GENERAL

REFRIGERANT R32
INVERTER

AIR CONDITIONER

Simultaneous multi

DESIGN & TECHNICAL MANUAL

INDOOR			
	AUXG18KVLA × 2 AUXG22KVLA × 2 AUXG24KVLA × 2 AUXG18KVLA × 3	ARXG18KLLAP × 2 ARXG18KLLAP × 3	ARXG22KMLA × 2 ARXG24KMLA × 2
OUTDOOR			
	AOHG36KBTB	AOHG45KBTB AOHG54KBTB	

FUJITSU GENERAL LIMITED

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2019.05.10

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

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Part 1. INDOOR UNIT

COMPACT CASSETTE TYPE:
AUXG18KVLA
AUXG22KVLA
AUXG24KVLA

SLIM DUCT TYPE:
ARXG18KLLAP

DUCT TYPE:
ARXG22KMLA
ARXG24KMLA

INDOOR UNITS
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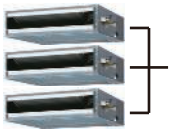
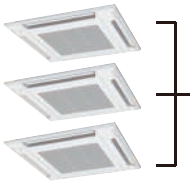
1. Model lineup

Indoor unit	Outdoor unit
Twin	
18 kBtu/h × 2	
 ARXG18KLLAP	 AOHG36KBTB
 AUXG18KVLA	

Indoor unit	Outdoor unit
Twin	
22 kBtu/h × 2	
 ARXG22KMLA	 AOHG45KBTB
 AUXG22KVLA	

Indoor unit		Outdoor unit
Twin	Triple	
24 kBtu/h × 2	18 kBtu/h × 3	
 ARXG24KMLA	 ARXG18KLLAP	 AOHG54KBTB
 AUXG24KVLA	 AUXG18KVLA	

INDOOR UNITS
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2. Specifications

2-1. Compact cassette type

Model name					AUXG18KVLA	AUXG22KVLA	AUXG24KVLA
Power supply					230 V ~50 Hz		
Power supply intake					Outdoor unit		
Available voltage range					198—264 V		
Fan	Airflow rate	Cooling	HIGH	m^3/h	680	830	930
			MED		580	740	830
			LOW		490	600	600
			QUIET		410	450	450
		Heating	HIGH		800	860	930
			MED		680	760	860
			LOW		580	700	700
			QUIET		450	530	530
	Type × Q'ty				Turbo fan × 1		
	Motor output			W	54		
Sound pressure level*1		Cooling	HIGH	dB (A)	38	44	49
			MED		34	42	44
			LOW		30	36	36
			QUIET		26	30	30
		Heating	HIGH		43	45	49
			MED		38	43	45
			LOW		34	40	40
			QUIET		30	33	33
Heat exchanger type		Dimensions (H × W × D)		mm	210 × 1,310 × 13.3 210 × 1,250 × 13.3	210 × 1,360 × 13.3 210 × 1,295 × 13.3 210 × 1,235 × 13.3	
		Fin pitch		mm	1.20	1.45	
		Rows × Stages			2 × 10	3 × 10	
		Pipe type			Copper tube		
		Fin type			Aluminum		
Dimensions (H × W × D)	Net			mm	245 × 570 × 570		
	Gross				265 × 730 × 625		
Weight	Net			kg	15	16	
	Gross				19	20	
Connection pipe	Size	Liquid		mm (in)	Ø6.35 (1/4)		
		Gas			Ø12.70 (1/2)		
	Method				Flare		
Operation range		Cooling		°C	18 to 32		
				%RH	80 or less		
		Heating		°C	16 to 30		
Drain hose	Material				PVC		
	Size			mm	Ø25 (I.D.), Ø32 (O.D.)		
Cassette grille (Option)		Model name			UTG-UFGF-W		
		Material			PS		
		Color			White Approximate color of Munsell 9PB 9.1/0.2		
		Dimensions (H × W × D)	Net	mm	49 × 620 × 620		
			Gross		120 × 765 × 755		
		Weight	Net	kg	2.3		
			Gross		4.5		
Remote controller type (option)					Wired remote controller, Wireless remote controller, Mobile app*2 (FGLair™)		

NOTES:

- The protective function might work when using it outside the operation range.
- *1: Sound pressure level:
  - These are the measured values in the 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: Available on Google Play™ store or on App Store®. Optional WLAN adapter is also required. For details, refer to the setting manual.

INDOOR UNITS
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2-2. Slim duct type

Model name					ARXG18KLLAP
Power supply					230 V ~50 Hz
Power supply intake					Outdoor unit
Available voltage range					198—264 V
Fan	Airflow rate	Cooling	HIGH	m^3/h	940
			MED		880
			LOW		820
			QUIET		750
		Heating	HIGH		940
			MED		880
			LOW		820
			QUIET		750
	Type × Q'ty				Sirocco fan × 3
	Motor output			W	96
Recommended static pressure				Pa	0 to 90
Sound pressure level*1		Cooling	HIGH	dB (A)	32
			MED		30
			LOW		29
			QUIET		27
		Heating	HIGH		32
			MED		30
			LOW		29
			QUIET		27
Heat exchanger type		Dimensions (H × W × D)		mm	294 × 700 × 39.9
		Fin pitch		mm	1.30
		Rows × Stages			3 × 14
		Pipe type			Copper tube
		Fin type			Aluminum
Enclosure	Material				Steel sheet
	Color				—
Dimensions (H × W × D)	Net			mm	198 × 900 × 620
	Gross				276 × 1,168 × 772
Weight	Net			kg	20
	Gross				26
Connection pipe	Size	Liquid		mm (in)	Ø6.35 (1/4)
		Gas			Ø12.70 (1/2)
	Method				Flare
Operation range		Cooling		°C	18 to 32
				%RH	80 or less
		Heating		°C	16 to 30
Drain hose	Material				PVC
	Size			mm	Ø25 (I.D.), Ø32 (O.D.)
Remote controller type (option)					Wired remote controller, Wireless remote controller, Mobile app*2 (FGLair™)

NOTES:

- Values mentioned in the table are based on the following conditions:
  - Static pressure: 25 Pa
- The protective function might work when using it outside the operation range.
- *1: Sound pressure level:
  - These are the measured values in the 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: Available on Google Play™ store or on App Store®. Optional WLAN adapter is also required. For details, refer to the setting manual.

INDOOR UNITS
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2-3. Duct type

Model name					ARXG22KMLA	ARXG24KMLA
Power supply					230 V ~ 50 Hz	
Power supply intake					Outdoor unit	
Available voltage range					198—264 V	
Fan	Airflow rate	Cooling	HIGH	m^3/h	1,100	
			MED		910	
			LOW		750	
			QUIET		580	
		Heating	HIGH		1,100	
			MED		910	
			LOW		750	
			QUIET		580	
	Type × Q'ty				Sirocco fan × 2	
	Motor output			W	106	
Recommended static pressure				Pa	30 to 150	
Sound pressure level*1		Cooling	HIGH	dB (A)	31	
			MED		29	
			LOW		27	
			QUIET		25	
		Heating	HIGH		31	
			MED		29	
			LOW		27	
			QUIET		25	
Heat exchanger type		Dimensions (H × W × D)		mm	294 × 1,000 × 39.9	
		Fin pitch		mm	1.40	
		Rows × Stages			3 × 14	
		Pipe type			Copper	
		Fin type			Aluminum	
Enclosure	Material				Steel sheet	
	Color				—	
Dimensions (H × W × D)	Net			mm	270 × 1,135 × 700	
	Gross				300 × 1,320 × 790	
Weight	Net			kg	35	
	Gross				43	
Connection pipe	Size	Liquid		mm (in)	Ø6.35 (1/4)	
		Gas			Ø12.70 (1/2)	
	Method				Flare	
Operation range		Cooling		°C	18 to 32	
				%RH	80 or less	
		Heating		°C	16 to 30	
Drain port	Material				Steel	
	Size			mm	Ø35.7 (I.D.), Ø38.1 (O.D.)	
Remote controller type (option)					Wired remote controller, Wireless remote controller, Mobile app*2 (FGLair™)	

NOTES:

- Values mentioned in the table are based on the following conditions:
  - Static pressure: 35 Pa
- The protective function might work when using it outside the operation range.
- *1: Sound pressure level:
  - These are the measured values in the 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: Available on Google Play™ store or on App Store®. Optional WLAN adapter is also required. For details, refer to the setting manual.

INDOOR UNITS
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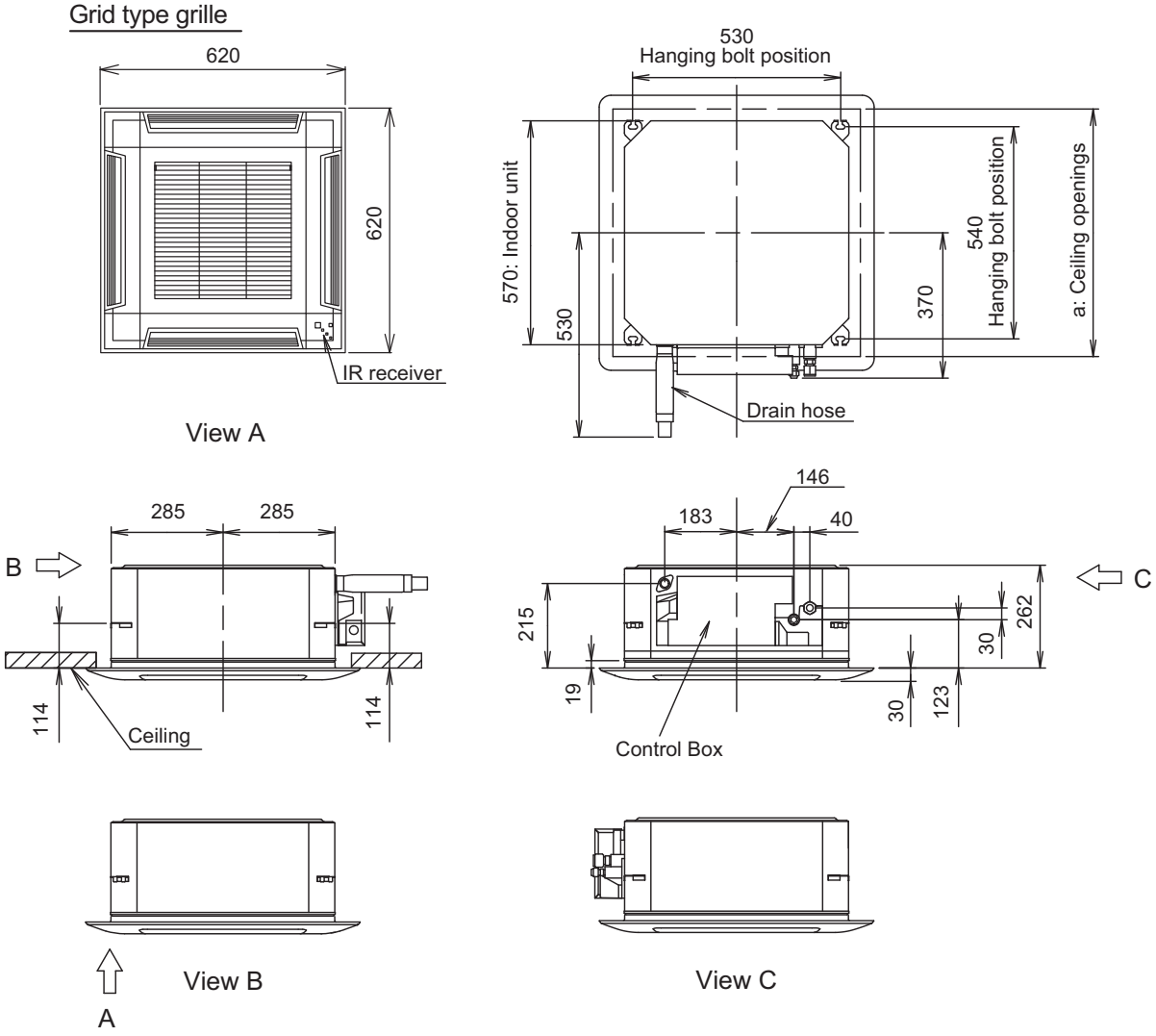
3. Dimensions

3-1. Compact cassette type

■ Models: AUXG18KVLA, AUXG22KVLA, and AUXG24KVLA

Unit: mm



a: Ceiling openings		
Cassette grille (Option [Grid type])	mm	580 to 610

INDOOR UNITS
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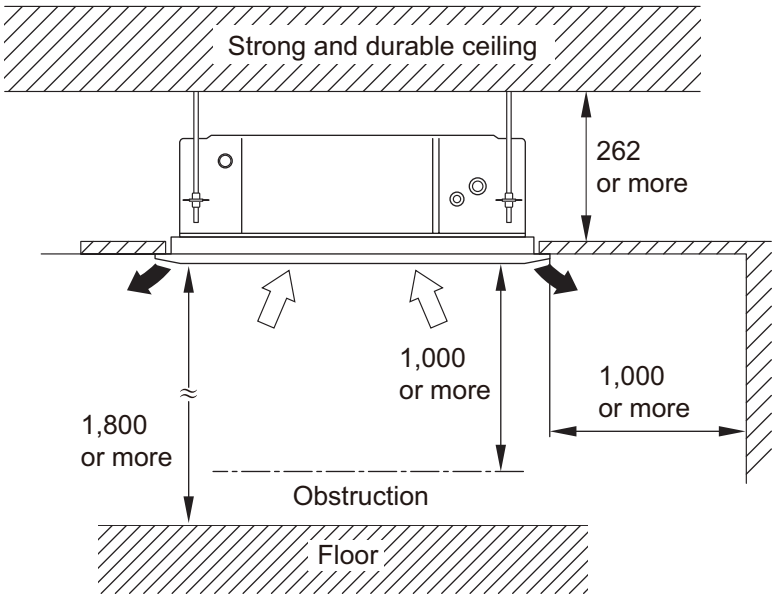
● Installation space requirement

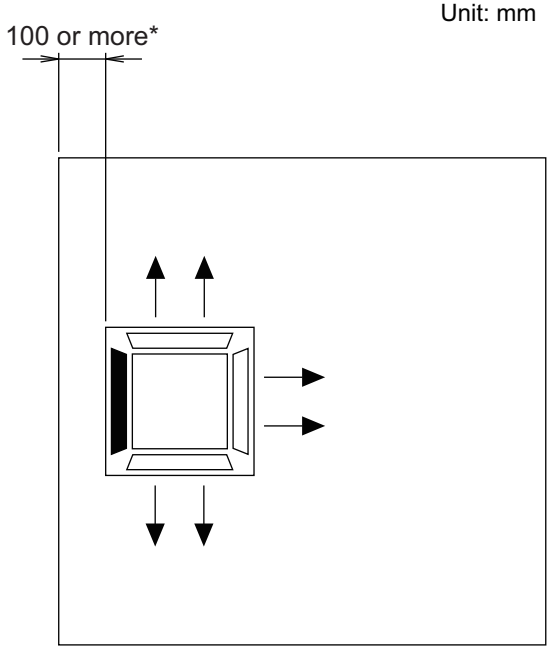
Unit: mm



Maximum height from floor to ceiling (Unit: mm)	
Standard	2,700
High ceiling	3,000

3-way direction setting:

Unit: mm



NOTES:

- To set “3-direction”, optional Air outlet shutter plate (UTR-YDZB) must be installed, and the “outlet-direction” need to be switched to “3-way” by remote controller.
  *When installing the indoor unit, be careful about the maintenance space.
- The ceiling height cannot be set in the 3-way outlet mode. Therefore, ceiling height setting change by function setting 20 is prohibited. For details, refer to "Contents of function setting" on page 183.

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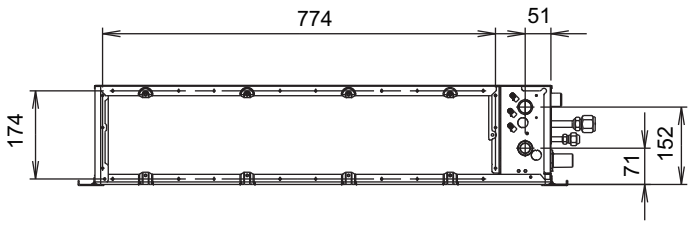
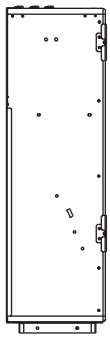
3-2. Slim duct type

■ Model: ARXG18KLLAP

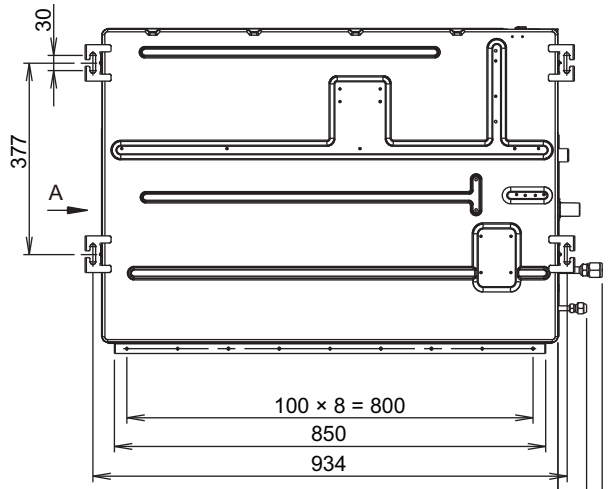
Unit: mm



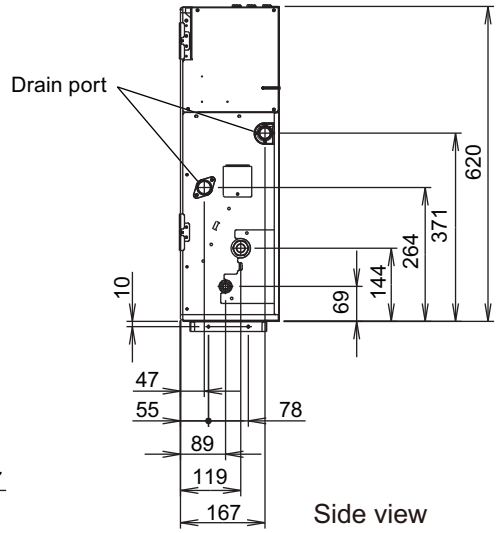
Rear view



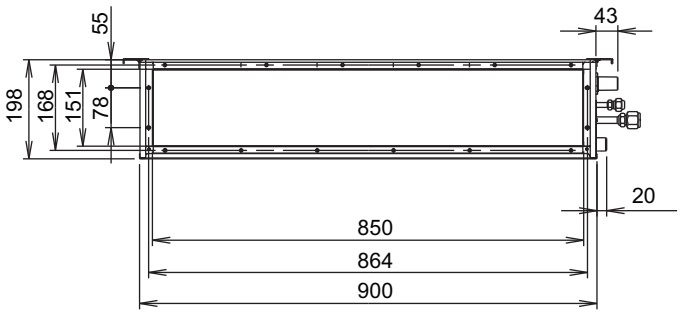
View A



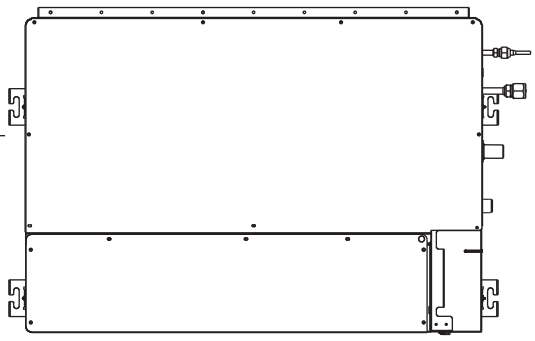
Top view



Side view



Front view



Bottom view

INDOOR UNITS
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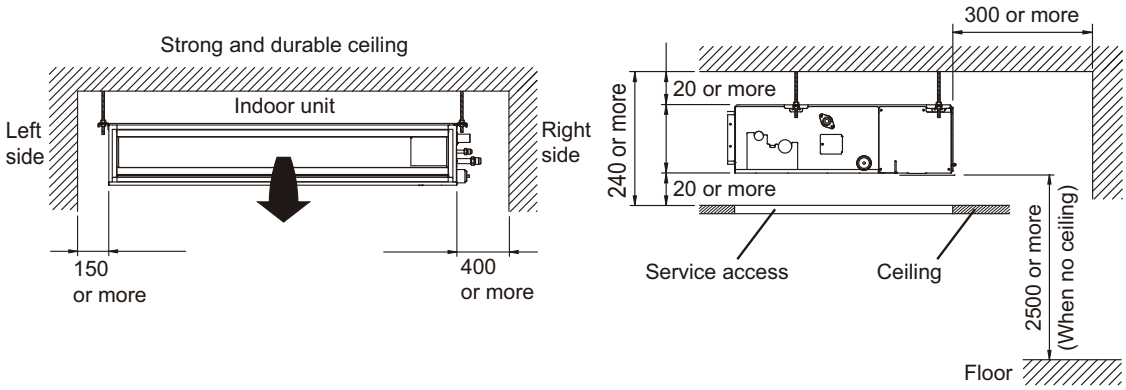
■ Installation space requirement

Provide sufficient installation space for product safety.

In ceiling-concealed installations:

Unit: mm

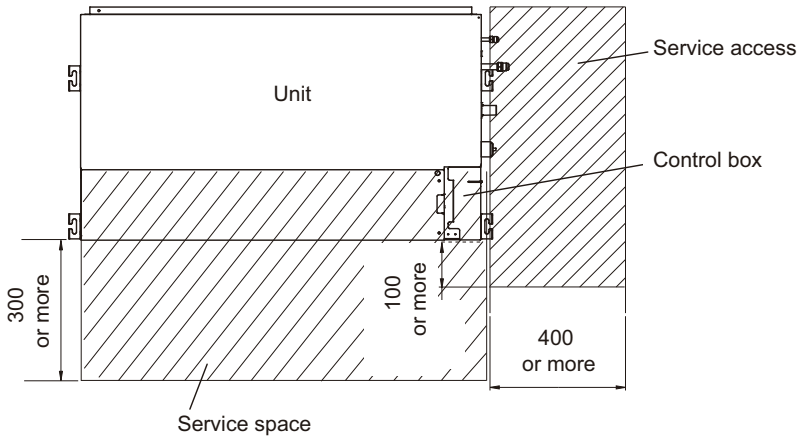


■ Maintenance space requirement

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.

Unit: mm

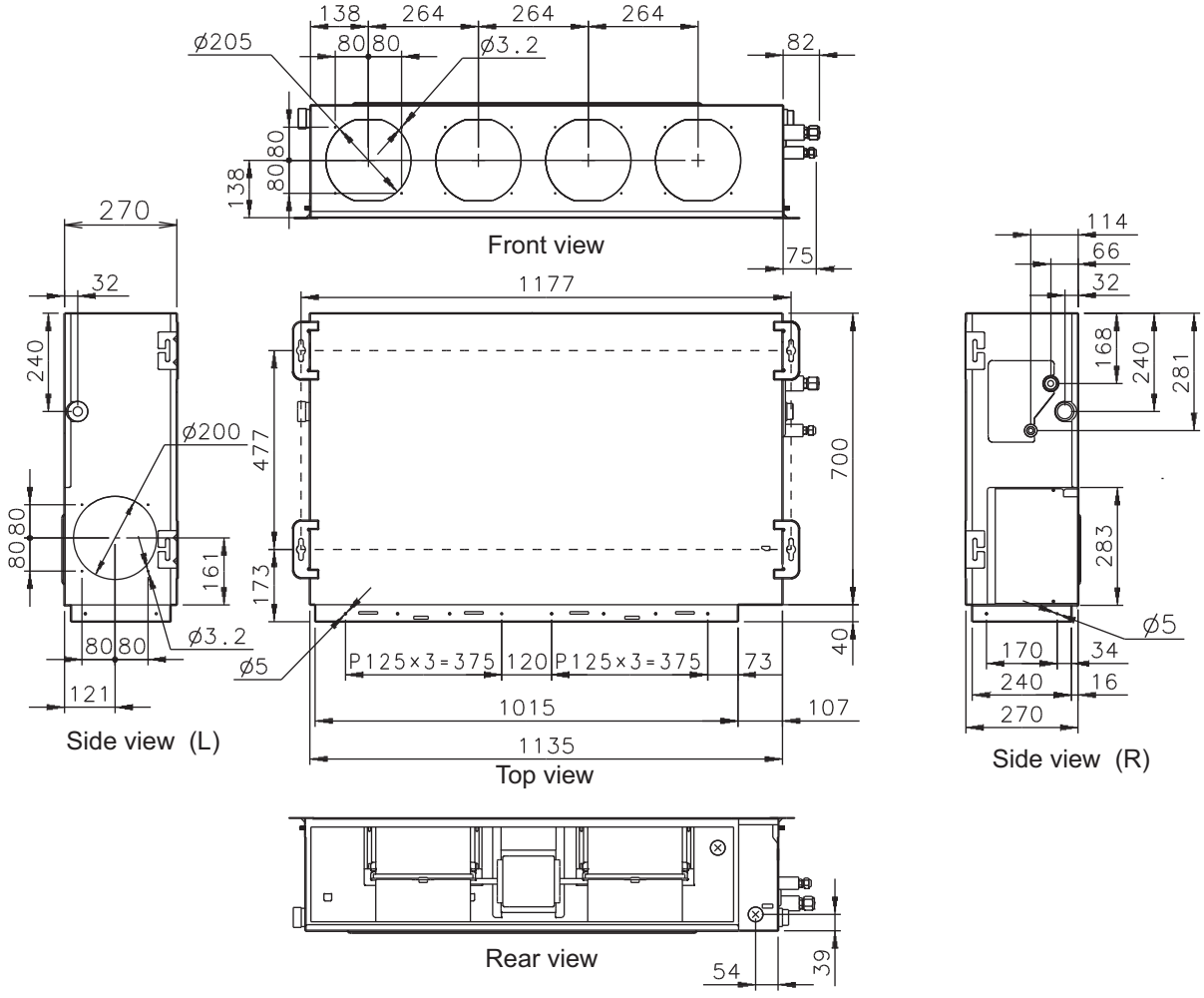


INDOOR UNITS
SIMULTANEOUS
MULTI

3-3. Duct type

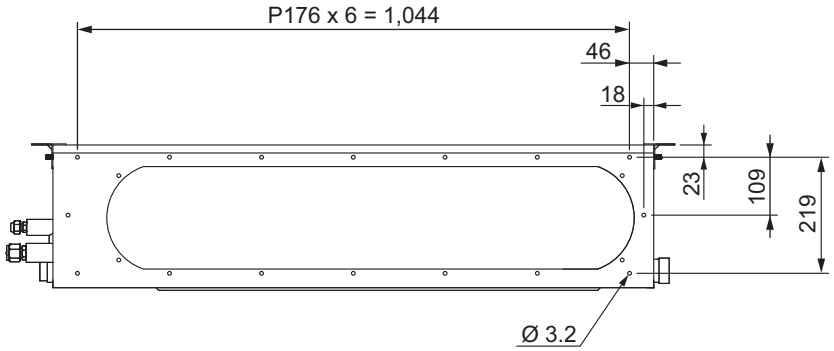
■ Models: ARXG22KMLA and ARXG24KMLA

Unit: mm



- **When using a square duct**

Unit: mm



INDOOR UNITS
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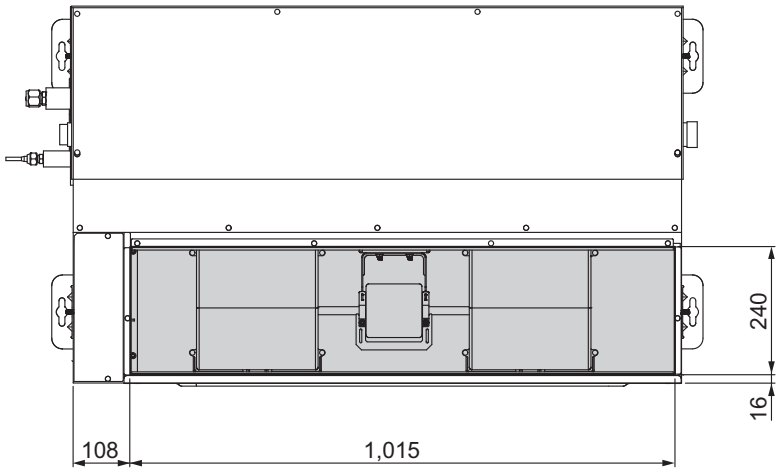
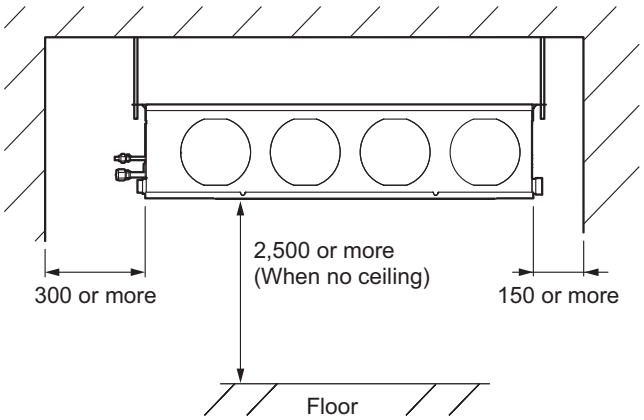
- **Bottom air intake hole**

Unit: mm



■ Installation space requirement

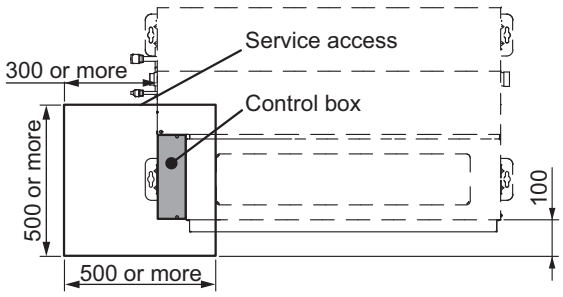
Unit: mm



■ Maintenance space requirement

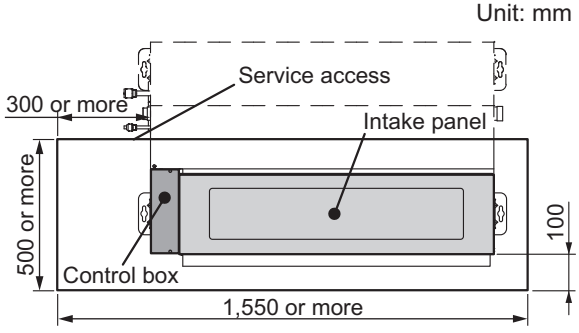
- **It shall be possible to install and remove the control box.**

Unit: mm



- **It shall be possible to install and remove the control box, fan units and filter.**

Unit: mm

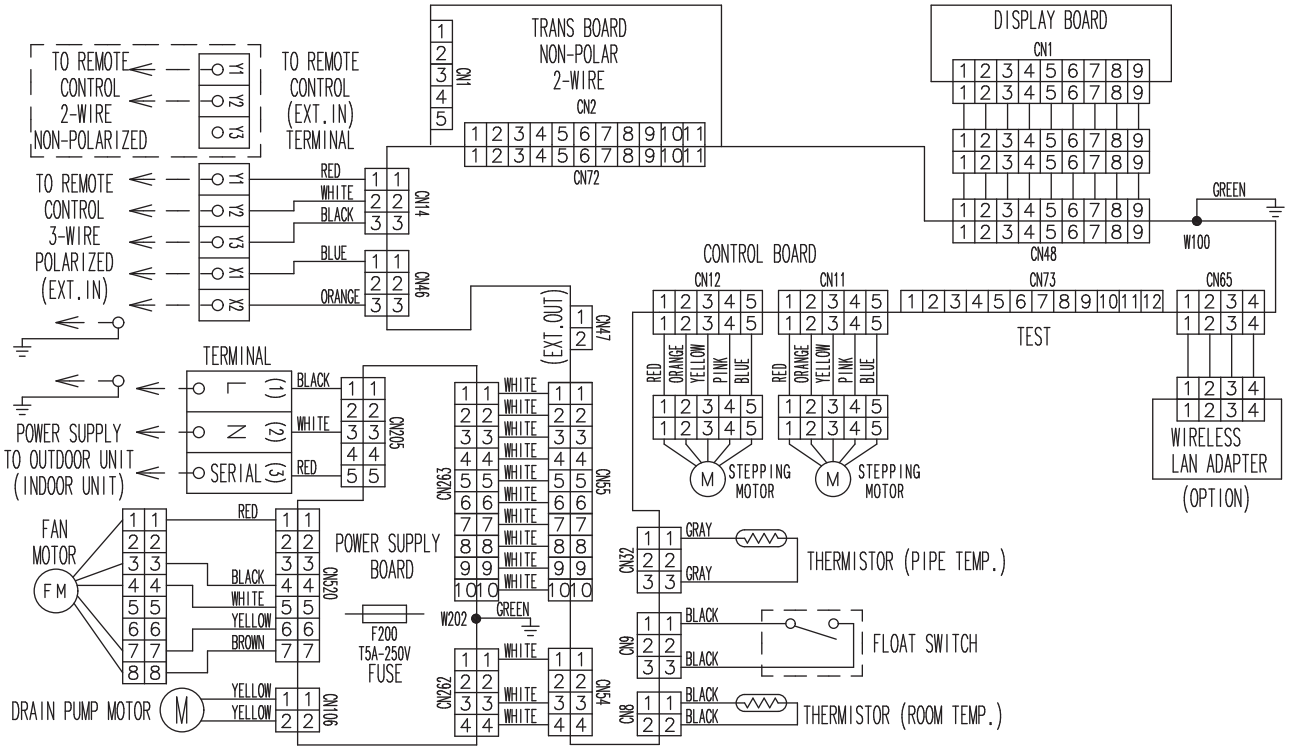


INDOOR UNITS
SIMULTANEOUS
MULTI

4. Wiring diagrams

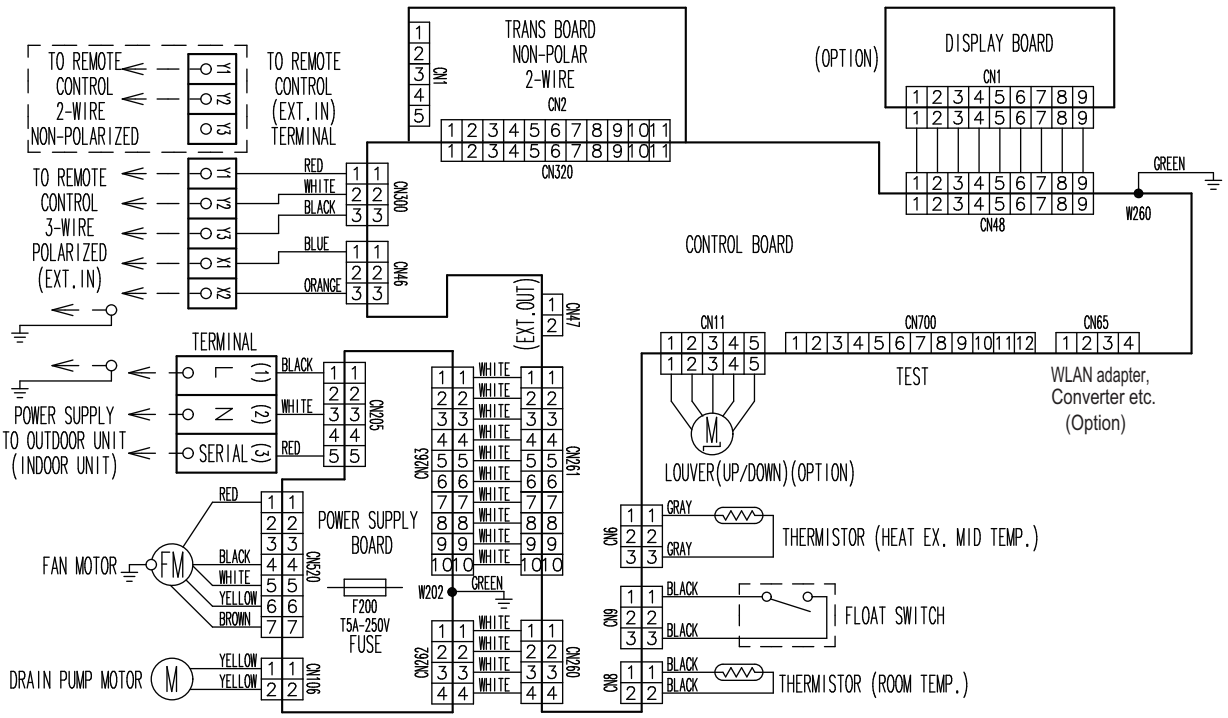
4-1. Compact cassette type

■ Models: AUXG18KVLA, AUXG22KVLA, and AUXG24KVLA



4-2. Slim duct type

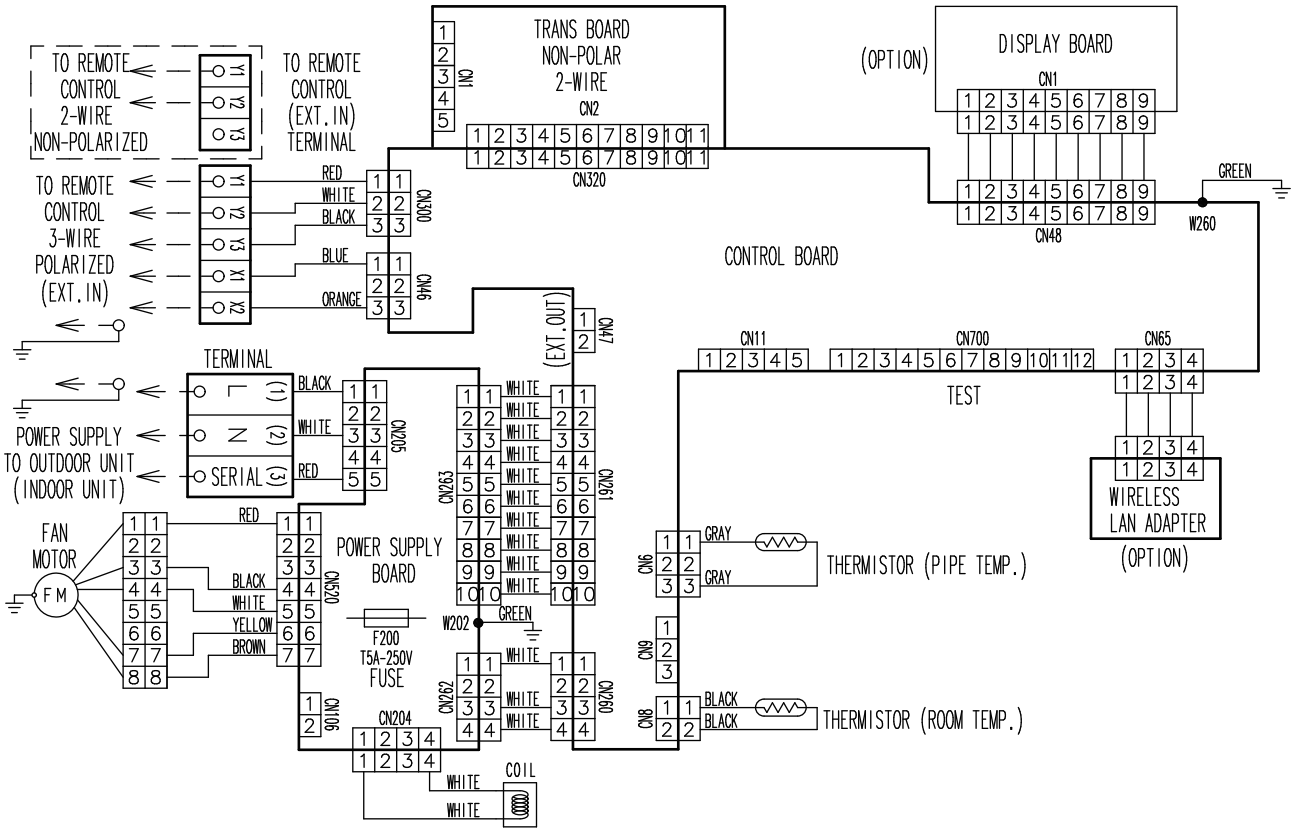
■ Model: ARXG18KLLAP



INDOOR UNITS
SIMULTANEOUS
MULTI

4-3. Duct type

■ Models: ARXG22KMLA and ARXG24KMLA



INDOOR UNITS
SIMULTANEOUS
MULTI

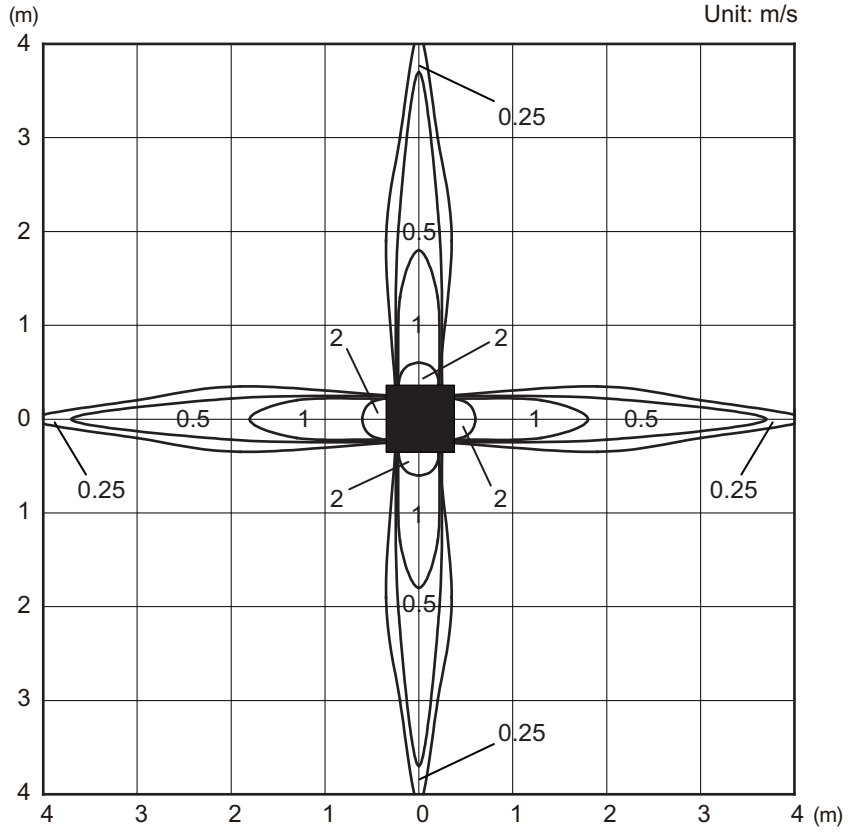
5. Air velocity and temperature distributions

5-1. Compact cassette type

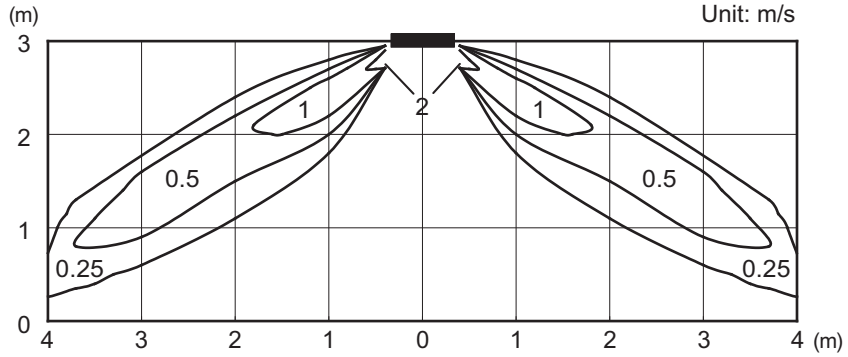
■ Model: AUXG18KVLA (4-way air outlet)

Measuring conditions	Fan speed	Operation mode	Ceiling mode
	HIGH	FAN	STANDARD

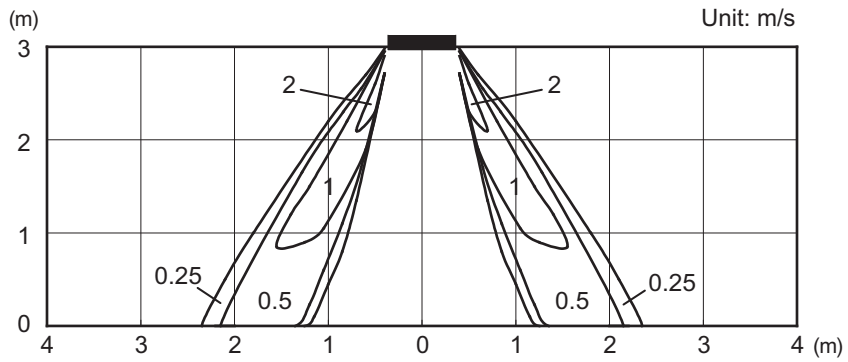
Top view
Vertical airflow direction louver: Upward



Side view
Vertical airflow direction louver: Upward



Side view
Vertical airflow direction louver: Downward

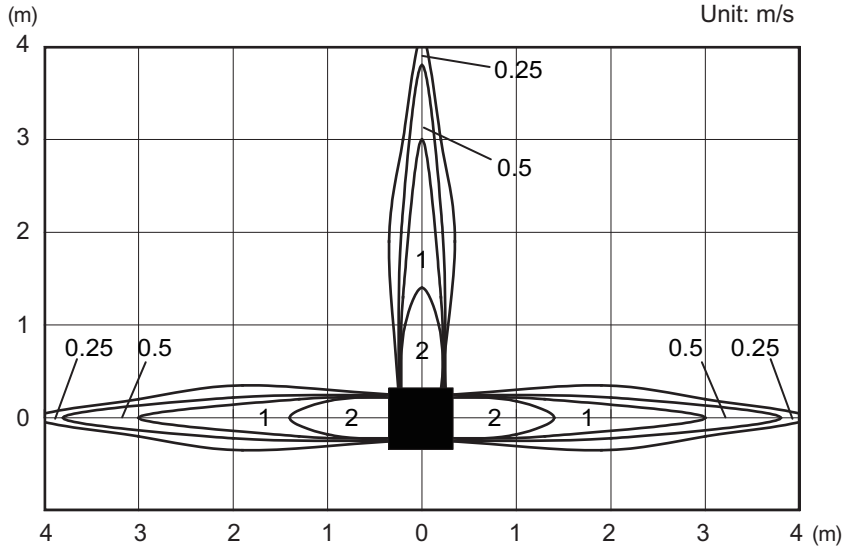


INDOOR UNITS
SIMULTANEOUS
MULTI

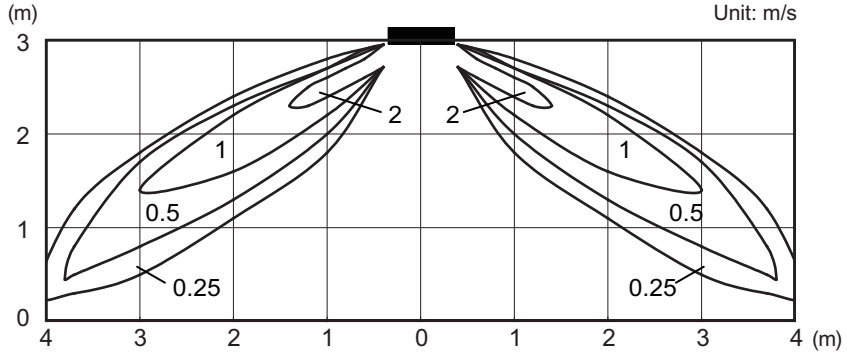
■ Model: AUXG18KVLA (3-way air outlet)

Measuring conditions	Fan speed	Operation mode	Ceiling mode
	HIGH	FAN	STANDARD

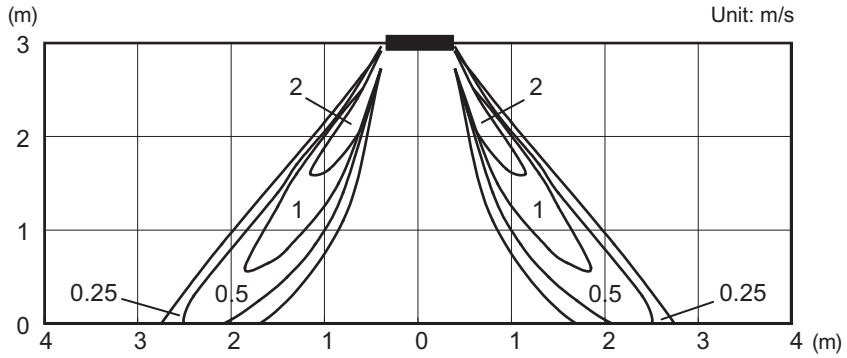
Top view
Vertical airflow direction louver: Upward



Side view
Vertical airflow direction louver: Upward



Side view
Vertical airflow direction louver: Downward

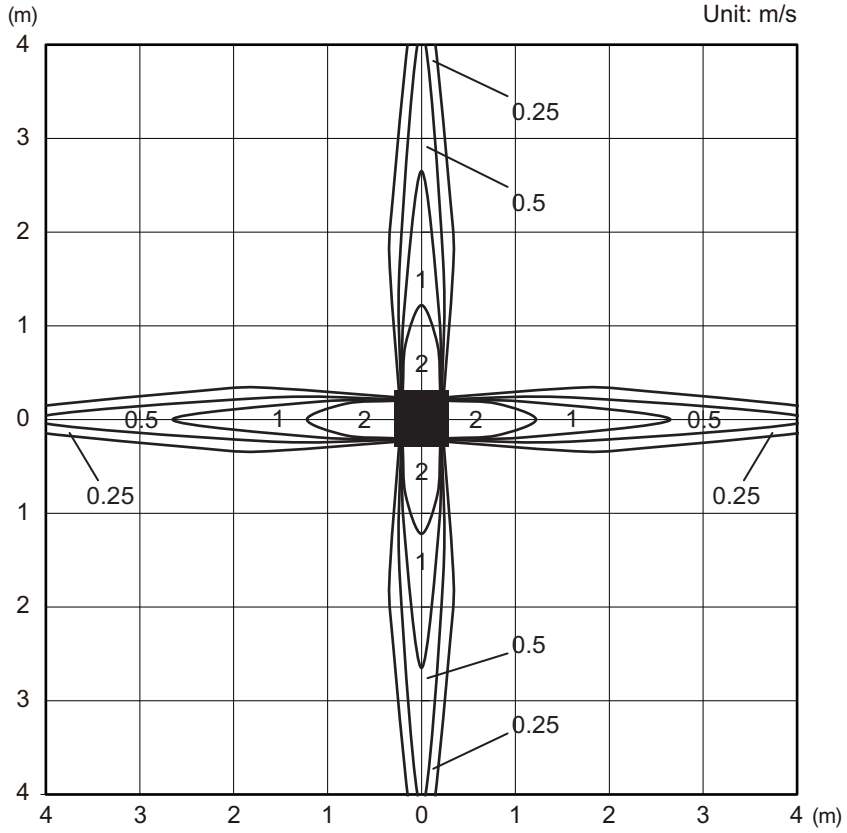


INDOOR UNITS
SIMULTANEOUS
MULTI

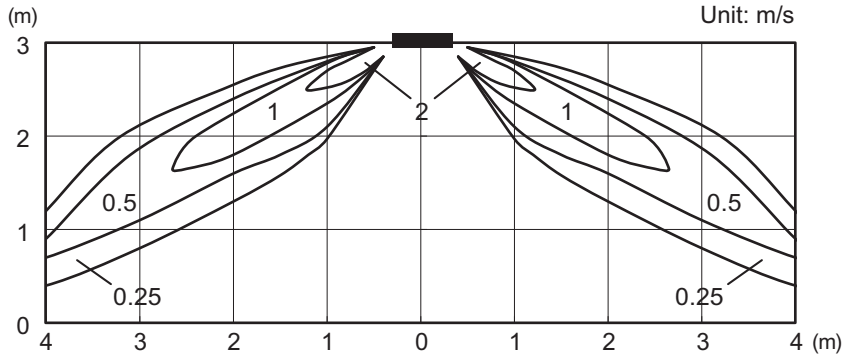
■ Model: AUXG22KVLA (4-way air outlet)

Measuring conditions	Fan speed	Operation mode	Ceiling mode
	HIGH	FAN	STANDARD

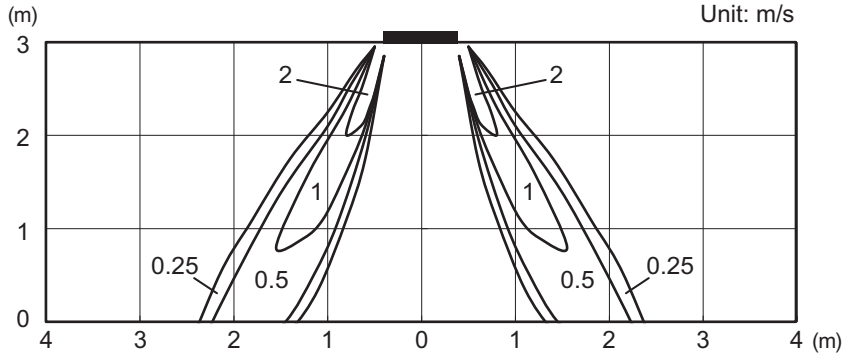
Top view
Vertical airflow direction louver: Upward



Side view
Vertical airflow direction louver: Upward



Side view
Vertical airflow direction louver: Downward

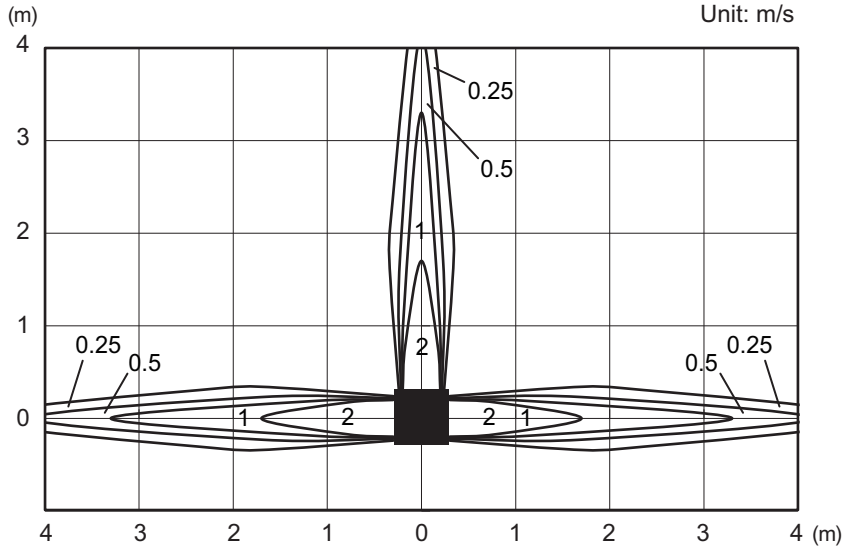


INDOOR UNITS
SIMULTANEOUS
MULTI

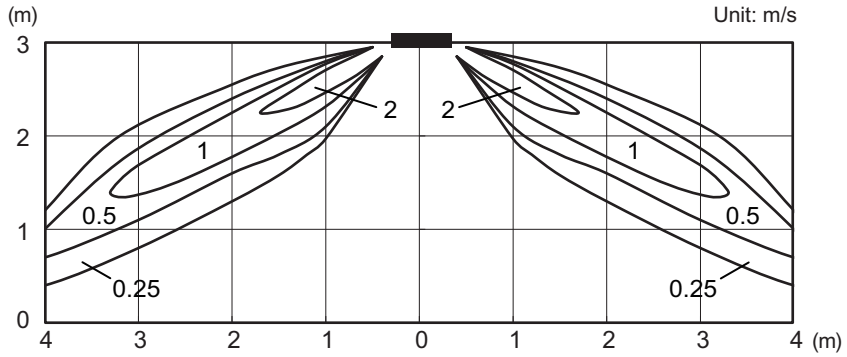
■ Model: AUXG22KVLA (3-way air outlet)

Measuring conditions	Fan speed	Operation mode	Ceiling mode
	HIGH	FAN	STANDARD

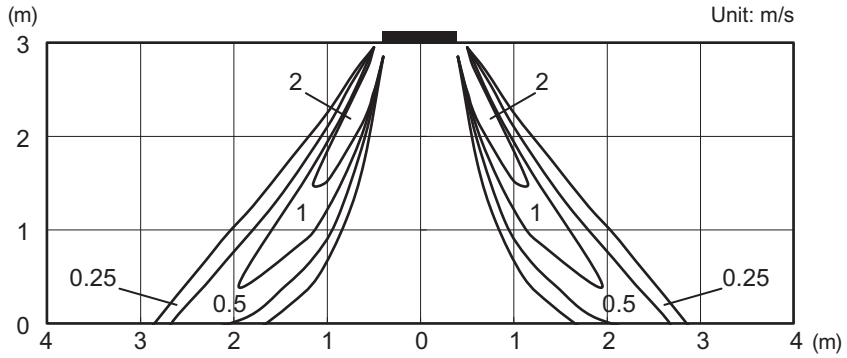
Top view
Vertical airflow direction louver: Upward



Side view
Vertical airflow direction louver: Upward



Side view
Vertical airflow direction louver: Downward

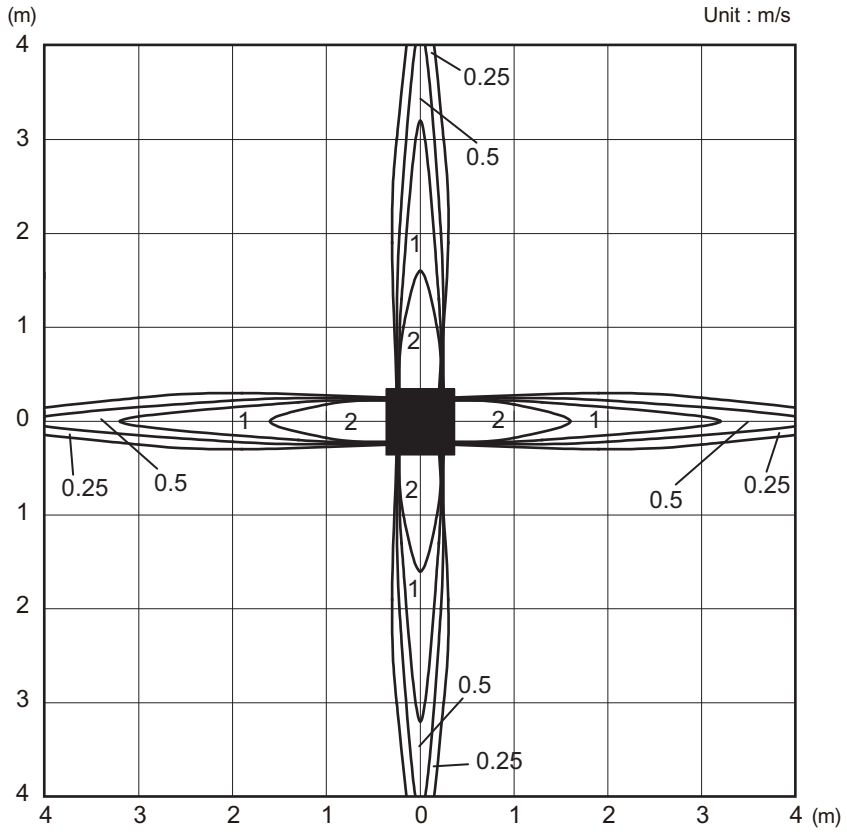


INDOOR UNITS
SIMULTANEOUS
MULTI

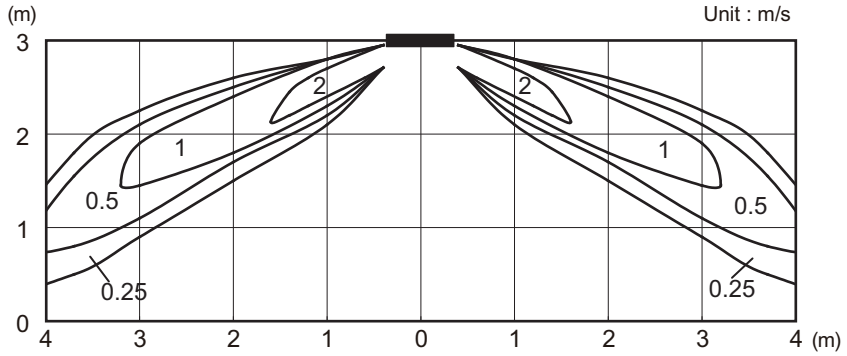
■ Model: AUXG24KVLA (4-way air outlet)

Measuring conditions	Fan speed	Operation mode	Ceiling mode
	HIGH	FAN	STANDARD

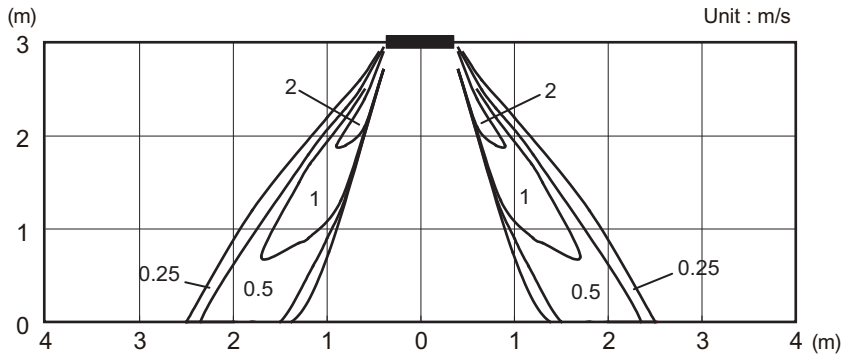
Top view
Vertical airflow direction louver: Upward



