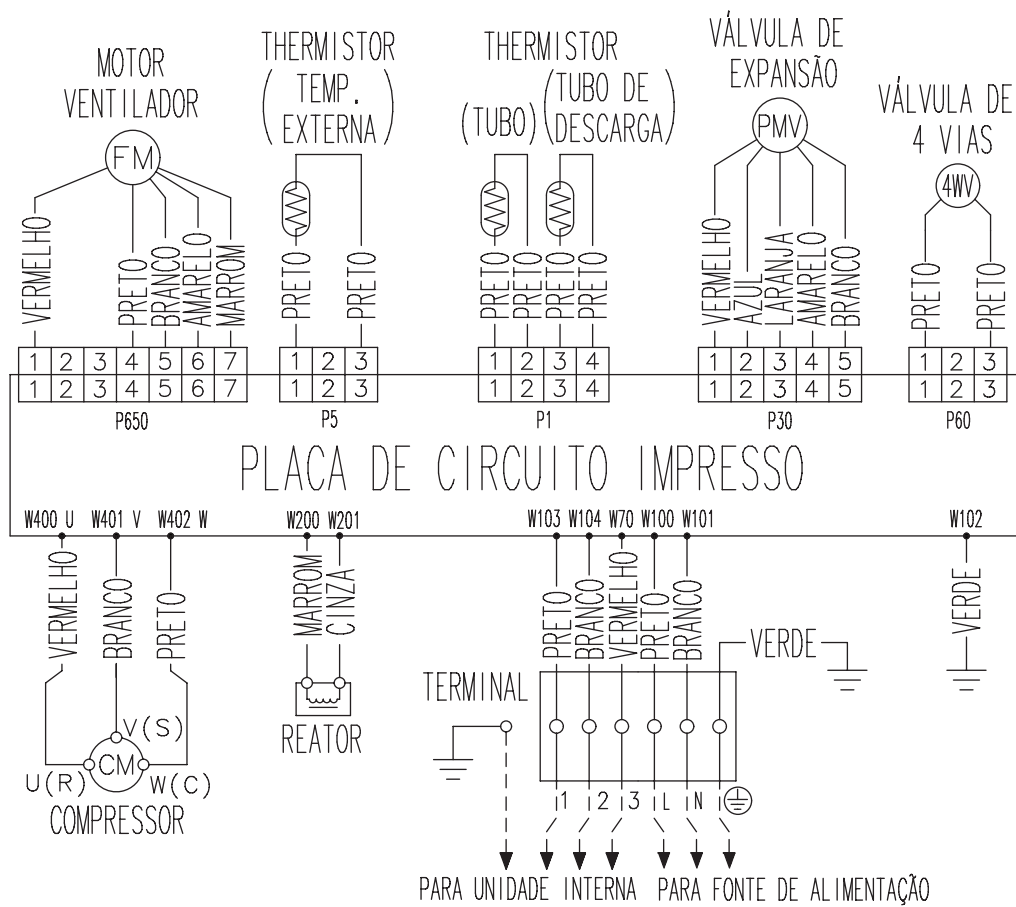
ThR : Thermistor (Room temperature)

