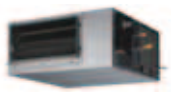
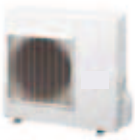
FUJITSU

Refrigerant R410A INVERTER

AIR CONDITIONER

Duct type

DESIGN & TECHNICAL MANUAL

INDOOR	 ARYG12LHTBP ARYG14LHTBP	 ARYG18LHTBP ARYG24LHTBP ARYG30LHTBP	 ARYG36LHTBP ARYG45LHTBP ARYG54LHTBP	
OUTDOOR	 AOYG12LBLA AOYG14LBLA	 AOYG18LBCA AOYG24LBCA	 AOYG30LBTA AOYG36LBTA	 AOYG45LBTA AOYG54LBTA

FUJITSU GENERAL LIMITED

DR_AR006EF_04
2016.04.22

Notices:

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

Copyright © 2015, 2016 Fujitsu General Limited. All rights reserved.

CONTENTS

Part 1. INDOOR UNIT 1

1. Product features 2
1-1. Model lineup 2
1-2. Features 2

2. Wired remote controller 4
2-1. Features 4
2-2. Overview 8
2-3. Specifications 9
2-4. Wiring specifications 9

3. Specifications 10
3-1. Models: ARYG12LHTBP and ARYG14LHTBP 10
3-2. Models: ARYG18LHTBP, ARYG24LHTBP, and ARYG30LHTBP 12
3-3. Models: ARYG36LHTBP, ARYG45LHTBP, and ARYG54LHTBP 14

4. Dimensions 16
4-1. Models: ARYG12LHTBP and ARYG14LHTBP 16
4-2. Models: ARYG18LHTBP, ARYG24LHTBP, and ARYG30LHTBP 17
4-3. Models: ARYG36LHTBP, ARYG45LHTBP, and ARYG54LHTBP 18
4-4. Installation space requirement 18
4-5. Maintenance space requirement 19

5. Wiring diagrams 20
5-1. Models: ARYG12LHTBP, ARYG14LHTBP, ARYG18LHTBP, and ARYG24LHTBP 20
5-2. Models: ARYG30LHTBP, ARYG36LHTBP, ARYG45LHTBP, and ARYG54LHTBP 21

6. Capacity table 22
6-1. Cooling capacity 22
6-2. Heating capacity 25

7. Fan performance 28
7-1. Fan performance curve 28
7-2. Airflow 42

8. Operation noise (sound pressure) 50
8-1. Noise level curve 50
8-2. Sound level check point 54

9. Safety devices 55

10. External input and output 56
10-1.External input 56
10-2.External output 58
10-3.Combination of external input and output 59
10-4.Details of function 61

11. Function settings 67
11-1.Function settings on indoor unit 67
11-2.Function settings by using remote controller 69

CONTENTS (continued)

12. Wired remote controller (Touch panel) 76
12-1.Remote controller address setting 76
12-2.Remote controller master/slave setting 78
13. Accessories 79
14. Optional parts 80
14-1.Controllers 80
14-2.Others 81

CONTENTS (continued)

Part 2. OUTDOOR UNIT 82

1. Specifications 83
1-1. Models: AOYG12LBLA and AOYG14LBLA 83
1-2. Models: AOYG18LBCA and AOYG24LBCA 84
1-3. Models: AOYG30LBTA and AOYG36LBTA 85
1-4. Models: AOYG45LBTA and AOYG54LBTA 86

2. Dimensions 87
2-1. Models: AOYG12LBLA and AOYG14LBLA 87
2-2. Models: AOYG18LBCA and AOYG24LBCA 88
2-3. Models: AOYG30LBTA and AOYG36LBTA 89
2-4. Models: AOYG45LBTA and AOYG54LBTA 90

3. Installation space 91
3-1. Models: AOYG12LBLA, AOYG14LBLA, AOYG18LBCA, and AOYG24LBCA 91
3-2. Models: AOYG30LBTA and AOYG36LBTA 94
3-3. Models: AOYG45LBTA and AOYG54LBTA 97

4. Refrigerant circuit 100
4-1. Models: AOYG12LBLA and AOYG14LBLA 100
4-2. Models: AOYG18LBCA and AOYG24LBCA 101
4-3. Models: AOYG30LBTA and AOYG36LBTA 102
4-4. Models: AOYG45LBTA and AOYG54LBTA 103

5. Wiring diagrams 104
5-1. Models: AOYG12LBLA and AOYG14LBLA 104
5-2. Models: AOYG18LBCA and AOYG24LBCA 105
5-3. Model: AOYG30LBTA 105
5-4. Model: AOYG36LBTA 106
5-5. Models: AOYG45LBTA and AOYG54LBTA 107

6. Capacity compensation rate for pipe length and height difference 108
6-1. Models: AOYG12LBLA 108
6-2. Models: AOYG14LBLA 109
6-3. Models: AOYG18LBCA and AOYG24LBCA 109
6-4. Model: AOYG30LBTA 110
6-5. Model: AOYG36LBTA 111
6-6. Models: AOYG45LBTA and AOYG54LBTA 112

7. Additional charge calculation 113
7-1. Model: AOYG12LBLA 113
7-2. Model: AOYG14LBLA 113
7-3. Models: AOYG18LBCA and AOYG24LBCA 113
7-4. Models: AOYG30LBTA and AOYG36LBTA 113
7-5. Models: AOYG45LBTA and AOYG54LBTA 114

8. Airflow 115
8-1. Model: AOYG12LBLA 115

CONTENTS (continued)

8-2. Model: AOYG14LBLA 115
8-3. Model: AOYG18LBCA 115
8-4. Model: AOYG24LBCA 116
8-5. Model: AOYG30LBTA 116
8-6. Model: AOYG36LBTA 116
8-7. Model: AOYG45LBTA 117
8-8. Model: AOYG54LBTA 117

9. Operation noise (sound pressure) 118

9-1. Noise level curve 118
9-2. Sound level check point 122

10. Electrical characteristics 123

11. Safety devices 124

12. External input and output (AOYG45LBTA and AOYG54LBTA) 128

12-1.External input 128
12-2.External output 130

13. Function settings 132

13-1.Local setting switch buttons 132
13-2.Local setting procedure 134

14. Accessories 137

14-1.Models: AOYG12LBLA and AOYG14LBLA 137
14-2.Models: AOYG18LBCA and AOYG24LBCA 137
14-3.Models: AOYG30LBTA and AOYG36LBTA 137
14-4.Models: AOYG45LBTA and AOYG54LBTA 137

15. Optional parts 138

Part 1. INDOOR UNIT

DUCT TYPE:

ARYG12LHTBP
ARYG14LHTBP
ARYG18LHTBP
ARYG24LHTBP
ARYG30LHTBP
ARYG36LHTBP
ARYG45LHTBP
ARYG54LHTBP

1. Product features

Implemented core technology provides easy-to-use product operations that realize a comfortable space.

1-1. Model lineup



ARYG12LHTBP
ARYG14LHTBP



ARYG18LHTBP
ARYG24LHTBP
ARYG30LHTBP



ARYG36LHTBP
ARYG45LHTBP
ARYG54LHTBP



AOYG12LBLA
AOYG14LBLA



AOYG18LBCA
AOYG24LBCA



AOYG30LBTA
AOYG36LBTA

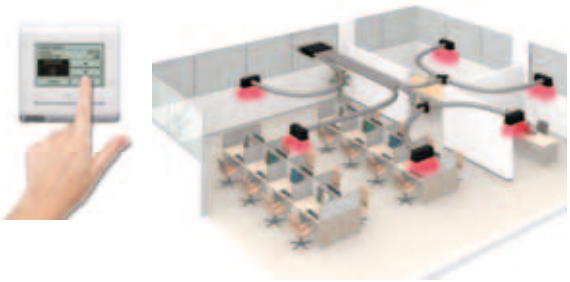


AOYG45LBTA
AOYG54LBTA

1-2. Features

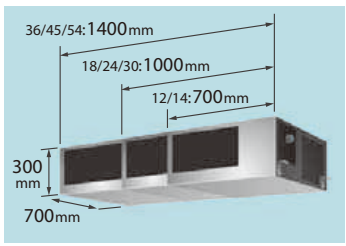
■ Automatic Airflow adjustment function

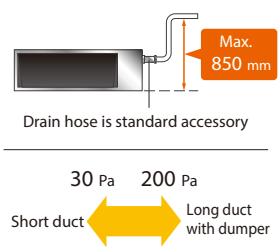
This unique and innovative function detects required air flow in each application case and automatically adjust the volume.



■ Improved installation flexibility

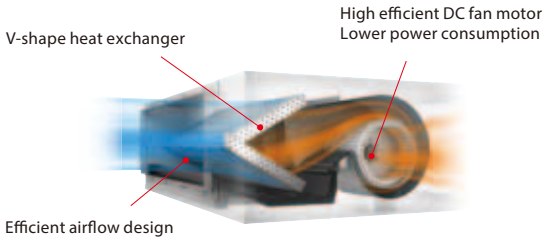
- The static pressure can be adjustable ranging from 30Pa to 200Pa in accordance with the desired applications.
- The built-in drain pump with lifting height up to 850 mm.
- The standardized depth and height in the unit dimensions are helpful in capacity selections for various ceiling spaces.





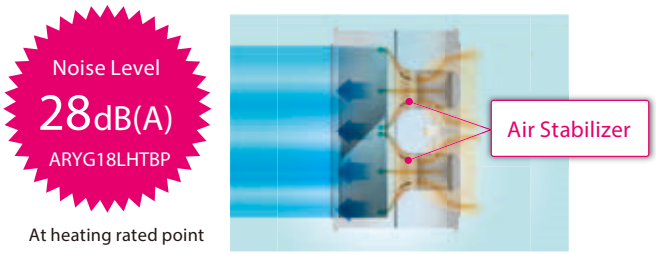
■ High Efficiency and Energy Saving

The combination of the V-shaped heat exchanger, air stabiliser, and the high efficient DC fan motor allowed high efficiency despite of the small structual design.



■ Quiet operation

The low noise level is implemented by the equipment of the air stabilizer which equalises the air flow speed and the air flow volume passing through the heat exchanger.



■ Easy operation by touch panel controller

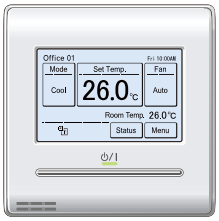
- Large LCD display
- Backlight
- Built in thermo sensor
- Display room temperature
- Set temperature limitation (High and Low)
- Weekly timer, Set back timer, Auto off timer
- Support 12 languages

■ Improved service and maintenance

- Drain pump is easily detachable from the side
- Easy access to electrical box
- Error code can be checked more in detail from error history

2. Wired remote controller

2-1. Features



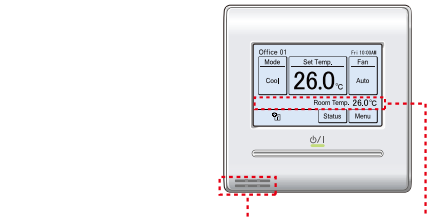
- Easy finger touch operation with LCD panel
- Built-in weekly/daily timer (on/off, temperature and mode)
- The backlit LCD enables easy operation in a dark room.
- Room temperature display
- Control up to 16 indoor units
- Corresponds to 12 different languages (English, Chinese French, German, Spanish, Russian, Polish, Italian, Portuguese, Greek, Turkish, and Dutch)

■ High performance and compact size



■ Accurate and comfortable control

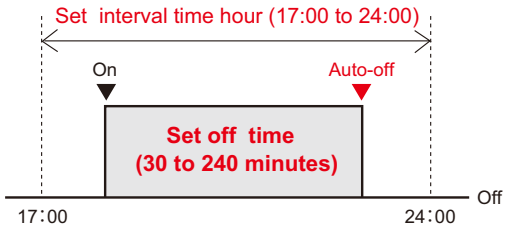
Indoor temperature can be detected accurately by the room temperature sensor built in the wired remote controller.



■ Various energy saving control

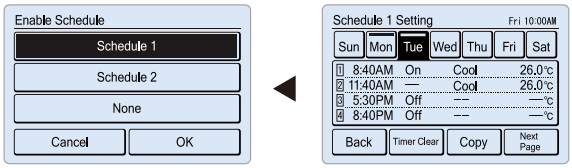
- **Auto-off timer**
  - The indoor unit automatically turns off after the set time has passed.
  - The time interval for which auto-off works can be set.

Example: At interval time hour (17:00 to 24:00) to prevent forgetting to turn off.

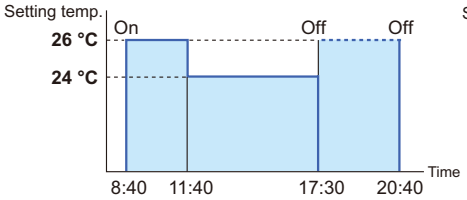


- **2 schedules weekly timer**
  - 2 schedules such as for the summer and winter can be set.
  - 8 setting changeable per day of week (Setting items: on/off, temperature, mode, and time)

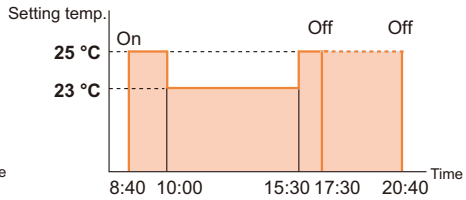
Setting example:



Schedule 1 (Summer schedule)

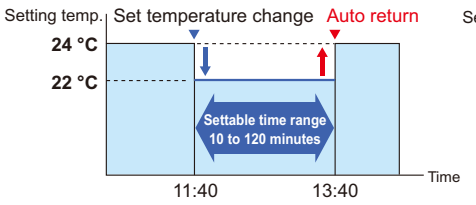


Schedule 2 (Winter schedule)

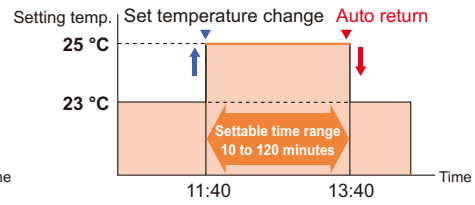


- **Set temperature auto return**
  - The setting temperature automatically returns to the previous setting temperature.
  - The time range in which the set temperature can be changed is 10 to 120 minutes.

Cooling operation

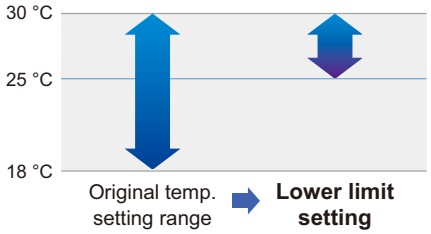


Heating operation

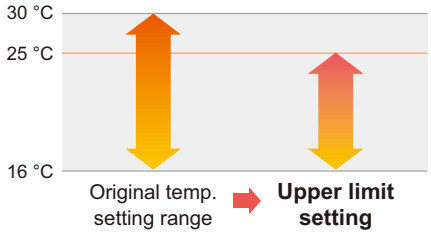


- **Set temperature upper and lower limit setting**
  The set temperature range can be set for each operation mode (COOL, HEAT, and AUTO).

During cooling

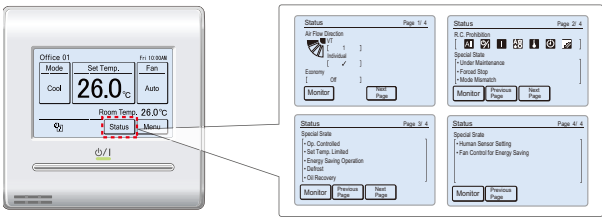


During heating



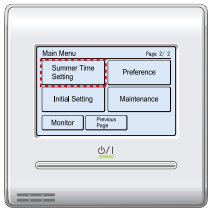
■ Various convenient functions

- **Displays setting status and limitations**



The remote controller settings can be easily checked.

- **Summer time display**



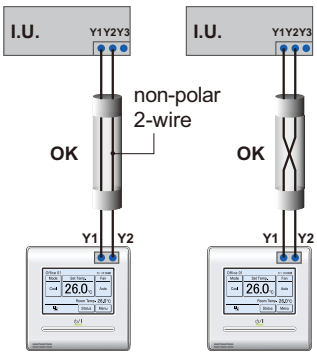
Can be set easily from “Menu” screen.

- **Child safety lock**



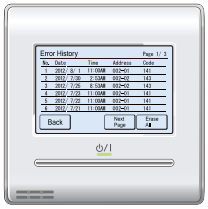
Lock/unlock procedure: While touching the blank field on “Monitor” screen, push the on/off button for 4 seconds.

■ Simplified installation



Use of non-polar 2-wire type
Faulty wiring can be prevented by using non-polar 2-wire.

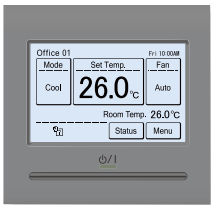
■ Easy maintenance



Error history display

- Errors occur on the indoor unit or the remote controller are saved as a history.
- Maximum of 32-error incidents can be saved.

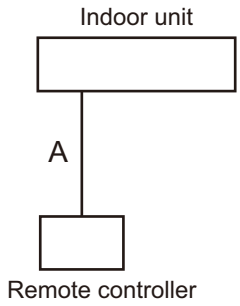
■ Backlit LCD



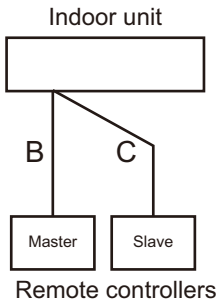
- The backlit LCD enables easy operation in a dark room.
- Backlighting time can be selected from 30 or 60 seconds.
- The backlight is lit while the buttons are operated, and goes off 30 or 60 seconds after the operation stops.

■ System diagram

1 remote controller



2 remote controllers

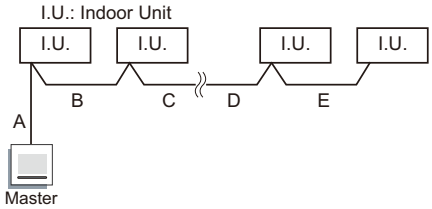


A, B, C: Remote controller cable
A≤ 500 m; B+C≤ 500 m

Multiple installation method described above is prohibited to combine with 2-wired type and 3-wired type.

■ Group control

With a single remote controller, up to 16 units can be simultaneously operated.

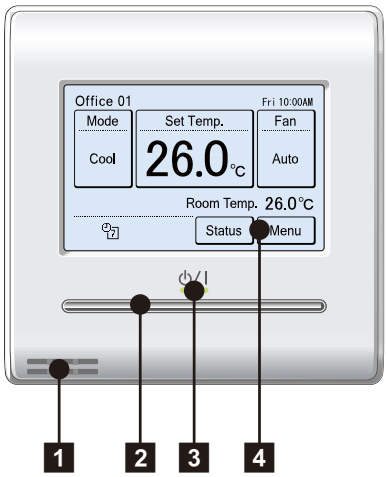


A, B, C, D, E : Remote controller cable. (Refer to Chapter 2-4. "Wiring specifications" on page 9.)
A+B+C+D+E ≤ 500 m.

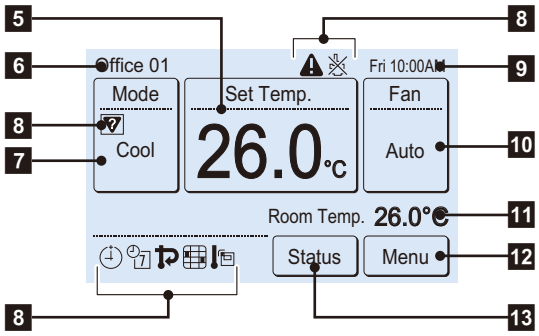
⚠CAUTION

Group control is only possible between units with remote controllers of the same type.
After confirming that the connected remote controllers have same model name by checking the rear side of the remote controller or “Chapter 14-1. "Controllers" on page 80”, perform the group control.

2-2. Overview



Display panel



1 Remote temperature sensor (inside)

2 On/off button
Operable only while displaying the “Monitor mode” screen.

3 LED lamp (operation indicator)

4 Touch panel display

5 Set temperature
Operating temperature can be set.

6 Remote controller group name

7 Mode
Operation mode can be set.

8 Status icons

9 Clock

10 Fan
Fan speed can be set.

11 Room temperature

12 Menu
Various settings can be set.

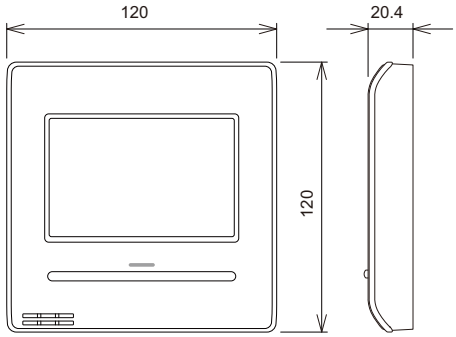
13 Status
Status of the indoor unit and error can be checked.

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

2-3. Specifications

Dimensions and other specifications on the wired remote controller are as follows.

[Unit : mm]



Display	3.8-inch FSTN LCD (255 × 160 dots) with touch panel	
Dimensions (H × W × D)	mm	120 × 120 × 20.4
Weight	g	220
Input voltage	V	DC 12
Power consumption	W	Max. 0.3
Usage temperature range	°C	0 to 40
Usage humidity range	%	20 to 90 (no condensation)
Storage temperature range	°C	-10 to 60
Storage humidity range	%	20 to 90 (no condensation)

2-4. Wiring specifications

Use	Cable size	Wire type	Remarks
Remote controller cable	0.33 to 1.25 mm^2	Non-polar 2-core	Use sheathed PVC cable.

NOTE: Use shielded cable (locally purchased) in accordance with the regional cable standard.

3. Specifications

3-1. Models: ARYG12LHTBP and ARYG14LHTBP

Type					Duct	
					Inverter heat pump	
Model name					ARYG12LHTBP	ARYG14LHTBP
Power supply					230 V ~ 50 Hz	
Available voltage range					198—264 V	
Capacity	Cooling	Rated		kW	3.5	4.3
				Btu/h	11,950	14,650
		Min.—Max.		kW	0.9 — 4.4	0.9 — 5.4
				Btu/h	3,100 — 15,000	3,100 — 18,400
	Heating	Rated		kW	4.1	5.0
				Btu/h	14,000	17,050
		Min.—Max.		kW	0.9 — 5.7	0.9 — 6.5
				Btu/h	3,100 — 19,400	3,100 - 22,100
Input power	Cooling	Rated		kW	0.90	1.18
		Max.			1.71	2.08
	Heating	Rated			1.00	1.25
		Max.			2.33	2.97
	Fan	HIGH		W	54	65
		MED			29	36
		LOW			21	26
		QUIET			15	18
Current	Cooling	Rated		A	4.2	5.4
	Heating				4.7	5.7
Power factor	Cooling			%	93.2	95.0
	Heating				92.5	95.3
EER		Cooling		kW/kW	3.89	3.64
COP		Heating			4.10	4.00
Moisture removal				L/h (pints/h)	0.7 (1.2)	0.9 (1.6)
Maximum operating current *1		Cooling		A	8.0	9.5
		Heating			10.5	13.0
Fan	Airflow rate	Cooling	HIGH	m^3/h	850	950
			MED		680	760
			LOW		590	670
			QUIET		510	570
		Heating	HIGH		850	950
			MED		680	760
			LOW		590	670
			QUIET		510	570
	Type × Q'ty				Sirocco fan × 1	
	Motor output			W	154	
Static pressure range				Pa	30 to 200	
Sound pressure level *2		Cooling	HIGH	dB (A)	32	33
			MED		27	28
			LOW		26	27
			QUIET		24	25
		Heating	HIGH		32	33
			MED		27	28
			LOW		26	27
			QUIET		24	25
Sound power level		Cooling		dB (A)	57	59
		Heating			58	60
Heat exchanger type		Dimensions (H × W × D)		mm	420 × 458 × 39.9	
		Fin pitch			1.4	
		Rows × Stages			3 × 20	
		Pipe type			Copper	
		Fin type			Aluminum Hydrophilic coating	
Enclosure		Material			Steel	
		Color			—	
Dimensions (H × W × D)	Net			mm	300 × 700 × 700	
	Gross				400 × 938 × 875	
Weight	Net			kg	27	
	Gross				34	
Connection pipe	Size	Liquid		mm (in)	Ø 6.35 (Ø 1/4)	Ø 6.35 (Ø 1/4)
		Gas			Ø 9.52 (Ø 3/8)	Ø 12.7 (Ø 1/2)
	Method				Flare	
Drain hose	Material				PVC	
	Size			mm	Ø 25 (I.D.), Ø 32 (O.D.) (VP25)	
Operation range		Cooling		°C	18 to 32	
				%RH	80 or less	
		Heating		°C	16 to 30	

Type	Duct	
	Inverter heat pump	
Model name	**ARYG12LHTBP**	**ARYG14LHTBP**
Remote controller type	Wired	

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.), Standard static pressure; 12 type and 14 type: 35Pa
- Protective function might work when using it outside the operation range.
- *1: Maximum current:
  - –The maximum value when operated within the operation range.
  - –The total current of indoor unit and outdoor unit.
- *2: Sound pressure level:
  - –Measured values in manufacturer's anechoic chamber.
  - –Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

Model name				**ARYG12LHTBP**	**ARYG14LHTBP**
Energy efficiency class	Cooling			A^{++}	A^{++}
	Heating (Average)			A^{+}	A^{+}
Pdesign	Cooling		kW	3.5 (35°C)	4.3 (35°C)
	Heating (Average)			4.2 (-10°C)	4.5 (-10°C)
SEER	Cooling		kWh/kWh	6.20	6.10
SCOP	Heating (Average)			4.10	4.00
Annual energy consumption	QCE		kWh/a	198	247
	QHE (Average)			1,434	1,573
Sound power level	Cooling	HIGH	dB (A)	57	59
	Heating			58	60

3-2. Models: ARYG18LHTBP, ARYG24LHTBP, and ARYG30LHTBP

Type					Duct		
					Inverter heat pump		
Model name					ARYG18LHTBP	ARYG24LHTBP	ARYG30LHTBP
Power supply					230 V ~ 50 Hz		
Available voltage range					198—264 V		
Capacity	Cooling	Rated		kW	5.2	6.8	8.5
				Btu/h	17,700	23,200	29,000
		Min.—Max.		kW	0.9 — 6.5	0.9 — 8.0	2.8—10.0
				Btu/h	3,100 — 22,200	3,100 — 27,300	9,500 - 34,100
	Heating	Rated		kW	6.0	8.0	10.0
				Btu/h	20,500	27,300	34,100
		Min.—Max.		kW	0.9 — 8.0	0.9 — 9.1	2.7—11.2
				Btu/h	3,100 — 27,300	3,100 - 31,000	9,200 - 38,200
Input power	Cooling	Rated		kW	1.37	1.95	2.65
		Max.			2.25	3.19	4.05
	Heating	Rated			1.48	2.21	2.70
		Max.			3.16	4.40	4.06
	Fan	HIGH		W	50	70	150
		MED			30	40	100
		LOW			20	25	75
		QUIET			15	15	65
Current	Cooling	Rated		A	6.1	8.6	11.6
	Heating				6.6	9.7	11.8
Power factor	Cooling			%	97.6	98.6	99.3
	Heating				97.5	99.1	99.5
EER		Cooling		kW/kW	3.80	3.49	3.21
COP		Heating			4.05	3.62	3.70
Moisture removal				L/h (pints/h)	1.2 (2.1)	1.8 (3.2)	2.3 (4.0)
Maximum operating current *1		Cooling		A	10.0	13.5	17.0
		Heating			13.5	18.5	17.0
Fan	Airflow rate	Cooling	HIGH	m^3/h	1,050	1,360	1,700
			MED		840	1,080	1,360
			LOW		740	880	1,190
			QUIET		630	680	1,070
		Heating	HIGH		1,050	1,360	1,700
			MED		840	1,080	1,360
			LOW		740	880	1,190
			QUIET		630	680	1,070
	Type × Q'ty				Sirocco fan × 2		
	Motor output			W	197		375
Static pressure range				Pa	30 to 200		
Sound pressure level *2		Cooling	HIGH	dB (A)	28	32	36
			MED		25	28	33
			LOW		22	24	30
			QUIET		20	21	29
		Heating	HIGH		28	32	36
			MED		25	28	33
			LOW		22	24	30
			QUIET		20	21	29
Sound power level		Cooling		dB (A)	54	57	63
		Heating			54	57	65
Heat exchanger type		Dimensions (H × W × D)		mm	420 × 758 × 39.9		
		Fin pitch			1.4		
		Rows × Stages			3 × 20		
		Pipe type			Copper		
		Fin type			Aluminum Hydrophilic coating		
Enclosure		Material			Steel		
		Color			—		
Dimensions (H × W × D)	Net			mm	300 × 1,000 × 700		
	Gross				400 × 1,238 × 875		
Weight	Net			kg	36		
	Gross				43		44
Connection pipe	Size	Liquid		mm (in)	Ø 6.35 (Ø 1/4)	Ø 6.35 (Ø 1/4)	Ø 9.52 (Ø 3/8)
		Gas			Ø 12.7 (Ø 1/2)	Ø 15.88 (Ø 5/8)	Ø 15.88 (Ø 5/8)
	Method				Flare		
Drain hose	Material				PVC		
	Size			mm	Ø 25 (I.D.), Ø 32 (O.D.) (VP25)		
Operation range		Cooling		°C	18 to 32		
				%RH	80 or less		
		Heating		°C	16 to 30		

Type	Duct		
	Inverter heat pump		
Model name	**ARYG18LHTBP**	**ARYG24LHTBP**	**ARYG30LHTBP**
Remote controller type	Wired		

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.), Standard static pressure; 18 type and 24 type: 35Pa, 30 type: 47Pa
- Protective function might work when using it outside the operation range.
- *1: Maximum current:
  - –The maximum value when operated within the operation range.
  - –The total current of indoor unit and outdoor unit.
- *2: Sound pressure level:
  - –Measured values in manufacturer's anechoic chamber.
  - –Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

Model name				**ARYG18LHTBP**	**ARYG24LHTBP**	**ARYG30LHTBP**
Energy efficiency class	Cooling			A^{++}	A^{++}	A^{+}
	Heating (Average)			A^{+}	A^{+}	A
Pdesign	Cooling		kW	5.2 (35°C)	6.8 (35°C)	8.5 (35°C)
	Heating (Average)			4.3 (-10°C)	6.0 (-10°C)	8.0 (-10°C)
SEER	Cooling		kWh/kWh	7.15	6.50	5.95
SCOP	Heating (Average)			4.11	4.01	3.95
Annual energy consumption	QCE		kWh/a	255	366	500
	QHE (Average)			1,462	2,092	2,833
Sound power level	Cooling	HIGH	dB (A)	54	57	63
	Heating			54	57	65

3-3. Models: ARYG36LHTBP, ARYG45LHTBP, and ARYG54LHTBP

Type					Duct		
					Inverter heat pump		
Model name					ARYG36LHTBP	ARYG45LHTBP	ARYG54LHTBP
Power supply					230 V ~ 50 Hz		
Available voltage range					198—264 V		
Capacity	Cooling	Rated		kW	9.4	12.1	13.4
				Btu/h	32,100	41,300	45,700
		Min.—Max.		kW	2.8—11.2	4.0—14.0	4.5 - 14.5
				Btu/h	9,500 - 38,200	13,700 - 47,800	15,400 - 49,500
	Heating	Rated		kW	11.2	13.3	16.0
				Btu/h	38,200	45,300	54,600
		Min.—Max.		kW	2.7—12.7	4.2—16.2	4.7 - 16.5
				Btu/h	9,200 - 43,300	14,300 - 55,300	16,000 - 56,300
Input power	Cooling	Rated		kW	2.83	3.59	4.42
		Max.			4.76	5.37	5.59
	Heating	Rated			3.07	3.44	4.62
		Max.			4.78	5.35	5.61
	Fan	HIGH		W	150	225	225
		MED			90	135	135
		LOW			60	90	90
		QUIET			45	70	70
Current	Cooling	Rated		A	12.4	15.7	19.4
	Heating				13.4	15.1	20.2
Power factor	Cooling			%	99.2	99.4	99.1
	Heating				99.6	99.0	99.4
EER		Cooling		kW/kW	3.32	3.37	3.03
COP		Heating			3.65	3.87	3.46
Moisture removal				L/h (pints/h)	2.0 (3.52)	2.6 (4.6)	3.7 (6.5)
Maximum operating current *1		Cooling		A	20.0	22.5	23.5
		Heating			20.0	22.5	23.5
Fan	Airflow rate	Cooling	HIGH	m^3/h	2,050	2,550	2,550
			MED		1,640	2,040	2,040
			LOW		1,330	1,650	1,650
			QUIET		1,070	1,430	1,430
		Heating	HIGH		1,850	2,550	2,550
			MED		1,640	2,040	2,040
			LOW		1,330	1,650	1,650
			QUIET		1,070	1,430	1,430
	Type × Q'ty				Sirocco fan × 3		
	Motor output			W	375		
Static pressure range				Pa	30 to 200		
Sound pressure level *2		Cooling	HIGH	dB (A)	36	39	39
			MED		31	35	35
			LOW		28	31	31
			QUIET		26	29	29
		Heating	HIGH		33	39	39
			MED		31	35	35
			LOW		28	31	31
			QUIET		26	29	29
Sound power level		Cooling		dB (A)	64	67	67
		Heating			63	69	69
Heat exchanger type		Dimensions (H × W × D)		mm	420 × 1,158 × 39.9		
		Fin pitch			1.4		
		Rows × Stages			3 × 20		
		Pipe type			Copper		
		Fin type			Aluminum Hydrophilic coating		
Enclosure		Material			Steel		
		Color			—		
Dimensions (H × W × D)	Net			mm	300 × 1,400 × 700		
	Gross				400 × 1,638 × 875		
Weight	Net			kg	46		
	Gross				55		
Connection pipe	Size	Liquid		mm (in)	Ø 9.52 (Ø 3/8)		
		Gas			Ø 15.88 (Ø 5/8)		
	Method				Flare		
Drain hose	Material				PVC		
	Size			mm	Ø 25 (I.D.), Ø 32 (O.D.) (VP25)		
Operation range		Cooling		°C	18 to 32		
				%RH	80 or less		
		Heating		°C	16 to 30		

Type	Duct		
	Inverter heat pump		
Model name	**ARYG36LHTBP**	**ARYG45LHTBP**	**ARYG54LHTBP**
Remote controller type	Wired		

NOTES:

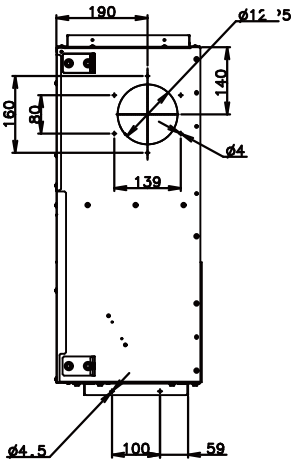
- Specifications are based on the following conditions:
  - –Cooling: Indoor temperature of 27 °CDB/19 °CWB, and outdoor temperature of 35 °CDB/24 °CWB.
  - –Heating: Indoor temperature of 20 °CDB/15 °CWB, and outdoor temperature of 7 °CDB/6 °CWB.
  - –Pipe length: 5 m, Height difference: 0 m. (Between outdoor unit and indoor unit.), Standard static pressure; 36 type: 47Pa, 45 type and 54 type: 60Pa
- Protective function might work when using it outside the operation range.
- *1: Maximum current:
  - –The maximum value when operated within the operation range.
  - –The total current of indoor unit and outdoor unit.
- *2: Sound pressure level:
  - –Measured values in manufacturer's anechoic chamber.
  - –Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

Model name				**ARYG36LHTBP**
Energy efficiency class	Cooling			A^{+}
	Heating (Average)			A
Pdesign	Cooling		kW	9.4 (35°C)
	Heating (Average)			8.7 (-10°C)
SEER	Cooling		kWh/kWh	5.81
SCOP	Heating (Average)			3.81
Annual energy consumption	QCE		kWh/a	566
	QHE (Average)			3,194
Sound power level	Cooling	HIGH	dB (A)	64
	Heating			63

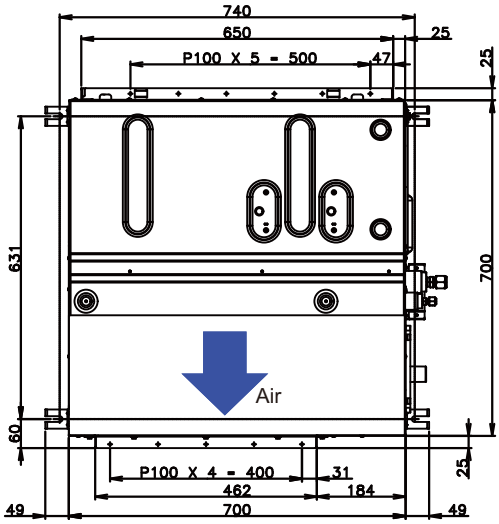
4. Dimensions

4-1. Models: ARYG12LHTBP and ARYG14LHTBP

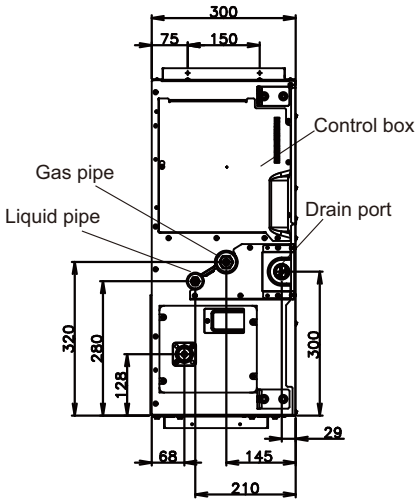
Unit: mm



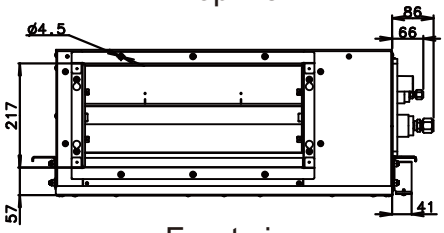
Side view (L)



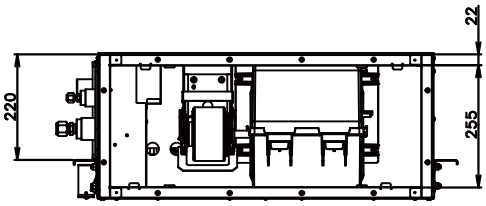
Top view



Side view (R)



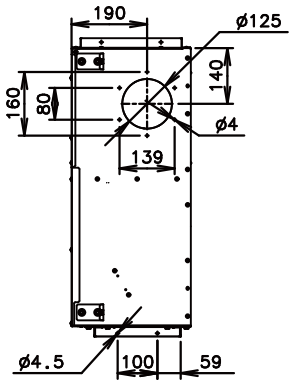
Front view



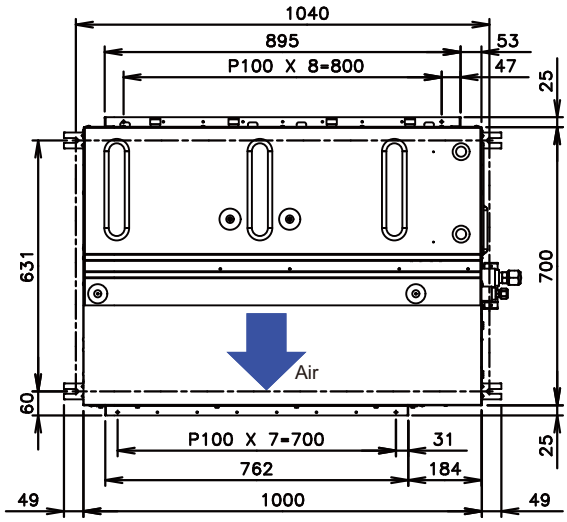
Rear view

4-2. Models: ARYG18LHTBP, ARYG24LHTBP, and ARYG30LHTBP

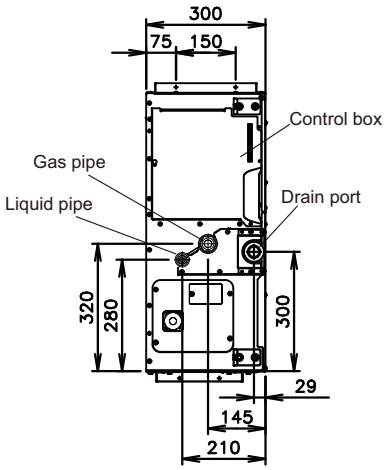
Unit: mm



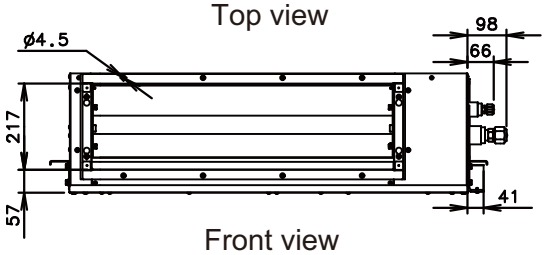
Side view (L)



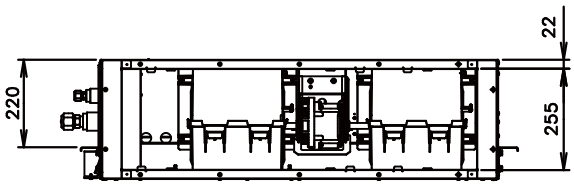
Top view



Side view (R)

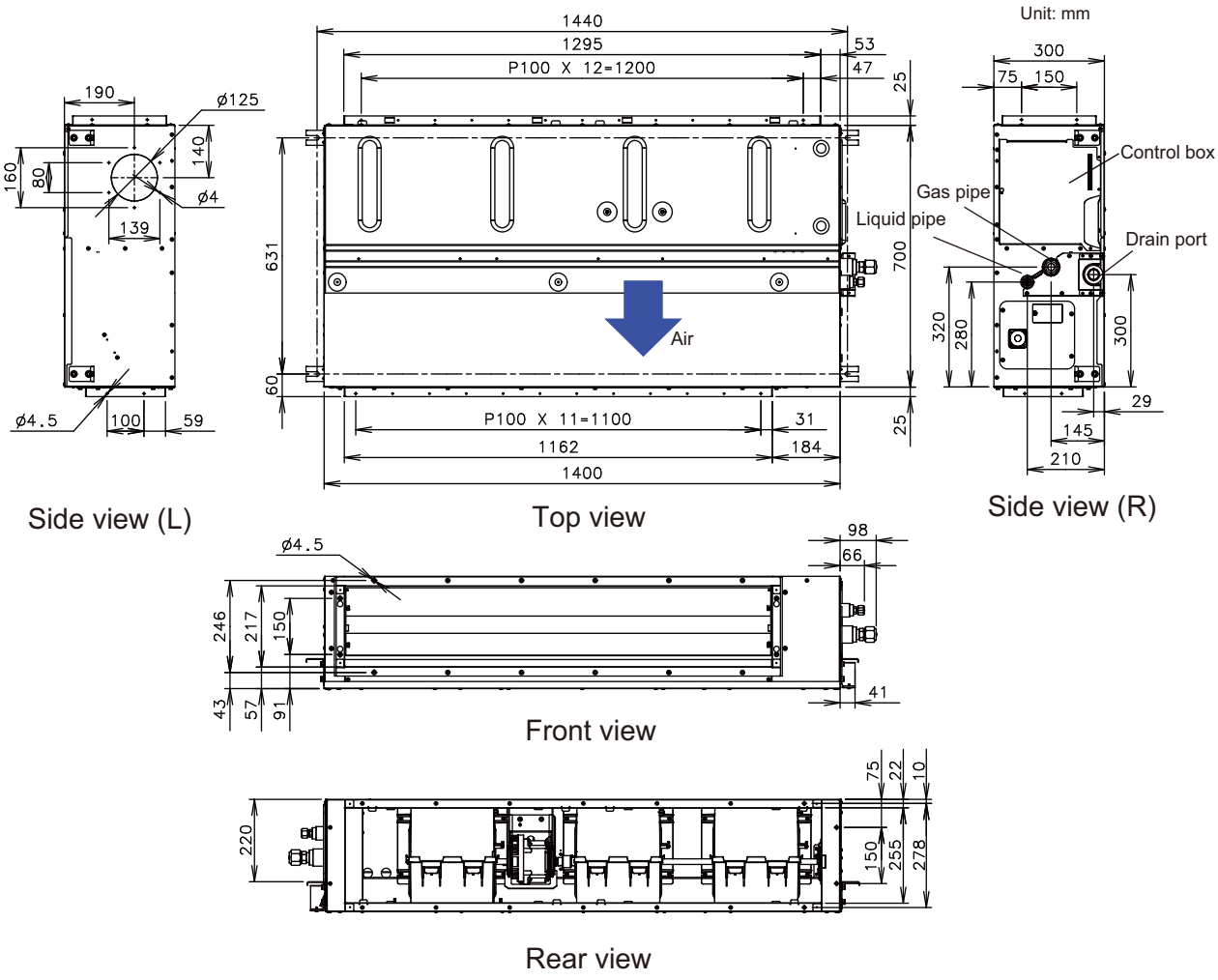


Front view



Rear view

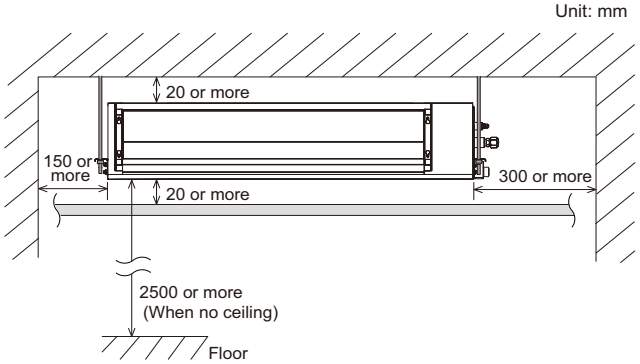
4-3. Models: ARYG36LHTBP, ARYG45LHTBP, and ARYG54LHTBP



4-4. Installation space requirement

Provide sufficient installation space for product safety.