Side view
Vertical airflow direction louver: Upward



Side view
Vertical airflow direction louver: Downward

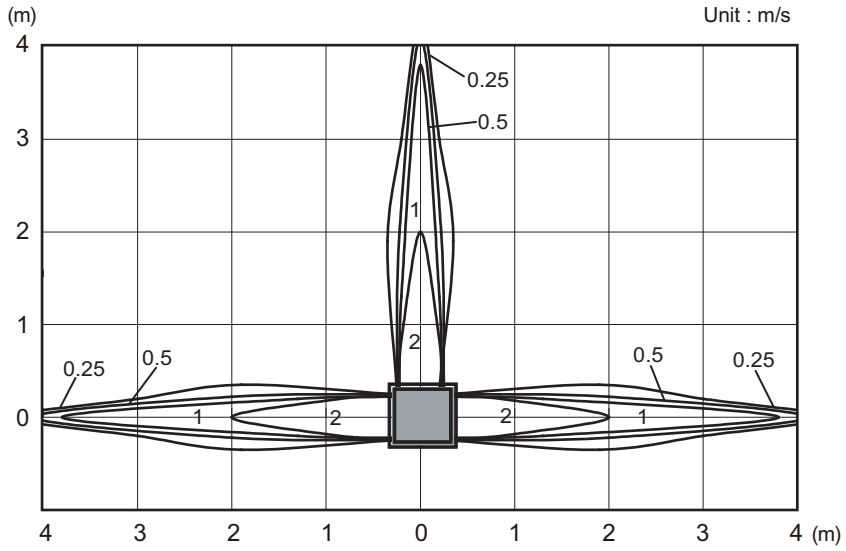


INDOOR UNITS
SIMULTANEOUS
MULTI

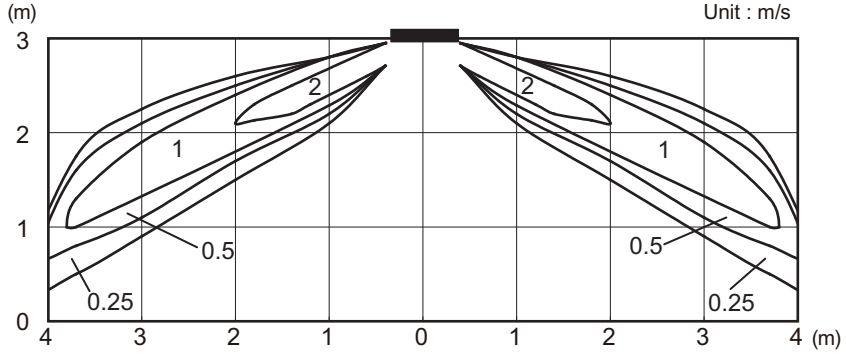
■ Model: AUXG24KVLA (3-way air outlet)

Measuring conditions	Fan speed	Operation mode	Ceiling mode
	HIGH	FAN	STANDARD

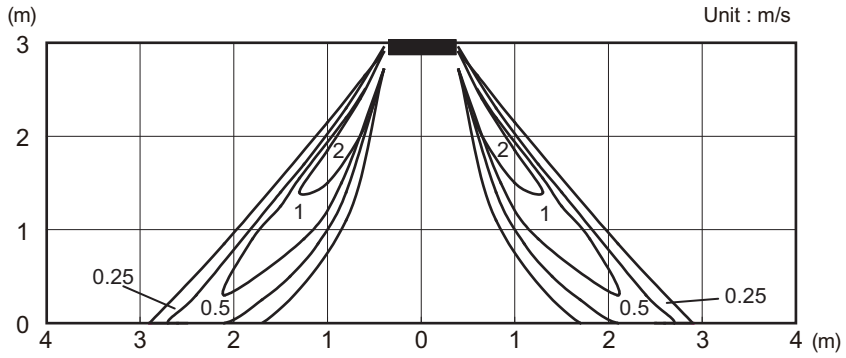
Top view
Vertical airflow direction louver: Upward



Side view
Vertical airflow direction louver: Upward



Side view
Vertical airflow direction louver: Downward



INDOOR UNITS
SIMULTANEOUS
MULTI

5-2. Slim duct type

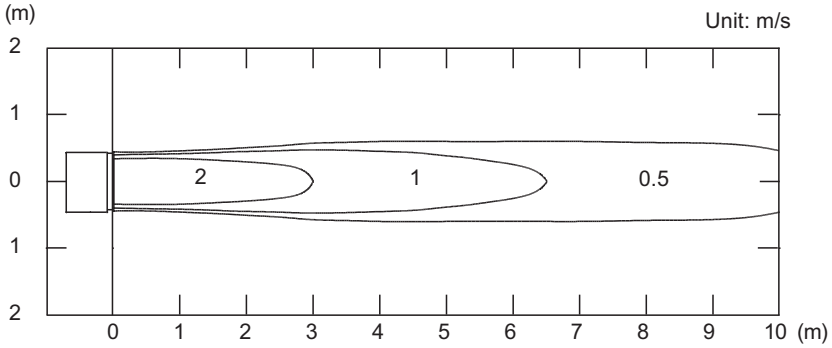
■ Model: ARXG18KLLAP

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

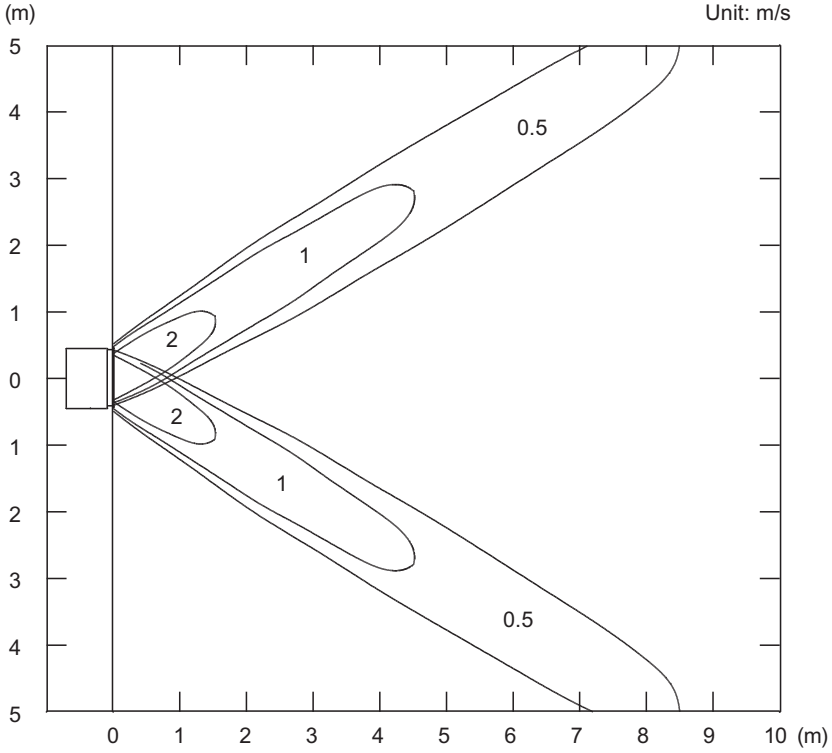
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- Air velocity distribution

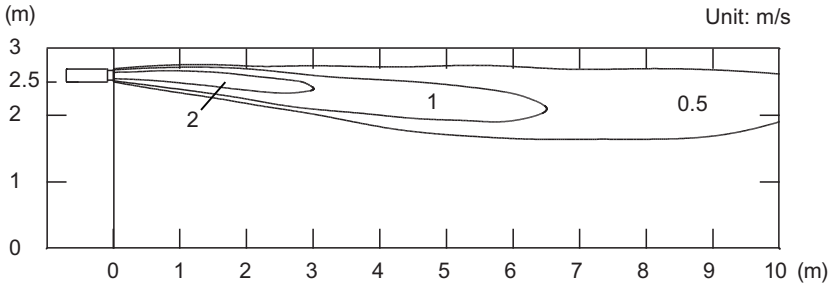
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



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



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

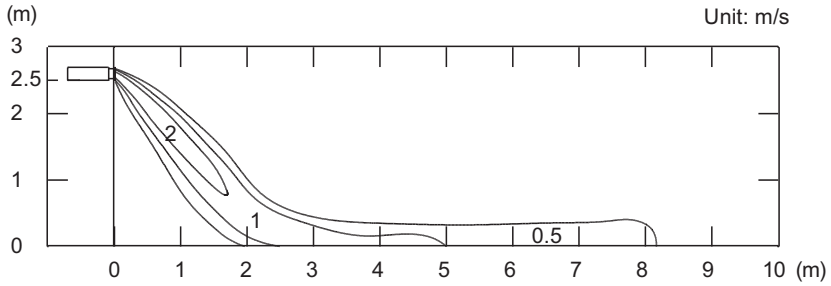


INDOOR UNITS
SIMULTANEOUS
MULTI

Measuring conditions	Fan speed	Operation mode
	HIGH	HEAT

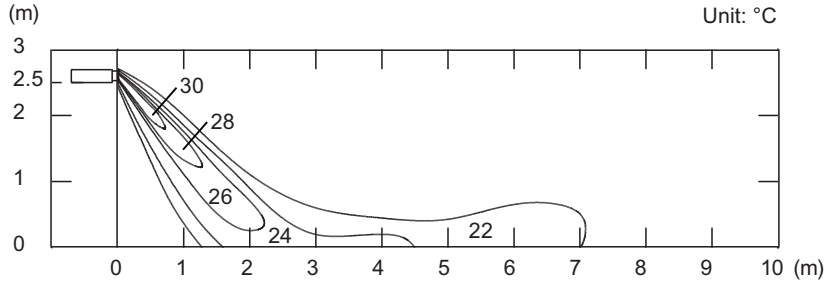
- Air velocity distribution

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



- Air temperature distribution

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

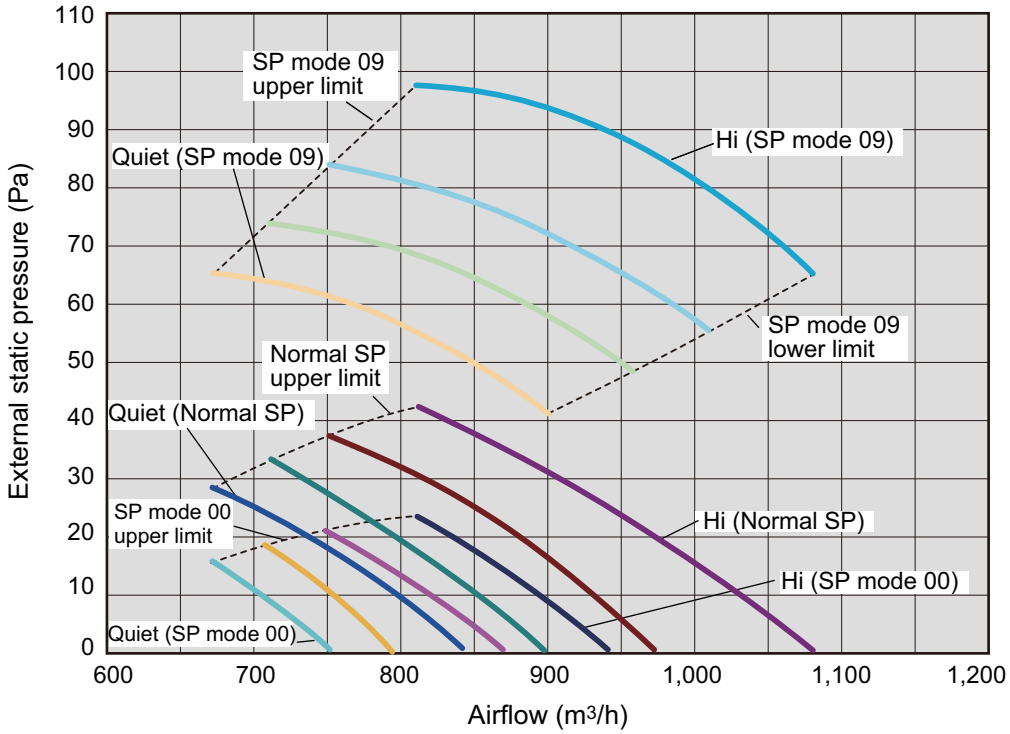


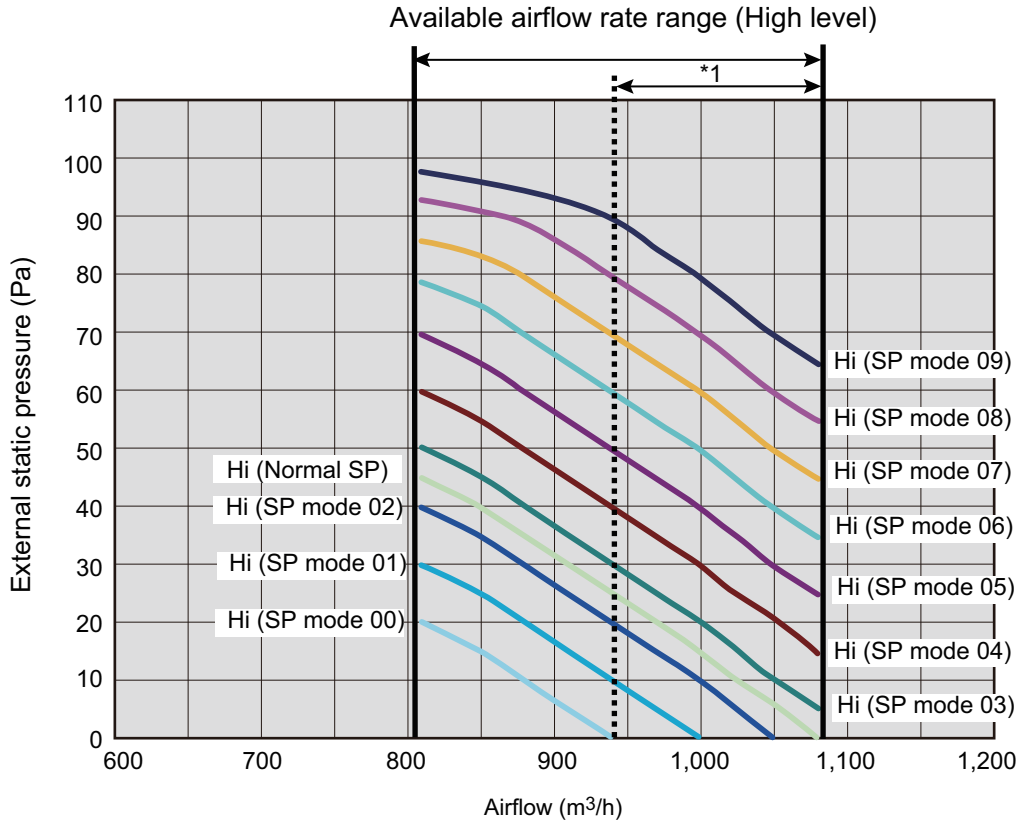
INDOOR UNITS
SIMULTANEOUS
MULTI

6. Fan performance

6-1. Slim duct type

■ Model: ARXG18KLLAP



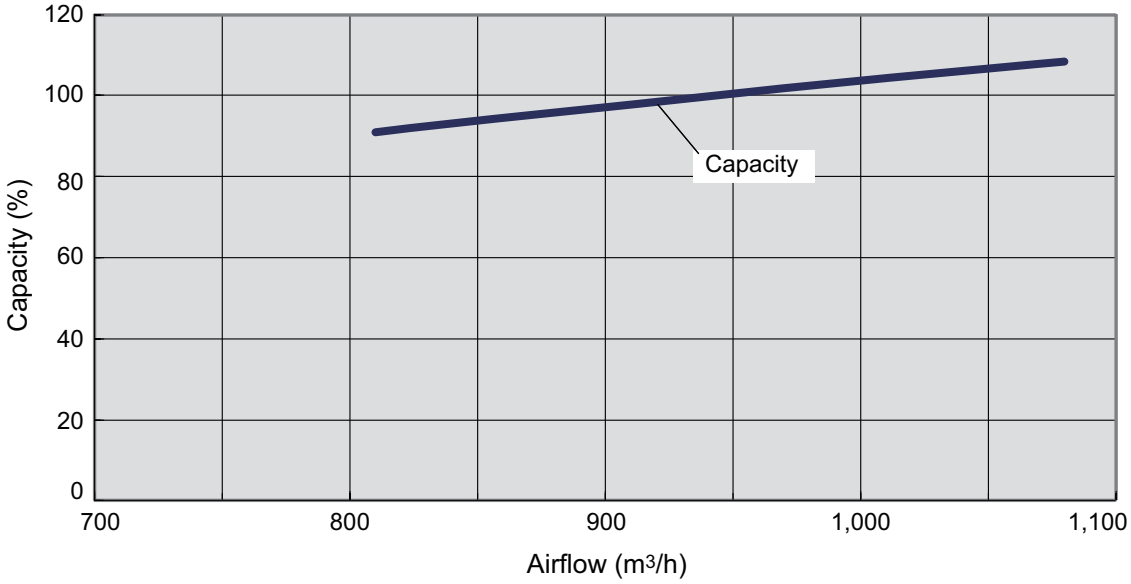


*1: Available airflow rate range when Auto louver grille (option) is installed.
Fan speed: HIGH
Vertical airflow direction louver: Up

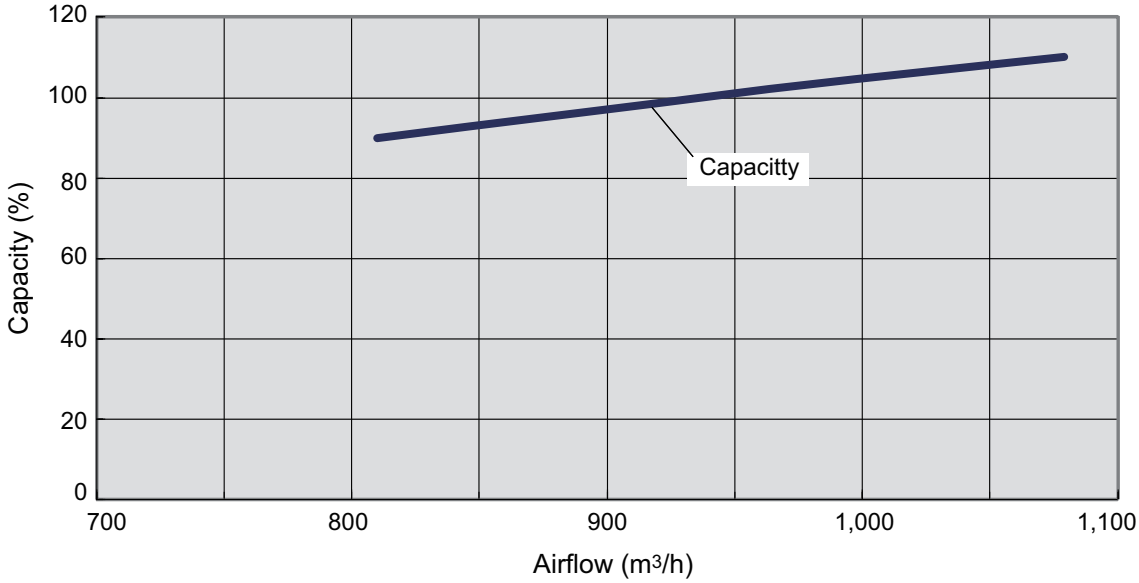
INDOOR UNITS
SIMULTANEOUS
MULTI

● Characteristics of air volume and capacity

- **Cooling**



- **Heating**



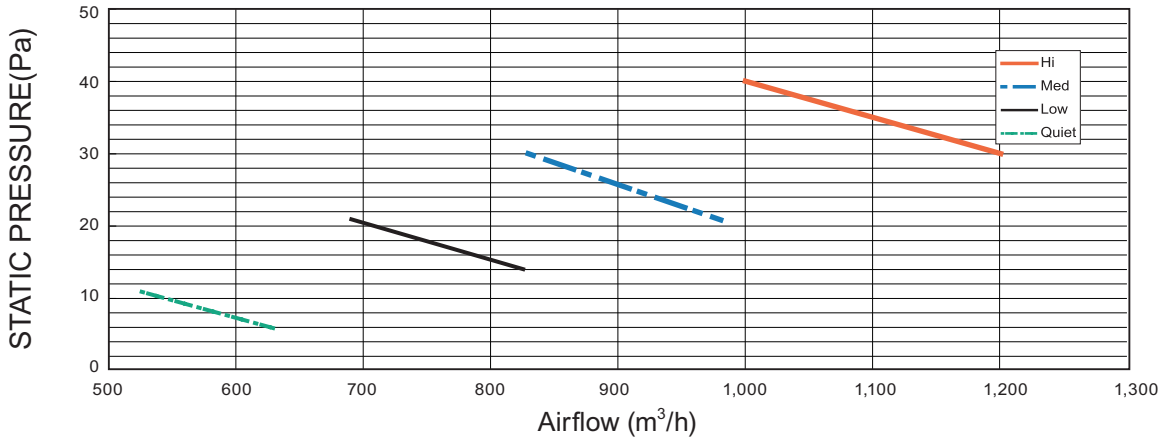
INDOOR UNITS
SIMULTANEOUS
MULTI

6-2. Duct type

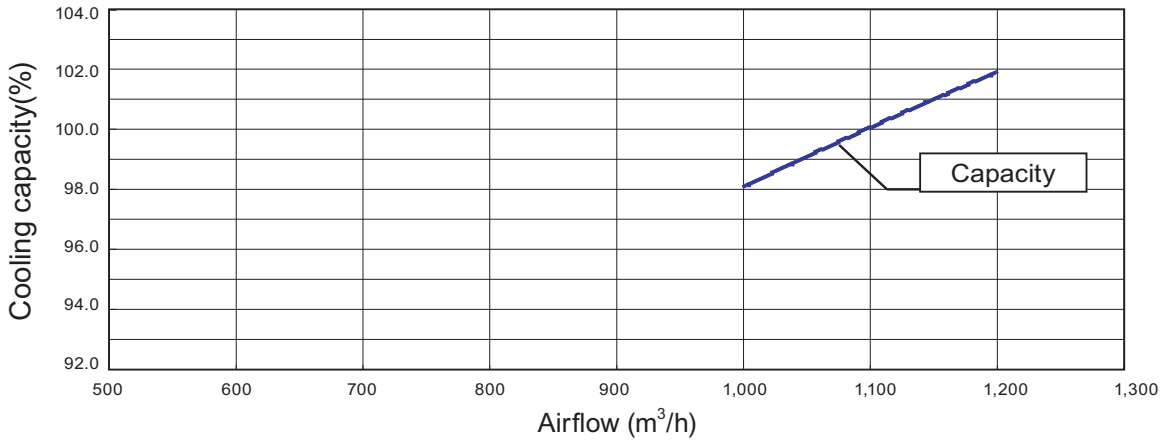
■ Model: ARXG22KMLA (Normal mode)

Fan speed	Item	Static pressure (Pa)									
		6	8	11	14	18	21	25	30	35	40
HIGH	m^3/h	—	—	—	—	—	—	—	1200	1100	1000
	l/s	—	—	—	—	—	—	—	333	306	278
	CFM	—	—	—	—	—	—	—	706	647	589
MED	m^3/h	—	—	—	—	—	980	910	830	—	—
	l/s	—	—	—	—	—	272	253	231	—	—
	CFM	—	—	—	—	—	577	536	489	—	—
LOW	m^3/h	—	—	—	825	750	690	—	—	—	—
	l/s	—	—	—	229	208	192	—	—	—	—
	CFM	—	—	—	486	441	406	—	—	—	—
QUIET	m^3/h	630	580	525	—	—	—	—	—	—	—
	l/s	175	161	146	—	—	—	—	—	—	—
	CFM	371	341	309	—	—	—	—	—	—	—

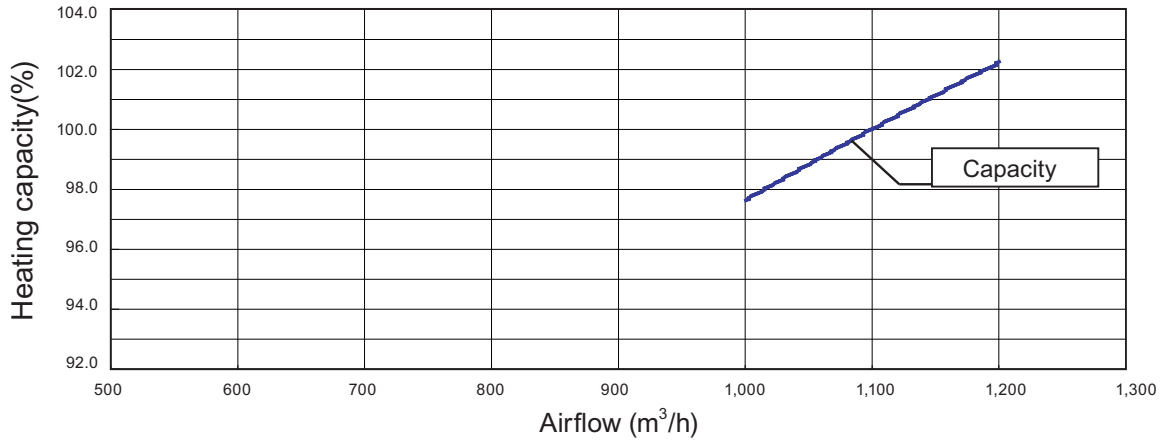
Q-h Characteristic curve



COOLING



HEATING

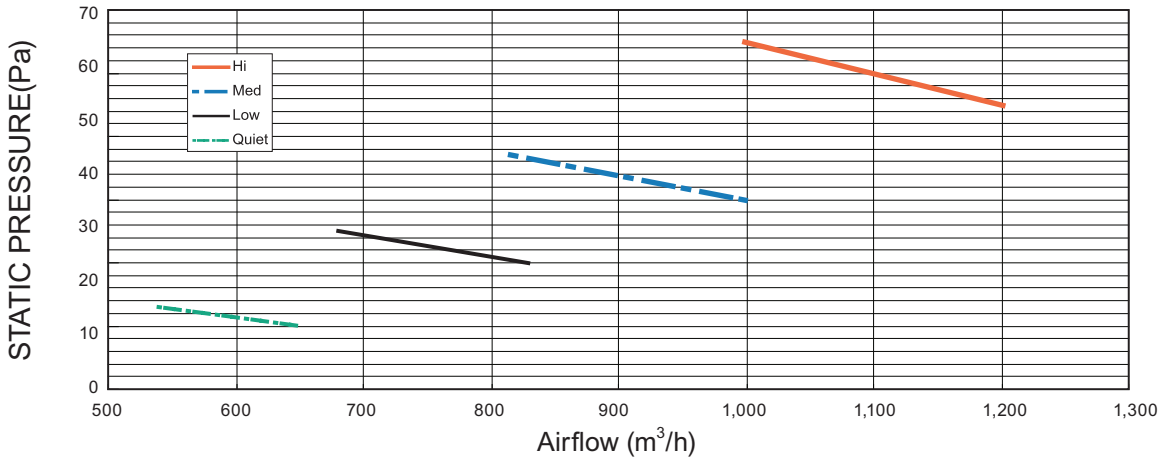


INDOOR UNITS
SIMULTANEOUS
MULTI

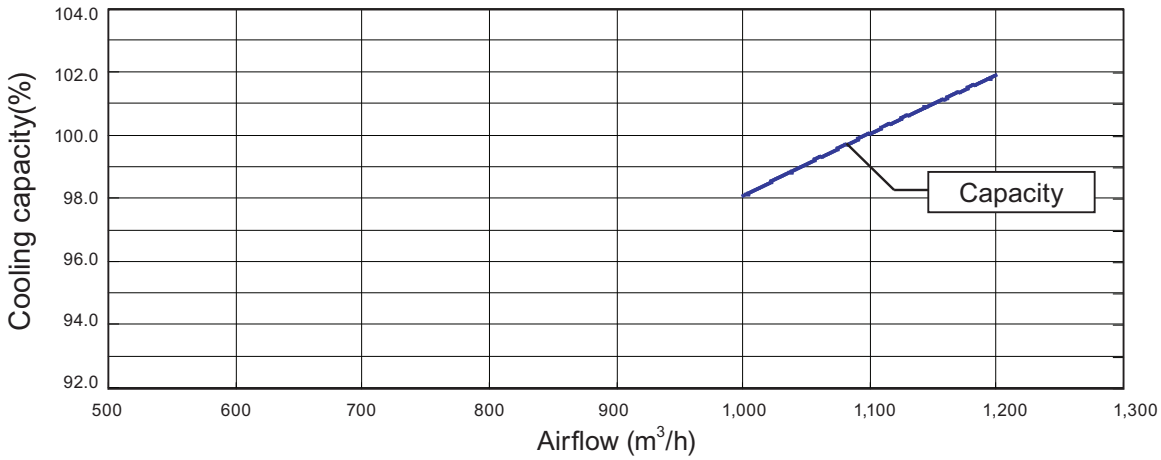
■ Model: ARXG22KMLA (Static pressure mode 1)

Fan speed	Item	Static pressure (Pa)							
		20	23	30	35	40	47	55	65
HIGH	m^3/h	—	—	—	—	—	—	1200	1000
	l/s	—	—	—	—	—	—	333	278
	CFM	—	—	—	—	—	—	706	589
MED	m^3/h	—	—	—	—	1000	815	—	—
	l/s	—	—	—	—	278	226	—	—
	CFM	—	—	—	—	589	480	—	—
LOW	m^3/h	—	—	830	680	—	—	—	—
	l/s	—	—	231	189	—	—	—	—
	CFM	—	—	489	400	—	—	—	—
QUIET	m^3/h	650	540	—	—	—	—	—	—
	l/s	181	150	—	—	—	—	—	—
	CFM	383	318	—	—	—	—	—	—

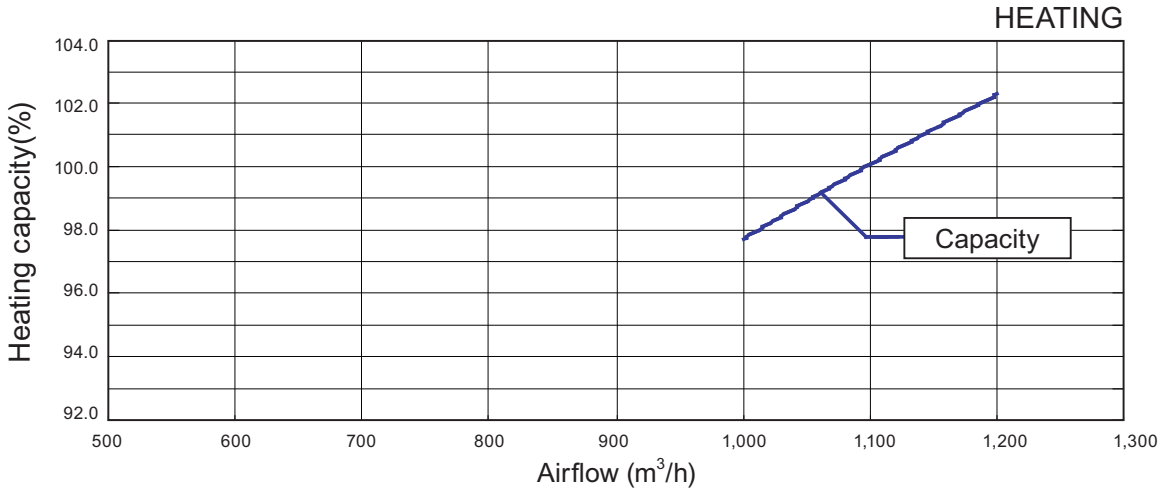
Q-h Characteristic curve



COOLING



HEATING

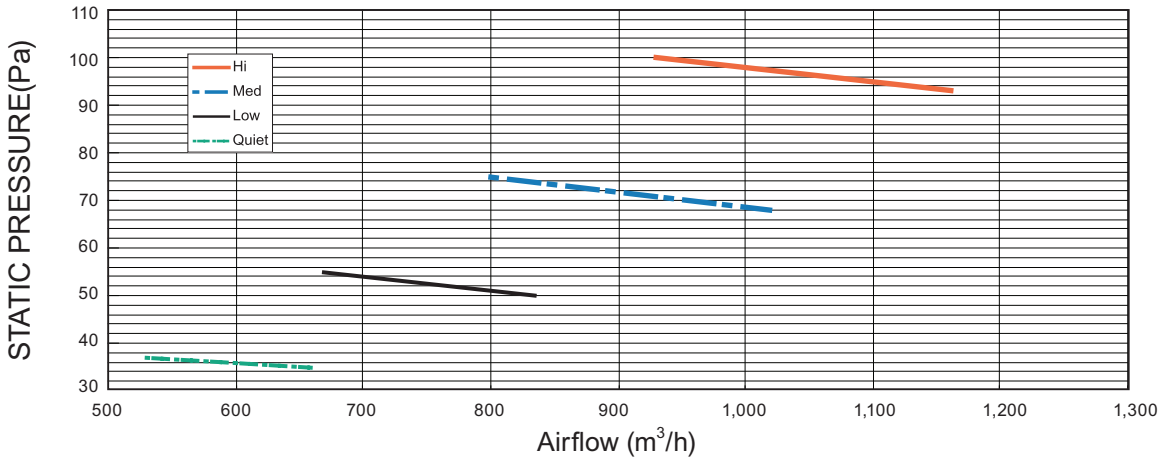


INDOOR UNITS
SIMULTANEOUS
MULTI

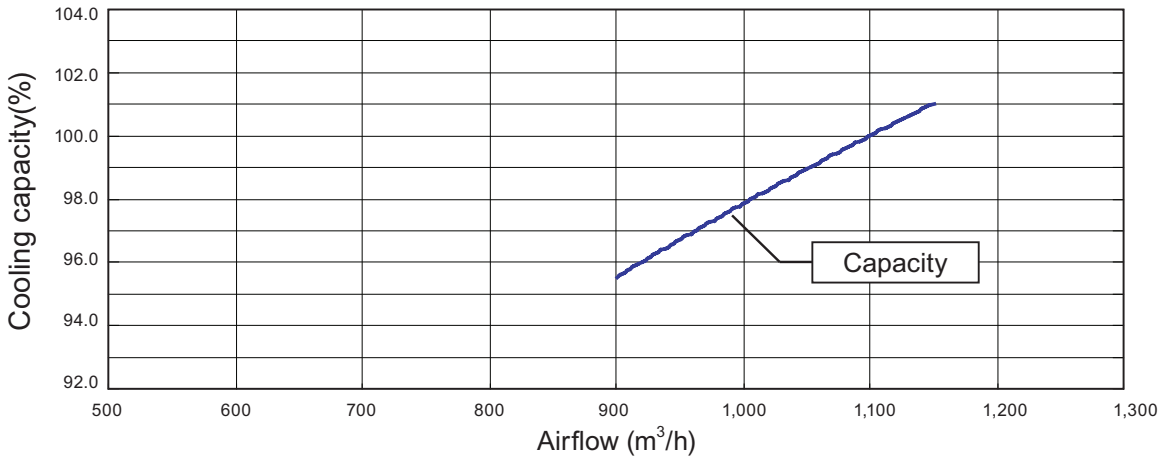
■ Model: ARXG22KMLA (Static pressure mode 2)

Fan speed	Item	Static pressure (Pa)							
		35	37	50	55	68	75	93	100
HIGH	m^3/h	—	—	—	—	—	—	1160	930
	l/s	—	—	—	—	—	—	322	258
	CFM	—	—	—	—	—	—	683	547
MED	m^3/h	—	—	—	—	1020	800	—	—
	l/s	—	—	—	—	283	222	—	—
	CFM	—	—	—	—	600	471	—	—
LOW	m^3/h	—	—	835	670	—	—	—	—
	l/s	—	—	232	186	—	—	—	—
	CFM	—	—	491	394	—	—	—	—
QUIET	m^3/h	660	530	—	—	—	—	—	—
	l/s	183	147	—	—	—	—	—	—
	CFM	388	312	—	—	—	—	—	—

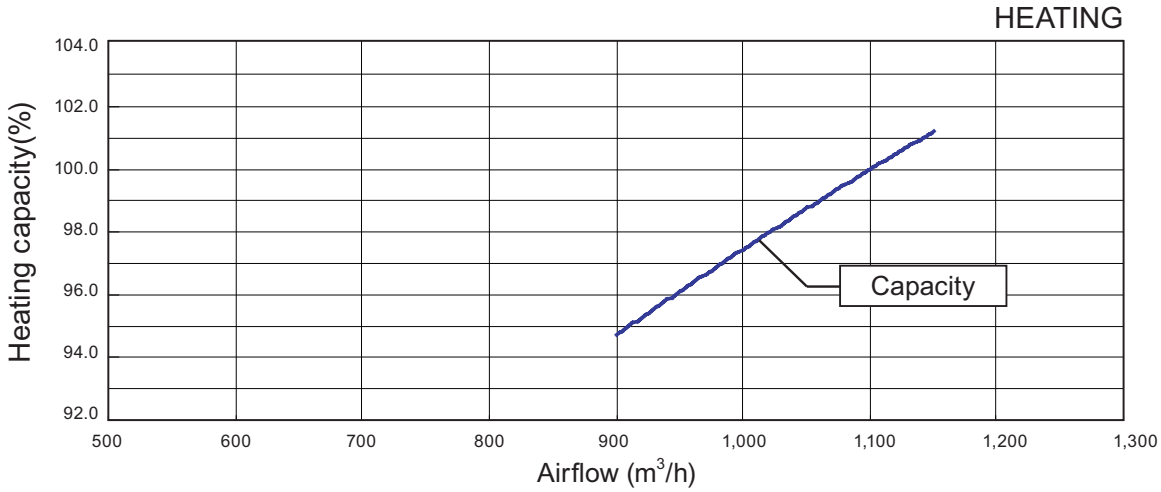
Q-h Characteristic curve



COOLING



HEATING

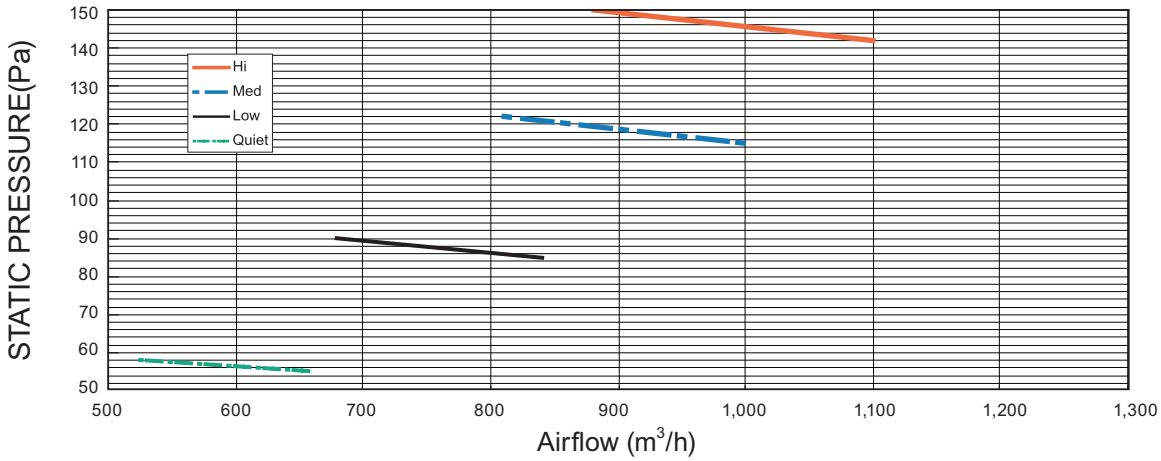


INDOOR UNITS
SIMULTANEOUS
MULTI

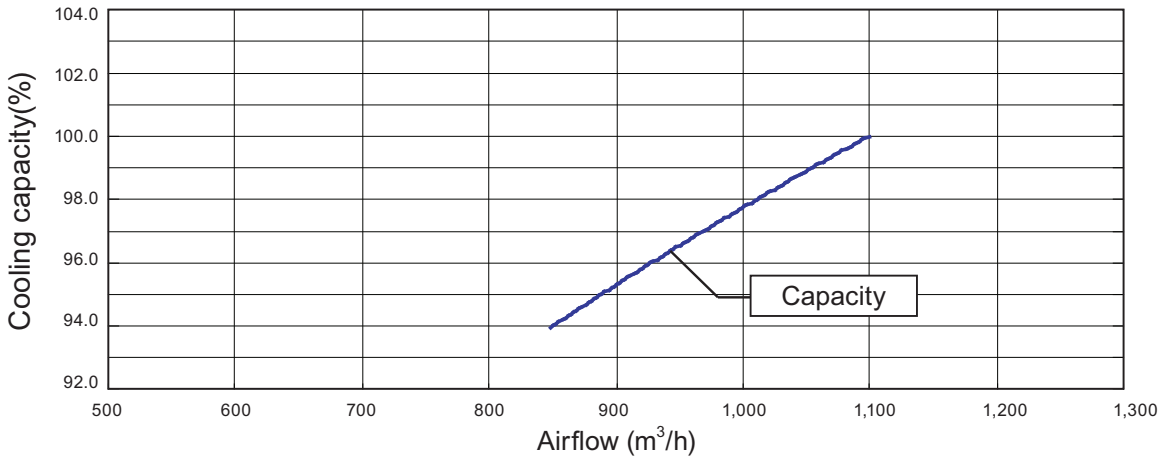
■ Model: ARXG22KMLA (Static pressure mode 3)

Fan speed	Item	Static pressure (Pa)							
		55	58	85	90	115	122	142	150
HIGH	m^3/h	—	—	—	—	—	—	1100	880
	l/s	—	—	—	—	—	—	306	244
	CFM	—	—	—	—	—	—	647	518
MED	m^3/h	—	—	—	—	1000	810	—	—
	l/s	—	—	—	—	278	225	—	—
	CFM	—	—	—	—	589	477	—	—
LOW	m^3/h	—	—	840	680	—	—	—	—
	l/s	—	—	233	189	—	—	—	—
	CFM	—	—	494	400	—	—	—	—
QUIET	m^3/h	660	525	—	—	—	—	—	—
	l/s	183	146	—	—	—	—	—	—
	CFM	388	309	—	—	—	—	—	—

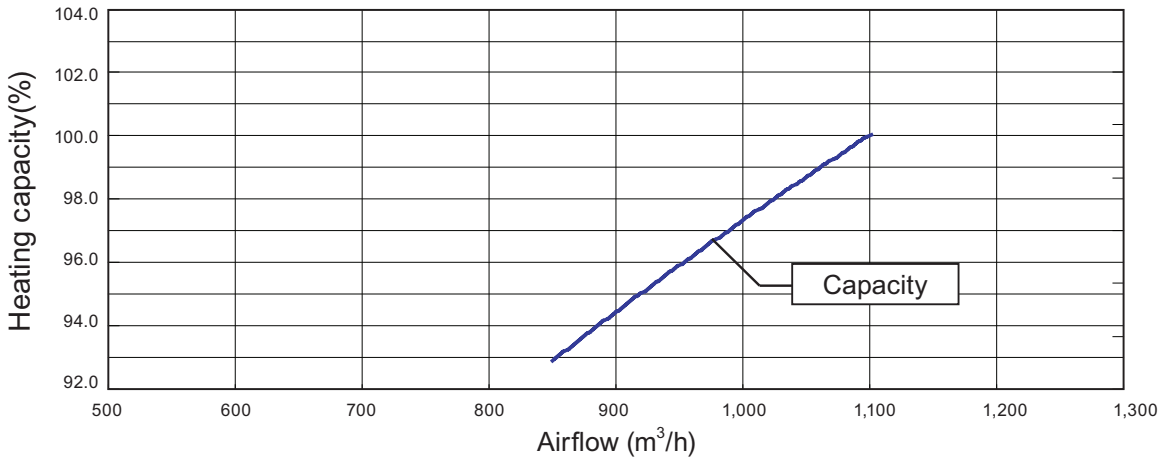
Q-h Characteristic curve



COOLING



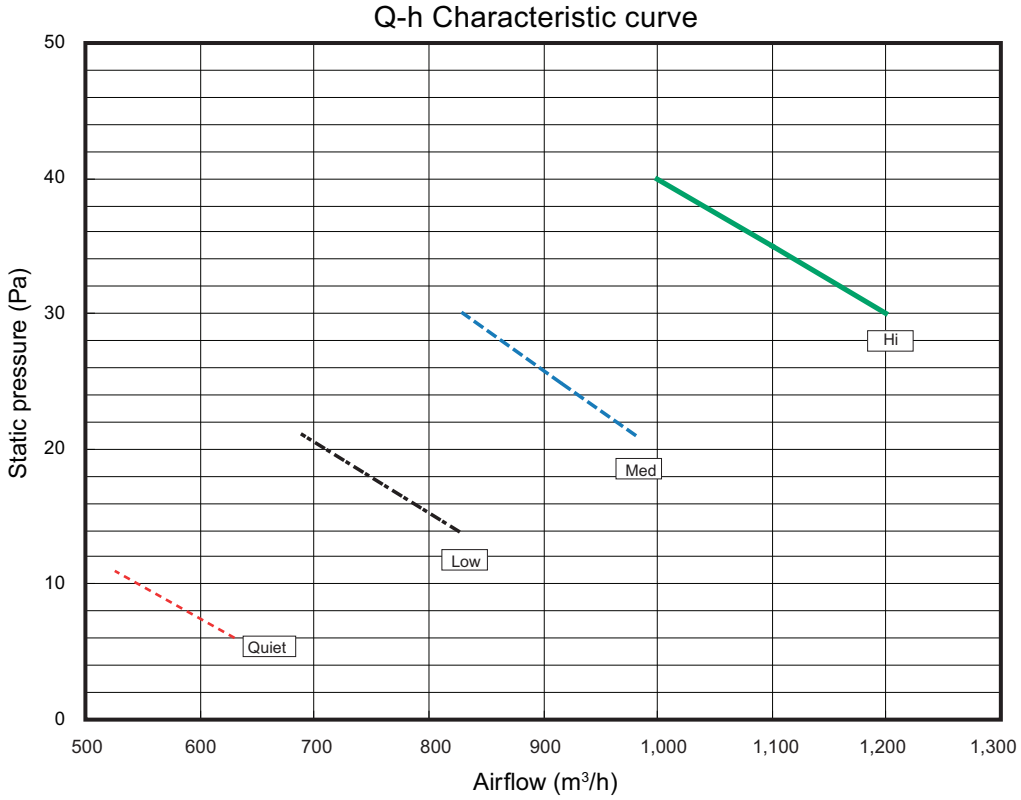
HEATING



INDOOR UNITS
SIMULTANEOUS
MULTI

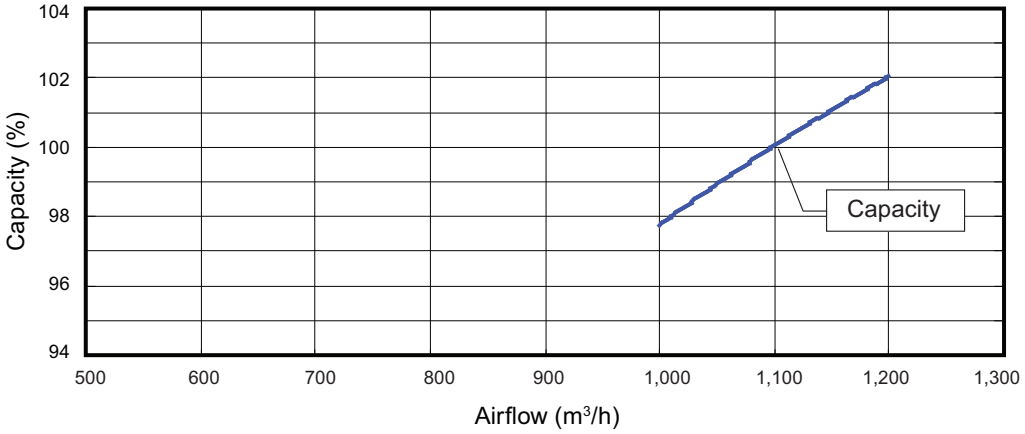
■ Model: ARXG24KMLA (Normal mode)

			Static pressure (Pa)							
			6	11	14	21	25	30	35	40
Fan speed	HIGH	m3/h	—	—	—	—	—	1,200	1,100	1,000
		l/s	—	—	—	—	—	333	306	278
		CFM	—	—	—	—	—	706	647	589
	MED	m3/h	—	—	—	980	915	830	—	—
		l/s	—	—	—	272	254	231	—	—
		CFM	—	—	—	577	539	489	—	—
	LOW	m3/h	—	—	825	690	—	—	—	—
		l/s	—	—	229	192	—	—	—	—
		CFM	—	—	486	406	—	—	—	—
	QUIET	m3/h	630	525	—	—	—	—	—	—
		l/s	175	146	—	—	—	—	—	—
		CFM	371	309	—	—	—	—	—	—

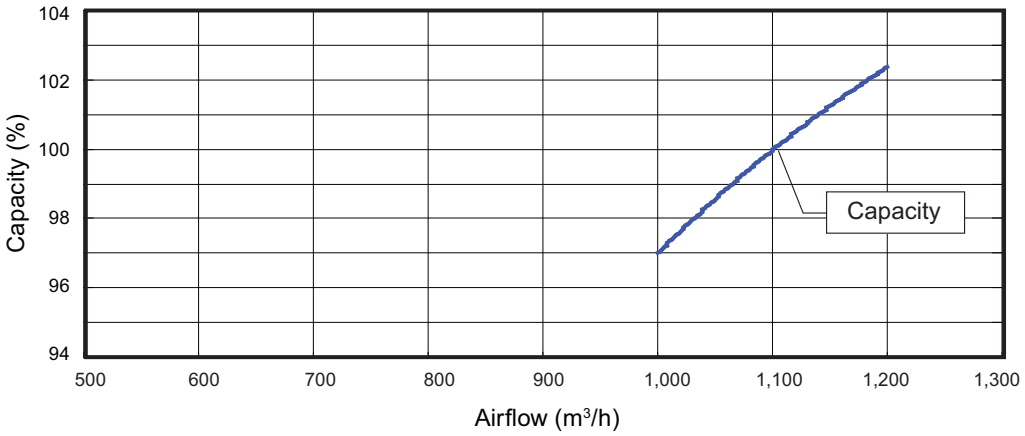


INDOOR UNITS
SIMULTANEOUS
MULTI

- **Cooling**



- **Heating**

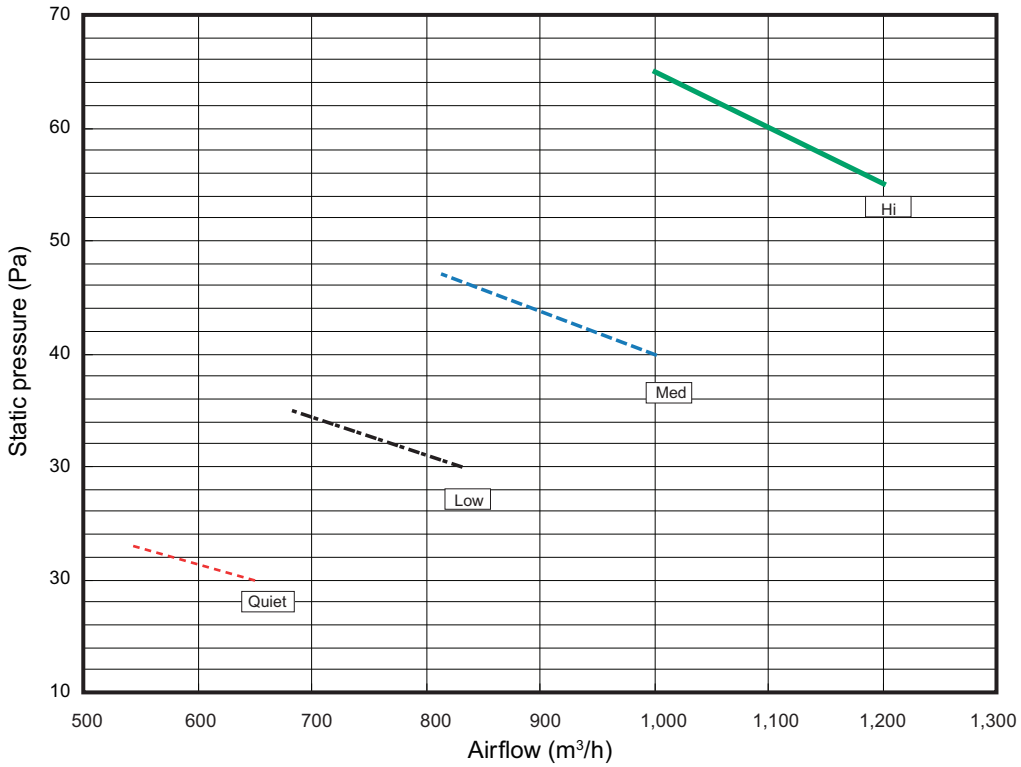


INDOOR UNITS
SIMULTANEOUS
MULTI

■ Model: ARXG24KMLA (Static pressure mode 1)

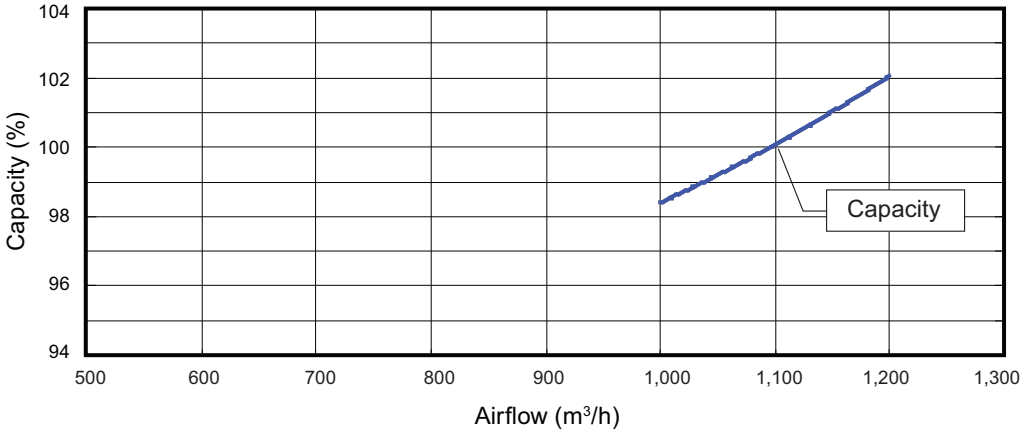
			Static pressure (Pa)							
			20	23	30	35	40	47	55	65
Fan speed	HIGH	m3/h	—	—	—	—	—	—	1,200	1,000
		l/s	—	—	—	—	—	—	333	278
		CFM	—	—	—	—	—	—	706	589
	MED	m3/h	—	—	—	—	1,000	815	—	—
		l/s	—	—	—	—	278	226	—	—
		CFM	—	—	—	—	589	480	—	—
	LOW	m3/h	—	—	830	680	—	—	—	—
		l/s	—	—	231	189	—	—	—	—
		CFM	—	—	489	400	—	—	—	—
	QUIET	m3/h	650	540	—	—	—	—	—	—
		l/s	181	150	—	—	—	—	—	—
		CFM	383	318	—	—	—	—	—	—

Q-h Characteristic curve

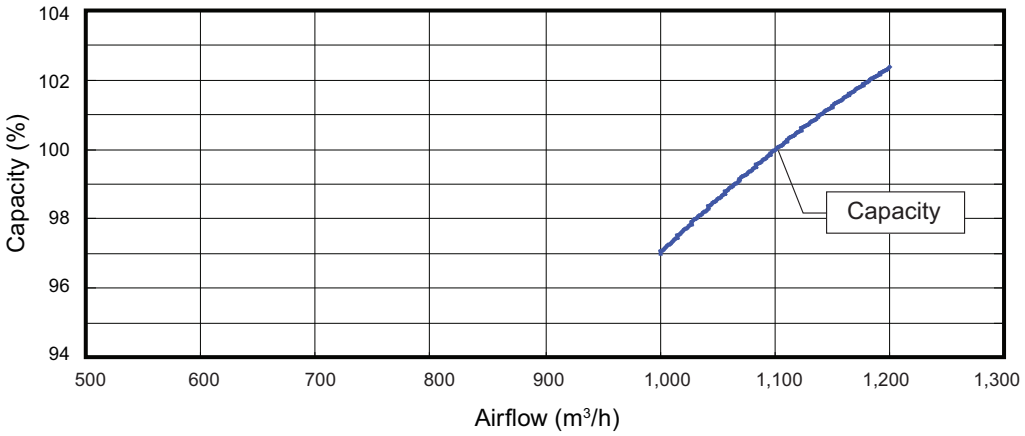


INDOOR UNITS
SIMULTANEOUS
MULTI

- **Cooling**



- **Heating**

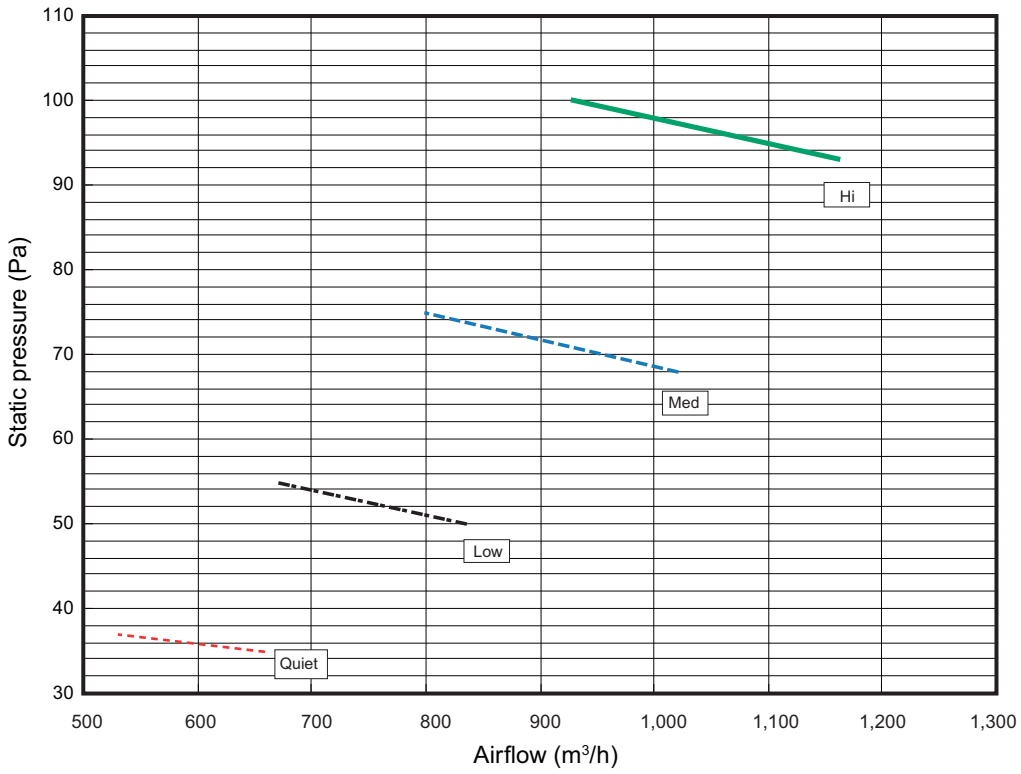


INDOOR UNITS
SIMULTANEOUS
MULTI

■ Model: ARXG24KMLA (Static pressure mode 2)

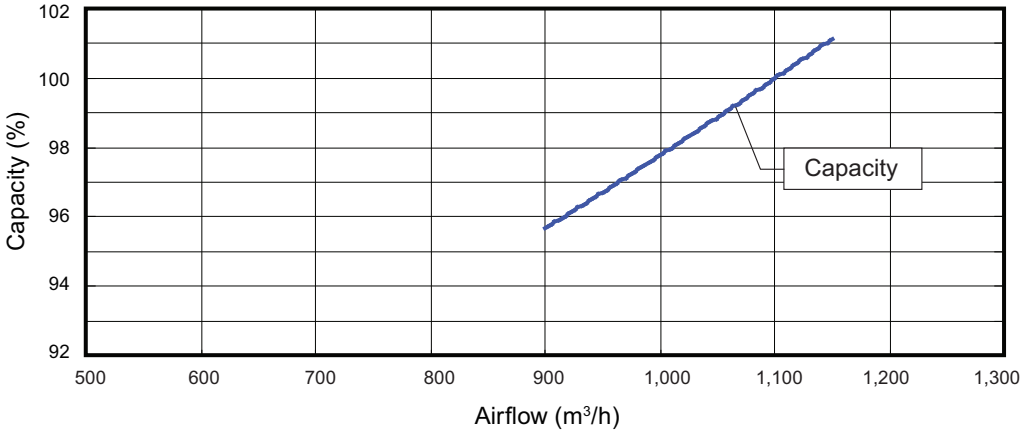
			Static pressure (Pa)							
			35	37	50	55	68	75	93	100
Fan speed	HIGH	m3/h	—	—	—	—	—	—	1,160	930
		l/s	—	—	—	—	—	—	322	258
		CFM	—	—	—	—	—	—	683	547
	MED	m3/h	—	—	—	—	1,020	800	—	—
		l/s	—	—	—	—	283	222	—	—
		CFM	—	—	—	—	600	471	—	—
	LOW	m3/h	—	—	835	670	—	—	—	—
		l/s	—	—	232	186	—	—	—	—
		CFM	—	—	491	394	—	—	—	—
	QUIET	m3/h	660	530	—	—	—	—	—	—
		l/s	183	147	—	—	—	—	—	—
		CFM	388	312	—	—	—	—	—	—