# 5. Wiring diagrams

## 5-1. Model: AOBG18KMCA

OUTDOOR UNIT  
AOBG18-24KMCA

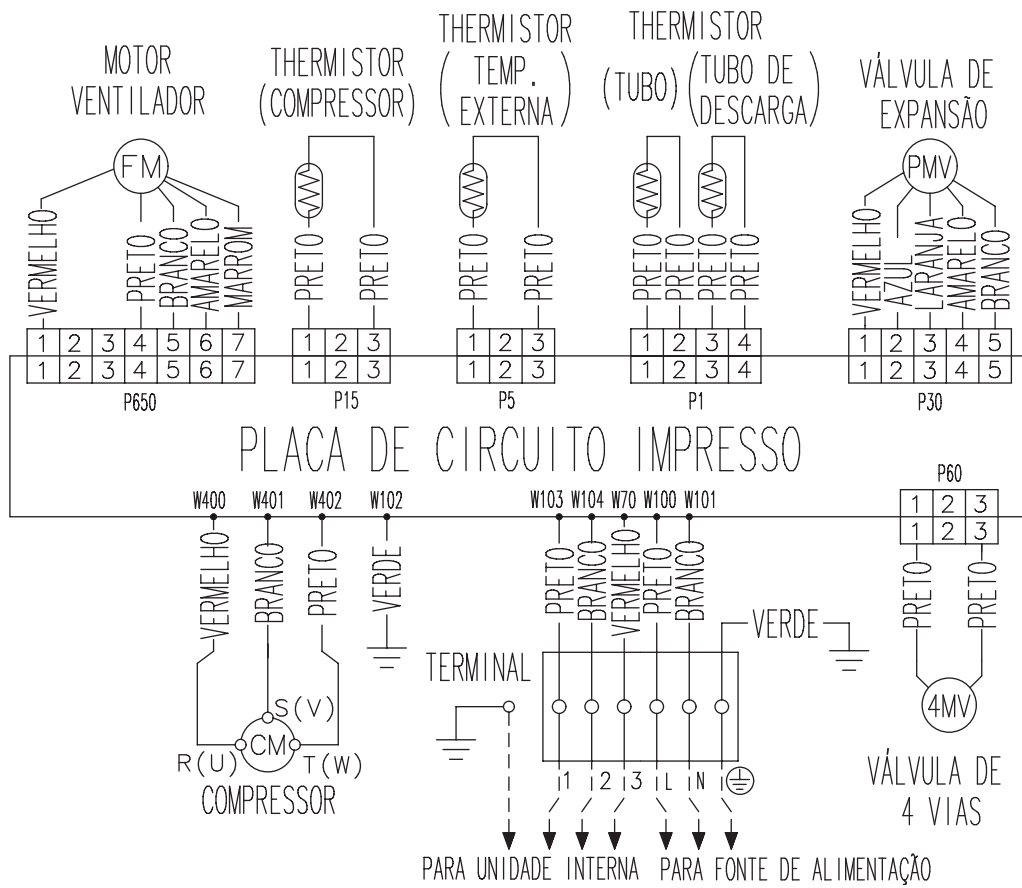
OUTDOOR UNIT  
AOBG18-24KMCA



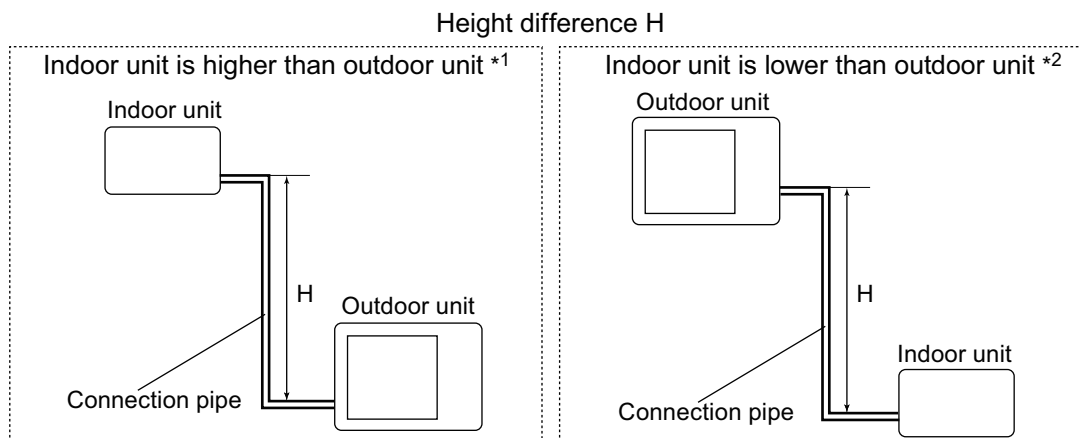
# 5-2. Model: AOBG24KMCA

OUTDOOR UNIT  
AOBG18-24KMCA

OUTDOOR UNIT  
AOBG18-24KMCA



## 6. Capacity compensation rate for pipe length and height difference



OUTDOOR UNIT  
AOBG18-24KMCA

OUTDOOR UNIT  
AOBG18-24KMCA

### 6-1. Model: AOBG18KMCA

**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
Height difference H (m)	Indoor unit is lower than outdoor unit *2	0	1.000	0.972	0.944	0.887	0.896
		-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
Height difference H (m)	Indoor unit is lower than outdoor unit *2	0	1.000	0.994	0.968	0.896	0.879
		-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