■ Models: ARYG12LHTBP, ARYG14LHTB, ARYG18LHTBP, ARYG24LHTBP, ARYG30LHTBP, ARYG36LHTBP, ARYG45LHTBP, and ARYG54LHTBP



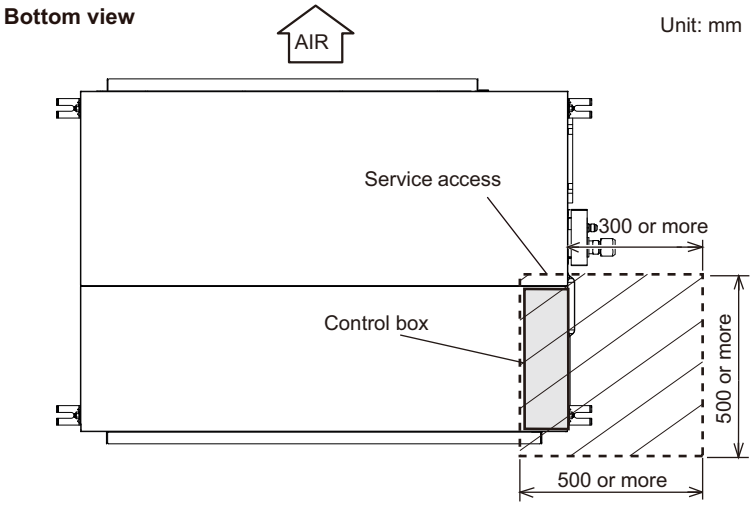
4-5. Maintenance space requirement

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

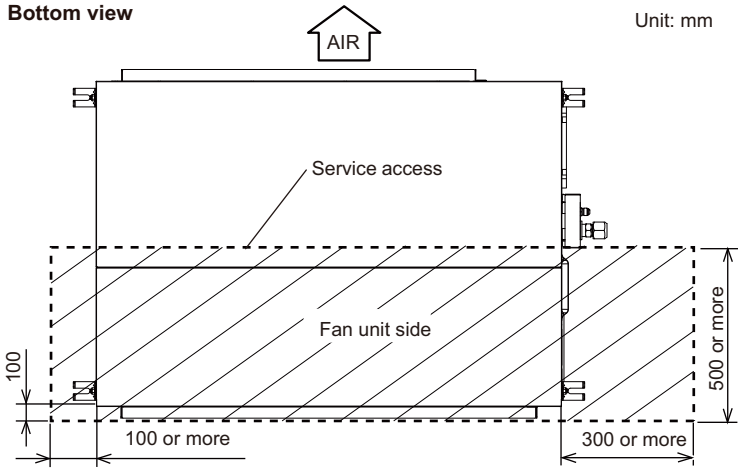
NOTE: Do not place any wiring or illumination in the maintenance space, as they will impede service.

■ Models: ARYG12LHTBP, ARYG14LHTB, ARYG18LHTBP, ARYG24LHTBP, ARYG30LHTBP, ARYG36LHTBP, ARYG45LHTBP, and ARYG54LHTBP

- Provide a service access for maintenance purposes.

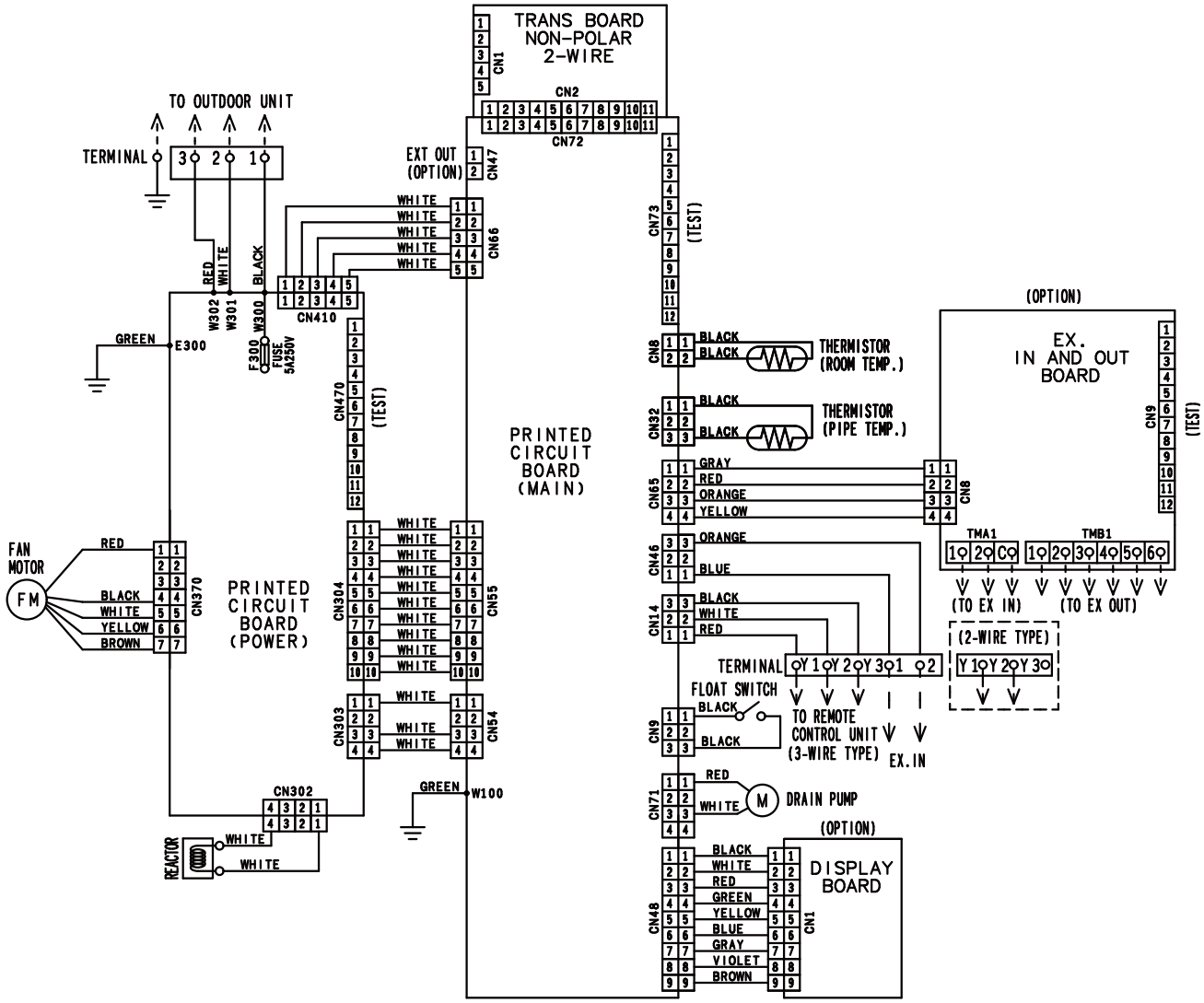


- The service access necessary for fan units and filter maintenance.

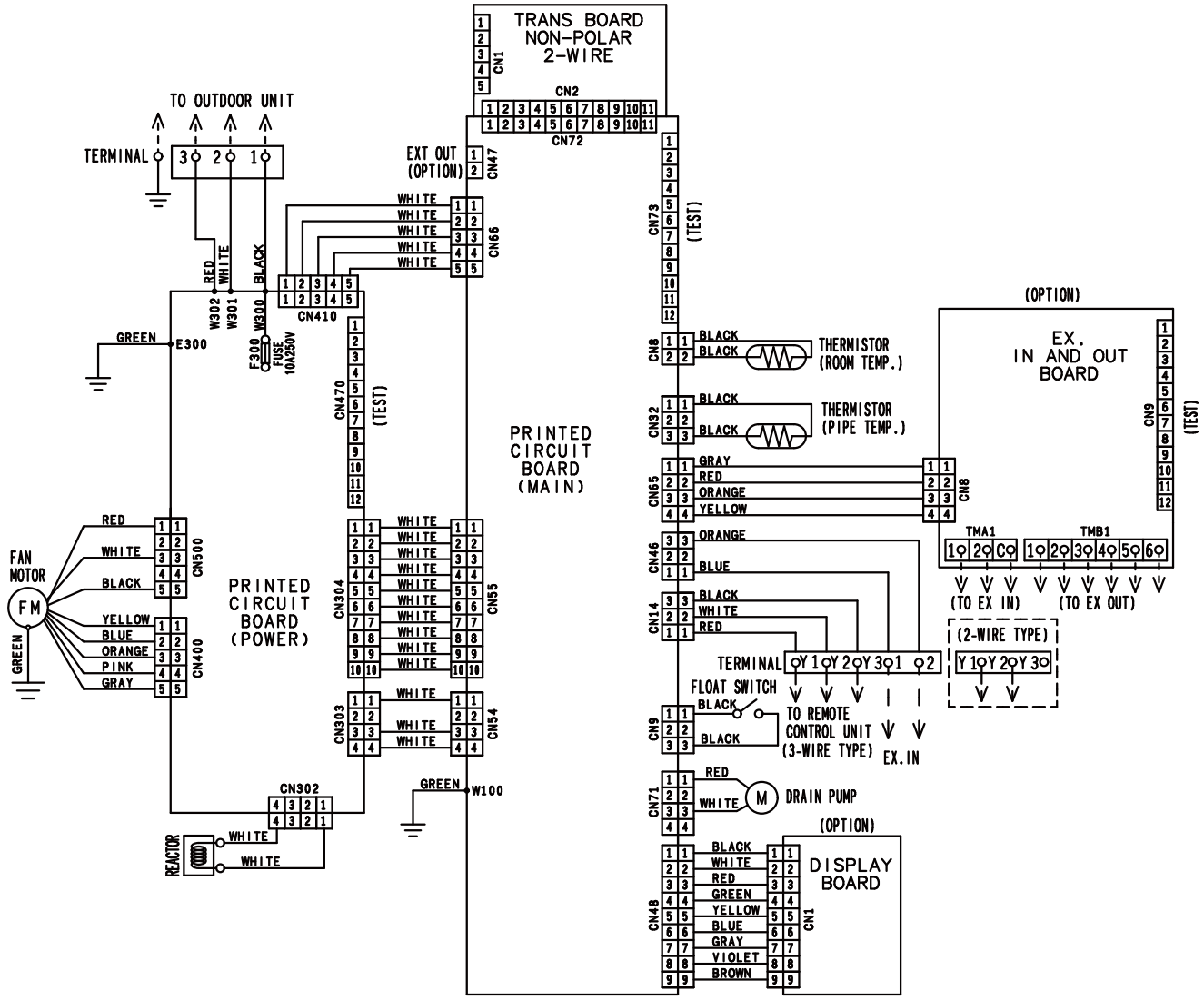


5. Wiring diagrams

5-1. Models: ARYG12LHTBP, ARYG14LHTBP, ARYG18LHTBP, and ARYG24LHTBP



5-2. Models: ARYG30LHTBP, ARYG36LHTBP, ARYG45LHTBP, and ARYG54LHTBP



6. 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)

6-1. Cooling capacity

■ Model: ARYG12LHTBP

AFR	m^3/h	850

		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		
	-10	3.52	3.17	0.31	3.92	3.18	0.31	4.06	3.46	0.32	4.33	3.47	0.32	4.46	3.75	0.32	4.73	3.74	0.32	5.00	3.98	0.33
	0	3.33	3.06	0.51	3.71	3.07	0.52	3.84	3.34	0.52	4.09	3.35	0.53	4.22	3.62	0.53	4.47	3.61	0.54	4.73	3.84	0.54
	5	3.33	3.04	0.49	3.71	3.06	0.50	3.84	3.32	0.50	4.09	3.33	0.51	4.22	3.60	0.51	4.47	3.59	0.52	4.73	3.82	0.52
	10	3.33	3.02	0.45	3.70	3.04	0.46	3.83	3.30	0.46	4.08	3.32	0.47	4.21	3.58	0.47	4.46	3.57	0.47	4.72	3.80	0.48
	15	3.22	2.93	0.54	3.58	2.95	0.55	3.70	3.20	0.55	3.95	3.21	0.56	4.07	3.47	0.56	4.31	3.46	0.57	4.56	3.68	0.57
	20	3.10	2.84	0.62	3.46	2.86	0.63	3.58	3.11	0.63	3.81	3.12	0.64	3.93	3.37	0.64	4.17	3.36	0.65	4.40	3.58	0.65
	25	2.99	2.75	0.70	3.33	2.77	0.72	3.44	3.01	0.72	3.67	3.02	0.73	3.78	3.26	0.73	4.01	3.25	0.74	4.23	3.46	0.74
	30	2.88	2.67	0.78	3.20	2.68	0.79	3.31	2.92	0.80	3.53	2.93	0.81	3.64	3.16	0.81	3.86	3.15	0.82	4.08	3.35	0.83
	35	2.77	2.57	0.87	3.08	2.59	0.88	3.19	2.82	0.89	3.40	2.82	0.90	3.50	3.05	0.90	3.71	3.04	0.91	3.92	3.24	0.92
	40	2.68	2.49	0.96	2.98	2.50	0.97	3.08	2.72	0.98	3.29	2.73	0.99	3.39	2.95	0.99	3.59	2.94	1.00	3.80	3.13	1.01
	46	2.21	2.14	1.00	2.46	2.16	1.02	2.55	2.34	1.02	2.72	2.35	1.03	2.80	2.54	1.04	2.97	2.53	1.05	3.14	2.69	1.06

■ Model: ARYG14LHTBP

AFR	m^3/h	950

		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		
	-10	4.06	3.51	0.36	4.52	3.53	0.36	4.68	3.84	0.36	4.99	3.85	0.37	5.14	4.16	0.37	5.45	4.14	0.37	5.76	4.41	0.38
	0	3.97	3.40	0.42	4.43	3.42	0.43	4.58	3.72	0.43	4.88	3.73	0.44	5.03	4.03	0.44	5.33	4.01	0.44	5.63	4.28	0.45
	5	3.97	3.39	0.53	4.42	3.41	0.54	4.57	3.71	0.54	4.87	3.72	0.55	5.02	4.02	0.55	5.32	4.00	0.56	5.62	4.27	0.56
	10	3.96	3.38	0.63	4.41	3.40	0.64	4.56	3.70	0.64	4.86	3.71	0.65	5.01	4.01	0.65	5.31	3.99	0.66	5.61	4.25	0.66
	15	3.89	3.35	0.72	4.33	3.37	0.74	4.48	3.66	0.74	4.77	3.68	0.75	4.92	3.97	0.75	5.22	3.95	0.76	5.51	4.21	0.77
	20	4.08	3.42	0.81	4.55	3.44	0.82	4.70	3.74	0.83	5.01	3.75	0.84	5.17	4.05	0.84	5.48	4.03	0.85	5.79	4.30	0.86
	25	3.86	3.32	0.92	4.29	3.34	0.93	4.44	3.63	0.94	4.73	3.64	0.95	4.88	3.93	0.95	5.17	3.91	0.96	5.47	4.17	0.97
	30	3.63	3.22	1.01	4.04	3.24	1.03	4.18	3.53	1.03	4.45	3.54	1.04	4.59	3.82	1.05	4.87	3.80	1.06	5.14	4.05	1.07
	35	3.40	3.12	1.14	3.78	3.14	1.16	3.91	3.42	1.16	4.17	3.43	1.17	4.30	3.70	1.18	4.56	3.69	1.19	4.82	3.93	1.20
	40	3.12	2.88	1.26	3.48	2.90	1.28	3.59	3.15	1.29	3.83	3.16	1.30	3.95	3.41	1.31	4.19	3.40	1.32	4.42	3.62	1.34
	46	2.29	2.27	0.97	2.55	2.28	0.98	2.64	2.48	0.99	2.81	2.49	1.00	2.90	2.69	1.00	3.07	2.68	1.01	3.25	2.85	1.02

■ Model: ARYG18LHTBP

AFR	m^3/h	1,050

		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		
	-15	3.77	2.98	0.25	4.20	3.00	0.26	4.34	3.26	0.26	4.63	3.27	0.26	4.76	3.54	0.26	5.05	3.52	0.27	5.34	3.75	0.27
	-10	3.65	2.93	0.31	4.07	2.95	0.32	4.21	3.20	0.32	4.49	3.21	0.32	4.62	3.47	0.32	4.90	3.45	0.33	5.18	3.68	0.33
	0	3.59	2.90	0.34	4.00	2.92	0.35	4.14	3.17	0.35	4.41	3.18	0.35	4.55	3.44	0.35	4.82	3.42	0.36	5.09	3.64	0.36
	5	3.47	2.85	0.41	3.86	2.86	0.42	4.00	3.11	0.42	4.26	3.12	0.42	4.39	3.37	0.43	4.65	3.35	0.43	4.92	3.58	0.43
	10	3.33	2.78	0.48	3.71	2.79	0.49	3.84	3.04	0.49	4.09	3.04	0.50	4.22	3.29	0.50	4.47	3.28	0.50	4.73	3.49	0.51
	15	3.41	2.81	0.40	3.80	2.83	0.41	3.93	3.08	0.41	4.19	3.09	0.41	4.32	3.33	0.41	4.58	3.32	0.42	4.84	3.54	0.42
	20	4.41	3.30	0.84	4.91	3.32	0.86	5.08	3.61	0.86	5.41	3.63	0.87	5.58	3.92	0.87	5.91	3.90	0.88	6.25	4.15	0.89
	25	4.19	3.19	0.95	4.67	3.21	0.96	4.83	3.49	0.97	5.15	3.51	0.98	5.30	3.78	0.98	5.62	3.77	0.99	5.94	4.02	1.00
	30	3.97	3.09	1.05	4.42	3.11	1.07	4.57	3.37	1.07	4.88	3.39	1.08	5.02	3.66	1.09	5.32	3.64	1.10	5.62	3.88	1.11
	35	4.11	3.16	1.32	4.58	3.18	1.34	4.73	3.45	1.35	5.04	3.46	1.36	5.20	3.74	1.37	5.51	3.73	1.39	5.82	3.97	1.40
	40	3.33	2.78	1.07	3.71	2.80	1.09	3.84	3.04	1.09	4.10	3.04	1.10	4.22	3.29	1.11	4.47	3.28	1.12	4.73	3.49	1.13
	46	2.38	2.31	0.82	2.65	2.35	0.83	2.74	2.55	0.83	2.93	2.55	0.84	3.02	2.76	0.84	3.19	2.75	0.85	3.37	2.93	0.86

■ Model: ARYG24LHTBP

AFR	m^3/h	1,360

		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		
	-15	4.92	4.28	0.36	5.49	4.31	0.37	5.67	4.68	0.37	6.05	4.70	0.37	6.23	5.08	0.37	6.61	5.05	0.38	6.98	5.39	0.38
	-10	4.78	4.20	0.45	5.32	4.23	0.45	5.50	4.60	0.46	5.87	4.61	0.46	6.04	4.99	0.46	6.41	4.96	0.47	6.77	5.29	0.48
	0	4.70	4.17	0.48	5.24	4.19	0.49	5.41	4.55	0.49	5.77	4.57	0.50	5.95	4.93	0.50	6.31	4.91	0.51	6.66	5.23	0.51
	5	4.54	4.09	0.59	5.05	4.10	0.60	5.23	4.47	0.60	5.57	4.48	0.60	5.74	4.84	0.61	6.09	4.81	0.61	6.43	5.13	0.62
	10	4.36	3.99	0.68	4.85	4.00	0.69	5.02	4.36	0.70	5.35	4.37	0.71	5.52	4.72	0.71	5.85	4.71	0.71	6.18	5.01	0.72
	15	4.46	4.04	0.57	4.97	4.07	0.58	5.14	4.42	0.58	5.48	4.43	0.59	5.65	4.79	0.59	5.99	4.77	0.60	6.33	5.08	0.60
	20	5.76	4.74	1.20	6.42	4.77	1.22	6.64	5.19	1.23	7.07	5.21	1.24	7.29	5.62	1.24	7.73	5.60	1.26	8.17	5.96	1.27
	25	5.48	4.59	1.35	6.10	4.61	1.37	6.32	5.02	1.38	6.73	5.03	1.39	6.94	5.43	1.40	7.35	5.42	1.41	7.77	5.77	1.42
	30	5.19	4.43	1.50	5.78	4.46	1.52	5.98	4.84	1.53	6.38	4.86	1.54	6.57	5.25	1.55	6.96	5.22	1.56	7.35	5.57	1.58
	35	5.37	4.53	1.88	5.98	4.56	1.91	6.19	4.96	1.92	6.60	4.97	1.94	6.80	5.37	1.95	7.21	5.35	1.97	7.62	5.70	1.99
	40	4.36	3.99	1.53	4.85	4.01	1.55	5.02	4.36	1.56	5.36	4.37	1.57	5.52	4.72	1.58	5.85	4.71	1.59	6.18	5.02	1.61
	46	3.11	3.32	1.16	3.47	3.37	1.18	3.59	3.66	1.18	3.83	3.67	1.19	3.94	3.97	1.20	4.17	3.95	1.21	4.41	4.20	1.22

■ Model: ARYG30LHTBP

AFR	m^3/h	1,700

		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		
	-15	7.33	6.23	1.12	8.16	6.27	1.13	8.44	6.81	1.14	8.99	6.84	1.16	9.27	7.38	1.16	9.83	7.35	1.17	10.39	7.83	1.18
	-10	7.21	6.00	1.41	8.02	6.03	1.43	8.30	6.57	1.43	8.85	6.58	1.45	9.12	7.12	1.46	9.66	7.08	1.47	10.22	7.54	1.49
	0	6.87	5.95	1.78	7.65	5.98	1.81	7.91	6.51	1.82	8.43	6.53	1.84	8.69	7.05	1.84	9.21	7.02	1.87	9.73	7.48	1.88
	5	6.78	5.81	1.79	7.56	5.84	1.82	7.81	6.35	1.83	8.33	6.37	1.85	8.59	6.88	1.86	9.10	6.85	1.87	9.61	7.30	1.90
	10	6.75	5.89	1.81	7.51	5.93	1.84	7.77	6.45	1.84	8.29	6.47	1.86	8.54	6.98	1.87	9.05	6.96	1.89	9.56	7.41	1.91
	15	7.34	6.10	1.98	8.17	6.15	2.02	8.45	6.68	2.03	9.01	6.71	2.05	9.28	7.24	2.06	9.84	7.21	2.08	10.40	7.68	2.10
	20	8.19	6.40	2.36	9.13	6.44	2.40	9.44	6.99	2.42	10.06	7.02	2.44	10.38	7.58	2.45	11.00	7.55	2.47	11.62	8.04	2.50
	25	8.05	6.41	2.55	8.97	6.45	2.58	9.27	7.01	2.60	9.89	7.04	2.62	10.19	7.60	2.64	10.80	7.57	2.66	11.42	8.06	2.69
	30	7.46	6.25	2.58	8.31	6.29	2.63	8.59	6.84	2.64	9.16	6.85	2.66	9.44	7.40	2.68	10.01	7.38	2.71	10.58	7.86	2.73
	35	6.72	5.81	2.56	7.48	5.84	2.60	7.74	6.35	2.61	8.25	6.37	2.64	8.50	6.88	2.65	9.01	6.85	2.68	9.52	7.30	2.71
	40	5.10	4.83	2.23	5.68	4.87	2.25	5.87	5.28	2.27	6.26	5.30	2.29	6.46	5.73	2.31	6.84	5.70	2.33	7.23	6.08	2.35
	46	4.56	4.17	2.20	5.07	4.20	2.23	5.24	4.56	2.24	5.59	4.58	2.26	5.76	4.94	2.28	6.11	4.92	2.30	6.45	5.24	2.32

■ Model: ARYG36LHTBP

AFR	m^3/h	2,050

		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		
	-15	7.30	6.42	1.00	8.14	6.45	1.01	8.42	7.02	1.02	8.97	7.03	1.02	9.25	7.60	1.03	9.80	7.57	1.04	10.36	8.06	1.05
	-10	7.18	6.27	1.23	8.00	6.31	1.25	8.27	6.86	1.26	8.81	6.89	1.27	9.09	7.43	1.28	9.64	7.40	1.29	10.18	7.88	1.30
	0	6.78	6.30	1.56	7.55	6.33	1.58	7.81	6.89	1.59	8.33	6.90	1.60	8.59	7.46	1.61	9.11	7.43	1.63	9.62	7.91	1.65
	5	6.77	6.20	1.58	7.55	6.24	1.60	7.80	6.78	1.61	8.31	6.80	1.63	8.57	7.35	1.63	9.08	7.32	1.65	9.60	7.80	1.67
	10	6.74	6.31	1.58	7.50	6.34	1.61	7.76	6.90	1.62	8.27	6.92	1.63	8.53	7.48	1.64	9.04	7.44	1.65	9.55	7.93	1.67
	15	7.24	6.46	1.74	8.07	6.50	1.76	8.34	7.06	1.77	8.90	7.09	1.79	9.17	7.65	1.80	9.72	7.62	1.82	10.27	8.12	1.84
	20	8.14	6.79	2.07	9.07	6.83	2.10	9.37	7.43	2.11	10.00	7.45	2.13	10.31	8.05	2.14	10.93	8.02	2.16	11.54	8.54	2.18
	25	8.02	6.81	2.29	8.93	6.85	2.32	9.23	7.45	2.33	9.84	7.48	2.36	10.15	8.07	2.37	10.75	8.04	2.39	11.36	8.56	2.42
	30	7.84	6.75	2.72	8.74	6.78	2.76	9.03	7.38	2.77	9.63	7.40	2.80	9.93	7.99	2.82	10.52	7.96	2.84	11.12	8.48	2.87
	35	7.43	6.66	2.73	8.28	6.70	2.77	8.55	7.29	2.79	9.11	7.31	2.82	9.40	7.90	2.83	9.96	7.86	2.86	10.52	8.38	2.89
	40	5.51	5.01	2.12	6.14	5.04	2.15	6.35	5.48	2.16	6.76	5.49	2.18	6.97	5.93	2.19	7.39	5.91	2.21	7.81	6.30	2.24
	46	4.95	4.87	2.04	5.51	4.90	2.07	5.70	5.33	2.07	6.08	5.34	2.09	6.26	5.77	2.11	6.64	5.75	2.12	7.02	6.12	2.15

■ Model: ARYG45LHTBP

AFR	m^3/h	2,550

		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		
	-15	10.22	8.77	2.08	11.37	8.83	2.11	11.76	9.59	2.13	12.54	9.62	2.14	12.93	10.39	2.16	13.70	10.35	2.18	14.47	11.03	2.20
	-10	10.30	8.91	2.00	11.47	8.96	2.03	11.86	9.74	2.04	12.65	9.78	2.06	13.04	10.56	2.07	13.82	10.51	2.10	14.60	11.20	2.11
	0	10.47	9.02	1.82	11.67	9.08	1.85	12.06	9.87	1.85	12.86	9.90	1.88	13.26	10.69	1.88	14.06	10.65	1.90	14.85	11.34	1.92
	5	10.24	8.91	1.88	11.41	8.96	1.91	11.80	9.74	1.92	12.58	9.77	1.93	12.96	10.55	1.95	13.75	10.51	1.96	14.52	11.19	1.98
	10	10.01	8.71	2.03	11.14	8.76	2.06	11.53	9.53	2.06	12.28	9.56	2.09	12.66	10.32	2.10	13.42	10.28	2.12	14.18	10.95	2.14
	15	9.76	8.64	2.17	10.87	8.69	2.21	11.24	9.45	2.22	11.99	9.48	2.24	12.35	10.24	2.25	13.10	10.20	2.28	13.84	10.86	2.30
	20	10.11	8.69	2.54	11.25	8.74	2.58	11.64	9.50	2.59	12.41	9.54	2.62	12.79	10.30	2.64	13.56	10.25	2.66	14.32	10.92	2.68
	25	9.96	8.64	2.70	11.09	8.69	2.75	11.47	9.45	2.76	12.23	9.48	2.78	12.61	10.23	2.80	13.36	10.19	2.83	14.12	10.86	2.85
	30	9.82	8.60	3.46	10.94	8.65	3.52	11.31	9.40	3.54	12.05	9.43	3.57	12.43	10.18	3.59	13.17	10.14	3.59	13.91	10.80	3.59
	35	9.56	8.48	3.46	10.64	8.53	3.52	11.01	9.27	3.54	11.74	9.30	3.57	12.10	10.04	3.59	12.83	10.00	3.59	13.56	10.65	3.59
	40	6.99	6.87	2.80	7.79	7.03	2.84	8.06	7.65	2.86	8.58	7.67	2.89	8.85	8.29	2.90	9.38	8.25	2.90	9.91	8.79	2.90
	46	5.36	5.35	2.32	5.98	5.57	2.36	6.18	6.06	2.37	6.58	6.08	2.39	6.79	6.57	2.41	7.20	6.54	2.41	7.61	6.97	2.41

■ Model: ARYG54LHTBP

AFR	m^3/h	2,550

		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		
	-15	12.48	10.05	2.84	13.91	10.12	2.89	14.38	11.00	2.90	15.32	11.03	2.93	15.80	11.91	2.94	16.75	11.86	2.97	17.70	12.64	3.00
	-10	12.47	10.04	2.85	13.89	10.10	2.89	14.37	10.98	2.90	15.31	11.02	2.93	15.78	11.90	2.95	16.73	11.85	2.97	17.68	12.63	3.00
	0	12.47	10.06	2.86	13.89	10.12	2.91	14.36	11.00	2.92	15.30	11.04	2.95	15.78	11.92	2.96	16.73	11.87	2.99	17.68	12.65	3.03
	5	12.37	10.08	3.25	13.77	10.14	3.30	14.24	11.02	3.31	15.18	11.06	3.35	15.65	11.94	3.36	16.59	11.90	3.40	17.53	12.67	3.44
	10	12.14	9.95	3.39	13.52	10.01	3.46	13.98	10.88	3.47	14.90	10.92	3.51	15.36	11.79	3.53	16.29	11.74	3.56	17.21	12.51	3.59
	15	11.92	9.79	3.65	13.27	9.86	3.71	13.73	10.71	3.72	14.63	10.75	3.76	15.08	11.60	3.78	15.98	11.56	3.83	16.89	12.31	3.86
	20	11.79	9.79	3.43	13.13	9.86	3.48	13.58	10.71	3.50	14.47	10.75	3.53	14.92	11.60	3.55	15.82	11.56	3.58	16.71	12.31	3.62
	25	11.69	9.67	3.66	13.02	9.73	3.72	13.46	10.57	3.74	14.35	10.61	3.77	14.79	11.46	3.79	15.68	11.41	3.84	16.57	12.16	3.87
	30	11.19	9.48	4.19	12.47	9.58	4.27	12.89	10.42	4.29	13.74	10.45	4.33	14.17	11.28	4.35	15.02	11.24	4.39	15.87	11.98	4.44
	35	10.59	8.79	4.27	11.79	8.99	4.33	12.19	9.77	4.36	13.00	9.81	4.40	13.40	10.59	4.42	14.20	10.55	4.46	15.01	11.23	4.51
	40	8.85	7.53	4.51	9.85	7.71	4.58	10.19	8.38	4.61	10.86	8.41	4.65	11.20	9.08	4.67	11.87	9.04	4.72	12.54	9.63	4.76
	46	6.15	5.24	3.38	6.85	5.63	3.42	7.08	5.97	3.44	7.55	6.14	3.48	7.78	6.63	3.50	8.24	6.61	3.53	8.72	7.03	3.57

6-2. Heating capacity

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

■ Model: ARYG12LHTBP

AFR	m^3/h	850

			Indoor temperature									
		°CDB	16		18		20		22		27	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	3.76	1.66	3.67	1.70	3.58	1.73	3.49	1.77	3.40	1.80
	-10	-11	4.26	1.66	4.16	1.70	4.06	1.73	3.96	1.77	3.86	1.80
	-5	-7	4.69	1.89	4.58	1.93	4.47	1.97	4.35	2.01	4.20	2.01
	0	-2	5.30	1.93	5.17	1.97	5.05	2.01	4.92	2.01	4.76	2.01
	5	3	5.79	1.92	5.65	1.97	5.51	2.01	5.38	2.01	5.18	2.01
	7	6	5.99	1.83	5.85	1.87	5.70	1.91	5.56	1.95	5.42	1.98
	10	8	6.05	1.81	5.91	1.85	5.76	1.89	5.62	1.92	5.47	1.96
	15	10	6.08	1.78	5.93	1.82	5.79	1.86	5.64	1.90	5.50	1.94
	20	15	5.87	1.58	5.73	1.61	5.59	1.65	5.45	1.68	5.31	1.71
	24	18	5.86	1.56	5.72	1.59	5.58	1.63	5.44	1.66	5.30	1.69

■ Model: ARYG14LHTBP

AFR	m^3/h	950

			Indoor temperature									
		°CDB	16		18		20		22		27	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	4.35	2.11	4.25	2.15	4.14	2.19	4.04	2.24	3.94	2.28
	-10	-11	4.92	2.11	4.80	2.15	4.68	2.19	4.56	2.24	4.45	2.28
	-5	-7	5.48	2.33	5.35	2.38	5.22	2.43	5.09	2.48	4.96	2.53
	0	-2	6.29	2.50	6.14	2.55	5.99	2.60	5.84	2.66	5.69	2.70
	5	3	7.04	2.65	6.88	2.71	6.71	2.76	6.46	2.76	6.17	2.76
	7	6	6.83	2.29	6.66	2.34	6.50	2.39	6.34	2.43	6.18	2.48
	10	8	7.08	2.34	6.91	2.39	6.74	2.43	6.57	2.49	6.40	2.54
	15	10	6.71	2.01	6.55	2.05	6.39	2.08	6.23	2.14	6.07	2.18
	20	15	6.28	1.60	6.13	1.63	5.98	1.67	5.83	1.70	5.68	1.74
	24	18	6.47	1.60	6.32	1.63	6.16	1.67	6.01	1.71	5.85	1.74

■ Model: ARYG18LHTBP

AFR	m^3/h	1,360

			Indoor temperature									
		°CDB	16		18		20		22		27	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	5.17	1.96	5.04	2.00	4.92	2.04	4.80	2.09	4.67	2.12
	-10	-11	5.85	2.11	5.71	2.16	5.57	2.21	5.44	2.25	5.30	2.29
	-5	-7	6.54	2.22	6.39	2.26	6.23	2.31	6.07	2.36	5.92	2.41
	0	-2	7.25	2.17	7.08	2.22	6.91	2.26	6.73	2.31	6.56	2.36
	5	3	8.01	2.19	7.82	2.24	7.63	2.28	7.44	2.33	7.25	2.38
	7	6	7.88	1.89	7.69	1.93	7.50	1.97	7.31	2.01	7.13	2.05
	10	8	8.12	1.89	7.93	1.94	7.73	1.98	7.54	2.01	7.34	2.06
	15	10	7.44	1.52	7.27	1.54	7.09	1.58	6.91	1.61	6.73	1.64
	20	15	6.83	1.17	6.67	1.20	6.51	1.22	6.35	1.25	6.18	1.27
	24	18	7.07	1.17	6.91	1.20	6.73	1.22	6.57	1.25	6.40	1.27

■ Model: ARYG24LHTBP

AFR	m^3/h	1,360

			Indoor temperature									
		°CDB	16		18		20		22		27	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	6.27	2.56	6.12	2.62	5.97	2.68	5.82	2.73	5.67	2.78
	-10	-11	7.10	2.77	6.93	2.83	6.76	2.89	6.60	2.95	6.43	3.00
	-5	-7	7.94	2.91	7.75	2.97	7.56	3.03	7.37	3.09	7.18	3.15
	0	-2	8.80	2.84	8.59	2.91	8.38	2.97	8.17	3.03	7.96	3.09
	5	3	9.72	2.87	9.49	2.93	9.26	2.99	9.03	3.05	8.80	3.11
	7	6	9.56	2.48	9.33	2.53	9.10	2.58	8.87	2.64	8.65	2.69
	10	8	9.85	2.48	9.62	2.54	9.38	2.59	9.15	2.64	8.91	2.70
	15	10	9.03	1.99	8.82	2.02	8.60	2.07	8.39	2.11	8.17	2.15
	20	15	8.29	1.54	8.09	1.58	7.90	1.60	7.70	1.64	7.50	1.67
	24	18	8.58	1.54	8.38	1.57	8.17	1.60	7.97	1.63	7.77	1.67

■ Model: ARYG30LHTBP

AFR	m^3/h	1,700

			Indoor temperature									
		°CDB	16		18		20		22		27	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	8.26	3.03	8.07	3.09	7.87	3.16	7.67	3.22	7.48	3.28
	-10	-11	8.75	3.04	8.54	3.11	8.33	3.18	8.12	3.24	7.91	3.30
	-5	-7	9.56	3.10	9.34	3.16	9.11	3.22	8.88	3.29	8.65	3.35
	0	-2	10.15	3.10	9.91	3.17	9.66	3.23	9.42	3.29	9.18	3.36
	5	3	11.27	3.11	11.01	3.18	10.74	3.25	10.47	3.31	10.20	3.38
	7	6	11.76	3.10	11.48	3.16	11.20	3.22	10.92	3.29	10.64	3.35
	10	8	12.16	3.04	11.87	3.11	11.58	3.17	11.29	3.24	11.00	3.30
	15	10	10.86	2.34	10.60	2.38	10.34	2.43	10.08	2.48	9.82	2.52
	20	15	10.86	2.05	10.60	2.09	10.35	2.13	10.09	2.17	9.83	2.20
	24	18	11.30	2.03	11.03	2.07	10.76	2.12	10.49	2.16	10.22	2.20

■ Model: ARYG36LHTBP

AFR	m^3/h	1,850

			Indoor temperature									
		°CDB	16		18		20		22		27	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	9.15	4.26	8.93	4.35	8.71	4.44	8.49	4.52	8.27	4.62
	-10	-11	9.88	4.29	9.65	4.37	9.41	4.46	9.18	4.55	8.94	4.64
	-5	-7	10.56	4.27	10.31	4.35	10.06	4.44	9.80	4.53	9.55	4.62
	0	-2	11.79	4.23	11.51	4.32	11.23	4.41	10.95	4.49	10.67	4.58
	5	3	12.91	4.16	12.60	4.26	12.29	4.34	11.98	4.43	11.68	4.51
	7	6	13.34	3.72	13.02	3.79	12.70	3.88	12.38	3.95	12.07	4.03
	10	8	13.65	3.59	13.32	3.66	13.00	3.73	12.67	3.80	12.35	3.89
	15	10	12.13	2.74	11.84	2.81	11.55	2.86	11.26	2.92	10.98	2.96
	20	15	12.07	2.41	11.79	2.46	11.50	2.51	11.21	2.56	10.92	2.60
	24	18	12.69	2.40	12.38	2.45	12.08	2.50	11.78	2.54	11.48	2.58

■ Model: ARYG45LHTBP

AFR	m^3/h	2,550

			Indoor temperature									
		°CDB	16		18		20		22		27	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	11.38	3.93	11.11	4.02	10.84	4.10	10.58	4.19	10.31	4.27
	-10	-11	12.37	4.05	12.08	4.13	11.79	4.21	11.50	4.30	11.20	4.38
	-5	-7	13.41	4.10	13.10	4.19	12.77	4.27	12.45	4.27	12.13	4.27
	0	-2	14.39	4.10	14.05	4.19	13.71	4.27	13.37	4.27	13.02	4.27
	5	3	15.74	4.10	15.36	4.19	14.99	4.27	14.61	4.27	14.24	4.27
	7	6	17.02	4.10	16.61	4.19	16.20	4.27	15.79	4.27	15.40	4.27
	10	8	17.54	4.10	17.12	4.19	16.70	4.27	16.28	4.27	15.87	4.27
	15	10	17.30	3.68	16.89	3.76	16.48	3.83	16.06	3.83	15.66	3.83
	20	15	16.50	3.26	16.12	3.33	15.72	3.39	15.32	3.39	14.94	3.39
	24	18	17.38	3.26	16.96	3.33	16.56	3.39	16.14	3.39	15.72	3.39

■ Model: ARYG54LHTBP

AFR	m^3/h	2,550

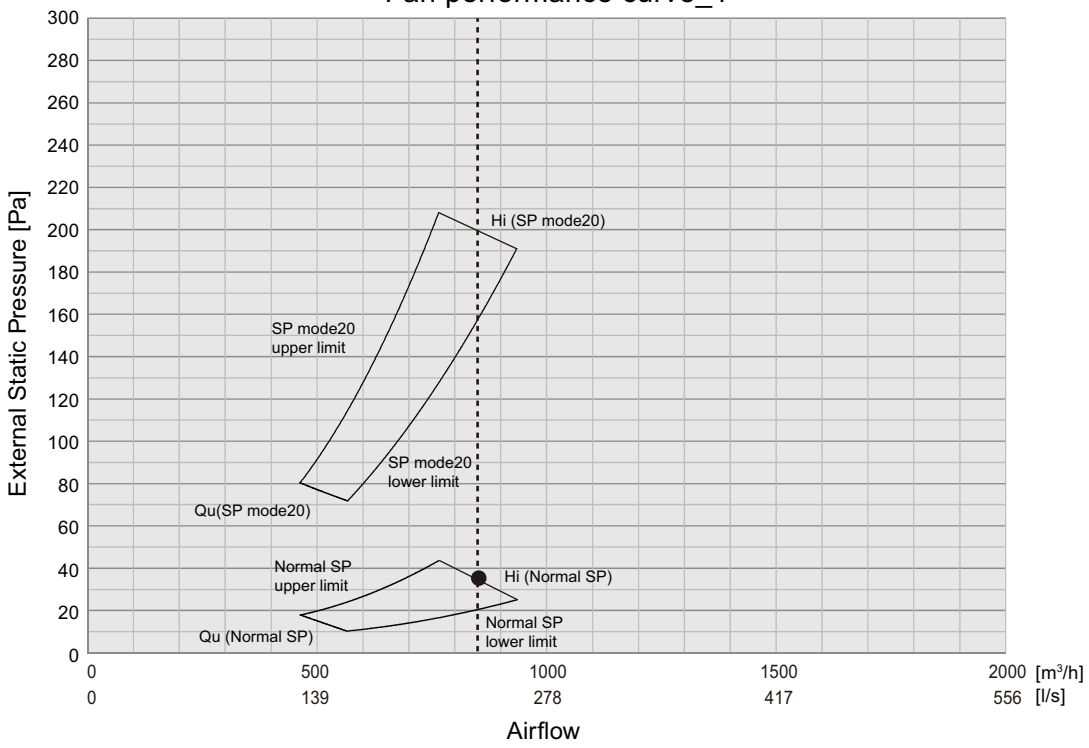
			Indoor temperature									
		°CDB	16		18		20		22		27	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	13.19	5.20	12.87	5.31	12.56	5.41	12.25	5.52	11.93	5.63
	-10	-11	14.66	5.20	14.31	5.31	13.96	5.41	13.61	5.52	13.26	5.63
	-5	-7	16.25	5.21	15.87	5.32	15.48	5.42	15.09	5.53	14.71	5.64
	0	-2	17.51	5.20	17.09	5.31	16.68	5.41	16.26	5.52	15.84	5.63
	5	3	19.20	5.18	18.74	5.29	18.28	5.39	17.83	5.50	17.37	5.60
	7	6	17.33	4.45	16.91	4.53	16.50	4.63	16.09	4.72	15.68	4.81
	10	8	19.02	4.15	18.56	4.24	18.11	4.32	17.66	4.41	17.20	4.50
	15	10	20.42	4.12	19.93	4.21	19.45	4.29	18.96	4.38	18.48	4.44
	20	15	19.83	4.05	19.36	4.13	18.88	4.22	18.41	4.30	17.94	4.36
	24	18	20.53	3.97	20.04	4.06	19.55	4.14	19.06	4.23	18.57	4.29

7. Fan performance

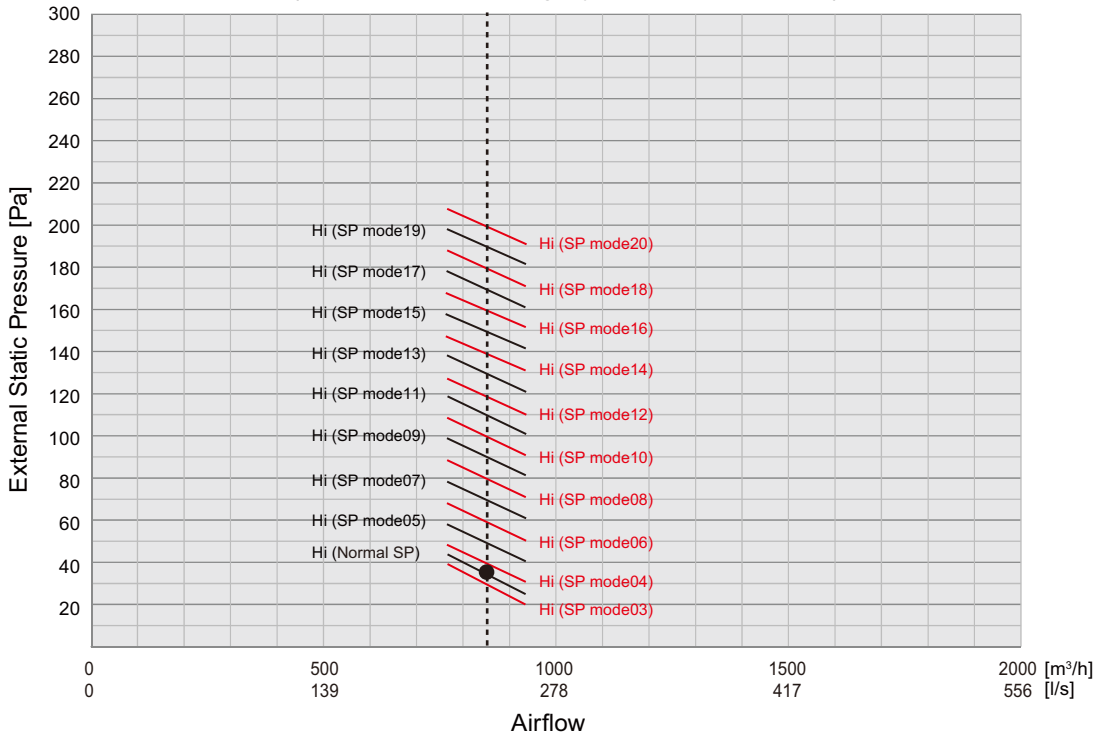
7-1. Fan performance curve

■ Model: ARYG12LHTBP

Fan performance curve_1



Fan performance curve_2
(For function setting by remote controller)

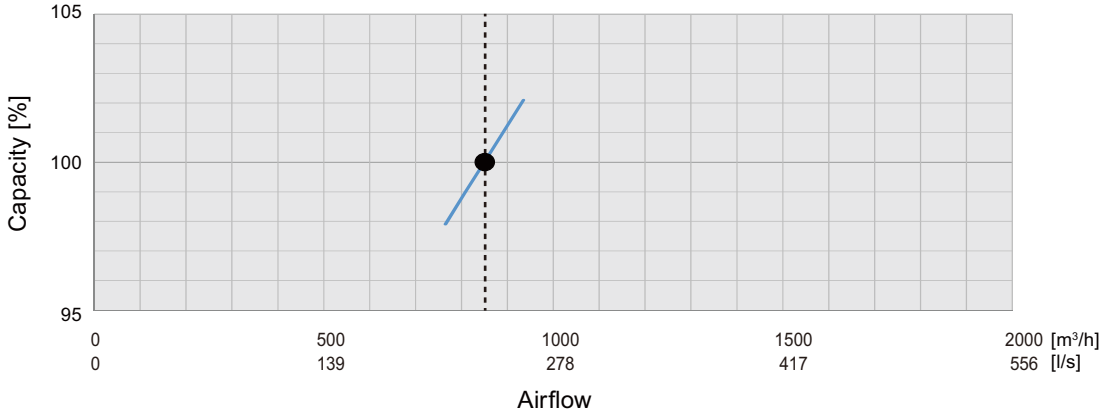


NOTES:

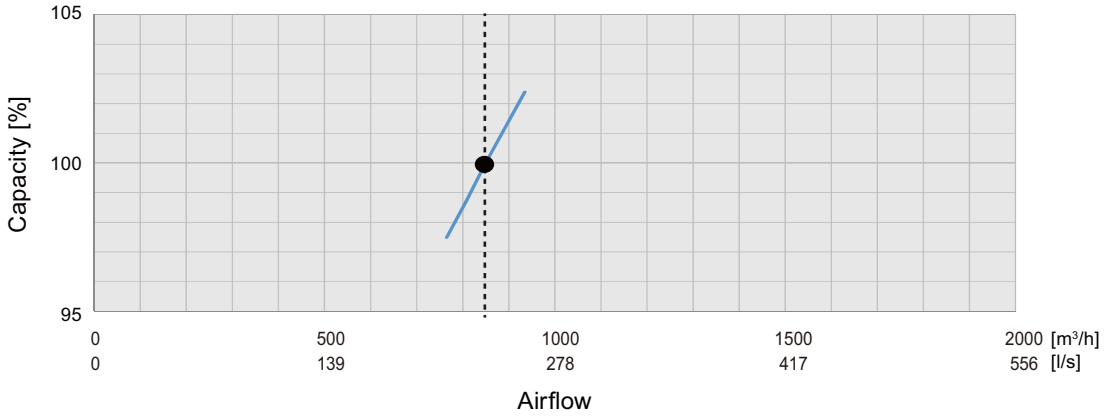
- Setting of the external static pressure is switchable into modes by using the remote controller.
- According to the resistance of the connecting duct, perform the setting of the external static pressure with referring “Fan performance curve_2” above.
- The default setting is set at "Normal SP".