Q-h Characteristic curve

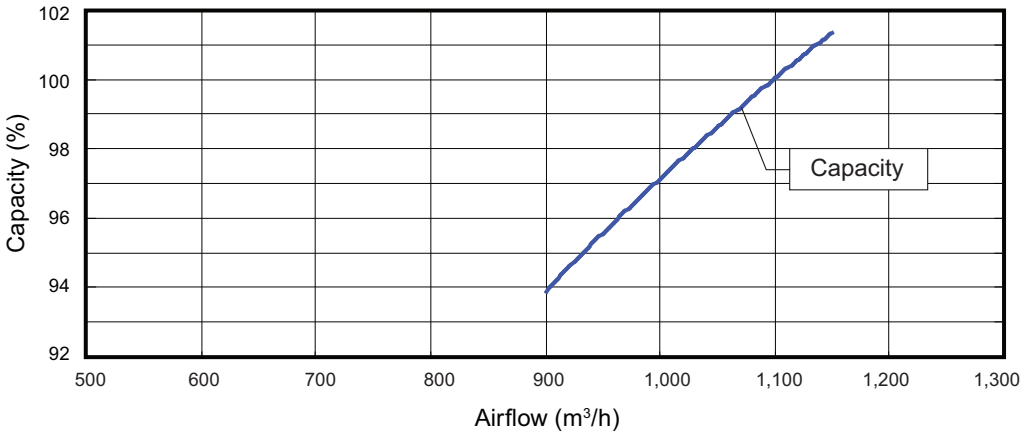


INDOOR UNITS
SIMULTANEOUS
MULTI

- **Cooling**



- **Heating**

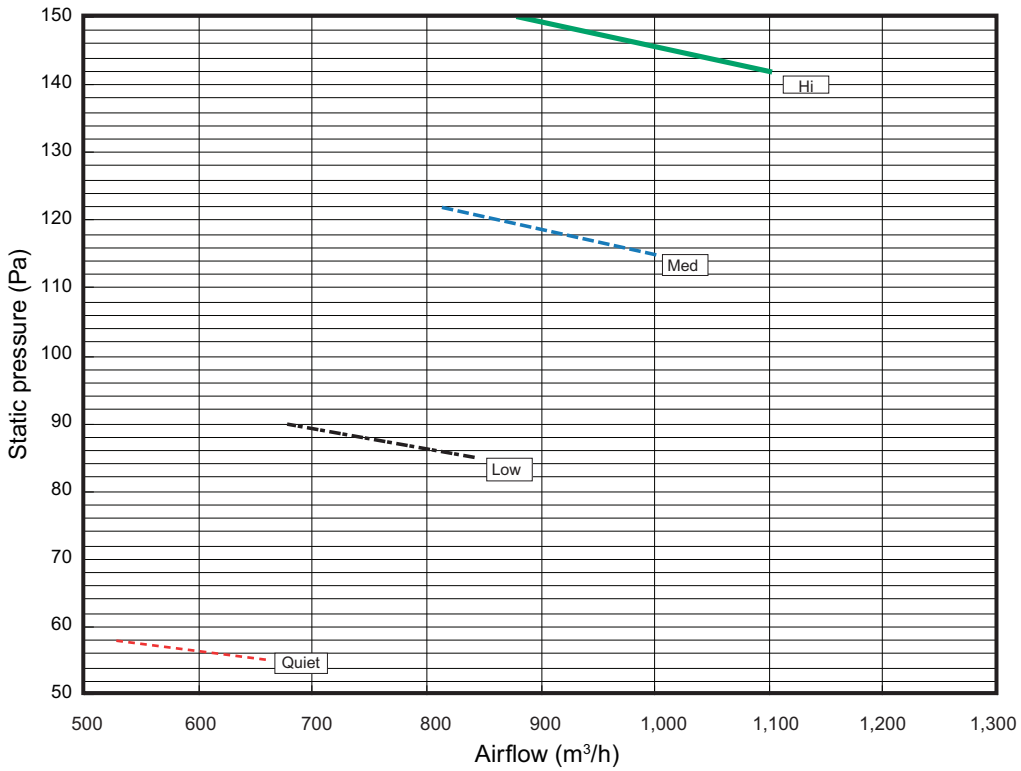


INDOOR UNITS
SIMULTANEOUS
MULTI

■ Model: ARXG24KMLA (Static pressure mode 3)

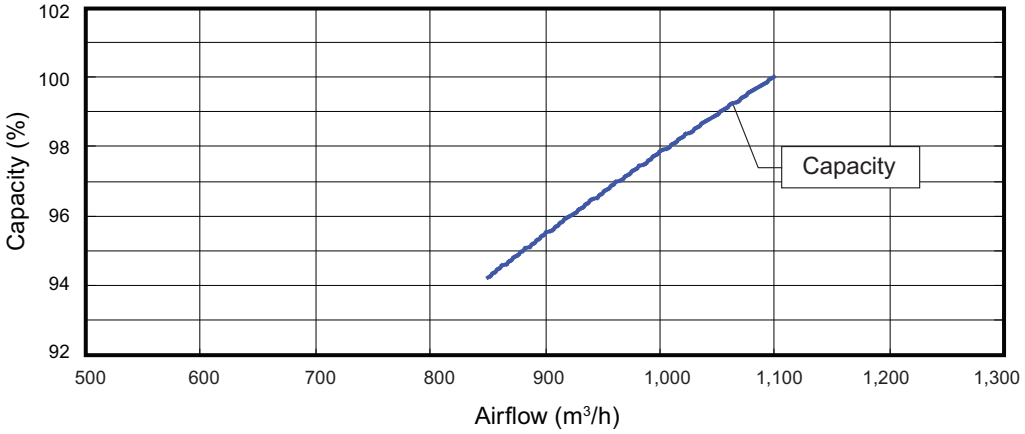
			Static pressure (Pa)							
			55	58	85	90	115	122	142	150
Fan speed	HIGH	m3/h	—	—	—	—	—	—	1,100	880
		l/s	—	—	—	—	—	—	306	244
		CFM	—	—	—	—	—	—	647	518
	MED	m3/h	—	—	—	—	1,000	810	—	—
		l/s	—	—	—	—	278	225	—	—
		CFM	—	—	—	—	589	477	—	—
	LOW	m3/h	—	—	840	680	—	—	—	—
		l/s	—	—	233	189	—	—	—	—
		CFM	—	—	494	400	—	—	—	—
	QUIET	m3/h	660	525	—	—	—	—	—	—
		l/s	183	146	—	—	—	—	—	—
		CFM	388	309	—	—	—	—	—	—

Q-h Characteristic curve

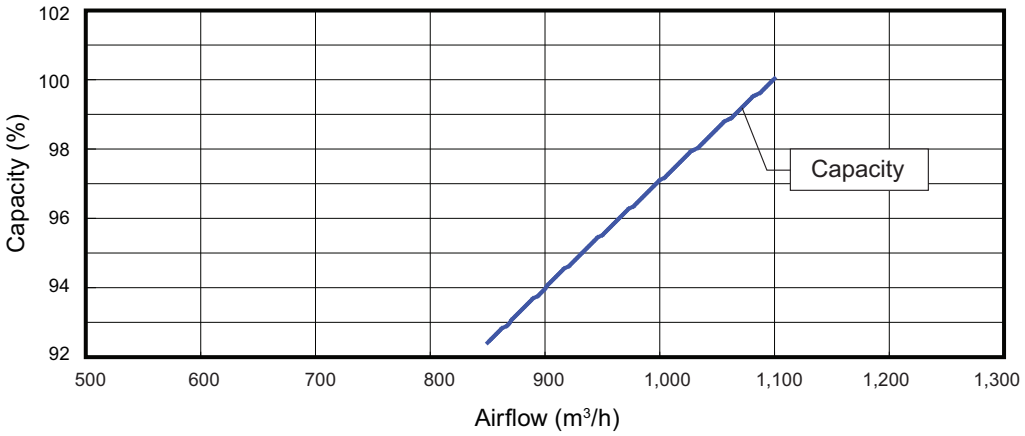


INDOOR UNITS
SIMULTANEOUS
MULTI

- **Cooling**



- **Heating**



INDOOR UNITS
SIMULTANEOUS
MULTI

7. Airflow

Conversion factor:

- 1 m^3/h = 0.2778 l/s = 0.5886 CFM
- 3.6 m^3/h = 1 l/s
- 1.699 m^3/h = 1 CFM

7-1. Compact cassette type

■ Model: AUXG18KVLA (Standard ceiling mode)

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	680
	l/s	189
	CFM	400
MED	m^3/h	580
	l/s	161
	CFM	341
LOW	m^3/h	490
	l/s	136
	CFM	288
QUIET	m^3/h	410
	l/s	114
	CFM	241

● Heating

Fan speed	Airflow	
HIGH	m^3/h	800
	l/s	222
	CFM	471
MED	m^3/h	680
	l/s	189
	CFM	400
LOW	m^3/h	580
	l/s	161
	CFM	341
QUIET	m^3/h	450
	l/s	125
	CFM	265

INDOOR UNITS
SIMULTANEOUS
MULTI

■ Model: AUXG18KVLA (High ceiling mode)

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	800
	l/s	222
	CFM	471
MED	m^3/h	680
	l/s	189
	CFM	400
LOW	m^3/h	590
	l/s	164
	CFM	347
QUIET	m^3/h	410
	l/s	114
	CFM	241

● Heating

Fan speed	Airflow	
HIGH	m^3/h	900
	l/s	250
	CFM	530
MED	m^3/h	800
	l/s	222
	CFM	471
LOW	m^3/h	680
	l/s	189
	CFM	400
QUIET	m^3/h	450
	l/s	125
	CFM	265

INDOOR UNITS
SIMULTANEOUS
MULTI

■ Model: AUXG22KVLA (Standard ceiling mode)

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	830
	l/s	231
	CFM	489
MED	m^3/h	740
	l/s	206
	CFM	436
LOW	m^3/h	600
	l/s	167
	CFM	353
QUIET	m^3/h	450
	l/s	125
	CFM	265

● Heating

Fan speed	Airflow	
HIGH	m^3/h	860
	l/s	239
	CFM	506
MED	m^3/h	760
	l/s	211
	CFM	447
LOW	m^3/h	700
	l/s	194
	CFM	412
QUIET	m^3/h	530
	l/s	147
	CFM	312

INDOOR UNITS
SIMULTANEOUS
MULTI

■ Model: AUXG22KVLA (High ceiling mode)

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	910
	l/s	253
	CFM	536
MED	m^3/h	830
	l/s	231
	CFM	489
LOW	m^3/h	710
	l/s	197
	CFM	418
QUIET	m^3/h	450
	l/s	125
	CFM	265

● Heating

Fan speed	Airflow	
HIGH	m^3/h	930
	l/s	258
	CFM	547
MED	m^3/h	860
	l/s	239
	CFM	506
LOW	m^3/h	820
	l/s	228
	CFM	483
QUIET	m^3/h	530
	l/s	147
	CFM	312

INDOOR UNITS
SIMULTANEOUS
MULTI

■ Model: AUXG24KVLA (Standard ceiling mode)

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	930
	l/s	258
	CFM	547
MED	m^3/h	830
	l/s	231
	CFM	488
LOW	m^3/h	600
	l/s	167
	CFM	353
QUIET	m^3/h	450
	l/s	125
	CFM	265

● Heating

Fan speed	Airflow	
HIGH	m^3/h	930
	l/s	258
	CFM	547
MED	m^3/h	860
	l/s	239
	CFM	506
LOW	m^3/h	700
	l/s	194
	CFM	412
QUIET	m^3/h	530
	l/s	147
	CFM	312

INDOOR UNITS
SIMULTANEOUS
MULTI

■ Model: AUXG24KVLA (High ceiling mode)

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	1,030
	l/s	286
	CFM	606
MED	m^3/h	930
	l/s	258
	CFM	547
LOW	m^3/h	710
	l/s	197
	CFM	418
QUIET	m^3/h	450
	l/s	125
	CFM	265

● Heating

Fan speed	Airflow	
HIGH	m^3/h	1,000
	l/s	278
	CFM	589
MED	m^3/h	960
	l/s	267
	CFM	565
LOW	m^3/h	820
	l/s	228
	CFM	483
QUIET	m^3/h	530
	l/s	147
	CFM	312

INDOOR UNITS
SIMULTANEOUS
MULTI

7-2. Slim duct type

■ Model: ARXG18KLLAP

● Cooling

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

● Heating

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

INDOOR UNITS
SIMULTANEOUS
MULTI

7-3. Duct type

■ Models: ARXG22KMLA and ARXG24KMLA

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	1,100
	l/s	306
	CFM	647
MED	m^3/h	910
	l/s	253
	CFM	536
LOW	m^3/h	750
	l/s	208
	CFM	441
QUIET	m^3/h	580
	l/s	161
	CFM	341

● Heating

Fan speed	Airflow	
HIGH	m^3/h	1,100
	l/s	306
	CFM	647
MED	m^3/h	910
	l/s	253
	CFM	536
LOW	m^3/h	750
	l/s	208
	CFM	441
QUIET	m^3/h	580
	l/s	161
	CFM	341

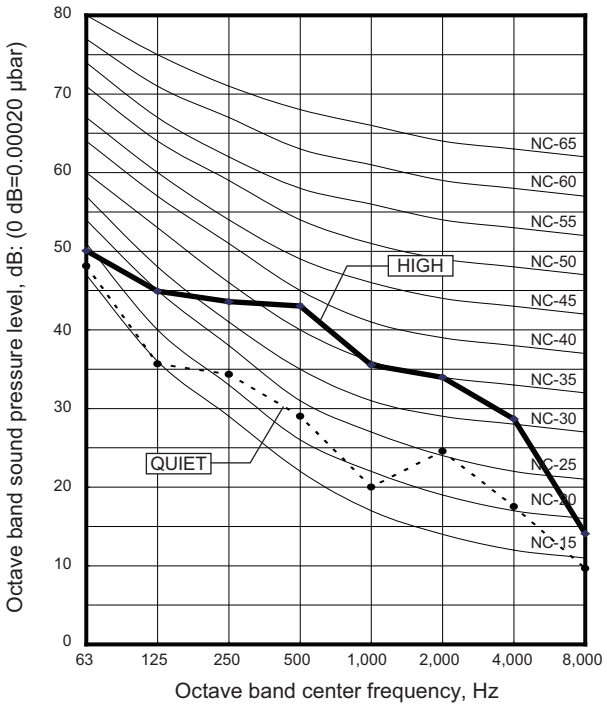
INDOOR UNITS
SIMULTANEOUS
MULTI

8. Noise level curve

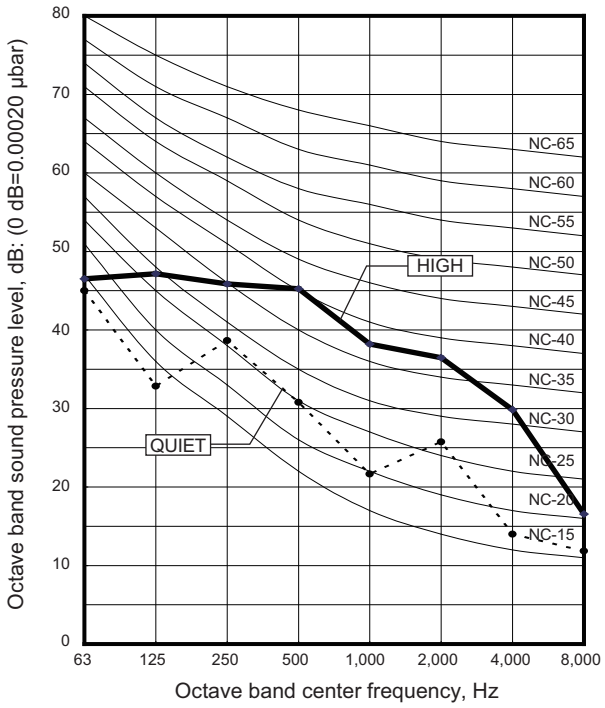
8-1. Compact cassette type

■ Model: AUXG18KVLA

● Cooling

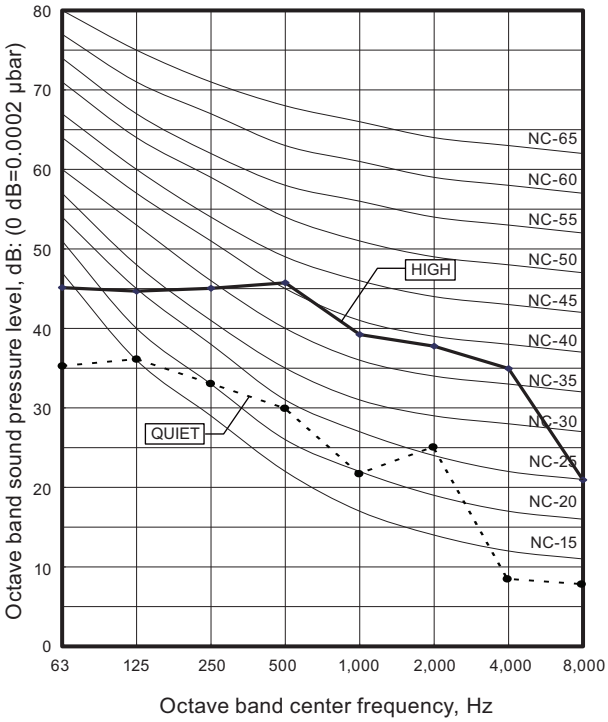


● Heating

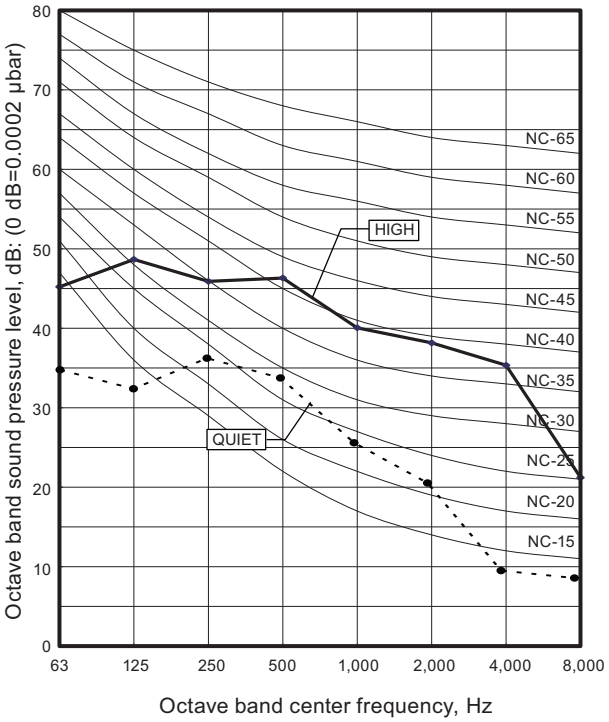


■ Model: AUXG22KVLA

● Cooling



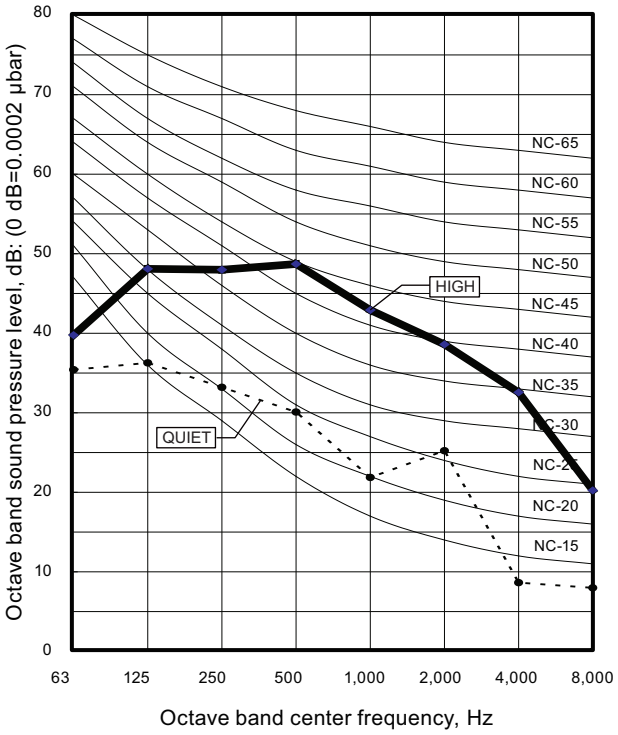
● Heating



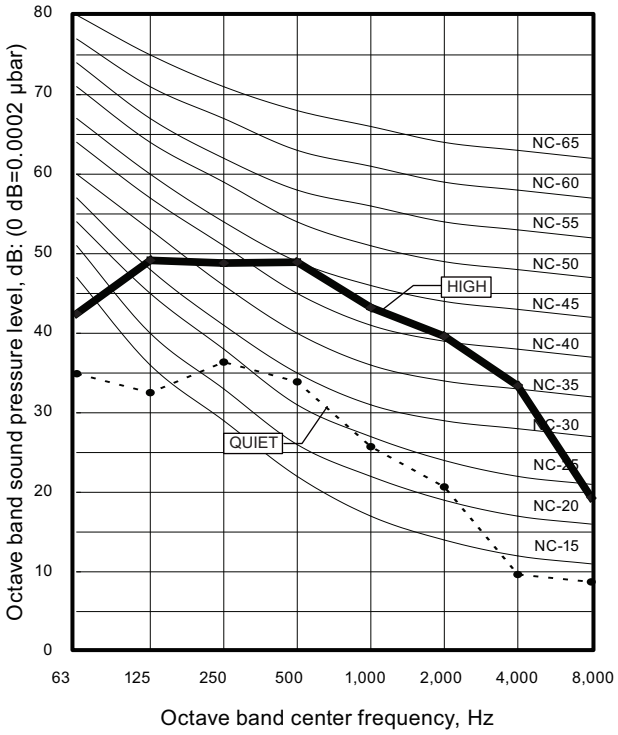
INDOOR UNITS
SIMULTANEOUS
MULTI

■ Model: AUXG24KVLA

● Cooling



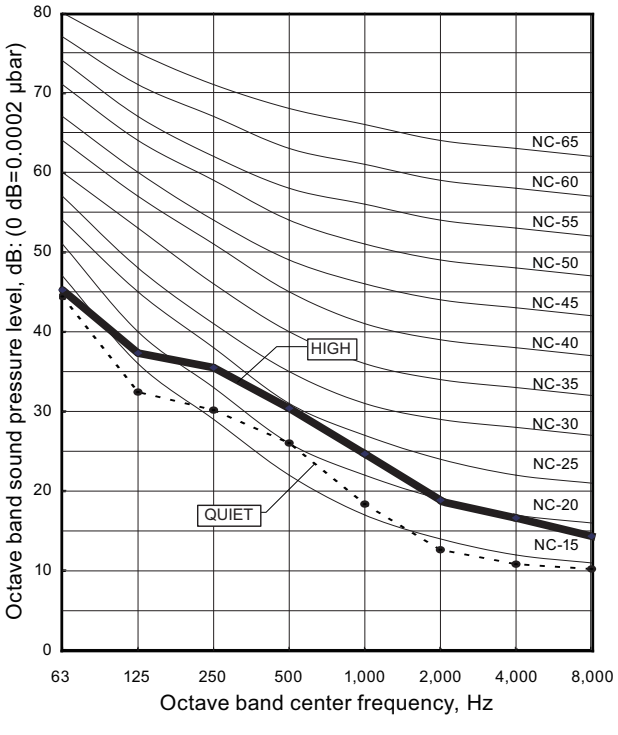
● Heating



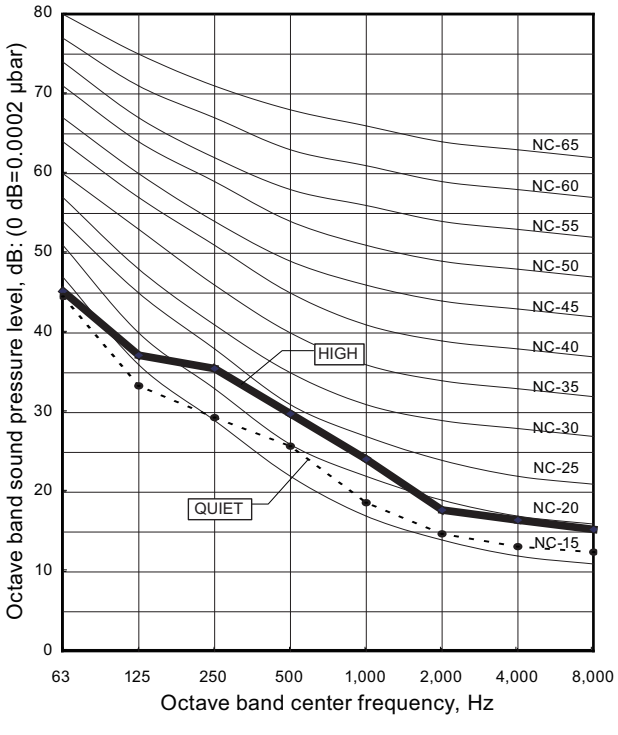
8-2. Slim duct type

■ Model: ARXG18KLLAP

● Cooling



● Heating

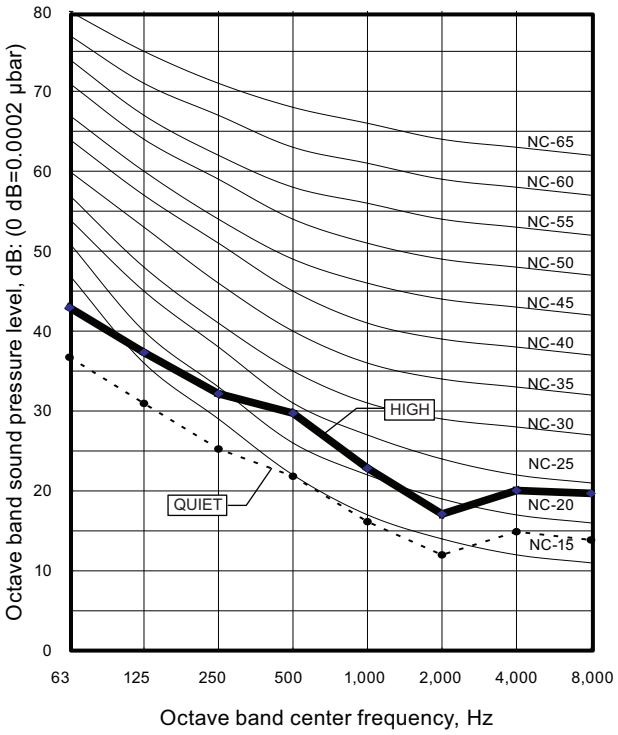


INDOOR UNITS
SIMULTANEOUS
MULTI

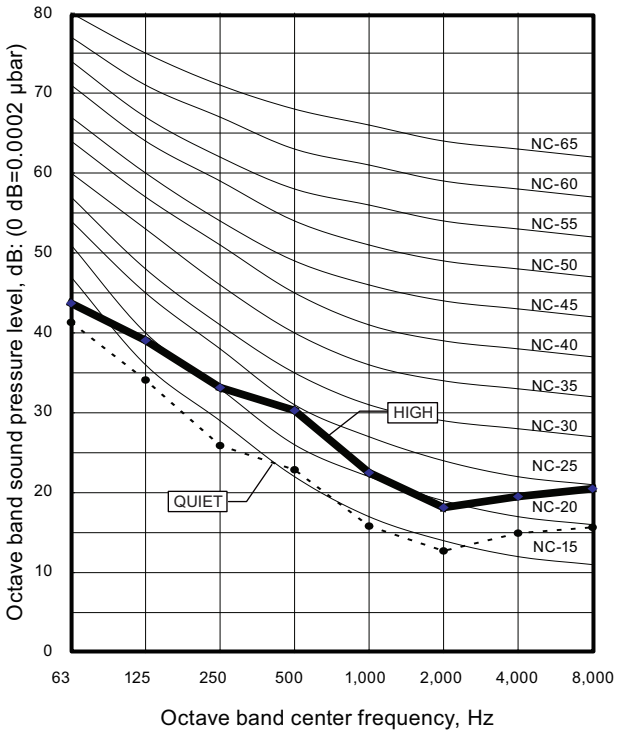
8-3. Duct type

■ Models: ARXG22KMLA and ARXG24KMLA

● Cooling



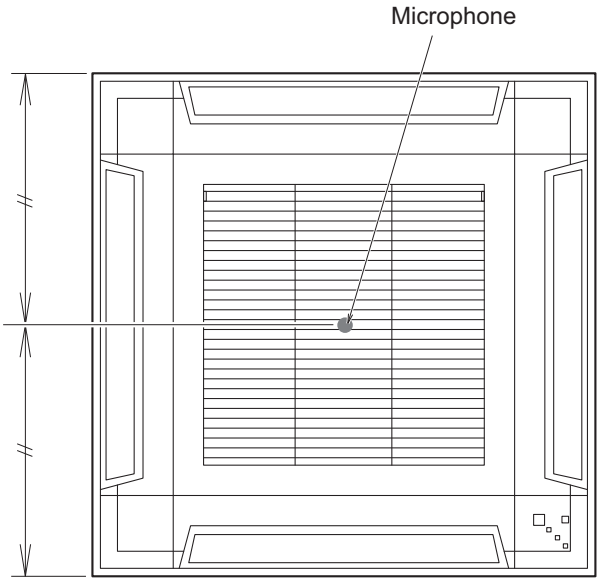
● Heating

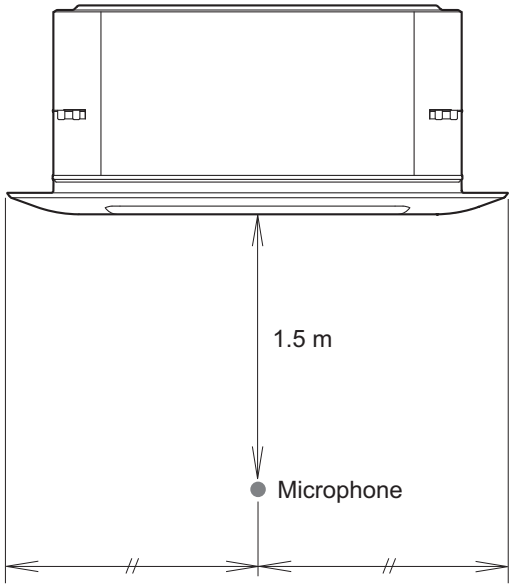


INDOOR UNITS
SIMULTANEOUS
MULTI

8-4. Sound level check point

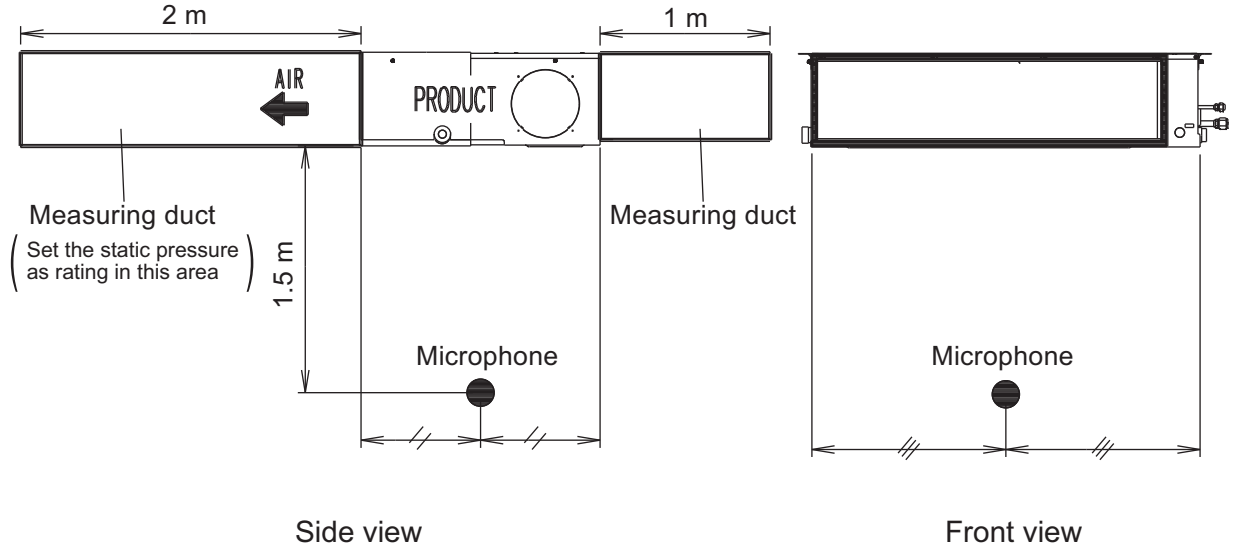
■ Compact cassette type





INDOOR UNITS
SIMULTANEOUS
MULTI

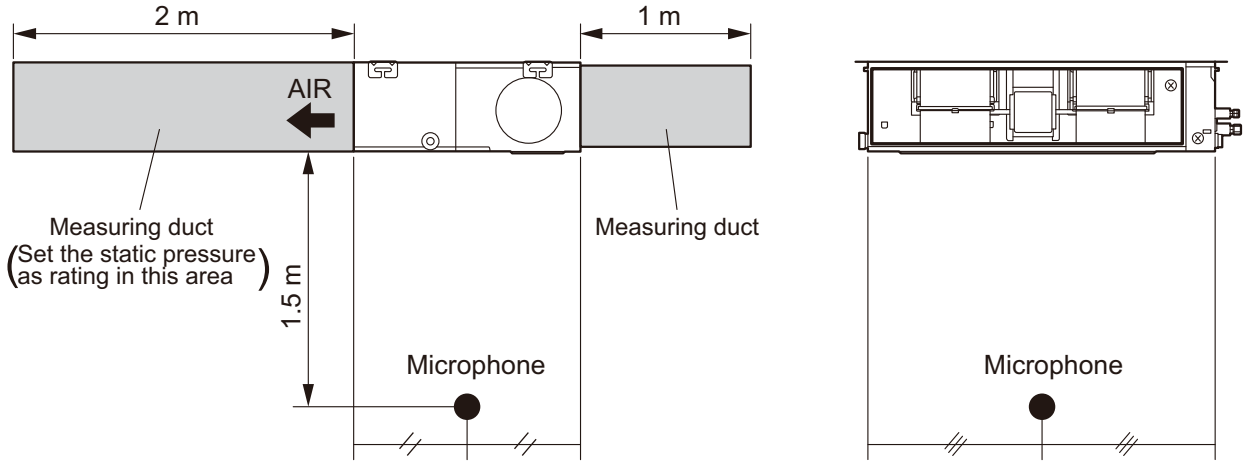
■ Slim duct type



Side view

Front view

■ Duct type



INDOOR UNITS
SIMULTANEOUS
MULTI

9. Electrical characteristics

Indoor unit		Power supply			Wiring specification *1 (Total *2)
Type	Model name	Frequency (Hz)	Voltage (V)	MCA (A)	Connection cable (mm^2)
Compact cassette	AUXG18KVLA	230	50	0.2	1.5
	AUXG22KVLA			0.3	
	AUXG24KVLA			0.3	
Slim duct	ARXG18KLLAP			0.5	
Duct	ARXG22KMLA			0.7	
	ARXG24KMLA			0.7	

MCA: Minimum Circuit Amperes = Maximum operating current (Full load)

NOTES:

- *1: 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.
- *2: Total length of all wirings that interconnect between indoor units and between indoor unit and outdoor unit.

INDOOR UNITS
SIMULTANEOUS
MULTI

10. Safety devices

Indoor unit		PCB* fuse	Fan motor thermal protector	
Type	Model name		Activate	Reset
Compact cassette	AUXG18KVLA	250 V, 3.15 A	100±10 °C Fan motor stop	95±10 °C Fan motor restart
	AUXG22KVLA			
	AUXG24KVLA			
Slim duct	ARXG18KLLAP	250 V, 5 A	135±15 °C Fan motor stop	115±15 °C Fan motor restart
Duct	ARXG22KMLA	250 V, 3.15 A	135±15 °C Fan motor stop	115±15 °C Fan motor restart
	ARXG24KMLA			

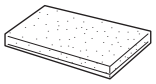
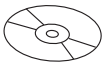
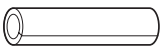
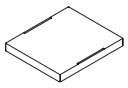
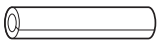
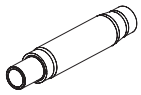
*: Printed Circuit Board

INDOOR UNITS
SIMULTANEOUS
MULTI

11. Accessories

11-1. Compact cassette type

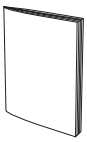
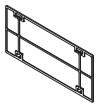
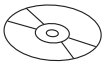
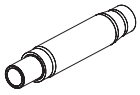
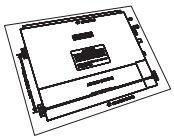
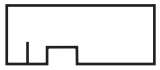
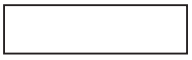
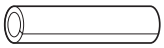
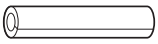
■ Models: AUXG18KVLA, AUXG22KVLA, and AUXG24KVLA

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Operating manual		1	Drain hose insulation		1
Operating manual (CD-ROM)		1	Hose band		1
Installation manual		1	Coupler heat insulation (large)		1
Template (Carton top)		1	Coupler heat insulation (small)		1
M10 nut A (with flange)		4	Cable tie		2
M10 nut B (with spring lock washer)		4	Wire cramper		1
Drain hose		1			

INDOOR UNITS
SIMULTANEOUS
MULTI

11-2. Slim duct type

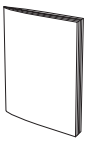
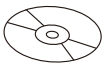
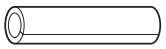
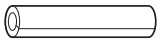
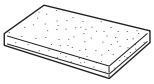
■ Model: ARXG18KLLAP

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

INDOOR UNITS
SIMULTANEOUS
MULTI

11-3. Duct type

■ Models: ARXG22KMLA and ARXG24KMLA

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Operating manual		1	Cable tie (Small)		1
Installation manual		1	Cable tie		1
CD-ROM		1	Coupler heat insulation (Large)		1
Hanger		4	Coupler heat insulation (Small)		1
Drain hose insulation		1	M10 nut A (with flange)		4
Cable tie (Large)		1	M10 nut B (with spring lock washer)		4

INDOOR UNITS
SIMULTANEOUS
MULTI

Part 2. OUTDOOR UNIT

SIMULTANEOUS MULTI:
AOHG36KBTB
AOHG45KBTB
AOHG54KBTB

1. Specifications

Type				Inverter heat pump		
Model name				**AOHG36KBTB**	**AOHG45KBTB**	**AOHG54KBTB**
Power supply				230 V ~ 50 Hz		
Power supply intake				Outdoor unit		
Available voltage range				198—264 V		
Indoor unit combination				AUXG18KVLA × 2 ARXG18KLLAP × 2	AUXG22KVLA × 2 ARXG22KMLA × 2	AUXG24KVLA × 2 ARXG24KMLA × 2 AUXG18KVLA × 3 ARXG18KLLAP × 3
Capacity	Cooling	Rated	kW	9.5	12.1	13.4
			Btu/h	32,400	41,300	45,700
		Min.—Max.	kW	2.8—11.2	4.0—13.0	4.5—14.5
			Btu/h	9,500—38,200	13,700—44,300	15,300—49,400
	Heating	Rated	kW	10.8	13.5	15.5
			Btu/h	36,800	46,000	52,900
		Min.—Max.	kW	2.7—12.7	4.2—15.2	4.7—16.5
			Btu/h	9,200—43,300	14,300—51,800	16,000—56,300
Input power	Cooling	Rated	kW	2.97	4.22	4.42
		Max.		5.11	6.48	
	Heating	Rated		2.88	3.84	4.16
		Max.		5.10	6.48	
Current	Cooling	Rated	A	13.1	18.6	19.4
		Max.		22.6	28.5	
	Heating	Rated		12.8	16.9	18.3
		Max.		22.6	28.5	
EER	Cooling		kW/kW	3.20	2.87	3.03
COP	Heating			3.75	3.52	3.73
Power factor	Cooling		%	98.3	98.8	98.9
	Heating			98.2	98.9	98.8
Starting current			A	13.1	18.6	19.4
Maximum operating current*1			A	22.6	28.5	
Fan	Airflow rate	Cooling	m^3/h	3,750	4,450	
		Heating		3,750	4,450	
	Type × Q'ty			Propeller × 1		
	Motor output		W	100	120	
Sound pressure level*2		Cooling	dB (A)	55	57	
		Heating		55	57	59
Sound power level		Cooling	dB (A)	70	71	73
		Heating		70	71	73
Heat exchanger type		Dimensions (H × W × D)	mm	Main1: 756 × 905 × 18.2 Main2: 756 × 905 × 18.2	Main1: 966 × 905 × 18.2 Main2: 966 × 905 × 18.2 Sub: 966 × 543 × 18.2	
		Fin pitch		1.45		
		Rows × Stages		1 × 36	1 × 46	
		Pipe type		Copper		
		Fin	Type (Material)	Aluminum		
			Surface treatment	Blue fin		
Compressor	Type × Q'ty			DC Twin rotary × 1		
	Motor output		W	1,500	2,180	
Refrigerant		Type (Global warming potential)		R32 (675)		
		Factory charge	g	1,900	2,700	
Refrigerant oil		Type		FW68D	RmM68AF	
		Amount	cm^3	600	800	
Enclosure		Material		Steel sheet		
		Color		Beige Approximate color of Munsell 10YR 7.5/1.0		
Dimensions (H × W × D)	Net		mm	788 × 940 × 320	998 × 940 × 320	
	Gross			966 × 1,027 × 445	1,176 × 1,027 × 445	
Weight	Net		kg	52	67	
	Gross			60	75	
Connection pipe	Size	Liquid	mm (in)	Ø9.52 (3/8)		
		Gas		Ø15.88 (5/8)		
	Method			Flare		
	Pre-charge length	Total	m	30		
	Max. length (Total)			50		
	Max. length (From the 1st separation tube)	To the farthest indoor unit		20		
		To the farthest indoor unit—To the nearest indoor unit		8		
	Max. height difference between outdoor unit and each indoor units			30		
	Max. height difference between indoor units			0.5		
Operation range		Cooling	°C	-15 to 46		
		Heating		-15 to 24		
Drain hose		Material		LDPE		
		Size	mm	Ø13.0 (I. D.), Ø16.0 to Ø16.8 (O. D.)		

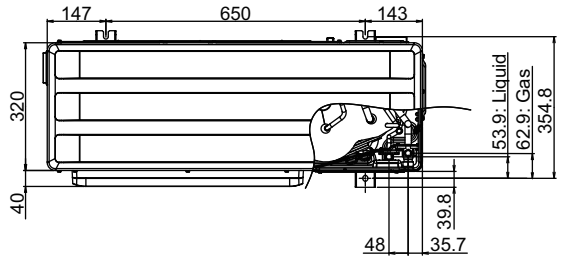
NOTES:

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

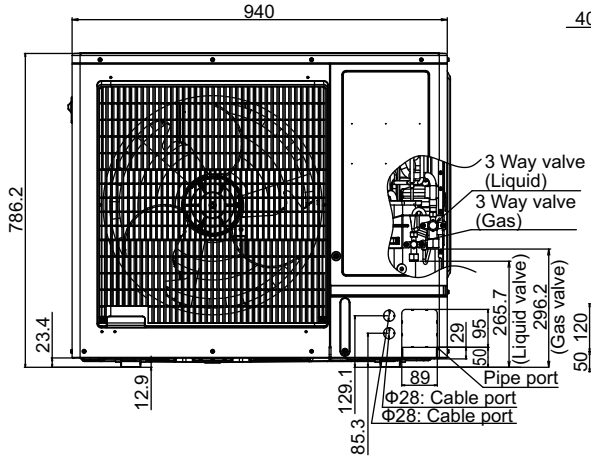
2. Dimensions

2-1. Model: AOHG36KBTB

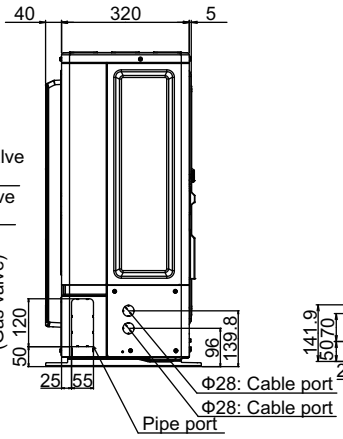
Unit: mm



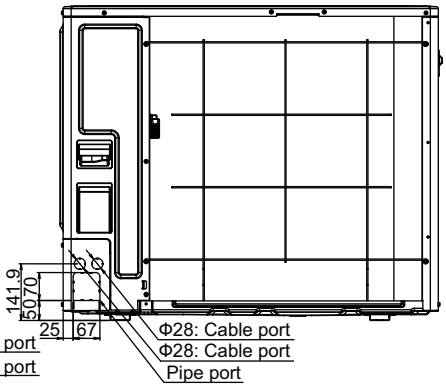
Top view



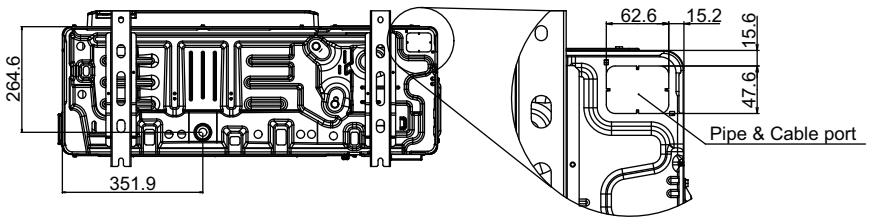
Front view



Side view



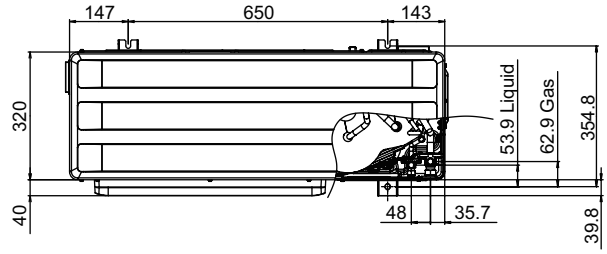
Rear view



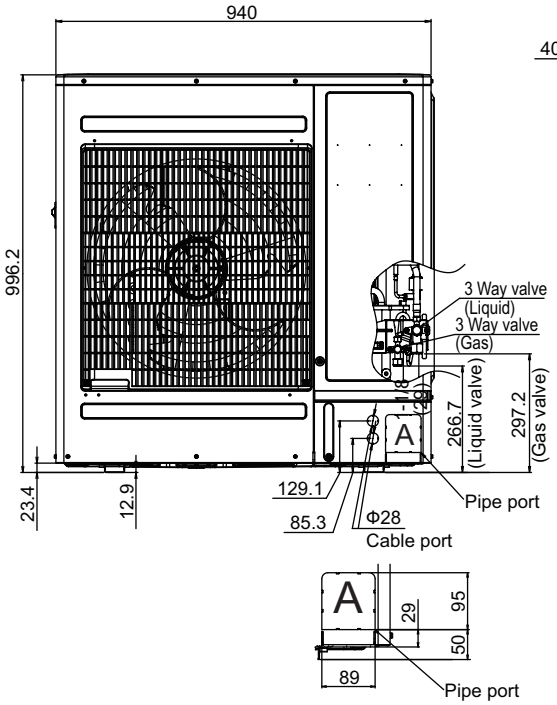
Bottom view

2-2. Models: AOHG45KBTB and AOHG54KBTB

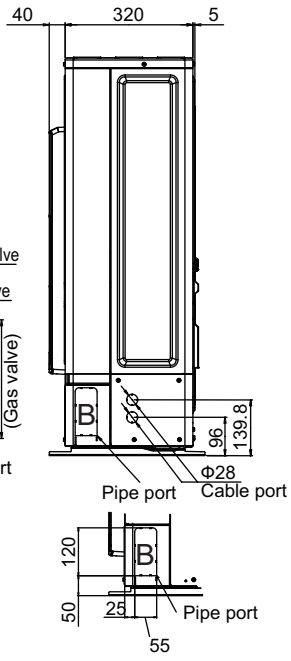
Unit: mm



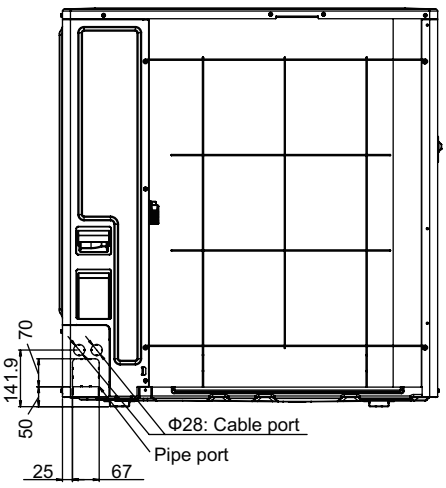
Top view



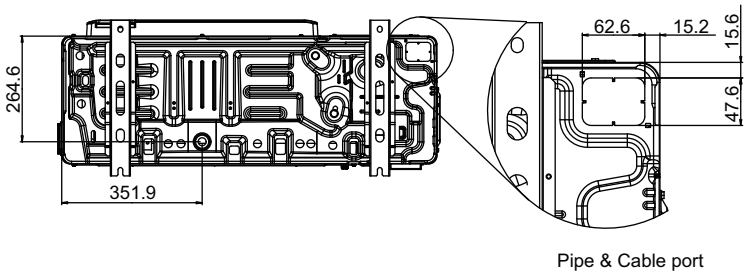
Front view



Side view



Rear view



Bottom view

3. Installation space

3-1. Models: AOHG36KBTB, AOHG45KBTB, and AOHG54KBTB

OUTDOOR UNIT
AOHG36-54KBTB

■ Space requirement

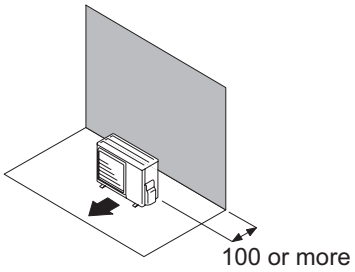
Provide sufficient installation space for product safety.

● Single outdoor unit installation

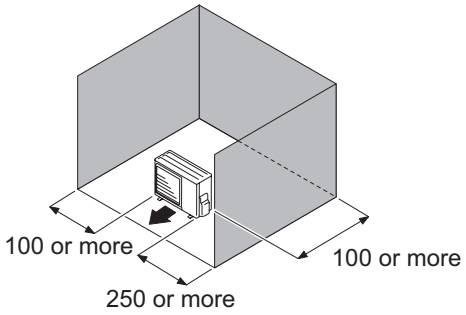
- **When the upper space is open:**

Unit: mm

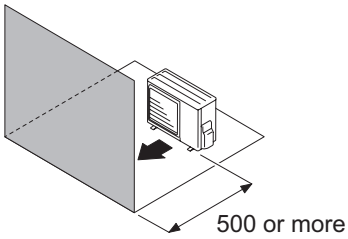
When there are obstacles at the rear only.



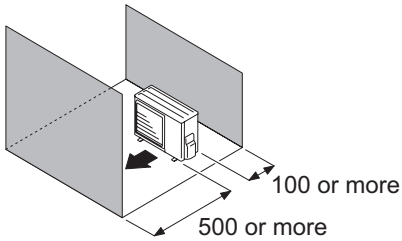
When there are obstacles at the rear and sides.



When there are obstacles at the front only.



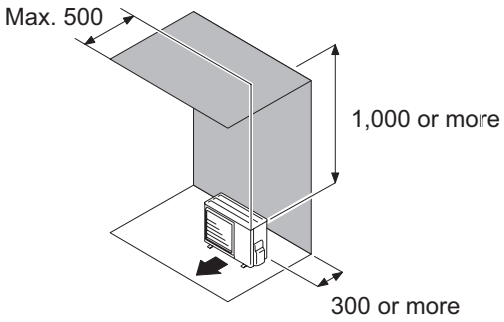
When there are obstacles at the front and rear.



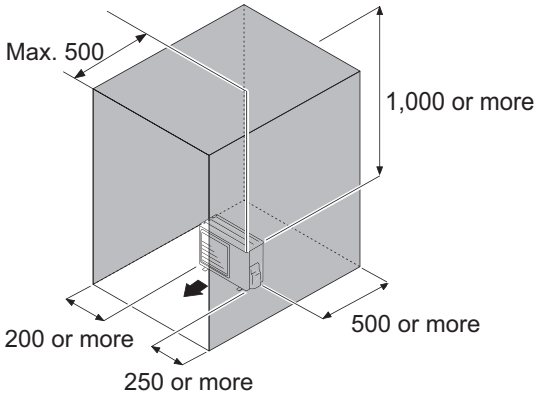
- **When there is an obstruction in the upper space:**

Unit: mm

When there are obstacles at the rear and above.



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



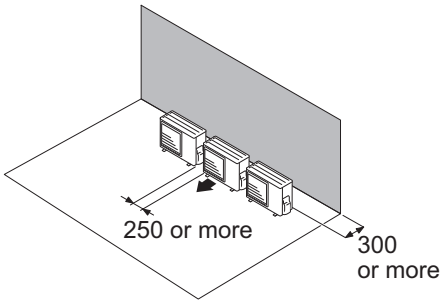
OUTDOOR UNIT
AOHG36-54KBTB

● Multiple outdoor unit installation

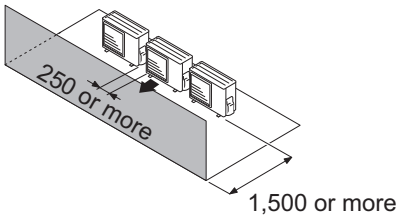
- **When the upper space is open:**

Unit: mm

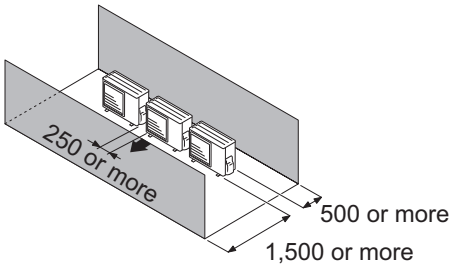
When there are obstacles at the rear only.



When there are obstacles at the front only.



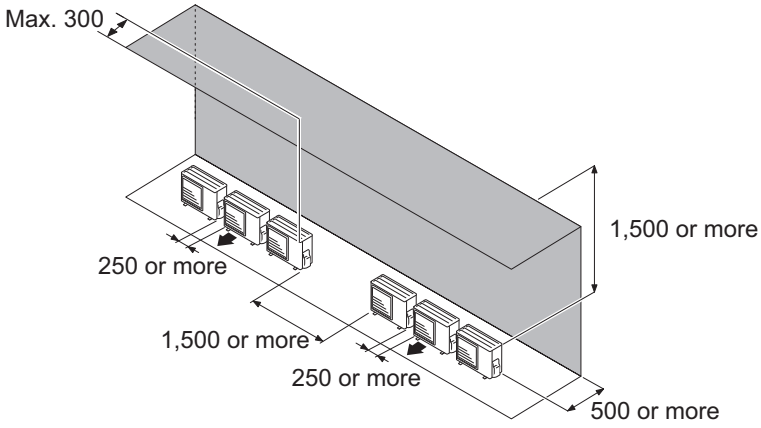
When there are obstacles at the front and rear.



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

Unit: mm

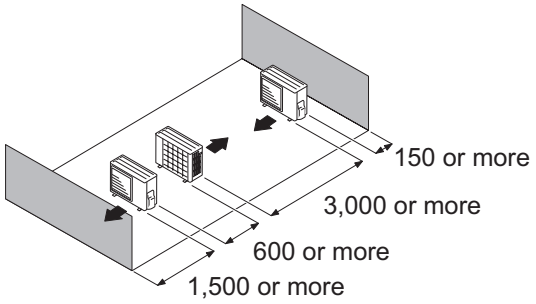
When there are obstacles at the rear and above.