## 6-2. Model: AOBG24KMCA

**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	25	—	—	—	—	—	0.912	0.910
		20	—	—	—	—	0.921	0.919	0.918
		10	—	—	0.974	0.955	0.936	0.934	0.933
		7.5	—	0.988	0.978	0.959	0.940	0.938	0.937
		5	0.992	0.992	0.982	0.963	0.943	0.942	0.940
	Indoor unit is lower than outdoor unit *2	0	1.000	1.000	0.990	0.971	0.951	0.950	0.948
		-5	1.000	1.000	0.990	0.971	0.951	0.950	0.948
		-7.5	—	1.000	0.990	0.971	0.951	0.950	0.948
		-10	—	—	0.990	0.971	0.951	0.950	0.948
		-20	—	—	—	—	0.951	0.950	0.948
-25	—	—	—	—	—	0.950	0.948		

HEATING			Pipe length (m)						
			5	7.5	10	15	20	25	30
Height difference H (m)	Indoor unit is higher than outdoor unit *1	25	—	—	—	—	—	0.917	0.901
		20	—	—	—	—	0.933	0.917	0.901
		10	—	—	0.987	0.960	0.933	0.917	0.901
		7.5	—	1.000	0.987	0.960	0.933	0.917	0.901
		5	0.999	1.000	0.987	0.960	0.933	0.917	0.901
	Indoor unit is lower than outdoor unit *2	0	0.999	1.000	0.987	0.960	0.933	0.917	0.901
		-5	0.994	0.995	0.982	0.955	0.928	0.912	0.896
		-7.5	—	0.993	0.980	0.953	0.926	0.910	0.894
		-10	—	—	0.977	0.950	0.924	0.908	0.892
		-20	—	—	—	—	0.914	0.899	0.883
-25	—	—	—	—	—	0.894	0.878		

## 7. Additional charge calculation

### 7-1. Model: AOBG18KMCA

Refrigerant type		R32
Factory charge amount	g	950

#### ■ Refrigerant charge

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

### 7-2. Model: AOBG24KMCA

Refrigerant type		R32
Factory charge amount	g	1,250

#### ■ Refrigerant charge

Total pipe length	m	15 or less	20	25	30 (Max.)	20 g/m
Additional charge amount	g	0	100	200	300	



## 8. Airflow

### 8-1. AOBG18KMCA

#### ● Cooling

m <sup>3</sup> /h	1,890
l/s	525
CFM	1,112

#### ● Heating

m <sup>3</sup> /h	1,820
l/s	506
CFM	1,071

### 8-2. AOBG24KMCA

#### ● Cooling

m <sup>3</sup> /h	3,150
l/s	875
CFM	1,854

#### ● Heating

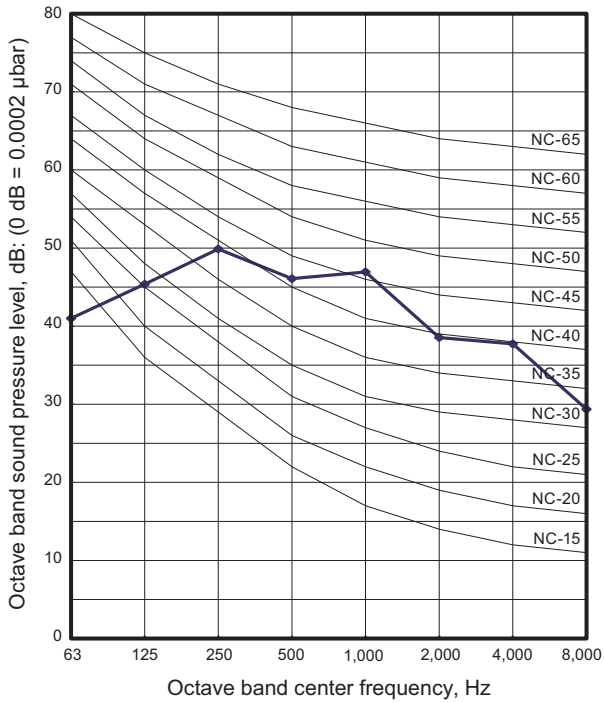
m <sup>3</sup> /h	2,770
l/s	770
CFM	1,630