● Characteristics of air volume and capacity

- Cooling

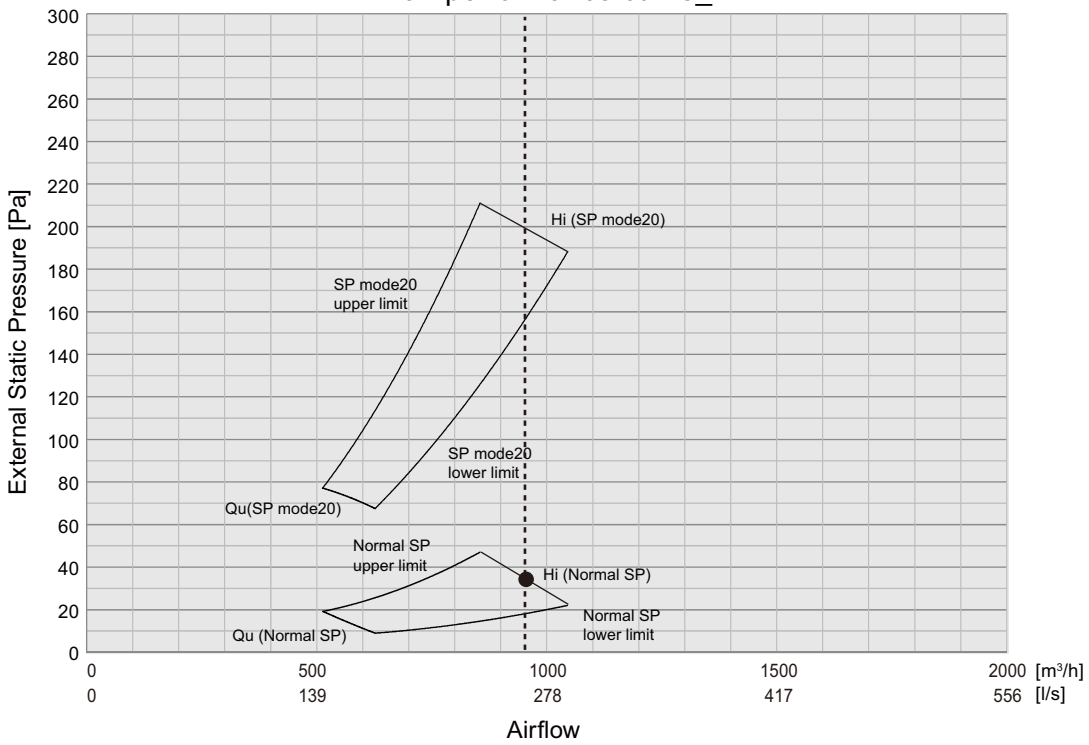


- Heating

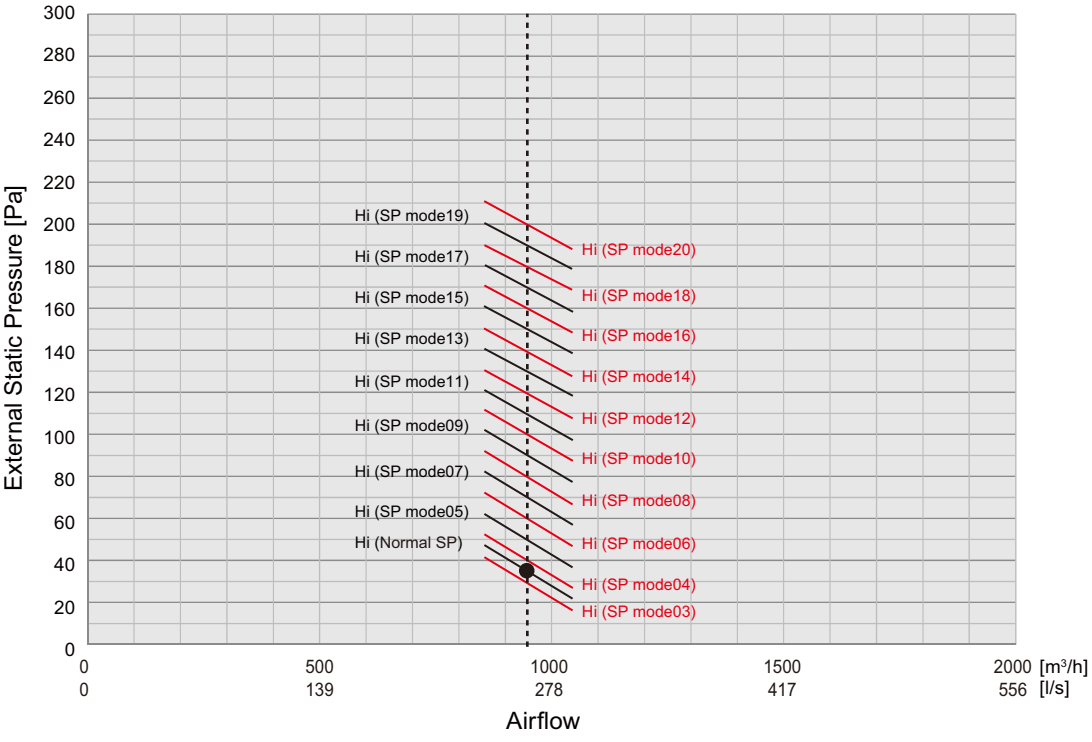


■ Model: ARYG14LHTBP

Fan performance curve_1



Fan performance curve_2
(For function setting by remote controller)

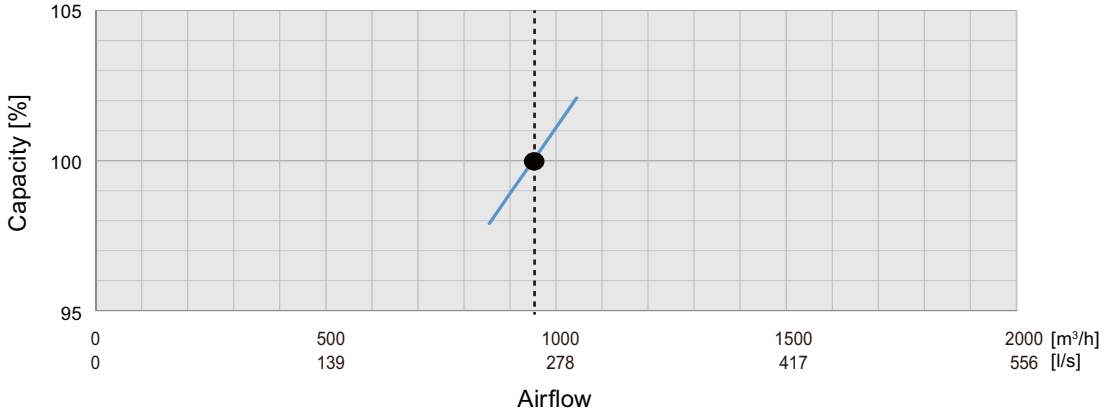


NOTES:

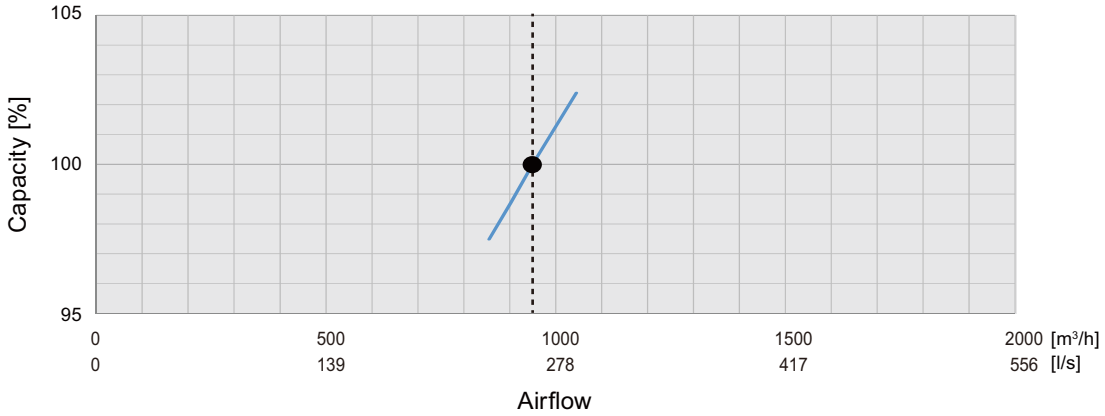
- Setting of the external static pressure is switchable into modes by using the remote controller.
- According to the resistance of the connecting duct, perform the setting of the external static pressure with referring “Fan performance curve_2” above.
- The default setting is set at "Normal SP".

● Characteristics of air volume and capacity

- Cooling

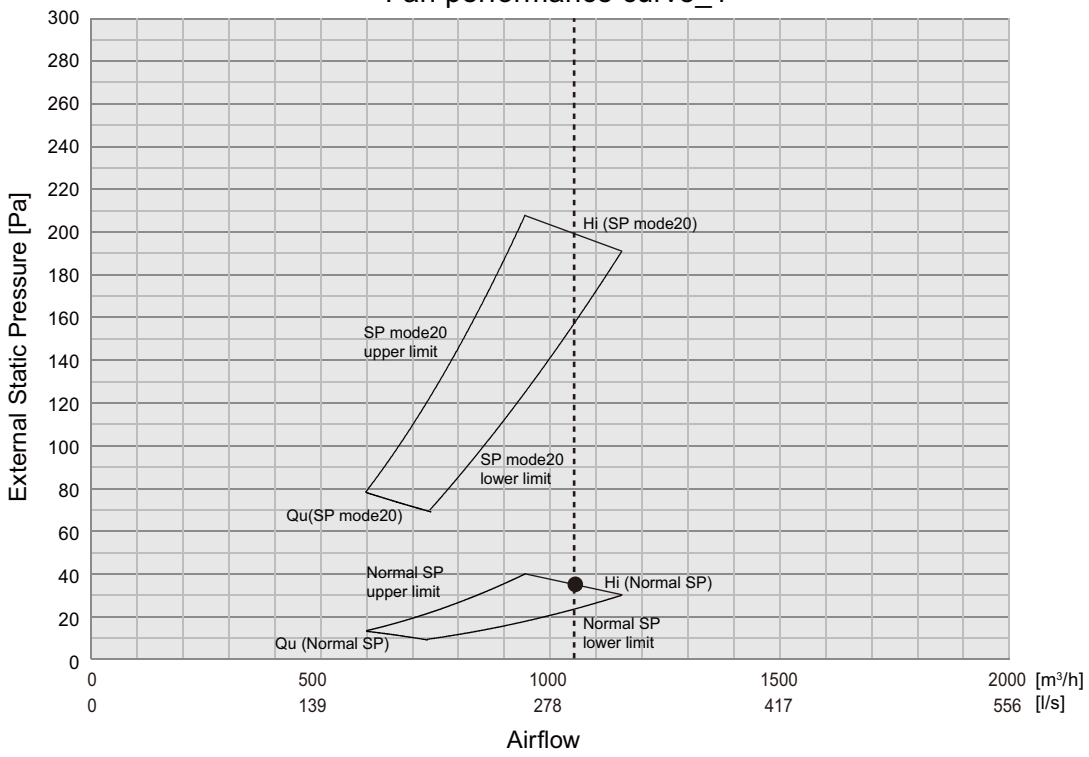


- Heating

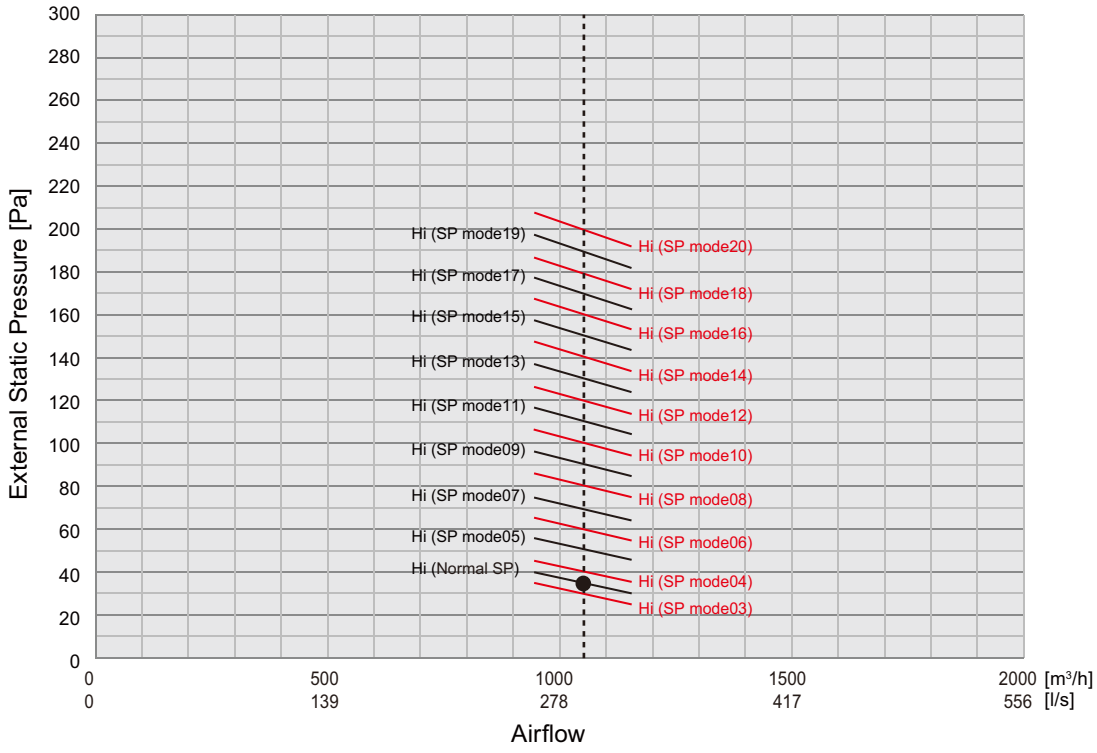


■ Model: ARYG18LHTBP

Fan performance curve_1



Fan performance curve_2
(For function setting by remote controller)

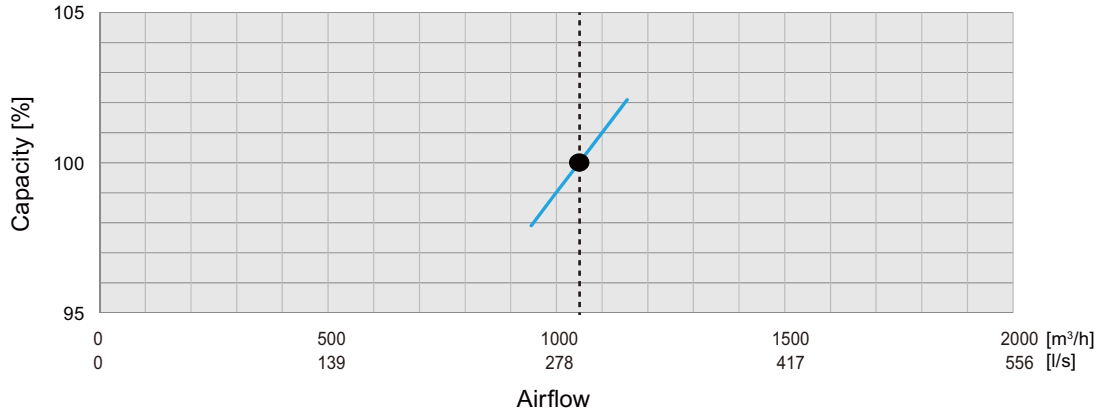


NOTES:

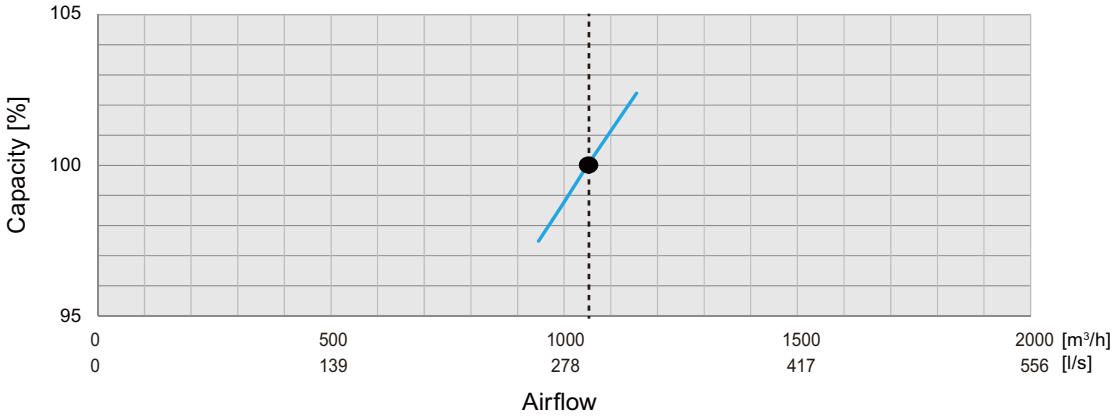
- Setting of the external static pressure is switchable into modes by using the remote controller.
- According to the resistance of the connecting duct, perform the setting of the external static pressure with referring “Fan performance curve_2” above.
- The default setting is set at "Normal SP".

● Characteristics of air volume and capacity

- Cooling

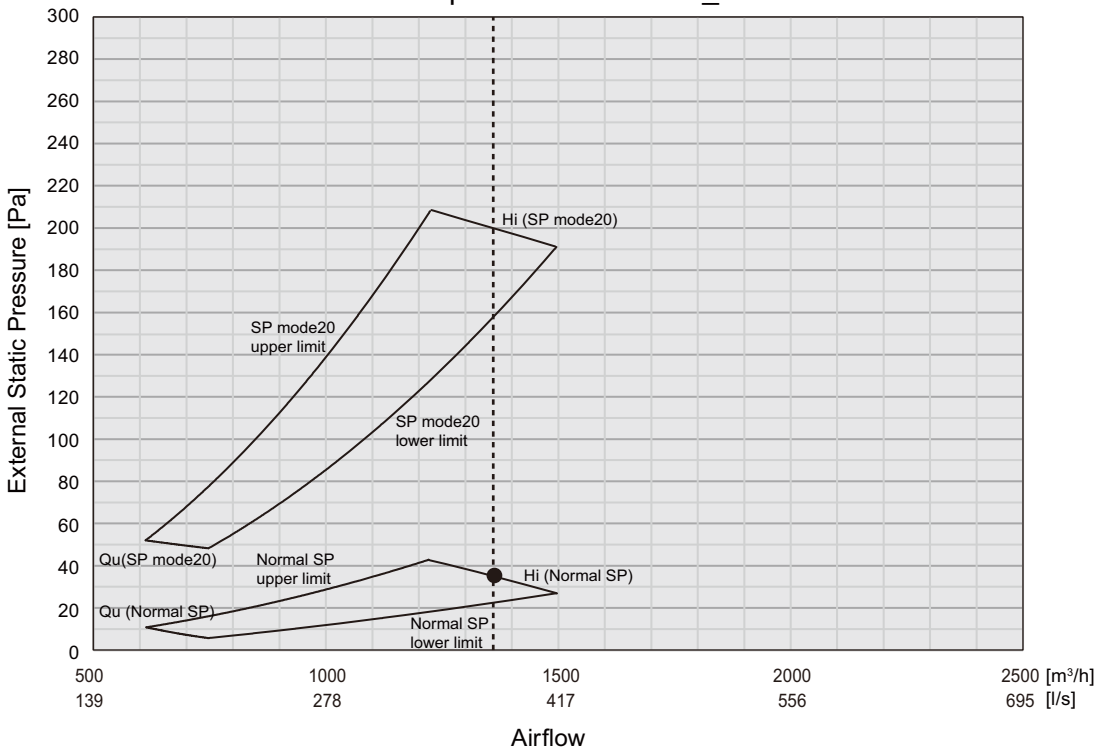


- Heating

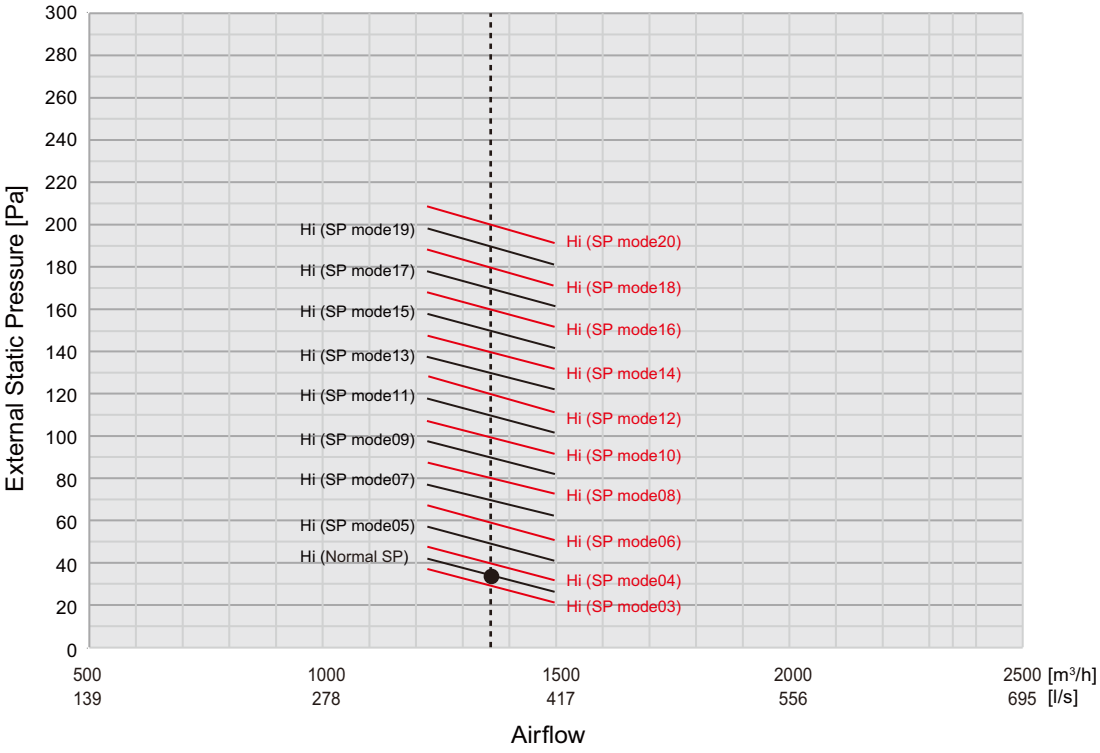


■ Model: ARYG24LHTBP

Fan performance curve_1



Fan performance curve_2
(For function setting by remote controller)

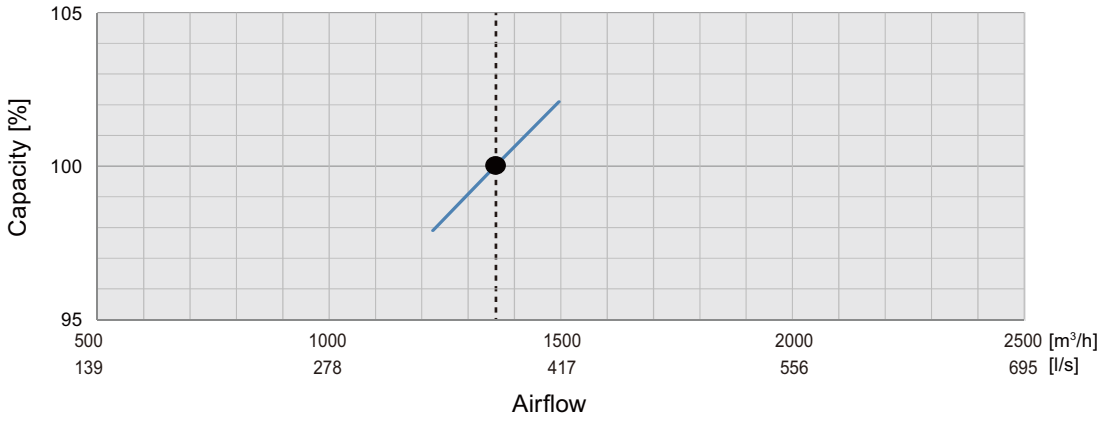


NOTES:

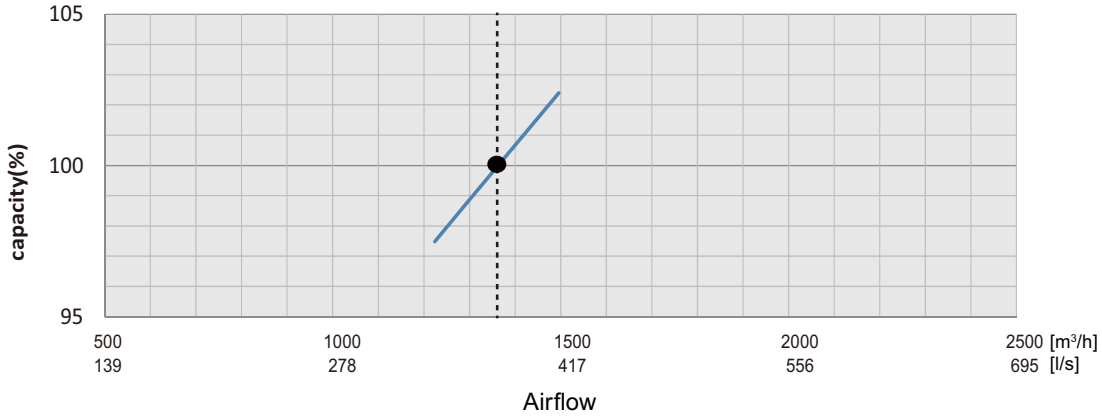
- Setting of the external static pressure is switchable into modes by using the remote controller.
- According to the resistance of the connecting duct, perform the setting of the external static pressure with referring “Fan performance curve_2” above.
- The default setting is set at "Normal SP".

● Characteristics of air volume and capacity

- Cooling

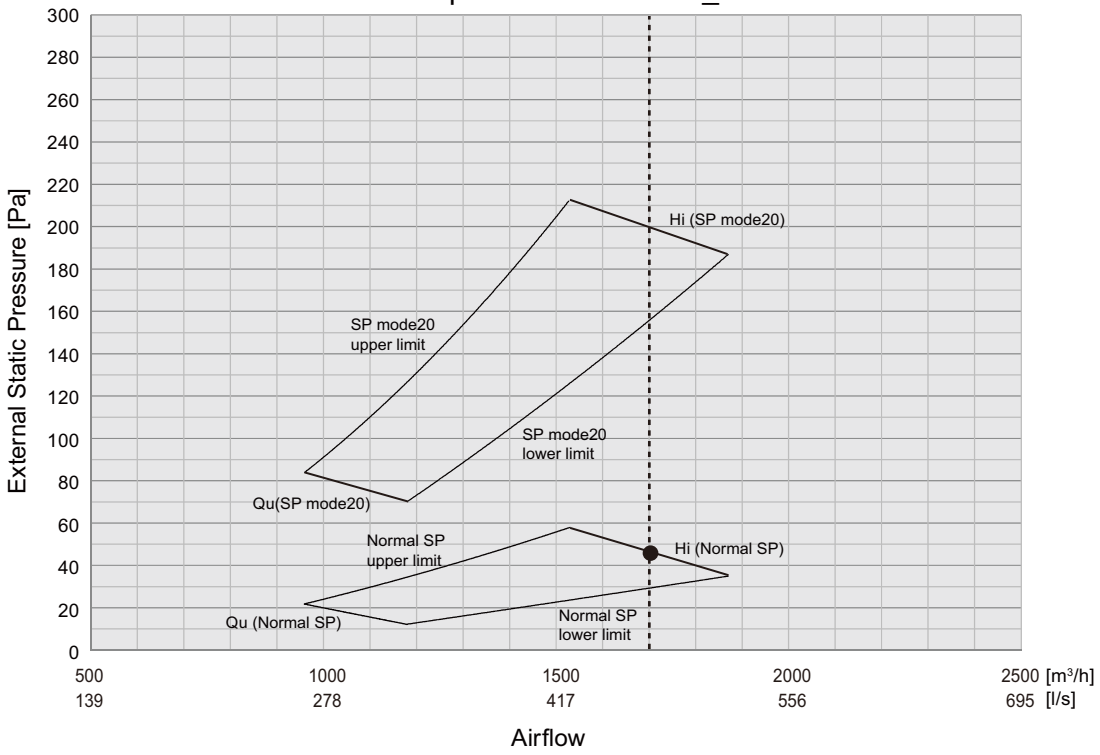


- Heating

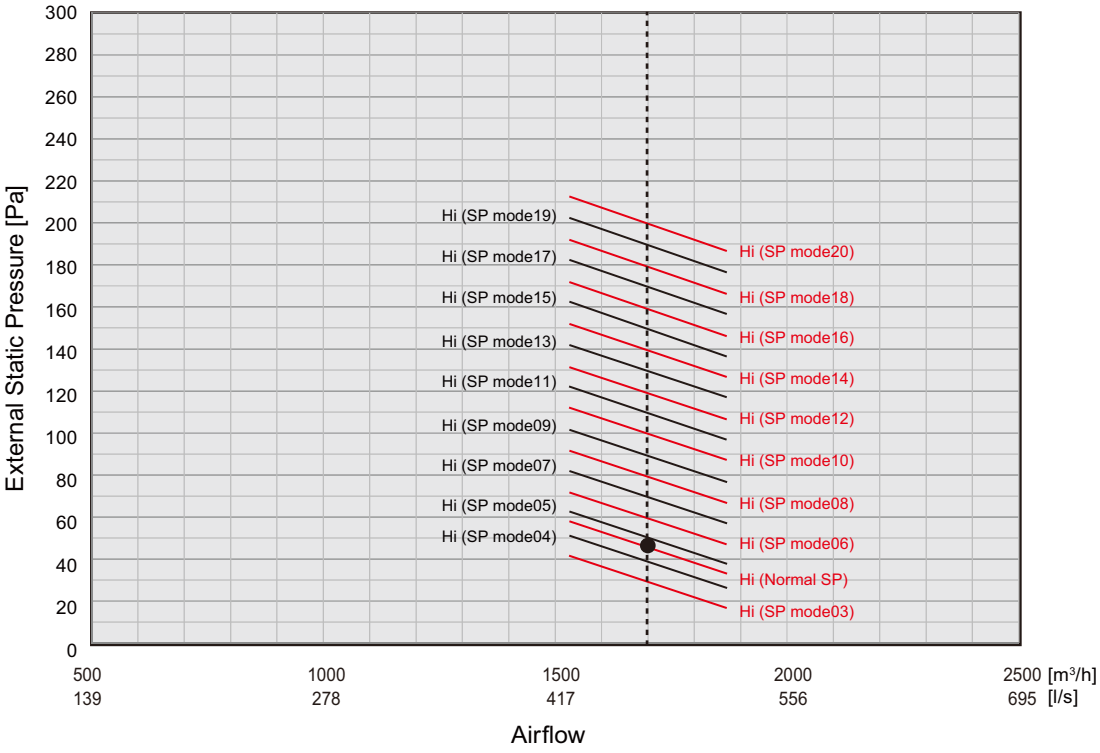


■ Model: ARYG30LHTBP

Fan performance curve_1



Fan performance curve_2
(For function setting by remote controller)

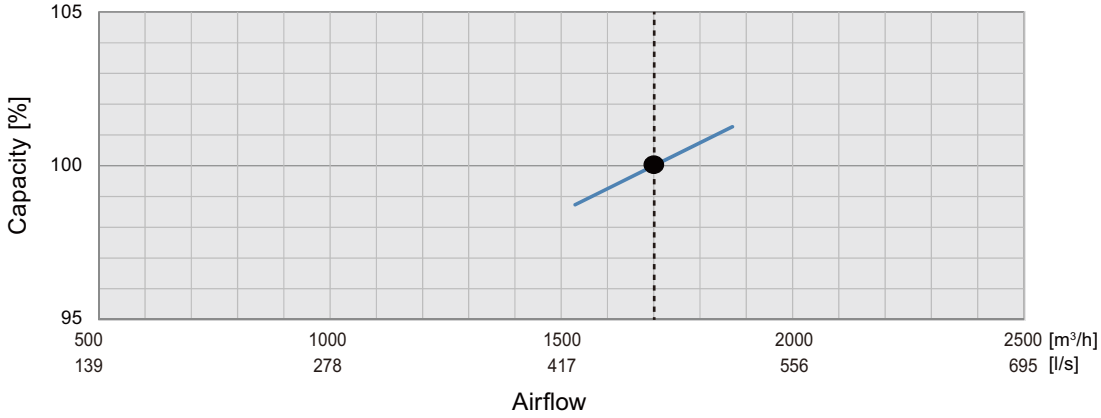


NOTES:

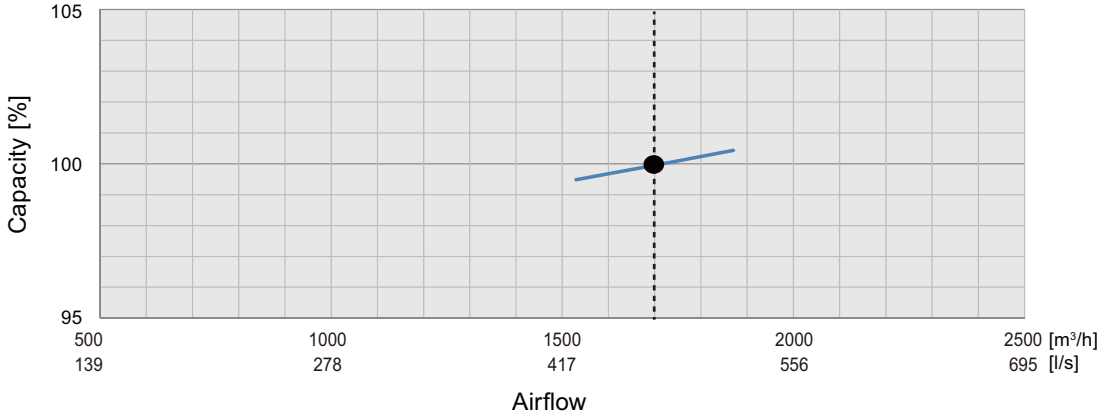
- Setting of the external static pressure is switchable into modes by using the remote controller.
- According to the resistance of the connecting duct, perform the setting of the external static pressure with referring “Fan performance curve_2” above.
- The default setting is set at "Normal SP".

● Characteristics of air volume and capacity

- Cooling

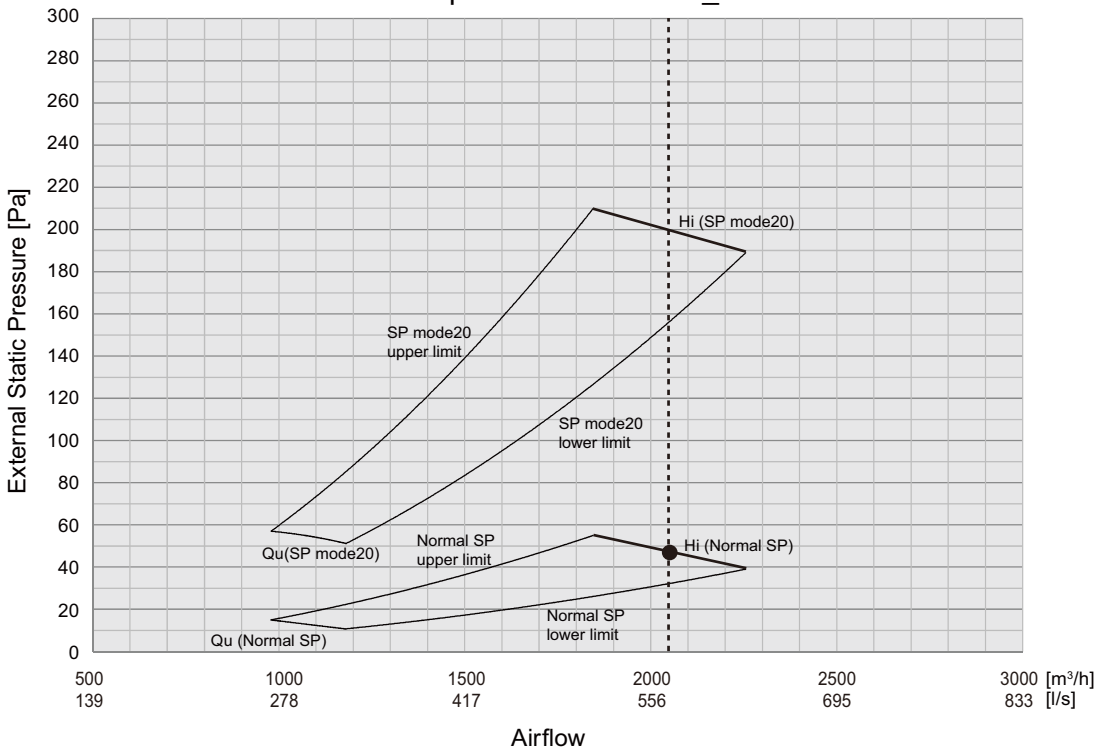


- Heating

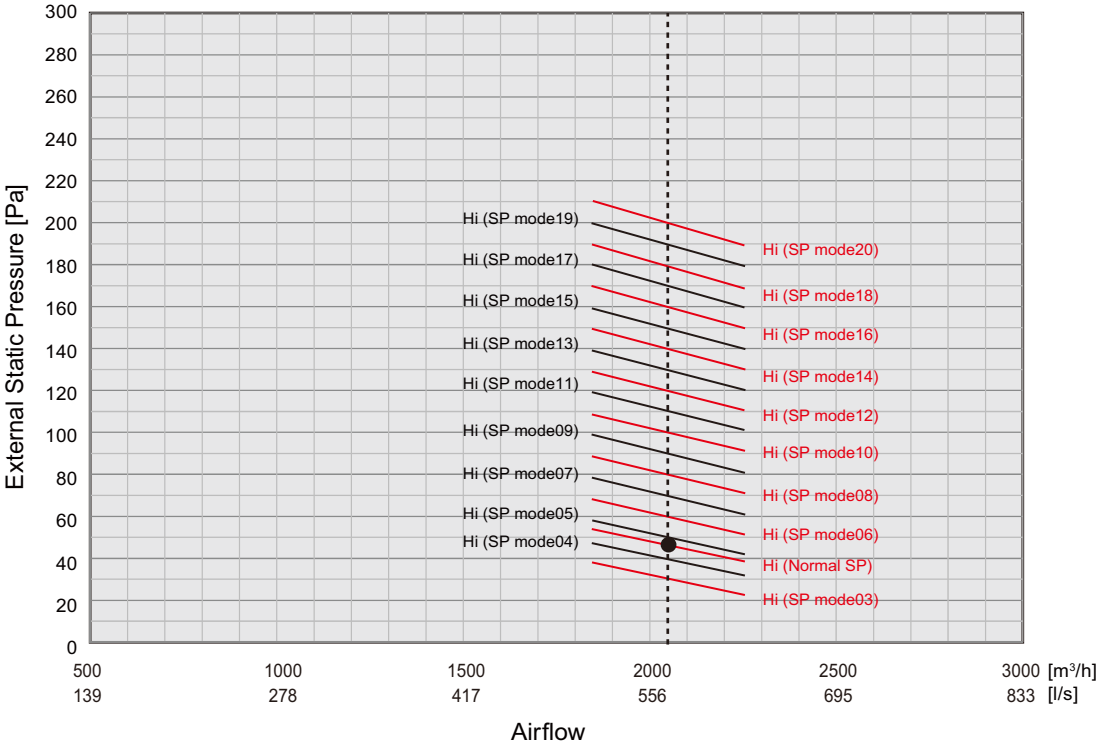


■ Model: ARYG36LHTBP

Fan performance curve_1



Fan performance curve_2
(For function setting by remote controller)

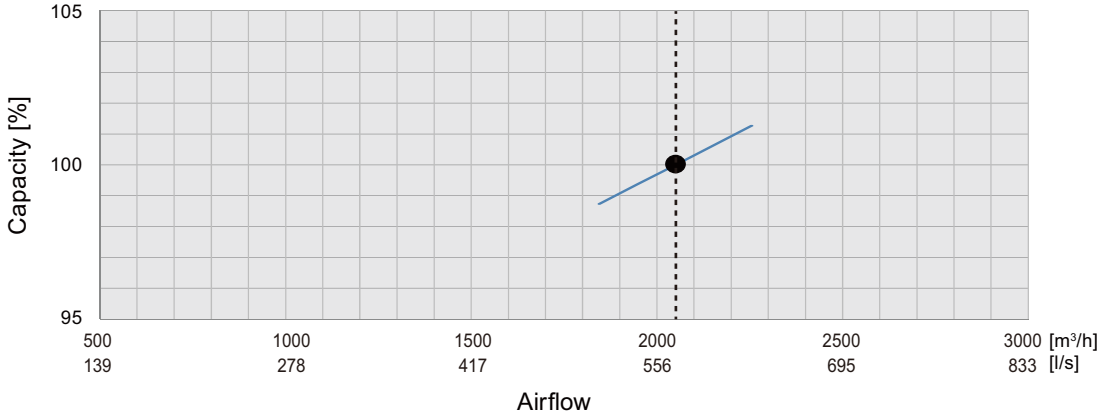


NOTES:

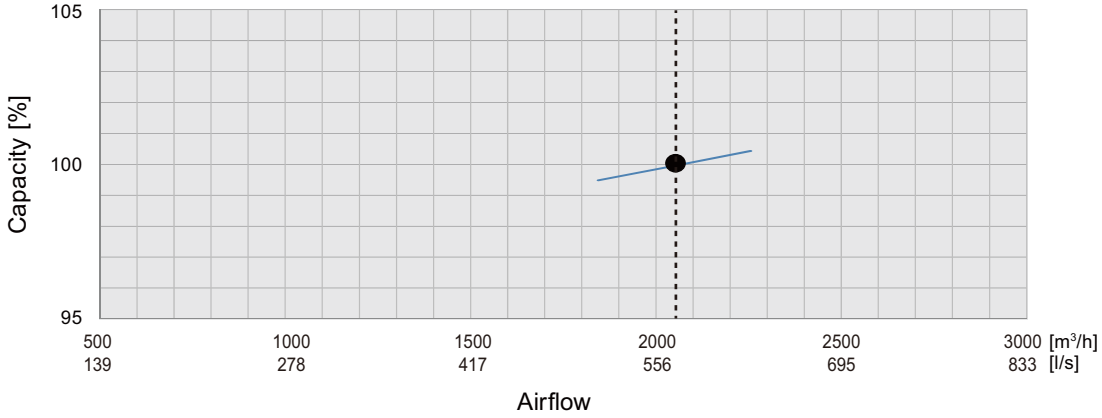
- Setting of the external static pressure is switchable into modes by using the remote controller.
- According to the resistance of the connecting duct, perform the setting of the external static pressure with referring “Fan performance curve_2” above.
- The default setting is set at "Normal SP".