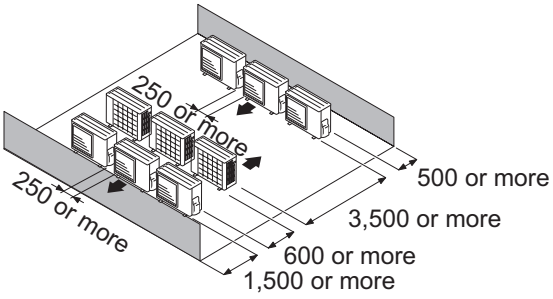
● Outdoor unit installation in multi-row

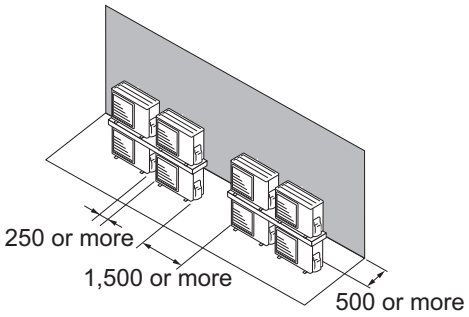
Unit: mm

Single parallel unit arrangement



Multiple parallel unit arrangement



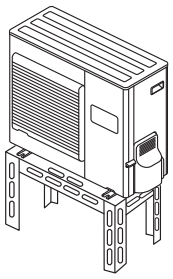


NOTES:

- 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

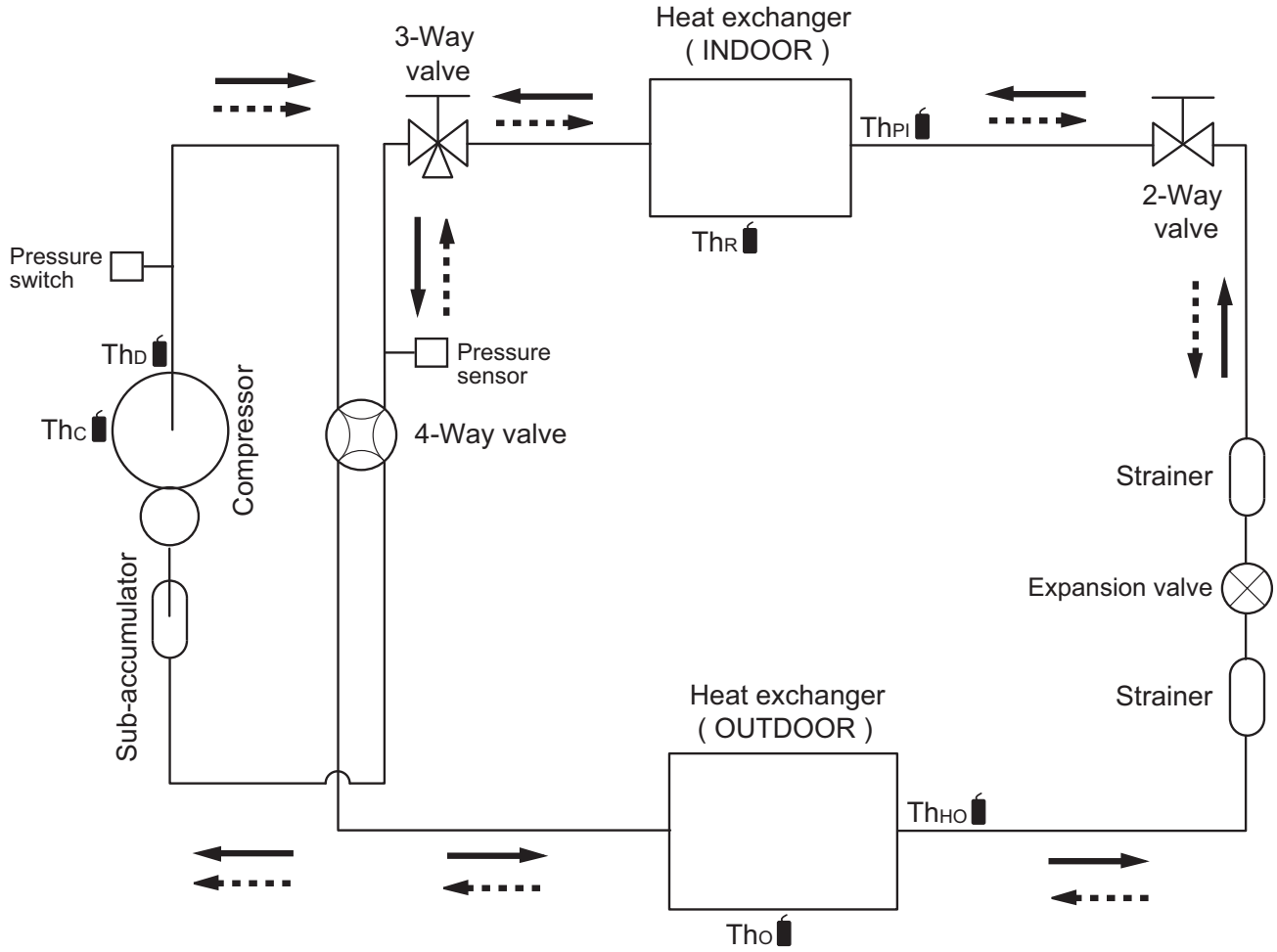
- Do not install the outdoor unit in two-stage where the drain water could freeze. Otherwise the drainage from the upper unit may form ice and cause a malfunction of the lower unit.
- When the outdoor temperature is 0 °C or less, do not use the accessory drain pipe and drain cap. If the drain pipe and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



4. Refrigerant circuit

4-1. Models: AOHG36KBTB, AOHG45KBTB, and AOHG54KBTB

OUTDOOR UNIT
AOHG36-54KBTB

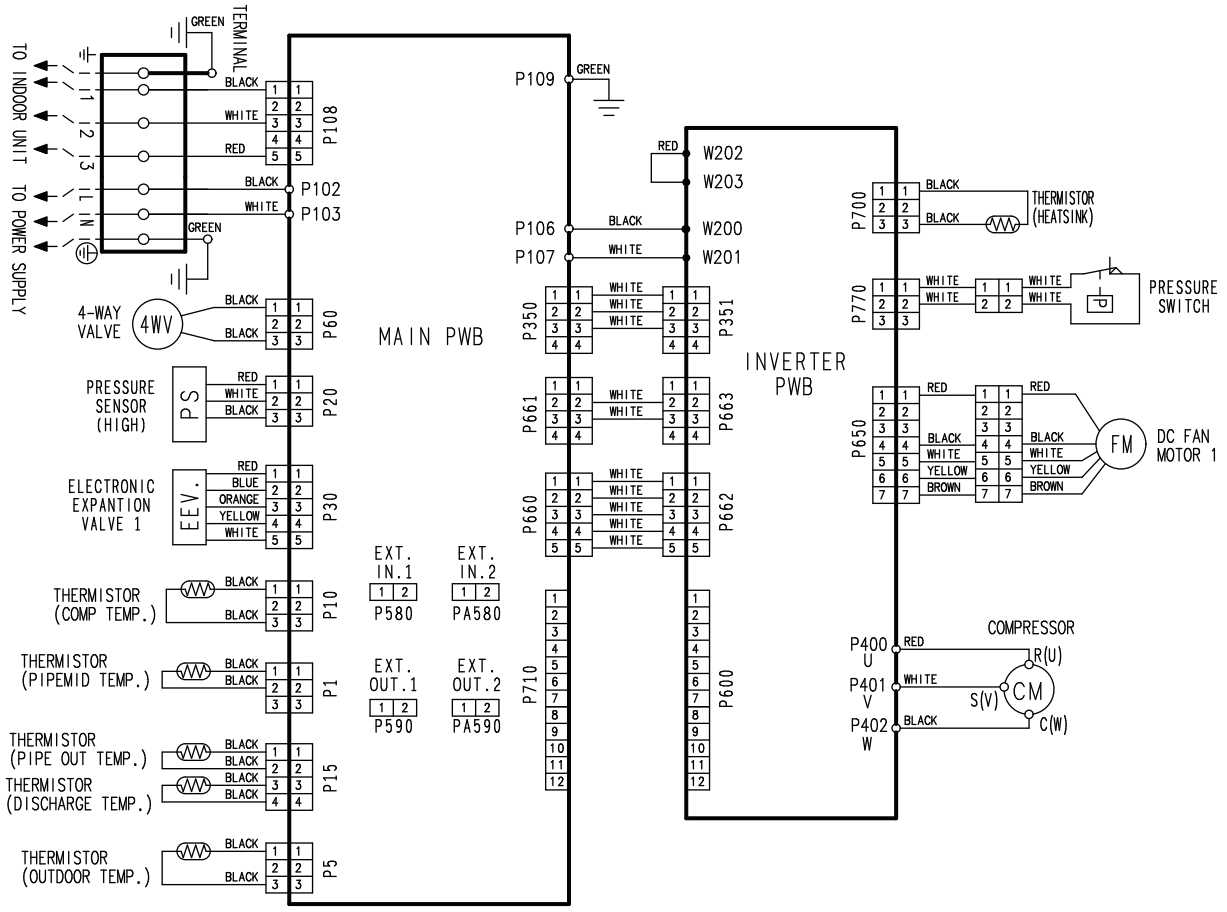


: Cooling
: Heating

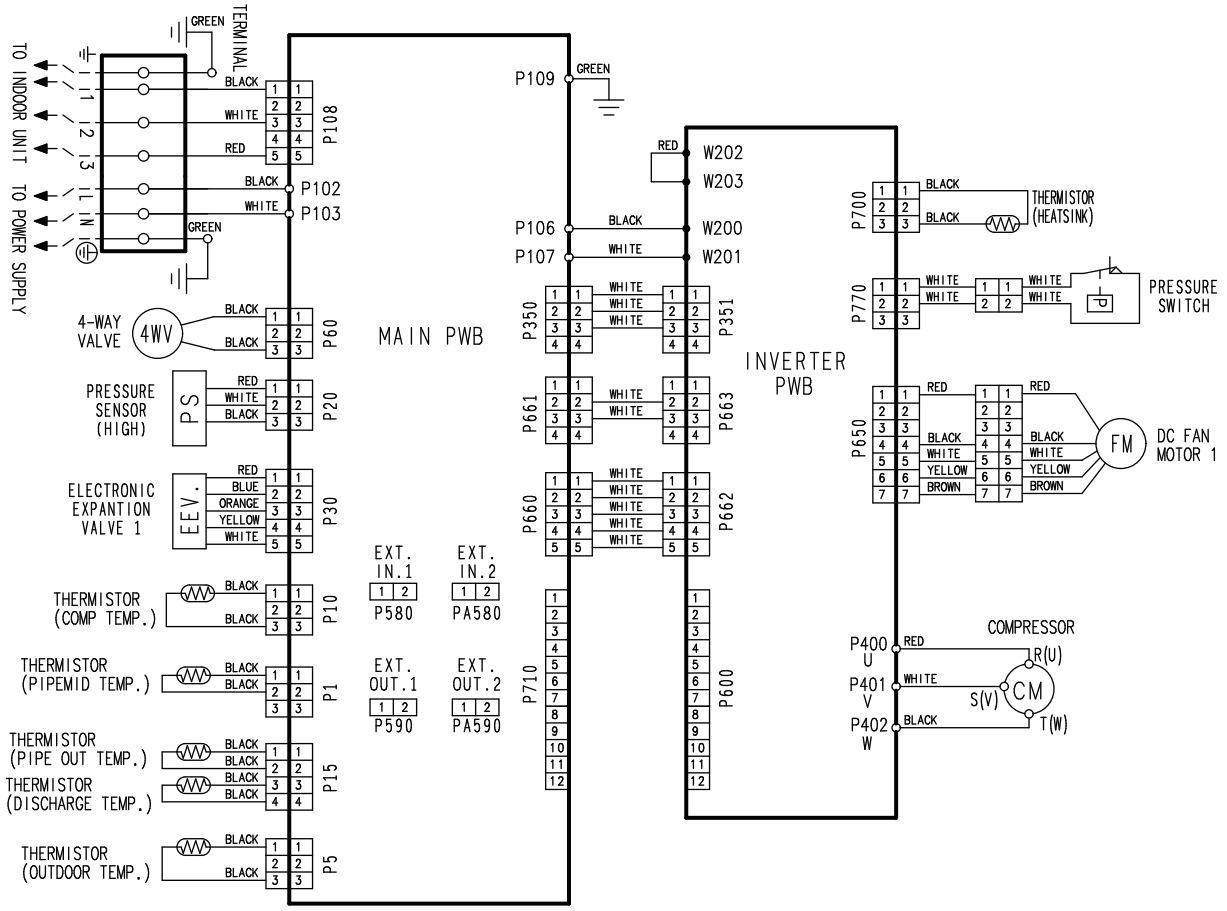
ThC : Thermistor (Compressor temperature)
ThD : Thermistor (Discharge temperature)
ThO : Thermistor (Outdoor temperature)
ThHO : Thermistor (Heat Exchanger Out temperature)
ThR : Thermistor (Room temperature)
ThPI : Thermistor (Pipe temperature)

5. Wiring diagrams

5-1. Model: AOHG36KBTB



5-2. Models: AOHG45KBTB and AOHG54KBTB



OUTDOOR UNIT
AOHG36-54KBTB

OUTDOOR UNIT
AOHG36-54KBTB

6. Capacity table

6-1. Model: AOHG36KBTB

TC: Total Capacity, SHC: Sensible Heat Capacity, IP: Input Power

■ Cooling capacity (Twin)

● Compact cassette type

Model: AUXG18KVLA × 2

AFR	m^3/h	1360

		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	6.91	5.09	1.03	7.15	5.10	1.06	7.31	5.11	1.08	7.72	5.36	1.09	8.13	5.60	1.11	8.58	5.78	1.13	9.27	6.05	1.15
	-10	6.76	4.95	1.26	7.00	4.97	1.29	7.16	4.98	1.31	7.56	5.21	1.33	7.96	5.45	1.35	8.40	5.63	1.37	9.07	5.89	1.40
	0	6.47	4.67	1.70	6.70	4.69	1.74	6.86	4.70	1.77	7.24	4.92	1.80	7.62	5.15	1.83	8.05	5.31	1.85	8.69	5.56	1.89
	5	6.42	4.69	1.75	6.64	4.71	1.79	6.80	4.72	1.82	7.17	4.94	1.85	7.55	5.17	1.88	7.98	5.33	1.91	8.61	5.58	1.95
	10	6.36	4.71	1.80	6.59	4.72	1.85	6.74	4.73	1.87	7.11	4.96	1.91	7.49	5.18	1.94	7.91	5.35	1.97	8.54	5.60	2.01
	15	6.26	4.63	1.86	6.48	4.65	1.90	6.62	4.66	1.93	6.99	4.88	1.96	7.36	5.10	1.99	7.77	5.26	2.02	8.39	5.51	2.07
	20	9.44	6.66	2.51	9.77	6.68	2.57	9.99	6.69	2.61	10.55	7.01	2.65	11.10	7.33	2.70	11.73	7.57	2.73	12.66	7.92	2.79
	25	8.98	6.37	2.59	9.30	6.39	2.65	9.51	6.40	2.70	10.04	6.71	2.74	10.57	7.01	2.79	11.16	7.24	2.83	12.05	7.58	2.89
	30	8.53	6.08	2.68	8.83	6.10	2.74	9.03	6.11	2.78	9.53	6.40	2.83	10.03	6.69	2.88	10.60	6.91	2.92	11.44	7.23	2.98
	35	8.07	5.79	2.76	8.36	5.81	2.83	8.55	5.82	2.87	9.02	6.10	2.92	9.50	6.38	2.97	10.03	6.58	3.01	10.83	6.89	3.08
	40	7.55	5.50	2.89	7.82	5.52	2.96	8.00	5.53	3.00	8.44	5.79	3.05	8.89	6.06	3.10	9.39	6.25	3.15	10.14	6.54	3.22
	46	6.93	5.15	3.04	7.18	5.17	3.11	7.34	5.18	3.16	7.75	5.43	3.21	8.16	5.67	3.26	8.61	5.86	3.31	9.30	6.13	3.38

● Slim duct type

Model: ARXG18KLLAP × 2

AFR	m^3/h	1,880

		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	6.91	5.09	1.03	7.15	5.10	1.06	7.31	5.11	1.08	7.72	5.36	1.09	8.13	5.60	1.11	8.58	5.78	1.13	9.27	6.05	1.15
	-10	6.76	4.95	1.26	7.00	4.97	1.29	7.16	4.98	1.31	7.56	5.21	1.33	7.96	5.45	1.35	8.40	5.63	1.37	9.07	5.89	1.40
	0	6.47	4.67	1.70	6.70	4.69	1.74	6.86	4.70	1.77	7.24	4.92	1.80	7.62	5.15	1.83	8.05	5.31	1.85	8.69	5.56	1.89
	5	6.42	4.69	1.75	6.64	4.71	1.79	6.80	4.72	1.82	7.17	4.94	1.85	7.55	5.17	1.88	7.98	5.33	1.91	8.61	5.58	1.95
	10	6.36	4.71	1.80	6.59	4.72	1.85	6.74	4.73	1.87	7.11	4.96	1.91	7.49	5.18	1.94	7.91	5.35	1.97	8.54	5.60	2.01
	15	6.26	4.63	1.86	6.48	4.65	1.90	6.62	4.66	1.93	6.99	4.88	1.96	7.36	5.10	1.99	7.77	5.26	2.02	8.39	5.51	2.07
	20	9.44	6.66	2.51	9.77	6.68	2.57	9.99	6.69	2.61	10.55	7.01	2.65	11.10	7.33	2.70	11.73	7.57	2.73	12.66	7.92	2.79
	25	8.98	6.37	2.59	9.30	6.39	2.65	9.51	6.40	2.70	10.04	6.71	2.74	10.57	7.01	2.79	11.16	7.24	2.83	12.05	7.58	2.89
	30	8.53	6.08	2.68	8.83	6.10	2.74	9.03	6.11	2.78	9.53	6.40	2.83	10.03	6.69	2.88	10.60	6.91	2.92	11.44	7.23	2.98
	35	8.07	5.79	2.76	8.36	5.81	2.83	8.55	5.82	2.87	9.02	6.10	2.92	9.50	6.38	2.97	10.03	6.58	3.01	10.83	6.89	3.08
	40	7.55	5.50	2.89	7.82	5.52	2.96	8.00	5.53	3.00	8.44	5.79	3.05	8.89	6.06	3.10	9.39	6.25	3.15	10.14	6.54	3.22
	46	6.93	5.15	3.04	7.18	5.17	3.11	7.34	5.18	3.16	7.75	5.43	3.21	8.16	5.67	3.26	8.61	5.86	3.31	9.30	6.13	3.38

■ Heating capacity (Twin)

● Compact cassette type

Model: AUXG18KVLA × 2

AFR	m^3/h	1,600

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	8.05	3.18	8.01	3.18	7.98	3.19	7.77	3.19	7.26	3.20
	-10	-11	9.21	3.44	9.17	3.44	9.13	3.44	8.89	3.45	8.31	3.46
	-5	-7	10.37	3.69	10.32	3.70	10.28	3.70	10.02	3.71	9.35	3.72
	0	-2	11.01	3.74	10.97	3.75	10.92	3.75	10.64	3.75	9.94	3.77
	5	3	12.30	3.80	12.24	3.80	12.19	3.81	11.88	3.81	11.09	3.82
	7	6	12.81	3.82	12.75	3.83	12.70	3.83	12.37	3.84	11.56	3.85
	10	8	13.20	3.82	13.15	3.83	13.09	3.83	12.75	3.84	11.91	3.85
	15	10	13.73	3.82	13.68	3.83	13.62	3.83	13.27	3.84	12.39	3.85
	20	15	14.63	3.83	14.56	3.84	14.50	3.84	14.13	3.85	13.19	3.86
	24	18	15.34	3.84	15.27	3.84	15.21	3.85	14.82	3.85	13.84	3.87

● Slim duct type

Model: ARXG18KLLAP × 2

AFR	m^3/h	1,880

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	8.05	3.18	8.01	3.18	7.98	3.19	7.77	3.19	7.26	3.20
	-10	-11	9.21	3.44	9.17	3.44	9.13	3.44	8.89	3.45	8.31	3.46
	-5	-7	10.37	3.69	10.32	3.70	10.28	3.70	10.02	3.71	9.35	3.72
	0	-2	11.01	3.74	10.97	3.75	10.92	3.75	10.64	3.75	9.94	3.77
	5	3	12.30	3.80	12.24	3.80	12.19	3.81	11.88	3.81	11.09	3.82
	7	6	12.81	3.82	12.75	3.83	12.70	3.83	12.37	3.84	11.56	3.85
	10	8	13.20	3.82	13.15	3.83	13.09	3.83	12.75	3.84	11.91	3.85
	15	10	13.73	3.82	13.68	3.83	13.62	3.83	13.27	3.84	12.39	3.85
	20	15	14.63	3.83	14.56	3.84	14.50	3.84	14.13	3.85	13.19	3.86
	24	18	15.34	3.84	15.27	3.84	15.21	3.85	14.82	3.85	13.84	3.87

6-2. Model: AOHG45KBTB

TC: Total Capacity, SHC: Sensible Heat Capacity, IP: Input Power

OUTDOOR UNIT
AOHG36-54KBTB

■ Cooling capacity (Twin)

● Compact cassette type

Model: AUXG22KVLA × 2

AFR	m^3/h	1,660

		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	8.88	6.91	1.75	9.63	7.26	1.79	10.13	7.49	1.82	10.64	7.80	1.84	11.14	8.12	1.87	11.61	8.27	1.89	12.30	8.50	1.91
	-10	8.83	6.87	1.75	9.58	7.22	1.79	10.08	7.45	1.82	10.58	7.76	1.84	11.08	8.07	1.87	11.54	8.22	1.88	12.23	8.45	1.91
	0	8.73	6.80	1.75	9.47	7.14	1.79	9.96	7.37	1.82	10.46	7.68	1.84	10.95	7.98	1.87	11.41	8.13	1.88	12.09	8.36	1.91
	5	8.57	6.78	1.80	9.30	7.12	1.84	9.78	7.35	1.86	10.27	7.65	1.89	10.76	7.96	1.92	11.20	8.11	1.93	11.88	8.33	1.95
	10	8.42	6.76	1.84	9.13	7.10	1.88	9.61	7.32	1.91	10.08	7.63	1.94	10.56	7.94	1.96	11.00	8.08	1.98	11.66	8.31	2.00
	15	8.27	6.65	1.89	8.98	6.98	1.94	9.45	7.20	1.96	9.91	7.51	1.99	10.38	7.81	2.02	10.82	7.95	2.04	11.47	8.17	2.06
	20	11.05	7.69	3.59	11.99	8.08	3.67	12.61	8.33	3.72	13.24	8.68	3.78	13.86	9.03	3.83	14.44	9.20	3.86	15.31	9.45	3.91
	25	10.58	7.49	3.71	11.48	7.87	3.80	12.08	8.12	3.85	12.68	8.46	3.91	13.28	8.80	3.96	13.83	8.97	3.99	14.66	9.21	4.04
	30	10.11	7.30	3.83	10.97	7.67	3.92	11.54	7.91	3.98	12.12	8.25	4.03	12.69	8.58	4.09	13.22	8.74	4.12	14.01	8.98	4.17
	35	9.64	7.11	3.96	10.46	7.47	4.04	11.01	7.70	4.10	11.55	8.03	4.16	12.10	8.35	4.22	12.61	8.50	4.25	13.36	8.74	4.31
	40	8.22	6.17	3.56	8.92	6.48	3.64	9.38	6.68	3.70	9.85	6.96	3.75	10.32	7.24	3.80	10.75	7.38	3.83	11.39	7.58	3.88
	46	6.51	5.04	3.09	7.07	5.29	3.16	7.44	5.46	3.21	7.80	5.69	3.25	8.17	5.91	3.30	8.51	6.02	3.33	9.03	6.19	3.37

● Duct type

Model: ARXG22KMLA × 2

AFR	m^3/h	2,200

		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	8.88	6.91	1.75	9.63	7.26	1.79	10.13	7.49	1.82	10.64	7.80	1.84	11.14	8.12	1.87	11.61	8.27	1.89	12.30	8.50	1.91
	-10	8.83	6.87	1.75	9.58	7.22	1.79	10.08	7.45	1.82	10.58	7.76	1.84	11.08	8.07	1.87	11.54	8.22	1.88	12.23	8.45	1.91
	0	8.73	6.80	1.75	9.47	7.14	1.79	9.96	7.37	1.82	10.46	7.68	1.84	10.95	7.98	1.87	11.41	8.13	1.88	12.09	8.36	1.91
	5	8.57	6.78	1.80	9.30	7.12	1.84	9.78	7.35	1.86	10.27	7.65	1.89	10.76	7.96	1.92	11.20	8.11	1.93	11.88	8.33	1.95
	10	8.42	6.76	1.84	9.13	7.10	1.88	9.61	7.32	1.91	10.08	7.63	1.94	10.56	7.94	1.96	11.00	8.08	1.98	11.66	8.31	2.00
	15	8.27	6.65	1.89	8.98	6.98	1.94	9.45	7.20	1.96	9.91	7.51	1.99	10.38	7.81	2.02	10.82	7.95	2.04	11.47	8.17	2.06
	20	11.05	7.69	3.59	11.99	8.08	3.67	12.61	8.33	3.72	13.24	8.68	3.78	13.86	9.03	3.83	14.44	9.20	3.86	15.31	9.45	3.91
	25	10.58	7.49	3.71	11.48	7.87	3.80	12.08	8.12	3.85	12.68	8.46	3.91	13.28	8.80	3.96	13.83	8.97	3.99	14.66	9.21	4.04
	30	10.11	7.30	3.83	10.97	7.67	3.92	11.54	7.91	3.98	12.12	8.25	4.03	12.69	8.58	4.09	13.22	8.74	4.12	14.01	8.98	4.17
	35	9.64	7.11	3.96	10.46	7.47	4.04	11.01	7.70	4.10	11.55	8.03	4.16	12.10	8.35	4.22	12.61	8.50	4.25	13.36	8.74	4.31
	40	8.22	6.17	3.56	8.92	6.48	3.64	9.38	6.68	3.70	9.85	6.96	3.75	10.32	7.24	3.80	10.75	7.38	3.83	11.39	7.58	3.88
	46	6.51	5.04	3.09	7.07	5.29	3.16	7.44	5.46	3.21	7.80	5.69	3.25	8.17	5.91	3.30	8.51	6.02	3.33	9.03	6.19	3.37

OUTDOOR UNIT
AOHG36-54KBTB

■ Heating capacity (Twin)

● Compact cassette type

Model: AUXG22KVLA × 2

AFR	m^3/h	1,720

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	10.89	4.34	10.63	4.36	10.37	4.38	10.13	4.43	9.53	4.56
	-10	-11	12.10	4.52	11.81	4.54	11.52	4.57	11.25	4.62	10.58	4.75
	-5	-7	13.30	4.71	12.99	4.73	12.67	4.75	12.37	4.81	11.64	4.94
	0	-2	14.53	4.89	14.18	4.92	13.83	4.94	13.51	5.00	12.71	5.14
	5	3	15.55	4.56	15.18	4.58	14.81	4.61	14.46	4.66	13.60	4.79
	7	6	15.96	4.55	15.58	4.58	15.20	4.60	14.85	4.65	13.96	4.78
	10	8	16.62	4.54	16.23	4.57	15.83	4.59	15.46	4.64	14.54	4.77
	15	10	17.73	4.53	17.30	4.55	16.88	4.57	16.49	4.63	15.51	4.76
	20	15	18.83	4.51	18.38	4.53	17.93	4.56	17.51	4.61	16.47	4.74
	24	18	19.71	4.50	19.24	4.52	18.77	4.54	18.33	4.59	17.24	4.72

● Duct type

Model: ARXG22KMLA × 2

AFR	m^3/h	2,200

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	10.89	4.34	10.63	4.36	10.37	4.38	10.13	4.43	9.53	4.56
	-10	-11	12.10	4.52	11.81	4.54	11.52	4.57	11.25	4.62	10.58	4.75
	-5	-7	13.30	4.71	12.99	4.73	12.67	4.75	12.37	4.81	11.64	4.94
	0	-2	14.53	4.89	14.18	4.92	13.83	4.94	13.51	5.00	12.71	5.14
	5	3	15.55	4.56	15.18	4.58	14.81	4.61	14.46	4.66	13.60	4.79
	7	6	15.96	4.55	15.58	4.58	15.20	4.60	14.85	4.65	13.96	4.78
	10	8	16.62	4.54	16.23	4.57	15.83	4.59	15.46	4.64	14.54	4.77
	15	10	17.73	4.53	17.30	4.55	16.88	4.57	16.49	4.63	15.51	4.76
	20	15	18.83	4.51	18.38	4.53	17.93	4.56	17.51	4.61	16.47	4.74
	24	18	19.71	4.50	19.24	4.52	18.77	4.54	18.33	4.59	17.24	4.72

6-3. Model: AOHG54KBTB

TC: Total Capacity, SHC: Sensible Heat Capacity, IP: Input Power

OUTDOOR UNIT
AOHG36-54KBTB

■ Cooling capacity (Twin)

● Compact cassette type

Model: AUXG24KVLA × 2

AFR	m^3/h	1,860

		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	9.76	7.44	1.93	10.59	7.82	1.97	11.14	8.07	2.00	11.69	8.40	2.03	12.25	8.74	2.06	12.76	8.90	2.07	13.52	9.14	2.09
	-10	9.73	7.40	1.93	10.55	7.78	1.97	11.10	8.03	2.00	11.65	8.36	2.03	12.21	8.69	2.06	12.72	8.86	2.08	13.48	9.10	2.10
	0	9.66	7.32	1.94	10.48	7.70	1.98	11.03	7.94	2.01	11.58	8.27	2.04	12.13	8.61	2.07	12.63	8.76	2.08	13.39	9.00	2.11
	5	9.49	7.30	1.99	10.30	7.67	2.03	10.84	7.92	2.06	11.37	8.25	2.09	11.91	8.58	2.12	12.41	8.74	2.14	13.15	8.97	2.16
	10	9.32	7.28	2.04	10.11	7.64	2.08	10.64	7.89	2.11	11.17	8.22	2.14	11.70	8.55	2.17	12.18	8.71	2.19	12.92	8.94	2.22
	15	9.16	7.16	2.10	9.94	7.52	2.14	10.46	7.76	2.17	10.98	8.09	2.21	11.50	8.41	2.24	11.98	8.56	2.25	12.70	8.80	2.28
	20	12.24	8.51	3.76	13.27	8.94	3.84	13.97	9.23	3.90	14.66	9.62	3.96	15.35	10.00	4.01	16.00	10.19	4.04	16.96	10.46	4.09
	25	11.72	8.30	3.89	12.71	8.72	3.97	13.38	9.00	4.03	14.04	9.37	4.09	14.70	9.75	4.15	15.32	9.93	4.18	16.24	10.20	4.23
	30	11.20	8.08	4.02	12.15	8.49	4.11	12.78	8.77	4.16	13.42	9.13	4.22	14.05	9.50	4.28	14.64	9.67	4.32	15.52	9.94	4.37
	35	10.68	7.87	4.14	11.59	8.27	4.24	12.19	8.54	4.30	12.80	8.89	4.36	13.40	9.25	4.42	13.96	9.42	4.45	14.80	9.67	4.51
	40	9.10	6.93	3.73	9.88	7.28	3.82	10.39	7.51	3.87	10.91	7.83	3.93	11.42	8.14	3.98	11.90	8.29	4.01	12.62	8.52	4.06
	46	7.21	5.80	3.24	7.83	6.09	3.31	8.23	6.29	3.36	8.64	6.55	3.41	9.05	6.81	3.46	9.43	6.94	3.48	10.00	7.13	3.52

● Duct type

Model: ARXG24KMLA × 2

AFR	m^3/h	2,200

		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	9.76	7.44	1.93	10.59	7.82	1.97	11.14	8.07	2.00	11.69	8.40	2.03	12.25	8.74	2.06	12.76	8.90	2.07	13.52	9.14	2.09
	-10	9.73	7.40	1.93	10.55	7.78	1.97	11.10	8.03	2.00	11.65	8.36	2.03	12.21	8.69	2.06	12.72	8.86	2.08	13.48	9.10	2.10
	0	9.66	7.32	1.94	10.48	7.70	1.98	11.03	7.94	2.01	11.58	8.27	2.04	12.13	8.61	2.07	12.63	8.76	2.08	13.39	9.00	2.11
	5	9.49	7.30	1.99	10.30	7.67	2.03	10.84	7.92	2.06	11.37	8.25	2.09	11.91	8.58	2.12	12.41	8.74	2.14	13.15	8.97	2.16
	10	9.32	7.28	2.04	10.11	7.64	2.08	10.64	7.89	2.11	11.17	8.22	2.14	11.70	8.55	2.17	12.18	8.71	2.19	12.92	8.94	2.22
	15	9.16	7.16	2.10	9.94	7.52	2.14	10.46	7.76	2.17	10.98	8.09	2.21	11.50	8.41	2.24	11.98	8.56	2.25	12.70	8.80	2.28
	20	12.24	8.51	3.76	13.27	8.94	3.84	13.97	9.23	3.90	14.66	9.62	3.96	15.35	10.00	4.01	16.00	10.19	4.04	16.96	10.46	4.09
	25	11.72	8.30	3.89	12.71	8.72	3.97	13.38	9.00	4.03	14.04	9.37	4.09	14.70	9.75	4.15	15.32	9.93	4.18	16.24	10.20	4.23
	30	11.20	8.08	4.02	12.15	8.49	4.11	12.78	8.77	4.16	13.42	9.13	4.22	14.05	9.50	4.28	14.64	9.67	4.32	15.52	9.94	4.37
	35	10.68	7.87	4.14	11.59	8.27	4.24	12.19	8.54	4.30	12.80	8.89	4.36	13.40	9.25	4.42	13.96	9.42	4.45	14.80	9.67	4.51
	40	9.10	6.93	3.73	9.88	7.28	3.82	10.39	7.51	3.87	10.91	7.83	3.93	11.42	8.14	3.98	11.90	8.29	4.01	12.62	8.52	4.06
	46	7.21	5.80	3.24	7.83	6.09	3.31	8.23	6.29	3.36	8.64	6.55	3.41	9.05	6.81	3.46	9.43	6.94	3.48	10.00	7.13	3.52

OUTDOOR UNIT
AOHG36-54KBTB

■ Heating capacity (Twin)

● Compact cassette type

Model: AUXG24KVLA × 2

AFR	m^3/h	1,860

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	12.26	4.49	11.97	4.51	11.67	4.53	11.40	4.58	10.72	4.71
	-10	-11	13.62	4.68	13.29	4.70	12.97	4.72	12.66	4.78	11.91	4.91
	-5	-7	14.97	4.87	14.61	4.89	14.26	4.92	13.93	4.97	13.10	5.11
	0	-2	15.77	5.06	15.39	5.08	15.02	5.11	14.67	5.17	13.79	5.31
	5	3	16.88	4.61	16.48	4.63	16.08	4.66	15.70	4.71	14.77	4.84
	7	6	17.33	4.60	16.91	4.63	16.50	4.65	16.12	4.70	15.16	4.83
	10	8	18.05	4.59	17.61	4.62	17.18	4.64	16.78	4.69	15.79	4.82
	15	10	19.24	4.58	18.78	4.60	18.32	4.62	17.90	4.68	16.83	4.81
	20	15	20.44	4.56	19.95	4.58	19.46	4.61	19.01	4.66	17.88	4.79
	24	18	21.40	4.55	20.88	4.57	20.37	4.59	19.90	4.64	18.72	4.78

● Duct type

Model: ARXG24KMLA × 2

AFR	m^3/h	2,200

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	12.26	4.49	11.97	4.51	11.67	4.53	11.40	4.58	10.72	4.71
	-10	-11	13.62	4.68	13.29	4.70	12.97	4.72	12.66	4.78	11.91	4.91
	-5	-7	14.97	4.87	14.61	4.89	14.26	4.92	13.93	4.97	13.10	5.11
	0	-2	15.77	5.06	15.39	5.08	15.02	5.11	14.67	5.17	13.79	5.31
	5	3	16.88	4.61	16.48	4.63	16.08	4.66	15.70	4.71	14.77	4.84
	7	6	17.33	4.60	16.91	4.63	16.50	4.65	16.12	4.70	15.16	4.83
	10	8	18.05	4.59	17.61	4.62	17.18	4.64	16.78	4.69	15.79	4.82
	15	10	19.24	4.58	18.78	4.60	18.32	4.62	17.90	4.68	16.83	4.81
	20	15	20.44	4.56	19.95	4.58	19.46	4.61	19.01	4.66	17.88	4.79
	24	18	21.40	4.55	20.88	4.57	20.37	4.59	19.90	4.64	18.72	4.78

■ Cooling capacity (Triple)

● Compact cassette type

Model: AUXG18KVLA × 3

AFR	m^3/h	2,040

		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	9.76	7.44	1.93	10.59	7.82	1.97	11.14	8.07	2.00	11.69	8.40	2.03	12.25	8.74	2.06	12.76	8.90	2.07	13.52	9.14	2.09
	-10	9.73	7.40	1.93	10.55	7.78	1.97	11.10	8.03	2.00	11.65	8.36	2.03	12.21	8.69	2.06	12.72	8.86	2.08	13.48	9.10	2.10
	0	9.66	7.32	1.94	10.48	7.70	1.98	11.03	7.94	2.01	11.58	8.27	2.04	12.13	8.61	2.07	12.63	8.76	2.08	13.39	9.00	2.11
	5	9.49	7.30	1.99	10.30	7.67	2.03	10.84	7.92	2.06	11.37	8.25	2.09	11.91	8.58	2.12	12.41	8.74	2.14	13.15	8.97	2.16
	10	9.32	7.28	2.04	10.11	7.64	2.08	10.64	7.89	2.11	11.17	8.22	2.14	11.70	8.55	2.17	12.18	8.71	2.19	12.92	8.94	2.22
	15	9.16	7.16	2.10	9.94	7.52	2.14	10.46	7.76	2.17	10.98	8.09	2.21	11.50	8.41	2.24	11.98	8.56	2.25	12.70	8.80	2.28
	20	12.24	8.51	3.76	13.27	8.94	3.84	13.97	9.23	3.90	14.66	9.62	3.96	15.35	10.00	4.01	16.00	10.19	4.04	16.96	10.46	4.09
	25	11.72	8.30	3.89	12.71	8.72	3.97	13.38	9.00	4.03	14.04	9.37	4.09	14.70	9.75	4.15	15.32	9.93	4.18	16.24	10.20	4.23
	30	11.20	8.08	4.02	12.15	8.49	4.11	12.78	8.77	4.16	13.42	9.13	4.22	14.05	9.50	4.28	14.64	9.67	4.32	15.52	9.94	4.37
	35	10.68	7.87	4.14	11.59	8.27	4.24	12.19	8.54	4.30	12.80	8.89	4.36	13.40	9.25	4.42	13.96	9.42	4.45	14.80	9.67	4.51
	40	9.10	6.93	3.73	9.88	7.28	3.82	10.39	7.51	3.87	10.91	7.83	3.93	11.42	8.14	3.98	11.90	8.29	4.01	12.62	8.52	4.06
	46	7.21	5.80	3.24	7.83	6.09	3.31	8.23	6.29	3.36	8.64	6.55	3.41	9.05	6.81	3.46	9.43	6.94	3.48	10.00	7.13	3.52

● Slim duct type

Model: ARXG18KLLAP × 3

AFR	m^3/h	2,820

		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	9.76	7.44	1.93	10.59	7.82	1.97	11.14	8.07	2.00	11.69	8.40	2.03	12.25	8.74	2.06	12.76	8.90	2.07	13.52	9.14	2.09
	-10	9.73	7.40	1.93	10.55	7.78	1.97	11.10	8.03	2.00	11.65	8.36	2.03	12.21	8.69	2.06	12.72	8.86	2.08	13.48	9.10	2.10
	0	9.66	7.32	1.94	10.48	7.70	1.98	11.03	7.94	2.01	11.58	8.27	2.04	12.13	8.61	2.07	12.63	8.76	2.08	13.39	9.00	2.11
	5	9.49	7.30	1.99	10.30	7.67	2.03	10.84	7.92	2.06	11.37	8.25	2.09	11.91	8.58	2.12	12.41	8.74	2.14	13.15	8.97	2.16
	10	9.32	7.28	2.04	10.11	7.64	2.08	10.64	7.89	2.11	11.17	8.22	2.14	11.70	8.55	2.17	12.18	8.71	2.19	12.92	8.94	2.22
	15	9.16	7.16	2.10	9.94	7.52	2.14	10.46	7.76	2.17	10.98	8.09	2.21	11.50	8.41	2.24	11.98	8.56	2.25	12.70	8.80	2.28
	20	12.24	8.51	3.76	13.27	8.94	3.84	13.97	9.23	3.90	14.66	9.62	3.96	15.35	10.00	4.01	16.00	10.19	4.04	16.96	10.46	4.09
	25	11.72	8.30	3.89	12.71	8.72	3.97	13.38	9.00	4.03	14.04	9.37	4.09	14.70	9.75	4.15	15.32	9.93	4.18	16.24	10.20	4.23
	30	11.20	8.08	4.02	12.15	8.49	4.11	12.78	8.77	4.16	13.42	9.13	4.22	14.05	9.50	4.28	14.64	9.67	4.32	15.52	9.94	4.37
	35	10.68	7.87	4.14	11.59	8.27	4.24	12.19	8.54	4.30	12.80	8.89	4.36	13.40	9.25	4.42	13.96	9.42	4.45	14.80	9.67	4.51
	40	9.10	6.93	3.73	9.88	7.28	3.82	10.39	7.51	3.87	10.91	7.83	3.93	11.42	8.14	3.98	11.90	8.29	4.01	12.62	8.52	4.06
	46	7.21	5.80	3.24	7.83	6.09	3.31	8.23	6.29	3.36	8.64	6.55	3.41	9.05	6.81	3.46	9.43	6.94	3.48	10.00	7.13	3.52

■ Heating capacity (Triple)

● Compact cassette type

Model: AUXG18KVLA × 3

AFR	m^3/h	2,400

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	12.26	4.49	11.97	4.51	11.67	4.53	11.40	4.58	10.72	4.71
	-10	-11	13.62	4.68	13.29	4.70	12.97	4.72	12.66	4.78	11.91	4.91
	-5	-7	14.97	4.87	14.61	4.89	14.26	4.92	13.93	4.97	13.10	5.11
	0	-2	15.77	5.06	15.39	5.08	15.02	5.11	14.67	5.17	13.79	5.31
	5	3	16.88	4.61	16.48	4.63	16.08	4.66	15.70	4.71	14.77	4.84
	7	6	17.33	4.60	16.91	4.63	16.50	4.65	16.12	4.70	15.16	4.83
	10	8	18.05	4.59	17.61	4.62	17.18	4.64	16.78	4.69	15.79	4.82
	15	10	19.24	4.58	18.78	4.60	18.32	4.62	17.90	4.68	16.83	4.81
	20	15	20.44	4.56	19.95	4.58	19.46	4.61	19.01	4.66	17.88	4.79
	24	18	21.40	4.55	20.88	4.57	20.37	4.59	19.90	4.64	18.72	4.78

● Slim duct type

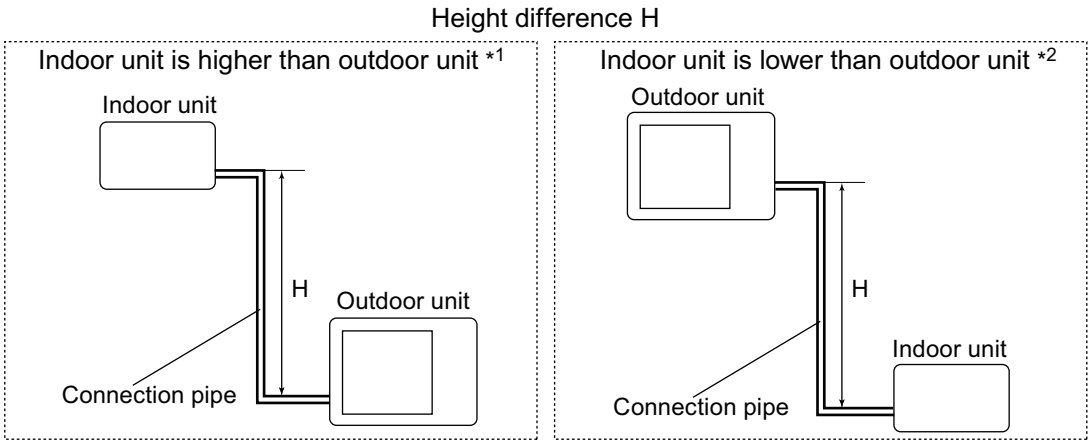
Model: ARXG18KLLAP × 3

AFR	m^3/h	2,820

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-15	-16	12.26	4.49	11.97	4.51	11.67	4.53	11.40	4.58	10.72	4.71
	-10	-11	13.62	4.68	13.29	4.70	12.97	4.72	12.66	4.78	11.91	4.91
	-5	-7	14.97	4.87	14.61	4.89	14.26	4.92	13.93	4.97	13.10	5.11
	0	-2	15.77	5.06	15.39	5.08	15.02	5.11	14.67	5.17	13.79	5.31
	5	3	16.88	4.61	16.48	4.63	16.08	4.66	15.70	4.71	14.77	4.84
	7	6	17.33	4.60	16.91	4.63	16.50	4.65	16.12	4.70	15.16	4.83
	10	8	18.05	4.59	17.61	4.62	17.18	4.64	16.78	4.69	15.79	4.82
	15	10	19.24	4.58	18.78	4.60	18.32	4.62	17.90	4.68	16.83	4.81
	20	15	20.44	4.56	19.95	4.58	19.46	4.61	19.01	4.66	17.88	4.79
	24	18	21.40	4.55	20.88	4.57	20.37	4.59	19.90	4.64	18.72	4.78

OUTDOOR UNIT
AOHG36-54KBTB

7. Capacity compensation rate for pipe length and height difference



7-1. Model: AOHG36KBTB

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	—	—	—	—	0.902	0.882	0.862
		20	—	—	—	0.938	0.917	0.897	0.876
		10	—	—	0.973	0.953	0.933	0.912	0.891
		7.5	—	0.988	0.977	0.957	0.936	0.916	0.895
		5	0.992	0.992	0.981	0.961	0.940	0.919	0.898
		0	1.000	1.000	0.989	0.968	0.947	0.926	0.905
	Indoor unit is lower than outdoor unit *2	-5	1.000	1.000	0.989	0.968	0.947	0.926	0.905
		-7.5	—	1.000	0.989	0.968	0.947	0.926	0.905
		-10	—	—	0.989	0.968	0.947	0.926	0.905
		-20	—	—	—	0.968	0.947	0.926	0.905
		-30	—	—	—	—	0.947	0.926	0.905

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	0.991	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

7-2. Models: AOHG45KBTB and AOHG54KBTB

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	—	—	—	—	0.900	0.879	0.858
		20	—	—	—	0.937	0.915	0.894	0.872
		10	—	—	0.973	0.952	0.931	0.908	0.887
		7.5	—	0.988	0.977	0.956	0.934	0.913	0.891
		5	0.992	0.992	0.981	0.960	0.938	0.916	0.894
		0	1.000	1.000	0.989	0.967	0.945	0.923	0.901
	Indoor unit is lower than outdoor unit *2	-5	1.000	1.000	0.989	0.967	0.945	0.923	0.901
		-7.5	—	1.000	0.989	0.967	0.945	0.923	0.901
		-10	—	—	0.989	0.967	0.945	0.923	0.901
		-20	—	—	—	0.967	0.945	0.923	0.901
		-30	—	—	—	—	0.945	0.923	0.901

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	0.991	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

8. Additional charge calculation

8-1. Model: AOHG36KBTB

Refrigerant type		R32
Refrigerant amount	g	1,900

■ Refrigerant charge

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

8-2. Models: AOHG45KBTB and AOHG54KBTB

Refrigerant type		R32
Refrigerant amount	g	2,700

■ Refrigerant charge

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

OUTDOOR UNIT
AOHG36-54KBTB

9. Airflow

9-1. Model: AOHG36KBTB

● Cooling

m^3/h	3,750
l/s	1,042
CFM	2,207

● Heating

m^3/h	3,750
l/s	1,042
CFM	2,207

9-2. Models: AOHG45KBTB and AOHG54KBTB

● Cooling

m^3/h	4,450
l/s	1,236
CFM	2,619

● Heating

m^3/h	4,450
l/s	1,236
CFM	2,619

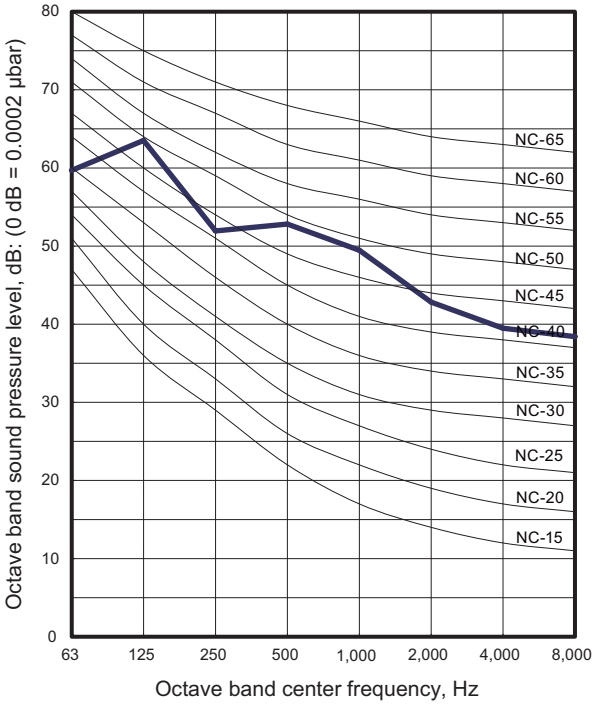
OUTDOOR UNIT
AOHG36-54KBTB

10. Operation noise (sound pressure)

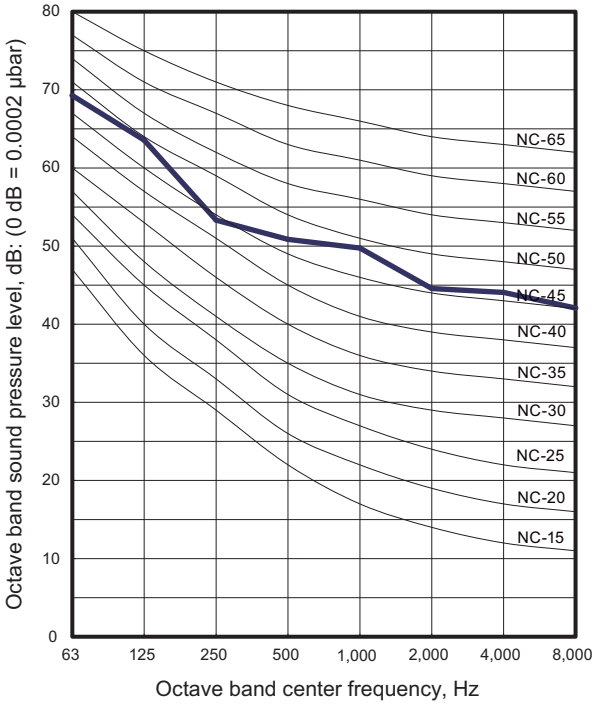
10-1. Noise level curve

■ Model: AOHG36KBTB

● Cooling

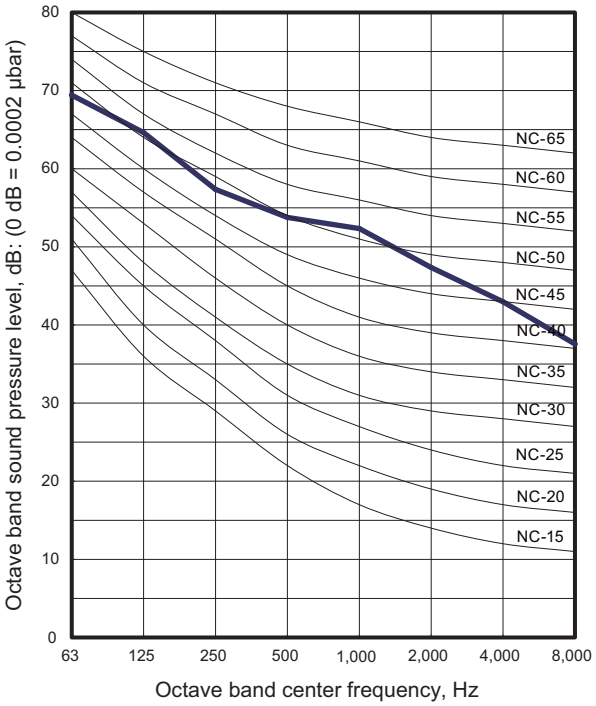


● Heating

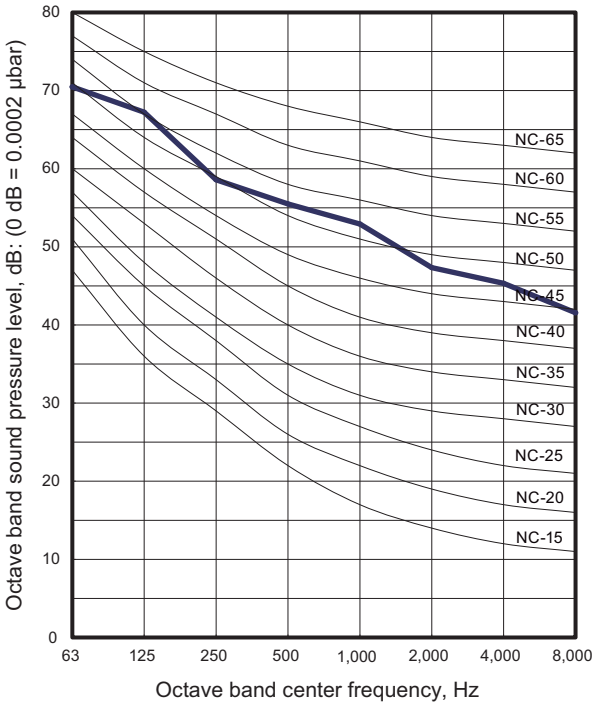


■ Model: AOHG45KBTB

● Cooling

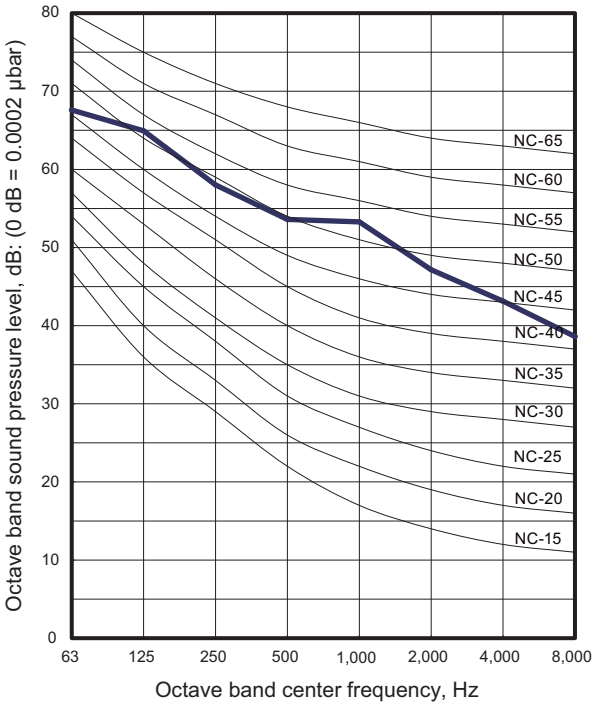


● Heating

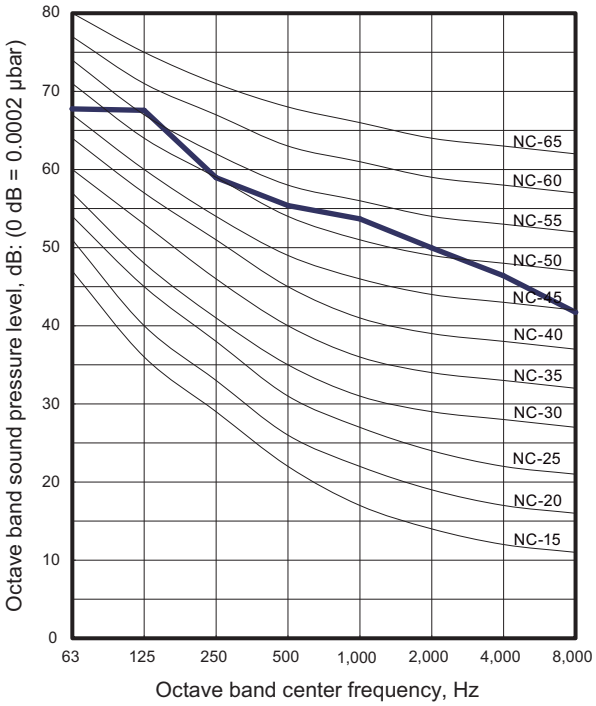


■ Model: AOHG54KBTB

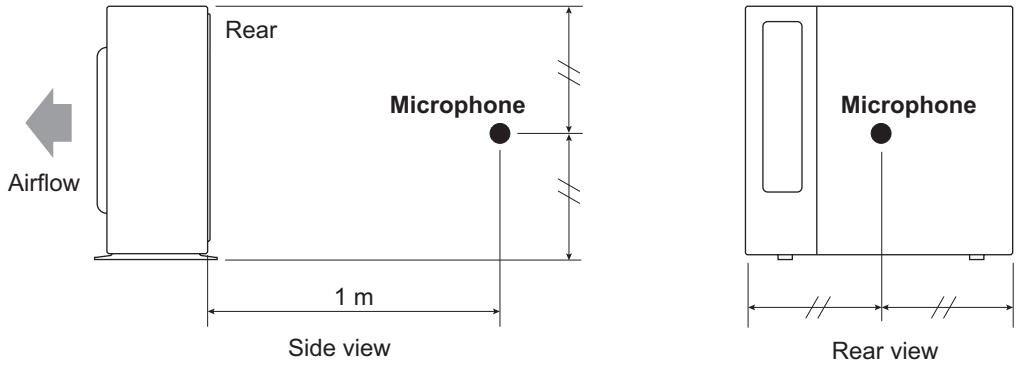
● Cooling



● Heating



10-2. Sound level check point



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

11. Electrical characteristics

Model name				AOHG36KBTB	AOHG45KBTB	AOHG54KBTB
Power supply	Voltage		V	230 ~		
	Frequency		Hz	50		
Max operating current*1			A	22.6	28.5	
Starting current			A	13.1	18.6	19.4
Wiring spec.*2	Circuit breaker current		A	25	32	
	Power cable		mm^2	4.0		
	Connection cable*3	Cross-sectional area	mm^2	1.5		
		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.

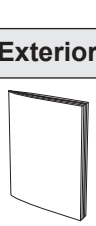
OUTDOOR UNIT
AOHG36-54KBTB

12. Safety devices

Type of protection	Protection form		Model	
			AOHG36KBTB	AOHG45KBTB AOHG54KBTB
Circuit protection	Current fuse (Main PCB)		250 V, 30 A 250 V, 3.15 A 250 V, 10 A × 2	250 V, 30 A or 35.5 A 250 V, 3.15 A 250 V, 10 A × 2
Fan motor protection	Thermal protection program	Activate	122 ±8 °C Fan motor stop	150 ±15 °C Fan motor stop
		Reset	116 ±9°C Fan motor restart	120 ±15°C Fan motor restart
Compressor protection	Thermal protection program (Discharge temp.)	Activate	110 °C Compressor stop	
		Reset	After 7 minutes Compressor restart	
	Thermal protection program (Compressor temp.)	Activate	108 °C Compressor stop	
		Reset	80 °C or less Compressor restart	
	Thermal protection program (Outdoor temp.) (Only in COOL or DRY mode)	Activate	-20 °C Compressor stop	
		Reset	-15 °C Compressor restart	

13. Accessories

13-1. Models: AOHG36KBTB, AOHG45KBTB, and AOHG54KBTB

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Drain cap		3
Drain pipe		1	One-touch bush		2

OUTDOOR UNIT
AOHG36-54KBTB

Part 3. SYSTEM DESIGN

1. Installation precautions

1-1. Indoor unit installation precautions

NOTE: The information listed below are general precautions.
Some models also include items that do not apply.

■ Places where prohibited for use

- Places where there is a danger of combustible gas leakage.
- Places where sulfur gas, chlorine gas, acid, alkali, or other matter which effects equipment is generated.
- Places where there is a lot of oil splash and steam such as kitchen or machinery room.
- Places where machinery which generates high frequencies is used.
- Ocean beaches and other areas where there is a lot of salt.
- Places where carbon fibers or any kind of powder suspended in the air.
- Inside of vehicles, ships, and other conveyances.
- Places where voltage fluctuations are large such as a factory.

SYSTEM DESIGN

■ Points to remember when installing

- The product shall be installed at a place which can withstand the weight and vibration of the indoor.
- To allow maintenance after refrigerant piping, drain piping, and electric wiring connection and installation, provide an installation service space and an inspection port, as required.
  *Installation service space is shown on "Dimensions" on page 6.
- Be careful when installing the unit at the following places.

Condition	Contents	Countermeasures (Reference)
When the ceiling is high.	If the indoor unit is installed where the installation height given in the installation manual is exceeded, the temperature difference between the floor and ceiling of the room will be large and the heating effect will be poor. Moreover, even if the indoor unit is installed within the installation height, a similar phenomena will occur when installed in a room in which the doors are opened and closed frequently and hot air circulation is obstructed by furniture such as desks or chairs.	1. Switch the setting to the high ceiling mode. 2. Install a circulator. 3. Arrange the furniture in the room so that it does not obstruct the hot air.
When lower level directly contacts the outside air.	When the lower level of the room is a semi-open space such as warehouse or parking lot the surface temperature of the flooring will become low and the radiation of cold from the floor will increase. In this case, even if the room temperature is suitable, you may feel the foot level is cold.	
When the airflow distribution is poor.	When an indoor unit is installed in a position where the outlet airflow will directly contact people, a draft may be felt. In addition, when there are obstructions in the path of the intake and outlet airflow, the air distribution may become extremely bad.	1. Adjust the louver fins or take other measures matched to the site. 2. Change the indoor unit outlet.

Condition	Contents	Countermeasures (Reference)
When inside the ceiling is high temperature and high humidity.	When the indoor unit is installed where the inside of the ceiling is 30 °C RH80% or greater, the dew point temperature of the outer perimeter may become higher than the cabinet surface temperature and moisture will condense on the surface of the cabinet and water drops may fall inside the room. ("Figure 1-1 **Moist air curve**") In addition, the humidity may vary considerably the same as when the inside of the ceiling is close to hermetically sealed and used as the outside air intake path.	1. Add heat insulating material to the outside of the indoor unit cabinet. *Regarding the cassette type, use of optional High humidity correspondence kit is recommended. 2. Strengthen the heat insulating material of the refrigerant piping and drain piping too. ("Figure 1-2 **Work method when reinforcing the heat insulation of on-site piping**") 3. When the humidity inside the ceiling changes considerably, install a ventilation port.
When using an external duct.	When using an external duct to take in new fresh air, etc., condensation may form on the surface of the duct due to the effect of the outside air temperature and the humidity inside the ceiling.	Always perform heat insulation processing. (Heat insulating material: Glass wool 25 mm thick or more.)
When the remote controller installation site is bad.	If the cold or warm air blown out from the air conditioner directly contacts the thermostat section of the remote controller, the outlet temperature of the air conditioner may be sensed and room temperature control will be different from the room temperature, and “not cooled” or “not heated” or other trouble may occur. In addition, there is the possibility that the same kind of trouble may also occur when the remote controller is effected by direct sunlight.	1. Install the remote controller where it will not be directly exposed to the cold or hot air. 2. Install the remote controller where it will not be directly exposed to sunlight or strong lighting.
When installation environment is quiet.	When the wall mounted type was installed in a bedroom, living room, or other quiet place, the sound of the refrigerant flow may be sensed as noise and must be taken into account.	1. Plan installation of a model with external expansion valve. 2. Plan installation of a branch box farther from indoor unit. 3. Plan installation using another air conditioner.
When installing duct type in ceiling chamber system.	In the case of the ceiling chamber system (duct is not installed at indoor unit inlet side and room air is sucked into the indoor unit through the inside of the ceiling), the thermistor inside the indoor unit may not correctly detect the room temperature. • Heating operation: Room is not heated because the indoor unit is easily turned off by the thermostat. • Cooling operation: Room is too cold because the indoor unit is difficult to turn off by the thermostat.	Replace the indoor unit thermistor with optional Remote sensor unit, and install the sensor where the room temperature can be correctly detected.
When the outlet air is sucked in at duct type.	Cooling operation does not cool the room and heating operation does not heat the room because the short circuited indoor unit is not turned on by the thermostat.	1. Reconsider the ventilation port construction. 2. Replace the indoor unit thermistor with optional Remote sensor unit, and install the sensor where the room temperature can be correctly detected.
When using the wireless remote controller.	Signals may not be received when using it in a room illuminated by an inverter fluorescent lamp.	Turn on the fluorescent lamp and check if the indoor unit receives the signals from the remote controller. If the indoor unit does not receive the signals, consult an authorized service personnel.
When installing the inverter type.	It may generate noise in TV sets, stereos and PCs.	The inverter type should be installed at a sufficient distance from these equipments.

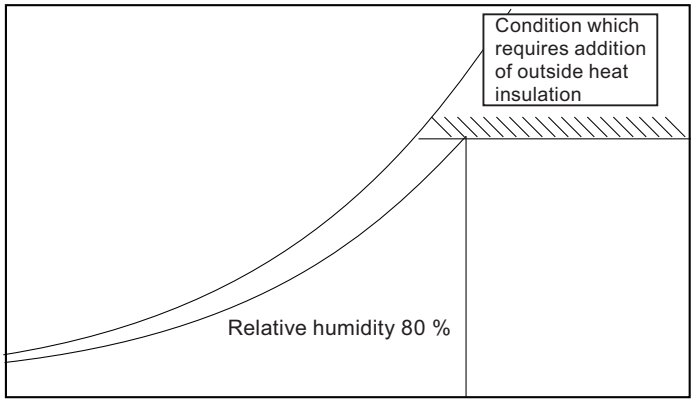


Figure 1-1 **Moist air curve**

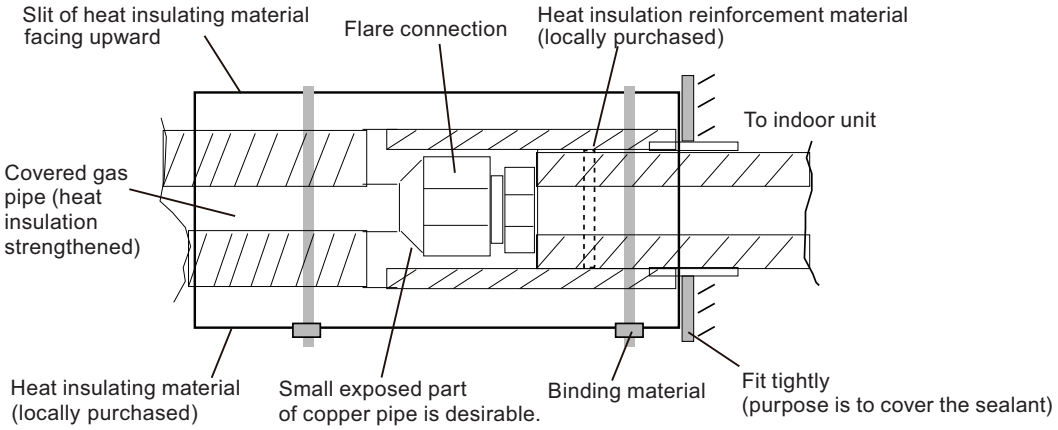


Figure 1-2 **Work method when reinforcing the heat insulation of on-site piping**

SYSTEM DESIGN

1-2. Outdoor unit installation precautions

NOTE: The information listed below are general precautions.
Some models also include items that do not apply.

■ Places where prohibited for use

- Places where there is a danger of combustible gas leakage.
- Places where sulfur gas, chlorine gas, acid, alkali, or other matter which effects equipment is generated.
- Places affected by heat radiation from other heat sources.
- Places where the air is stagnant.
- Places where machinery which generates high frequencies is used.
- Ocean beaches and other areas where there is a lot of salt.
- Inside of vehicles, ships, and other conveyances.
- Places where voltage fluctuations are large such as a factory.

SYSTEM DESIGN

■ Points to remember when installing

- The product shall be installed at a place which can withstand the weight and vibration of the outdoor unit.
- To allow maintenance after refrigerant piping, drain piping, and electric wiring connection and installation, provide an installation service space.
  *Installation service space is shown in "Installation space" on page 59.
- Be careful when installing the set at the following places.

Condition	Contents	Countermeasures (Reference)
When installed near adjacent houses.	Perform installation work so that operating sound does not disturb the neighbors.	1. Install a soundproof barrier. 2. Change the installation site.
When there is the possibility of strong wind.	• If the outdoor unit is exposed to strong wind, capacity may drop, frost may form during heating, and operation may be stopped by high pressure rise. In addition, when a very strong wind blows, the fan may be damaged. • When a very strong wind blows, there is the possibility of the outdoor unit being toppled over if held only by foundation bolts.	1. Install the outdoor unit with keeping a sufficient distance between the outlet side of the unit and a facing wall or fence. 2. Make the outlet direction and wind direction perpendicular. 3. Fasten the outdoor unit using toppling prevention hardware (purchased locally).
When snow accumulates.	If the outdoor unit is covered by accumulated snow, it may not be able to operate.	1. Make the foundation as high as possible. 2. Perform snow prevention work.
When installing the inverter type.	It may generate noise in TV sets, stereos and PCs.	The inverter type should be installed at a sufficient distance from these equipments.

2. Pipe design

2-1. Important items when using refrigerant (R32)

- **Refrigerant piping material and wall thickness**
  It is necessary to use seamless copper tubes for refrigerant use. Thickness of tubes are shown in table below.

Nominal diameter	in	1/4	3/8	1/2	5/8	3/4	7/8	1-1/8
Outside diameter	mm	6.35	9.52	12.70	15.88	19.05	22.22	28.58
Material		JIS H3300 C1220T-O or equivalent*1					JIS H3300 C1220T-H or equivalent*2	
Wall thickness*3	mm	0.8			1.0	1.2	1.0	

*1: Allowable tensile stress ≥ 33 N/mm^2

*2: Allowable tensile stress ≥ 61 N/mm^2

*3: Endurance pressure of the pipes: 4.2 MPa

Select the pipe size in accordance with local rules.

- **Lubricant**

Refrigerant	R32
Lubricant	Synthetic oil

- **Tools**
  R32 work requires a number of special tools. Since the tools (with * symbol) for R22 work cannot be used for R32, prepare them beforehand.

Tool name	Process and application	
Pipe cutter	Pipe cutting	Refrigerant piping work
Flaring tool*	Pipe flaring work	
Torque wrench*	Flare nut connection	
Expander	Expansion at pipe connection	
Pipe bender	Pipe bending work	
Nitrogen gas	Pipe interior oxidation prevention	Air tightness test
Welder	Pipe brazing	
Gauge manifold*	Vacuum evacuation and refrigerant charging operation check	Air tightness test ~ Refrigerant additional charging
Charging hose*		
Vacuum pump (with adapter)*		Vacuum drying
Electronic scale for refrigerant charging		Refrigerant additional charging
Gas leak tester*	Gas leakage test	

*: For details, refer to the service manual.