# 9. Operation noise (sound pressure)

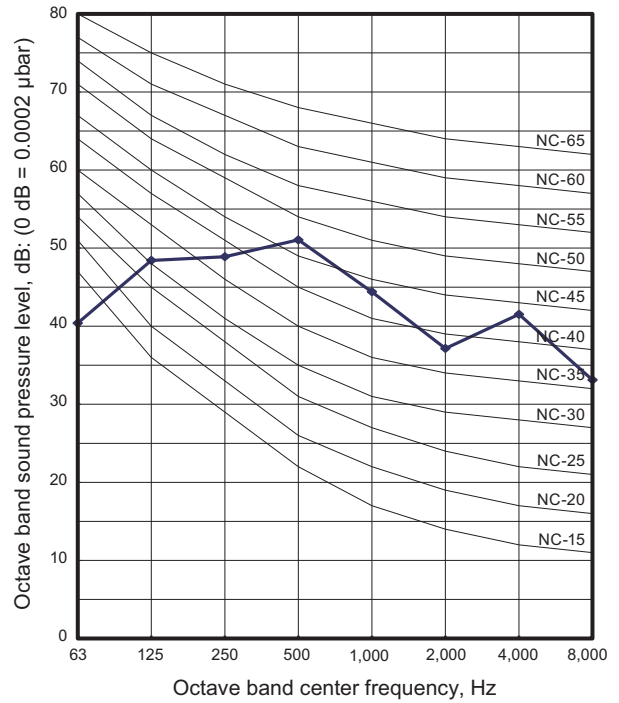
## 9-1. Noise level curve

### ■ AOBG18KMCA

#### ● Cooling

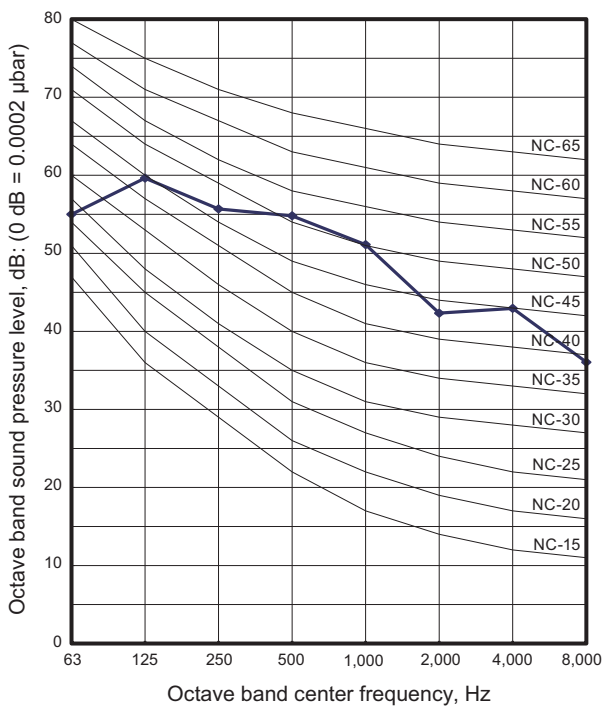


#### ● Heating

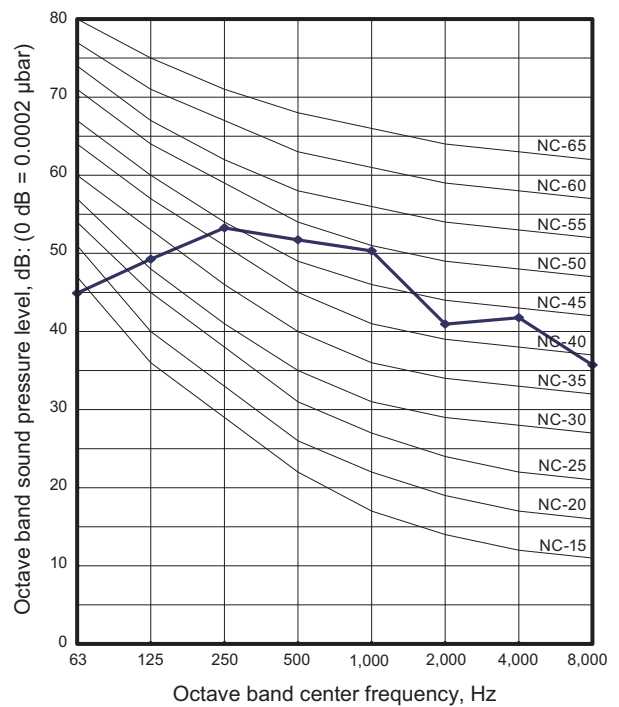


### ■ AOBG24KMCA

#### ● Cooling



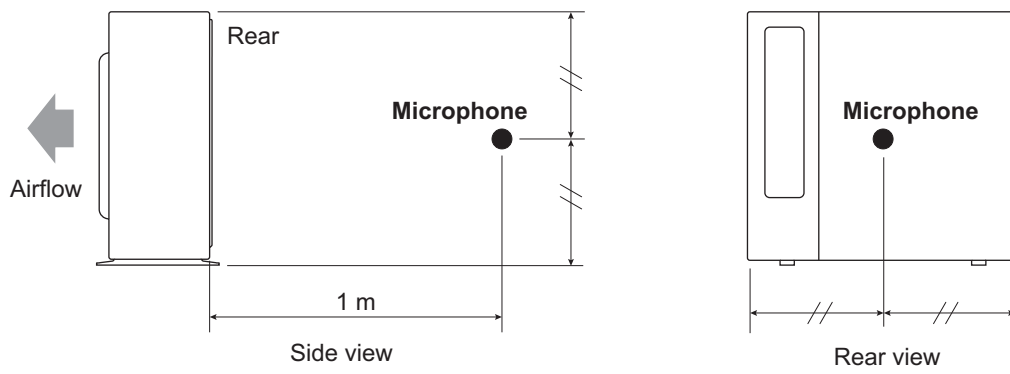
#### ● Heating



OUTDOOR UNIT  
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OUTDOOR UNIT  
AOBG18-24KMCA

## 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			AOBG18KMCA	AOBG24KMCA	
Power supply	Voltage	V	220		
	Frequency	Hz	60		
Maximum operating current* <sup>1</sup>		A	10.5	16.0	
Starting current		A	7.4	9.1	
Wiring spec.* <sup>2</sup>	Circuit breaker current		A	16	20
	Power cable		mm <sup>2</sup>	1.5—2.5	2.5—4.0
	Connection cable* <sup>3</sup>	Cross-sectional area	mm <sup>2</sup>	1.5	
		Limited wiring length	m	21	31

### NOTES:

- \*<sup>1</sup>: Maximum operating current is the total current of the indoor unit and the outdoor unit.
- \*<sup>2</sup>: 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.
- \*<sup>3</sup>: 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	
			AOBG18KMCA	AOBG24KMCA
Circuit protection	Current fuse (PCB*)		250 V, 20 A	
			250 V, 5 A	
Fan motor protection	Thermal protection	Activate	103 <sup>+19</sup> <sub>-18</sub> °C Fan motor stop	125 ±10 °C Fan motor stop
		Reset	95 <sup>+19</sup> <sub>-18</sub> °C Fan motor restart	120 ±10 °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: AOBG18KMCA and AOBG24KMCA

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