● Characteristics of air volume and capacity

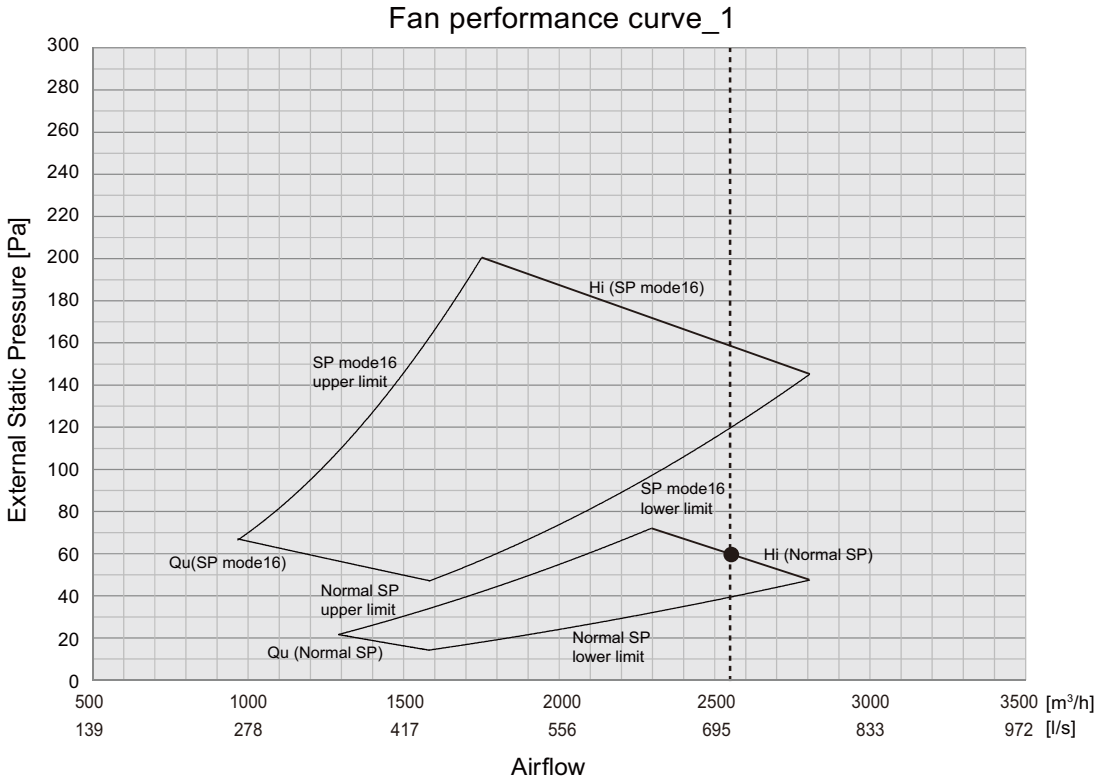
- Cooling

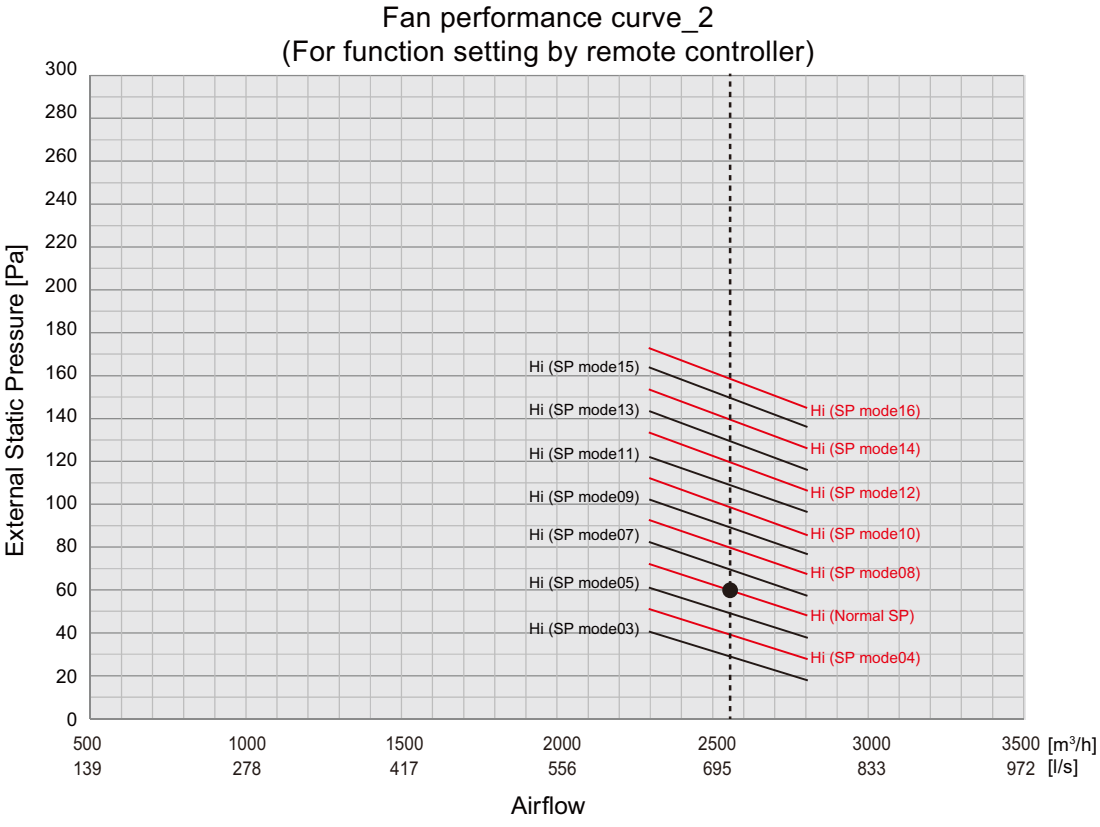


- Heating



■ Models: ARYG45LHTBP and ARYG54LHTBP



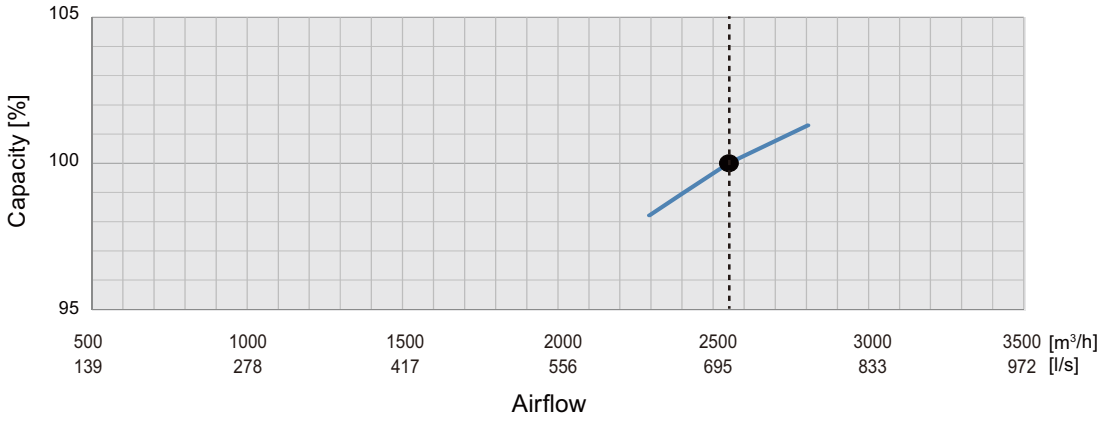


NOTES:

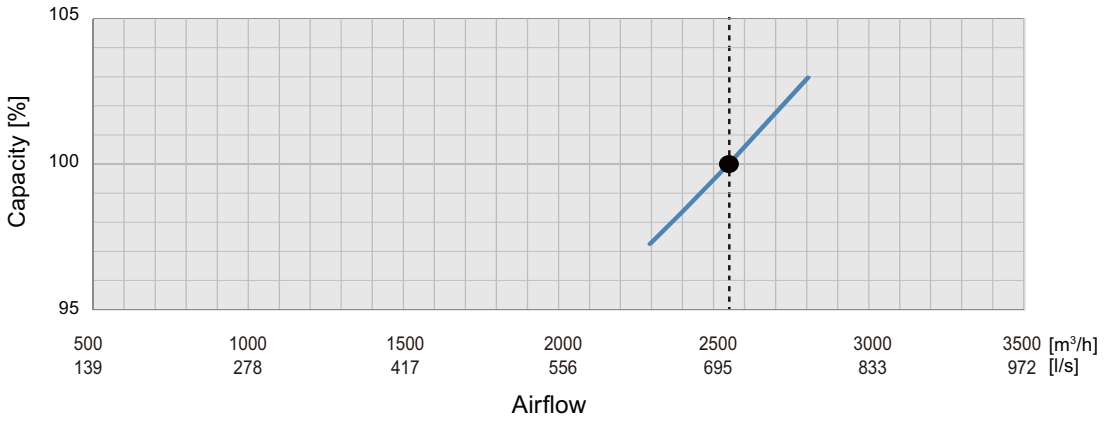
- Setting of the external static pressure is switchable into modes by using the remote controller.
- According to the resistance of the connecting duct, perform the setting of the external static pressure with referring “Fan performance curve_2” above.
- The default setting is set at "Normal SP".

● Characteristics of air volume and capacity

- Cooling



- Heating



■ Automatic airflow adjustment procedures

1. To start the auto setting, use No.32 of setting value in Function Number 26.
2. Run the air conditioner on fan mode (High).
   * For instructions on how to operate the air conditioner, refer to the operation manual of the remote controller.

   During automatic airflow adjustment, the mode will be fixed at fan (High).

   When this function is active, do not operate the outdoor unit.
3. The air conditioner will run for about 1 to 8 min then stop automatically.
   * Do not change the throttles of the inlet and outlet ports during operation.

   When used in a group control system, the setting will take about 10 min.
4. Turn the air conditioner off and on again.
5. Check the setting value of Function 26.
   * If the setting value has not changed, repeat the procedure from step 2.

⚠CAUTION

When the duct or outlet installations are changed after the Automatic airflow adjustment is completed, repeat the procedure from step 1.

7-2. Airflow

■ Model: ARYG12LHTBP

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	850
	l/s	236
	CFM	500
MED	m^3/h	680
	l/s	189
	CFM	400
LOW	m^3/h	590
	l/s	164
	CFM	347
QUIET	m^3/h	510
	l/s	142
	CFM	300

● Heating

Fan speed	Airflow	
HIGH	m^3/h	850
	l/s	236
	CFM	500
MED	m^3/h	680
	l/s	189
	CFM	400
LOW	m^3/h	590
	l/s	164
	CFM	347
QUIET	m^3/h	510
	l/s	142
	CFM	300

■ Model: ARYG14LHTBP

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	950
	l/s	264
	CFM	559
MED	m^3/h	760
	l/s	211
	CFM	447
LOW	m^3/h	670
	l/s	186
	CFM	394
QUIET	m^3/h	570
	l/s	158
	CFM	336

● Heating

Fan speed	Airflow	
HIGH	m^3/h	950
	l/s	264
	CFM	559
MED	m^3/h	760
	l/s	211
	CFM	447
LOW	m^3/h	670
	l/s	186
	CFM	394
QUIET	m^3/h	570
	l/s	158
	CFM	336

■ Model: ARYG18LHTBP

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	1,050
	l/s	292
	CFM	618
MED	m^3/h	840
	l/s	233
	CFM	494
LOW	m^3/h	740
	l/s	206
	CFM	436
QUIET	m^3/h	630
	l/s	175
	CFM	371

● Heating

Fan speed	Airflow	
HIGH	m^3/h	1,050
	l/s	292
	CFM	618
MED	m^3/h	840
	l/s	233
	CFM	494
LOW	m^3/h	740
	l/s	206
	CFM	436
QUIET	m^3/h	630
	l/s	175
	CFM	371

■ Model: ARYG24LHTBP

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	1,360
	l/s	378
	CFM	800
MED	m^3/h	1,080
	l/s	300
	CFM	800
LOW	m^3/h	880
	l/s	244
	CFM	518
QUIET	m^3/h	680
	l/s	189
	CFM	400

● Heating

Fan speed	Airflow	
HIGH	m^3/h	1,360
	l/s	378
	CFM	800
MED	m^3/h	1,080
	l/s	300
	CFM	636
LOW	m^3/h	880
	l/s	244
	CFM	518
QUIET	m^3/h	680
	l/s	189
	CFM	400

■ Model: ARYG30LHTBP

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	1,700
	l/s	472
	CFM	1,001
MED	m^3/h	1,360
	l/s	378
	CFM	800
LOW	m^3/h	1,190
	l/s	331
	CFM	700
QUIET	m^3/h	1,070
	l/s	297
	CFM	630

● Heating

Fan speed	Airflow	
HIGH	m^3/h	1,700
	l/s	472
	CFM	1,001
MED	m^3/h	1,360
	l/s	378
	CFM	800
LOW	m^3/h	1,190
	l/s	331
	CFM	700
QUIET	m^3/h	1,070
	l/s	297
	CFM	630

■ Model: ARYG36LHTBP

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	2,050
	l/s	569
	CFM	1,207
MED	m^3/h	1,640
	l/s	456
	CFM	965
LOW	m^3/h	1,330
	l/s	369
	CFM	783
QUIET	m^3/h	1,070
	l/s	297
	CFM	630

● Heating

Fan speed	Airflow	
HIGH	m^3/h	1,850
	l/s	514
	CFM	1,089
MED	m^3/h	1,640
	l/s	456
	CFM	965
LOW	m^3/h	1,330
	l/s	369
	CFM	783
QUIET	m^3/h	1,070
	l/s	297
	CFM	630

■ Model: ARYG45LHTBP

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	2,550
	l/s	708
	CFM	1,501
MED	m^3/h	2,040
	l/s	567
	CFM	1,201
LOW	m^3/h	1,650
	l/s	458
	CFM	971
QUIET	m^3/h	1,430
	l/s	397
	CFM	842

● Heating

Fan speed	Airflow	
HIGH	m^3/h	2,550
	l/s	708
	CFM	1,501
MED	m^3/h	2,040
	l/s	567
	CFM	1,201
LOW	m^3/h	1,650
	l/s	458
	CFM	971
QUIET	m^3/h	1,430
	l/s	397
	CFM	842

■ Model: ARYG54LHTBP

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	2,550
	l/s	708
	CFM	1,501
MED	m^3/h	2,040
	l/s	567
	CFM	1,201
LOW	m^3/h	1,650
	l/s	458
	CFM	971
QUIET	m^3/h	1,430
	l/s	397
	CFM	842

● Heating

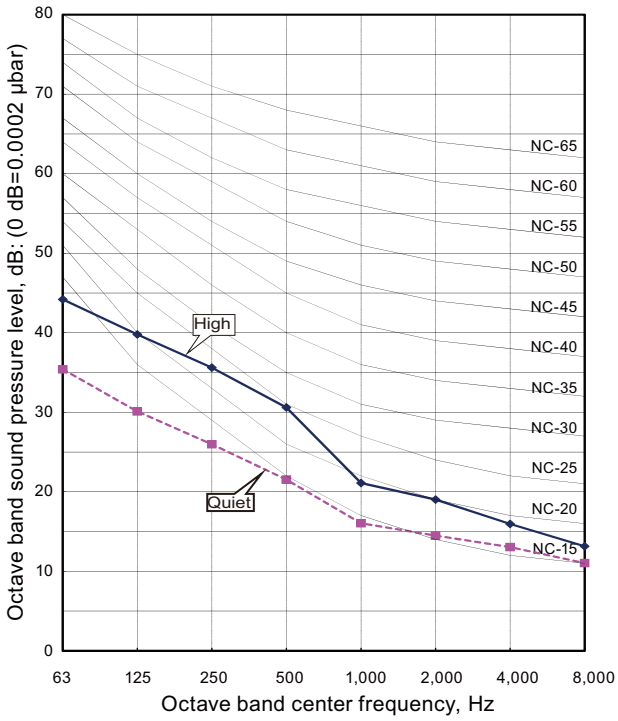
Fan speed	Airflow	
HIGH	m^3/h	2,550
	l/s	708
	CFM	1,501
MED	m^3/h	2,040
	l/s	567
	CFM	1,201
LOW	m^3/h	1,650
	l/s	458
	CFM	971
QUIET	m^3/h	1,430
	l/s	397
	CFM	842

8. Operation noise (sound pressure)

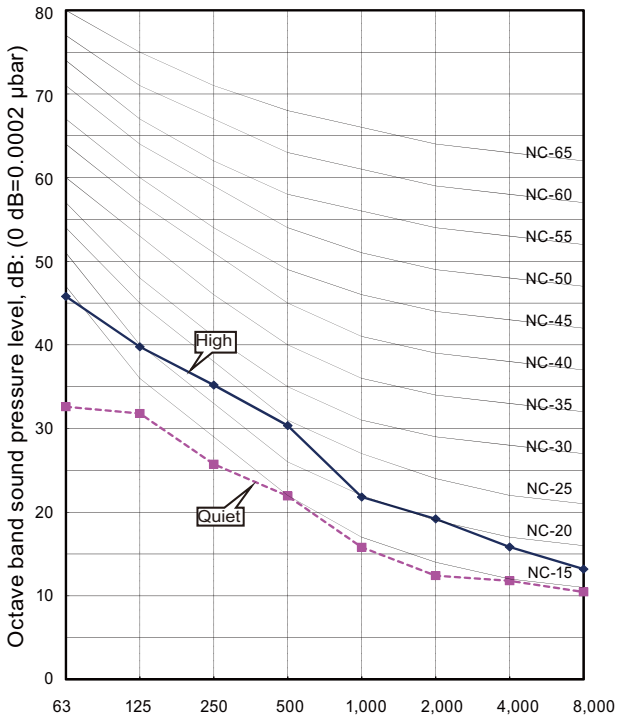
8-1. Noise level curve

■ Model: ARYG12LHTBP

● Cooling

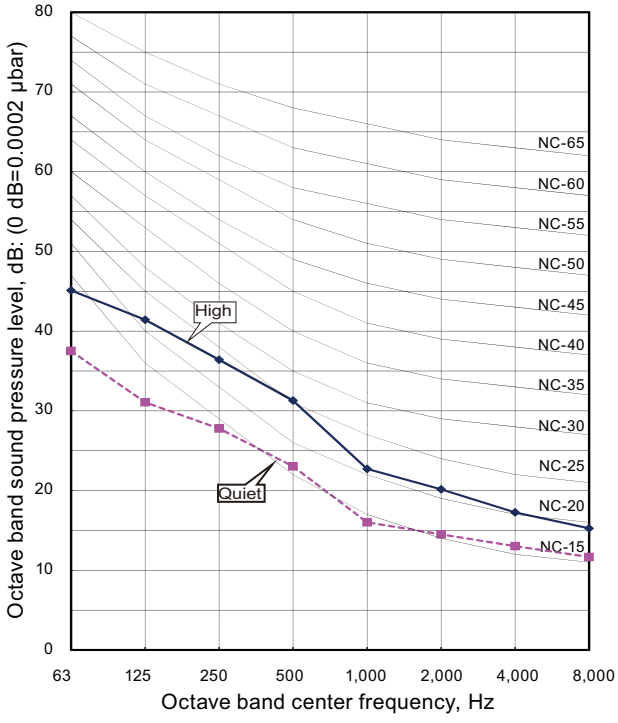


● Heating

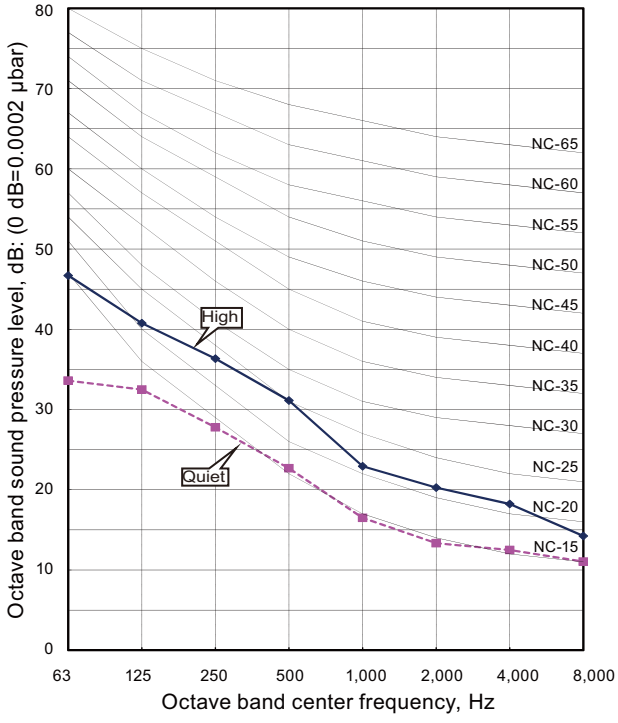


■ Model: ARYG14LHTBP

● Cooling

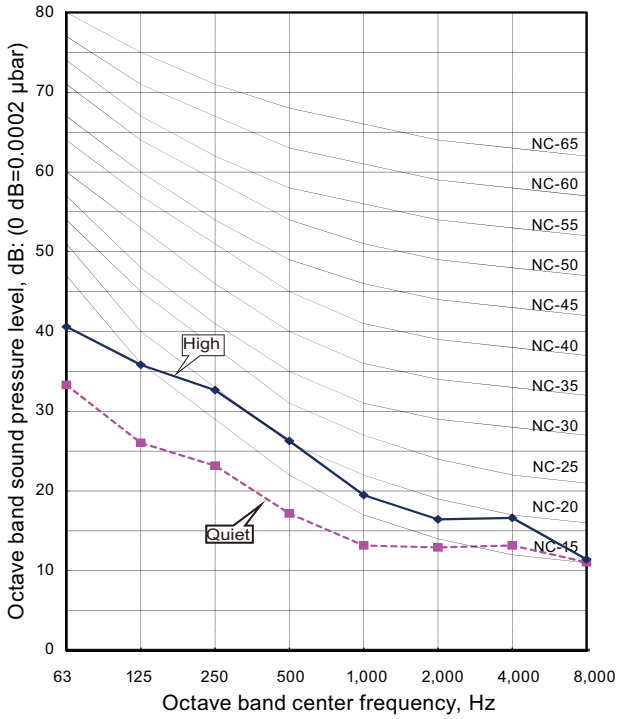


● Heating

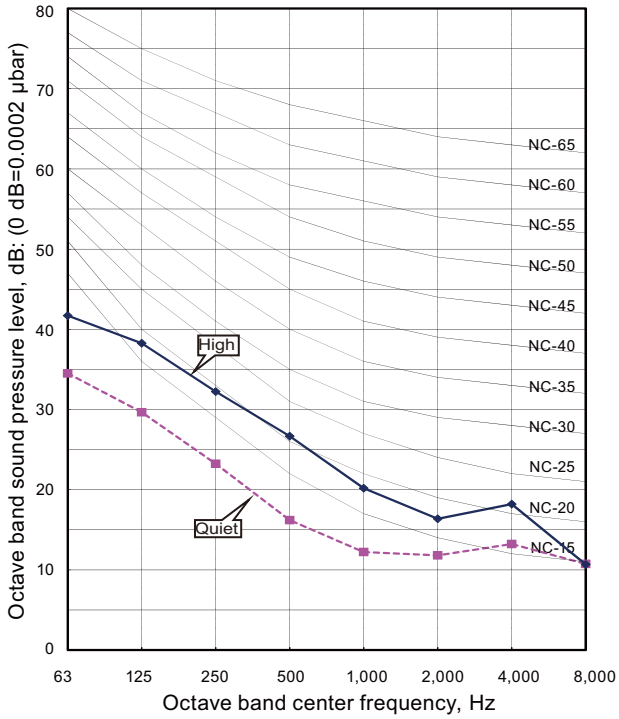


■ Model: ARYG18LHTBP

● Cooling

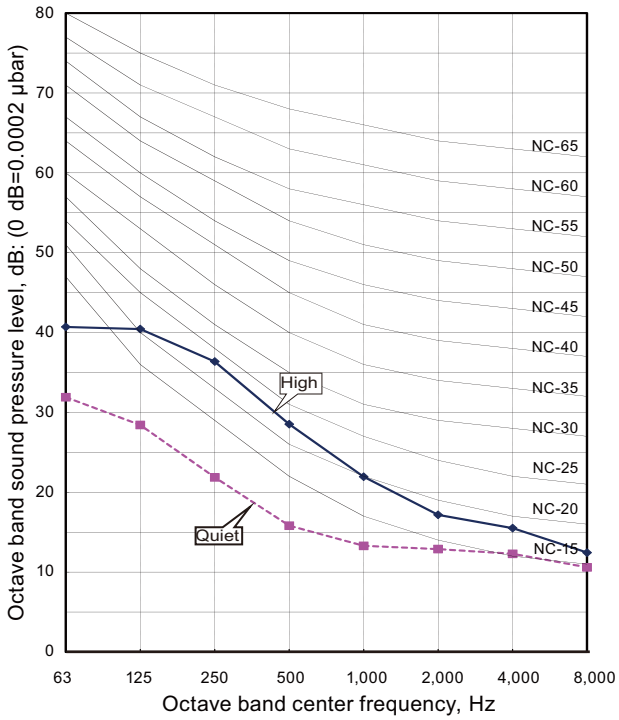


● Heating

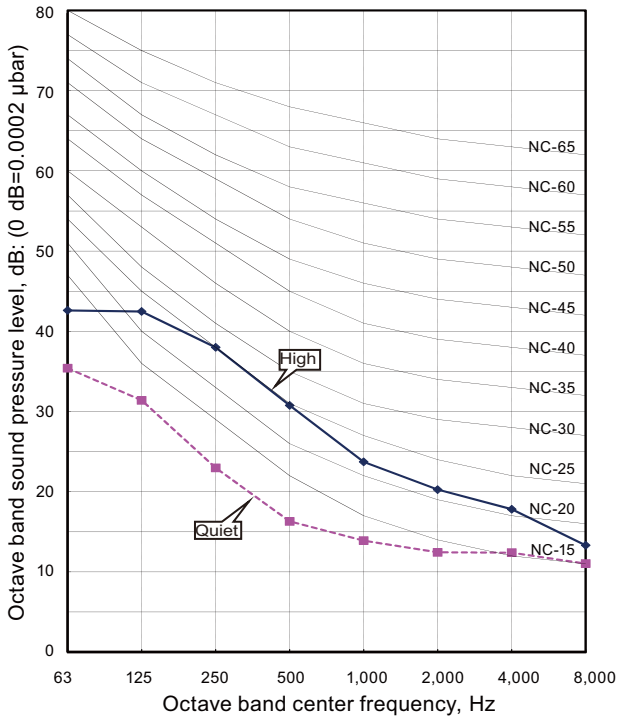


■ Model: ARYG24LHTBP

● Cooling

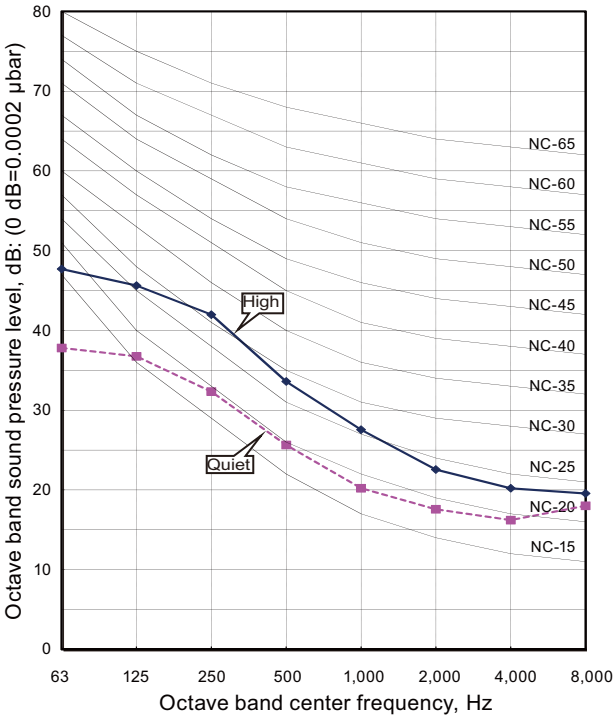


● Heating

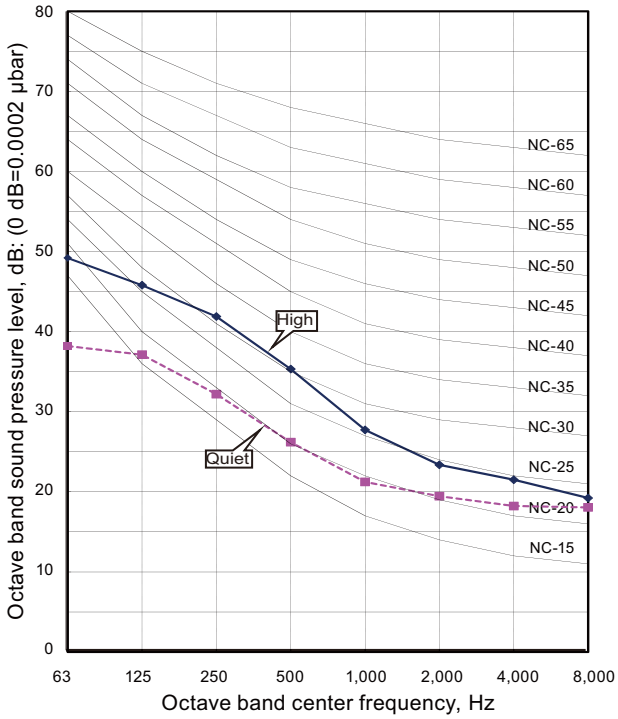


■ Model: ARYG30LHTBP

● Cooling

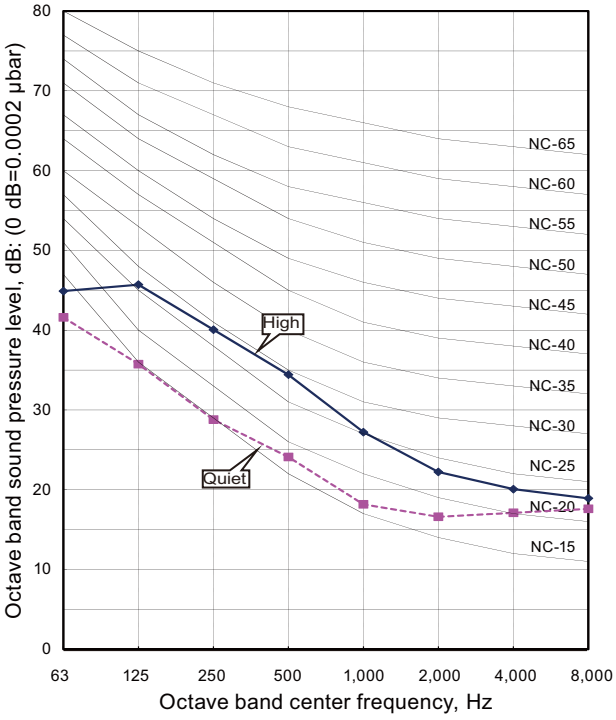


● Heating

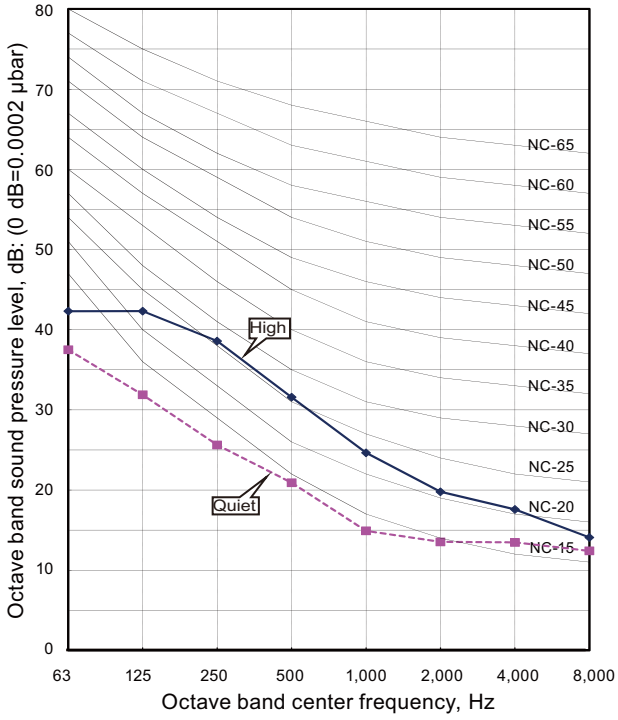


■ Model: ARYG36LHTBP

● Cooling

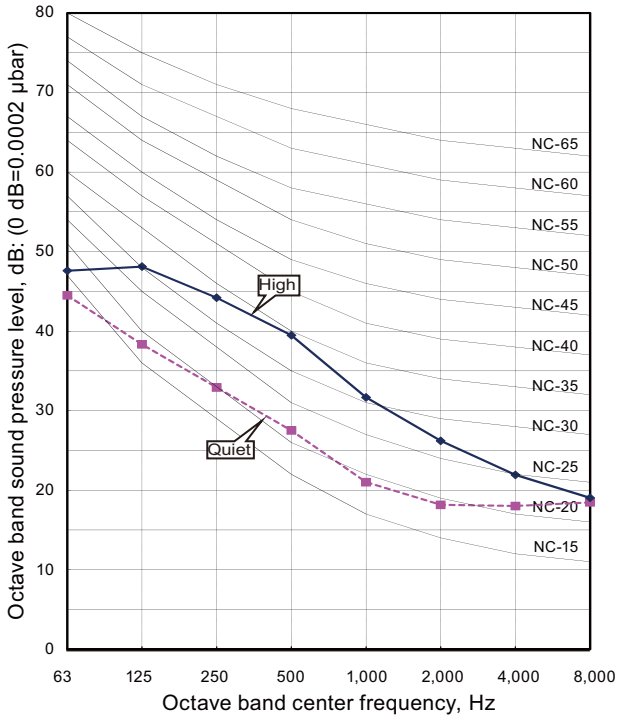


● Heating

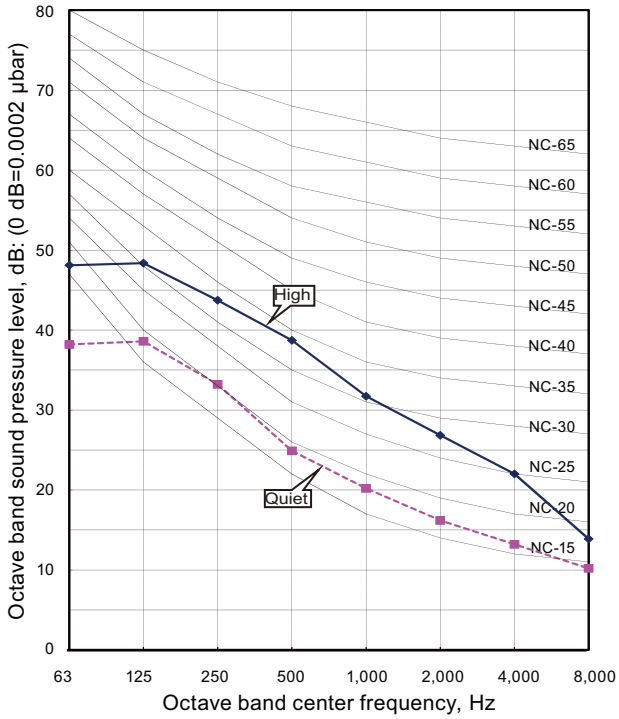


■ Model: ARYG45LHTBP

● Cooling

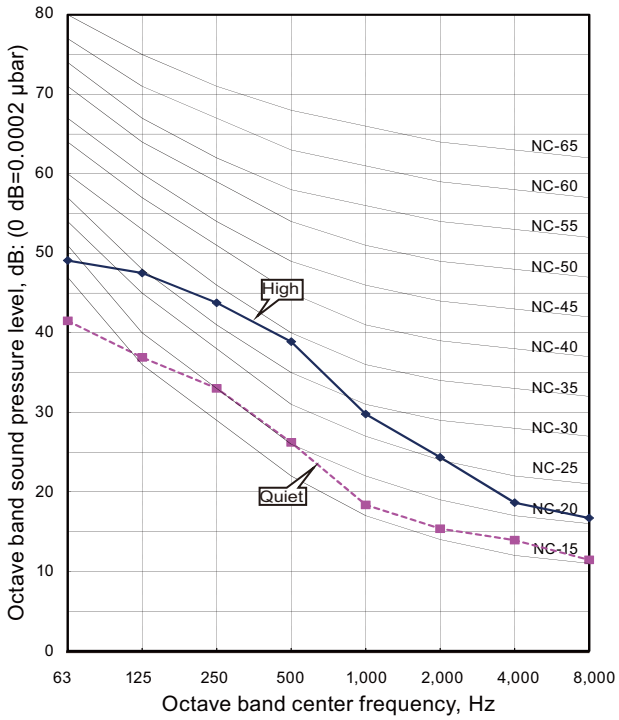


● Heating

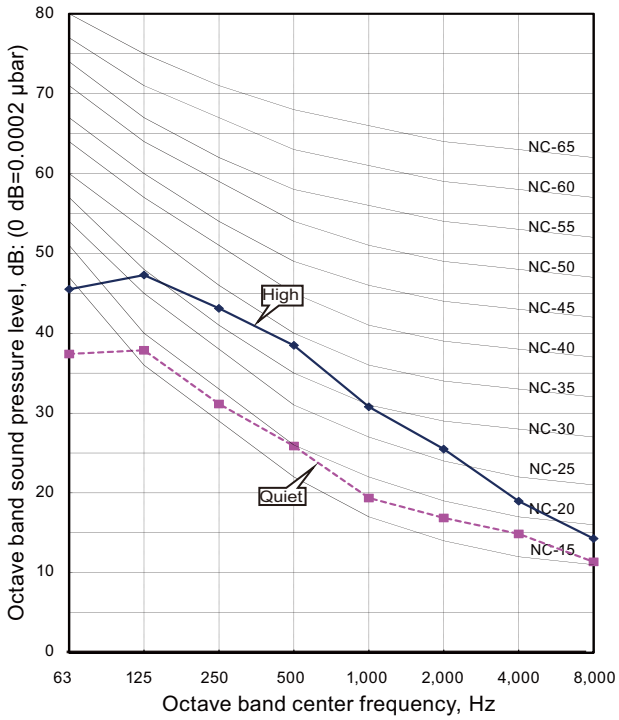


■ Model: ARYG54LHTBP

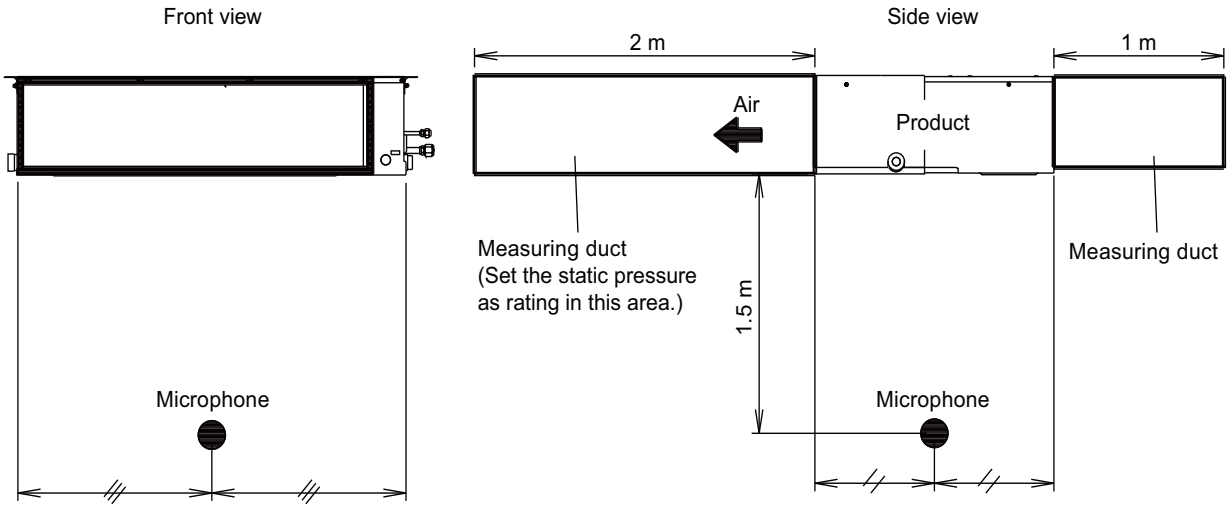
● Cooling



● Heating



8-2. Sound level check point



9. Safety devices

Type of protection	Protection form		Model		
			ARYG12LHTBP ARYG14LHTBP	ARYG18LHTBP ARYG24LHTBP	ARYG30LHTBP ARYG36LHTBP ARYG45LHTBP ARYG54LHTBP
Circuit protection	Current fuse (PCB*)		250 V, 5A		250 V, 10A
Fan motor protection	Thermal protection program	Activate	115 ± 15 °C Fan motor stop		-
		Reset	70 °C Fan motor restart		-
	Current protection	Activate	-		7.58A

*: Printed Circuit Board

10. External input and output

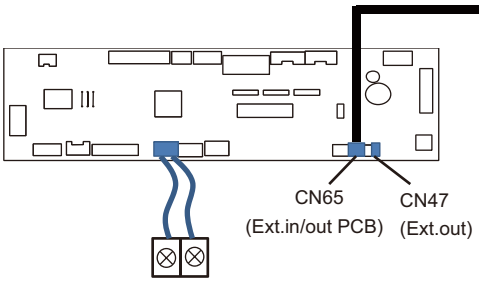


Fig. Indoor unit PCB

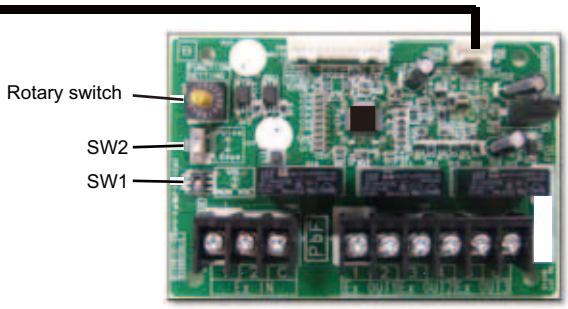


Fig. External input and output PCB

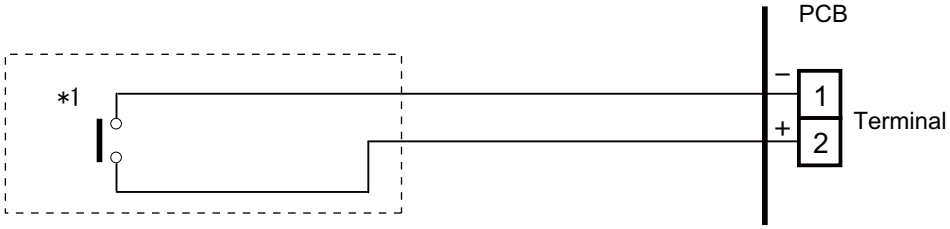
PCB	External input	External output	Connector	Input select	Input signal	External connect kit (Optional parts)
Indoor unit	Operation/Stop Forced stop	-	Terminal	Dry contact	Edge	-
	-	Operation status Error status Indoor unit fan operation status External heater output	CN47	-	-	UTY-XWZXZG
External input and output (UTY-XCSX)	Operation/Stop	-	Input 1/ Input 2	Dry contact/ Apply voltage	Edge/ Pulse	-
	Forced thermostat off		Input 1		Edge	
	-	Operation status Error status Indoor unit status External heater output	Output 1 Output 2 Output 3	-	-	-

10-1. External input

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

■ Indoor unit

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



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

■ External input and output PCB

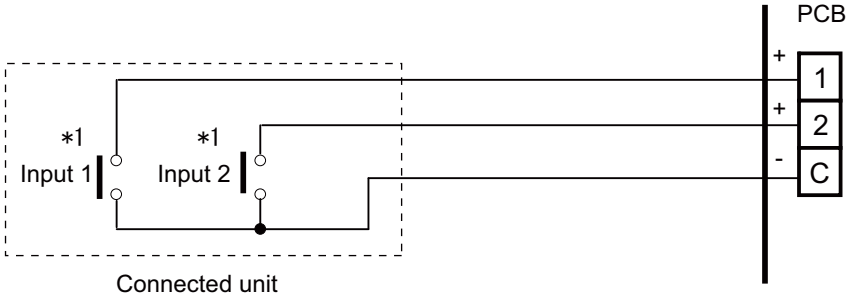
The indoor unit Operation/Stop can be set by using the input terminal on the PCB.

● Input select

Use either one of these types of terminals according to the application. (Both types of terminals cannot be used simultaneously.)

• Dry contact

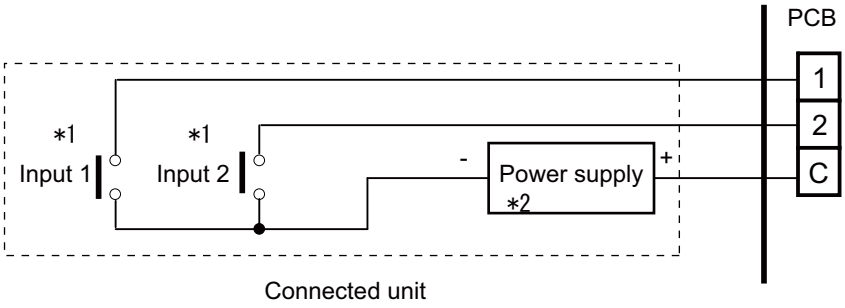
In case of internal power supply, set the slide switch of SW1 to "NON VOL" side.