2-2. Piping limitation

⚠ CAUTION

Keep the "piping limitation" for correct operation.

- **Allowable height difference:**
  - If the height difference between indoor unit and outdoor unit is larger than the allowable value:

The pressure loss will be larger	→	Insufficient cooling and heating
The refrigerant in liquid pipe will flush	→	Refrigerant flow noise generate at indoor unit
The refrigerant oil will not return	→	Insufficient refrigerant oil resulting in compressor damage

  - If the height difference between indoor units is larger than the allowable value:

The refrigerant flow balance will be poor	→	Insufficient cooling and heating (poor balance)
Refrigerant oil will collect in the piping or non-operating indoor units	→	Insufficient refrigerant oil resulting in compressor damage

- **Piping length:**
  If the piping length is longer than prescribed:

The pressure loss will be larger	→	Insufficient cooling and heating
Too much refrigerant will be charged	→	Liquid backs up resulting in compressor damage
The refrigerant oil will not return	→	Insufficient refrigerant oil resulting in compressor damage

- **Pipe size:**
  - If the pipe size is larger than designated size:

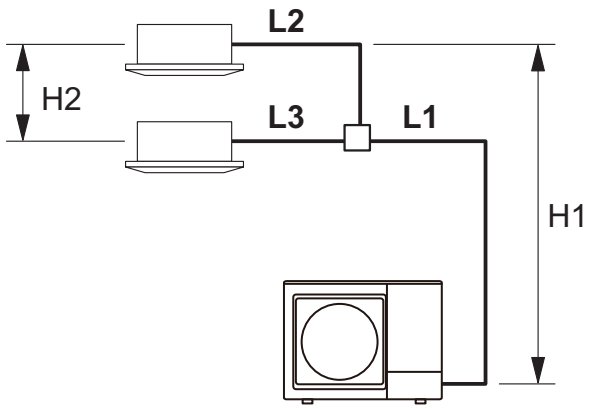
The refrigerant flow velocity will drop. Refrigerant oil will not return to the outdoor unit.	→	Insufficient refrigerant oil resulting in compressor damage
The refrigerant in liquid pipe will flush easily	→	Insufficient cooling and heating

  - If the pipe size is smaller than designated size:

The refrigerant circulation volume will drop	→	Insufficient cooling and heating
The pressure loss will be larger	→	Insufficient cooling and heating

SYSTEM DESIGN

■ Twin type



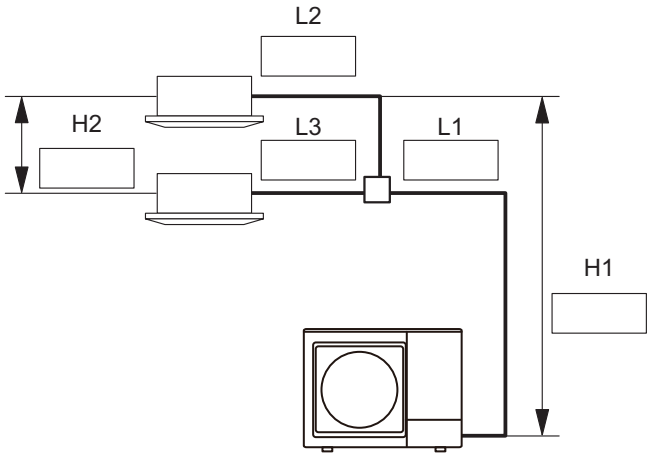
NOTE: Be certain to install indoor units in the same room because the combinations are for simultaneous operation. The lengths after branching should be equal if possible.

SYSTEM DESIGN

Model name (Outdoor unit)			**AOHG36KBTB**	**AOHG45KBTB**	**AOHG54KBTB**
Indoor unit capacity (Indoor unit)			18 kBtu/h × 2	22 kBtu/h × 2	24 kBtu/h × 2
Main pipe diameter (L1) (Standard)	Liquid	mm (in)	9.52 (3/8)		
	Gas		15.88 (5/8)		
Branch pipe diameter (L2, L3) (Standard)	Liquid	mm (in)	6.35 (1/4)		
	Gas		12.70 (1/2)		
Maximum piping length (L1 + L2 + L3)		m	50*		
Minimum piping length (L1 + L2 + L3)		m	5		
Maximum branch piping length (L2, L3)		m	20		
Maximum difference between branch lengths (L2 to L3)		m	8		
Maximum height difference (H1) (Indoor unit to outdoor unit)		m	30		
Maximum height difference (H2) (Indoor unit to outdoor unit)		m	0.5		

*: For the standard pipe diameter

Calculation of limitation



SYSTEM DESIGN

Pipe length

L1 + L2 + L3 = Total
5 m or more and 50 m or less

L1 + L2 = Total
50 m or less

L1 + L3 = Total
50 m or less

L2 - L3 = Total
8 m or less

L2
20 m or less

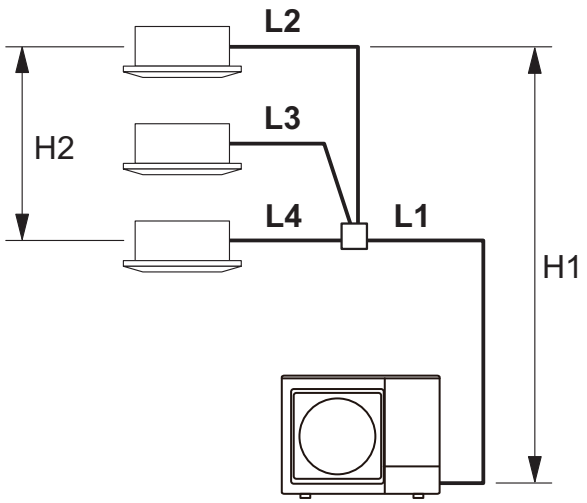
L3
20 m or less

Height difference

H1
30 m or less

H2
0.5 m or less

■ Triple type



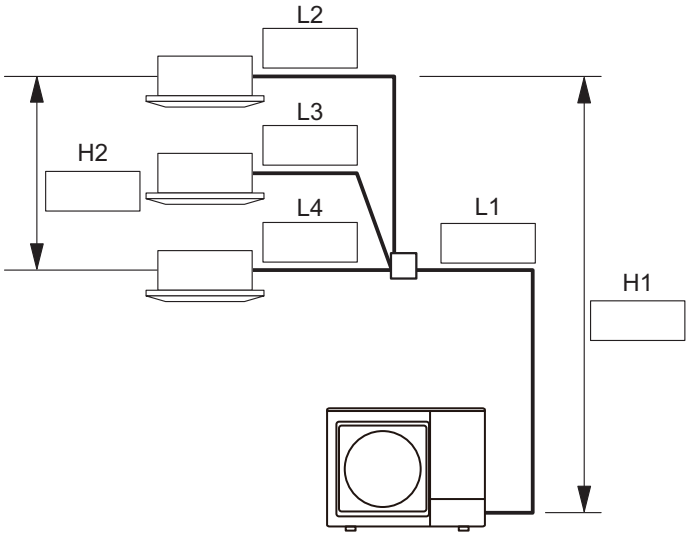
NOTE: Be certain to install indoor units in the same room because the combinations are for simultaneous operation. The lengths after branching should be equal if possible.

SYSTEM DESIGN

Model name (Outdoor unit)			**AOHG54KBTB**
Indoor unit capacity (Indoor unit)			18 kBtu/h × 3
Main pipe diameter (L1) (Standard)	Liquid	mm (in)	9.52 (3/8)
	Gas		15.88 (5/8)
Branch pipe diameter (L2, L3, L4) (Standard)	Liquid	mm (in)	6.35 (1/4)
	Gas		12.70 (1/2)
Maximum piping length (L1 + L2 + L3 + L4)		m	50*
Minimum piping length (L1 + L2 + L3 + L4)		m	5
Maximum branch piping length (L2, L3, L4)		m	20
Maximum difference between branch lengths (L2 to L4)		m	8
Maximum height difference (H1) (Indoor unit to outdoor unit)		m	30
Maximum height difference (H2) (Indoor unit to outdoor unit)		m	0.5

*: For the standard pipe diameter

Calculation of limitation



Pipe length

L1 + L2 + L3 + L4 = Total
5 m or more and 50 m or less

L1 + L2 = Total
50 m or less

L1 + L3 = Total
50 m or less

L1 + L4 = Total
50 m or less

L2 - L3 = Total
8 m or less

L2 - L4 = Total
8 m or less

L3 - L4 = Total
8 m or less

L2: 20 m or less
L3: 20 m or less
L4: 20 m or less

Height difference

H1
30 m or less

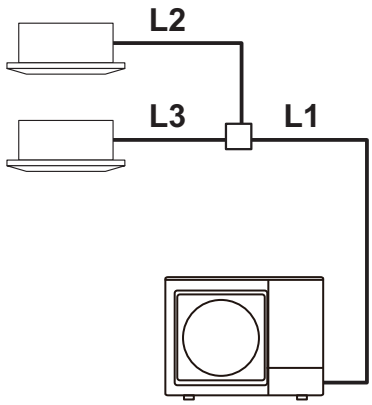
H2
0.5 m or less

SYSTEM DESIGN

2-3. Pipe size

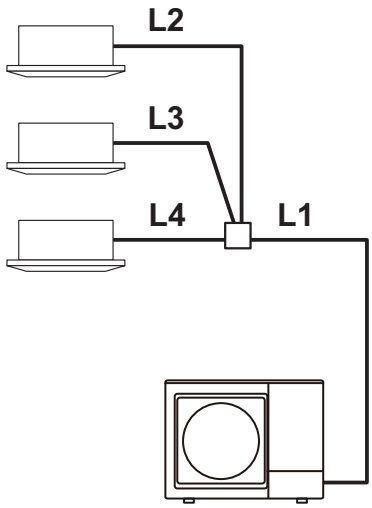
■ Pipe size selection

- **Twin type**



Model name (Outdoor unit)			AOHG36-54KBTB
Main pipe diameter (L1)	Liquid	mm (in)	9.52 (3/8)
	Gas		15.88 (5/8)
Branch pipe diameter (L2, L3)	Liquid	mm (in)	6.35 (1/4)
	Gas		12.70 (1/2)
Maximum piping length (L1 + L2 + L3)		m	50
Pre-charge length		m	30

- **Triple type**



Model name (Outdoor unit)			AOHG54KBTB
Main pipe diameter (L1)	Liquid	mm (in)	9.52 (3/8)
	Gas		15.88 (5/8)
Branch pipe diameter (L2, L3, L4)	Liquid	mm (in)	6.35 (1/4)
	Gas		12.70 (1/2)
Maximum piping length (L1 + L2 + L3 + L4)		m	50
Pre-charge length		m	30

SYSTEM DESIGN

■ Branch pipes (Optional parts)

Connection type	Number of indoor units	Kit name
		First branch
Twin	2	UTP-SX236A
Triple	3	UTP-SX354A

SYSTEM DESIGN

2-4. Selection of pipe heat insulating material

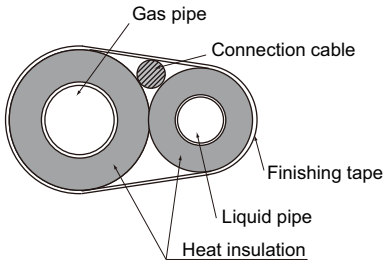
Always insulate the refrigerant pipe to prevent condensation and water droplets by the refrigerant pipe. For selection of pipe heat insulating material, refer to following items.

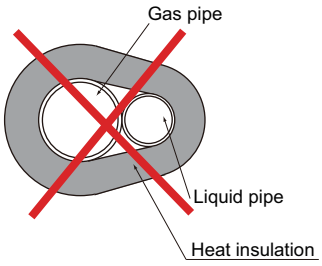
- Decide the thickness of the heat insulating material by referring to the recommended minimum thickness in Table 1. (For installation condition T=32 °CDB, humidity≤70%, humidity≤75%, humidity≤80%, humidity≤85%)

Table 2-1 Size of refrigerant pipe and recommended minimum thickness of heat insulating material (In case a heat insulating material which thermal conductivity is equal to or less than 0.040 W/mk is used.)

		Recommended minimum thickness for heat insulating material (mm)			
Relative humidity		≤70%	≤75%	≤80%	≤85%
Refrigerant pipe outside diameter (mm [in])	6.35 (1/4)	8	10	13	17
	9.52 (3/8)	9	11	14	18
	12.70 (1/2)	10	12	15	19
	15.88 (5/8)	10	12	16	20
	19.05 (3/4)	10	13	16	21
	22.22 (7/8)	11	13	17	22
	25.40 (1)	11	13	17	22

- When the outdoor unit is installed in a higher position than the indoor unit, fill the connecting part gap with putty, etc. to prevent the dew condensation water of the valve of the outdoor unit from flowing to the indoors from the gap between the pipe and the heat insulating material.
- Liquid pipe and gas pipe should be completely insulated with same specification.
- In case not to insulate and not to seal refrigerant pipe completely, it will become the cause of water leak.
- When an ambient temperature and relative humidity exceed 32 °CDB and 85% respectively, strengthen heat insulation of refrigerant pipe. If necessary put a heat insulation on indoor unit casing. When not strengthening heat insulation of refrigerant pipe, the surface of the heat insulation may be dewed.
- Since gas pipe becomes high temperature at heating operation for heat pump type, select the heat insulating material which heat-resistant temperature is 120 °CDB or more.
- Make sure that pipe is covered completely by the heat insulation, not exposing to air. Inadequate heat insulation may cause condensation.
- Do not cover heat insulation gas and liquid pipes together as figure below. It may cause condensation and capacity drop by heat loss.





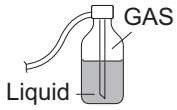
SYSTEM DESIGN

2-5. Additional charge calculation

⚠ CAUTION

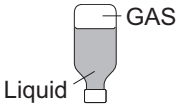
- Do not turn on the power unless all operations are complete.
- After evacuating the system, add refrigerant.
- Do not charge the system with a refrigerant other than R32.
- Always keep to the limit on the total amount of refrigerant. Exceeding the limit on the total amount of refrigerant will lead to malfunction during charging of refrigerant.
- Do not reuse recovered refrigerant.
- When charging the refrigerant, take into account the slight change in the composition of the gas and liquid phases, and always charge from the liquid phase side whose composition is stable. Adding refrigerant through the gas pipe will cause a malfunction.
- Check if the steel cylinder has a siphon installed or not before filling. (There is an indication “with siphon for filling liquid” on steel cylinder.)

Filling method for cylinder with siphon



Set the cylinder vertical and fill with the liquid.
(Liquid can be filled without turning bottom up with the siphon inside.)

Filling method for other cylinders



Turn bottom up and fill with the liquid.
(Be careful to avoid turning over the cylinder.)

- Be sure to use the special tools for R32 for pressure resistance and to avoid mixing of impure substances.
- If the units are further apart than the maximum pipe length, correct operation cannot be guaranteed.
- Make sure to back closing valve after refrigerant charging. Otherwise, the compressor may fail.
- Minimize refrigerant release to the air. Excessive release is prohibited under the Freon collection and destruction law.

SYSTEM DESIGN

■ If additional refrigerant is required

When the piping is longer than pre-charge length, additional charging is necessary.

1. Remove the charging cap from the liquid pipe.
2. Attach a charging pipe hose to the refrigerant cylinder, and connect it to the charging port.
3. Add refrigerant by calculating the additional refrigerant volume in accordance with the table below.
4. Remove the charging hose and install the charging cap.
5. Remove the body caps (gas pipe and liquid pipe), and open the valves.
6. Close the body caps.

NOTES:

- Tighten the body caps and charging caps to the torques values specified in the following table.

Blank cap (mm [in])	Tightening torque (N•m [kgf•cm])
6.35 (1/4)	20 to 25 (200 to 250)
9.52 (3/8)	20 to 25 (200 to 250)
12.70 (1/2)	28 to 32 (280 to 320)
15.88 (5/8)	30 to 35 (300 to 350)
19.05 (3/4)	35 to 40 (350 to 400)

- To open and close the valves,
  - Use an M5 hexagon wrench for liquid pipes.
  - Use an M10 hexagon wrench for gas pipes.

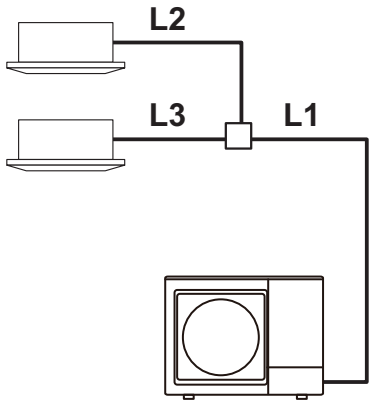
● Pre-charge length

Piping length (L1) pre-charge (m)
30

SYSTEM DESIGN

SYSTEM DESIGN

● Additional charging amount for Twin type

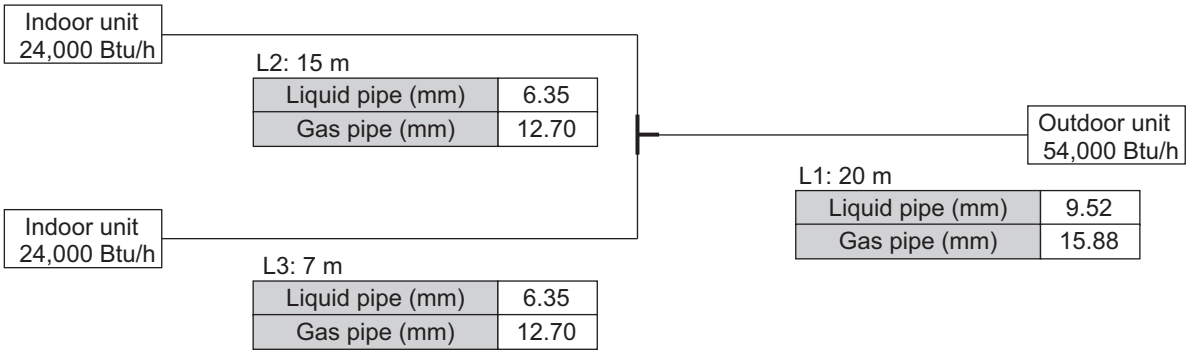


Pre-charge length < L1 + L2 + L3
The additional charging amount will be calculated as follows.

- A: Piping length (m) of liquid pipe with outside diameter of 9.52 mm (1/2 in)
- B: Piping length (m) of liquid pipe with outside diameter of 6.35 mm (3/8 in)
- Additional charging amount (g) = (A × 40) + (B × 20) - 1,200

NOTE: Do not remove refrigerant, even if the additional amount calculated is negative.

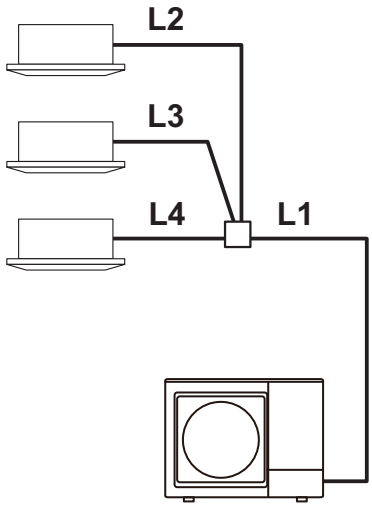
Example:



Liquid pipe diameter (mm)	Piping length (m)	Coefficient
9.52	20	A = 20
6.35	22	B = 22

Applying the formula,
(20 × 40) + (22 × 20) - 1,200 = 40
The additional charging amount is 40 g.

● Additional charging amount for Triple type



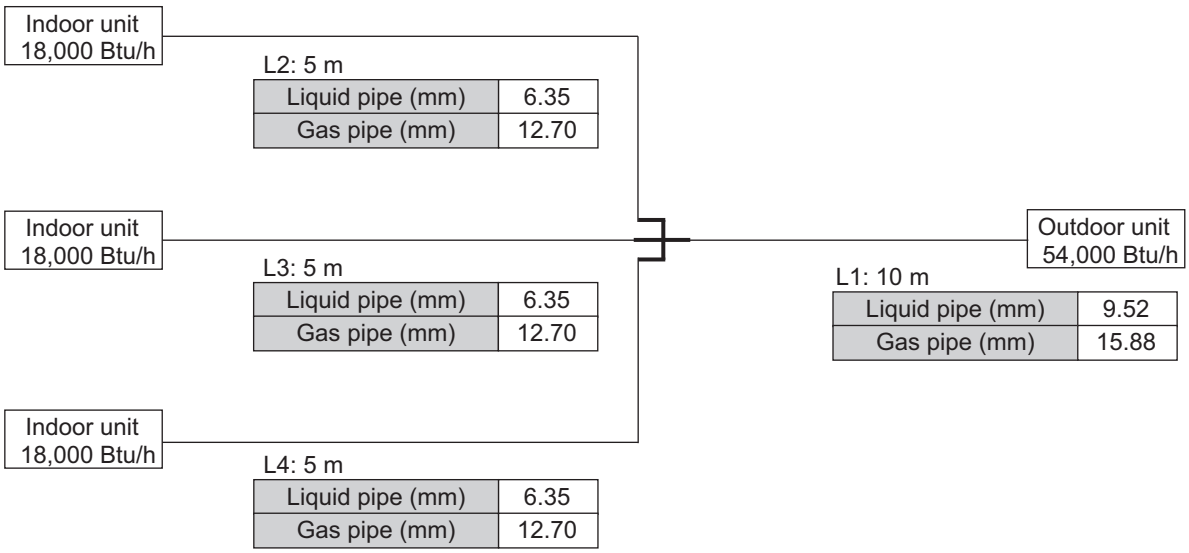
SYSTEM DESIGN

Pre-charge length < L1 + L2 + L3 + L4
The additional charging amount will be calculated as follows.

- A: Piping length (m) of liquid pipe with outside diameter of 9.52 mm (1/2 in)
- B: Piping length (m) of liquid pipe with outside diameter of 6.35 mm (3/8 in)
- Additional charging amount (g) = (A × 40) + (B × 20) - 1,200

NOTE: Do not remove refrigerant, even if the additional amount calculated is negative.

Example:



Liquid pipe diameter (mm)	Piping length (m)	Coefficient
9.52	10	A = 10
6.35	15	B = 15

Applying the formula,
(10 × 40) + (15 × 20) - 1,200 = -500
The calculated value is negative. Do not add or remove any refrigerant.

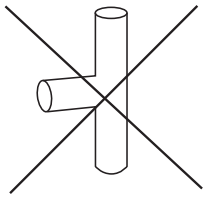
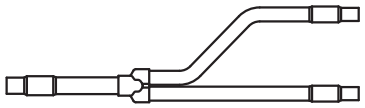
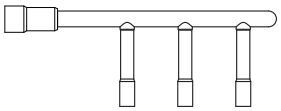
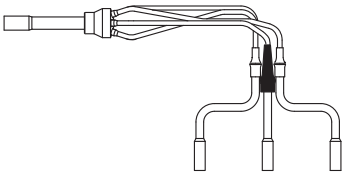
3. Pipe installation

3-1. Caution of piping

⚠ CAUTION

Keep the permissible length of every piping limitation to prevent a defect or cooling/heating failure.

- **Piping material:**
  - Use the designated size (diameter and thickness) of refrigerant pipes.
  - Those pipes purchased locally may contain dust inside. Blow out the dust by dried inert gas when using.
  - To process the branch, do not use T-shaped pipe, which causes a uneven refrigerant flow. Use the optionally available standard branch pipe.

<table>
<tr>
<td rowspan="2"> 
T-tube</td>
<td>UTP-SX236A (Gas)
 
Twin connection type</td>
<td>UTP-SX236A (Liquid)
 
Twin connection type</td>
</tr>
<tr>
<td>UTP-SX354A (Gas)
 
Triple connection type</td>
<td>UTP-SX354A (Liquid)
 
Triple connection type</td>
</tr>
</table>

  - When replacing the unit, never use piping which has been used for previous installations. Only use the new piping.

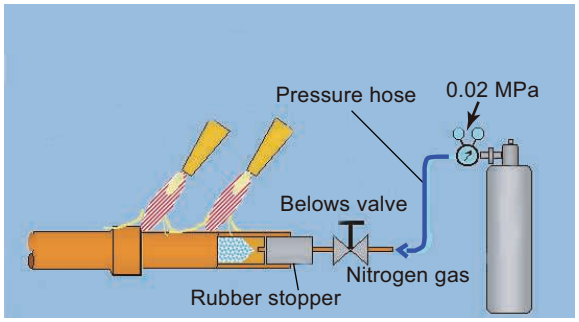
- **Piping process stage:**
  - Be careful to avoid the dust or water falling into the pipe when preforming piping process and piping installation.
  - When processing the pipe, make the number of bending portion as few as possible, and the bending radius as large as possible.
  - If the diameter of the required pipe is different from the branch unit, either cut it out or use the reducer.

(continued)

SYSTEM DESIGN

⚠ CAUTION

- **Brazing:**
  - While brazing the pipes, be sure to blow dry nitrogen gas through them.
  - If nitrogen gas is not blown through the pipes while they are being brazed, an oxidized layer may form on the inside of the pipes. If this occurs, the cooling efficiency may decrease and the air conditioner unit (compressor, valves, etc.) cause malfunction.



  - When brazing the pipes, do not use flux. If the flux is chlorine-based, the pipes will corrode and when the flux contains fluorine, the refrigerant oil will deteriorate, etc. Using the flux has an adverse affect on the refrigerant piping system.
  - For brazing materials, use phosphor copper solder that does not require flux.

- **Piping treatment:**
  - The pipes vibrate, expand, and contract during operation, so if loads are concentrated in one area, it could cause cracks in the pipes. Provide the pipe supports every 2 to 3 m.
  - Make sure to insulate the refrigeration pipes separately with ample thickness of heat-resistant polyethylene form etc. For the connecting portion, apply the enough insulation to avoid any gap.

■ Example

- **Brazing**
  While brazing the pipes, be sure to blow dry nitrogen gas through the pipes. If not used, it will be caused to damage for compressor and clog the strainer and electronic expansion valve.

  Example: Inside state of brazing pipe section

Nitrogen gas used	Nitrogen gas used but not sufficient (Oxigen gas still inside the pipe)	Nitrogen gas does not used
		

3-2. Piping to outdoor unit

■ Knocking out procedure in piping

⚠ CAUTION

- Be careful not to deform or scratch the panel while opening the knock out holes.
- To protect the piping insulation after opening a knock out hole, remove any burrs from the edge of the hole. It is recommended to apply rust prevention paint to the edge of the hole.

- Pipes can be connected from 4 directions, front, lateral side, rear side and bottom. (Fig. A)
- When connecting at the bottom, remove the service panel and piping cover on the front of the outdoor unit, and open the knock out hole provided at the bottom corner of the piping outlet.
- It can be installed as shown as on “Fig. B” cutting out the 2 slits as indicated on “Fig. C”. (When cutting slits, use a steel saw.)

SYSTEM DESIGN

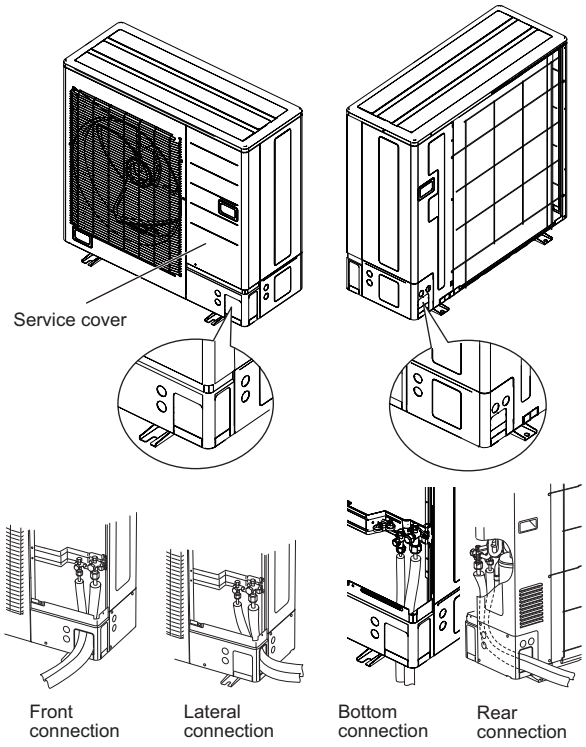


Fig. A

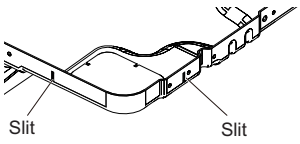


Fig. B

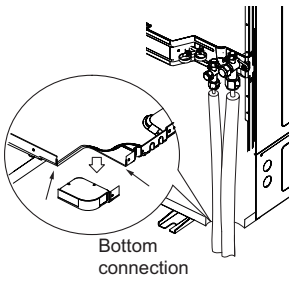


Fig. C

3-3. Pipe connection

■ Precautions for connecting simultaneous operation multi

⚠ CAUTION

- Use genuine branch pipes for the refrigerant piping branches. Branch pipes are twin or triple type for simultaneous operation, and may be used for piping between the outdoor and indoor units.
- Select a twin or triple type branch pipe and purchase it before starting the installation work.
- Shorten the length of branch pipes from a branch to indoor unit as short as possible.
  Maximum length: 20 m or less
- Branch pipes shall be connected by welding (brazing).
- Any vertical piping shall be in the part of the main piping. If a main pipe is bent, keep the straight part more than 10 times the diameter of the connected pipe. A variance in the amount of refrigerant may be caused if the straight part is short.
- For details, refer to the Installation manual of branch pipes.

SYSTEM DESIGN

■ Bending pipes

⚠ CAUTION

- To prevent breaking of the pipe, avoid sharp bends. Bend the pipe with a radius of curvature of 100 mm to 150 mm.
- If the pipes are bent or stretched repeatedly at the same place, the material will harden making it difficult to bend or stretch them any more.
- Do not bend or stretch the pipes more than three times, otherwise it will be break.

NOTES:

- If pipes are shaped by hand, be careful not to collapse them.
- Do not bend the pipes at an angle of more than 90°.

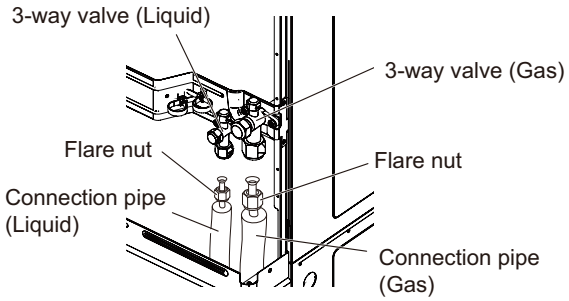
■ Connecting the pipes

⚠ CAUTION

- Be sure to install the pipe against the port on the indoor unit and the outdoor unit correctly. If the centering is improper, the fl are nut cannot be tightened smoothly. If the fl are nut is forced to turn, the threads will be damaged.
- Do not remove the fl are nut from the outdoor unit pipe until immediately before connecting the connection pipe.
- After installing the piping, make sure that the connection pipes do not touch the compressor or outer panel. If the pipes touch the compressor or outer panel, they will vibrate and produce noise.

SYSTEM DESIGN

- 1. Detach the caps and plugs from the pipes.
  2. Center the pipe against the port on the outdoor unit, and then turn the fl are nut by hand.
  3. Tighten the fl are nut of the connection pipe at the outdoor unit valve connector.

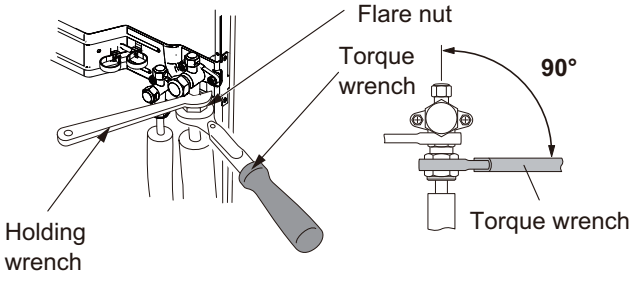


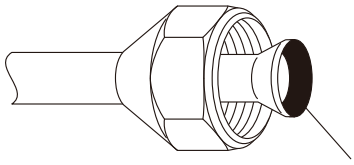
  4. After tightening the fl are nut by hand, use a torque wrench to fully tighten it.

⚠ CAUTION

- Hold the torque wrench at its grip, keeping it in a right angle with the pipe, in order to tighten the fl are nut correctly.
- Fasten a fl are nut with a torque wrench as instructed in this manual. If fastened too tight, the fl are nut may be broken after a long period of time and cause a leakage of refrigerant.

- Outer panel may be distorted if fastened only with a wrench. Be sure to fix the elementary part with a spanner and fasten with a wrench. (Refer to the following figure.)
- Do not apply force to the blank cap of the valve or hang a wrench, etc., on the cap. It may cause leakage of refrigerant.





To prevent gas leakage, coat the are surface with refrigerator oil.

Blank cap (mm [in])	Tightening torque (N•m [kgf•cm])
6.35 (1/4)	16 to 18 (160 to 180)
9.52 (3/8)	32 to 42 (320 to 420)
12.70 (1/2)	49 to 61 (490 to 610)
15.88 (5/8)	63 to 75 (630 to 750)
19.05 (3/4)	90 to 110 (900 to 1100)

■ Handling precautions for valves

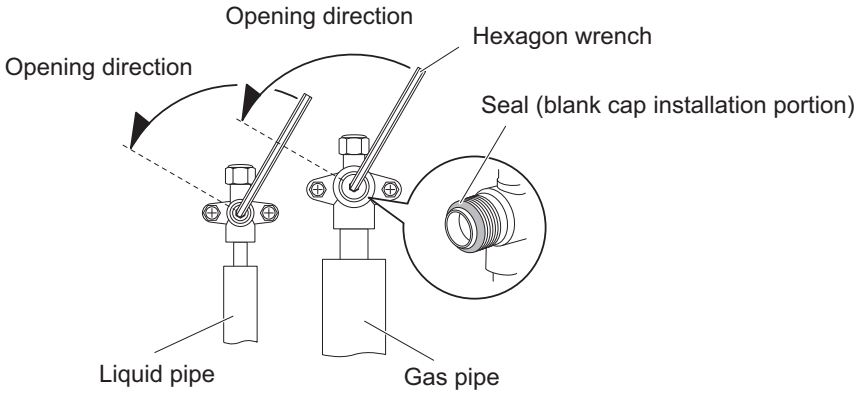
- Mounted part of blank cap is sealed for protection.
- Fasten blank cap tightly after opening valves.

Blank cap (mm [in])	Tightening torque (N•m [kgf•cm])
6.35 (1/4)	20 to 25 (200 to 250)
9.52 (3/8)	20 to 25 (200 to 250)
12.70 (1/2)	28 to 32 (280 to 320)
15.88 (5/8)	30 to 35 (300 to 350)
19.05 (3/4)	35 to 40 (350 to 400)

SYSTEM DESIGN

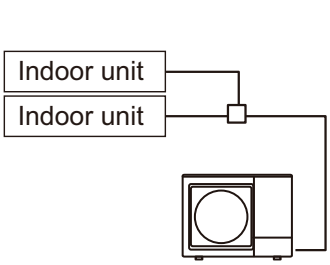
Operating the valves:

- Use a hexagon wrench (size 4 mm).
- Opening:
  1. Insert the hexagon wrench into the valve shaft, and turn it counterclockwise.
  2. Stop turning when the valve shaft can no longer be turned. (Open position)
- Closing:
  1. Insert the hexagon wrench into valve shaft, and turn it clockwise.
  2. Stop turning when the valve shaft can no longer be turned. (Closed position)

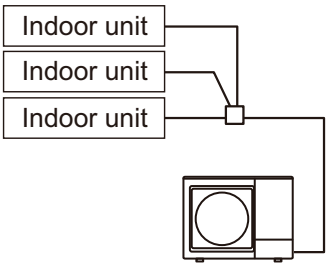


3-4. Branch pipes

■ Branch pipe selection



Twin connection



Triple connection

Connection type	Kit name	Kit number	Outdoor unit	Piping diameter: mm (in)		Indoor unit number
				Kit to outdoor unit*	Kit to indoor unit	
Twin	UTP-SX236A	1	AOHG36KBTB AOHG45KBTB AOHG54KBTB	Liquid: 9.52 (3/8) Gas: 15.88 (5/8)	Liquid: 6.35 (1/4) Gas: 12.70 (1/2)	2
Triple	UTP-SX354A	1	AOHG54KBTB	Liquid: 9.52 (3/8) Gas: 15.88 (5/8)	Liquid: 6.35 (1/4) Gas: 12.70 (1/2)	3

*: For the diameter of the connection piping between the outdoor unit and the branch pipes, refer to the installation manual of the outdoor unit.

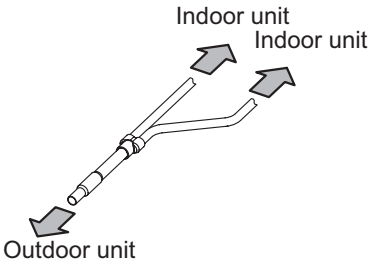
SYSTEM DESIGN

■ Installation procedure for Twin type

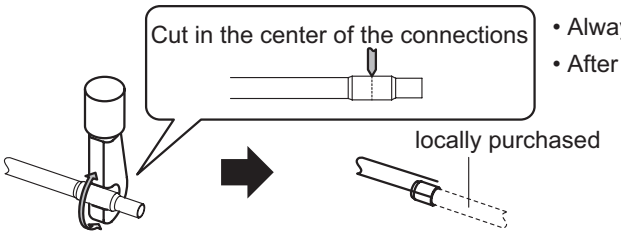
⚠ CAUTION

- Do not mistake the direction of connection.
- Set the piping from the branch pipe to the indoor units to be the same length. (Max. difference: 8 m)
- Shorten the length of the piping after branching as much as possible. (Max. length: 20 m)

1. Check the direction of connection.

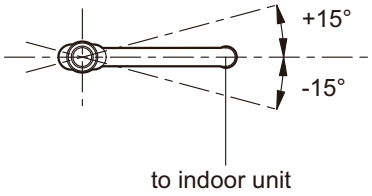


2. If the diameter of the connection piping is too large, use a pipe cutter to cut as shown below.



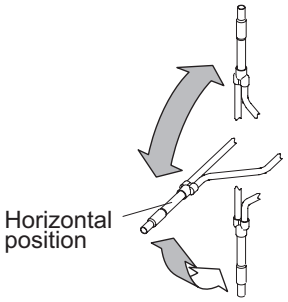
- Always use a pipe cutter.
- After cutting, remove the burr and clean the cut section.

3. Check the positioning of branch pipes.
   If it is placed horizontally, keep it within ±15°. Otherwise, it will not separate the refrigerant evenly, causing a reduction in performance.

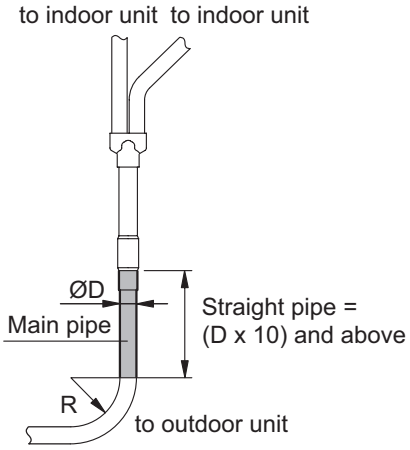


SYSTEM DESIGN

4. Place the branch pipe in a horizontal position as far as possible.
   a. Only place the branch pipe as shown below during unavoidable circumstances.



   b. When connecting the main piping, do not bend it near the connection section. If the main pipe must be bent due to unavoidable circumstances, ensure that the linear section is 10 times or more than the diameter of the connection piping.



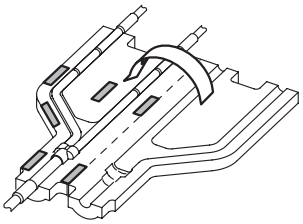
5. Welding the piping
   • Check that the connection piping is securely inserted into the branch pipe before welding.

⚠ CAUTION

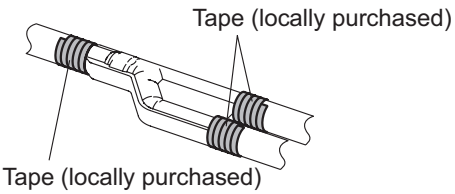
- During piping work, apply nitrogen gas while brazing the pipes. If pipes are brazed without applying nitrogen gas, it will create a large amount of oxidation film, which will cause a critical malfunction.
- To prevent moisture or foreign matter from entering during work, do not leave the piping open.
- Refer to installation manual supplied with the outdoor unit for sealing test evacuation procedures.

SYSTEM DESIGN

6. After brazing the pipes, use the supplied heat insulation to insulate them.
   a. Remove the protective sheet from the double-stick tape that is affixed to the heat insulation.

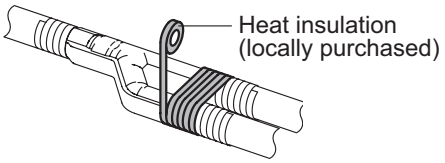


   b. Use tape (locally purchased) to seal the seam so that there will be no gap at the junction between the aforementioned heat insulation and the heat insulation on the local piping.



⚠ CAUTION

- Be sure to install the heat insulation on liquid pipes and gas pipes. Unless they are thermally insulated, water condensation can cause accidents or reduction in performance.
- After installing the heat insulation, if you worry about possible condensation due to the high humidity of installation position, use locally purchased heat insulation to reinforce insulation.



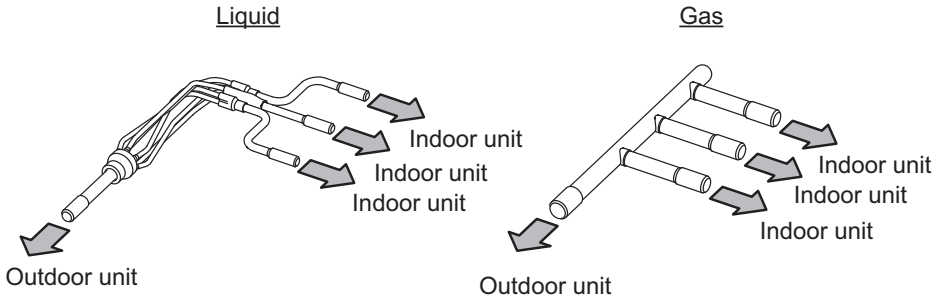
SYSTEM DESIGN

■ Installation procedure for Triple type

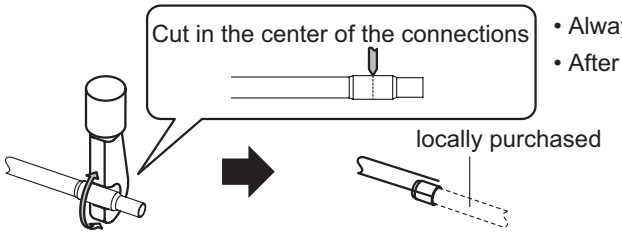
⚠ CAUTION

- Do not mistake the direction of connection.
- Set the piping from the branch pipe to the indoor units to be the same length. (Max. difference: 8 m)
- Shorten the length of the piping after branching as much as possible. (Max. length: 20 m)

1. Check the direction of connection.

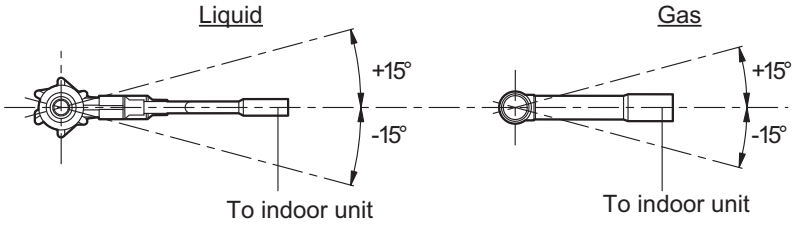


2. If the diameter of the connection piping is too large, use a pipe cutter to cut as shown below.



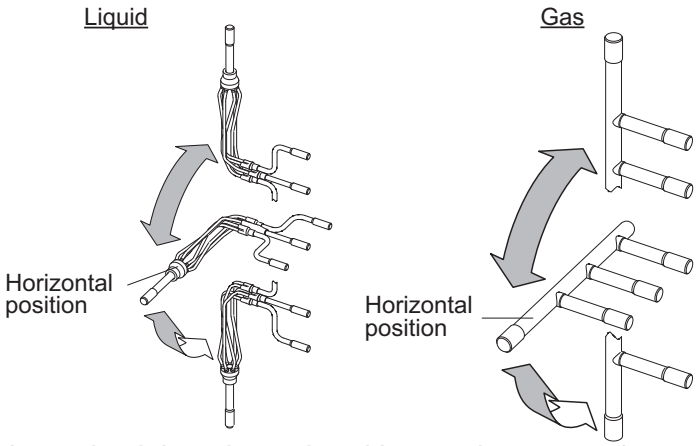
- Always use a pipe cutter.
- After cutting, remove the burr and clean the cut section.

3. Check the positioning of branch pipes.
If it is placed horizontally, keep it within ±15°. Otherwise, it will not separate the refrigerant evenly, causing a reduction in performance.

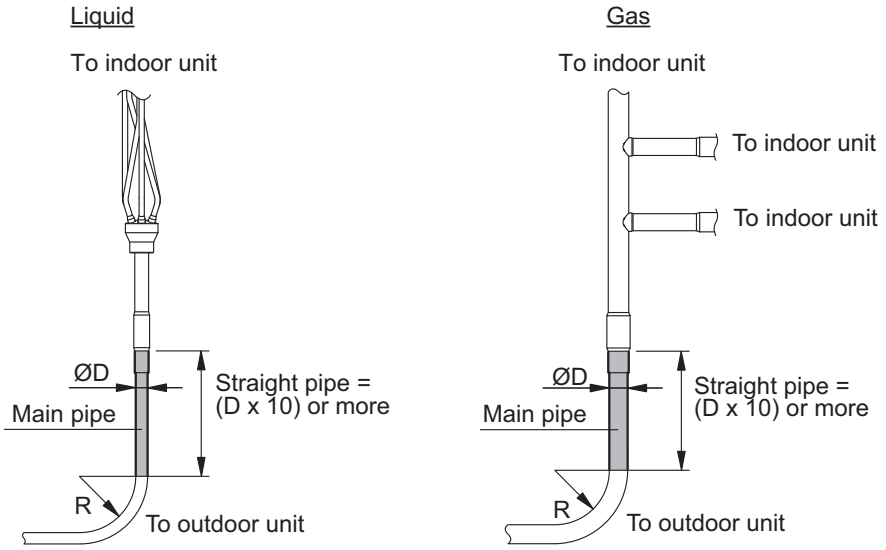


SYSTEM DESIGN

4. Place the branch pipe in a horizontal position as far as possible.
   a. Only place the branch pipe as shown below during unavoidable circumstances.



   b. When connecting the main piping, do not bend it near the connection section. If the main pipe must be bent due to unavoidable circumstances, ensure that the linear section is 10 times or more than the diameter of the connection piping.



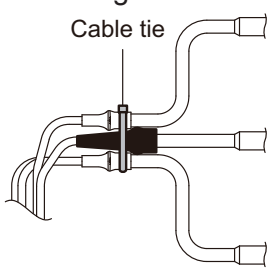
5. Welding the piping
   Check that the connection piping is securely inserted into the branch pipe before welding.

⚠ CAUTION

- During piping work, apply nitrogen gas while brazing the pipes. If pipes are brazed without applying nitrogen gas, it will create a large amount of oxidation film, which will cause a critical malfunction.
- To prevent moisture or foreign matter from entering during work, do not leave the piping open.
- Refer to installation manual supplied with the outdoor unit for sealing test evacuation procedures.

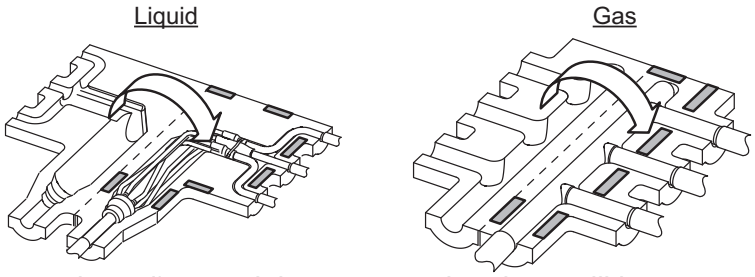
Do not weld the rubber on the branch pipe.

6. Installing the cable tie
   a. Install the cable tie as shown in the following.

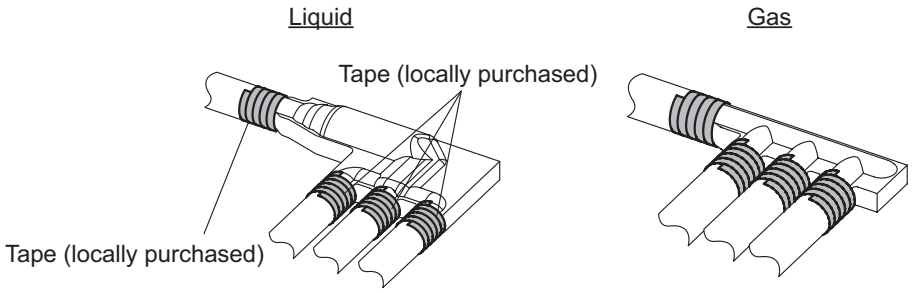


   b. After installing the cable tie, cut away the excess portion neatly.

7. After brazing the pipes, use the supplied heat insulation to insulate them.
   a. Remove the protective sheet from the double-stick tape that is affixed to the heat insulation.

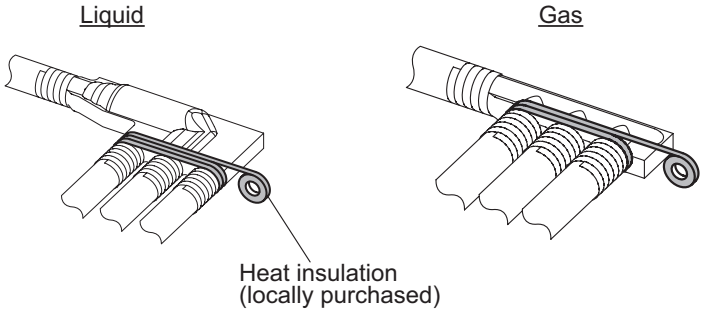


   b. Use tape (locally purchased) to seal the seam so that there will be no gap at the junction between the aforementioned heat insulation and the heat insulation on the local piping.



⚠ CAUTION

- Be sure to install the heat insulation on liquid pipes and gas pipes. Unless they are thermally insulated, water condensation can cause accidents or reduction in performance.
- After installing the heat insulation, if you worry about possible condensation due to the high humidity of installation position, use locally purchased heat insulation to reinforce insulation.



SYSTEM DESIGN

4. Wiring design

4-1. Precaution for electrical wiring

Regulation on wire diameter and selecting circuit breaker size differ by locality. Install in accordance with local rules and regulations.

⚠ WARNING

- Wiring connections must be performed by a qualified person in accordance with the specifications. The voltage rating for this product is 230 V at 50 Hz. It should be operated within the range of 198 to 264 V.
- Before connecting the wires, make sure the power supply is OFF.
- Never touch electrical components immediately after the power supply has been turned off. Electrical shock may occur. After turning off the power, always wait 10 minutes or more before touching electrical components.
- Use a dedicated power supply circuit. Insufficient power capacity in the electrical circuit or improper wiring may cause electric shock or fire.
- Install a breaker at the power supply for each outdoor unit. Improper breaker selection can cause electric shock or fire.
- Install a leakage circuit breaker in accordance with related laws and regulations. An improperly installed electrical box cover can cause serious accidents such as electric shock or fire through exposure to dust or water.
- A circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and keep an isolation distance of at least 3 mm between the contacts of each pole.
- Use designated cables and power cables. Improper use may cause electric shock or fire by poor connection, insufficient insulation, or over current.
- Do not modify power cable, use extension cable, or branch wiring. Improper use may cause electric shock or fire by poor connection, insufficient insulation, or over current.
- Connect the connector cable securely to the terminal. Check no mechanical force bears on the cables connected to the terminals. Faulty installation can cause a fire.
- Use crimp-type terminals and tighten the terminal screws to the specified toques, otherwise, abnormal overheating may be produced and possibly cause serious damage inside the unit.
- Make sure to secure the insulation portion of the connector cable with the cable clamp. Damaged insulation can cause a short circuit.
- Fix cables so that cables do not make contact with the pipes (especially on hight pressure side). Do not make power supply cable and transmission cable come in contact with valves (Gas).
- Never install a power factor improvement condenser. Instead of improving the power factor, the condenser may overheat.
- Be sure to perform the grounding work. Do not connect grounding wires to a gas pipe, water pipe, lightning rod, or grounding wire for a telephone.
  - Connection to a gas pipe may cause a fire or explosion if gas leaks.
  - Connection to a water pipe is not an effective grounding method if PVC pipe is used.
  - Connection to the grounding wire of a telephone or to a lightning rod may cause a dangerously abnormal rise in the electrical potential if lightning strikes.
  - Improper grounding work can cause electric shocks.
- Securely install the electrical box cover on the unit. An improperly installed service panel can cause serious accidents such as electrical shock or fire through exposure to dust or water.
- The primary power supply capacity is for the air conditioner itself, and does not include the concurrent use of other devices.

(continued)

SYSTEM DESIGN

⚠ WARNING

- Do not start operation until the refrigerant is charged completely. The compressor will fail if it is operated before the refrigerant piping charging is complete.
- Transmission cable between indoor unit and outdoor unit is 230 V.
- Be sure not to remove thermistor sensor etc. from power wiring and connection wiring. Compressor may fail if operated while removed.
- Start wiring work after closing branch switch and over current breaker.
- Use an earth leakage breaker that is capable of handing high frequencies. Because the outdoor unit is inverter controlled, a high-frequency earth leakage breaker is necessary to prevent a malfunction of the breaker itself.
- When using an earth leakage breaker that has been designed solely for ground fault protection, be sure to install a fuse-equipped switch or circuit breaker.
- Do not connect the AC power supply to the transmission line terminal board. Improper wiring can damage the entire system.
- Do not use crossover power supply wiring for the outdoor unit.
- If the temperature surrounding the breaker is too high, the amperage at which the breaker cuts out may decrease.

SYSTEM DESIGN

4-2. Power supply cable wiring

■ Power supply cable specifications

● Indoor unit

Electrical requirement			
Power supply cable Transmission cable	Minimum conductor size	mm^2	1.5
Bus wire	Minimum conductor size	mm^2	0.33
	Maximum length	m	500*

NOTES:

- *: This length shall be the total extended length in the system of the group. (Total length of bus wire and remote controller cable.)
- Use confirmed cable with type 245 IEC 57. (Power supply cable or transmission cable)
- Perform all electrical work according to the standard.
- Install a circuit breakers, which have the terminal spacing of more than 3 mm, in a place of near the indoor unit and outdoor unit.
- Wiring size must comply with the applicable local and national code.

● Outdoor unit

Breaker and wiring specifications			
Breaker capacity		A	30
Power supply cable	Minimum conductor size	mm^2	6

NOTES:

- Use confirmed cable with type 245 IEC 57.
- Perform all electrical work according to the standard.
- Install a circuit breaker with a contact gap of at least 3 mm in all poles nearby the units. (Both indoor units and outdoor units)
- Install the circuit breaker nearby the units.
- Wiring size must comply with the applicable local and national code.

SYSTEM DESIGN

● Wired remote controller

Electrical requirement			
Remote controller cable	Minimum conductor size	mm^2	0.33
	Maximum length	m	500*
	Wire type		Use sheathed PVC cable, Polar 3 core

NOTES:

- *: This length shall be the total extended length in the system of the group. (Total length of bus wire and remote controller cable.)
- Use confirmed cable with type 245 IEC 57.
- Perform all electrical work according to the standard.

SYSTEM DESIGN

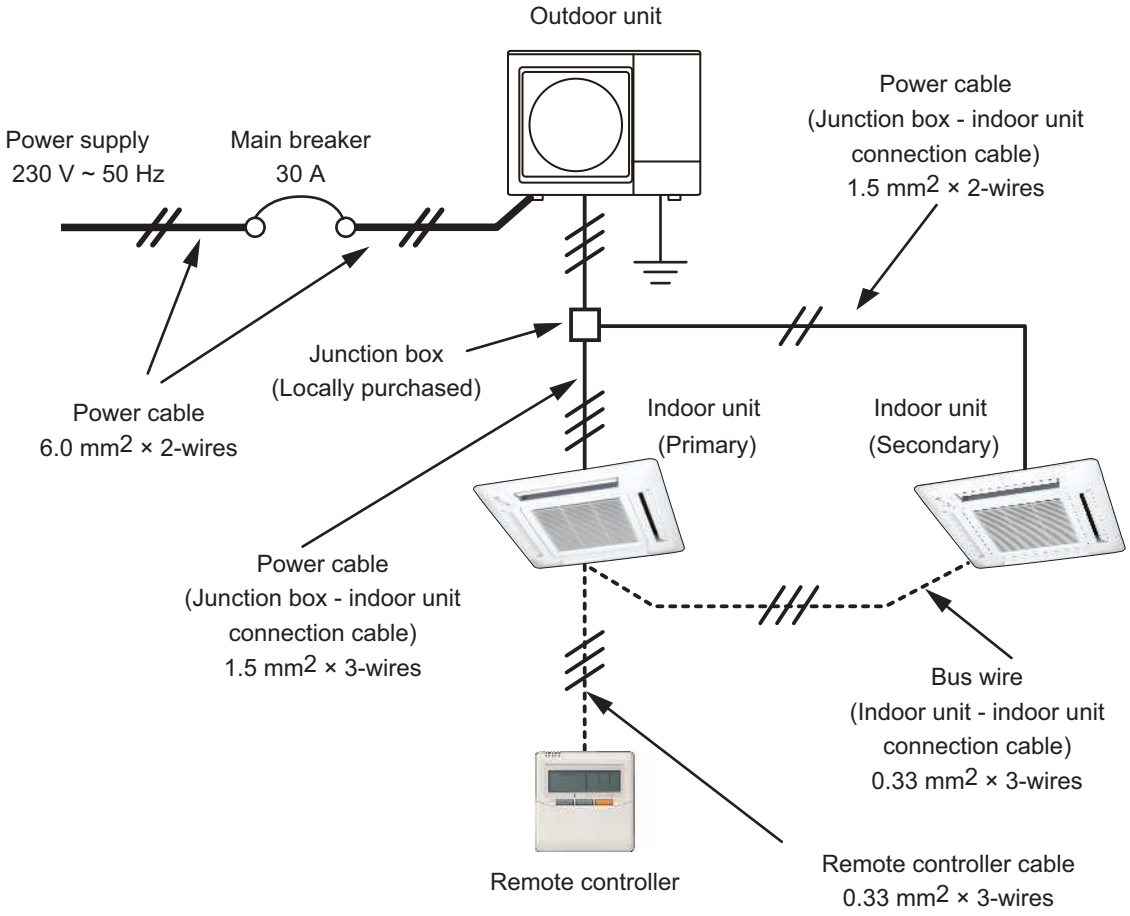
⚠ CAUTION

- Be sure to execute the electrical work according to the Laws of each country and the Installation Instructions. In addition, be sure to set as exclusive line and use the rated voltage and circuit breaker.
- Above “Conductor size” and “Breaker capacity” are minimum value.
- Transmission cable between indoor unit and outdoor unit is 230 V.
- Regulation of conductor size and circuit breaker differs by each locality, refer in accodance with local rules.
- Start wiring work after closing branch switch and over current breaker.
- Specific wiring requirement should be applied Type 245 IEC 57 or equivalent.
- To prevent the electrical noise malfunction and hazards from insulation failure, the unit should be connected to ground.
- A disconnect switch may be required for ease of maintenance in accordance with local regulation for each unit. Check the local rules and regulations. Make the wire length between disconnect switch and unit terminal as shot as possible.
- All field wiring and components must be provided by a licensed electrician.
- Use copper conductors only.