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

• Apply voltage

In case of external power supply, set the slide switch of SW1 to "VOL" side.



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

*2: Make the power supply DC 12 V to 24 V 10 mA or more.

10-2. External output

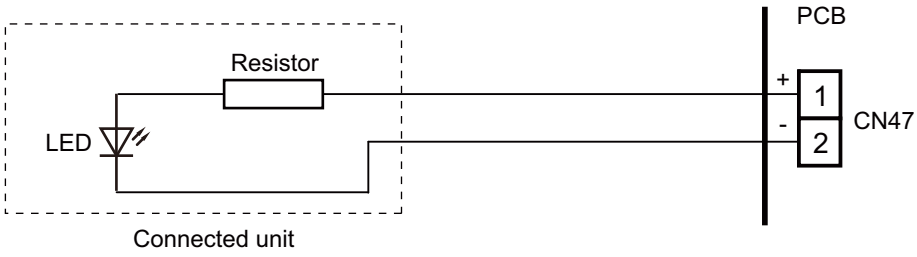
Use an external output cable with appropriate external dimension, depending on the number of cables to be installed.

■ Indoor unit

- A twisted pair cable (22AWG) should be used. Maximum length of cable is 25 m.
- Output voltage: High DC 12 V ± 2 V, Low 0 V.
- Permissible current: 50 mA
- For details, refer to Chapter 10-3. "Combination of external input and output" on page 59.

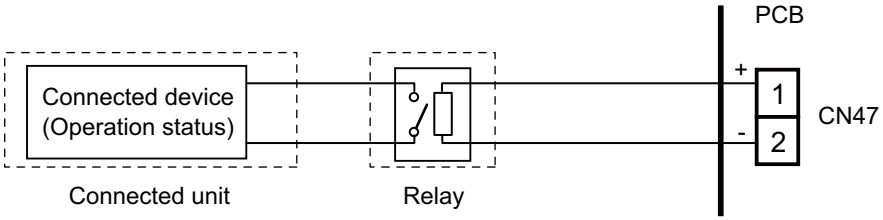
● When indicator, etc. are connected directly

Example: Function setting 60 is set to "00"



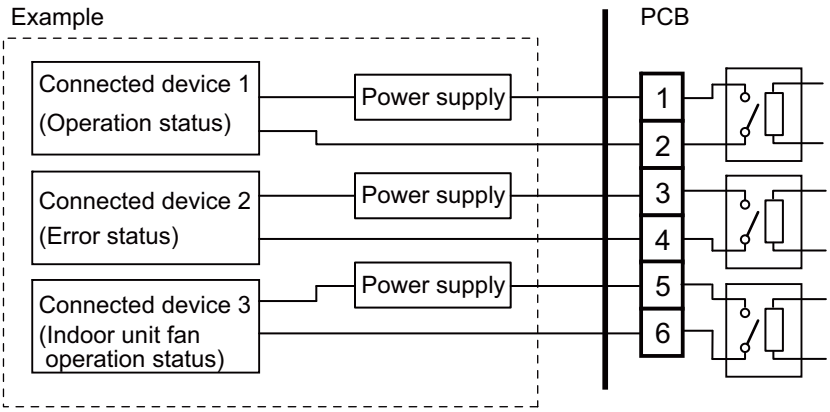
● When connecting with a device equipped with a power supply

Example: Function setting 60 is set to "00"



■ External input and output PCB

- A twisted pair cable (22AWG) should be used.
- Permissible voltage and current: DC 5 V to 30 V / 3 A, AC 30 V to 250 V / 3 A
- For details, refer to Chapter 10-3. "Combination of external input and output" on page 59.



10-3. Combination of external input and output

By combining the function setting of the indoor unit and rotary switch setting of the External input and output PCB, you can select various combinations of functions.

Combination examples of external input and output are as follows:

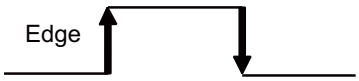
Mode	Function setting	External input and output PCB (Rotary SW)	External input			
			Indoor unit Input	External input and output PCB		
			Terminal	Input 1	Input 2	Signal type
0-1	60-00	1	Operation/Stop	Operation/Stop	Not available	Edge
				Operation	Stop	Pulse
0-2	60-00	2	Operation/Stop	Forced Thermostat OFF	Not available	Edge
1—8	60-01 to 60-08	3 - 9, A	(Setting prohibited)			
9	60-09	B	Operation/Stop	Forced Thermostat OFF	Not available	Edge
10	60-10	C	Operation/Stop	Forced Thermostat OFF	Not available	Edge
11	60-11	D	Operation/Stop	Forced Thermostat OFF	Not available	Edge

Mode	Function setting	External input and output PCB (Rotary SW)	External output			
			Indoor unit Output	External input and output PCB		
			CN47	Output 1	Output 2	Output 3
0-1	60-00	1	Operation/Stop	Operation/Stop	Error status	Indoor unit fan operation status
0-2	60-00	2	Operation/Stop	Error status	Indoor unit fan operation status	External heater output
1—8	60-01 to 60-08	3 - 9, A	(Setting prohibited)			
9	60-09	B	Error status	Operation/Stop	Indoor unit fan operation status	External heater output
10	60-10	C	Indoor unit fan operation status	Operation/Stop	Error status	External heater output
11	60-11	D	External heater output	Operation/Stop	Indoor unit fan operation status	Error status

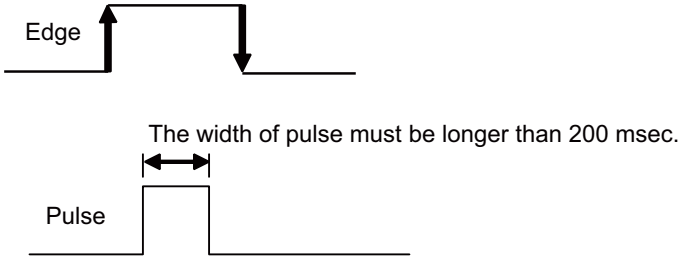
NOTE: Input of Operation/Stop depends on the setting of function setting 46.
00: Operation/Stop mode 1 (R.C. enabled)
01: (Setting prohibited)
02: Forced stop
03: Operation/Stop mode 2 (R.C. disabled)

■ Input signal type

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



- External input and output PCB
  The input signal type can be selected.
  Signal type (edge or pulse) can be switched by the DIP switch 2 (SW2) on the External input and output PCB.



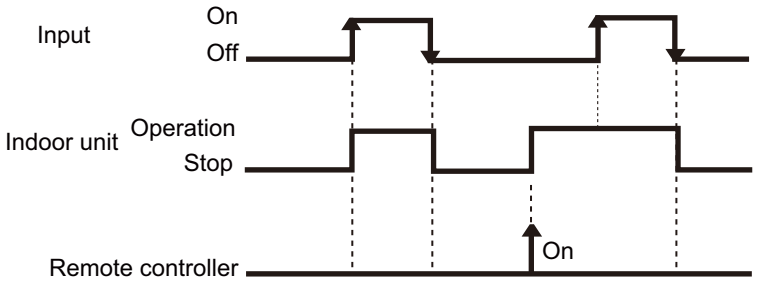
10-4. Details of function

■ Control input function

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

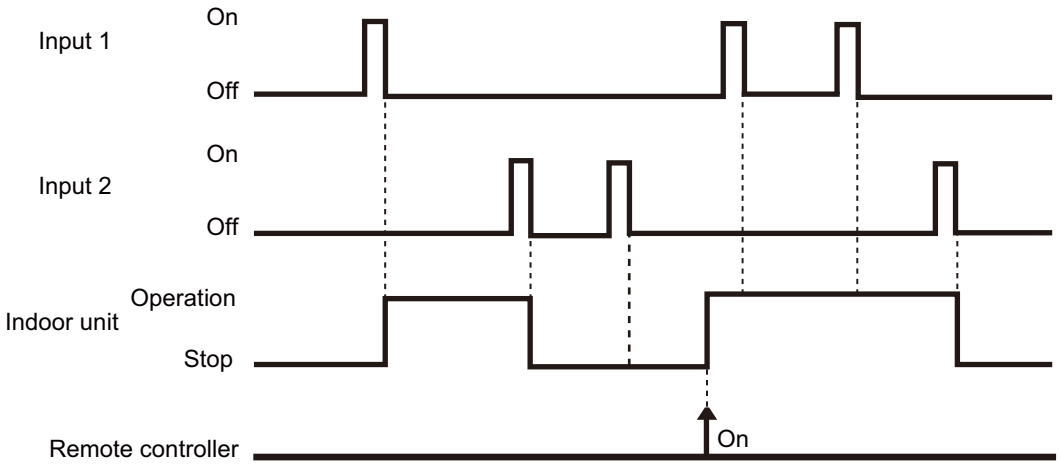
- In the case of "Edge" input

Function setting /	Rotary SW of External input and output PCB	External input		Input signal	Command
46-00	-	Input of indoor unit	Terminal	Off → On	Operation
				On → Off	Stop
	60-00 / 1	External input and output PCB	Input 1	Off → On	Operation
				On → Off	Stop



- In the case of "Pulse" input

Function setting /	Rotary SW of External input and output PCB	External input		Input signal	Command
46-00	60-00 / 1	External input and output PCB	Input 1	Pulse	Operation
			Input 2	Pulse	Stop



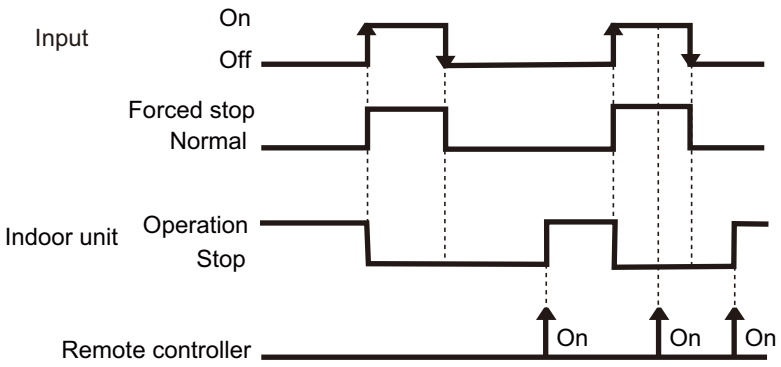
NOTES:

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

● When function setting is "Forced stop" mode

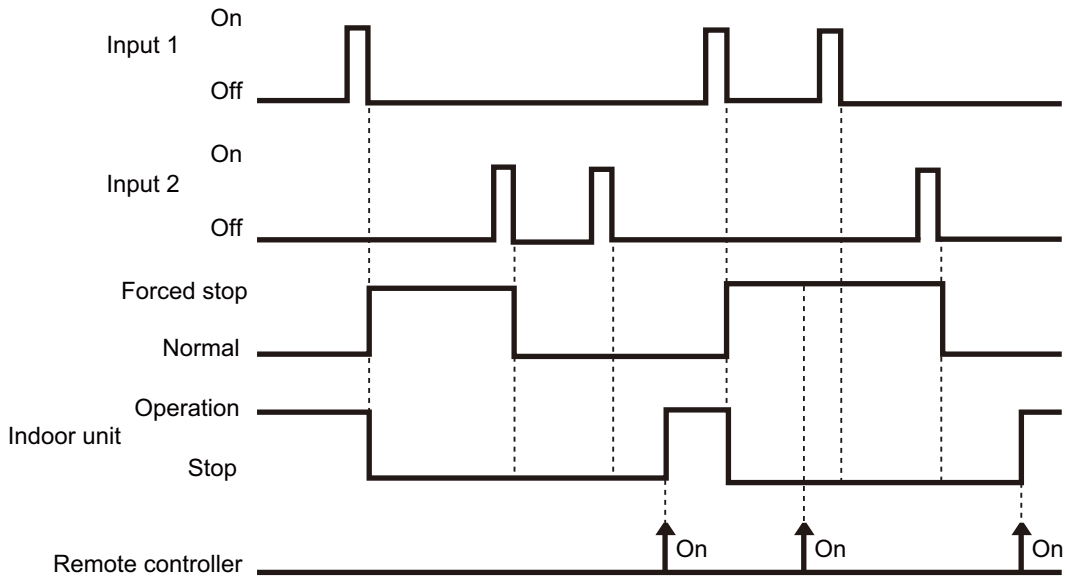
- In the case of "Edge" input

Function setting /	Rotary SW of External input and output PCB	External input		Input signal	Command
46-02	-	Input of indoor unit	Terminal	Off → On	Forced stop
				On → Off	Normal
	60-00 / 1	External input and output PCB	Input 1	Off → On	Forced stop
				On → Off	Normal



- In the case of "Pulse" input

Function setting /	Rotary SW of External input and output PCB	External input		Input signal	Command
46-02	60-00 / 1	External input and output PCB	Input 1	Pulse	Forced stop
			Input 2	Pulse	Normal



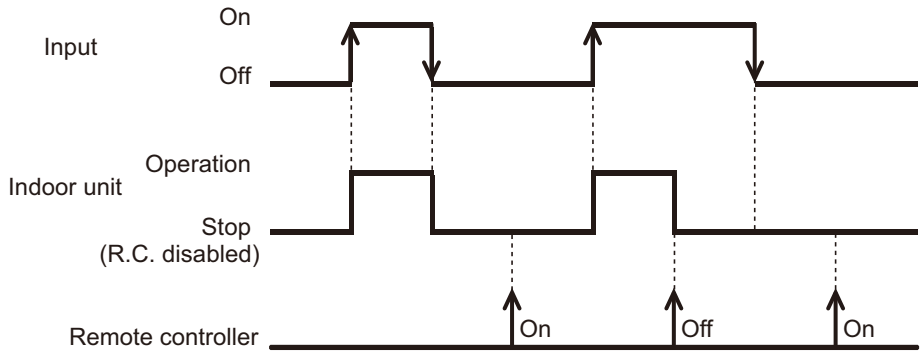
NOTES:

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

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

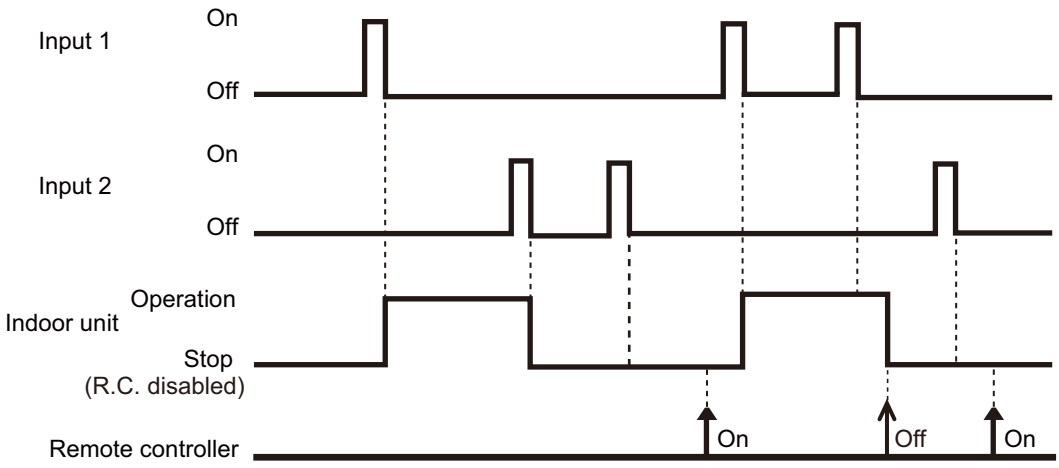
- In the case of "Edge" input

Function setting /	Rotary SW of External input and output PCB	External input		Input signal	Command
46-03	-	Input of indoor unit	Terminal	Off → On	Operation
				On → Off	Stop (R.C. disabled)
	60-00 / 1	External input and output PCB	Input 1	Off → On	Operation
				On → Off	Stop (R.C. disabled)



- In the case of "Pulse" input

Function setting /	Rotary SW of External input and output PCB	External input		Input signal	Command
46-03	60-00 / 1	External input and output PCB	Input 1	Pulse	Operation
			Input 2	Pulse	Stop (R.C. disabled)

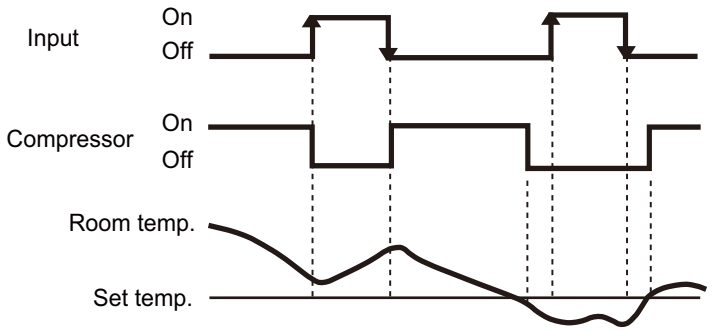


NOTES:

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

■ Forced thermostat off function

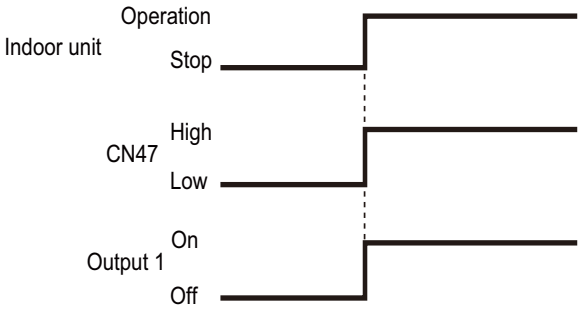
Function setting / Rotary SW of External input and output PCB	External input		Input signal	Command
60-00 / 2 60-09 / B 60-10 / C 60-11 / D	External input and output PCB	Input 1	Off →On	Thermostat off
			On → Off	Normal operation



■ Control output function

Function setting / Rotary SW of External input and output PCB	External output		Output signal	Command
60-00 / 1, 2	Output of indoor unit	CN47	Low → High	Operation
			High → Low	Stop
60-00 / 1 60-09 / B 60-10 / C 60-11 / D	External input and output PCB	Output 1	Off → On	Operation
			On → Off	Stop

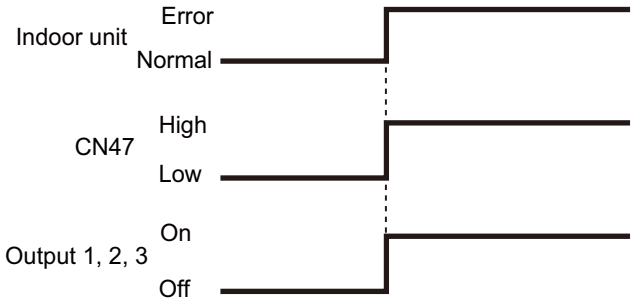
The output is low when the unit is stopped.



■ Error status

Function setting / Rotary SW of External input and output PCB	External output		Output signal	Command
60-09 / B	Output of indoor unit	CN47	Low → High	Error
			High → Low	Normal
60-00 / 2	External input and output PCB	Output 1	Off → On	Error
			On → Off	Normal
60-00 / 1 60-10 / C		Output 2	Off → On	Error
			On → Off	Normal
60-11 / D		Output 3	Off → On	Error
			On → Off	Normal

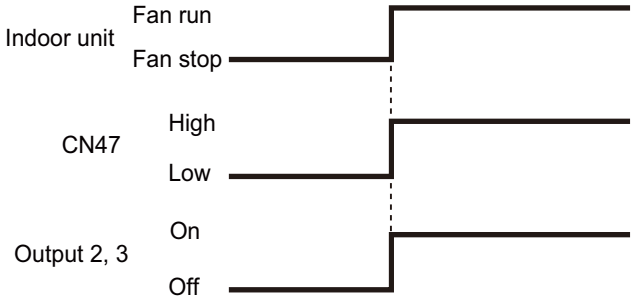
The output is ON when an error is generated for the indoor unit.



■ Indoor unit fan operation status

Function setting / Rotary SW of External input and output PCB	External output		Output signal	Command
60-10 / C	Output of indoor unit	CN47	Low → High	Fan run
			High → Low	Fan stop
60-00 / 2 60-09 / B 60-11 / D	External input and output PCB	Output 2	Off → On	Fan run
			On → Off	Fan stop
60-00 / 1		Output 3	Off → On	Fan run
			On → Off	Fan stop

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



■ External heater output

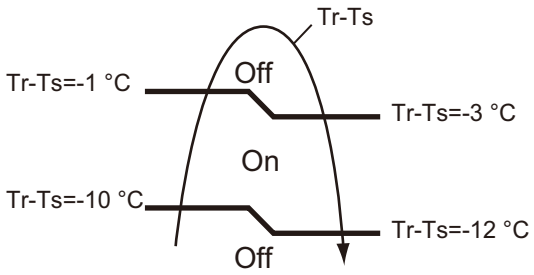
Function setting /	Rotary SW of External input and output PCB	External output		Output signal	Command
60-11 / D		Output of indoor unit	CN47	Low → High	Heater on
				High → Low	Heater off
60-00 / 2 60-09 / B 60-10 / C		External input and output PCB	Output 3	Off → On	Heater on
				On → Off	Heater off

Output signal	Condition
Low → High Off → On	Heater turns on as shown in diagram of heating temperature
High → Low On → Off	Heater turns off as shown in diagram of heating temperature • Other than Heating mode • Error occurred • Forced thermo off • Fan stop protection

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

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

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



The output also turns off in defrost operation.

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 on indoor unit

■ Models: ARYG12LHTBP, ARYG14LHTB, ARYG18LHTBP, ARYG24LHTBP, ARYG30LHTBP, ARYG36LHTBP, ARYG45LHTBP, and ARYG54LHTBP

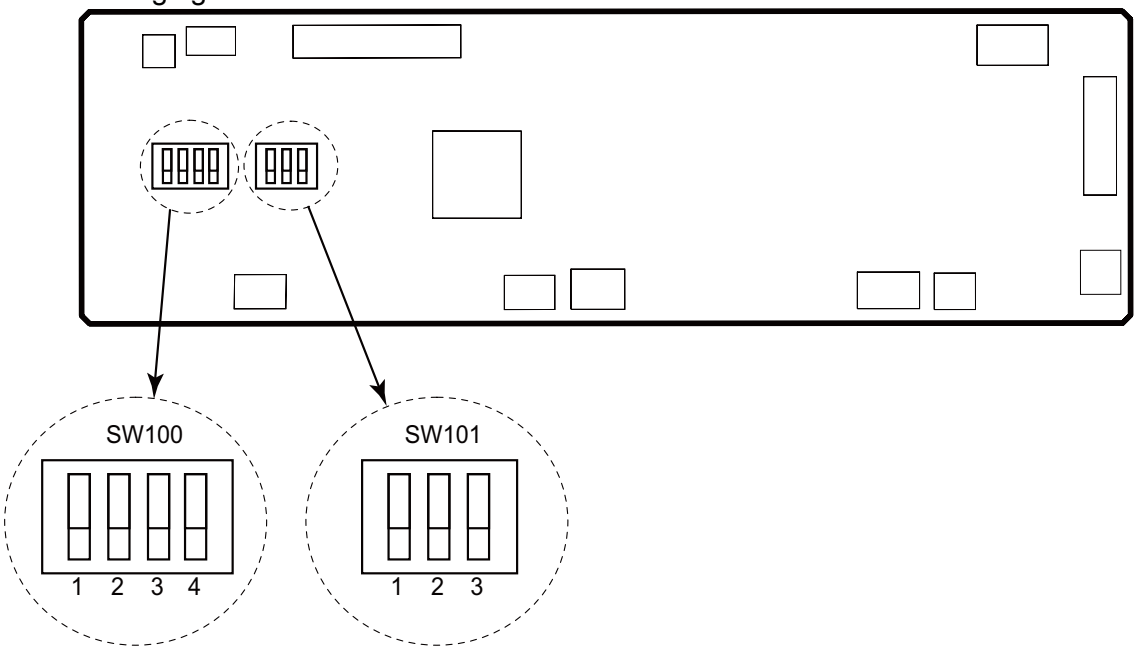
By using some components on the PCB, you can change the function settings.

Related components on the PCB and the applicable settings

Component		Setting content
DIP switch100	1	Remote controller address setting
	2	
	3	
	4	
DIP switch101	1	Setting change prohibited
	2	Setting change prohibited
	3	Fan delay setting

● Component location

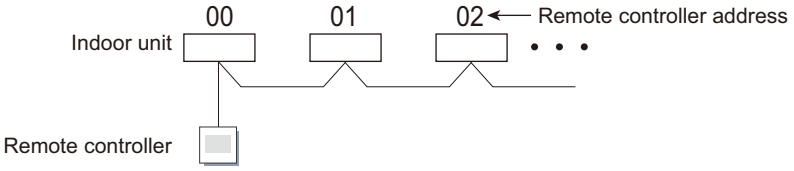
Components on the indoor unit main PCB used for the function settings are located as shown in the following figure.



● DIP switch setting

- **Remote controller address setting (SW100)**
  When operating a number of indoor units by using a wired remote controller, DIP switch setting for assigning unit number to each indoor unit is required.
  DIP switches are normally set to make the unit number 00.

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



- **Switch 1: Setting change prohibited (SW101)**
- **Switch 2: Setting change prohibited (SW101)**
- **Switch 3: Fan delay setting (SW101)**
  When the indoor unit is stopped while operating in conjunction with auxiliary heater, the indoor unit fan operation will continue for 1 minute.

Switch 3	Fan delay	Factory setting
ON	Enabled	
OFF	Disabled	♦

11-2. Function settings by using remote controller

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

NOTE: Incorrect settings can cause a product malfunction.

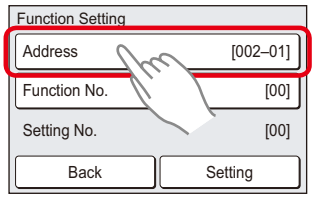
■ Setting procedure by using wired remote controller

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 turning on the power of the indoor unit, reconfirm following items:

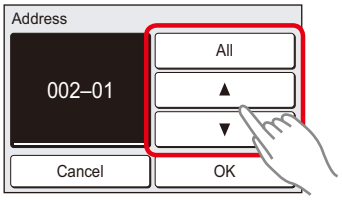
- Piping air tight test and vacuuming have been performed firmly.
- There is no wiring mistake.

1. Turn on the power.
2. Touch the “Function Setting” on the “Maintenance” screen. The “Function Setting” screen is displayed. Then touch the “Address” on the “Function Setting” screen.

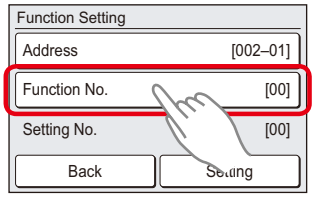


3. “Address” screen is displayed. Select the address of the indoor unit whose function number is to be set by touching ▲ or ▼. When setting at all the indoor units, touch “All”.

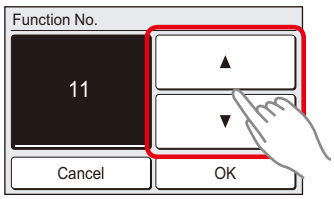
NOTE: Perform this step only when the remote controller address setting is required. Otherwise, skip this step.



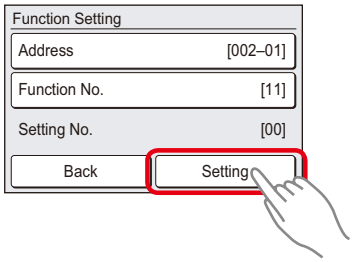
4. Touch the “Function No.” on the “Function Setting” screen.



5. “Function No.” screen is displayed. Set the function number “11” by touching ▲ or ▼. When the “OK” is touched, the display returns to the “Function Setting” screen.

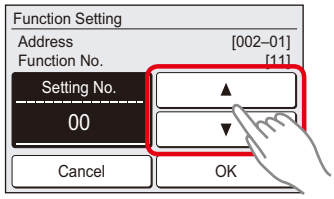


6. Touch the “Setting” on the “Function Setting” screen.

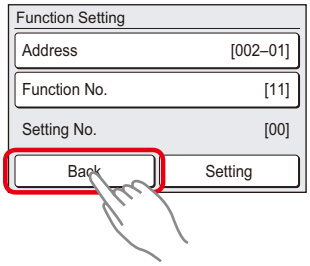


7. Setting screen of “Setting No.” is displayed. Set the setting number by touching ▲ or ▼. (The setting range is from 00 to 99.) When the “OK” is touched, the “Function Setting” verification screen is displayed.

Example: When configuring the setting number of filter sign.



8. When the “Back” on the “Function Setting” screen is touched, the display returns to the “Maintenance” screen.



9. After completing the function setting, be sure to turn off the power and turn it on again.

⚠CAUTION

After turning off the power, wait 30 seconds or more before turning on the power again. The function setting will not become active unless the power is turned off then on again.

■ Contents of function setting

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

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

● Function setting list

	Function no.	Functions
1)	11	Filter sign
2)	26	Static pressure
3)	30/31	Room temperature control for indoor unit sensor
4)	35/36	Room temperature control for wired remote controller sensor
5)	40	Auto restart
6)	42	Room temperature sensor switching
7)	43	Cold air prevention
8)	44	Remote controller custom code
9)	46	External input control
10)	48	Room temperature sensor switching (Aux.)
11)	49	Indoor unit fan control for energy saving for cooling
12)	60	Switching functions for external output terminal

1) Filter sign

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

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

Function number	Setting value	Setting description	Factory setting
11	00	Standard (2,500 hours)	
	01	Long interval (4,400 hours)	
	02	Short interval (1,250 hours)	
	03	No indication	♦

2) Static pressure

Select the appropriate static pressure according to the installation conditions.

Function number	Setting value	Setting description	Factory setting
26	03	30 Pa	
	04	40 Pa	
	05	50 Pa	
	06	60 Pa	
	07	70 Pa	
	08	80 Pa	
	09	90 Pa	
	10	100 Pa	
	11	110 Pa	
	12	120 Pa	
	13	130 Pa	
	14	140 Pa	
	15	150 Pa	
	16	160 Pa	
	17	170 Pa	
	18	180 Pa	
	19	190 Pa	
	20	200 Pa	
	31	Standard (35 Pa: 12, 14, 18, 24 type) Standard (47 Pa: 30, 36 type) Standard (60 Pa: 45, 54 type)	♦
	32	Automatic airflow adjustment	

NOTE: Range of static pressure is different by model.
If the static pressure is set above maximum range, the setting will be the same as the maximum.
Example:
For 45, 54 type models, setting "170 Pa" (17) to "200 Pa" (20) will be the same as "160 Pa" (16).
For details, refer to Chapter 7. "Fan performance curve" on page 28.

Type name	Setting of static pressure range
12, 14, 18, 24, 30 type, and 36 type	30 to 200 Pa
45 and 54 type	30 to 160 Pa

3) Room temperature control for indoor unit sensor

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

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

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

4) Room temperature control for wired remote controller sensor

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

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

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

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

5) Auto restart

Enables or disables automatic restart after a power interruption.

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

NOTE: Auto restart is an emergency function such as for power outage etc. Do not attempt to use this function in normal operation. Be sure to operate the unit by remote controller or external device.

6) Room temperature sensor switching

(Only for wired remote controller)

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

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

00: Sensor on the indoor unit is active.

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

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

7) Cold air prevention

This setting is to disable the cold air prevention function during heating operation. When disabled, the fan setting will always follow the setting on the remote controller. (Excluding defrost mode)

Function number	Setting value	Setting description	Factory setting
43	00	Enable	♦
	01	Disable	

8) 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	

9) External input control

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

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

10) 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).

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

11) Indoor unit fan control for energy saving for cooling

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

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

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

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

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

NOTES:

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

12) Switching functions for external output terminal

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

Function number	Setting value	Setting description	Factory setting
60	00	Operation status	♦
	01 - 08	(Setting prohibited)	
	09	Error status	
	10	Indoor unit fan operation status	
	11	External heater	

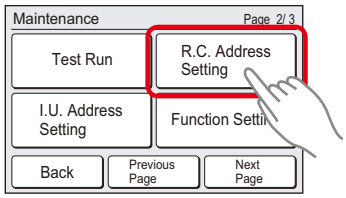
12. Wired remote controller (Touch panel)

12-1. Remote controller address setting

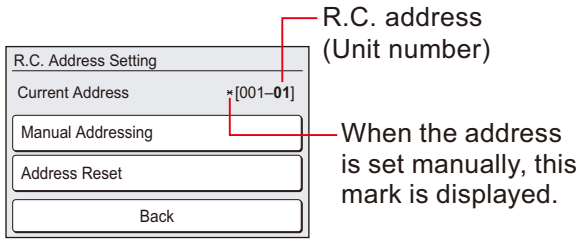
■ How to confirm the remote controller address

NOTE: The address of this remote controller is set automatically. Do not change the indoor unit remote controller address from the factory setting "0". (Verify that the address is "0".)

1. When the [RC Address Setting] on the “Maintenance” screen is touched, the “Installer Password Verification” screen is displayed.



2. Enter the installer password, and touch the [OK]. “R.C. Address Setting” screen is displayed. The address of this unit is displayed on the “R.C. Address Setting” screen.

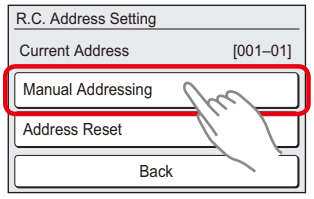


3. When the [Back] is touched, the display returns to the “Maintenance” screen.

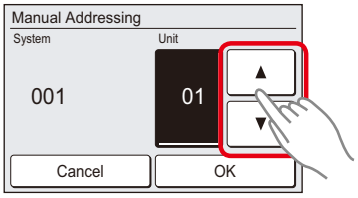
■ How to set the remote controller address manually

NOTE: Perform manual address setting only when setting the address with an arbitrary number. Indoor unit remote controller address setting is necessary.

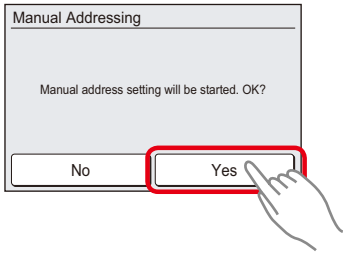
1. Touch the [Manual Addressing] on the “R.C. Address Setting” screen.



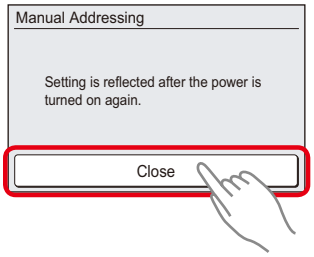
2. “Manual Addressing” screen is displayed. Set the address with [▲] or [▼]. When the [OK] is touched, a verification screen is displayed.



3. When the [Yes] on the verification screen is touched, a message screen is displayed.



4. When the [Close] on the message screen is touched, the display returns to the “R.C. Address Setting” screen. Turn on the power again.

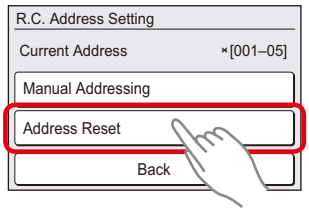


NOTES:

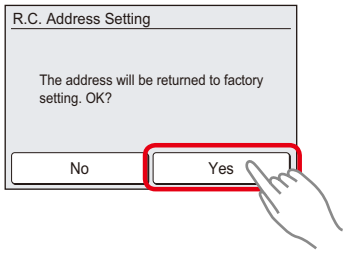
- Indoor unit remote controller address setting is necessary.
- Set the remote controller address of indoor units connected by the same remote controller cable within a range of 1 to 9 and A (10) to F(15) so that there is no duplication. (Do not set to "0".)
- The address of remote controller is set within a range of 1 to 32, but set it so that it does not duplicate the remote controller address of an indoor unit connected by the same remote controller cable.

■ How to reset the manual address setting number

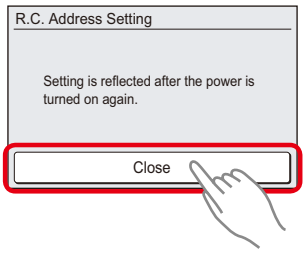
1. Touch the [Address Reset] on the “R.C. Address Setting” screen.



2. A verification screen is displayed. When the [Yes] is touched, a verification screen is displayed.

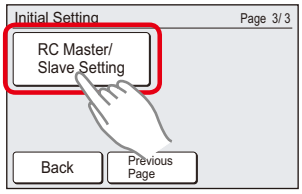


3. When the [Close] on the message screen is touched, the display returns to the “R.C. Address Setting” screen. Turn on the power again.

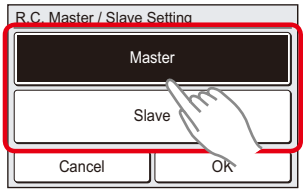


12-2. Remote controller master/slave setting

1. Touch the [RC Master/Slave Setting] on the “Initial Setting” screen.



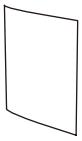
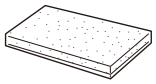
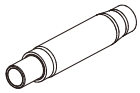
2. “RC Master/Slave Setting” screen is displayed. Select the [Master] or [Slave].



NOTES:

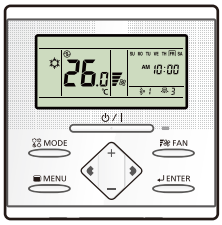
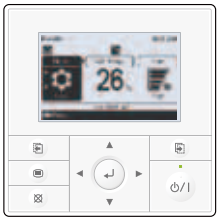
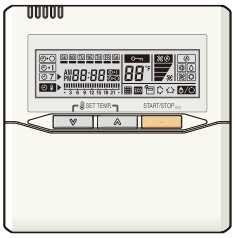
- Set only one Master remote controller. Units specified other than [Master] are set to [Slave] automatically.
- Do not perform “RC Mater/Slave Setting” during setting or operating from the Master remote controller.

13. Accessories

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Operating manual		1	Coupler heat insulation (large)		1
Operating manual (CD-ROM)		1	Coupler heat insulation (small)		1
Web site manual		1	Cable tie		large 4
Operating manual (remote controller)		1			medium 1
Installation manual (indoor unit)		1			small 1
Installation manual (remote controller)		1	Remote controller		1
Special nut A (large flange)		4	Remote controller accessories (WEC type)		1 set
Special nut B (small flange)		4	Drain hose insulation		1
Washer		8	Drain hose		1
			Hose band		1

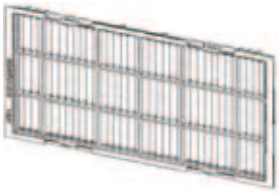
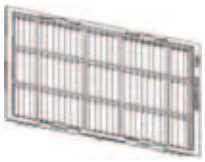
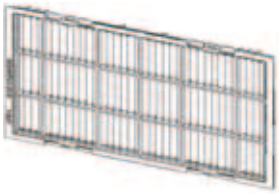
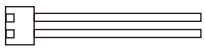
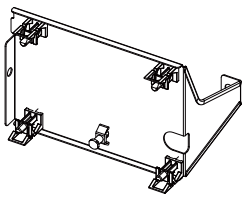
14. Optional parts

14-1. Controllers

Exterior	Part name	Model name	Summary
	Wired remote controller	UTY-RNRYZ1	Easy finger touch operation with LCD panel. Backlit LCD enables easy operation in a dark room. Wire type: Non-polar 2-wire
	Wired remote controller	UTY-RLRY	High visibility and easy operation. Room temperature can be accurately controlled using the built-in thermo sensor. Wire type: Non-polar 2-wire
	Wired remote controller	UTY-RVNYM	Large and full-dot liquid crystal screen, wide and large keys easy to press, user-intuitive arrow key. Wire type: Polar 3-wire
	Wired remote controller	UTY-RNNYM	Room temperature can be controlled by detecting the temperature accurately with built-in thermo sensor. Wire type: Polar 3-wire
	Simple remote controller	UTY-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
	IR receiver unit	UTY-LBTYM	Unit control is performed by wireless remote controller.

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

14-2. Others

Exterior	Part name	Model name	Summary
	Remote sensor unit	UTY-XSZX	New amenity space can be offered by installing Remote sensor unit in the remote controller.
	Long-life filter	UTD-LFNC	Long-life filter can be mounted to the indoor unit. (For 12 and 14 models)
	Long-life filter	UTD-LFNB	Long-life filter can be mounted to the indoor unit. (For 18, 24, and 30 models)
	Long-life filter	UTD-LFNA	Long-life filter can be mounted to the indoor unit. (For 36, 45, and 54 models)
	External connect kit	UTY-XWZXZG	Use to connect with various peripheral devices and air conditioner PCB. For control output port.
	External input and output PCB	UTY-XCSX	Use to connect with external devices and air conditioner PCB.
	External input and output PCB bracket	UTZ-GXNA	For installing the External input and output PCB.

Part 2. OUTDOOR UNIT

SINGLE TYPE:

AOYG12LBLA
AOYG14LBLA
AOYG18LBCA
AOYG24LBCA
AOYG30LBTA
AOYG36LBTA
AOYG45LBTA
AOYG54LBTA

1. Specifications

1-1. Models: AOYG12LBLA and AOYG14LBLA

Type				Inverter heat pump	
Model name				**AOYG12LBLA**	**AOYG14LBLA**
Power supply				230 V ~ 50 Hz	
Available voltage range				198—264 V	
Starting current			A	4.7	5.7
Fan	Airflow rate	Cooling	m^3/h	1,780	1,910
		Heating		1,630	1,740
	Type × Q'ty			Propeller × 1	
	Motor output		W	40	
Sound pressure level *1		Cooling	dB (A)	47	49
		Heating		48	49
Sound power level		Cooling	dB (A)	60	64
		Heating		61	63
Heat exchanger type		Dimensions (H × W × D)	mm	Main:546 × 876 × 18.2 Sub:546 × 842 × 18.2	
		Fin pitch		1.30	
		Rows × Stages		2 × 26	
		Pipe type		Copper	
		Fin	Type (Material)	Corrugate (Aluminum)	
			Surface treatment	Hydrophilic coating	
Compressor	Type × Q'ty			Twin rotary × 1	
	Motor output		W	1,100	
Refrigerant		Type		R410A	
		Factory charge	g	1,150	1,250
Refrigerant oil		Type		POE (VG74)	
		Amount	cm^3	450	
Enclosure		Material		Steel	
		Color		Beige Approximate color of MUNSELL 10YR7.5/1.0	
Dimensions (H × W × D)	Net		mm	578 × 790 × 300	
	Gross			648 × 910 × 380	
Weight	Net		kg	40	
	Gross			44	
Connection pipe	Size	Liquid	mm (in)	Ø 6.35 (Ø 1/4)	Ø 6.35 (Ø 1/4)
		Gas		Ø 9.52 (Ø 3/8)	Ø 12.70 (Ø 1/2)
	Method			Flare	
	Pre-charge length		m	15	
	Max. length			25	
	Max. height difference			15	
Operation range		Cooling	°C	-10 to 46	
		Heating		-15 to 24	

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.

1-2. Models: AOYG18LBCA and AOYG24LBCA

Type				Inverter heat pump	
Model name				**AOYG18LBCA**	**AOYG24LBCA**
Power supply				230 V ~ 50 Hz	
Available voltage range				198—264 V	
Starting current			A	6.6	9.7
Fan	Airflow rate	Cooling	m^3/h	1,900	2,460
		Heating		1,700	2,340
	Type × Q'ty			Propeller × 1	
	Motor output		W	49	
Sound pressure level *1		Cooling	dB (A)	50	55
		Heating		51	56
Sound power level		Cooling	dB (A)	63	68
		Heating		62	68
Heat exchanger type		Dimensions (H × W × D)	mm	Main:588 × 881 × 36.4 Sub:546 × 580 × 18.2	
		Fin pitch		1.45	
		Rows × Stages		Main:2 × 28 Sub:1 × 26	
		Pipe type		Copper	
		Fin	Type (Material)	Corrugate (Aluminum)	
			Surface treatment	Hydrophilic coating (Blue fin)	
Compressor	Type × Q'ty			Twin rotary × 1	
	Motor output		W	1,100	
Refrigerant		Type		R410A	
		Factory charge	g	1,800	
Refrigerant oil		Type		POE (RB68)	
		Amount	cm^3	600	
Enclosure		Material		Steel	
		Color		Beige Approximate color of MUNSELL 10YR7.5/1.0	
Dimensions (H × W × D)	Net		mm	620 × 790 × 290	
	Gross			713 × 945 × 395	
Weight	Net		kg	41	
	Gross			45	
Connection pipe	Size	Liquid	mm (in)	Ø 6.35 (Ø 1/4)	Ø 6.35 (Ø 1/4)
		Gas		Ø 12.7 (Ø 1/2)	Ø 15.88 (Ø 5/8)
	Method			Flare	
	Pre-charge length		m	15	
	Max. length			30	
	Max. height difference			20	
Operation range		Cooling	°C	-15 to 46	
		Heating		-15 to 24	

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.

1-3. Models: AOYG30LBTA and AOYG36LBTA

Type				Inverter heat pump	
Model name				**AOYG30LBTA**	**AOYG36LBTA**
Power supply				230 V ~ 50 Hz	
Available voltage range				198—264 V	
Starting current			A	11.8	13.4
Fan	Airflow rate	Cooling	m^3/h	3,600	3,800
		Heating		3,600	3,800
	Type × Q'ty			Propeller × 1	
	Motor output		W	100	
Sound pressure level *1		Cooling	dB (A)	53	54
		Heating		55	55
Sound power level		Cooling	dB (A)	68	69
		Heating		69	70
Heat exchanger type		Dimensions (H × W × D)	mm	798 × 900 × 36.4	
		Fin pitch		1.3	
		Rows × Stages		2 × 38	
		Pipe type		Copper	
		Fin	Type (Material)	Corrugate (Aluminum)	
			Surface treatment	Hydrophilic coating (Blue fin)	
Compressor	Type × Q'ty			Twin rotary × 1	
	Motor output		W	2,100	
Refrigerant		Type		R410A	
		Factory charge	g	2,100	
Refrigerant oil		Type		POE (RB68)	
		Amount	cm^3	800	
Enclosure		Material		Steel	
		Color		Beige Approximate color of MUNSELL 10YR7.5/1.0	
Dimensions (H × W × D)	Net		mm	830 × 900 × 330	
	Gross			1,000 × 1,050 × 445	
Weight	Net		kg	61	
	Gross			69	
Connection pipe	Size	Liquid	mm (in)	Ø 9.52 (Ø 3/8)	
		Gas		Ø 15.88 (Ø 5/8)	
	Method			Flare	
	Pre-charge length		m	20	
	Max. length			50	
	Max. height difference			30	
Operation range		Cooling	°C	-15 to 46	
		Heating		-15 to 24	

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.