■ Power supply cable wiring

Power cable	Junction box—indoor unit (primary)	3-wires
	Junction box—indoor unit (secondary)	2-wires
	Outdoor unit	2-wires
Bus wire	Indoor unit—indoor unit	3-wires
Remote controller cable		3-wires

Example:

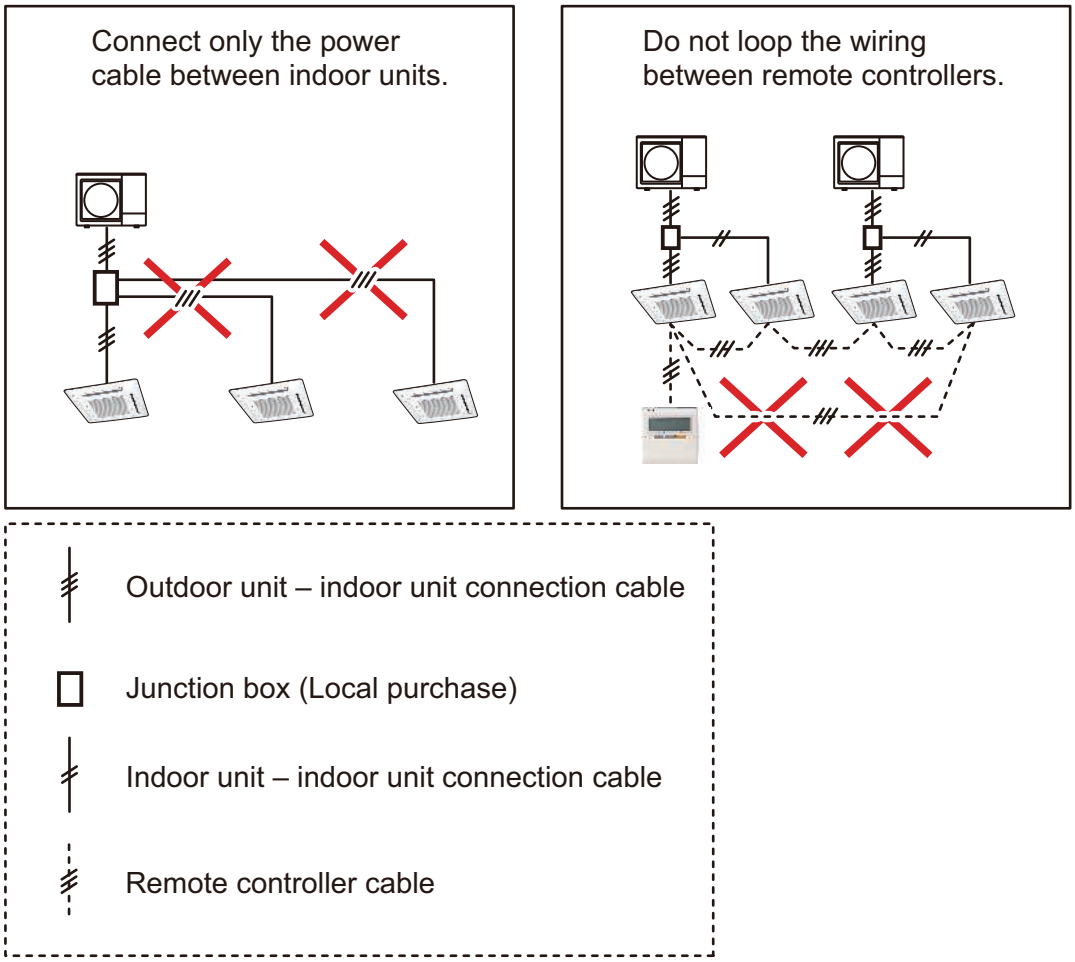


SYSTEM DESIGN

■ Wiring connection rules

NOTES:

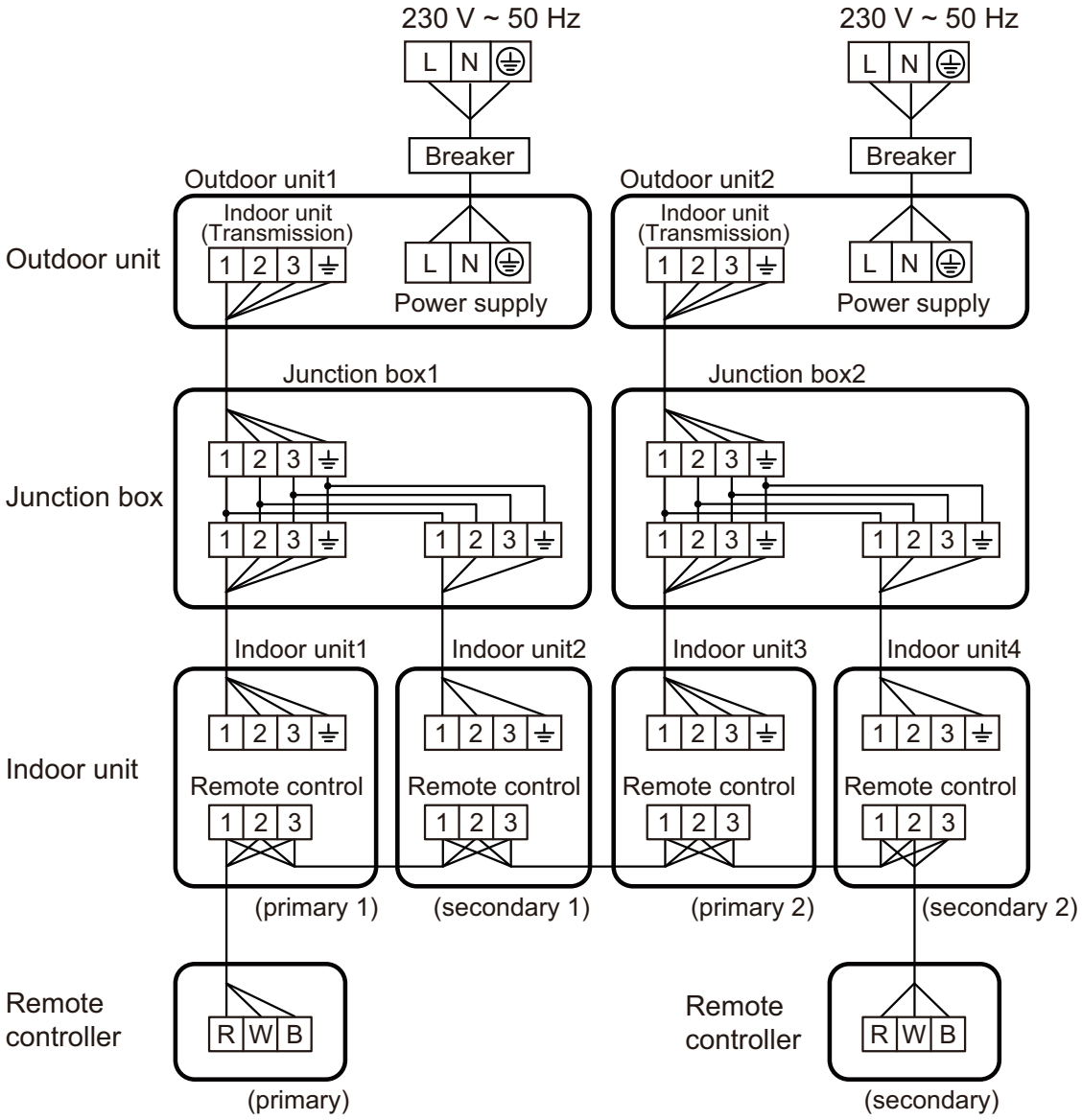
- Connect serial wire only to the primary unit. (If serial wire was connected from primary unit to secondary unit, the air conditioner will not operate.)
- Do not loop the wiring between remote controllers.



SYSTEM DESIGN

■ Wiring method

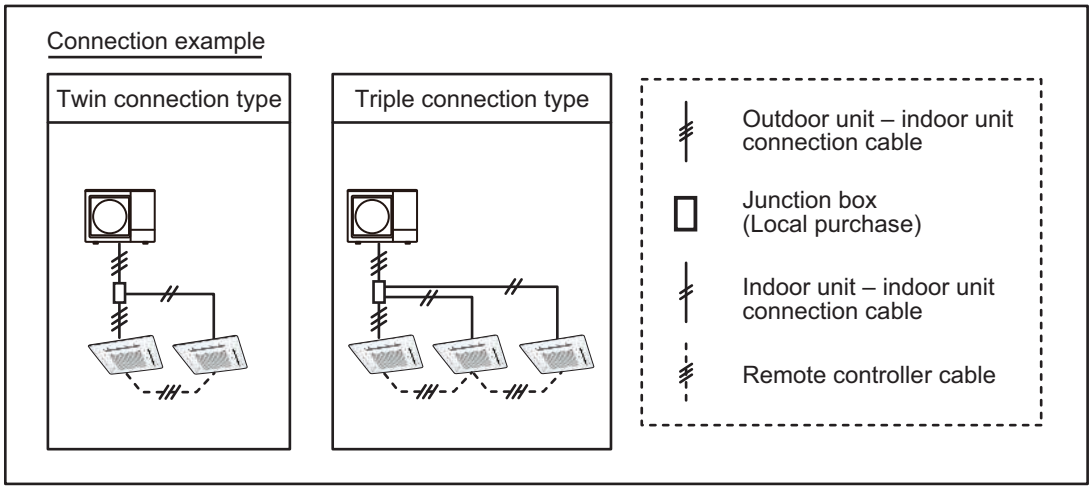
The wiring method conforms to the following diagram.



SYSTEM DESIGN

■ Recommended wiring connection

Up to 3 indoor units can be connected to one outdoor unit.
Operation of all indoor units is same.
The simultaneous multi system is effective for anomalistic floors and wide floors.

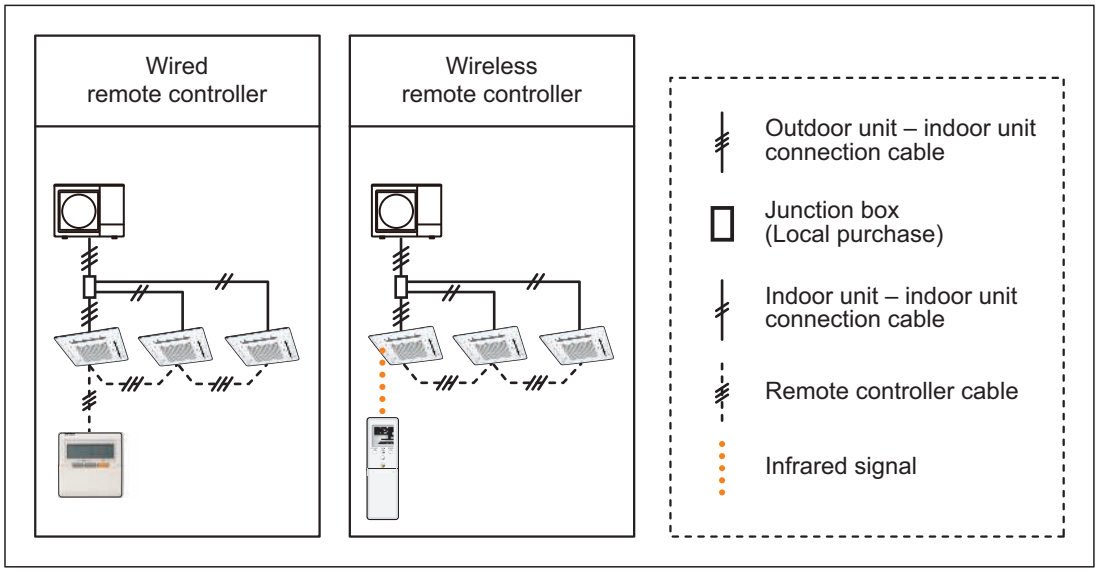


SYSTEM DESIGN

4-3. Control patterns

■ 1-Remote controller control

This is the most basic system. Wired type or wireless type remote controller can be selected.

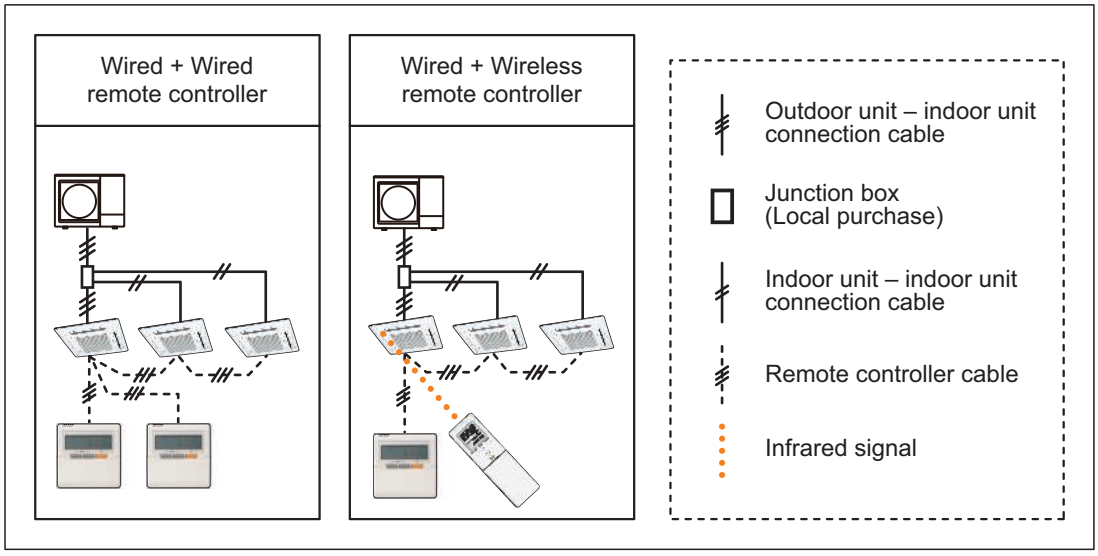


NOTES:

- When using a wireless type remote controller, install IR receiver unit to the indoor units (Slim duct type, Duct type).
- In simultaneous multi connection the timer and 10 °C HEAT functions by using the wireless remote controller cannot be used.

■ 2-Remote controllers control

Local control from a remote point is possible using 2-remote controllers.



NOTES:

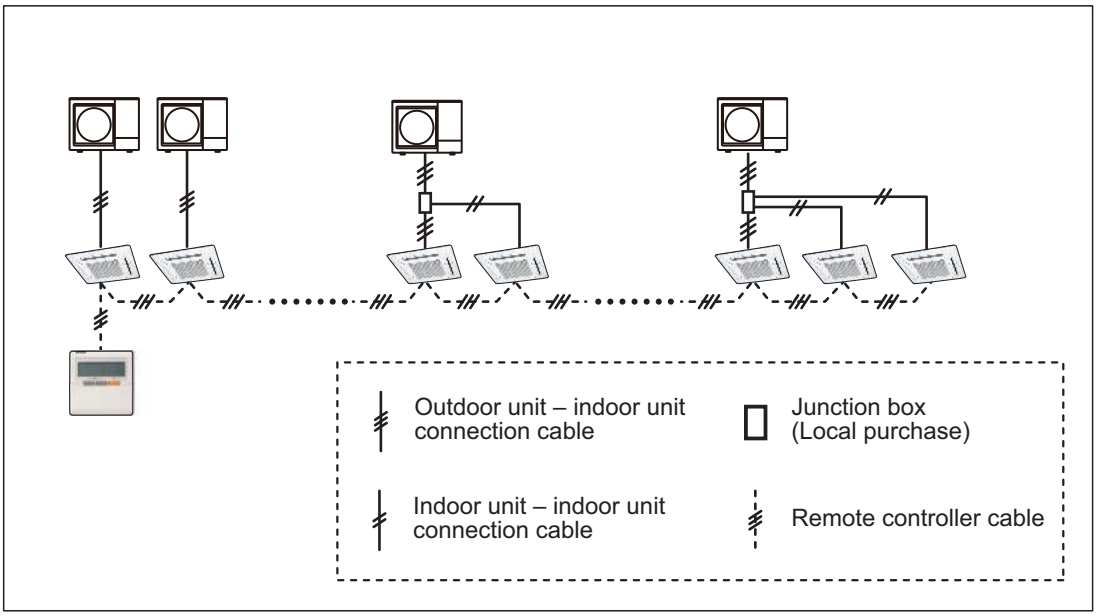
- For 2 wired-type remote controllers, specify a primary and secondary remote controller.
- The TIMER and 10 °C HEAT (Wireless remote controller only) functions of remote controller specified as the secondary cannot be used.
- In simultaneous multi connection, the TIMER and 10 °C HEAT functions by using the wireless remote controller cannot be used.
- When using a wireless type remote controller, install IR receiver unit to the indoor units (Slim duct type, Duct type).

SYSTEM DESIGN

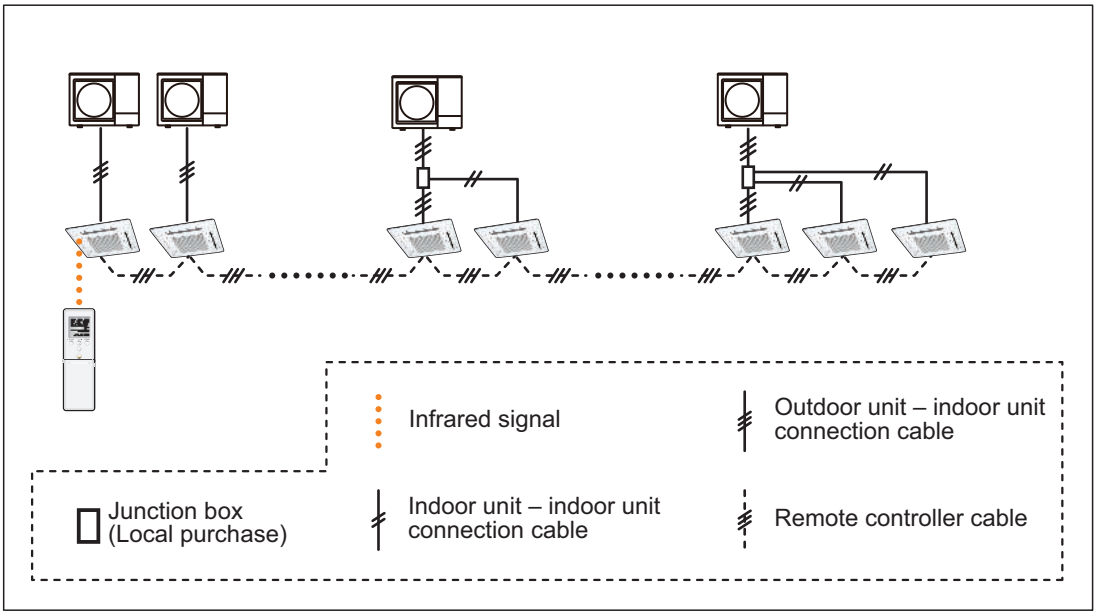
■ Remote controller group control

1 or 2-remote controllers can simultaneously control up to 16 indoor units.

- **Wired remote controller type**



- **Wireless remote controller type**

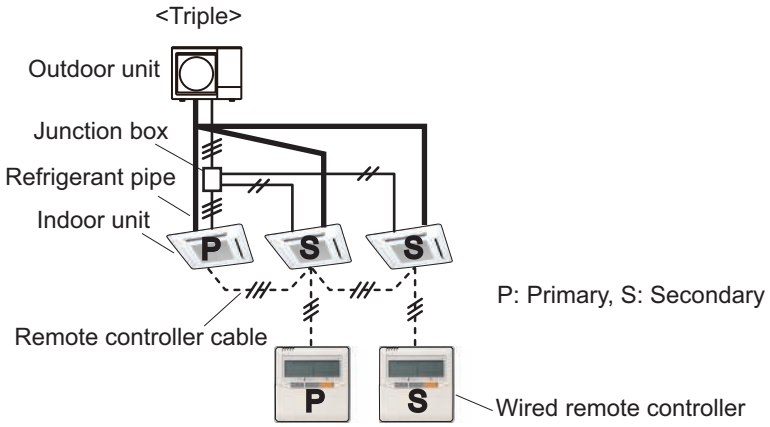


NOTES:

- When using a wireless type remote controller, install IR receiver unit to the indoor units (Slim duct type, Duct type).
- In simultaneous multi connection, the TIMER and 10 °C HEAT functions by using the wireless remote controller cannot be used.
- In the group connection of different indoor unit models, the functions which can be set by using the wired remote controller are limited.

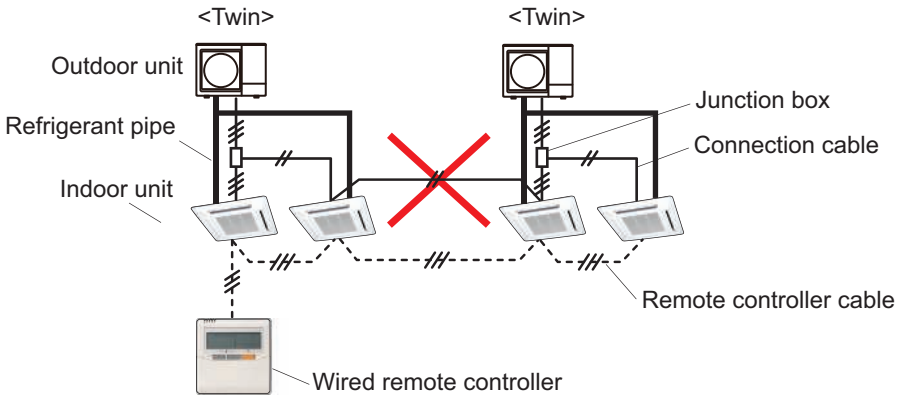
■ Connection examples

- **Example 1 (OK)**



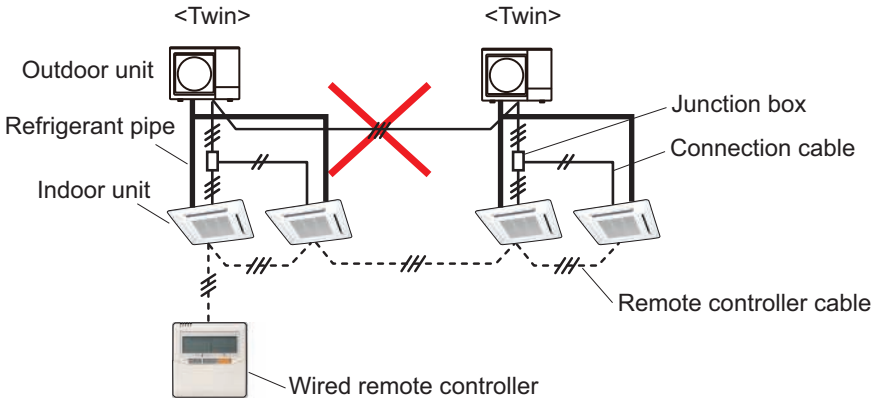
NOTE: Maximum of 2 remote controllers can be connected in the same remote controller group. Also, a remote controller can be connected to any indoor unit.

- **Example 2 (Prohibited)**



NOTE: Do not connect between indoor units crossing over a refrigerant circuit.

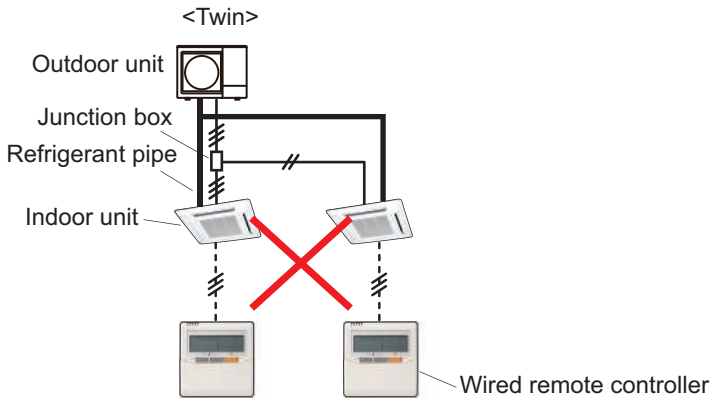
- **Example 3 (Prohibited)**



NOTE: Do not connect outdoor units crossing.

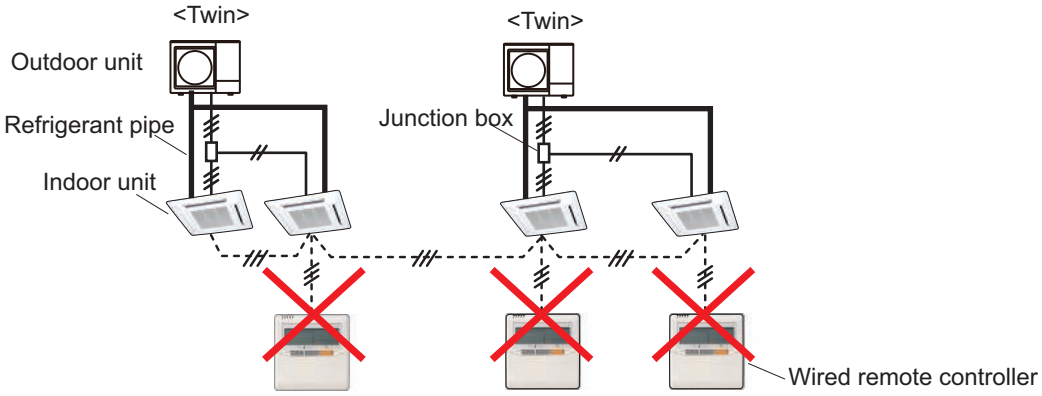
SYSTEM DESIGN

- **Example 4 (Prohibited)**



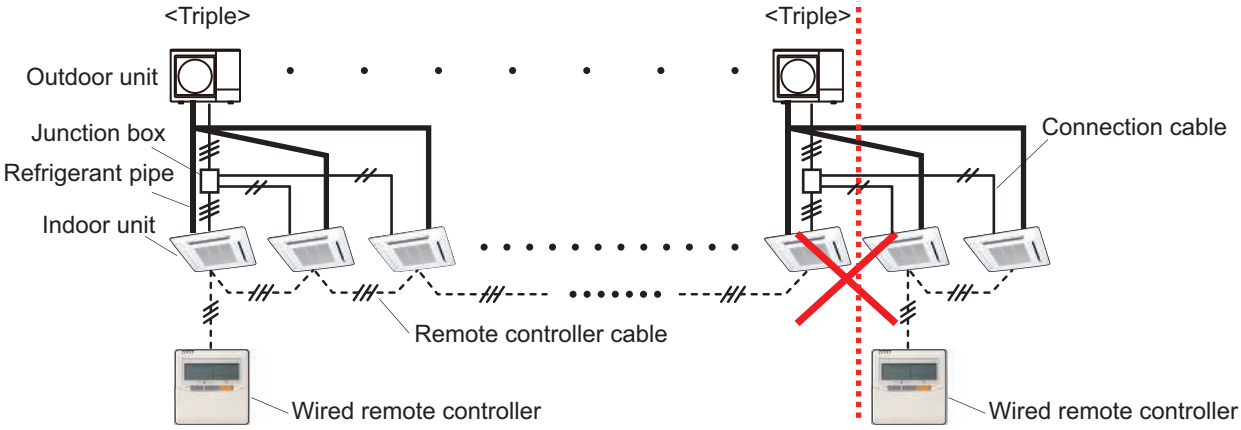
NOTE: When connecting more than 2 indoor units in same refrigerant circuit, the remote controller cable must be connected between indoor units.

- **Example 5 (Prohibited)**



NOTE: Do not connect 3 or more remote controllers in the same remote controller group.

- **Example 6 (Prohibited)**



NOTE: Do not separate the remote controller group in the same refrigerant circuit.

5. System setting

5-1. Indoor unit setting

Setting			Setting range	Setting method
Set A	Indoor unit Primary/Secondary	○	“00” or “01”	Refer to Chapter 8-8. "Function details" on page 183. (Function number: 51)
Set B	Refrigerant circuit address	●	“00” to “15”	Refer to Chapter 8-8. "Function details" on page 183. (Function number: 02)
Set C	Remote controller address	○	“00” to “15”*	Refer to Chapter 8-8. "Function details" on page 183. (DIP switch setting)

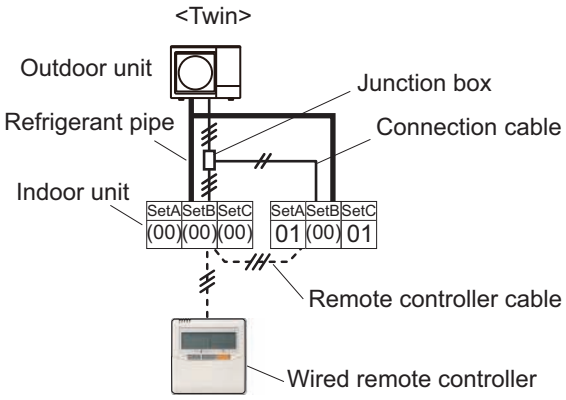
NOTES:

- ○: Setting is required.
- ●: By a case, setting is required.
- *: Set the remote controller address in the order of “00”, “01”, “02”,..., “15”. (Blank is not allowed).

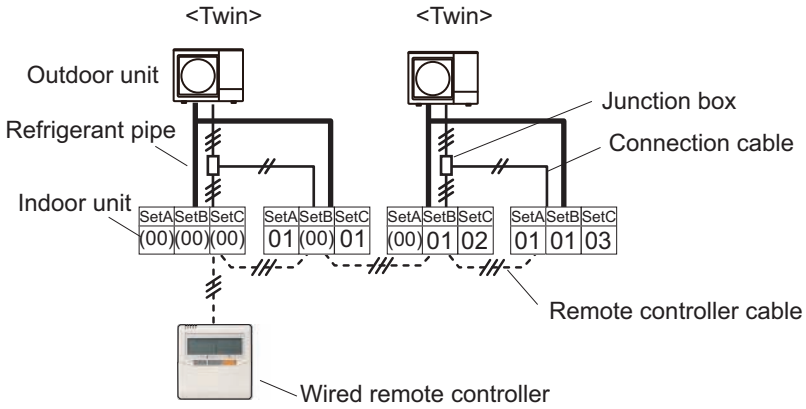
SYSTEM DESIGN

■ Twin type

- **Connection example 1**



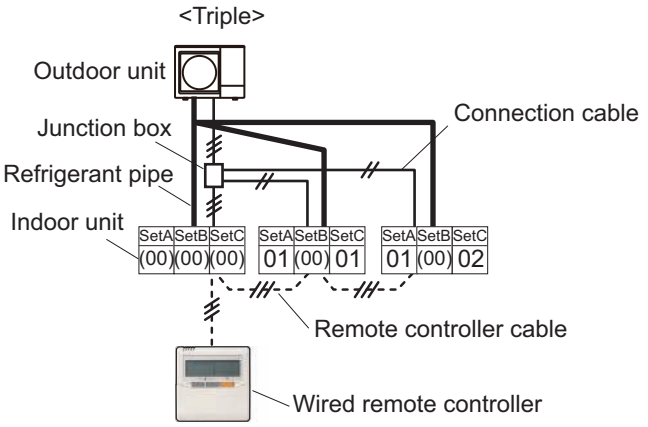
- **Connection example 2**



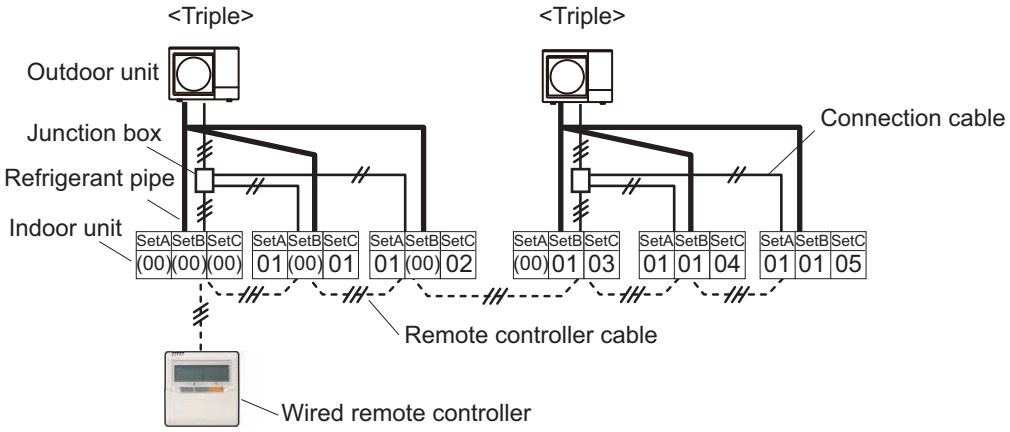
NOTE: (00) is factory setting.

■ Triple type

- **Connection example 1**



- **Connection example 2**

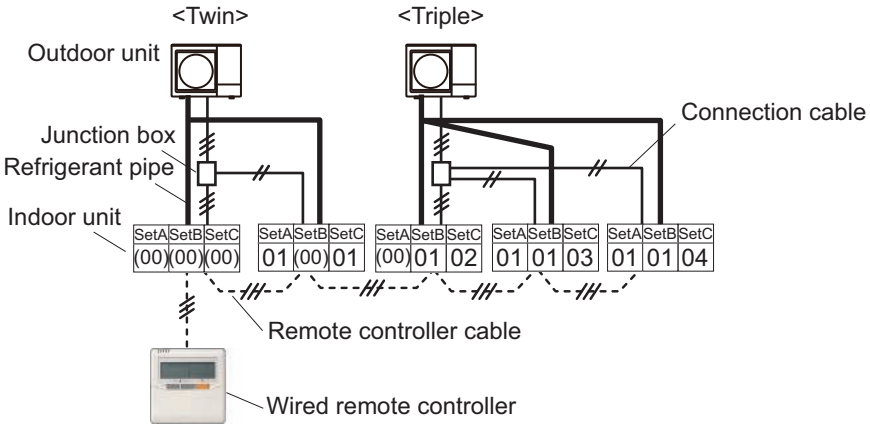


NOTE: (00) is factory setting.

SYSTEM DESIGN

■ Mixed

- **Connection example 1**



NOTE: (00) is factory setting.

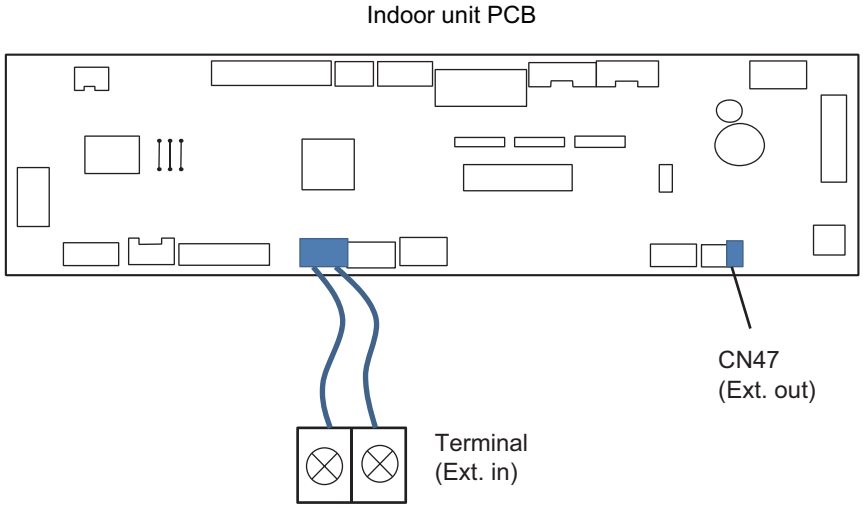
SYSTEM DESIGN

6. External input and output

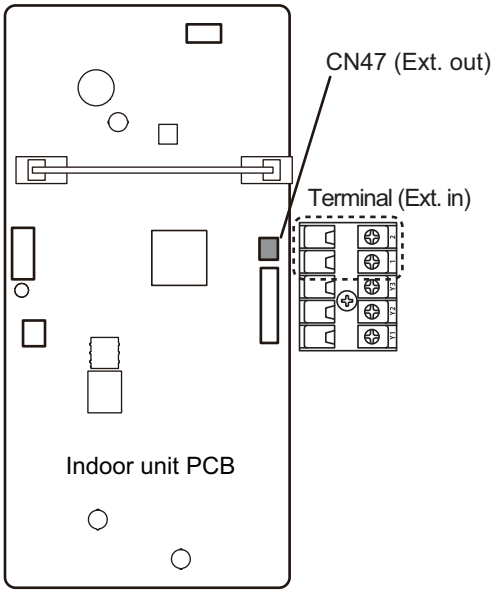
6-1. Indoor unit

Exterior of the indoor unit PCB and the component location differ by the type of the indoor unit as follows.

- **Compact cassette type:**



- **Slim duct and Duct types:**

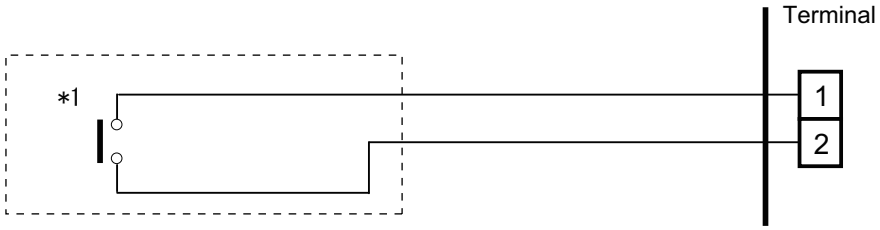


External input and output		Connector	Input select	Input signal	External connect kit (Optional parts)
External input	Operation/Stop Forced stop	Terminal	Dry contact	Edge	—
External output	Operation status	CN47	—	—	UTY-XWZXZG
	Error status				
	Indoor unit fan operation status				
	External heater output				

■ External input

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

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



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

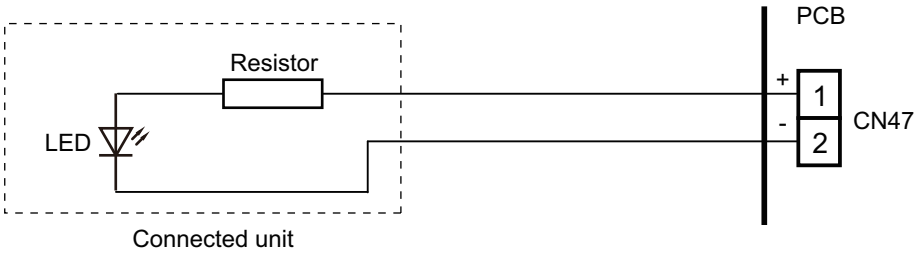
■ External output

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

- A twisted pair cable (22AWG) should be used. Maximum length of cable is 25 m.
- Output voltage: High DC 12 V ± 2 V, Low 0 V.
- Permissible current: 50 mA
- For details, refer to "Combination of external input and output" on page 131.

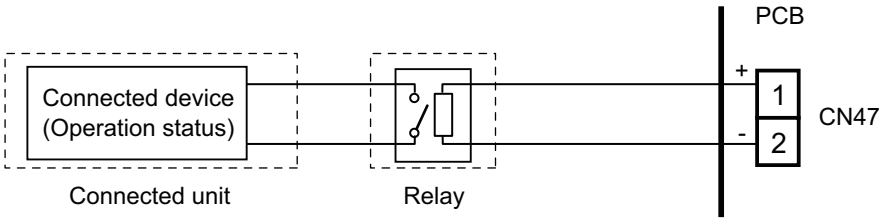
● When indicator, etc. are connected directly

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"



■ Combination of external input and output

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

Combination examples of external input and output are as follows:

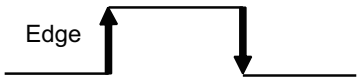
Mode	Function setting	External input	External output
		Terminal	CN47
0	60—00	Operation/Stop	
1—8	60—01 to 60—08	(Setting prohibited)	
9	60—09	Operation/Stop	Error status
10	60—10	Operation/Stop	Indoor unit fan operation status
11	60—11	Operation/Stop	External heater output

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

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

● Input signal type

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



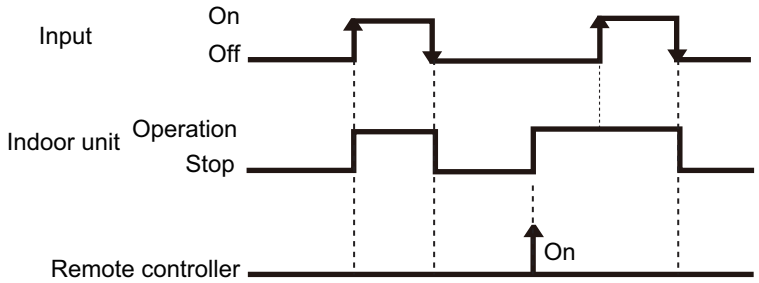
SYSTEM DESIGN

■ Details of function

● Control input function

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

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

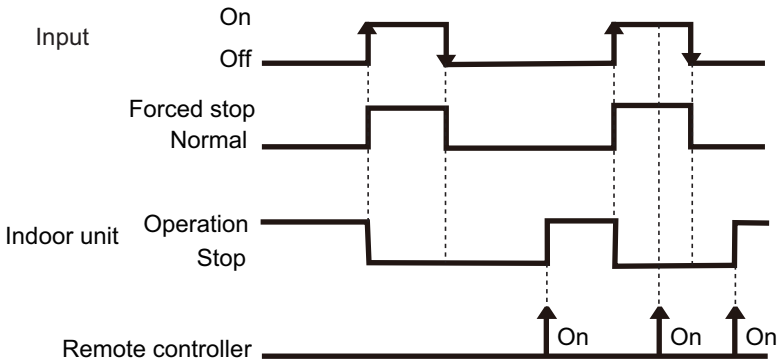


NOTES:

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

- **When function setting is "Forced stop" mode**

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



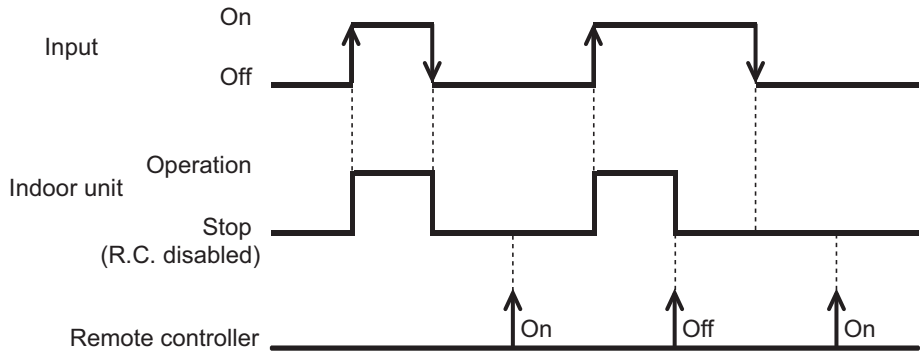
NOTES:

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

SYSTEM DESIGN

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

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

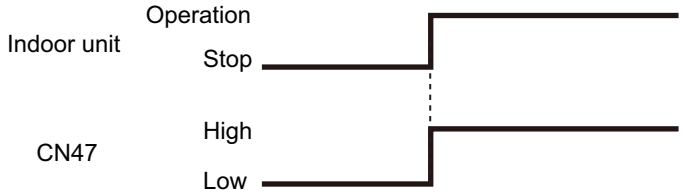


NOTE: When "Operation/Stop" mode 2 function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

● Control output function

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

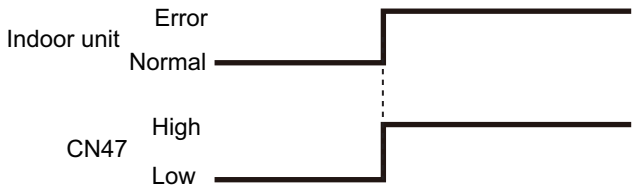
The output is low when the unit is stopped.



● Error status

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

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

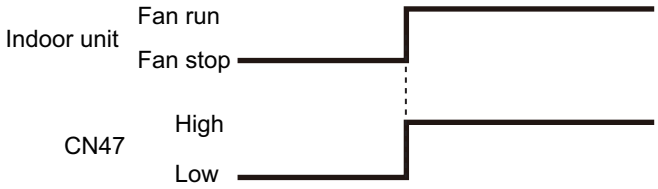


SYSTEM DESIGN

● Indoor unit fan operation status

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

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



SYSTEM DESIGN

● External heater output

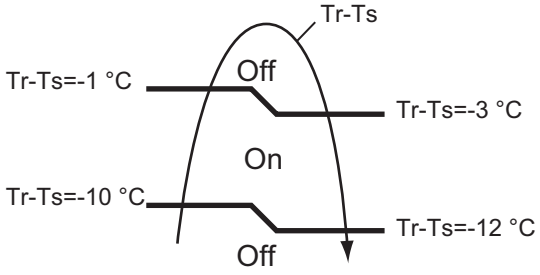
Function setting	External output	Output signal	Command
60—11	CN47	Low → High	Heater on
		High → Low	Heater off

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

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.

6-2. Outdoor unit

Connector	Input	Output	Remarks
P580	Low noise mode	—	See external input/output settings for details.
PA580	Peak cut mode	—	
P590	—	Error status	
PA590	—	Compressor status	

■ 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.

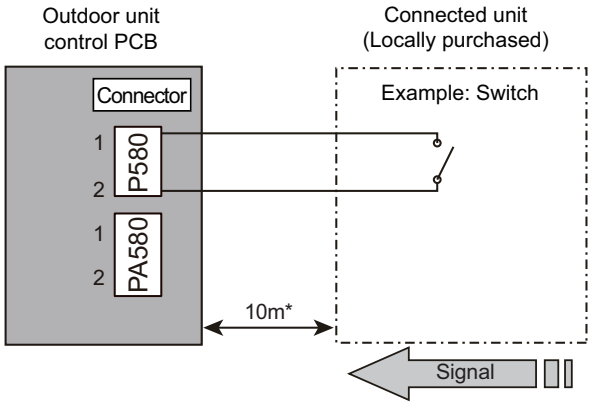
● Low noise mode

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

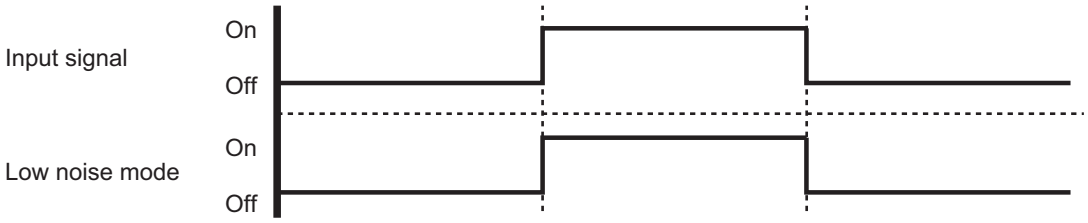
The air conditioner is set to the “Low noise mode” when closing the contact input of a commercial timer or on/off switch to a connector on the control PCB of the outdoor unit.

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

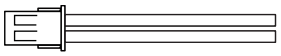
- **Circuit diagram example**



- 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 159.



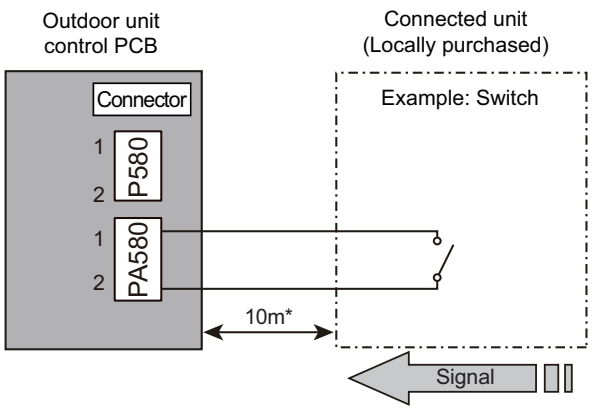
- **Optional part**

Part name	Model name	Exterior
External connect kit	UTY-XWZXZ3	External input wire 

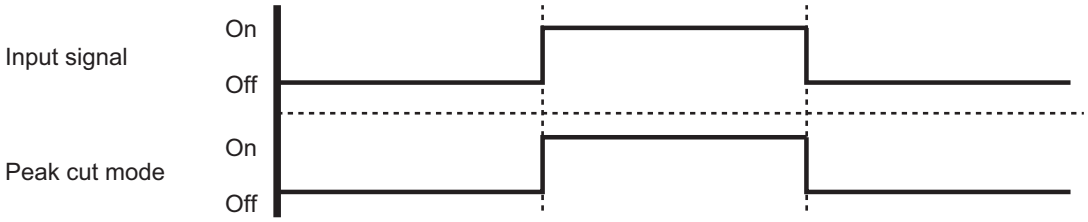
● Peak cut mode

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.

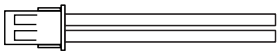
- **Circuit diagram example**



- 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 160.



- **Optional part**

Part name	Model name	Exterior
External connect kit	UTY-XWZXZ3	External input wire 

SYSTEM DESIGN

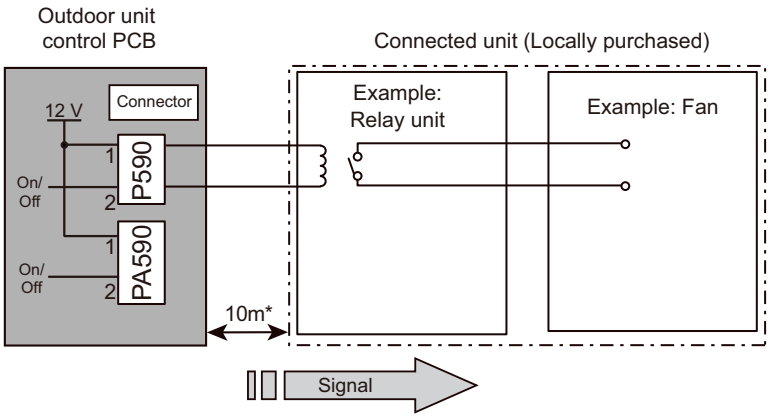
■ External output

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.

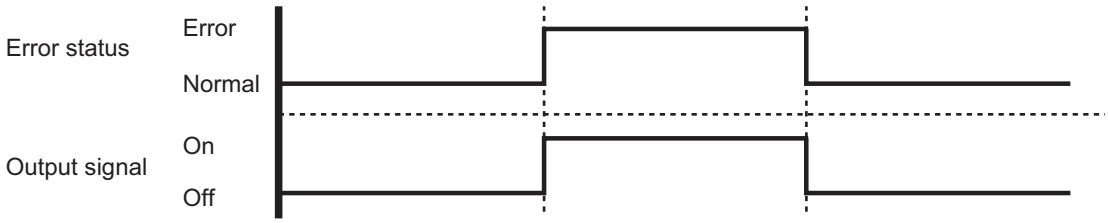
● Error status output

Signal on air conditioner error status is generated when a malfunction occurs.

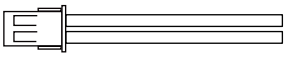
- **Circuit diagram example**



- Output voltage (Vcc): DC 12 V 50 mA or less
- *: Make the distance from the PCB to the connected unit within 10 m.



- **Optional part**

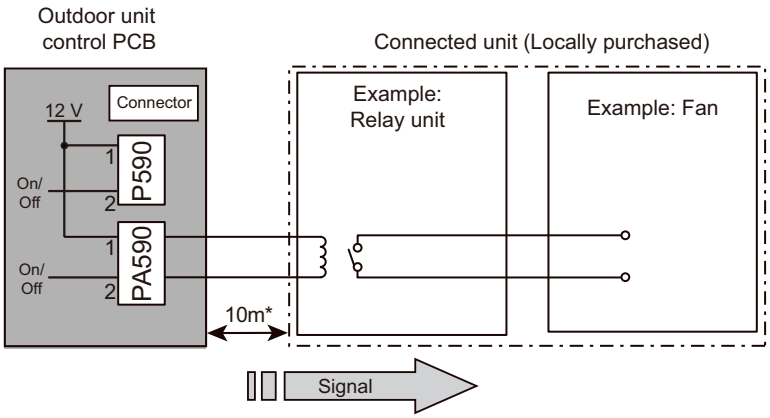
Part name	Model name	Exterior
External connect kit	UTY-XWZXZ3	External output wire 

SYSTEM DESIGN

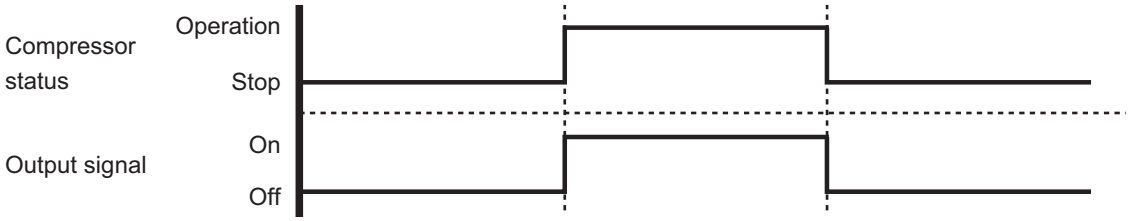
● Compressor status output

Signal on compressor operation status is generated when the compressor is running.

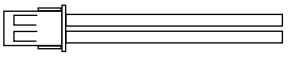
- **Circuit diagram example**



- Output voltage (Vcc): DC 12 V 50 mA or less
- *: Make the distance from the PCB to the connected unit within 10 m.



- **Optional part**

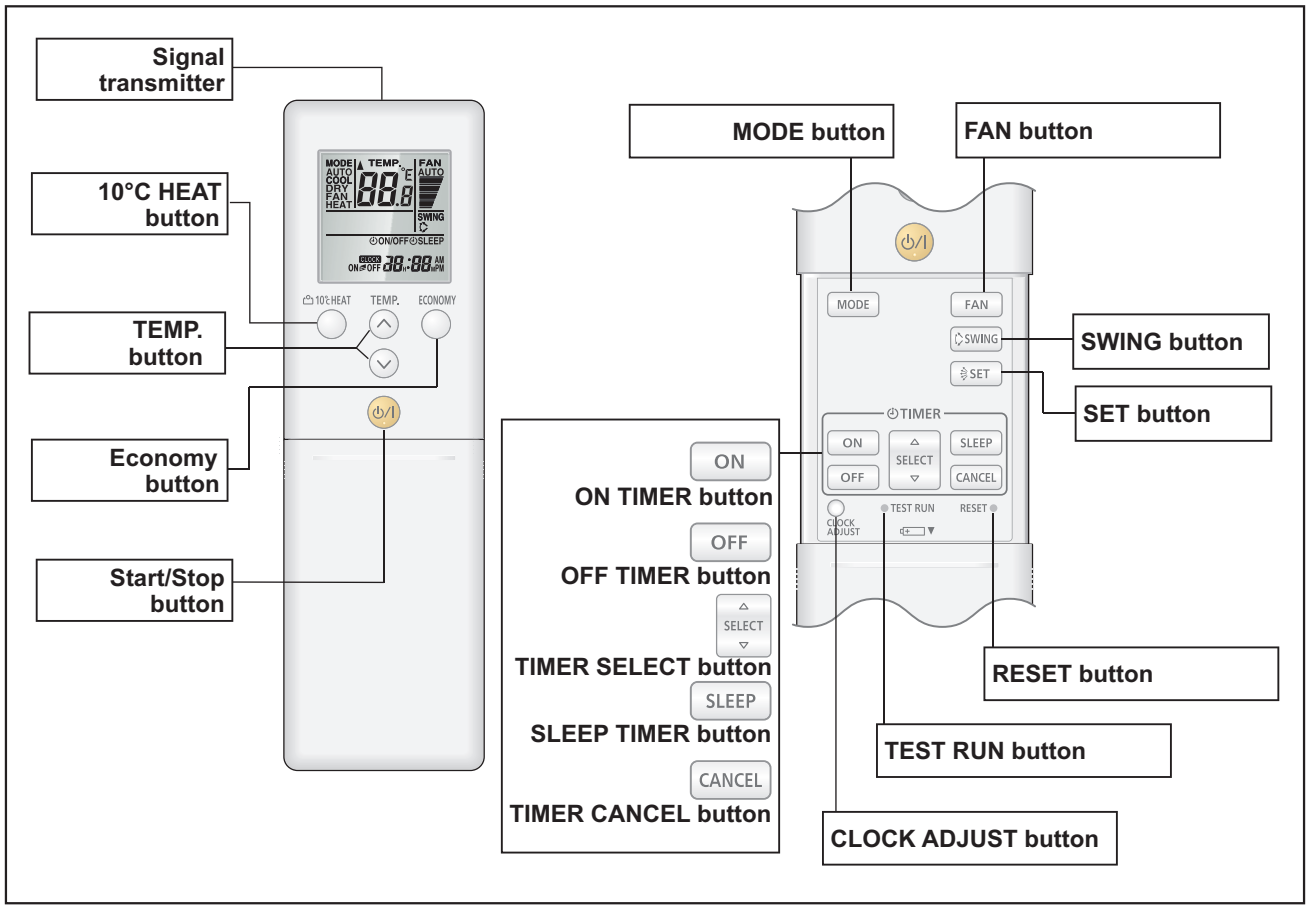
Part name	Model name	Exterior
External connect kit	UTY-XWZXZ3	External output wire 

SYSTEM DESIGN

7. Remote controller (Optional part)

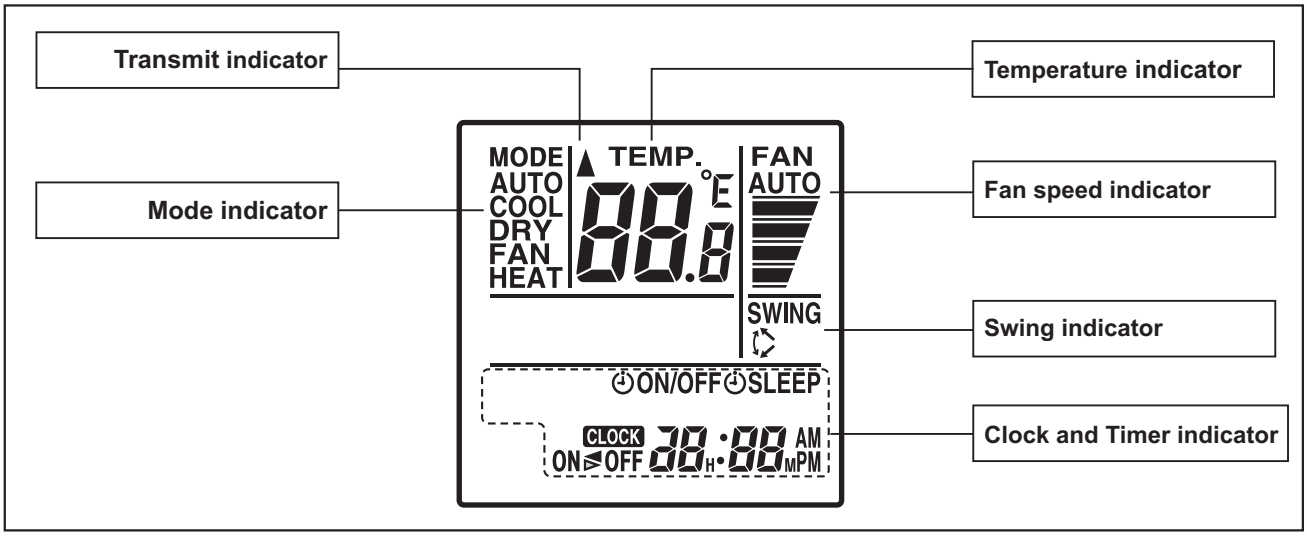
7-1. Wireless remote controller (UTY-LNTG)

■ Overview



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

Display panel

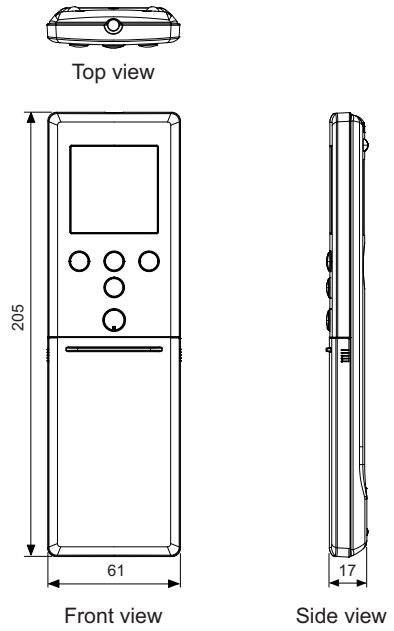


To facilitate explanation, the accompanying illustration has been drawn to show all possible indicators; in actual operation, however, the display will only show those indicators appropriate to the current operation.

■ Specifications

● Controller

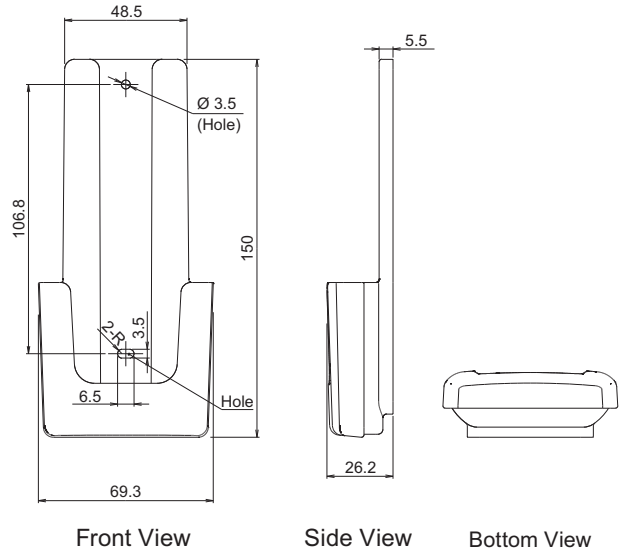
Unit: mm



Size (H × W × D)	mm	205 × 61 × 17
Weight	g	124 (without batteries)

● Holder

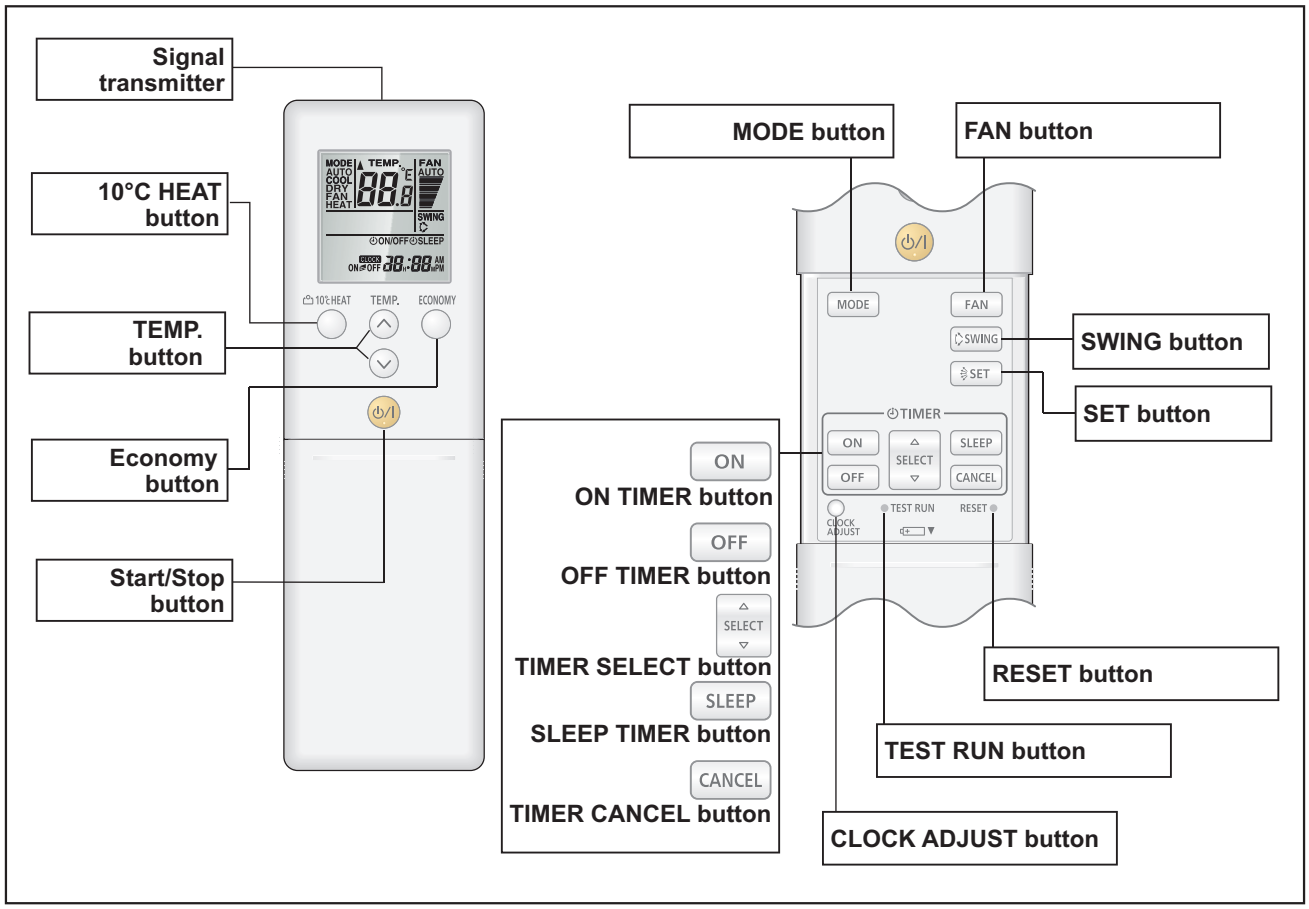
Unit: mm



Size (H × W × D)	mm	150 × 69.3 × 26.2
Weight	g	27

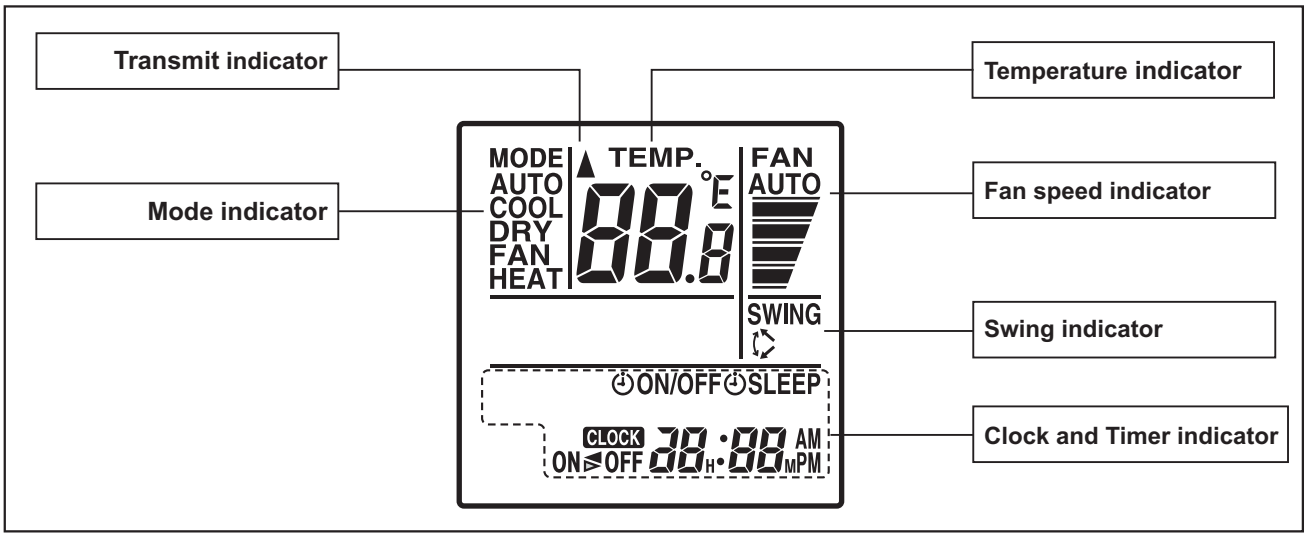
7-2. IR receiver kit with Wireless remote controller (UTY-LBTGM)

■ Overview



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

Display panel

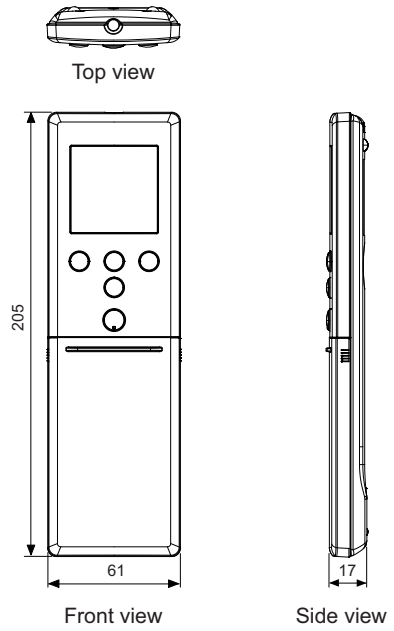


To facilitate explanation, the accompanying illustration has been drawn to show all possible indicators; in actual operation, however, the display will only show those indicators appropriate to the current operation.