1-4. Models: AOYG45LBTA and AOYG54LBTA

Type				Inverter heat pump	
Model name				**AOYG45LBTA**	**AOYG54LBTA**
Power supply				230 V ~ 50 Hz	
Available voltage range				198—264 V	
Starting current			A	15.7	20.2
Fan	Airflow rate	Cooling	m^3/h	6,750	6,750
		Heating		6,200	6,850
	Type × Q'ty			Propeller × 2	
	Motor output		W	100 × 2	
Sound pressure level *1		Cooling	dB (A)	55	55
		Heating		55	57
Sound power level		Cooling	dB (A)	68	69
		Heating		68	71
Heat exchanger type		Dimensions (H × W × D)	mm	1,260 × 900 × 36.4	
		Fin pitch		1.3	
		Rows × Stages		2 × 60	
		Pipe type		Copper	
		Fin	Type (Material)	Corrugate (Aluminum)	
			Surface treatment	Hydrophilic coating (Blue fin)	
Compressor	Type × Q'ty			Twin rotary × 1	
	Motor output		W	2,100	
Refrigerant		Type		R410A	
		Factory charge	g	3,350	
Refrigerant oil		Type		POE (RB68)	
		Amount	cm^3	800	
Enclosure		Material		Steel	
		Color		Beige Approximate color of MUNSELL 10YR7.5/1.0	
Dimensions (H × W × D)	Net		mm	1,290 × 900 × 330	
	Gross			1,460 × 1,050 × 445	
Weight	Net		kg	86	
	Gross			95	
Connection pipe	Size	Liquid	mm (in)	Ø 9.52 (Ø 3/8)	
		Gas		Ø 15.88 (Ø 5/8)	
	Method			Flare	
	Pre-charge length		m	20	
	Max. length			50	
	Max. height difference			30	
Operation range		Cooling	°C	-15 to 46	
		Heating		-15 to 24	

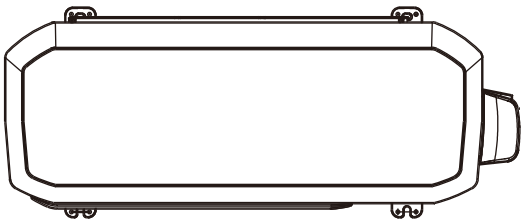
NOTES:

- Specifications are based on the following conditions:
  - –Cooling: Indoor temperature of 27 °CDB/19 °CWB, and outdoor temperature of 35 °CDB/24 °CWB.
  - –Heating: Indoor temperature of 20 °CDB/15 °CWB, and outdoor temperature of 7 °CDB/6 °CWB.
  - –Pipe length: 5 m, Height difference: 0 m.
- Protective function might work when using it outside the operation range.
- *1: Sound pressure level
  - –Measured values in manufacturer's anechoic chamber.
  - –Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

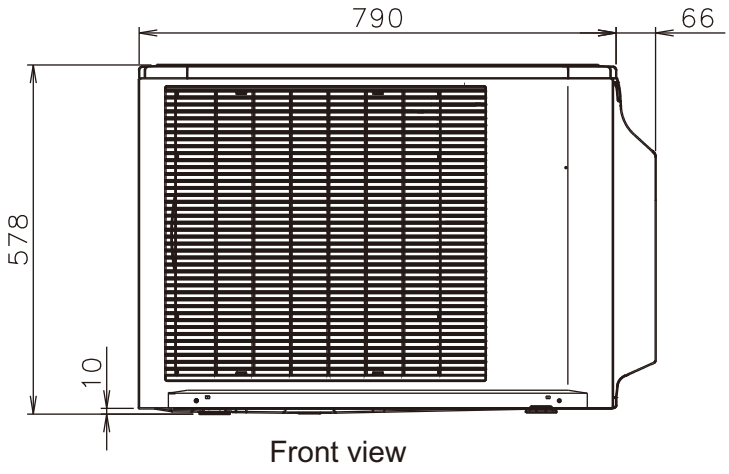
2. Dimensions

2-1. Models: AOYG12LBLA and AOYG14LBLA

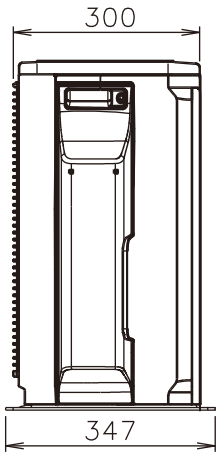
Unit : mm



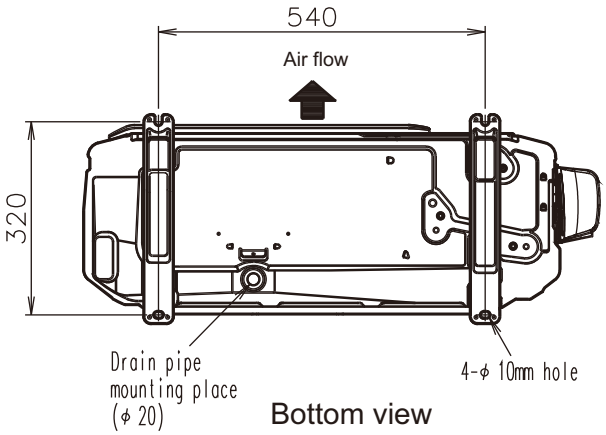
Top view



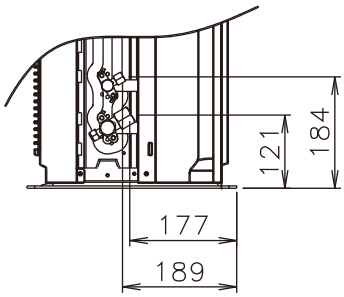
Front view



Side view

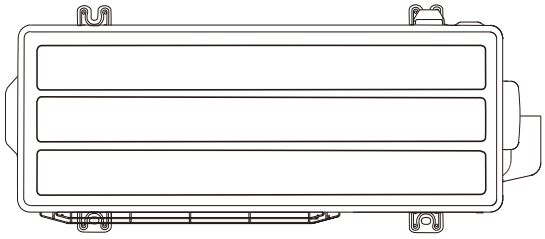


Bottom view

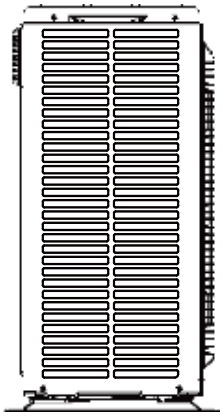


2-2. Models: AOYG18LBCA and AOYG24LBCA

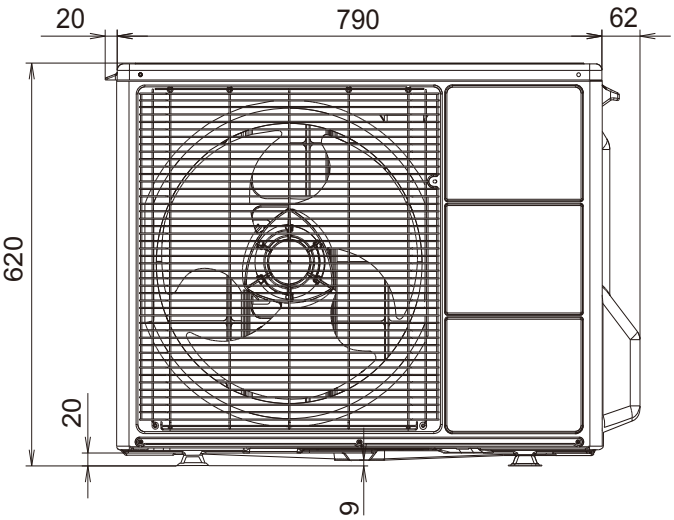
Unit : mm



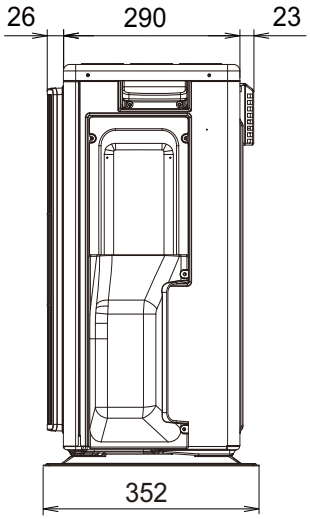
Top view



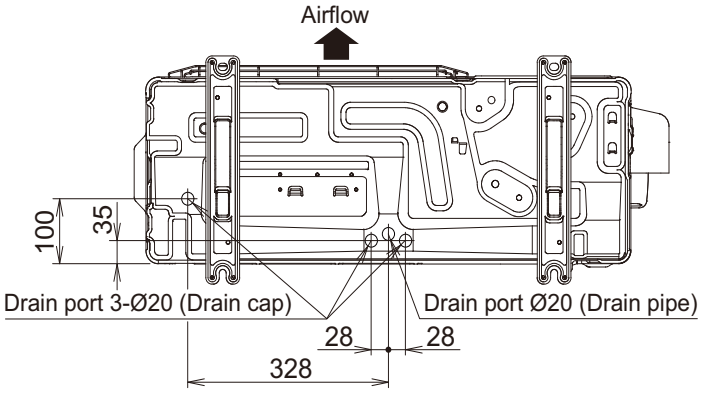
Side view



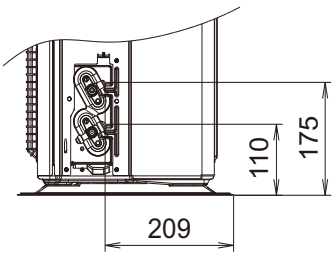
Front view



Side view

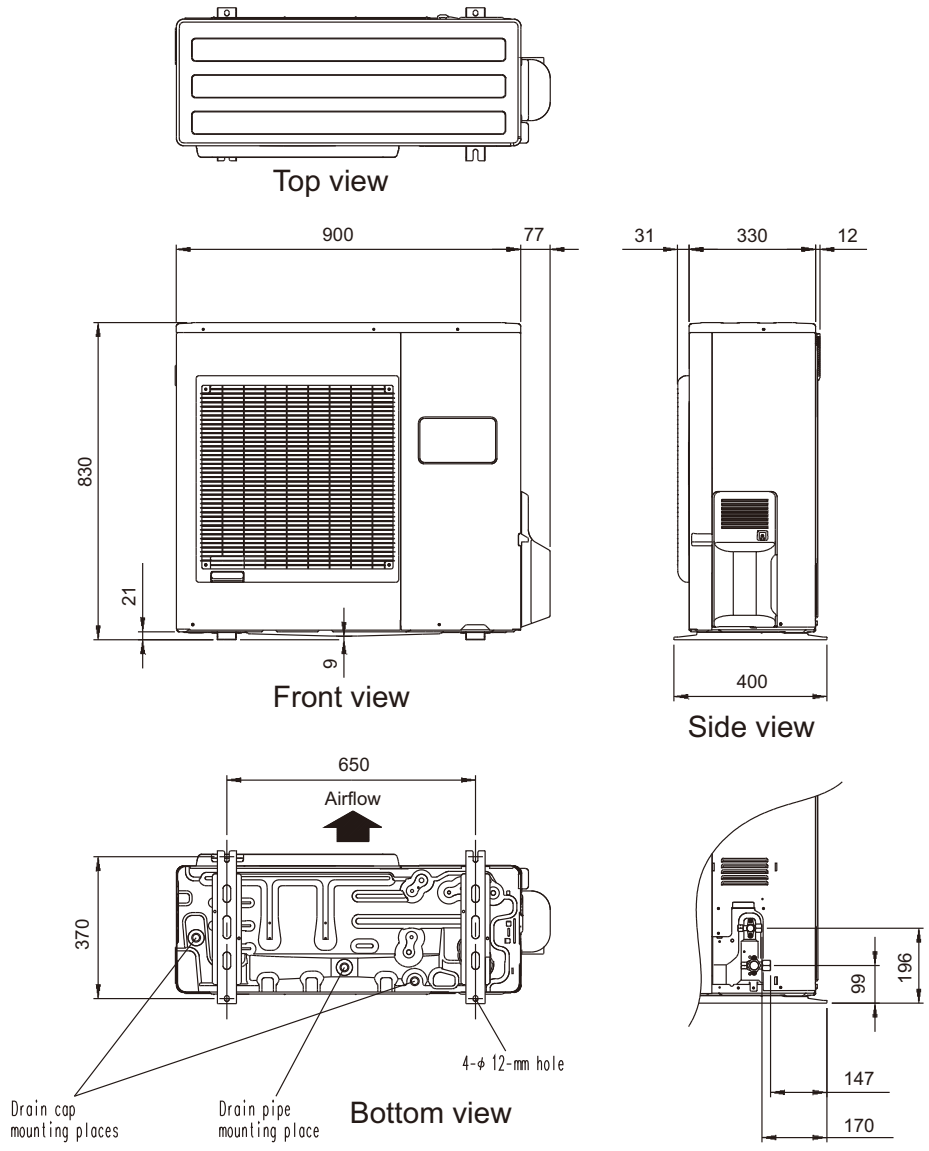


Bottom view



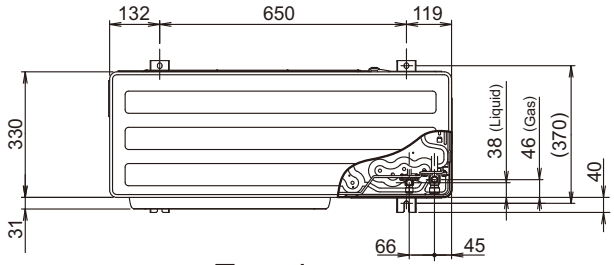
2-3. Models: AOYG30LBTA and AOYG36LBTA

Unit : mm

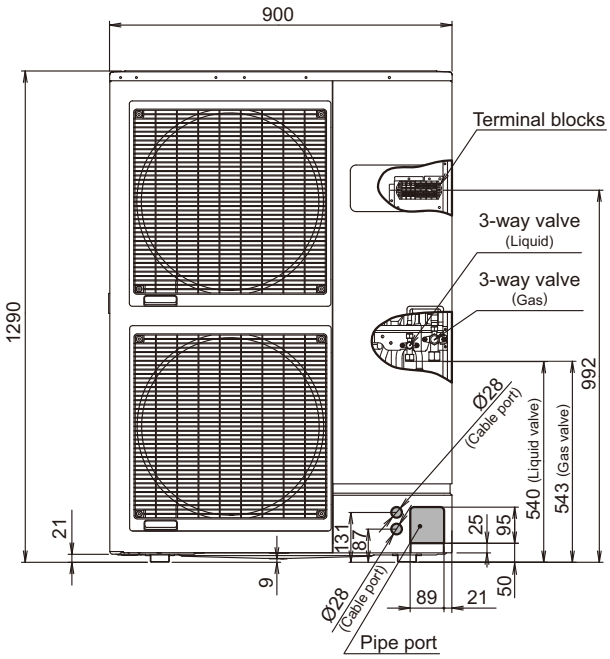


2-4. Models: AOYG45LBTA and AOYG54LBTA

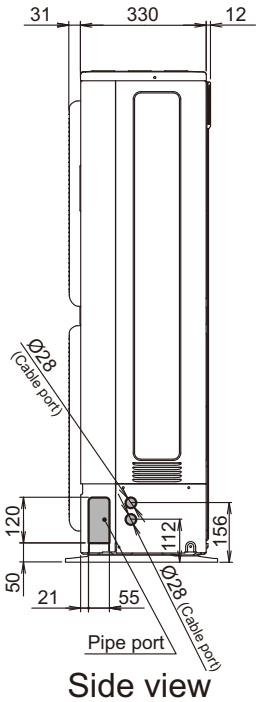
Unit: mm



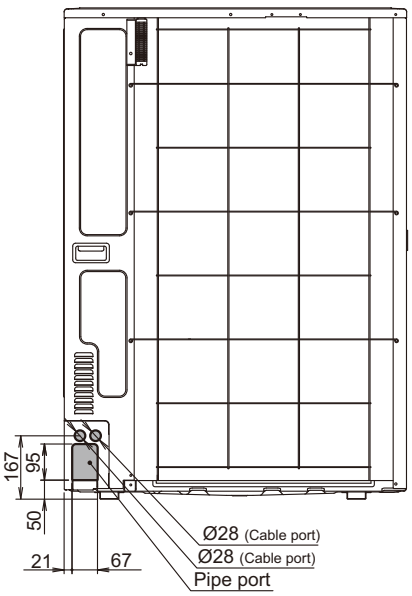
Top view



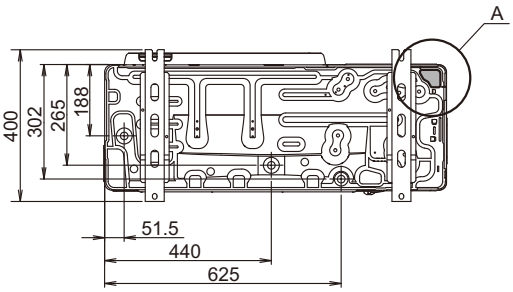
Front view



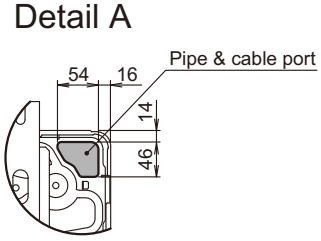
Side view



Rear view



Bottom view



3. Installation space

3-1. Models: AOYG12LBLA, AOYG14LBLA, AOYG18LBCA, and AOYG24LBCA

■ Space requirement

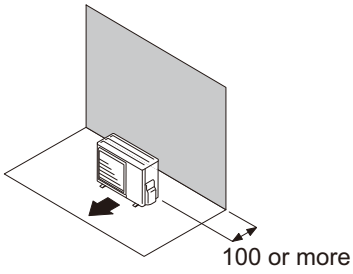
Provide sufficient installation space for product safety.

● Single outdoor unit installation

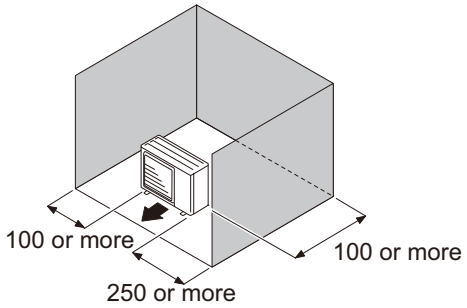
- **When the upper space is open:**

Unit: mm

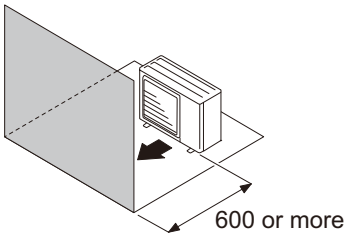
When there are obstacles at the rear only.



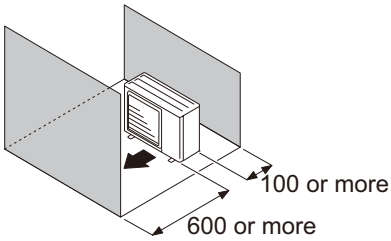
When there are obstacles at the rear and sides.



When there are obstacles at the front only.



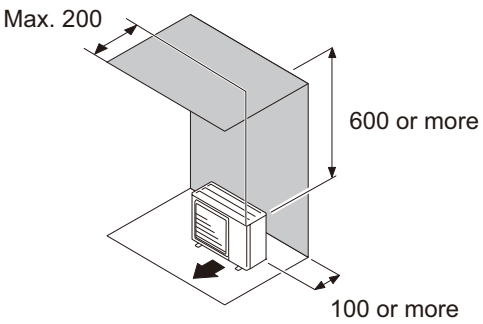
When there are obstacles at the front and rear.



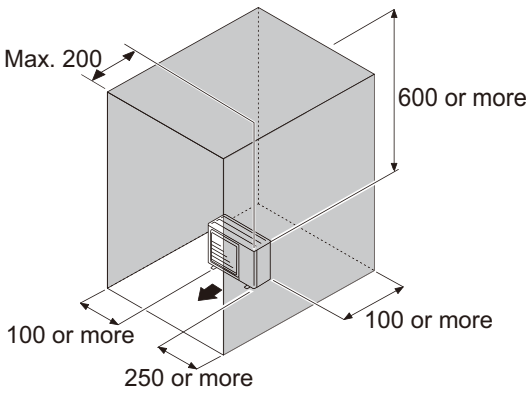
- **When there is an obstruction in the upper space:**

Unit: mm

When there are obstacles at the rear and above.



When there are obstacles at the rear, sides, and above.

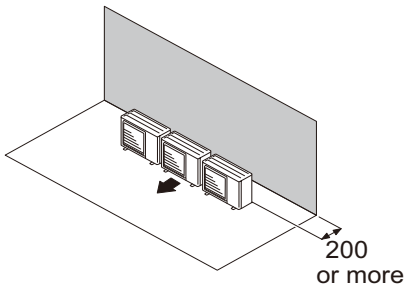


● Multiple outdoor unit installation

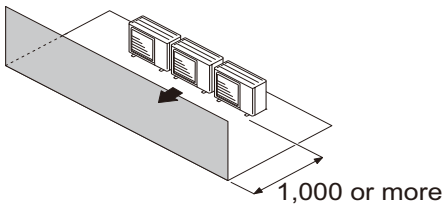
- **When the upper space is open:**

Unit: mm

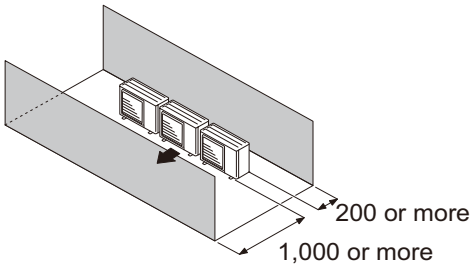
When there are obstacles at the rear only.



When there are obstacles at the front only.



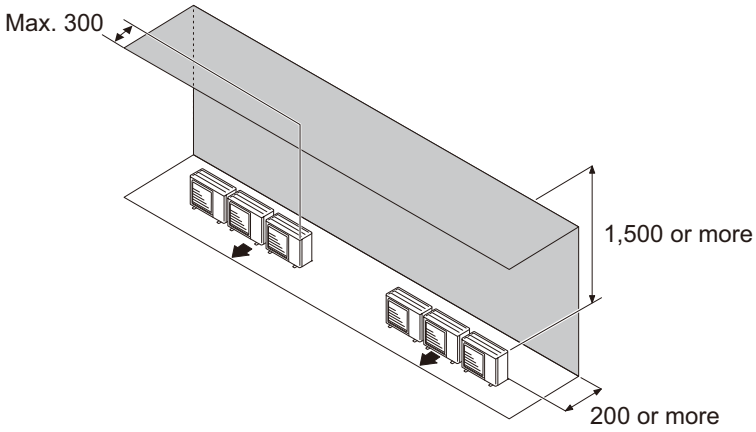
When there are obstacles at the front and rear.



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

Unit: mm

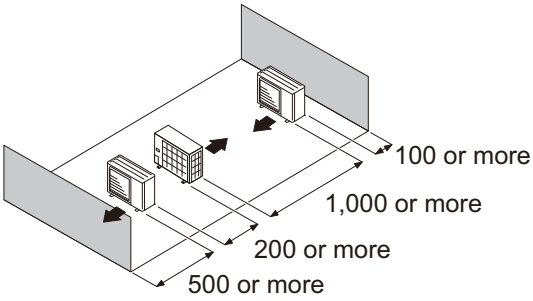
When there are obstacles at the rear and above.



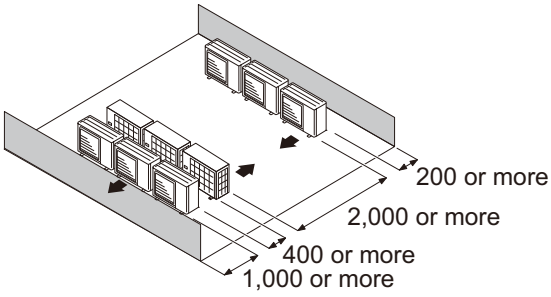
● Outdoor unit installation in multi-row

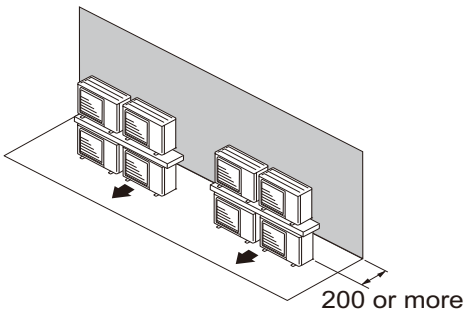
Unit: mm

Single parallel unit arrangement



Multiple parallel unit arrangement



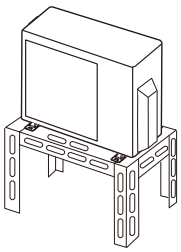


NOTES:

- If the space is larger than stated above, the condition will be the same as when there is no obstacle.
- Height above the floor level should be 50 mm or more.
- When installing the outdoor unit, be sure to open the front and left side to obtain better operation efficiency.

⚠CAUTION

- 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.



3-2. Models: AOYG30LBTA and AOYG36LBTA

■ Installation space requirement

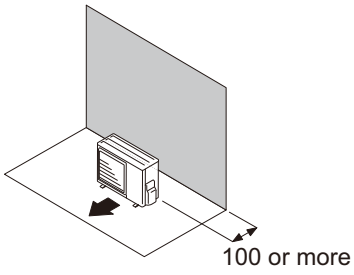
Provide sufficient installation space for product safety.

● Single outdoor unit installation

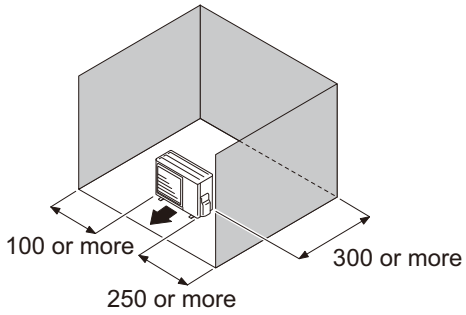
- **When the upper space is open:**

Unit: mm

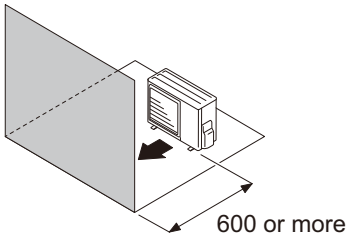
When there are obstacles at the rear only.



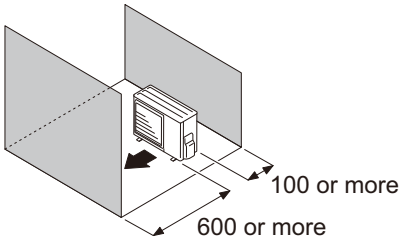
When there are obstacles at the rear and sides.



When there are obstacles at the front only.



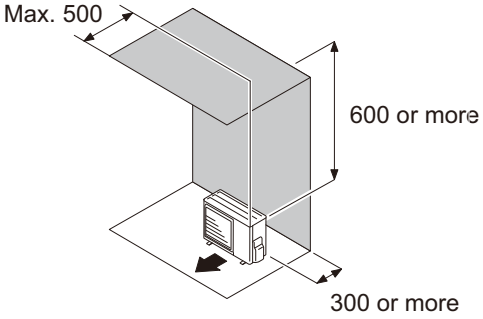
When there are obstacles at the front and rear.



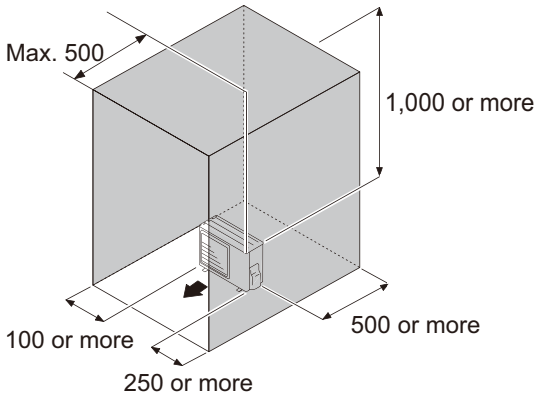
- **When there is an obstruction in the upper space:**

Unit: mm

When there are obstacles at the rear and above.



When there are obstacles at the rear, sides, and above.

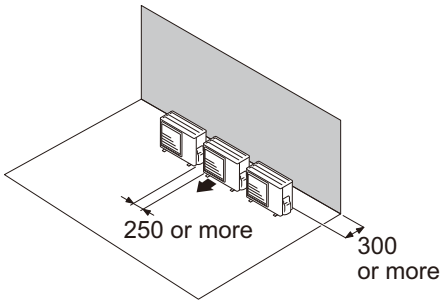


● Multiple outdoor unit installation

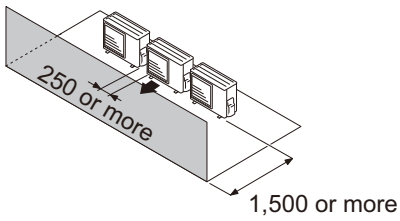
- **When the upper space is open:**

Unit: mm

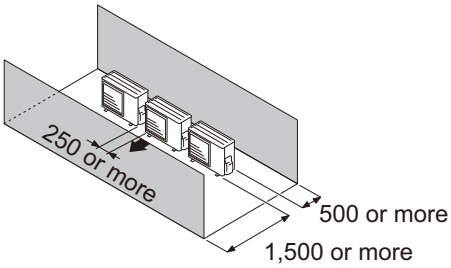
When there are obstacles at the rear only.



When there are obstacles at the front only.



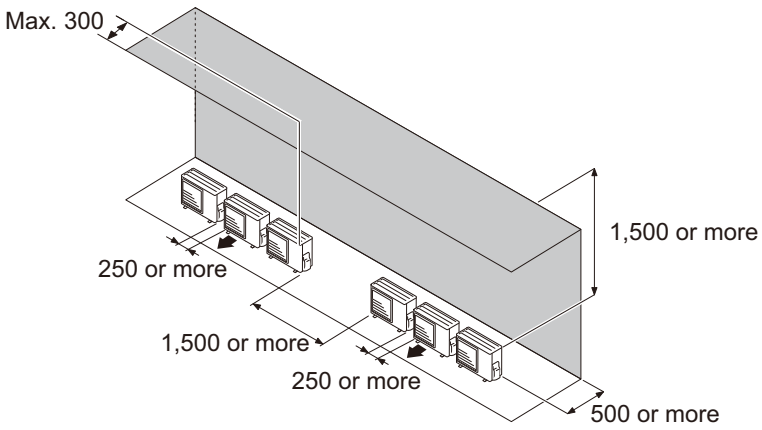
When there are obstacles at the front and rear.



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

Unit: mm

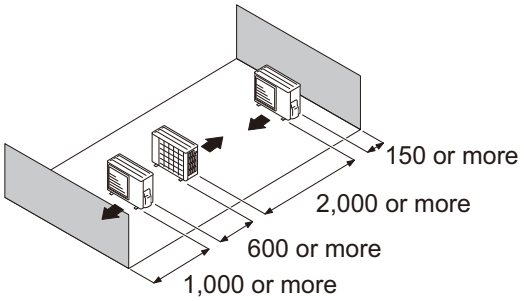
When there are obstacles at the rear and above.



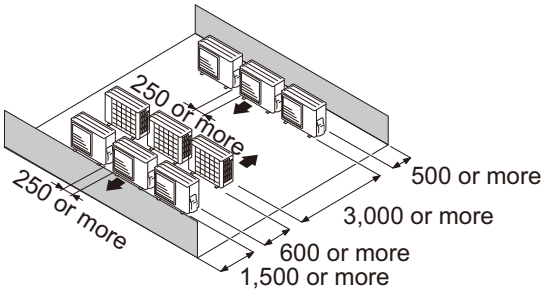
● Outdoor unit installation in multi-row

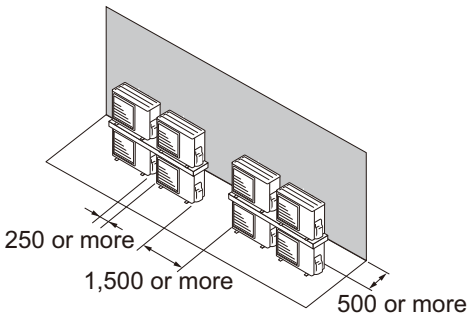
Unit: mm

Single parallel unit arrangement



Multiple parallel unit arrangement



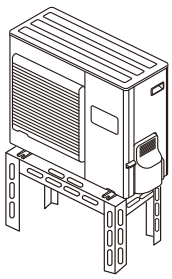


NOTES:

- If the space is larger than stated above, the condition will be the same as when there is no obstacle.
- Height above the floor level should be 50 mm or more.
- When installing the outdoor unit, be sure to open the front and left side to obtain better operation efficiency.

⚠CAUTION

- 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.



3-3. Models: AOYG45LBTA and AOYG54LBTA

■ Space requirement

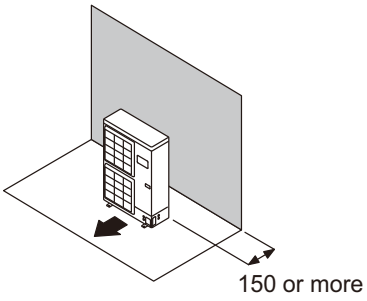
Provide sufficient installation space for product safety.

● Single outdoor unit installation

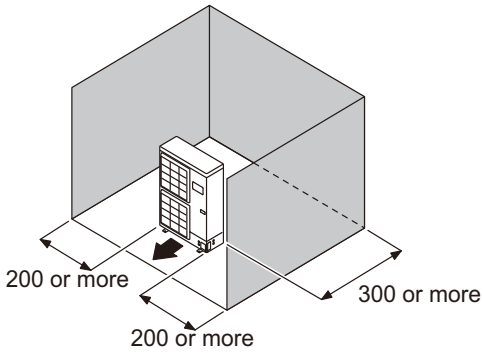
- **When the upper space is open:**

Unit: mm

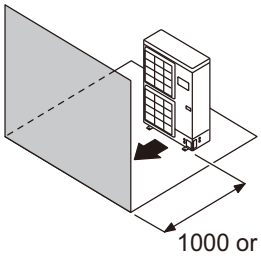
When there are obstacles at the rear only.



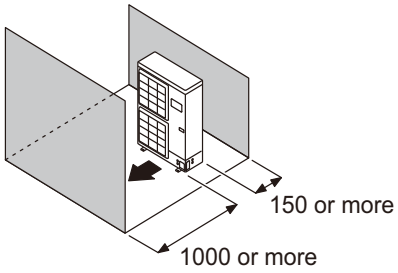
When there are obstacles at the rear and sides.



When there are obstacles at the front only.



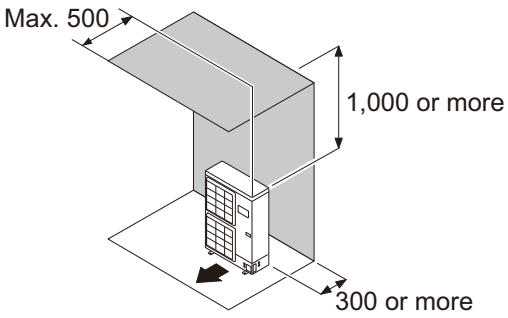
When there are obstacles at the front and rear.



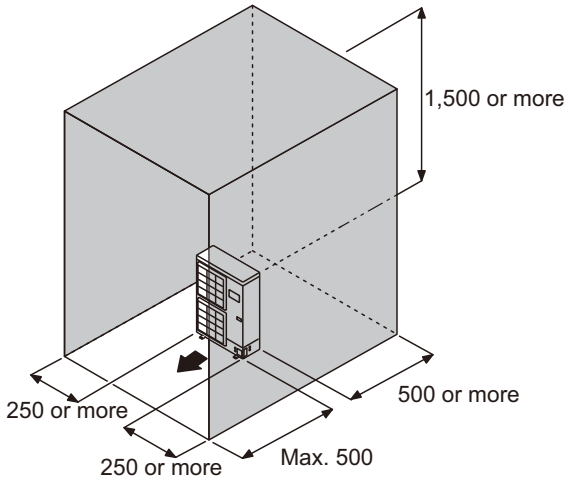
- **When there is an obstruction in the upper space:**

Unit: mm

When there are obstacles at the rear and above.



When there are obstacles at the rear, sides, and above.

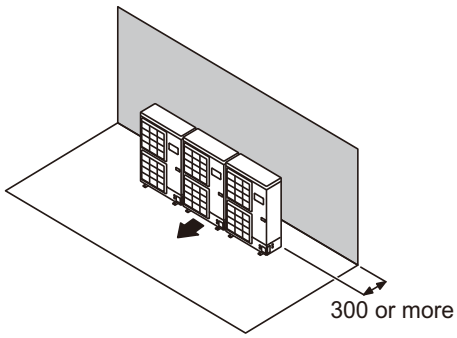


● Multiple outdoor unit installation

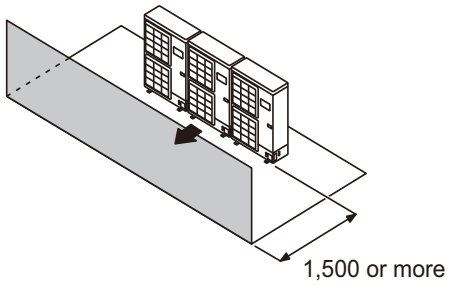
- **When the upper space is open:**

Unit: mm

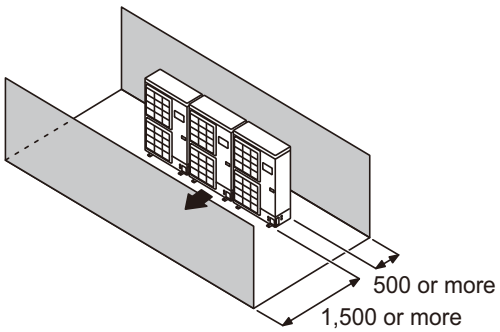
When there are obstacles at the rear only.



When there are obstacles at the front only.



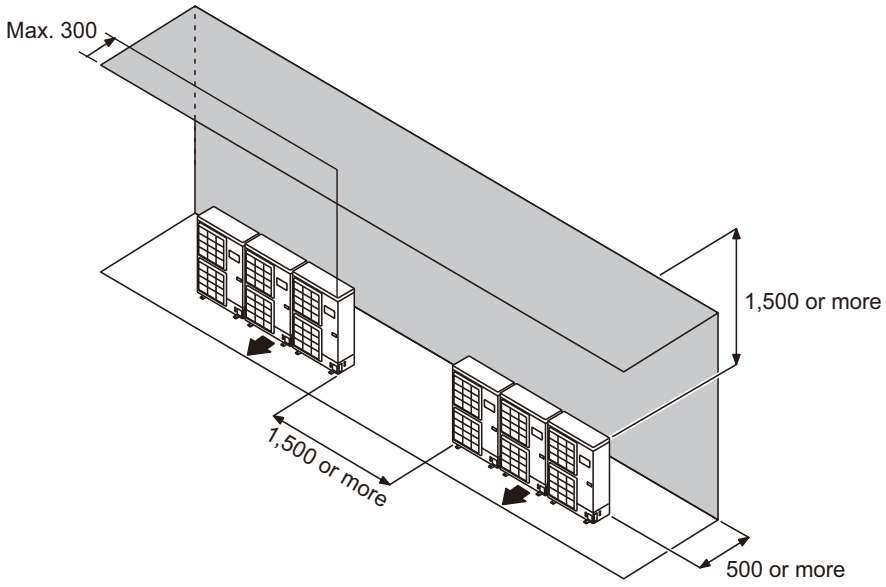
When there are obstacles at the front and rear.



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

Unit: mm

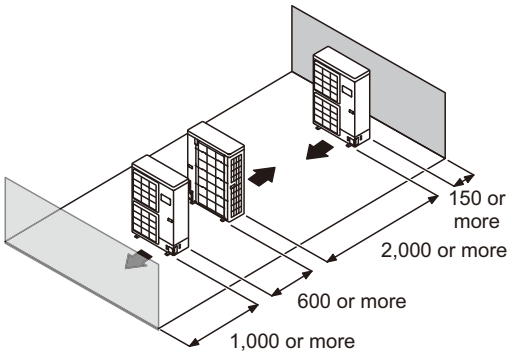
When there are obstacles at the rear and above.



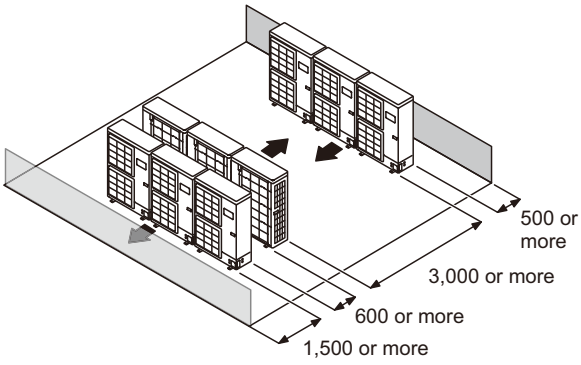
● Outdoor unit installation in multi-row

Unit: mm

Single parallel unit arrangement



Multiple parallel unit arrangement

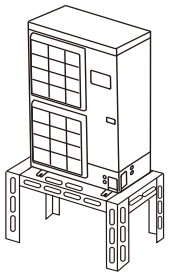


NOTES:

- If the space is larger than stated above, the condition will be the same as when there is no obstacle.
- Height above the floor level should be 50 mm or more.
- When installing the outdoor unit, be sure to open the front and left side to obtain better operation efficiency.

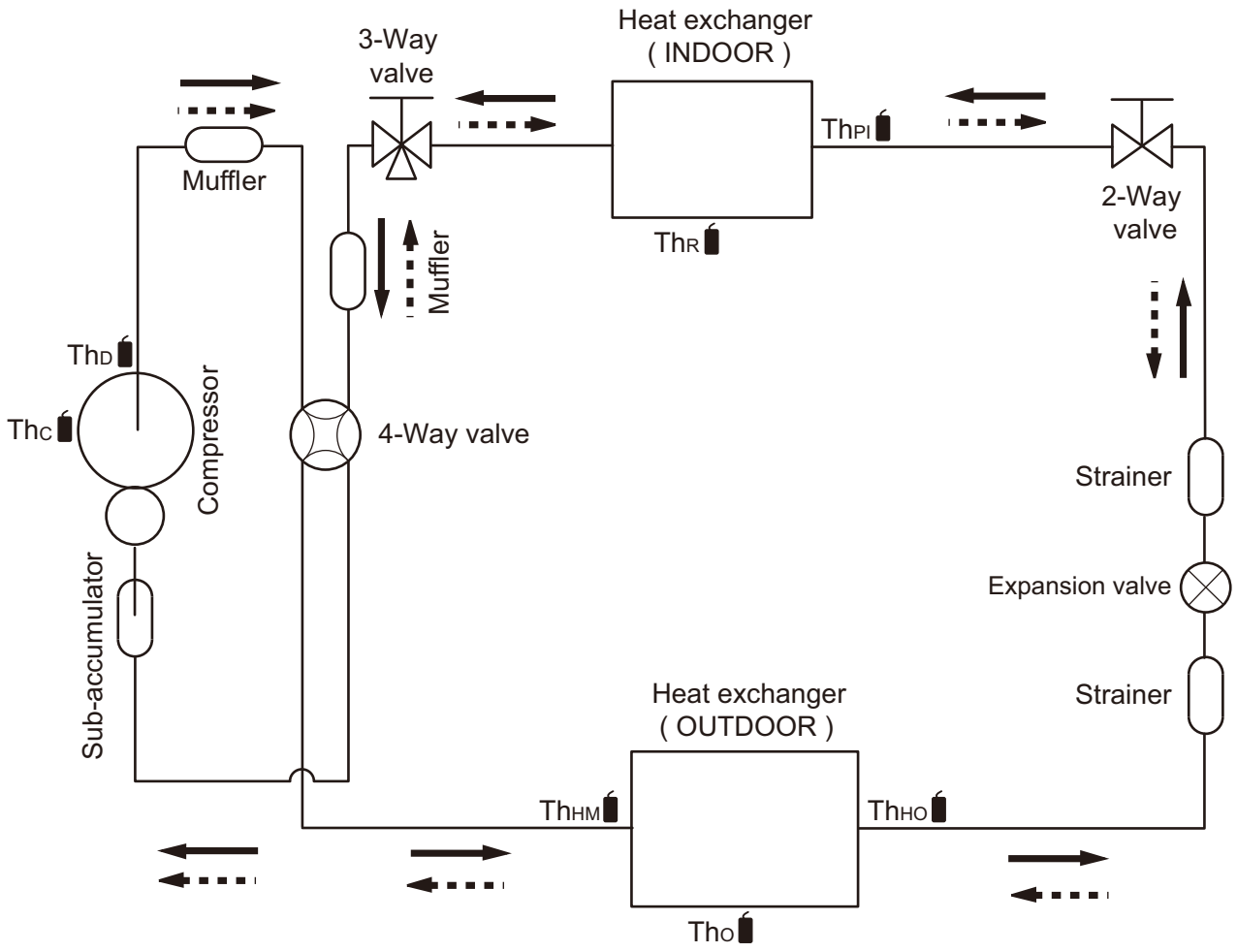
⚠CAUTION

- 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

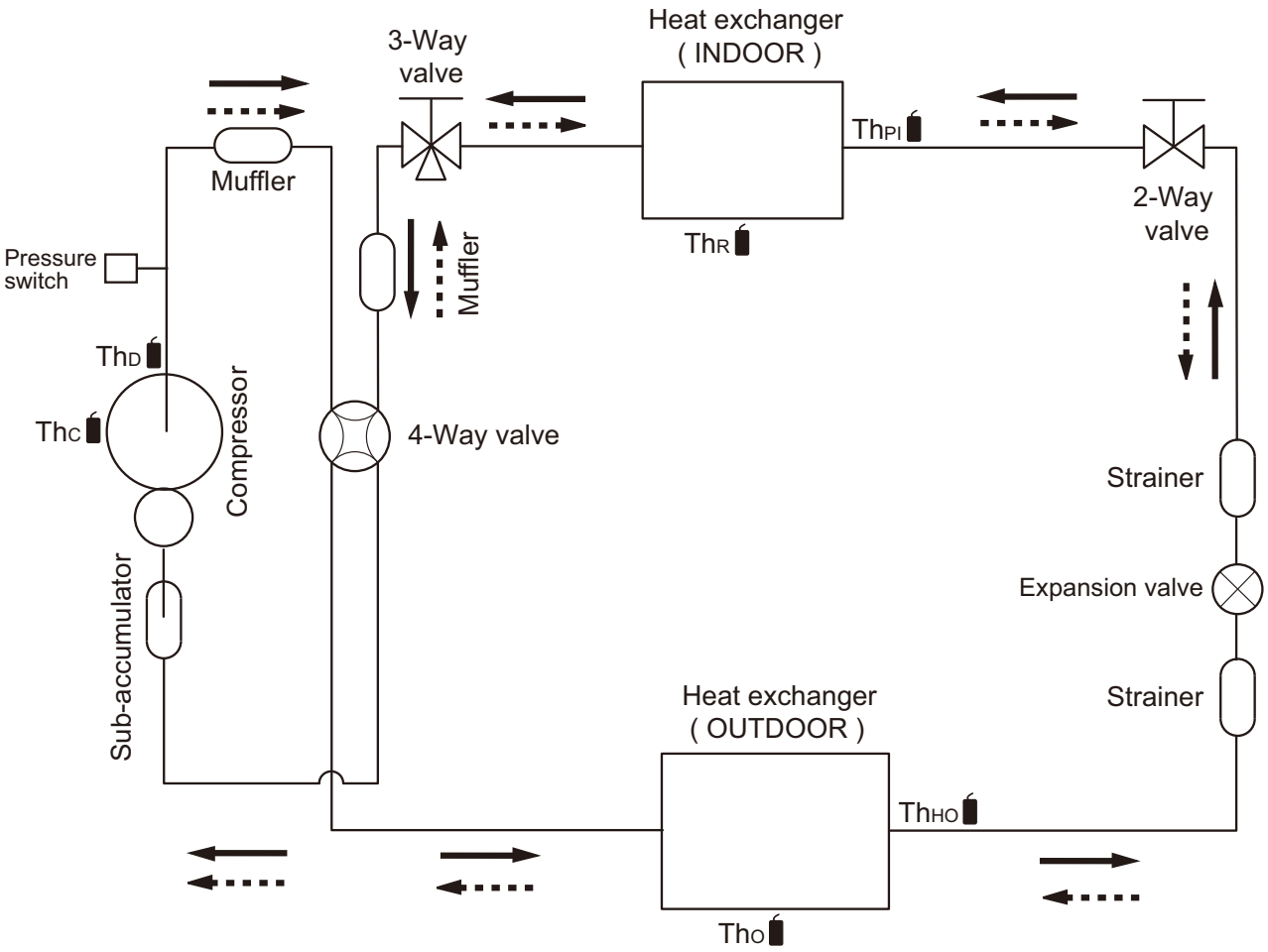
4-1. Models: AOYG12LBLA and AOYG14LBLA



: Cooling
: Heating

ThC : Thermistor (Compressor Temp.)
ThD : Thermistor (Discharge Temp.)
ThO : Thermistor (Outdoor Temp.)
ThHM : Thermistor (Heat Exchanger Med Temp.)
ThHO : Thermistor (Heat Exchanger Out Temp.)
ThR : Thermistor (Room Temp.)
ThPI : Thermistor (Pipe Temp.)