■ Specifications

● Controller

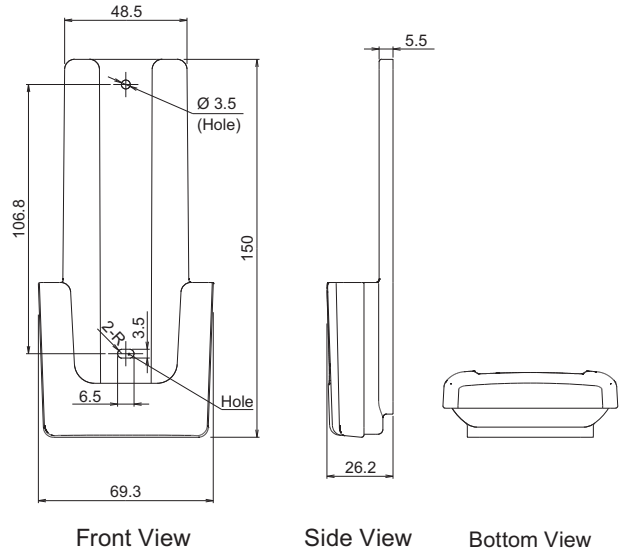
Unit: mm



Size (H × W × D)	mm	205 × 61 × 17
Weight	g	124 (without batteries)

● Holder

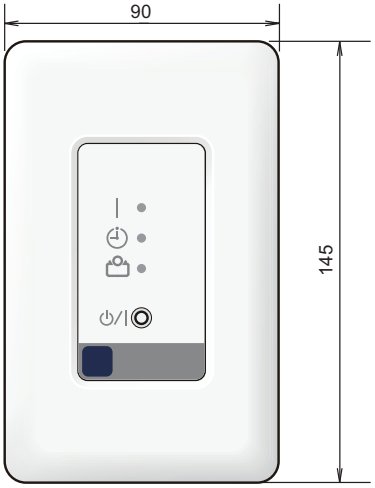
Unit: mm



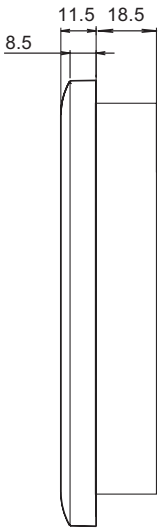
Size (H × W × D)	mm	150 × 69.3 × 26.2
Weight	g	27

● IR receiver

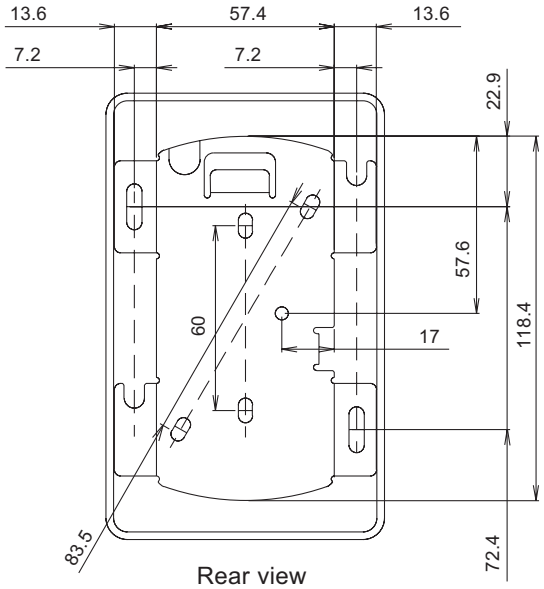
Unit: mm



Front view



Side view



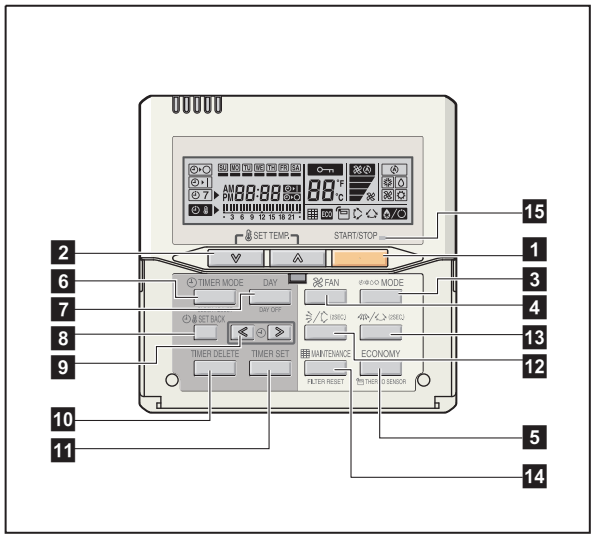
Rear view

Size (H × W × D)	mm	145 × 90 × 30
Weight	g	150

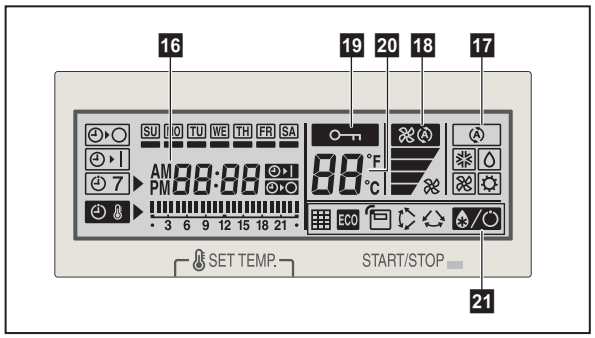
SYSTEM DESIGN

7-3. Wired remote controller (UTY-RNNGM)

■ Overview



Display panel



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

1 START/STOP button
Starts and stops operation.

2 SET TEMP. button
Selects the setting temperature.

3 MODE button
Selects the operating mode (AUTO Ⓐ, HEAT ☼, FAN ✻, COOL ❄, and DRY 💧).

4 FAN button
Selects the fan speed AUTO Ⓐ, QUIET, LOW, MED, and HIGH).

5 ECONOMY (THERMO SENSOR) button
Turns the economy-efficient mode on and off.

6 TIMER MODE (CLOCK ADJUST) button
Selects the timer mode (off timer, on timer, and weekly timer). Sets the current time.

7 DAY (DAY OFF) button
Temporarily cancels one day timer.

8 SET BACK button
Selects the set back timer.

9 Set time button
Pressed to set time.

10 TIMER DELETE button
Deletes the weekly timer schedule.

11 TIMER SET button
Sets the date, hour, minute, and on-off time.

12 Vertical airflow direction and swing button
Push for 2 seconds to change the swing mode.

13 Horizontal airflow direction and swing button
Push for 2 seconds to change the swing mode.

14 FILTER RESET button

15 Operation lamp
Lights during operation and when the timer is on.

16 Timer and clock indicator

17 Operation mode indicator

18 Fan speed indicator

19 Operation lock indicator

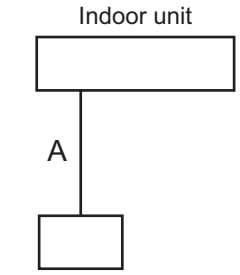
20 Temperature indicator

21 Function indicators
- Defrost indicator
- Thermo sensor indicator
- ECO Economy indicator
- Vertical swing indicator
- Horizontal swing indicator
- Filter indicator

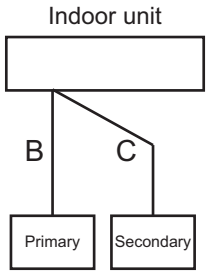
SYSTEM DESIGN

■ System diagram

1 remote controller:



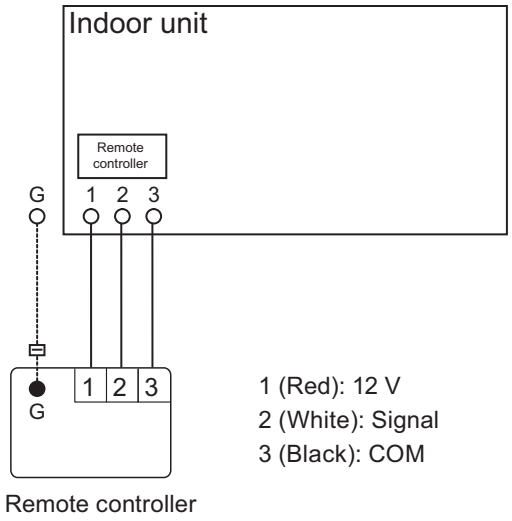
2 remote controllers:



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

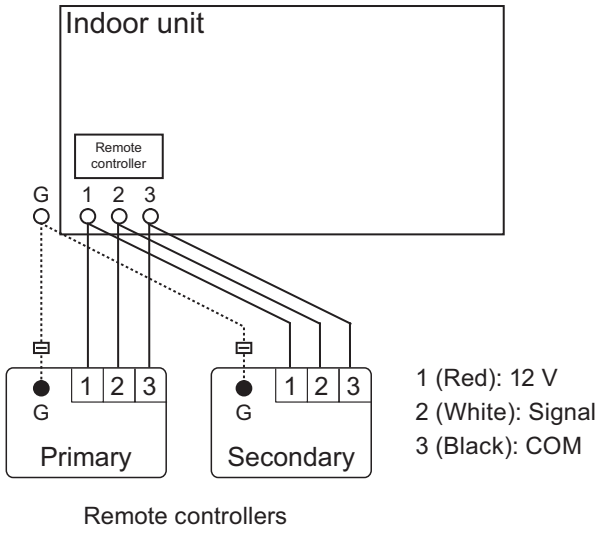
■ Electrical wiring

1 remote controller:



1 (Red): 12 V
2 (White): Signal
3 (Black): COM

2 remote controllers:

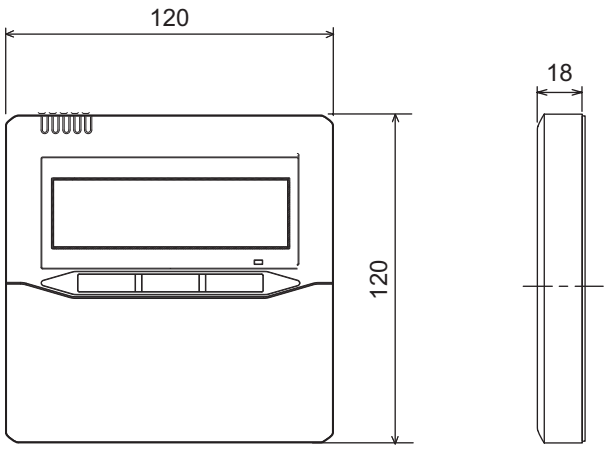


1 (Red): 12 V
2 (White): Signal
3 (Black): COM

■ Specifications

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

Unit: mm



Front view　　Side view

Size (H × W × D)	mm	120 × 120 × 18
Weight	g	160
Cable length (accessory)	m	10
Power	V	12

● Wiring specifications

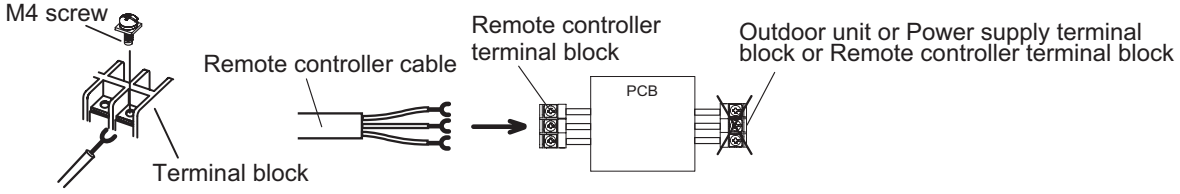
Use	Cable size	Wire type	Remarks
Remote controller cable	0.33 mm^2 (22 AWG)	Polar 3-core	Use sheathed PVC cable.

■ Installation

Connection pattern of wired remote controller varies by the type of the connected indoor unit.

● When connecting to terminal block

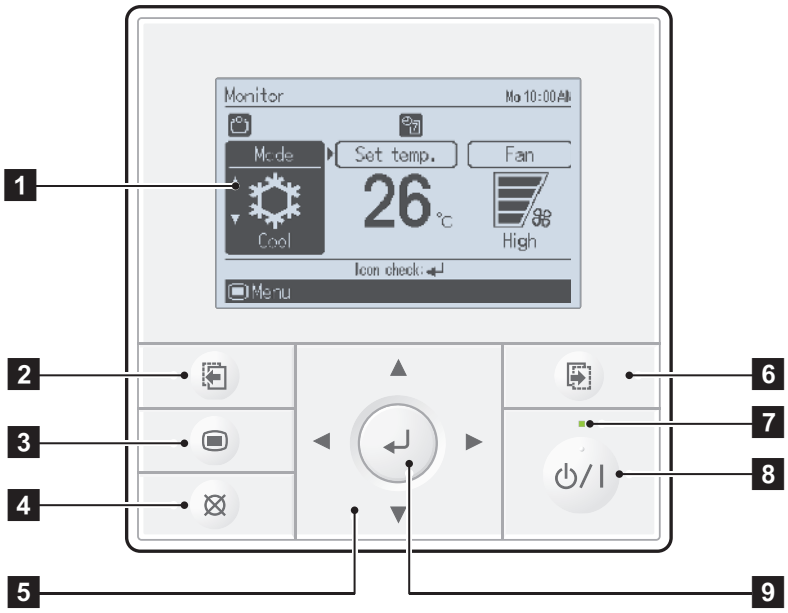
Connect the end of remote controller cable directly to the exclusive terminal block.



NOTE: It may be failed if it is connected to the outdoor unit or the terminal block for power supply.

7-4. Wired remote controller (UTY-RVNGM)

■ Overview

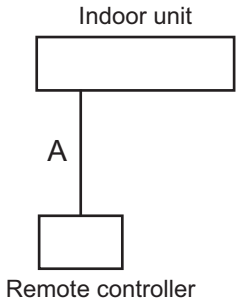


1 Display panel (with backlight)
2 Screen switch button (Left)
3 Menu button
4 Cancel button
5 Cursor button
6 Screen switch button (Right)
7 Power indicator
8 On/off button
9 Enter button

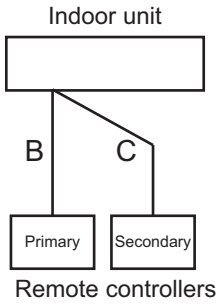
SYSTEM DESIGN

■ System diagram

1 remote controller:



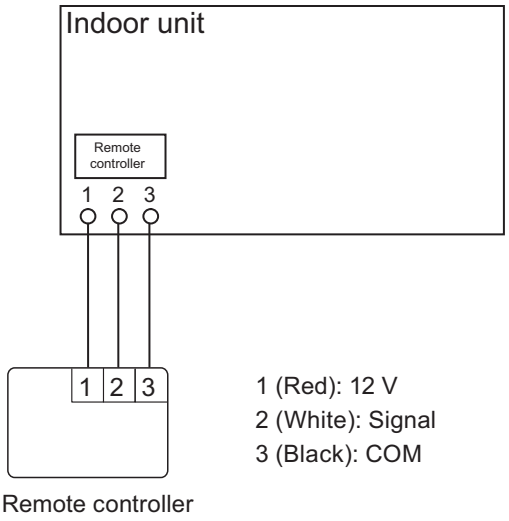
2 remote controllers:



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

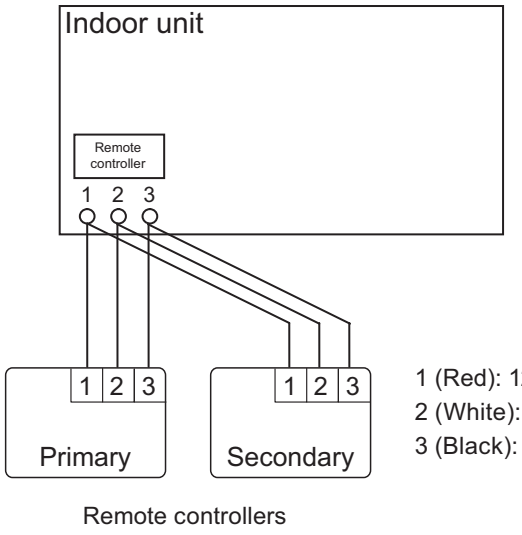
■ Electrical wiring

1 remote controller:



1 (Red): 12 V
2 (White): Signal
3 (Black): COM

2 remote controllers:

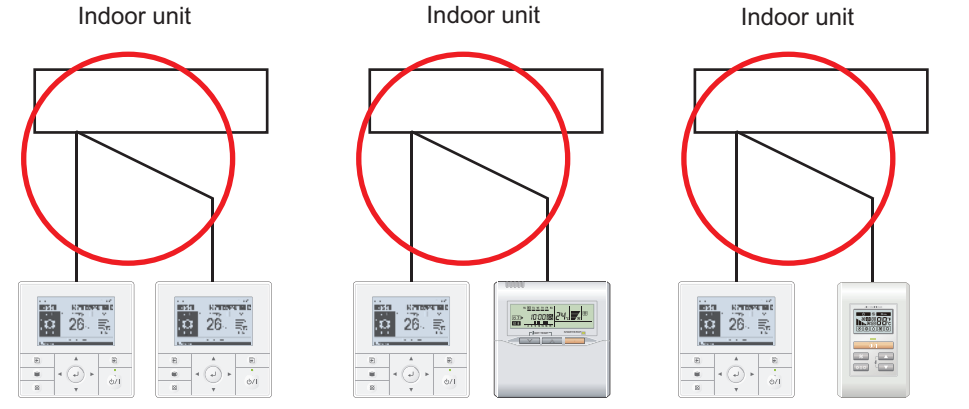


1 (Red): 12 V
2 (White): Signal
3 (Black): COM

■ Controller combination

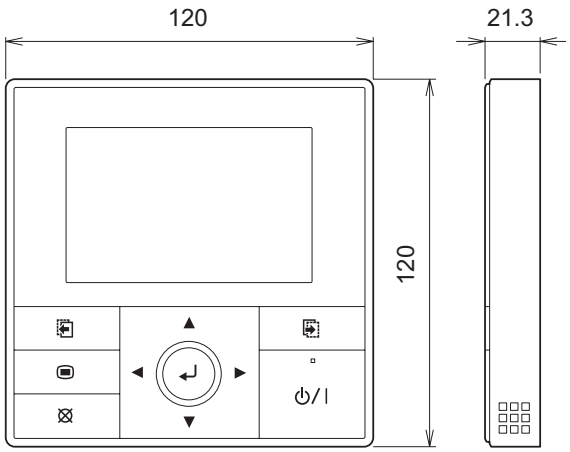
As for the combined usage of the controller, refer to following figures.

● Good



■ Specifications

Unit: mm



Size (H × W × D)	mm	120 × 120 × 21.3
Weight	g	220

● Wiring specifications

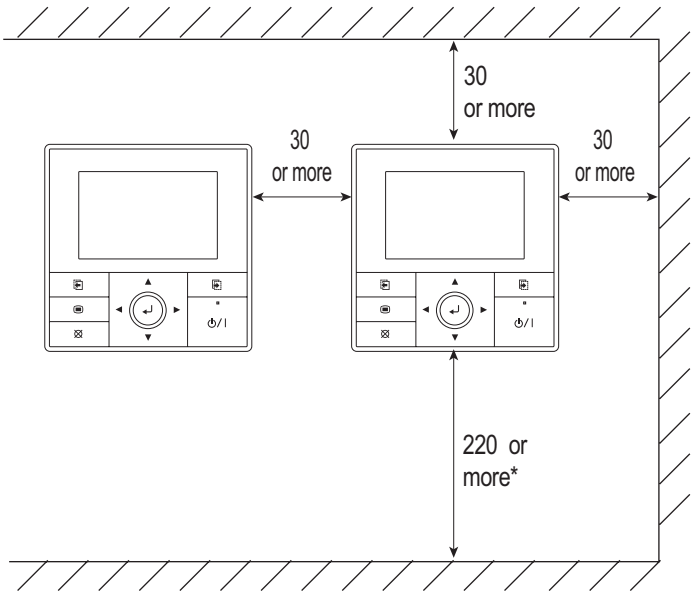
Use	Cable size	Wire type	Remarks
Remote controller cable	0.33 mm^2	Polar 3 core	Use sheathed PVC cable.

SYSTEM DESIGN

■ Installation (Remote control main unit)

Installation space:

Unit : mm

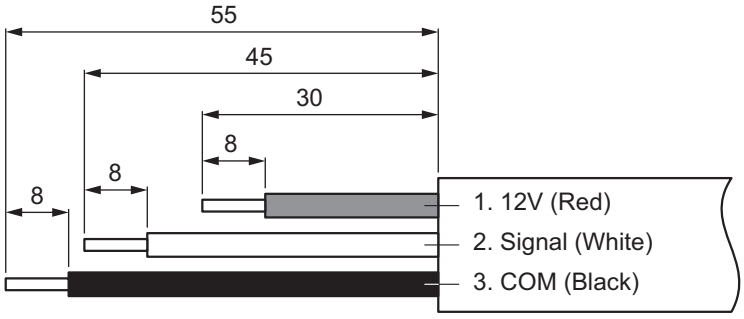


NOTE: Secure enough space where a flat-blade screwdriver to remove the case can be inserted.

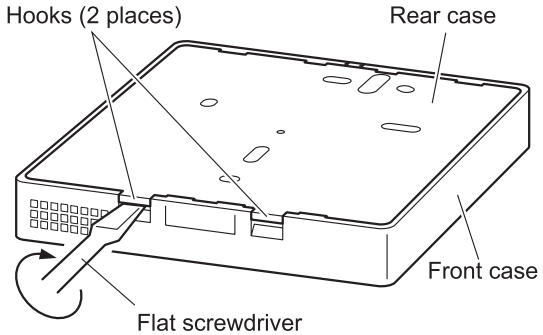
Installation procedures:

1. Process the remote controller cable.

Unit : mm

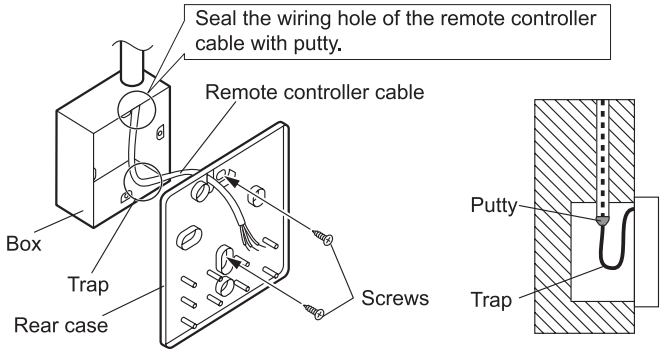


2. Insert the flat-blade screwdriver and twist it slightly to separate the front case and rear case.

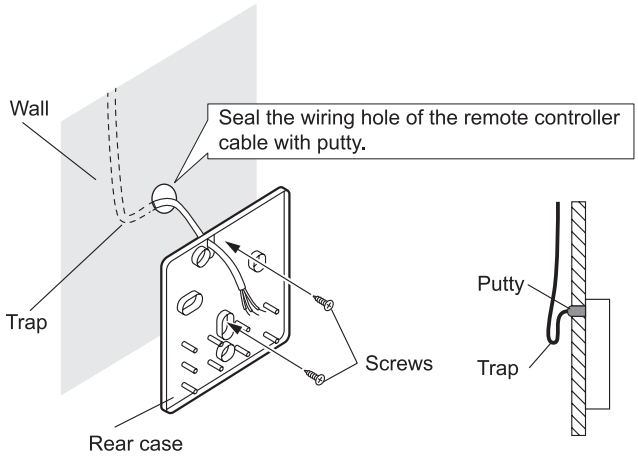


SYSTEM DESIGN

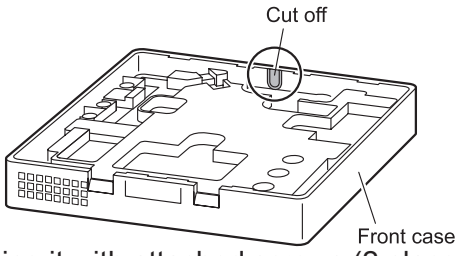
3. Attach the remote controller.
   - **When attaching to switch box:**
     a. Seal the wiring hole of the remote controller cable.
     b. Put a remote controller cable through the hole of the rear case.
     c. Fix the rear case by securing it with attached screws (2 places).



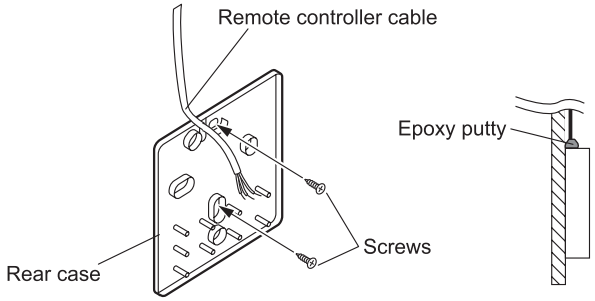
   - **When attaching to the wall directly:**
     a. Seal the wiring hole of the remote controller cable.
     b. Put a remote controller cable through the back hole of the rear case of the main body.
     c. Fix the rear case by securing it with attached screws (2 places).



   - **When routing the cable on-wall:**
     a. Cut off the cable guide of the front case with using a knife or a nipper.
     b. Deburr the edge of the cable guide.

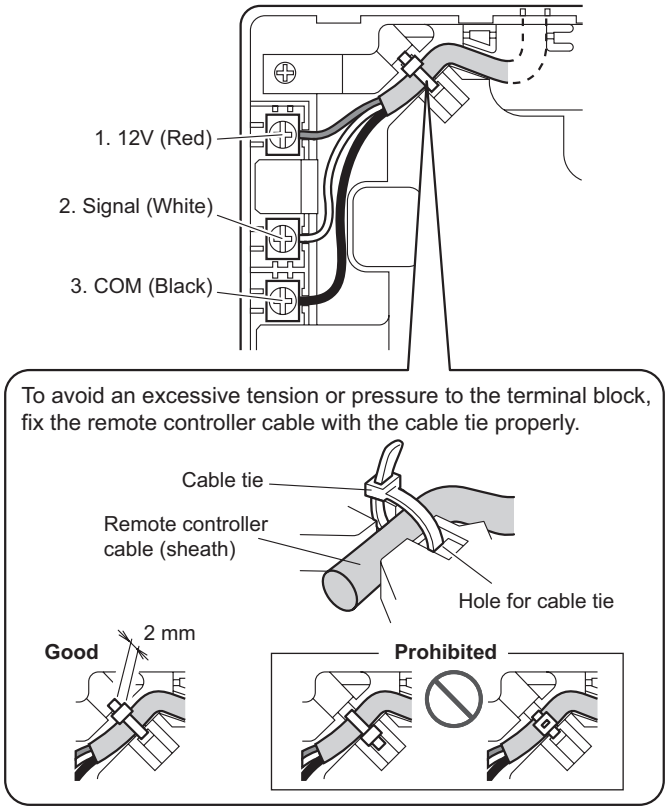


     c. Fix the rear case by securing it with attached screws (2 places).



4. Connect the cable to the terminals on the front case.
   Fix the cable together with the sheath with the cable tie. Cut off the excess cable tie.

Tightening torque	
Terminal screw	0.8 to 1.2 N•m

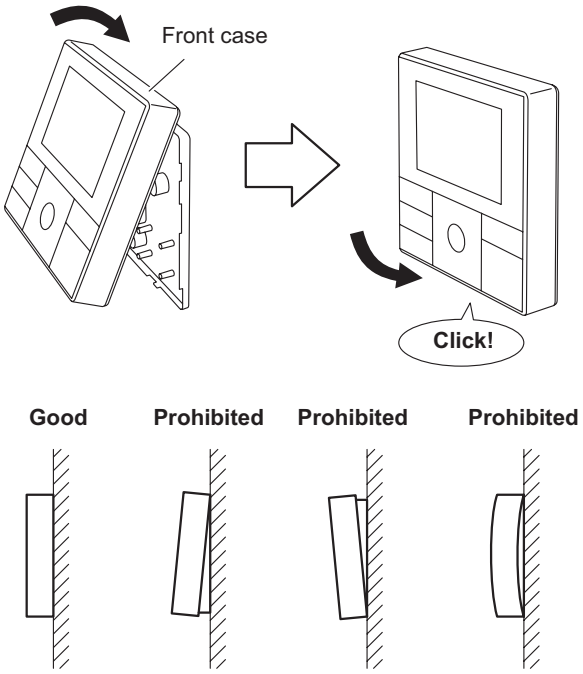


⚠ CAUTION

- Be careful to avoid breaking the cable by over-tightening the cable tie.
- When connecting the remote controller cables, do not over-tighten the screws.

SYSTEM DESIGN

5. Attach the front case.
   - Insert after adjusting upper part of front case.
   - When insert the front case, do not pinch the cable.



⚠ CAUTION

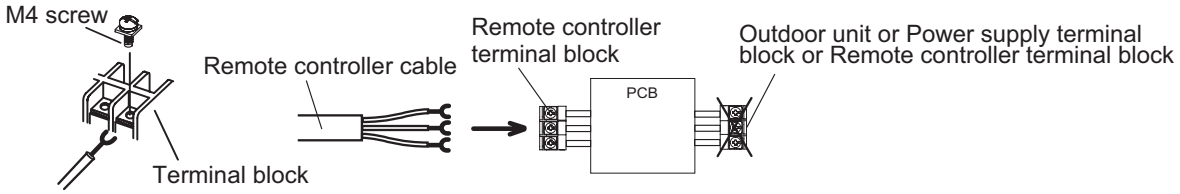
Insert the upper case firmly. If improperly attached, it will cause the upper case to fall off.

■ Installation

Connection pattern of wired remote controller varies by the type of the connected indoor unit.

● When connecting to terminal block

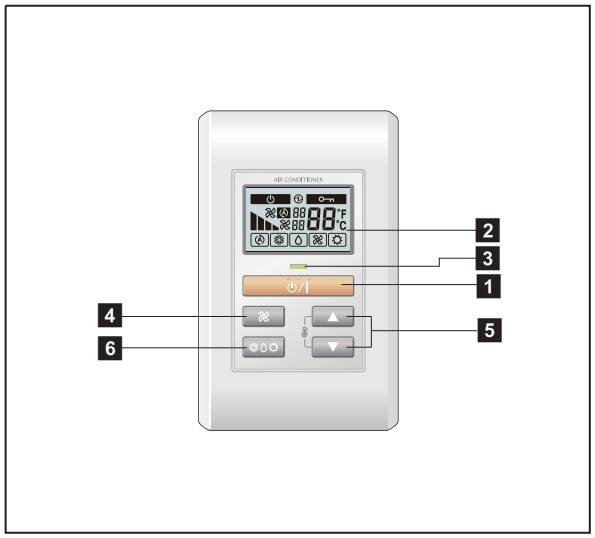
Connect the end of remote controller cable directly to the exclusive terminal block.



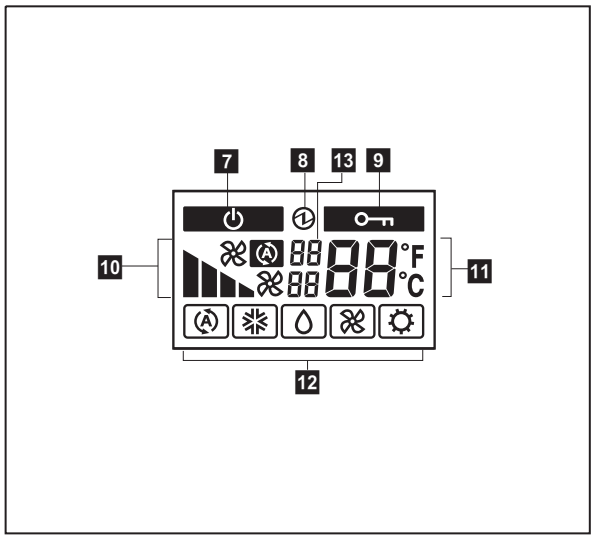
NOTE: It may be failed if it is connected to the outdoor unit or the terminal block for power supply.

7-5. Simple remote controller (UTY-RSNGM)

■ Overview



Display panel



1 START/STOP button

Starts and stops operation.

2 Display backlight button

Lights during operation.

3 Operation lamp

Lights during operation.

4 FAN button

Selects the fan speed (AUTO, HIGH, MED, LOW, and QUIET).

5 SET TEMP. button

Selects the setting temperature.

6 MODE button

Selects the operating mode (AUTO, COOL, DRY, FAN, HEAT).

7 Standby indicator

Indicates during the oil recovery and defrosting operation.

8 Power source indicator

Indicates the main power is on.

9 Central control indicator

Indicates when function is locked.

10 Fan speed indicator

Deletes the weekly timer schedule.

11 Set temperature

- Indicates error history number in error code history display mode.
- Indicates indoor unit address in address display mode.

12 Operating mode indicator

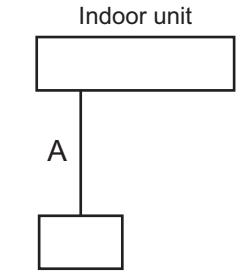
13 Indicator

- Upper:
  - Indicates the error code in error code history display mode and in self diagnosis mode.
  - Indicates the refrigerant system address in address display mode.
- Lower: Indicates the remote controller address in error code history display mode, address display mode, and self diagnosis mode.

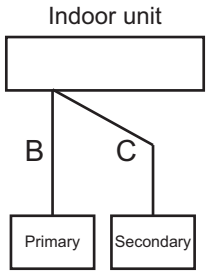
SYSTEM DESIGN

■ System diagram

1 remote controller:



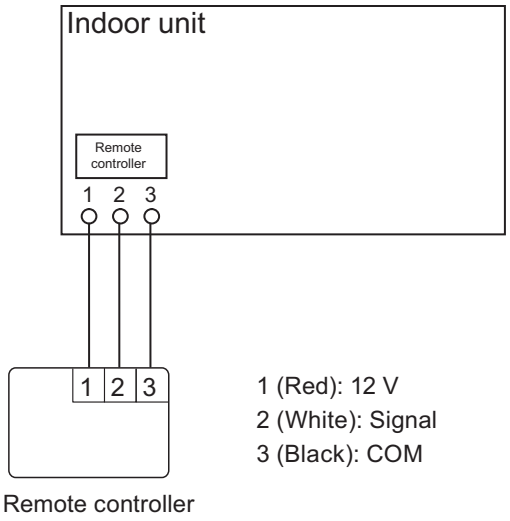
2 remote controllers:



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

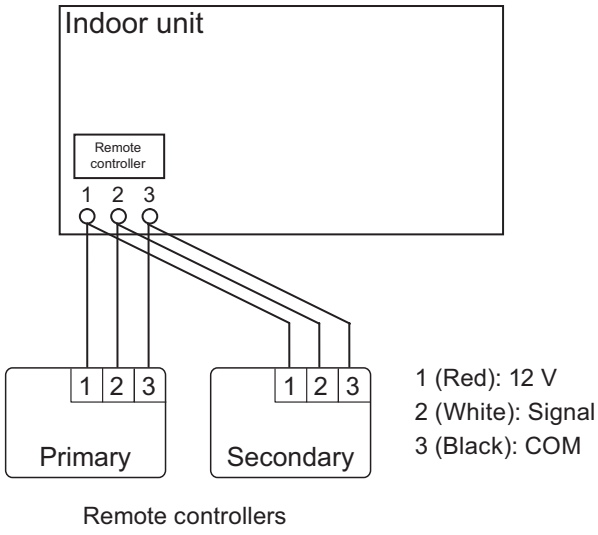
■ Electrical wiring

1 remote controller:



1 (Red): 12 V
2 (White): Signal
3 (Black): COM

2 remote controllers:



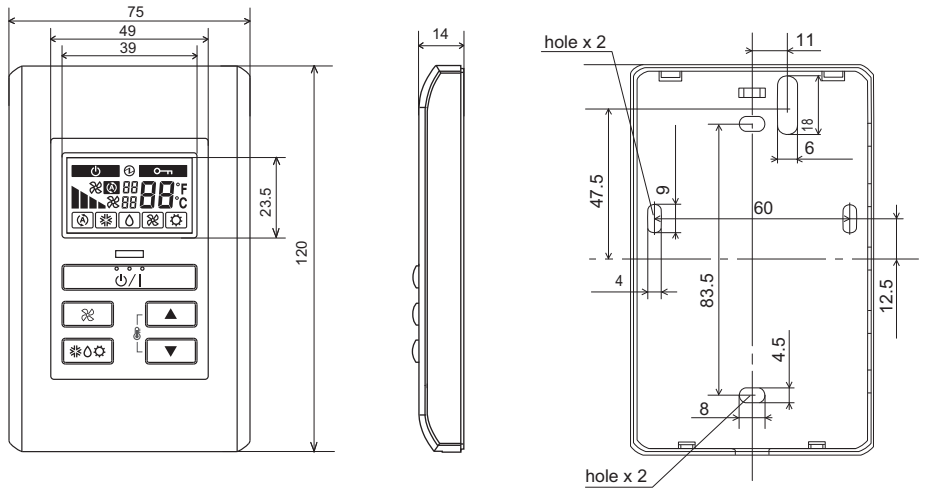
1 (Red): 12 V
2 (White): Signal
3 (Black): COM

SYSTEM DESIGN

■ Specifications

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

Unit: mm



Front View　　Side View　　Rear View

Size (H × W × D)	mm	120 × 75 × 14
Weight	g	90
Cable length (accessory)	m	10
Power	V	12

● Wiring specifications

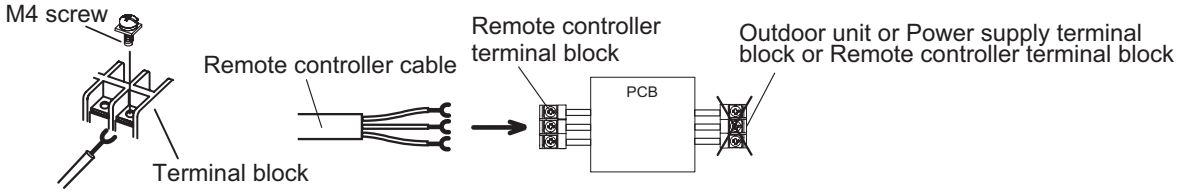
Use	Size	Wire type	Remarks
Remote controller cable	0.33 mm^2	Polar 3 core	Use sheathed PVC cable.

■ Installation

Connection pattern of wired remote controller varies by the type of the connected indoor unit.

● When connecting to terminal block

Connect the end of remote controller cable directly to the exclusive terminal block.



NOTE: It may be failed if it is connected to the outdoor unit or the terminal block for power supply.

8. Function settings

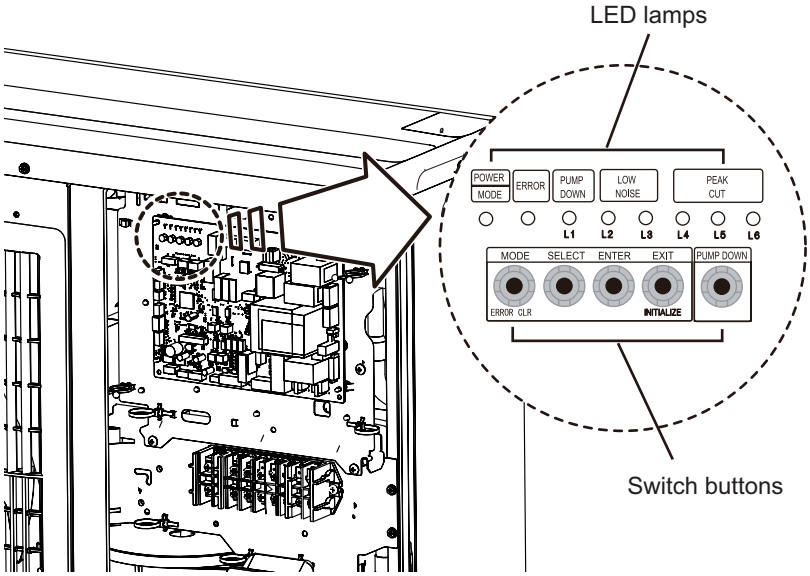
To adjust the functions of this product according to the installation environment, various types of function settings are available.

NOTE: Incorrect settings can cause a product malfunction.

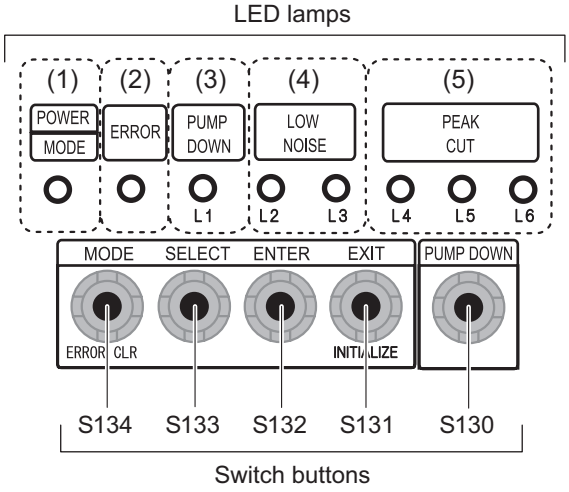
8-1. Outdoor unit

■ Control PCB and switch buttons location

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



● 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
S134	MODE	Switches between “Local setting” and “Error code display”.
S133	SELECT	Switches between the individual “Local settings” and the “Error code displays”.
S132	ENTER	Switches between the individual “Local settings” and the “Error code displays”.
S131	EXIT	Returns to “Operation status display”.
S130	PUMP DOWN	Starts the pump down operation.

● Function setting table

SYSTEM DESIGN

No.	Setting item		LED display							Factory setting
			POWER MODE	ERROR	PUMP DOWN	LOW NOISE		PEAK CUT		
					(L1)	(L2)	(L3)	(L4)	(L5)	(L6)	
1	Low noise mode setting	Level 1	Blink (9 times)	○	○	○	●	○	○	●	♦
		Level 2		○	○	○	●	○	●	○	
2	Peak cut mode setting	Level 1		○	○	●	○	○	○	●	
		Level 2		○	○	●	○	○	●	○	
		Level 3		○	○	●	○	○	●	●	
		Level 4		○	○	●	○	●	○	○	♦

Sign "○": Lights off, "●": Lights on

No.	Setting item	Content
1	Low noise mode setting	By using the "Low noise mode", the limit of the noise level will be set to decrease the noise level. The mode comes in 2 levels which can be set accordingly. To turn on the mode, use the external input terminal (P580). • By using this mode, the cooling/heating performance may decrease. • Depending on the operating condition, the noise level may not decrease even if the Low noise mode is on.
2	Peak cut mode setting	The capacity limit can be selected when operating with the “Peak cut mode.” The operation selection can be done by external input terminal (PA580). The lower the level, the more the effect of energy saving, but the cooling/heating performance decreases.

■ 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 (S134) 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 (S132).

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 (S133), 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 (S132).

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

Sign “ ●”: Lights on

5. Press the SELECT switch button (S133), and adjust the LED lamps as shown below.

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

6. Press the ENTER switch button (S132) and fix it.

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

7. To return to “Operating status display (Normal operation)”, press the EXIT switch button (S131).

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.

SYSTEM DESIGN

● Peak cut mode

1. Press the MODE switch button (S134) 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 (S132).

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 (S133), and adjust the LED lamp as shown below. Then the LED lamp indicates the current setting.

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

4. Press the ENTER switch button (S132).

	LOW NOISE (L2)	LOW NOISE (L3)
PEAK CUT MODE	●	○

Sign “ ● ”: Lights on

5. Press the SELECT switch button (S133), and adjust the LED lamps as shown below.

	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (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 (S132) and fix it.

	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (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 (S131).

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.

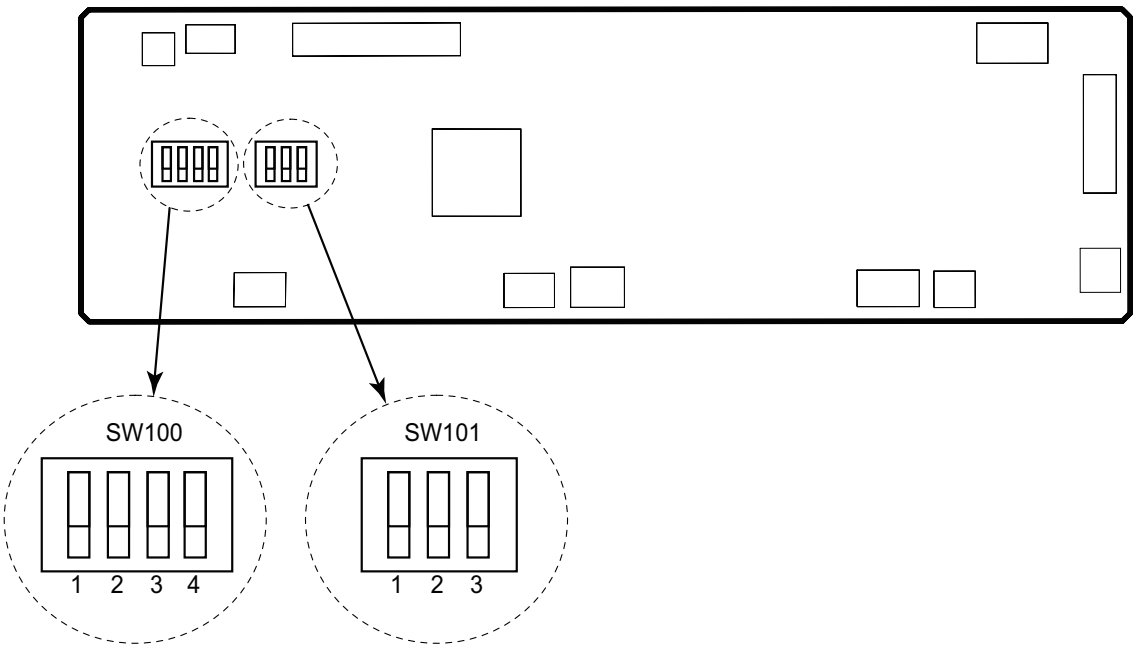
SYSTEM DESIGN

8-2. Compact cassette type (setting by DIP switch)

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

■ Component location

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



SYSTEM DESIGN

■ DIP switch setting

- **SW100: Remote controller address setting**

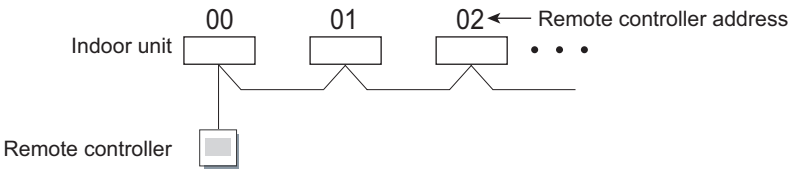
  NOTE: Because this setting is normally done automatically when 2-core wired remote controller is installed, setting is unnecessary.

Multiple indoor units can be operated by using one wired remote controller.
Set the unit number of each indoor unit.

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	

NOTES:

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



- **SW101: Setting change prohibited**

8-3. Slim duct type (setting by DIP switch)

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

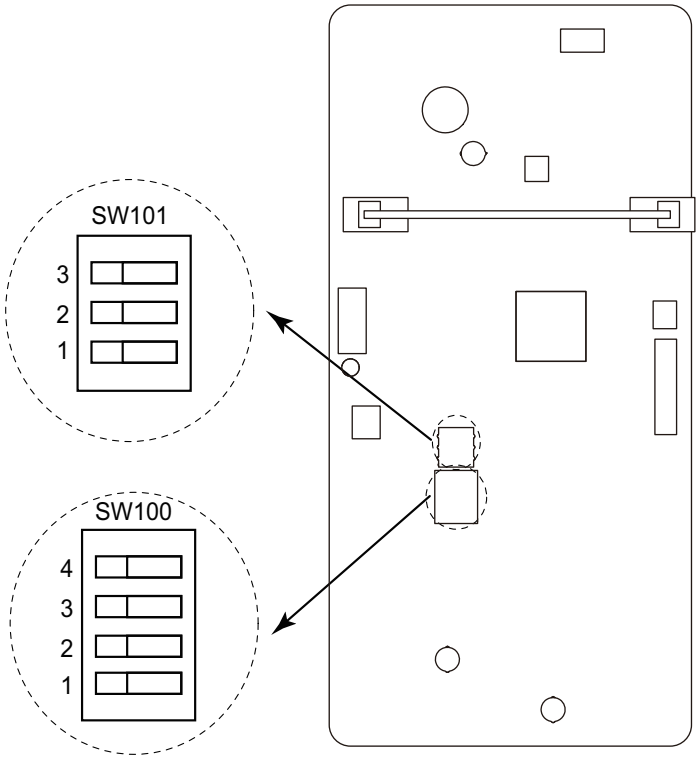
Related components on the PCB and the applicable settings:

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

SYSTEM DESIGN

■ Component location

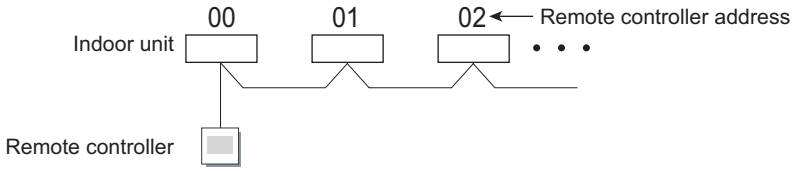
Components on the indoor unit main PCB used for the function settings are located as shown in the following figure.



■ DIP switch setting

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

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



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

Switch 1	Drainage function	Factory setting
ON	Disabled	
OFF	Enabled	♦

- **SW101-Switch 2: Auto louver grille setting**
  When Auto louver grille kit (optional parts) is attached, set to “Enabled”.

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

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

Switch 3	Fan delay	Factory setting
ON	Enabled	
OFF	Disabled	♦

SYSTEM DESIGN

8-4. Duct type (setting by DIP switch)

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

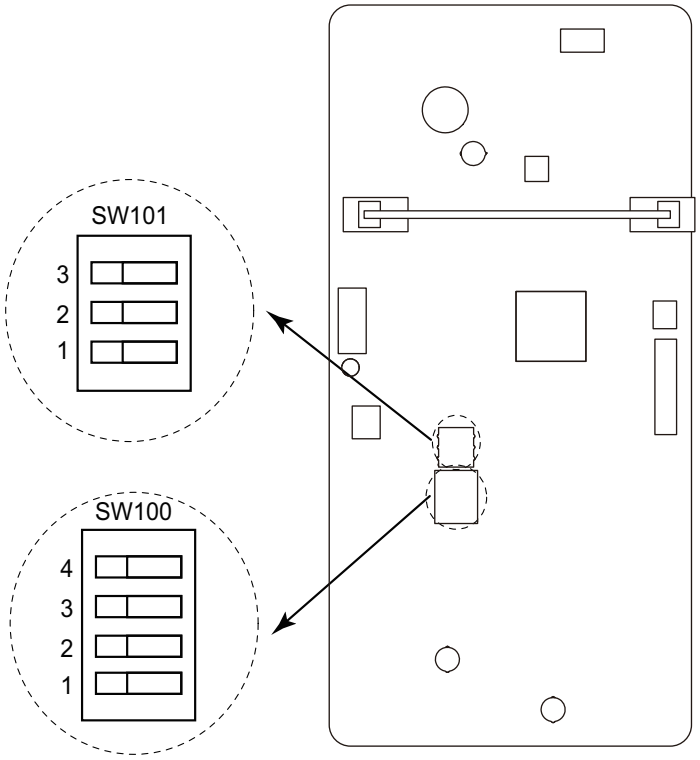
Related components on the PCB and the applicable settings:

Component			Setting content
DIP switch	SW100	1	Remote controller address setting
		2	
		3	
		4	
	SW101	1	Setting change prohibited
		2	Setting change prohibited
		3	Fan delay setting

SYSTEM DESIGN

■ Component location

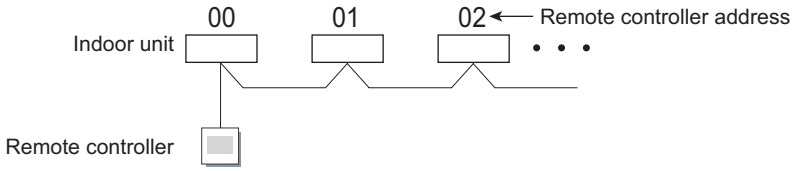
Components on the indoor unit main PCB used for the function settings are located as shown in the following figure.



■ DIP switch setting

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

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



- **SW101-Switch 1: Setting change prohibited**

- **SW101-Switch 2: Setting change prohibited**

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

Switch 3	Fan delay	Factory setting
ON	Enabled	
OFF	Disabled	♦

SYSTEM DESIGN

8-5. Indoor unit (setting by wireless remote controller)

⚠ CAUTION

This setting changes the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause a product malfunction.

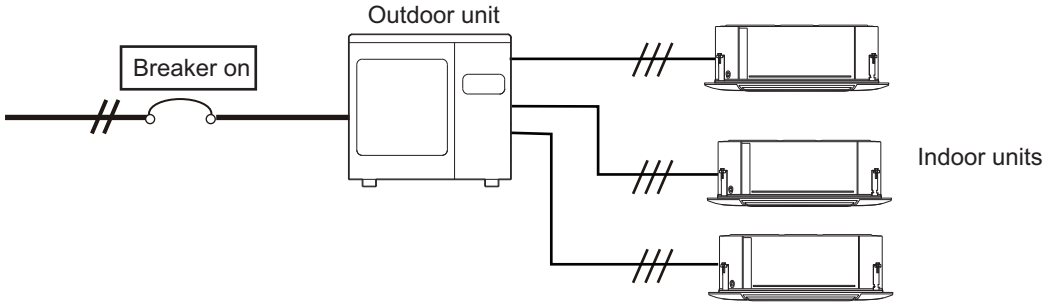
- After the power is turned on, perform the “Function setting” according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function number or Setting number.
- Settings will not be changed if invalid numbers or setting numbers are selected.

SYSTEM DESIGN

■ Preparation

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

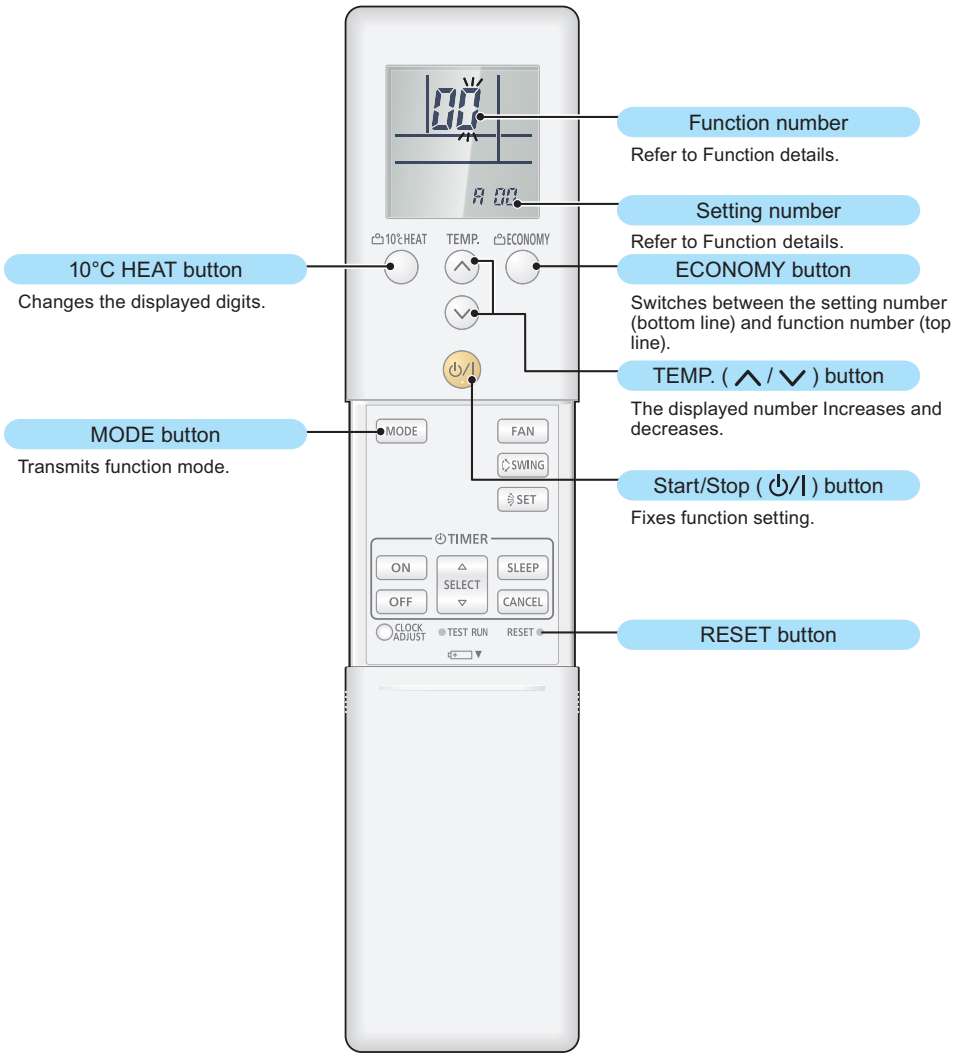
- Piping air tight test and vacuuming have been performed firmly.
- There is no wiring mistake. Then, connect the power supply of the indoor unit.



■ UTY-LNTG or AR-REJ1E (included in UTY-LBTGM)

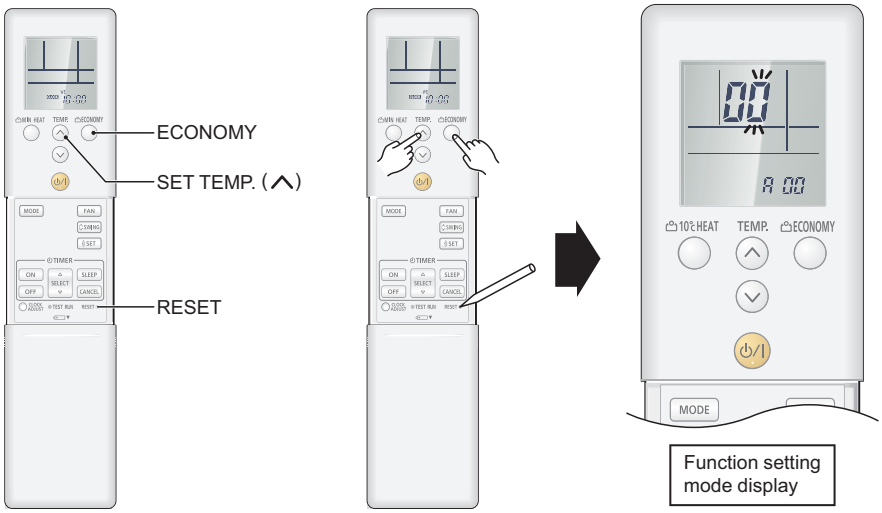
● Button name and function

During address setting mode, indoor unit reject the any operation command from remote controller.