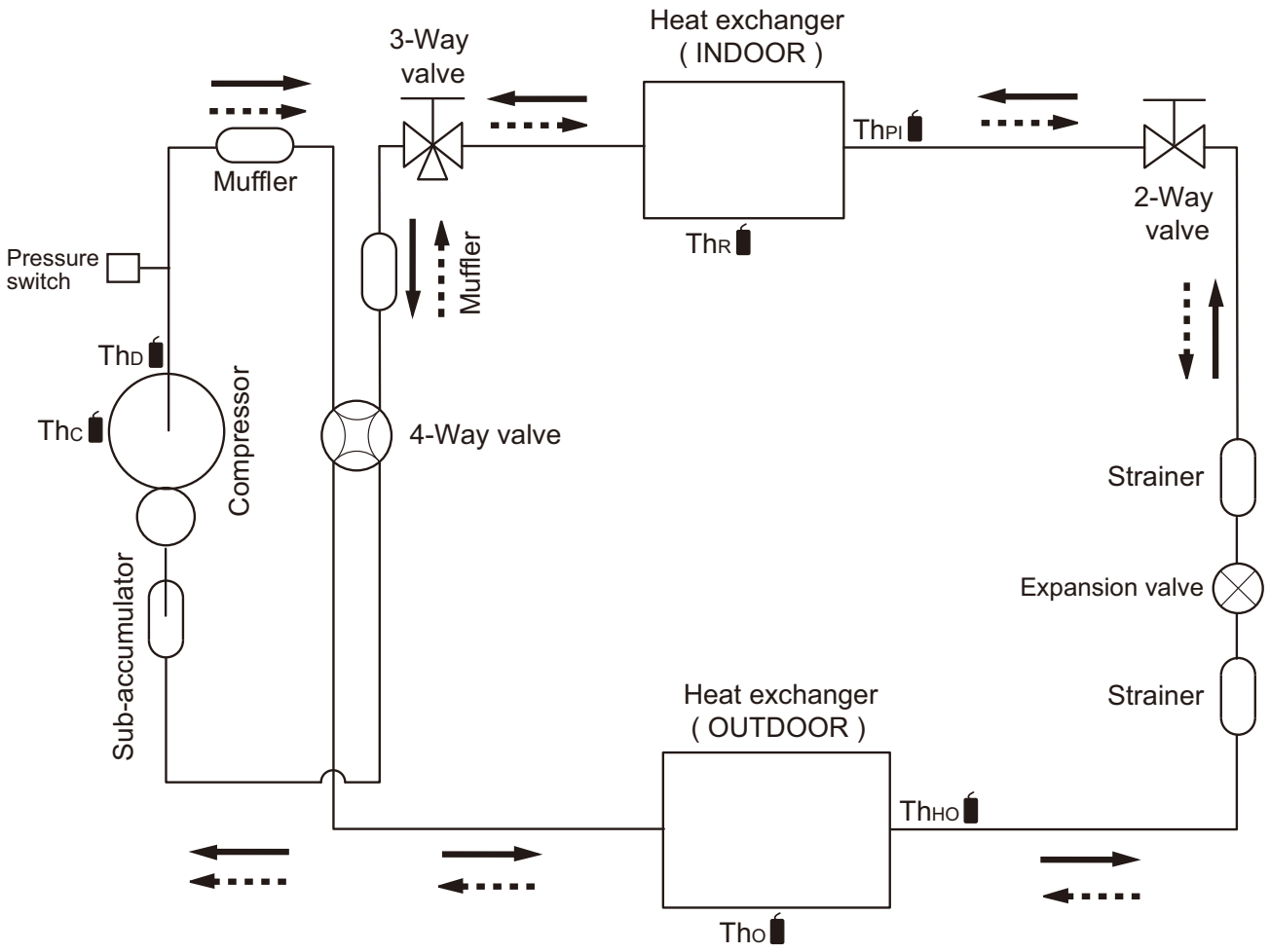
4-2. Models: AOYG18LBCA and AOYG24LBCA



: Cooling
: Heating

ThC : Thermistor (Compressor Temp.)
ThD : Thermistor (Discharge Temp.)
ThO : Thermistor (Outdoor Temp.)
ThHO : Thermistor (Heat Exchanger Out Temp.)
ThR : Thermistor (Room Temp.)
ThPI : Thermistor (Pipe Temp.)

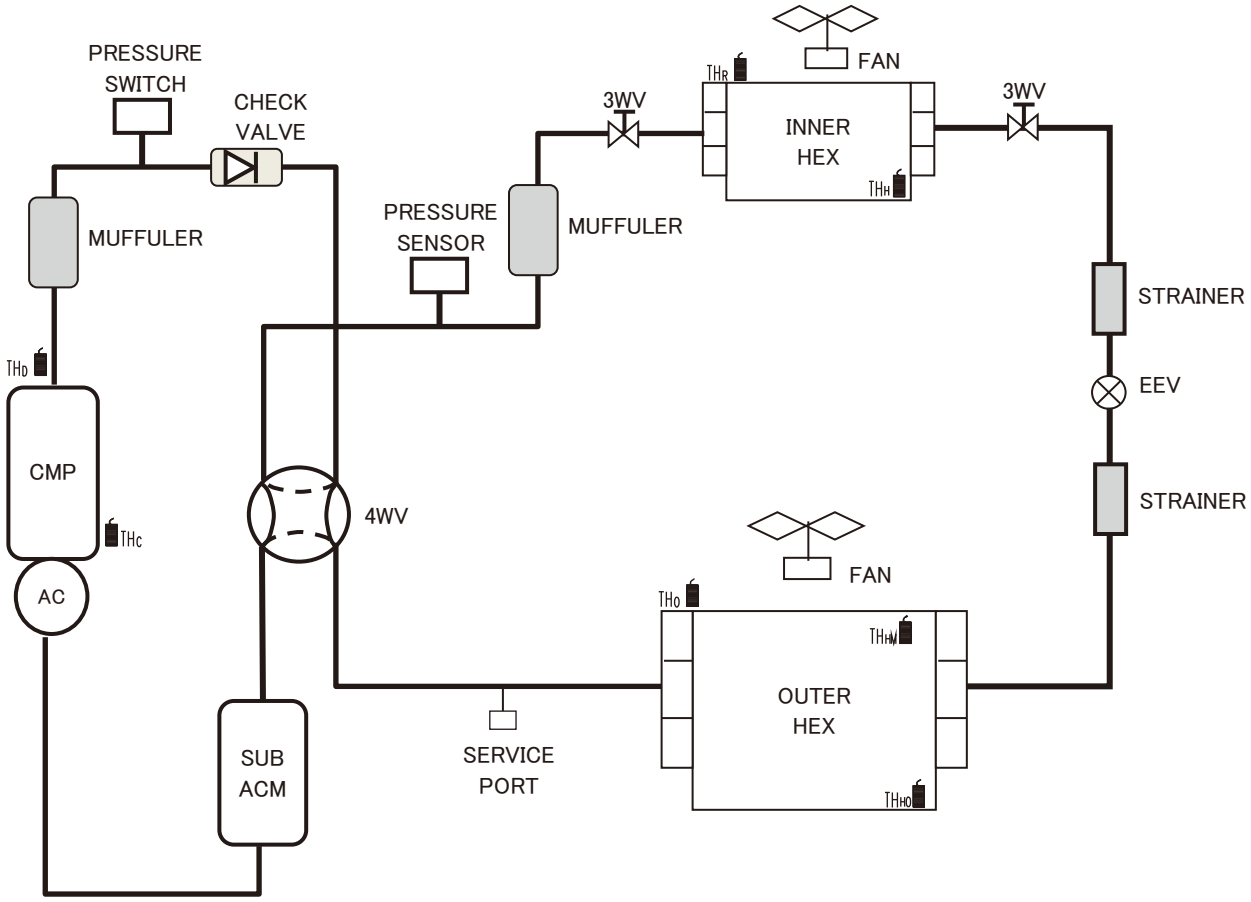
4-3. Models: AOYG30LBTA and AOYG36LBTA



: Cooling
: Heating

ThC : Thermistor (Compressor Temp.)
ThD : Thermistor (Discharge Temp.)
ThO : Thermistor (Outdoor Temp.)
ThHO : Thermistor (Heat Exchanger Out Temp.)
ThR : Thermistor (Room Temp.)
ThPI : Thermistor (Pipe Temp.)

4-4. Models: AOYG45LBTA and AOYG54LBTA

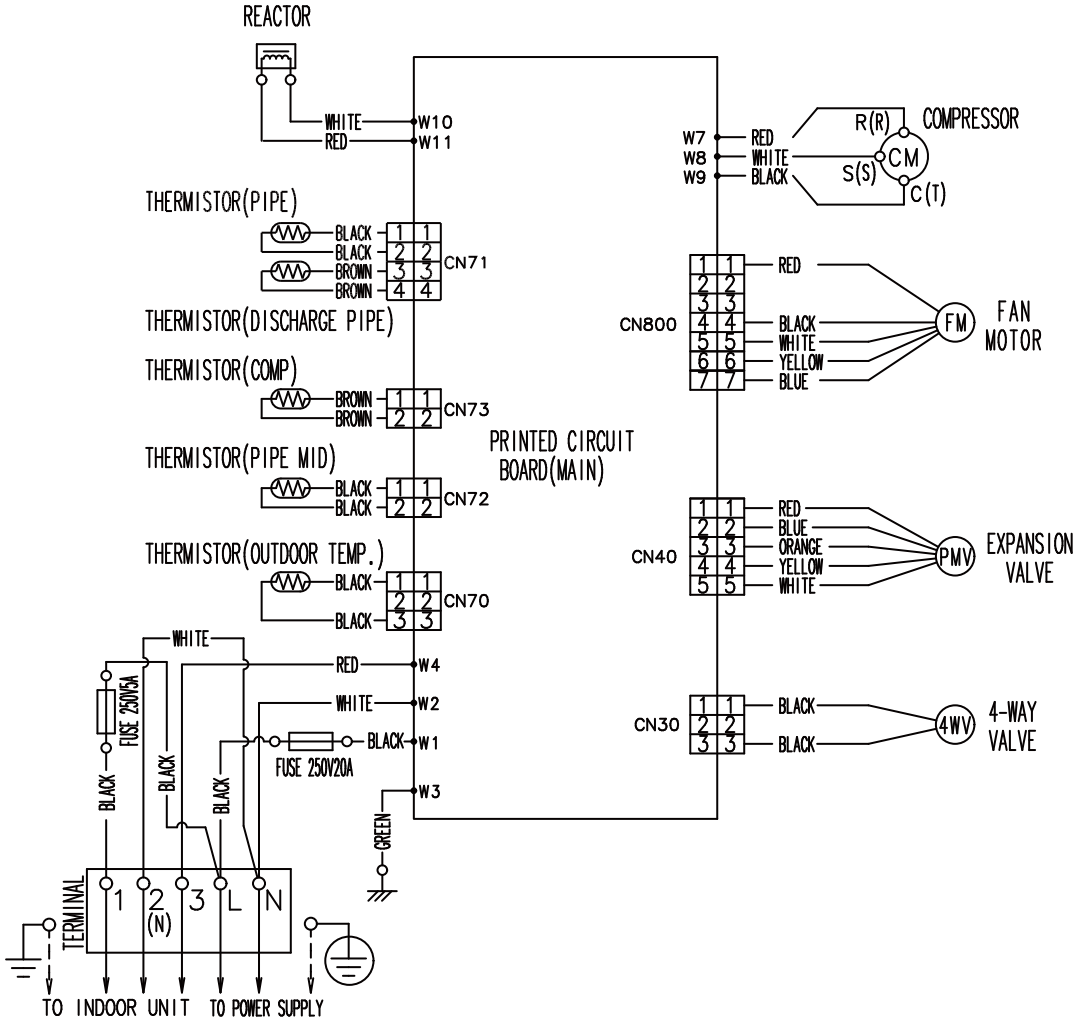


THC : Thermistor(Compressor Temp.)
THD : Thermistor(Discharge Temp.)
THHM : Thermistor(Heat Exchanger Med Temp.)
THHO : Thermistor(Heat Exchanger Out Temp.)
THO : Thermistor(Outdoor Temp.)

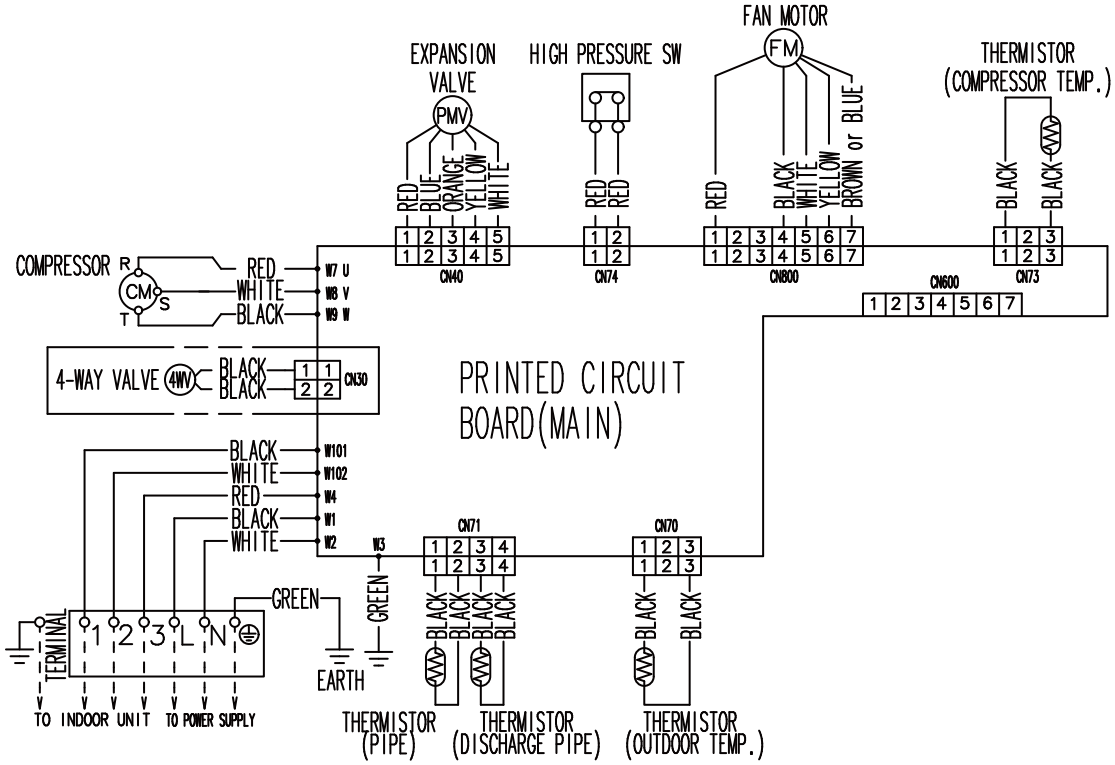
THR : Thermistor(Room Temp.)
THH : Thermistor(Heat Exchanger Temp.)

5. Wiring diagrams

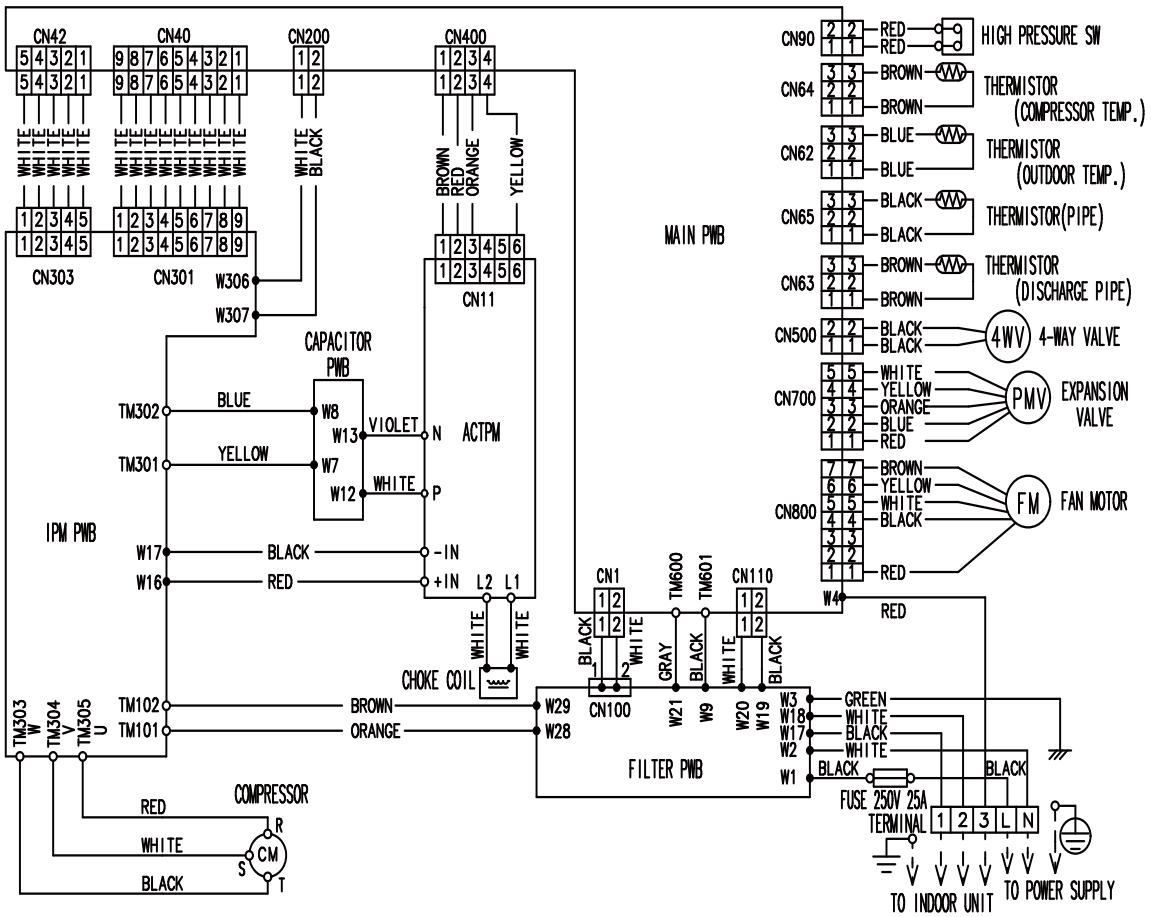
5-1. Models: AOYG12LBLA and AOYG14LBLA



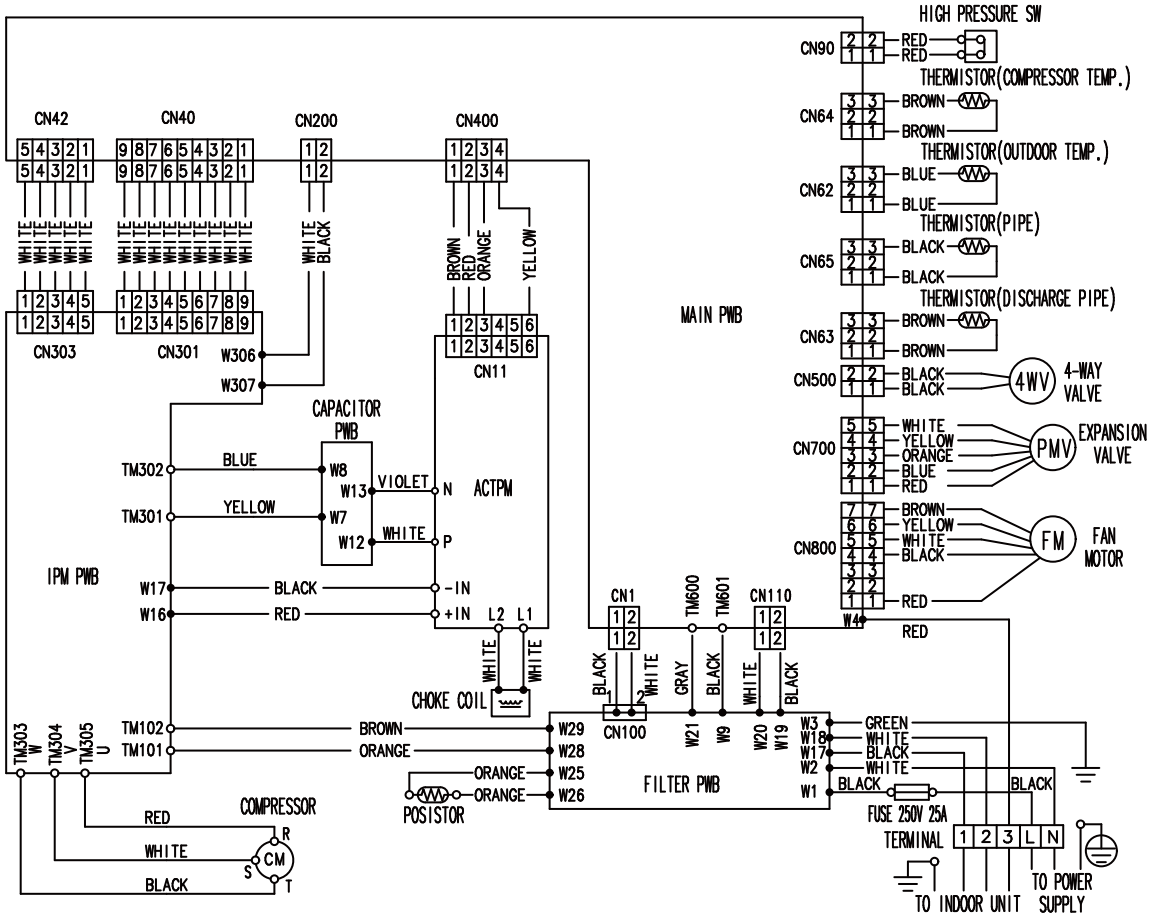
5-2. Models: AOYG18LBCA and AOYG24LBCA



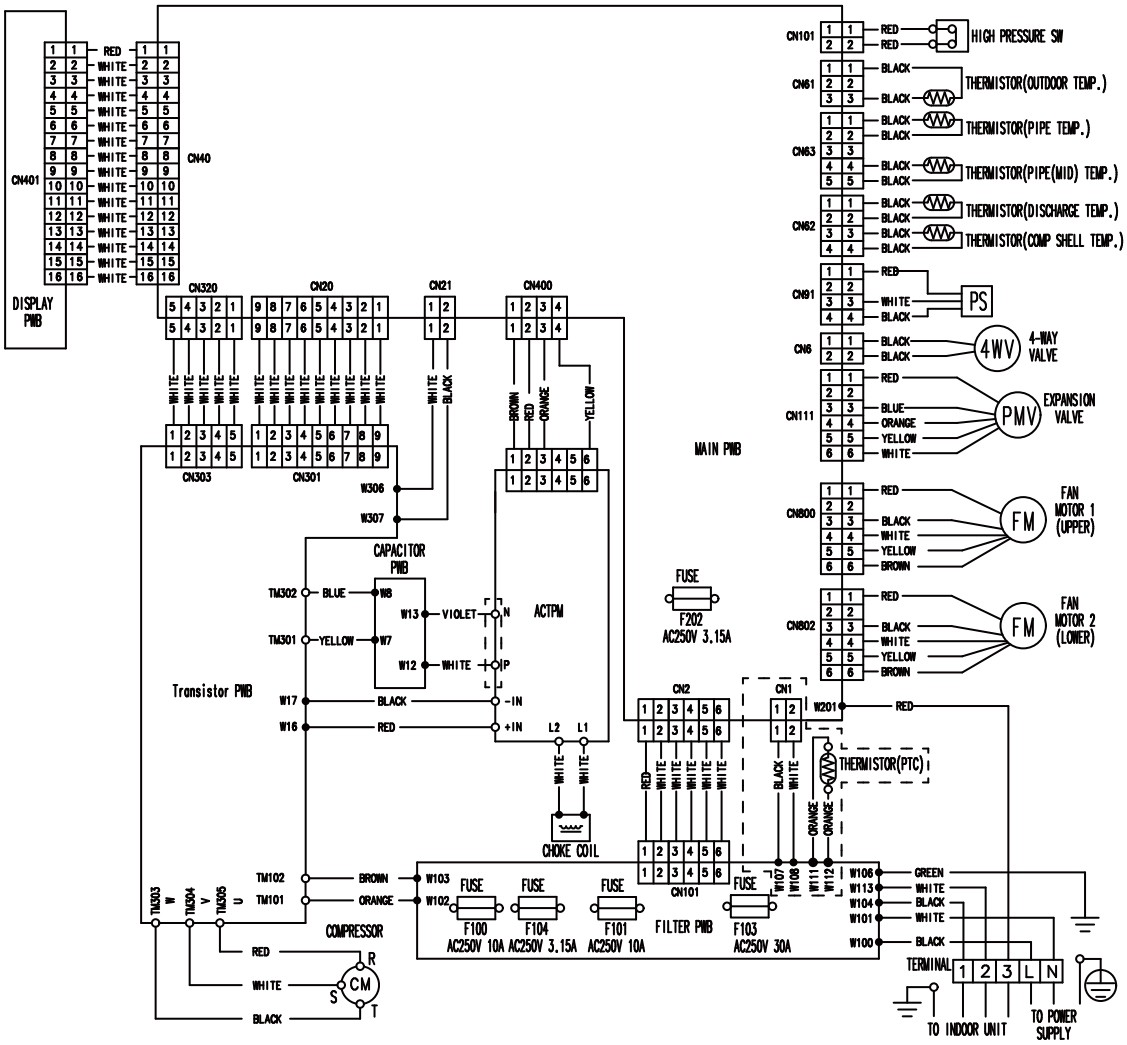
5-3. Model: AOYG30LBTA



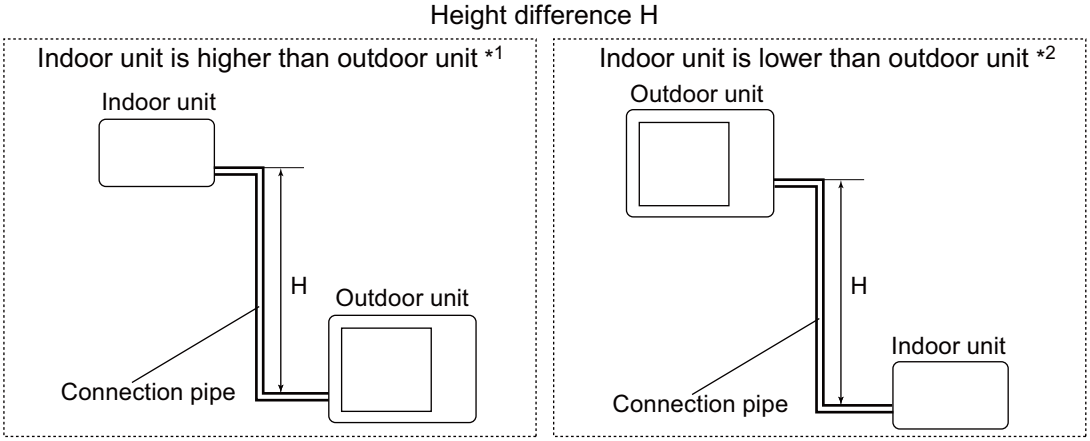
5-4. Model: AOYG36LBTA



5-5. Models: AOYG45LBTA and AOYG54LBTA



6. Capacity compensation rate for pipe length and height difference



6-1. Models: AOYG12LBLA

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

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

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

6-2. Models: AOYG14LBLA

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

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

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

6-3. Models: AOYG18LBCA and AOYG24LBCA

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

COOLING			Pipe length (m)						
			5	7.5	10	15	20	25	30
Height difference H (m)	Indoor unit is higher than outdoor unit *1	20	-	-	-	-	0.952	0.951	0.951
		10	-	-	0.980	0.966	0.968	0.967	0.966
		7.5	-	0.988	0.984	0.970	0.972	0.971	0.970
		5	0.995	0.992	0.988	0.974	0.976	0.975	0.974
		0	1.003	1.000	0.996	0.982	0.983	0.983	0.982
	Indoor unit is lower than outdoor unit *2	-5	1.003	1.000	0.996	0.982	0.983	0.983	0.982
		-7.5	-	1.000	0.996	0.982	0.983	0.983	0.982
		-10	-	-	0.996	0.982	0.983	0.983	0.982
		-20	-	-	-	-	0.983	0.983	0.982

HEATING			Pipe length (m)						
			5	7.5	10	15	20	25	30
Height difference H (m)	Indoor unit is higher than outdoor unit *1	20	-	-	-	-	0.954	0.932	0.908
		10	-	-	0.998	0.975	0.954	0.932	0.908
		7.5	-	1.000	0.998	0.975	0.954	0.932	0.908
		5	0.989	1.000	0.998	0.975	0.954	0.932	0.908
		0	0.989	1.000	0.998	0.975	0.954	0.932	0.908
	Indoor unit is lower than outdoor unit *2	-5	0.984	0.995	0.993	0.970	0.950	0.927	0.903
		-7.5	-	0.993	0.991	0.968	0.947	0.925	0.901
		-10	-	-	0.988	0.965	0.945	0.923	0.899
		-20	-	-	-	-	0.935	0.914	0.890

6-4. Model: AOYG30LBTA

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

COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	Indoor unit is higher than outdoor unit *1	30	-	-	-	-	0.908	0.894	0.876
		20	-	-	-	0.935	0.923	0.909	0.891
		10	-	-	0.968	0.951	0.938	0.924	0.906
		7.5	-	0.982	0.972	0.954	0.942	0.928	0.909
		5	0.992	0.992	0.976	0.958	0.946	0.932	0.913
		0	1.000	1.000	0.983	0.966	0.954	0.939	0.920
	Indoor unit is lower than outdoor unit *2	-5	1.000	1.000	0.983	0.966	0.954	0.939	0.920
		-7.5	-	1.000	0.983	0.966	0.954	0.939	0.920
		-10	-	-	0.983	0.966	0.954	0.939	0.920
		-20	-	-	-	0.966	0.954	0.939	0.920
		-30	-	-	-	-	0.954	0.939	0.920

HEATING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	Indoor unit is higher than outdoor unit *1	30	-	-	-	-	0.934	0.912	0.899
		20	-	-	-	0.957	0.934	0.912	0.899
		10	-	-	0.969	0.957	0.934	0.912	0.899
		7.5	-	1.000	0.969	0.957	0.934	0.912	0.899
		5	1.000	1.000	0.969	0.957	0.934	0.912	0.899
		0	1.000	1.000	0.969	0.957	0.934	0.912	0.899
	Indoor unit is lower than outdoor unit *2	-5	0.995	0.995	0.964	0.952	0.930	0.907	0.895
		-7.5	-	0.993	0.962	0.950	0.927	0.905	0.893
		-10	-	-	0.959	0.947	0.925	0.903	0.890
		-20	-	-	-	0.938	0.916	0.894	0.881
		-30	-	-	-	-	0.906	0.885	0.872

6-5. Model: AOYG36LBTA

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

COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	Indoor unit is higher than outdoor unit *1	30	-	-	-	-	0.879	0.846	0.814
		20	-	-	-	0.926	0.893	0.861	0.828
		10	-	-	0.975	0.942	0.908	0.875	0.841
		7.5	-	0.988	0.979	0.946	0.912	0.878	0.845
		5	0.992	0.992	0.983	0.949	0.916	0.882	0.848
		0	1.000	1.000	0.991	0.957	0.923	0.889	0.855
	Indoor unit is lower than outdoor unit *2	-5	1.000	1.000	0.991	0.957	0.923	0.935	0.855
		-7.5	-	1.000	0.991	0.957	0.923	0.935	0.855
		-10	-	-	0.991	0.957	0.923	0.935	0.855
		-20	-	-	-	0.957	0.923	0.935	0.855
		-30	-	-	-	-	0.923	0.935	0.855

HEATING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	Indoor unit is higher than outdoor unit *1	30	-	-	-	-	0.978	0.968	0.958
		20	-	-	-	0.988	0.978	0.968	0.958
		10	-	-	0.998	0.988	0.978	0.968	0.958
		7.5	-	1.000	0.998	0.988	0.978	0.968	0.958
		5	1.000	1.000	0.998	0.988	0.978	0.968	0.958
		0	1.000	1.000	0.998	0.988	0.978	0.968	0.958
	Indoor unit is lower than outdoor unit *2	-5	0.998	0.995	0.993	0.983	0.973	0.963	0.953
		-7.5	-	0.993	0.991	0.981	0.971	0.961	0.951
		-10	-	-	0.988	0.978	0.968	0.958	0.948
		-20	-	-	-	0.968	0.958	0.949	0.939
		-30	-	-	-	-	0.949	0.939	0.929

6-6. Models: AOYG45LBTA and AOYG54LBTA

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

COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	Indoor unit is higher than outdoor unit *1	30	-	-	-	-	0.871	0.837	0.803
		20	-	-	-	0.921	0.886	0.851	0.816
		10	-	-	0.971	0.936	0.901	0.865	0.830
		7.5	-	0.988	0.975	0.940	0.904	0.869	0.833
		5	0.992	0.992	0.979	0.944	0.908	0.872	0.836
		0	1.000	1.000	0.987	0.951	0.915	0.879	0.843
	Indoor unit is lower than outdoor unit *2	-5	1.000	1.000	0.987	0.951	0.915	0.879	0.843
		-7.5	-	1.000	0.987	0.951	0.915	0.879	0.843
		-10	-	-	0.987	0.951	0.915	0.879	0.843
		-20	-	-	-	0.951	0.915	0.879	0.843
		-30	-	-	-	-	0.915	0.879	0.843

HEATING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	Indoor unit is higher than outdoor unit *1	30	-	-	-	-	0.978	0.968	0.958
		20	-	-	-	0.988	0.978	0.968	0.958
		10	-	-	0.998	0.988	0.978	0.968	0.958
		7.5	-	1.000	0.998	0.988	0.978	0.968	0.958
		5	1.000	1.000	0.998	0.988	0.978	0.968	0.958
		0	1.000	1.000	0.998	0.988	0.978	0.968	0.958
	Indoor unit is lower than outdoor unit *2	-5	0.995	0.995	0.993	0.983	0.973	0.963	0.953
		-7.5	-	0.993	0.990	0.980	0.970	0.960	0.950
		-10	-	-	0.988	0.978	0.968	0.958	0.948
		-20	-	-	-	0.968	0.958	0.948	0.938
		-30	-	-	-	-	0.948	0.939	0.929

7. Additional charge calculation

7-1. Model: AOYG12LBLA

Refrigerant type		R410A
Factory charge amount	g	1,150

■ Refrigerant charge

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

7-2. Model: AOYG14LBLA

Refrigerant type		R410A
Factory charge amount	g	1,250

■ Refrigerant charge

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

7-3. Models: AOYG18LBCA and AOYG24LBCA

Refrigerant type		R410A
Factory charge amount	g	1,800

■ Refrigerant charge

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

7-4. Models: AOYG30LBTA and AOYG36LBTA

Refrigerant type		R410A
Factory charge amount	g	2,100

■ Refrigerant charge

Total pipe length	m	20 or less	30	40	50 (Max.)	40 g/m
Additional charge amount	g	0	400	800	1200	

7-5. Models: AOYG45LBTA and AOYG54LBTA

Refrigerant type		R410A
Factory charge amount	g	3,350

■ Refrigerant charge

Total pipe length	m	20 or less	30	40	50 (Max.)	40 g/m
Additional charge amount	g	0	400	800	1200	

8. Airflow

8-1. Model: AOYG12LBLA

● Cooling

Airflow	
m^3/h	1,780
l/s	494
CFM	1,048

● Heating

Airflow	
m^3/h	1,630
l/s	453
CFM	959

8-2. Model: AOYG14LBLA

● Cooling

Airflow	
m^3/h	1,910
l/s	531
CFM	1,124

● Heating

Airflow	
m^3/h	1,740
l/s	483
CFM	1,024

8-3. Model: AOYG18LBCA

● Cooling

Airflow	
m^3/h	1,900
l/s	528
CFM	1,118

● Heating

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

8-4. Model: AOYG24LBCA

● Cooling

Airflow	
m^3/h	2,460
l/s	683
CFM	1,448

● Heating

Airflow	
m^3/h	2,340
l/s	650
CFM	1,377

8-5. Model: AOYG30LBTA

● Cooling

Airflow	
m^3/h	3,600
l/s	1,000
CFM	2,119

● Heating

Airflow	
m^3/h	3,600
l/s	1,000
CFM	2,119

8-6. Model: AOYG36LBTA

● Cooling

Airflow	
m^3/h	3,800
l/s	1,056
CFM	2,237

● Heating

Airflow	
m^3/h	3,800
l/s	1,056
CFM	2,237

8-7. Model: AOYG45LBTA

● Cooling

Airflow	
m^3/h	6,750
l/s	1,875
CFM	3,973

● Heating

Airflow	
m^3/h	6,200
l/s	1,722
CFM	3,649

8-8. Model: AOYG54LBTA

● Cooling

Airflow	
m^3/h	6,750
l/s	1,875
CFM	3,973

● Heating

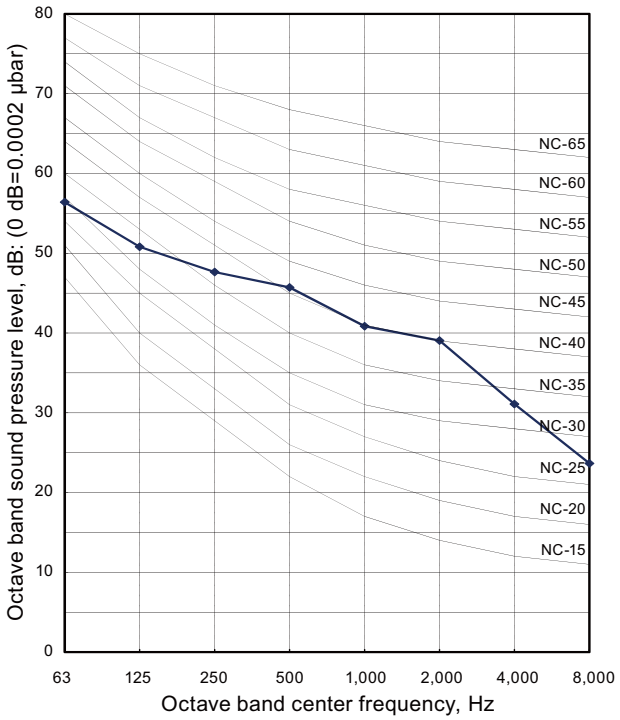
Airflow	
m^3/h	6,850
l/s	1,903
CFM	4,032

9. Operation noise (sound pressure)

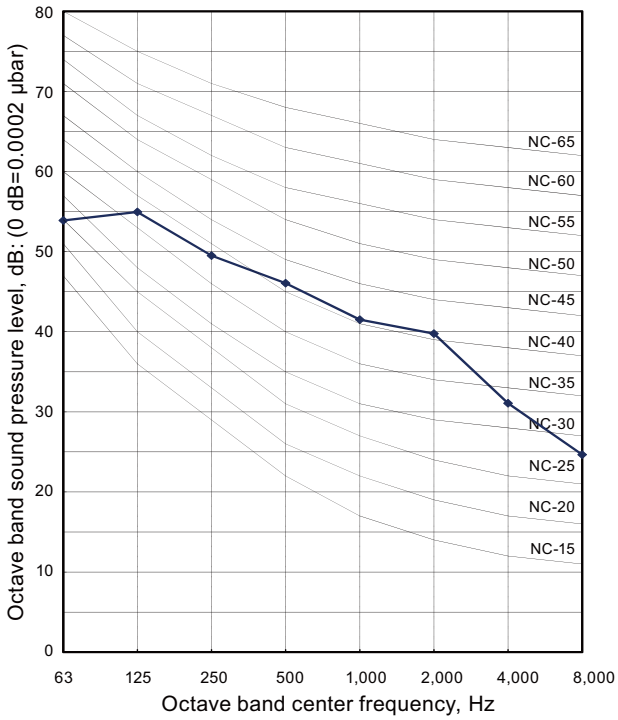
9-1. Noise level curve

■ Model: AOYG12LBLA

● Cooling

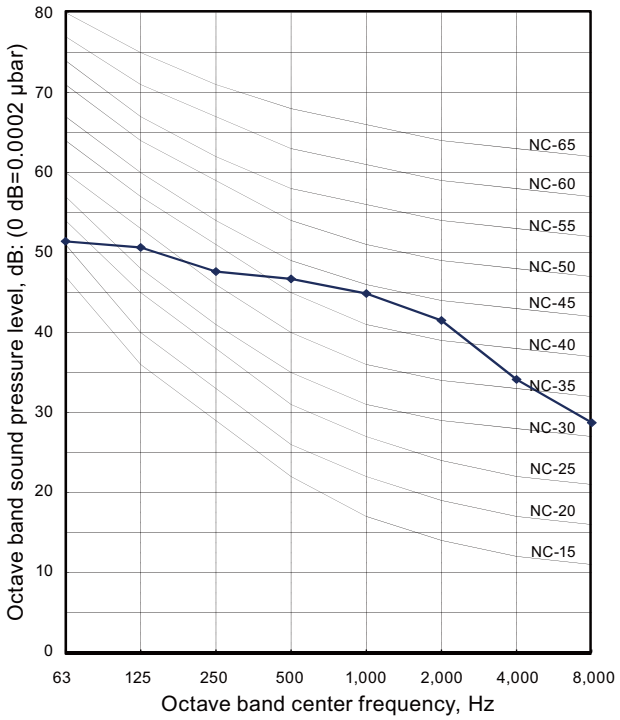


● Heating

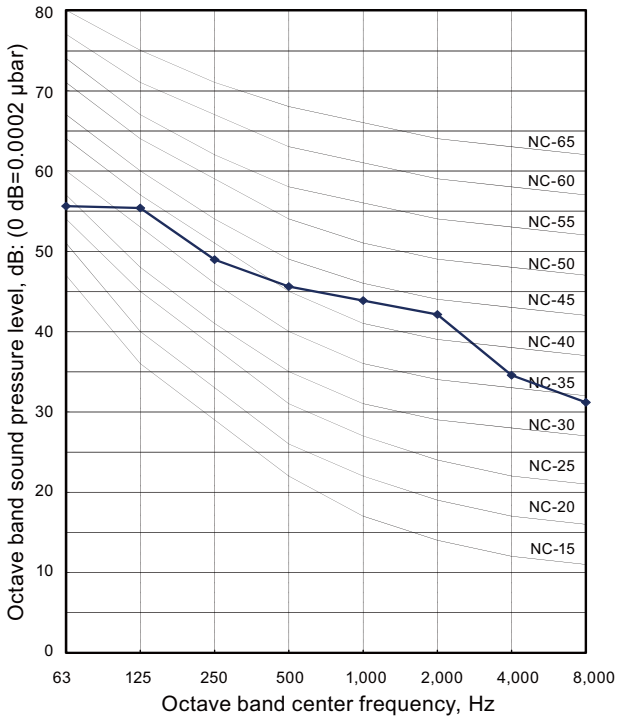


■ Model: AOYG14LBLA

● Cooling

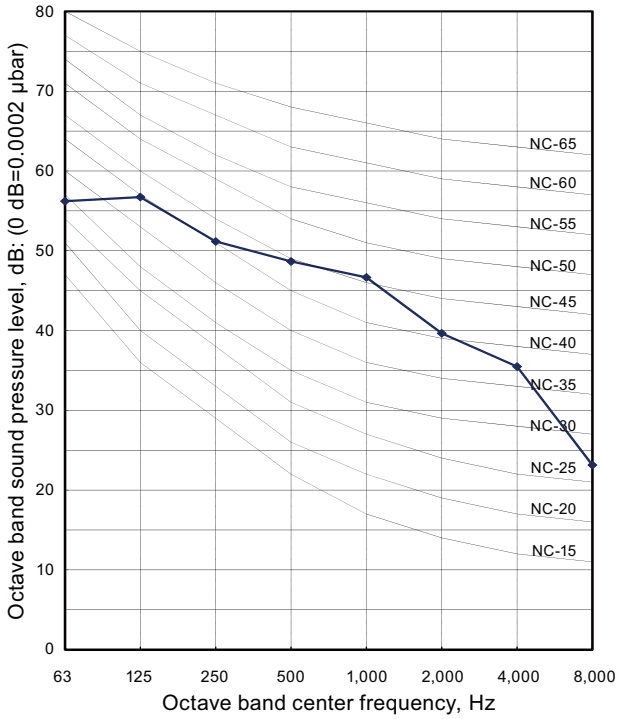


● Heating

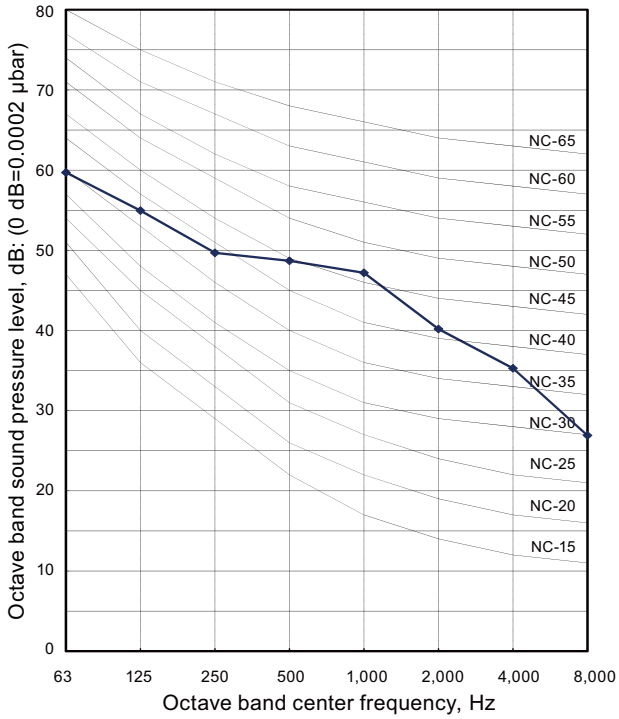


■ Model: AOYG18LBCA

● Cooling

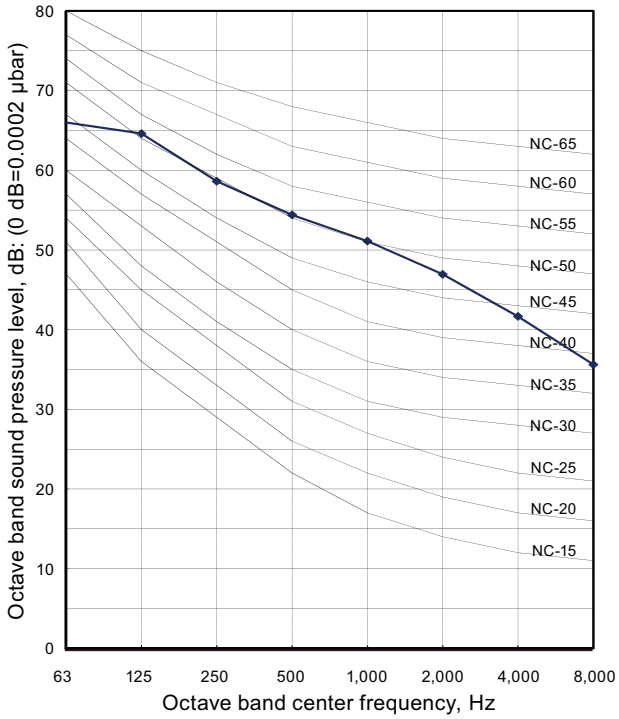


● Heating

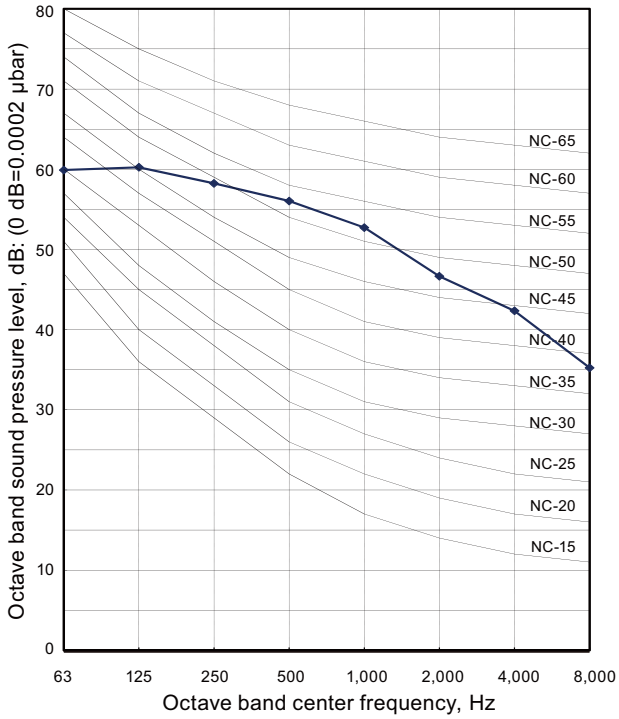


■ Model: AOYG24LBCA

● Cooling

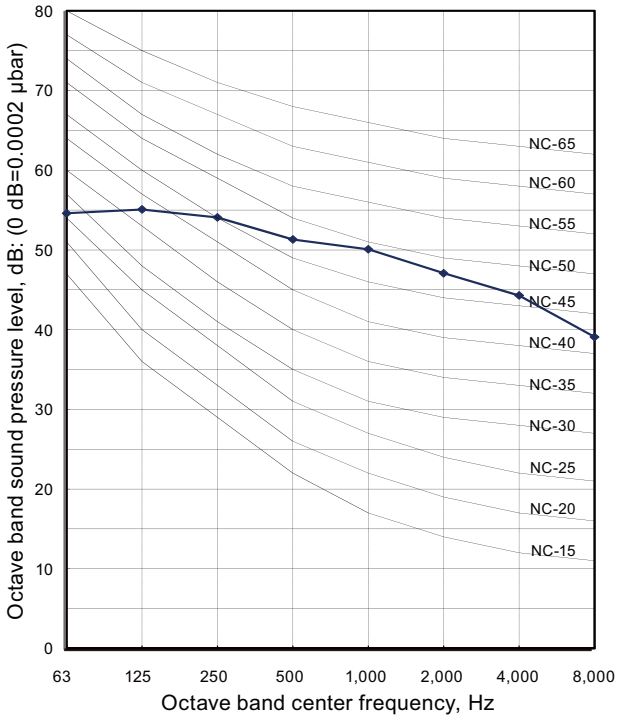


● Heating

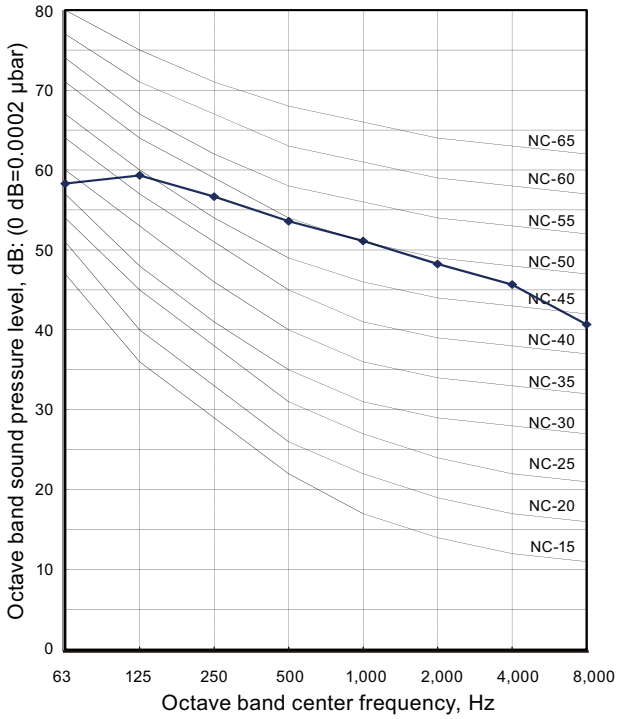


■ Model: AOYG30LBTA

● Cooling

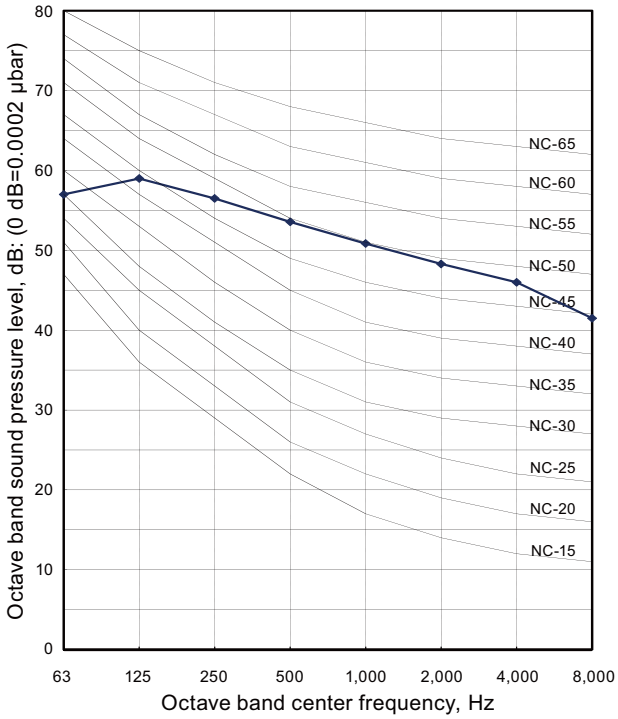


● Heating

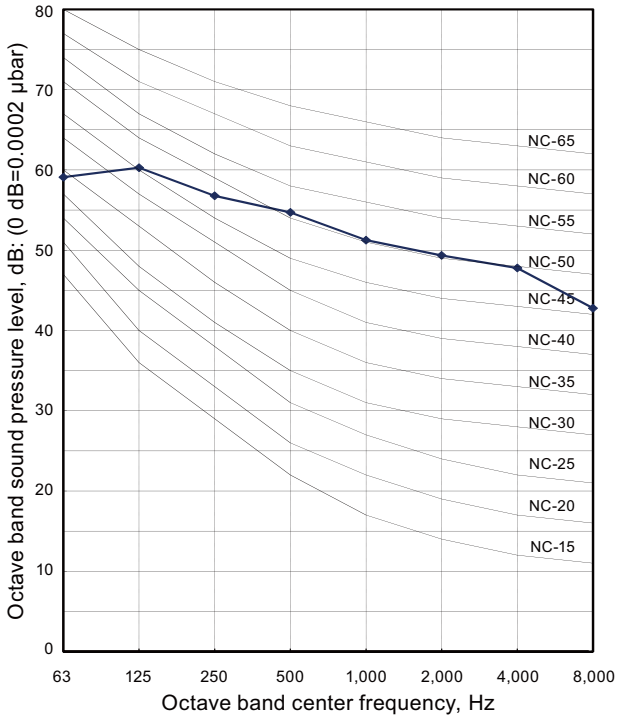


■ Model: AOYG36LBTA

● Cooling

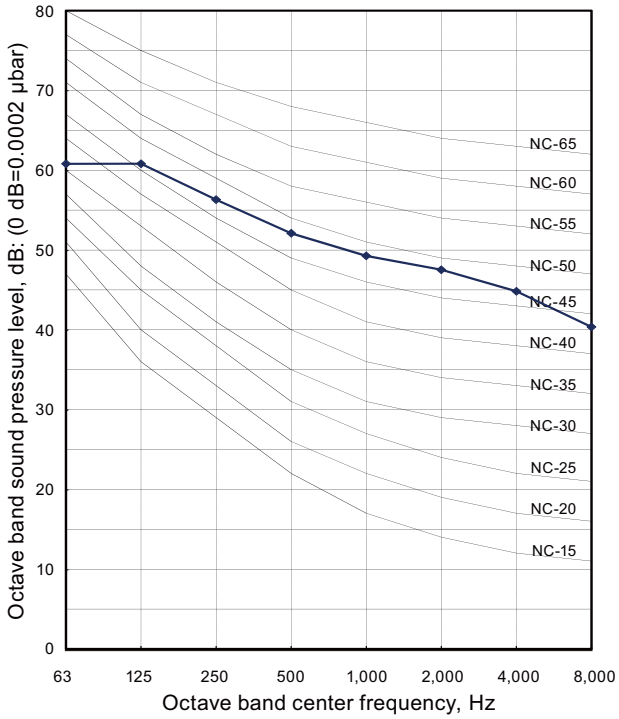


● Heating

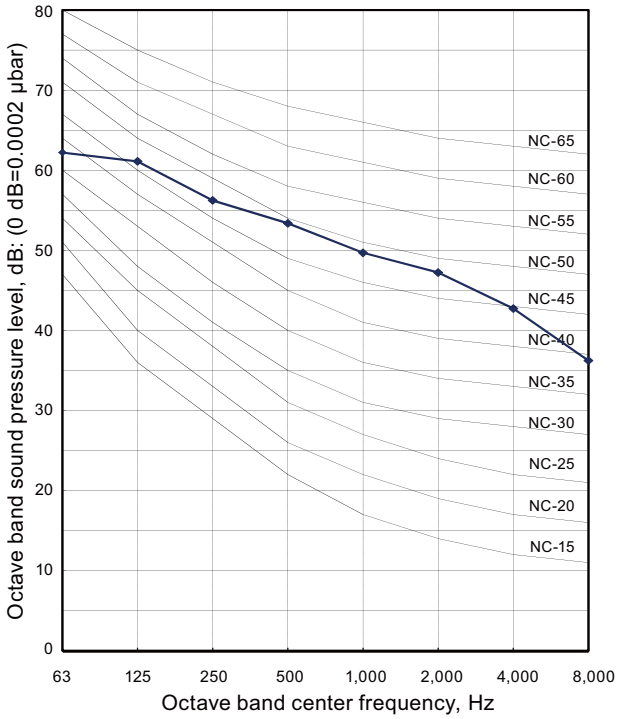


■ Model: AOYG45LBTA

● Cooling

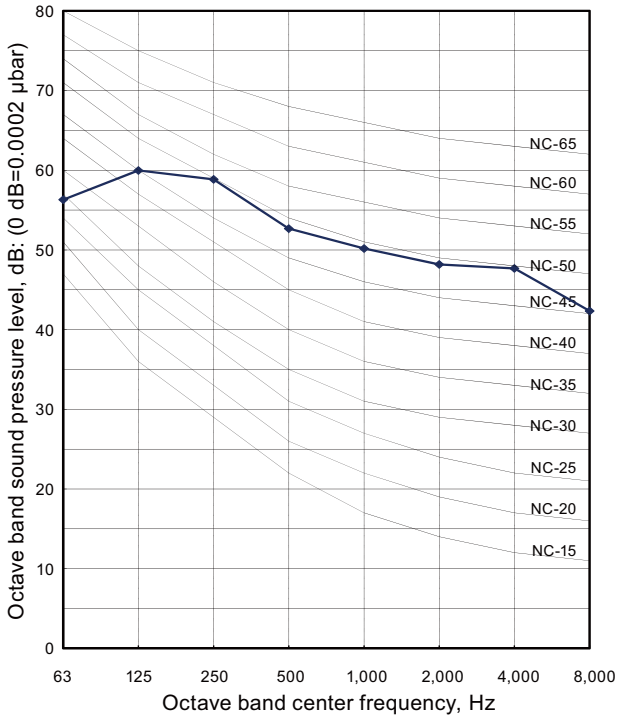


● Heating

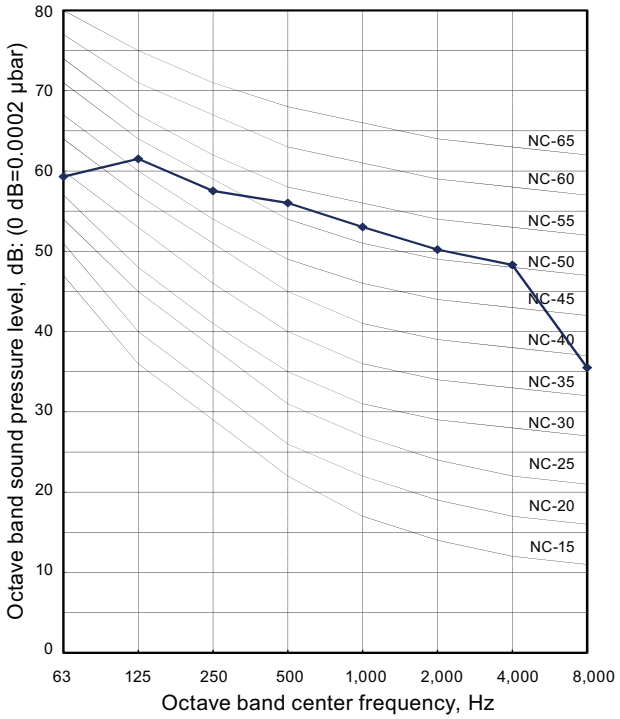


■ Model: AOYG54LBTA

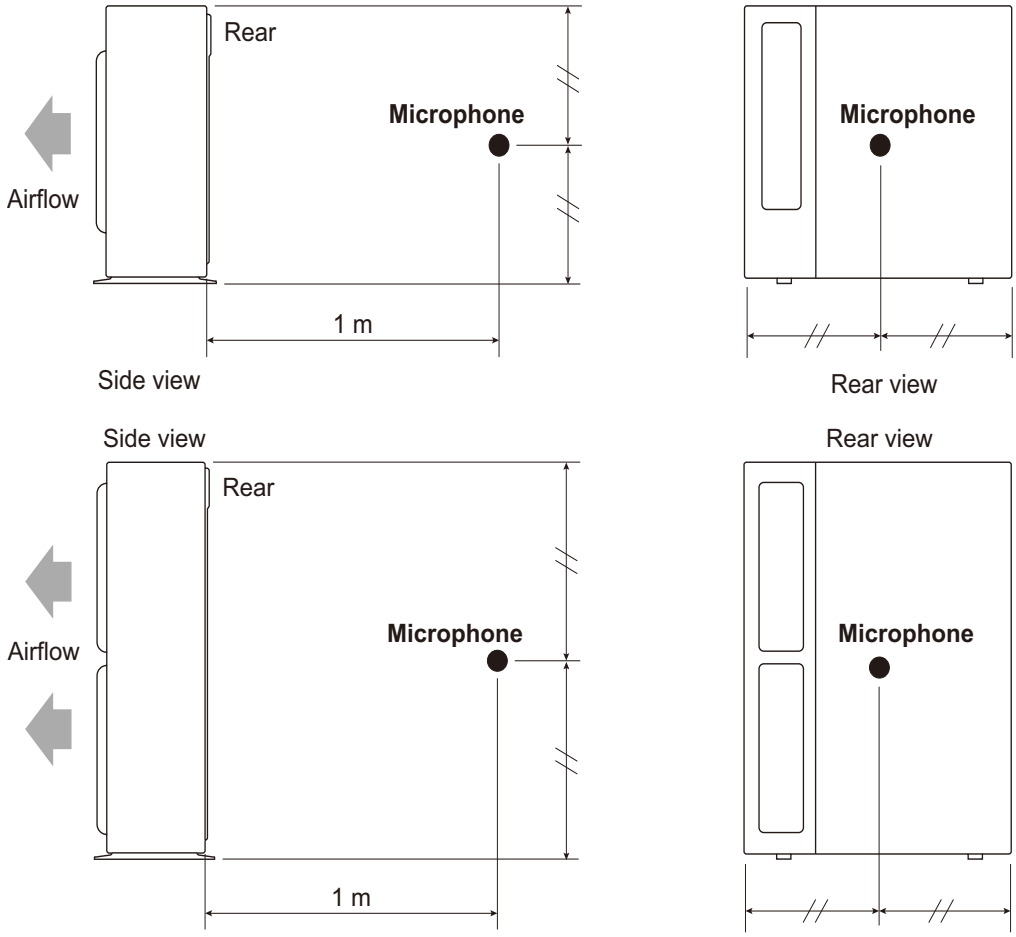
● Cooling



● Heating



9-2. Sound level check point



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

10. Electrical characteristics

Model name			AOYG12LBLA	AOYG14LBLA	AOYG18LBCA	AOYG24LBCA
Power supply	Voltage	V	230 ~			
	Frequency	Hz	50			
Max operating current *1		A	10.5	13.0	13.5	18.5
Wiring spec. *2	Circuit breaker current	A	25	25	25	30
	Power cable	mm^2	4.0			
	Connection cable *3	mm^2	1.5 — 2.5			
	Limited wiring length	m	26		31	

Model name			AOYG30LBTA	AOYG36LBTA	AOYG45LBTA	AOYG54LBTA
Power supply	Voltage	V	230 ~			
	Frequency	Hz	50			
Max operating current *1		A	17.0	20.0	22.5	23.5
Wiring spec. *2	Circuit breaker current	A	30			
	Power cable	mm^2	4.0		6.0	
	Connection cable *3	mm^2	1.5 — 2.5			
	Limited wiring length	m	51			

*1: Maximum 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%. Increase conductor size if voltage drop is 2% or more.

11. Safety devices

Type of protection	Protection form			Model	
				AOYG12LBLA	AOYG14LBLA
Circuit protection	Current fuse (Filter PCB)			-	
	Current fuse (Main PCB)			250 V, 15A 250 V, 3.15A	
	Current fuse (Near the terminal)			250 V, 20A 250 V, 5A	
Fan motor protection	Thermal protection program		Activate	100+15/-10°C Fan motor stop	
			Reset	95+15/-10°C Fan motor restart	
Compressor protection	Terminal protection program (Compressor temp.)		Activate	110°C Compressor stop	
			Reset	After 40minutes and 80°C or less Compressor restart	
	Thermal protection program (Discharge temp.)		Activate	110°C Compressor stop	
			Reset	After 7 minutes Compressor restart	
High pressure protection	Pressure switch		Activate	-	
			Reset	-	
	Pressure sensor	Heating	Activate	-	
			Reset	-	
	Thermal protection program (Heat exchanger temp.)	Cooling	Activate	67°C Compressor stop	
			Reset	After 3 minutes Compressor restart	
Low pressure protection	Pressure sensor	Cooling	Activate	-	
			Reset	-	

Type of protection	Protection form			Model	
				AOYG18LBCA	AOYG24LBCA
Circuit protection	Current fuse (Filter PCB)			-	
	Current fuse (Main PCB)			250 V, 20A 250 V, 5A	
	Current fuse (Near the terminal)			-	
Fan motor protection	Thermal protection program		Activate	100±15°C Fan motor stop	
			Reset	95±10°C Fan motor restart	
Compressor protection	Terminal protection program (Compressor temp.)		Activate	108°C Compressor stop	
			Reset	80°C Compressor restart	
	Thermal protection program (Discharge temp.)		Activate	110°C Compressor stop	
			Reset	After 7 minutes Compressor restart	
High pressure protection	Pressure switch		Activate	4.2±0.1 MPa Compressor stop	
			Reset	3.2±0.15 MPa Compressor restart	
	Pressure sensor	Heating	Activate	-	
			Reset	-	
	Thermal protection program (Heat exchanger temp.)	Cooling	Activate	67°C Compressor stop	
			Reset	After 3 minutes Compressor restart	
Low pressure protection	Pressure sensor	Cooling	Activate	-	
			Reset	-	

Type of protection	Protection form			Model	
				AOYG30LBTA	AOYG36LBTA
Circuit protection	Current fuse (Filter PCB)			250 V, 10A	
	Current fuse (Main PCB)			250 V, 3.15A × 2	
	Current fuse (Near the terminal)			250 V, 25A	
Fan motor protection	Thermal protection program		Activate	150±15°C Fan motor stop	
			Reset	120±15°C Fan motor restart	
Compressor protection	Terminal protection program (Compressor temp.)		Activate	108°C Compressor stop	
			Reset	80°C Compressor restart	
	Thermal protection program (Discharge temp.)		Activate	110°C Compressor stop	
			Reset	After 7 minutes Compressor restart	
High pressure protection	Pressure switch		Activate	4.2±0.1 MPa Compressor stop	
			Reset	3.2±0.15 MPa Compressor restart	
	Pressure sensor	Heating	Activate	-	
			Reset	-	
	Thermal protection program (Heat exchanger temp.)	Cooling	Activate	67°C Compressor stop	
			Reset	After 3 minutes Compressor restart	
Low pressure protection	Pressure sensor	Cooling	Activate	-	
			Reset	-	

Type of protection	Protection form			Model	
				AOYG45LBTA	AOYG54LBTA
Circuit protection	Current fuse (Filter PCB)			250 V, 30A 250 V, 10A × 2 250V, 3.15 A	
	Current fuse (Main PCB)			250 V, 3.15 A	
Fan motor protection	Thermal protection program		Activate	122±9°C Fan motor stop	
			Reset	116+10/-9°C Fan motor restart	
Compressor protection	Terminal protection program (Compressor temp.)		Activate	108°C Compressor stop	
			Reset	80°C Compressor restart	
	Thermal protection program (Discharge temp.)		Activate	110°C Compressor stop	
			Reset	After 7 minutes Compressor restart	
High pressure protection	Pressure switch		Activate	4.2±0.1 MPa Compressor stop	
			Reset	3.2±0.15 MPa Compressor restart	
	Pressure sensor	Heating	Activate	4.1 MPa Compressor stop	
			Reset	After 3 minutes Compressor restart	
	Thermal protection program (Heat exchanger temp.)	Cooling	Activate	67°C Compressor stop	
			Reset	63°C Compressor restart	
Low pressure protection	Pressure sensor	Cooling	Activate	0.12 MPa or less (for 5 minutes) Compressor stop	
			Reset	0.15 MPa Compressor restart	

12. External input and output (AOYG45LBTA and AOYG54LBTA)

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

Connector	Input	Output	Remarks
CN10	Low noise mode	—	See external input/output settings for details.
CN11	Peak cut mode	—	
CN12	—	Error status	
CN13	—	Compressor status	

12-1. External input

With using external input function, on/off status of “Low noise mode” and “Peak cut mode” can be specified by the external signal.

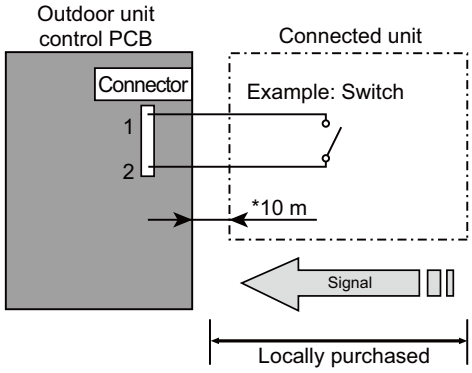
■ Low noise mode

In following condition, the operating noise of the outdoor unit reduces comparing from the one in normal operating condition:

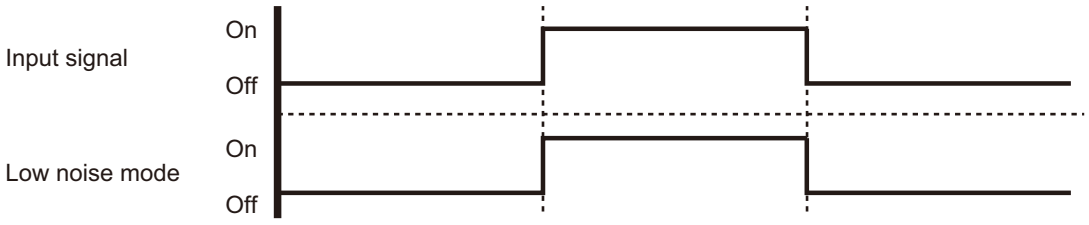
- The air conditioner is set to the “Low noise mode” when closing the contact input of a commercial timer or on/off switch to a connector on the control PCB of the outdoor unit.

NOTE: Product performance may drop depending on some conditions such as the outdoor temperature.

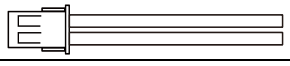
● Circuit diagram example



- Contact capacity: DC 24 V or more, 10 mA or more.
- *: Make the distance from the PCB to the connected unit within 10 m.
- Construct a circuit as shown in this figure with using optional parts mentioned below.
- Input signal: On in “Low noise mode”
- Input signal: Off in normal operation
- To set the level of “Low noise mode”, refer to “Low noise mode” on page 134.



● Optional part

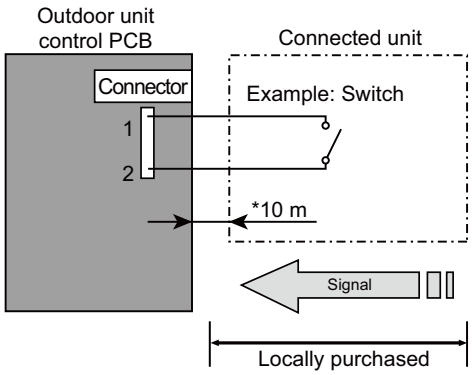
Part name	Model name	Exterior
External connect kit	UTY-XWZXZ3	

■ Peak cut mode

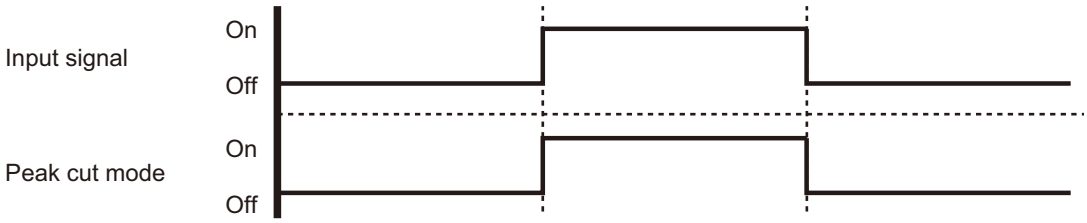
By performing following on-site work, operation that suppresses the current value can be enabled:

- The air conditioner is set to the “Peak cut mode” when closing the contact input of a commercial timer or on/off switch to a connector on the control PCB of the outdoor unit.

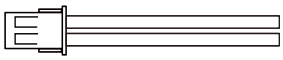
● Circuit diagram example



- Contact capacity: DC 24 V or more, 10 mA or more.
- *: Make the distance from the PCB to the connected unit within 10 m.
- Construct a circuit as shown in this figure with using optional parts mentioned below.
- Input signal: On in “Peak cut mode”
- Input signal: Off in normal operation
- To set the level of “Peak cut mode”, refer to “Peak cut mode” on page 135.



● Optional part

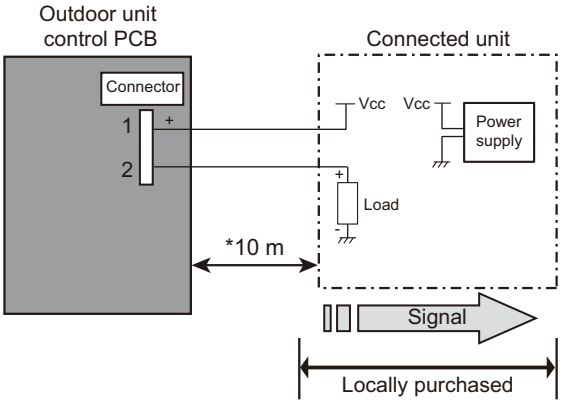
Part name	Model name	Exterior
External connect kit	UTY-XWZXZ3	

12-2. External output

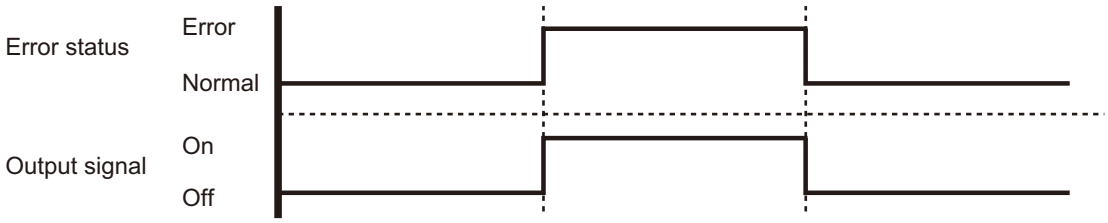
With using external output function, some status signals are transmitted to the control PCB, and the related LED lamp indicates the status of this product.

■ Error status output

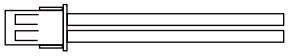
● Circuit diagram example



- 1: Power supply
  Voltage (Vcc): DC 24 V or less
- 2: Load
  DC 500 mA or less
- *: Make the distance from the PCB to the connected unit within 10 m.

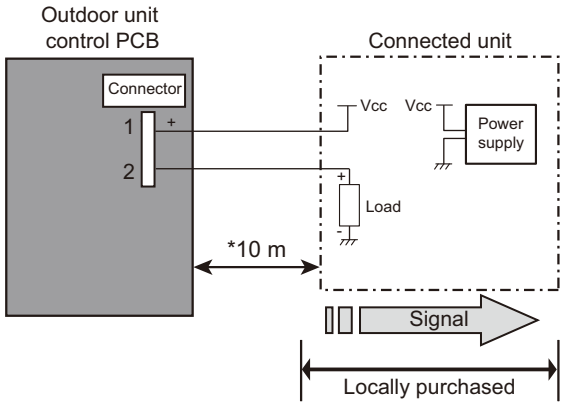


● Optional part

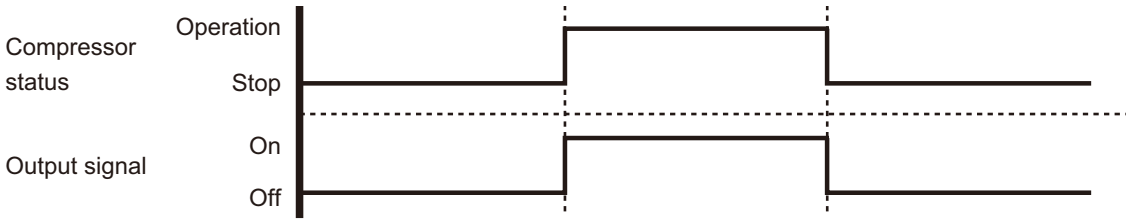
Part name	Model name	Exterior
External connect kit	UTY-XWZXZ3	

■ Compressor status output

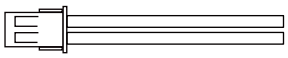
● Circuit diagram example



- 1: Power supply
  Voltage (Vcc): DC 24 V or less
- 2: Load
  DC 500 mA or less
- *: Make the distance from the PCB to the connected unit within 10 m.



● Optional part

Part name	Model name	Exterior
External connect kit	UTY-XWZXZ3	

13. Function settings

Perform appropriate function setting locally according to the installation environment.

NOTE: Incorrect settings can cause a product malfunction.

⚠CAUTION

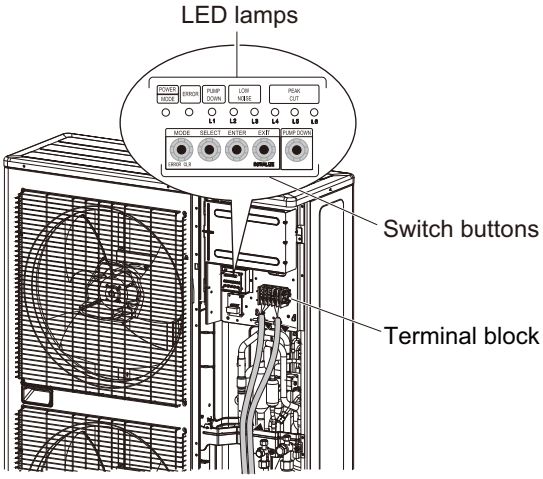
- Before setting up the switch buttons, discharge the static electricity from your body.
- Never touch the terminals or the patterns on the parts that are mounted on the PCB.

13-1. Local setting switch buttons

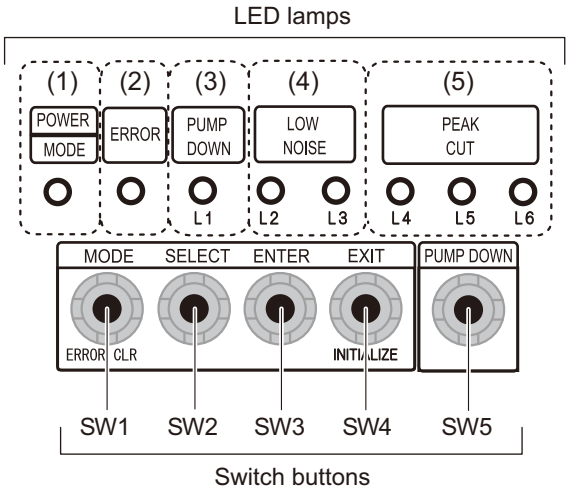
■ Control PCB and switch buttons location

Control PCB of the outdoor unit is located as shown in the following figure.

● Models: AOYG45LBTA and AOYG54LBTA



■ Switch buttons and the functions



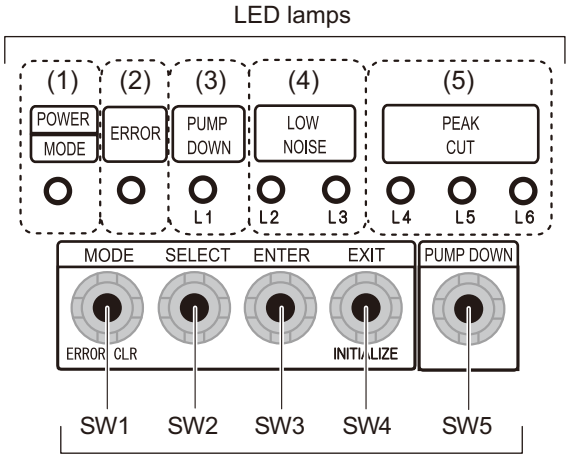
LED lamp			Function or operation method
(1)	POWER/MODE	Green	Lights on while power on. Local setting in outdoor unit or error code is displayed with blink.
(2)	ERROR	Red	Blinks during error operation.
(3)	PUMP DOWN (L1)	Orange	Lights on during pump down operation.
(4)	LOW NOISE MODE (L2 and L3)	Orange	Lights on during “Low noise mode” when local setting is activated. (Lighting pattern of L2 and L3 indicates low noise level.)
(5)	PEAK CUT MODE (L4, L5, and L6)	Orange	Lights on during “Peak cut mode” when local setting is activated. (Lighting pattern of L4, L5, and L6 indicates peak cut level.)

Switch button		Function or operation method
SW1	MODE	Switches between “Local setting” and “Error code display”.
SW2	SELECT	Switches between the individual “Local settings” and the “Error code displays”.
SW3	ENTER	Switches between the individual “Local settings” and the “Error code displays”.
SW4	EXIT	Returns to “Operation status display”.
SW5	PUMP DOWN	Starts the pump down operation.

13-2. Local setting procedure

NOTE: Before performing the function setting, be sure to stop the operation of the air conditioner.

■ Low noise mode



1. Press the MODE switch button (SW1) for 3 seconds or more to switch to “Local setting mode”.
2. After confirming the LED lamp of POWER/MODE blinks 9 times, press the ENTER switch button (SW3).

POWER / MODE	ERROR	PUMP DOWN (L1)	LOW NOISE (L2)	LOW NOISE (L3)	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
Blinks (9 times)	○	○	○	○	○	○	○

Sign “ ○ ”: Lights off

3. Press the SELECT switch button (SW2), and adjust the LED lamp as shown below. Then the LED lamp indicates the current setting.

	LOW NOISE (L2)	LOW NOISE (L3)
LOW NOISE MODE	○	Blink

4. Press the ENTER switch button (SW3).

	LOW NOISE (L2)	LOW NOISE (L3)
LOW NOISE MOD E	○	●

Sign “ ● ”: Lights on

5. Press the SELECT switch button (SW2), and adjust the LED lamps as shown below.

	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
MODE 1	○	○	Blink
MODE 2	○	Blink	○

6. Press the ENTER switch button (SW3) and fix it.

	PEAK CUT		
	(L4)	(L5)	(L6)
MODE 1	○	○	●
MODE 2	○	●	○

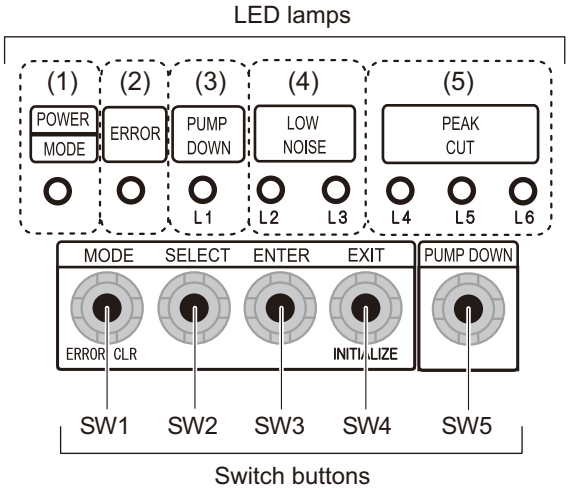
7. To return to “Operating status display (Normal operation)”, press the EXIT switch button (SW4).

In case of missing how many times you pressed the SELECT and ENTER switch buttons:

1. To return to “Operation status display (Normal operation)”, press the EXIT switch button once.
2. Restart from the beginning of setting procedure.

NOTE: In case of missing how many times you pressed the SELECT and ENTER switch buttons, you must redo the setting procedure. Return to “Operation status display (Normal operation)” by pressing the EXIT switch button once, and restart from the beginning of the setting procedure.

■ Peak cut mode



1. Press the MODE switch button (SW1) for 3 seconds or more to switch to “Local setting mode”.
2. After confirming the LED lamp of POWER/MODE blinks 9 times, press the ENTER switch button (SW3).

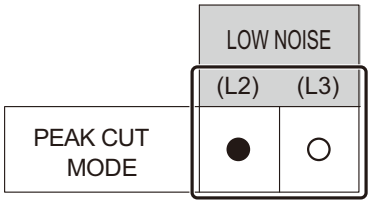
POWER / MODE	ERROR	PUMP DOWN (L1)	LOW NOISE (L2)	LOW NOISE (L3)	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
Blinks (9 times)	○	○	○	○	○	○	○

Sign “ ○ ”: Lights off

3. Press the SELECT switch button (SW2), and adjust the LED lamp as shown below. Then the LED lamp indicates the current setting.

	LOW NOISE	
	(L2)	(L3)
PEAK CUT MOD E	Blink	○

4. Press the ENTER switch button (SW3).



Sign " ● ": Lights on

5. Press the SELECT switch button (SW2), and adjust the LED lamps as shown below.

	PEAK CUT		
	(L4)	(L5)	(L6)
100 % of rated input ratio	○	○	Blink
75 % of rated input ratio	○	Blink	○
50 % of rated input ratio	○	Blink	Blink
0 % of rated input ratio	Blink	○	○

6. Press the ENTER switch button (SW3) and fix it.

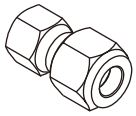
	PEAK CUT		
	(L4)	(L5)	(L6)
100 % of rated input ratio	○	○	●
75 % of rated input ratio	○	●	○
50 % of rated input ratio	○	●	●
0 % of rated input ratio	●	○	○

7. To return to "Operating status display (Normal operation)", press the EXIT switch button (SW4).

NOTE: When pressed number is lost during setting, you must redo the setting procedure. Return to "Operation status display (Normal operation)" by pressing the EXIT switch button once, and restart from the beginning of the setting procedure.

14. Accessories

14-1. Models: AOYG12LBLA and AOYG14LBLA

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Drain cap		1
Drain pipe		1	Adapter, 6.35 (1/4)→9.52 (3/8) [mm (in)] (for 12 model)		1

14-2. Models: AOYG18LBCA and AOYG24LBCA

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Drain cap		3
Drain pipe		1			

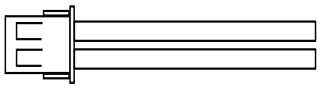
14-3. Models: AOYG30LBTA and AOYG36LBTA

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Drain cap		2
Drain pipe		1			

14-4. Models: AOYG45LBTA and AOYG54LBTA

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Drain cap		2
Drain pipe		1	One-touch bush		2

15. Optional parts

Exterior	Part name	Model name	Summary
	External connect kit	UTY-XWZXZ3	Use to operate the external input and output functions of outdoor unit. (For 45 and 54 models)