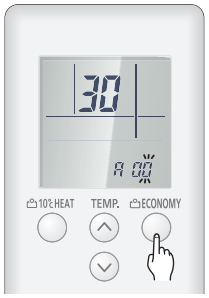
● Function setting procedure

1. Connect the power supply of the outdoor unit.
2. To enter the function setting mode, while holding down the ECONOMY and SET TEMP. ∧ buttons, press the RESET button.

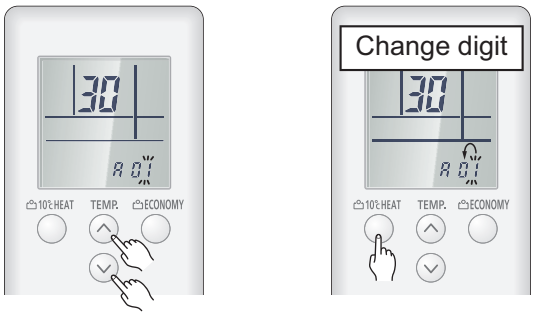


3. Select the function number by pressing the ∧ or the ∨ buttons. Each time the 10°C HEAT button is pressed, it switches between the right digit and the left digit.

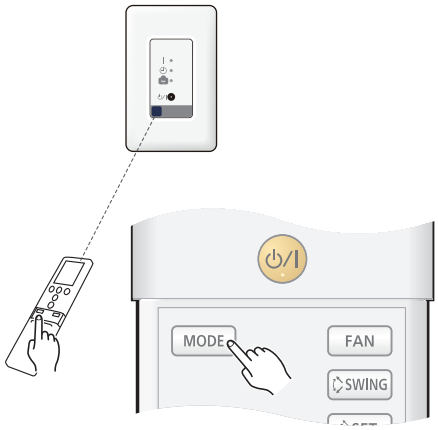
4. Proceed to the setting number by pressing the ECONOMY button. (To return to the function number selection, press the ECONOMY button again.)



5. Select the function number by pressing the ∧ or the ∨ button. Each time the 10°C HEAT button is pressed, it switches between the right digit and the left digit.

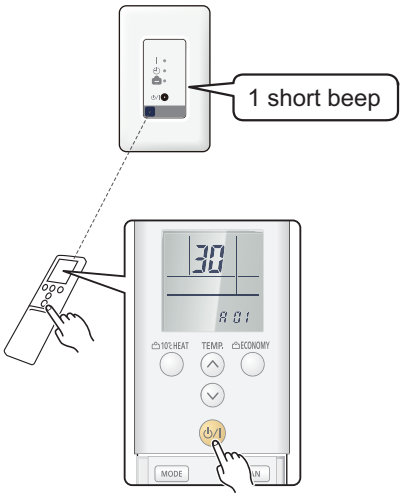


6. Press the MODE button once to transmit the function mode information.



SYSTEM DESIGN

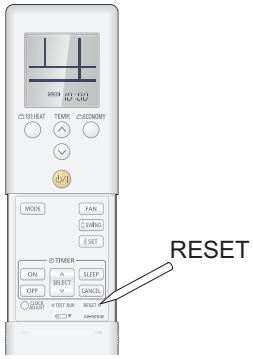
7. Press the ⏻/I button once to transmit the function setting information. 1 short beep will be emitted from the indoor unit or the IR receiver when the signal is received correctly. If wrong code is set, no beep sound will be emitted.



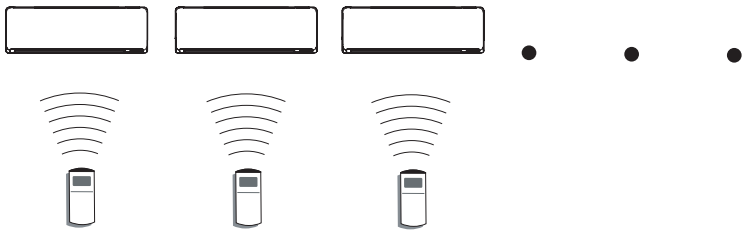
NOTE: Press ⏻/I button within 30 seconds after pressing MODE button.

For the function details, refer to Chapter 8-8. "Function details" on page 183.

8. Exit the function setting mode by pressing the RESET button.



● Setting up each indoor unit



Repeat step from 1. to 8. to set up each indoor unit. If the custom code is other than "A", steps from 1. to 2. and 8. need to be performed.

SYSTEM DESIGN

● Resetting the power after setting up all indoor units

Important:

- If the reset is not performed, function cannot be read correctly.
- After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
  - After the 2 minutes has passed, power can be restored.
  - The set function is stored in the PCB and will remain in memory even when the power of indoor unit is turned off.
    However setting function is effective after disconnecting the power supply and then reconnecting it.
- Record the latest configuration of the indoor unit function setting on a label, and put the label on the unit so it can be used for after-sales service operations.

Once the RESET button is pressed on the remote controller, the operation mode will be set to the AUTO MODE.

Adjust the operation mode to either cooling or heating before starting the operation of the air conditioner.

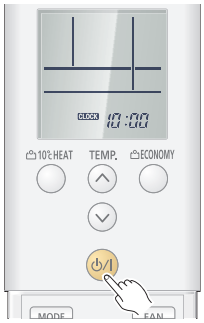
NOTE: If custom code other than "A" is set, the remote control must be set accordingly to the indoor unit setting.

SYSTEM DESIGN

● Remote controller custom code setting

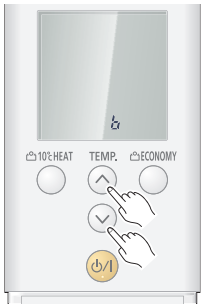
Custom code setting of wireless remote controller needs to be same as the setting of the indoor unit. When you change the custom code setting of the wireless remote controller, do as follows:

1. Press the START/STOP button until only the clock is displayed on the display.

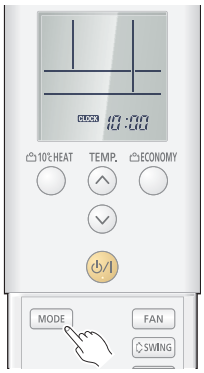


2. Press the MODE button for at least 5 seconds to display the current custom code (initially set to A).

3. Press the SET TEMP. " ∧ " or the " ∨ " button to change the custom code between A →b →c →d.



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



- If no buttons are pressed within 30 seconds after the custom code is displayed, the system returns to the original clock display. In this case, start again from step 1.
- The air conditioner custom code is set to A prior to shipment.
- If you do not know the air conditioner custom code setting, try each of the custom codes (A →b → c →d) until you find the code which operates the air conditioner.

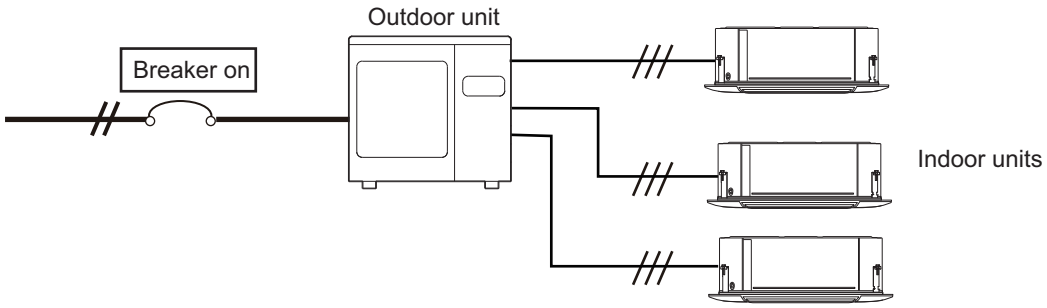
8-6. Indoor unit (setting by wired remote controller)

- The function settings of the control of the indoor unit can be changed by this procedure according to the installation conditions. Incorrect settings can cause the indoor unit malfunction.
- After the power is turned on, perform the “Function setting” according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function number or Setting number.
- Settings will not be changed if invalid numbers or setting numbers are selected.
- This function cannot be used on the secondary units.

■ Preparation

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

- Piping air tight test and vacuuming have been performed firmly.
- There is no wiring mistake. Then, connect the power supply of the indoor unit.

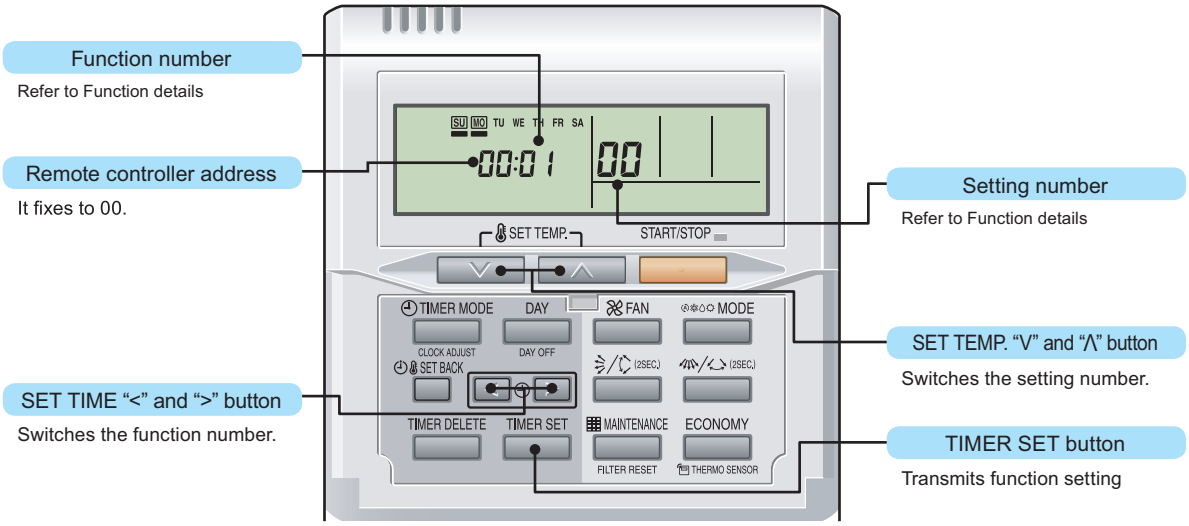


SYSTEM DESIGN

■ UTY-RNNGM

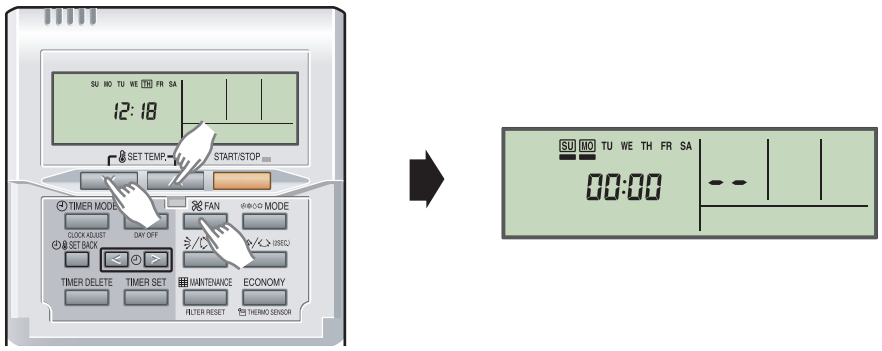
● Button name and function

During address setting mode, indoor unit reject the any operation command from remote controller.

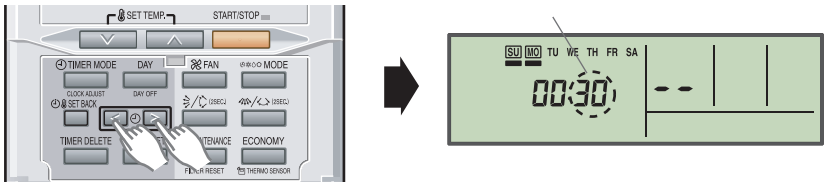


● Function setting procedure

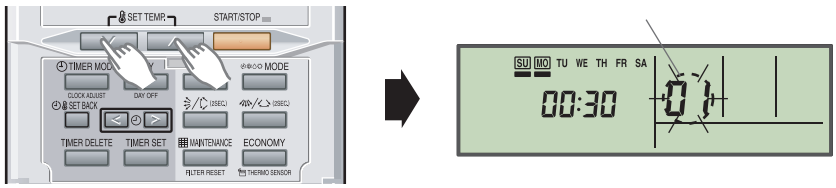
1. Connect the power supply of the outdoor unit.
2. Switch to the function setting mode.
   To enter the function setting mode, hold down the 3 buttons of SET TEMP. ⌄, SET TEMP. ⌃, and FAN at the same time for 5 seconds or longer.



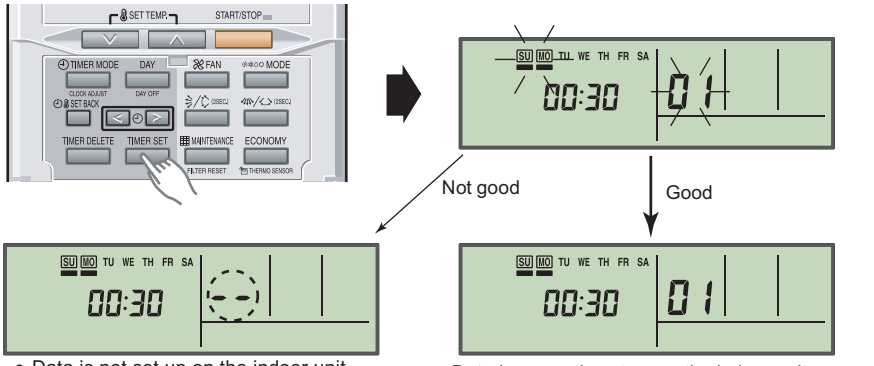
3. Select the function number by pressing the SET TIME < or the SET TIME > button.



4. Select the setting number by pressing the SET TEMP. ⌃ or the SET TEMP. ⌄ button.
   The display flashes during setting number selection.



5. Confirm the setting by pressing the TIMER SET button.
The data will be transferred to the indoor unit.

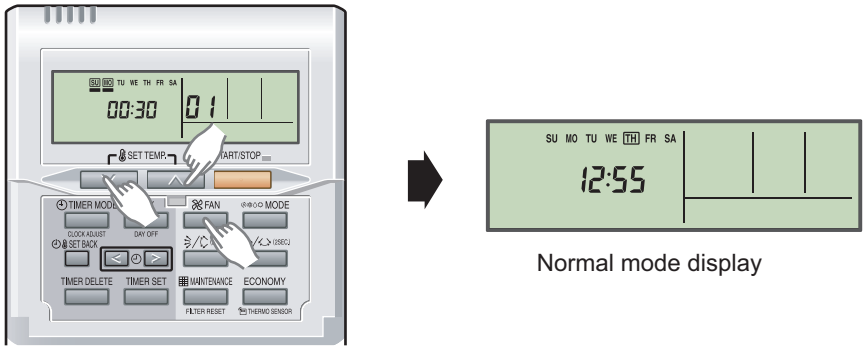


- Data is not set up on the indoor unit correctly (-- is displayed.)
- Set up the data again according to the procedure in step 5, 6 above.

Data is correctly set up on the indoor unit
(Flashing display changes to illuminated display.)

Function details: Refer to Chapter 8-8. "Function details" on page 183.

6. Exit the function setting mode by holding 3 buttons of SET TEMP. ∨, SET TEMP. ∧ and FAN at the same time.



Normal mode display

If no button is pressed within 60 seconds after buttons mentioned above are pressed, it will automatically exit the function setting mode.
If you exit the function setting mode unintentionally during setting, enter the mode again according to the procedure in step 2.

● Setting up each indoor unit

Repeat the procedures from step 1 to 6, and set up the indoor units requiring function setting.

● Resetting the power after setting up function of all indoor units

NOTES:

- If the reset is not performed, function cannot be read correctly.
- After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
  - After the 2 minutes has passed, power can be restored.
  - The set function is stored in the PCB and will remain in memory even when the power of indoor unit is turned off.
    However setting function is effective after disconnecting the power supply and then reconnecting it.
- Record the latest configuration of the indoor unit function setting on a label, and put the label on the unit so it can be used for after-sales service operations.

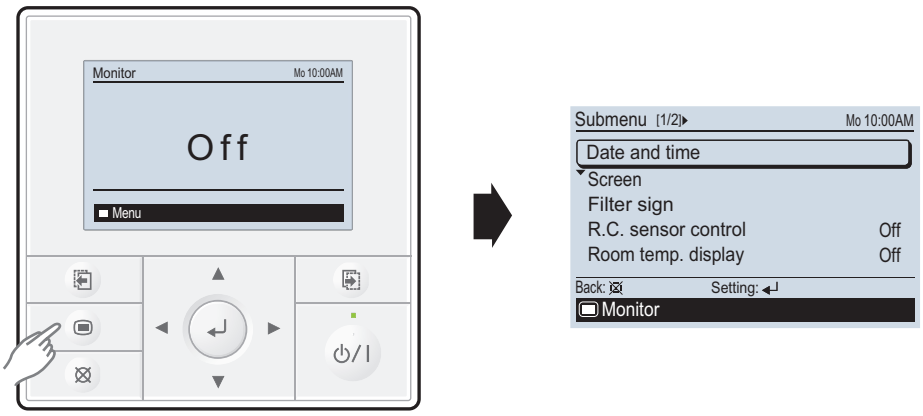
SYSTEM DESIGN

■ UTY-RVNGM

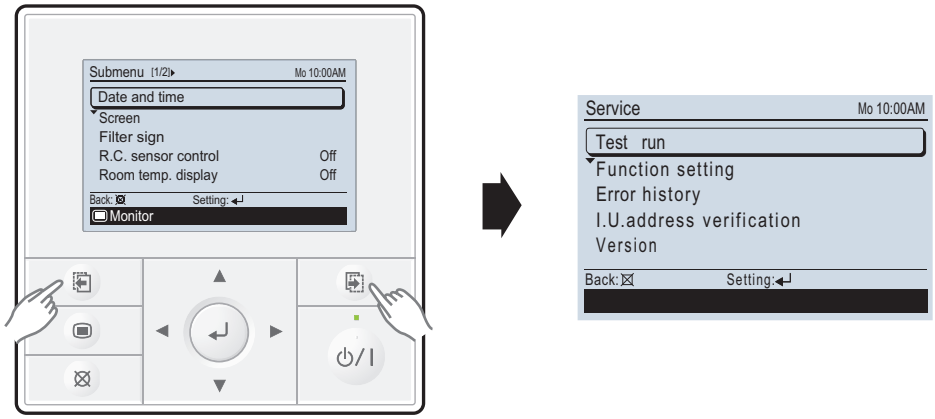
SYSTEM DESIGN

● Function setting procedure

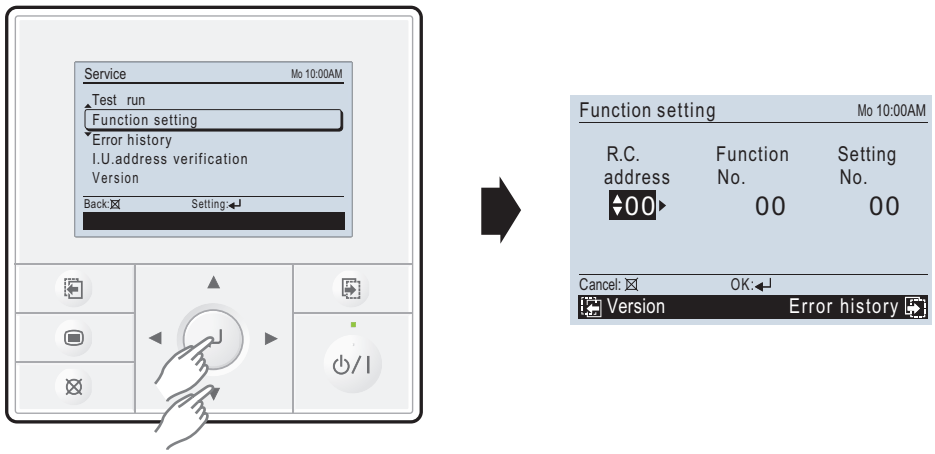
1. Connect the power supply of the outdoor unit.
2. Switch to the function setting mode.
   When [Menu button] is pressed twice while “Monitor” screen is displayed, it switches to the “Submenu” screen. If [Menu button] is pressed while the “Submenu” screen is displayed, the display returns to the “Monitor” screen.



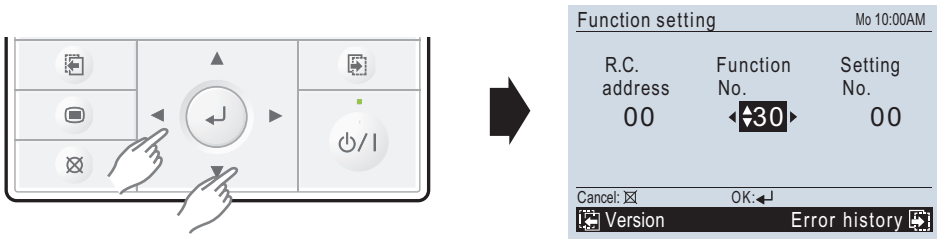
Press the [Screen switch button (Left)] and [Screen switch button (Right)] simultaneously for 5 seconds to switch to “Service” screen.



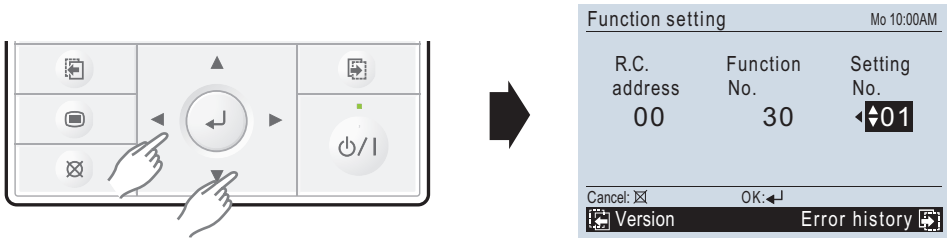
Select [Function setting] with pressing the [Cursor button (Up/Down)], and press the [Enter button].



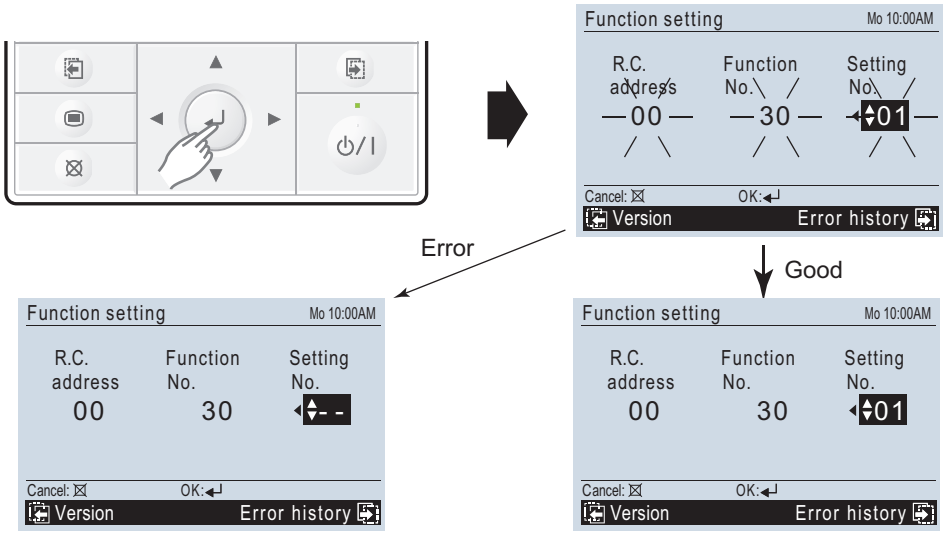
3. Select the [Function No.] with pressing the [Cursor button (Left/Right)], and select the Function No. to be set with pressing the [Cursor button (Up/Down)].



4. Select the [Setting No.] with pressing the [Cursor button (Left/Right)], and select the Setting No. to be set with pressing the [Cursor button (Up/Down)].



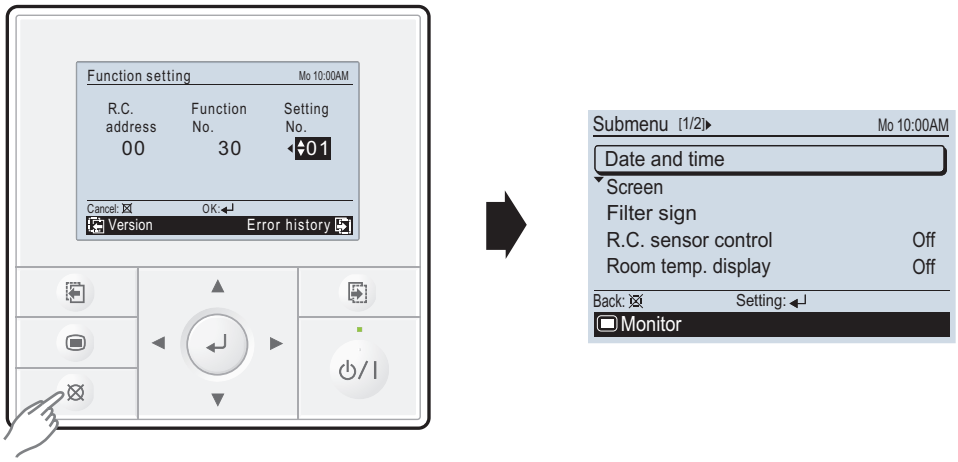
5. Pressing the [Enter button], confirm the setting.
The data will be transferred to the indoor unit.



Function details: Refer to Chapter 8-8. "Function details" on page 183.

SYSTEM DESIGN

6. When [Cancel button] is pressed twice while “Function setting” screen is displayed, it switches to the “Submenu” screen.



If no button is pressed within 60 seconds after buttons mentioned above are pressed, it will automatically exit the function setting mode.

If you exit the function setting mode unintentionally during setting, enter the mode again according to the procedure in step 2.

● Setting up each indoor unit

Repeat the procedures from step 1 to 6, and set up the indoor units requiring function setting.

● Resetting the power after setting up function of all indoor units

NOTES:

- If the reset is not performed, function cannot be read correctly.
- After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
  - After the 2 minutes has passed, power can be restored.
  - The set function is stored in the PCB and will remain in memory even when the power of indoor unit is turned off.
    However setting function is effective after disconnecting the power supply and then reconnecting it.
- Record the latest configuration of the indoor unit function setting on a label, and put the label on the unit so it can be used for after-sales service operations.

SYSTEM DESIGN

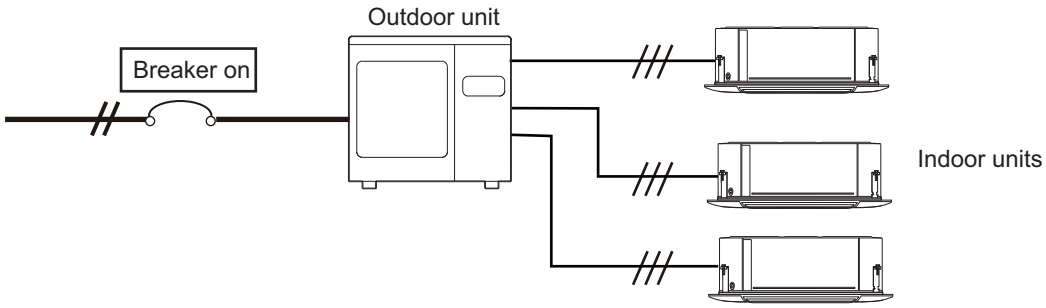
8-7. Indoor unit (setting by simple remote controller)

- The function settings of the control of the indoor unit can be changed by this procedure according to the installation conditions. Incorrect settings can cause the indoor unit malfunction.
- After the power is turned on, perform the “Function setting” according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function number or Setting number.
- Settings will not be changed if invalid numbers or setting numbers are selected.
- This function cannot be used on the secondary units.

■ Preparation

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

- Piping air tight test and vacuuming have been performed firmly.
- There is no wiring mistake. Then, connect the power supply of the indoor unit.

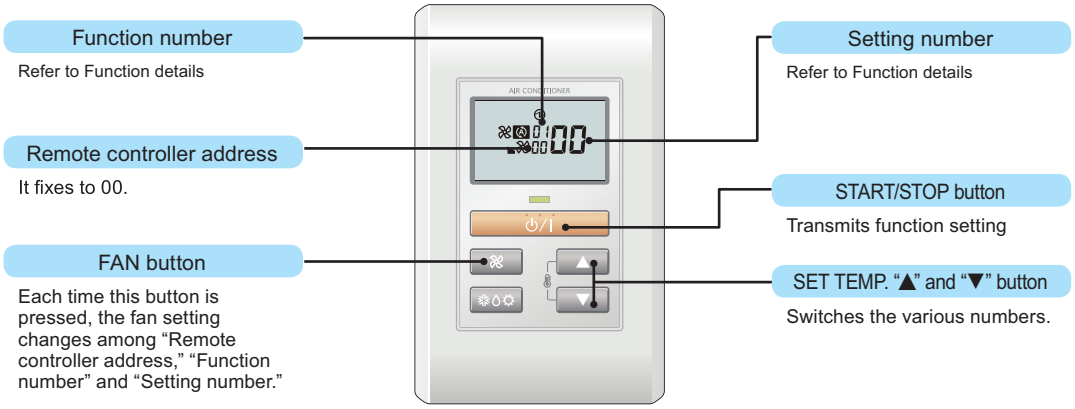


SYSTEM DESIGN

■ UTY-RSNGM

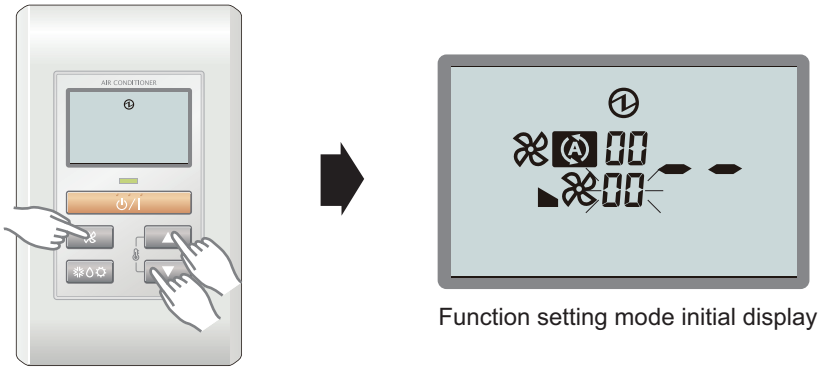
● Button name and function

During address setting mode, indoor unit reject the any operation command from remote controller.



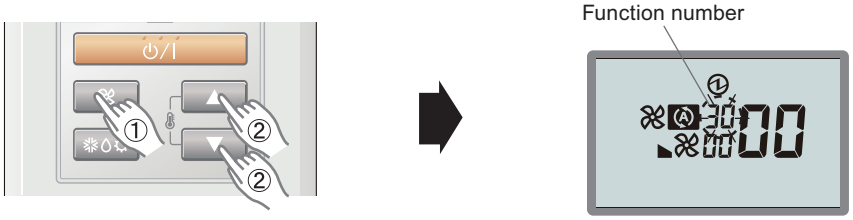
● Function setting procedure

1. Connect the power supply of the outdoor unit.
2. Switch to the function setting mode.
   To enter the function setting mode, hold down the 3 buttons of SET TEMP. ▲, SET TEMP. ▼ and FAN at the same time for 5 seconds or longer.

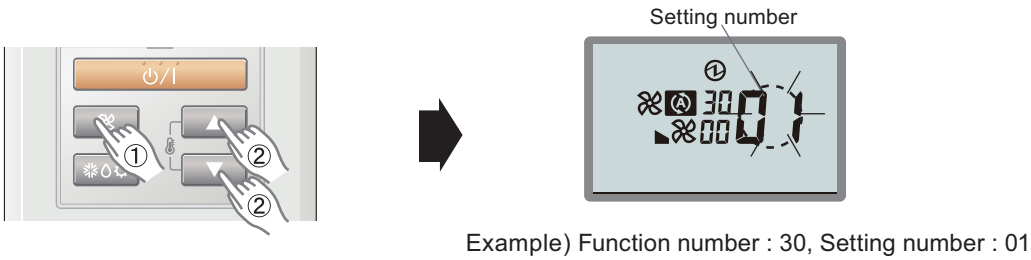


Function setting mode initial display

3. Press the FAN button.
   The Function number indicator flashes. Then, press either the SET TEMP. ▲ button or the SET TEMP. ▼ button to set up the function number.

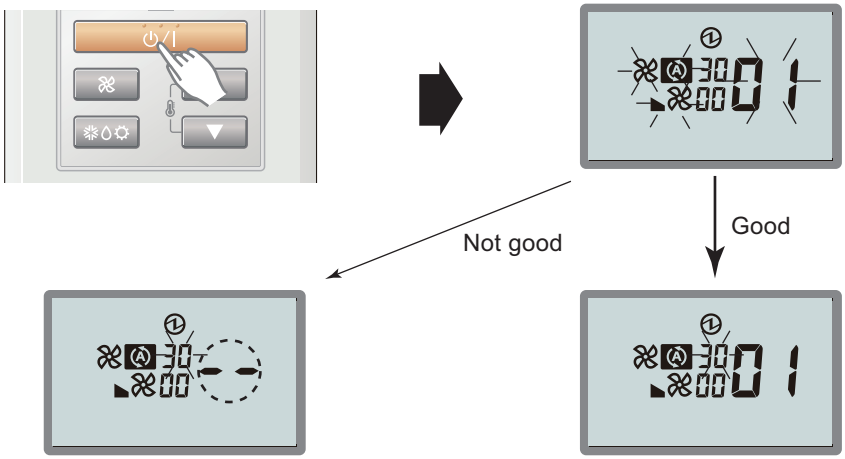


4. Select the setting number by pressing the SET TEMP. ▲ or SET TEMP. ▼ button.
The setting number indicator flashes during setting number selection.



Example) Function number : 30, Setting number : 01

5. Confirm the setting by pressing the TIMER SET button.
The data will be transferred to the indoor unit.

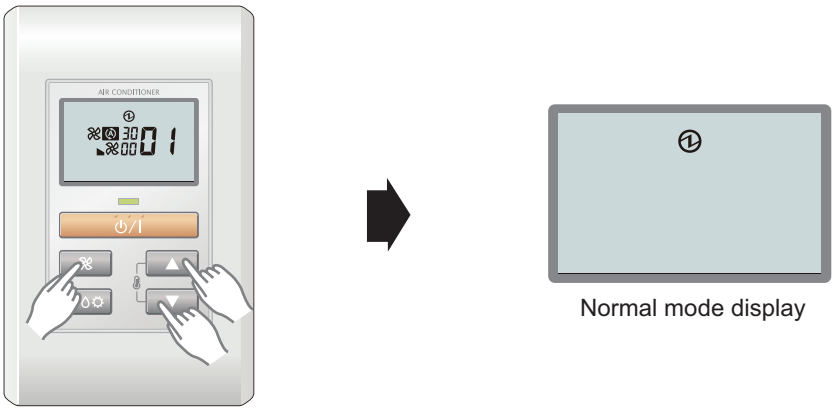


- Data is not set up on the indoor unit correctly (-- is displayed.)
- Set up the data again according to the procedure in step 3, 4 above.

Data is correctly set up on the indoor unit.

Function details: Refer to Chapter 8-8. "Function details" on page 183.

6. Exit the function setting mode by pressing the 3 buttons of SET TEMP. ▲, SET TEMP. ▼, and FAN at the same time for 5 seconds or longer.
After exiting the function setting mode, the display returns to the normal mode.



Normal mode display

If no button is pressed within 60 seconds after buttons mentioned above are pressed, it will automatically exit the function setting mode.

If you exit the function setting mode unintentionally during setting, enter the mode again according to the procedure in step 2.

● Setting up each indoor unit

Repeat the procedures from step 1 to 6, and set up the indoor units requiring function setting.

● Resetting the power after setting up function of all indoor units

NOTES:

- If the reset is not performed, function cannot be read correctly.
- After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
  - After the 2 minutes has passed, power can be restored.
  - The set function is stored in the PCB and will remain in memory even when the power of indoor unit is turned off.
    However setting function is effective after disconnecting the power supply and then reconnecting it.
- Record the latest configuration of the indoor unit function setting on a label, and put the label on the unit so it can be used for after-sales service operations.

SYSTEM DESIGN

8-8. Function details

■ 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	Compact cassette	Slim duct	Duct
1)	02	Refrigerant circuit address	●	●	●
2)	11	Filter sign	●	●	●
3)	20	Ceiling height	●	—	—
4)	21	Static pressure	—	—	●
5)	22	Outlet directions	●	—	—
6)	26	Static pressure	—	●	—
7)	30/31	Room temperature control for indoor unit sensor	●	●	●
8)	35/36	Room temperature control for wired remote controller sensor	●	●	●
9)	40	Auto restart	●	●	●
10)	42	Room temperature sensor switching	●	●	●
11)	44	Remote controller custom code	●	●	●
12)	46	External input control	●	●	●
13)	48	Room temperature sensor switching (Aux.)	●	●	●
14)	49	Indoor unit fan control for energy saving for cooling			
15)	60	Switching functions for external output terminal	●	●	●

1) Refrigerant circuit address

Assign the same number to all of the indoor units connected to an outdoor unit.

Function number	Setting value	Refrigerant circuit address
02	00 to 15	00
		01
		~
		14
		15

2) Filter sign

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

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

Function number	Setting value	Setting description	Factory setting
11	00	Standard	
	01	Long interval	
	02	Short interval	
	03	No indication	♦

Setting description	Compact cassette	Slim duct	Duct
Standard	2,500 hours	400 hours	2,500 hours
Long interval	4,400 hours	1,000 hours	4,400 hours
Short interval	1,250 hours	200 hours	1,250 hours

SYSTEM DESIGN

3) Ceiling height (For Compact cassette type only)

Select the appropriate ceiling height according to the place of installation.

Function number	Setting value	Setting description	Factory setting
20	00	Standard	♦
	01	High ceiling	

For the specific height for each setting value, refer to “Installation space” in Chapter 3. "Dimensions" on page 6.

In case of cassette type models:

The ceiling height values are for the 4-way outlet. Do not change this setting in the 3-way outlet mode.

4) Static pressure (For Duct type only)

Select the appropriate static pressure according to the installation conditions.

Function number	Setting value	Setting description	Factory setting
21	00	Normal	♦
	02	High static pressure 1	
	03	High static pressure 2	
	04	High static pressure 3	

5) Outlet directions (For Compact cassette type only)

Select the appropriate number of outlet directions according to the installation conditions.

Function number	Setting value	Setting description	Factory setting
22	00	4-way	♦
	01	3-way	

6) Static pressure (For Slim duct type only)

Select the appropriate static pressure according to the installation conditions.

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

SYSTEM DESIGN

7) 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		

8) Room temperature control for wired remote controller sensor

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

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

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

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

9) 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.

10) 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.

11) 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	

12) 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	

SYSTEM DESIGN

13) Room temperature sensor switching (Aux.)

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

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

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

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

14) 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.

15) Primary and secondary settings

Set the indoor unit that is connected to the outdoor unit using a transmission cable as the primary.

Function number	Setting value	Setting description	Factory setting
51	00	Primary	♦
	01	Secondary	

16) Switching functions for external output terminal

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

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

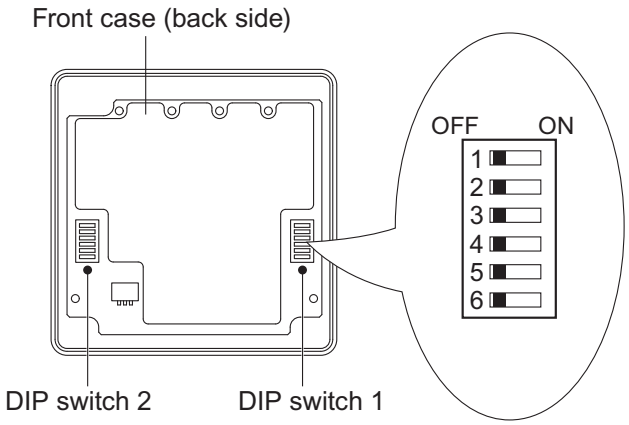
SYSTEM DESIGN

8-9. Wired remote controller (UTY-RNNGM)

DIP switch 1	SW1	Prohibited
	SW2	Dual remote controller setting
	SW3	Prohibited
	SW4	°F/°C switch
	SW5	Prohibited
	SW6	Memory backup setting

* Do not use DIP switch 2.

■ Switch location

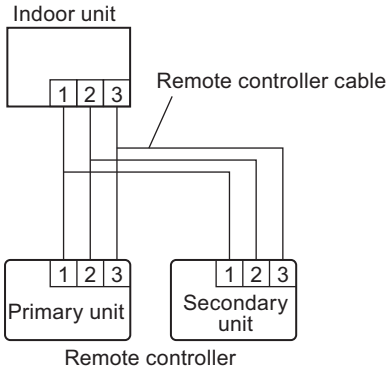


■ DIP switch 1 setting

● SW2: Dual remote controller setting

Set the remote controller SW2 according to the following table.

Number of remote controller	Primary unit	Secondary unit	Factory setting
	SW2	SW2	
1 (Normal)	OFF	—	♦
2 (Dual)	OFF	ON	



● SW4: Switching temperature unit °F / °C

Displayed temperature unit can be switched between Fahrenheit (°F) and Celsius (°C).

SW4	Fahrenheit (°F) / Celsius (°C)	Factory setting
OFF	°C	♦
ON	°F	

● SW6: Memory backup setting

Set to “ON” to use batteries for the memory backup.

When batteries are not used, all of settings stored in memory will be deleted if there is a power failure.

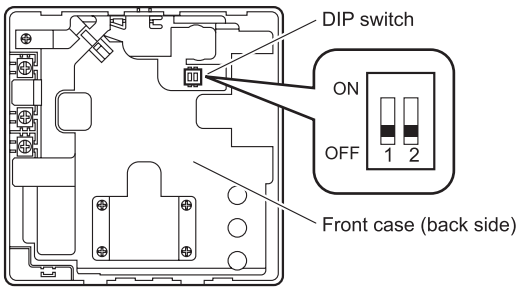
SW6	Memory backup	Factory setting
OFF	Disable	♦
ON	Enable	

SYSTEM DESIGN

8-10. Wired remote controller (UTY-RVNGM)

DIP switch 1	SW1	Memory backup setting
	SW2	Dual remote controller setting

■ Switch location



SYSTEM DESIGN

■ DIP switch setting

● SW1: Memory backup setting

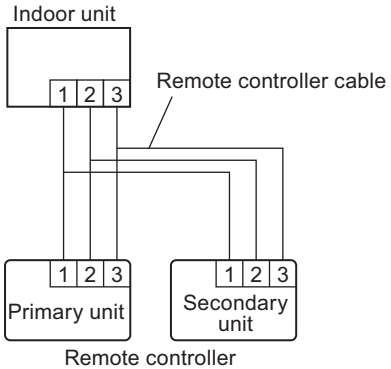
Set to “ON” to use batteries for the memory backup.
When batteries are not used, all of settings stored in memory will be deleted if there is a power failure.

SW1	Memory backup	Factory setting
OFF	Disable	♦
ON	Enable	

● SW2: Dual remote controller setting

Set the remote controller SW2 according to the following table.

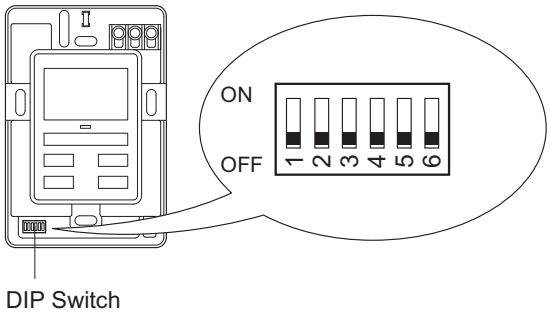
Number of remote controller	Primary unit	Secondary unit	Factory setting
	SW2	SW2	
1 (Normal)	OFF	—	♦
2 (Dual)	OFF	ON	



8-11. Simple remote controller (UTY-RSNGM)

DIP switch	SW1	Prohibited
	SW2	Dual remote controller setting
	SW3	°F/°C switch
	SW4	Prohibited
	SW5	Prohibited
	SW6	Prohibited

■ Switch location

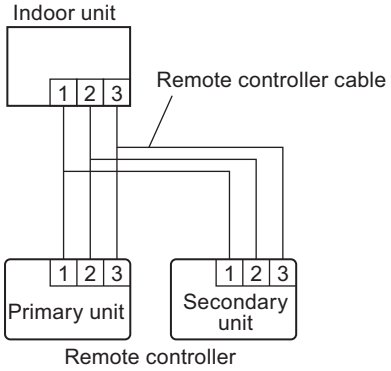


■ DIP switch setting

● SW2: Dual remote controller setting

Set the remote controller SW2 according to the following table.

Number of remote controller	Primary unit	Secondary unit	Factory setting
	SW2	SW2	
1 (Normal)	OFF	—	♦
2 (Dual)	OFF	ON	



● SW3: Switching temperature unit °F / °C

Displayed temperature unit can be switched between Fahrenheit (°F) and Celsius (°C).

SW3	Fahrenheit (°F) / Celsius (°C)	Factory setting
OFF	°C	♦
ON	°F	

9. Check and test

9-1. Test run

■ Pre-test run check items

Check column	Check item
	Is the outdoor unit securely installed?
	Have you performed gas leakage inspection? (Connection joints of various pipes (flange connection, brazing))
	Is the heat insulation done completely? (Gas pipe, liquid pipe, drain hose extension on indoor unit side etc)
	Is the water discharging from drain without any problems?
	Are the cables connected correctly?
	Are the cables as per specifications?
	Is the earth wire connected accurately?
	Are there any obstacles blocking the suction gate, and outlet of the indoor/outdoor units?
	Have you filled the specified amount of refrigerant?
	Are the stop valves of gas pipe and liquid pipe fully open?
	Has the power been supplied to crankcase heater for more than 6 hours?

■ Test operation method

Be sure to configure test run settings only when the outdoor unit has stopped operating.

Notices:

- Depending on the communication status between the indoor and outdoor units, it may take several minutes for the system to start operating after settings for the test run are complete.
- After the test run settings are complete, the outdoor units and the connected indoor units will start operating. Room temperature control will not activate during test operation (continuous operation).
- If a knocking sound can be heard in the liquid compression of the compressor, stop the unit immediately and then energize the crank case heater for a sufficient length of time before restarting the operation.

Test operation setting method (It can be performed in the following two ways)

- Set with test operation setting (refer to installation instructions manual of indoor unit for further details) available in the remote controller.
- "Cooling operation" and "Heating operation" can be set using SELECT button and ENTER button available on the board of display unit.
  (*Make sure to perform the first test operation with cooling operation.)
  Set as per the procedure given below.

Symbols in the following table indicate LED status.

"○": Lights off, "●": Lights on

1. Turn on the power of the outdoor unit and enter standby mode.
   “POWER/MODE” Lamp lights up.

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

2. Press the ENTER button for more than 3 seconds.

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

3. Press the SELECT button, LED of the test run mode Switched between "COOL " and "HEAT".
   - Cooling test mode

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

   - Heating test mode

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

4. After confirming the operation mode, Press ENTER button.The display changes as follows, and Air conditioner starts operation.
   - Cooling test mode

POWER / MODE	ERROR	PUMP DOWN (L1)	LOW NOISE (L2)	LOW NOISE (L3)	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
Blink	○	○	○	●	○	○	○

   - Heating test mode

POWER / MODE	ERROR	PUMP DOWN (L1)	LOW NOISE (L2)	LOW NOISE (L3)	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
Blink	○	○	●	○	○	○	○

5. Press [ENTER] button.
   Air conditioner stopped operation.

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

■ Checklist

Check items during test operation.

Check column	Check item
	Is the outdoor unit making any abnormal noise or vibrating significantly?
	Is the cold air or hot air blowing from indoor unit according to the operation mode?
	Check that the “ERROR” LED blinks. If, it has displayed, check the error content refer to Error code check table.
	Operate the unit according to the operating manual provided with the indoor unit, and check that it is operating normally.

SYSTEM DESIGN

9-2. Error code

If an error occurs, the LED will light up to display the error location and the error code.

■ Error display mode

Display when an error occurs.

POWER / MODE	ERROR	PUMP DOWN (L1)	LOW NOISE (L2)	LOW NOISE (L3)	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
●	Blink (Hi speed)	○	○	○	○	○	○

Sign "○": Lights off, "●": Lights on

NOTE: Check that the "ERROR" LED blinks, then press the [ENTER] button once.

■ Error code check table

LED display								Description	Remark
POWER/ MODE	ERROR	PUMP DOWN	LOW NOISE		PEAK CUT				
		(L1)	(L2)	(L3)	(L4)	(L5)	(L6)		
◆(2)	●	◆(1)	◆(1)	○	○	●	●	Serial communication error	Serial forward transmission error immediately after operation
◆(2)	●	◆(1)	◆(1)	○	●	○	○		Serial forward transmission error during operation
◆(2)	●	◆(2)	◆(2)	○	○	○	●	Indoor unit capacity error	Indoor unit capacity error
◆(2)	●	◆(5)	◆(15)	○	○	○	●	Indoor unit error	Indoor unit error
◆(2)	●	◆(6)	◆(2)	○	○	○	●	Outdoor unit main PCB error	Outdoor unit PCB model information error
◆(2)	●	◆(6)	◆(3)	○	○	○	●	Inverter PCB error	Inverter error
◆(2)	●	◆(6)	◆(5)	○	○	●	●	IPM error	Trip terminal L error
◆(2)	●	◆(7)	◆(1)	○	○	○	●	Discharge temp. sensor error	Discharge temp. sensor 1 error
◆(2)	●	◆(7)	◆(2)	○	○	○	●	Compressor temp. sensor error	Compressor temp. sensor 1 error
◆(2)	●	◆(7)	◆(3)	○	○	●	○	Outdoor unit Heat Ex. sensor error	Heat Ex. middle temp. sensor error
◆(2)	●	◆(7)	◆(3)	○	○	●	●		Outdoor unit Heat Ex. liquid temp. sensor error
◆(2)	●	◆(7)	◆(4)	○	○	○	●	Outdoor temp. sensor error	Outdoor temp. sensor error
◆(2)	●	◆(7)	◆(7)	○	○	○	●	Heat sink temp. sensor error	Heat sink temp. sensor error
◆(2)	●	◆(8)	◆(4)	○	○	○	●	Current sensor error	Current sensor 1 error (stoppage permanently)
◆(2)	●	◆(8)	◆(6)	○	●	○	○	Pressure sensor error	High pressure switch 1 error
◆(2)	●	◆(8)	◆(6)	○	○	○	●		Outdoor unit discharge pressure sensor error
◆(2)	●	◆(8)	◆(6)	○	○	●	●		Outdoor unit suction pressure sensor error
◆(2)	●	◆(9)	◆(4)	○	○	○	●	Trip detection	Trip detection
◆(2)	●	◆(9)	◆(5)	○	○	○	●	Compressor motor control error	Rotor position detection error (stoppage permanently)
◆(2)	●	◆(9)	◆(7)	○	○	●	●	Outdoor unit fan motor 1 error	Duty error
◆(2)	●	◆(9)	◆(8)	○	○	●	●	Outdoor unit fan motor 2 error	Duty error
◆(2)	●	◆(9)	◆(9)	○	○	○	●	4-way valve error	4-way valve error
◆(2)	●	◆(10)	◆(1)	○	○	○	●	Discharge temp. 1 error	Discharge temp. 1 error
◆(2)	●	◆(10)	◆(3)	○	○	○	●	Compressor temp. error	Compressor 1 temp. error
◆(2)	●	◆(10)	◆(5)	○	○	○	●	Pressure error 2	Low pressure error

Display mode ● : Lights on
○ : Lights off
◆ : Blink (0.5s Lights on / 0.5s Lights off)
( ) : Number of flashing

9-3. Pump down

⚠ WARNING

- Never touch electrical components such as the terminal blocks except the button on the display board. It may cause a serious accident such as electric shock.
- During the pump-down operation, make sure that the compressor is turned off before you remove the refrigerant piping.
  Do not remove the connection pipe while the compressor is in operation with 2-way or g. 3-way valve open. This may cause abnormal pressure in the refrigeration cycle that leads to breakage and even injury.

⚠ CAUTION

- Perform the pump down operation before disconnecting any refrigerant pipe or electric cable.
- Collect refrigerant from the service port or the 3-way valve if pump down cannot be performed.
- In case of a group control system installation, do not turn the power off until pump down is completed in all outdoor units.
  (Group control system installation described in “SPECIAL INSTALLATION METHODS” in the installation manual of the indoor unit.)

SYSTEM DESIGN

■ Pump down procedure

Confirm that the power is off, and then open the service panel.

Symbols in the following table indicate LED status.
"○": Lights off, "●": Lights on

1. Check the 3-way valves (both the liquid side and gas side) are opened.

2. Turn the power on.

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

3. Press [PUMP DOWN] button for 3 seconds or more after 3 minutes after power on.

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

   LED display lights on as shown in the above figure, and the fans and the compressor start operating.

   NOTE: If the [PUMP DOWN] button is pressed during compressor operation, the compressor will stop, and the operation will start after about 3 min.

4. LED display will change as shown below about 3 minutes after the compressor starts. Fully close the 3-way valve on the liquid pipe side at this stage.

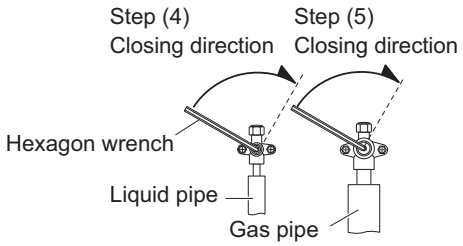
POWER / MODE	ERROR	PUMP DOWN (L1)	LOW NOISE (L2)	LOW NOISE (L3)	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
●	○	●	○	○	○	●	●

   NOTE: If the valve on the liquid pipe side is not closed, the pump down cannot be performed.

5. When LED display changes as shown in the below figure, close the 3-way valve on the gas pipe side tightly.

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

NOTE: If the valve on the gas pipe side is not closed, refrigerant may flow into the piping after the compressor stops.



6. LED display changes after 1 minute as shown in the figure below.
The LED will light as follows.

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

Fans and compressor stop automatically.

NOTE: If the pump down is successfully completed (the above LED display is shown), the outdoor unit remains stopped until the power is turned off.

7. Turn the power off.

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

Pump down is completed.

NOTES:

- To stop pump down, press the [PUMP DOWN] button again.
- To start the pump down again after the compressor is automatically stopped due to an error, disconnect the power supply and open the 3-way valves. Wait 3 minutes, reconnect the power supply and start the pump down again.
- When starting the operation after completion of the pump down, disconnect the power supply, and then open the 3-way valves. Wait 3 minutes, reconnect the power supply and perform a test run in the “COOL” operation mode.
- If an error occurs, recover the refrigerant from service port.

SYSTEM DESIGN

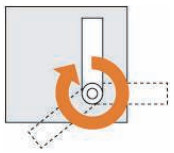
10. Optional parts installation

10-1. Drain pump unit for duct type (UTZ-PX1NBA)

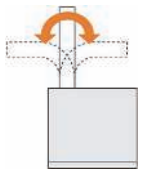
■ Specifications

	Unit	Specifications
Height of drain up	mm	Maximum 1000
Power source	—	220—240 V, 50/60 Hz
Power input (230 V, 50/60 Hz)	W	12/10.8
Current (230 V, 50/60 Hz)	mA	114/92
Dimensions (H × W × D)	mm	176 × 178 × 154
Weight	kg	2.5
Connection pipe diameter	—	VP25 (I.D.25 mm, O.D.32 mm)
Direction of pipe connection*1	—	360°
Angle of pipe connection *2	—	0° (Horizontal)—90°(Vertical)
Control method	—	Control board of indoor unit
Safety device	—	Float switch, Thermal fuse

*1: Direction of pipe connection



*2: Angle of pipe connection



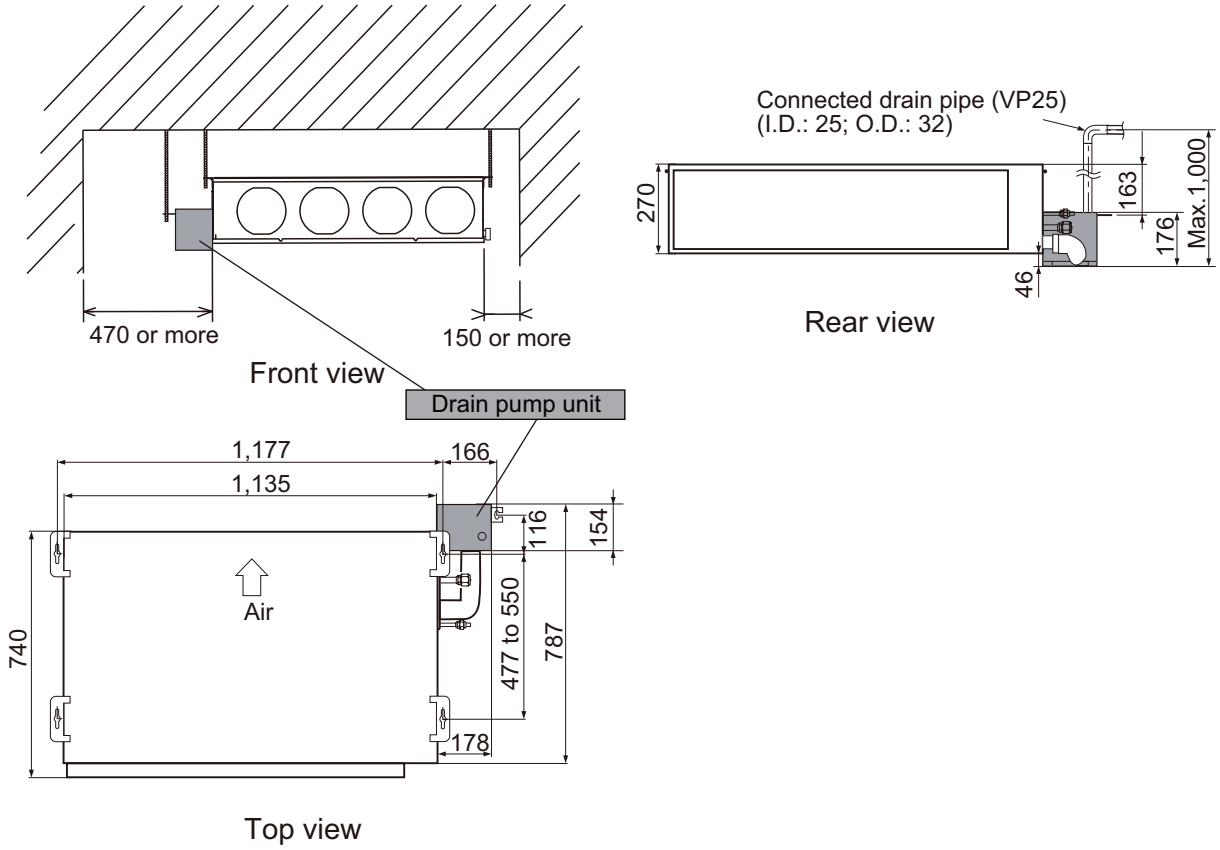
■ Applicable indoor units

Type	Model name
Duct type	Models: ARXG22KMLA and ARXG24KMLA

SYSTEM DESIGN

SYSTEM DESIGN

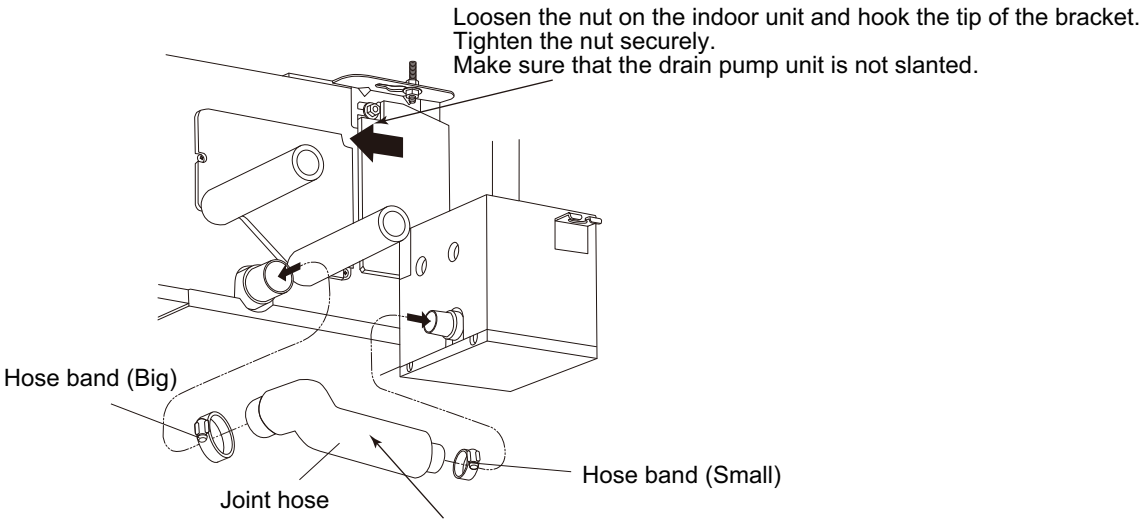
■ Installation place

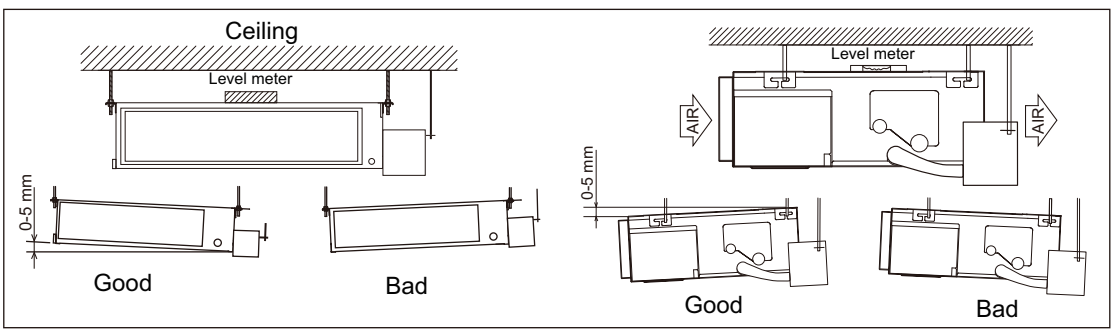


NOTES:

- Leave the space required to service the unit.
- Set a maintenance hole near the drain pump unit.

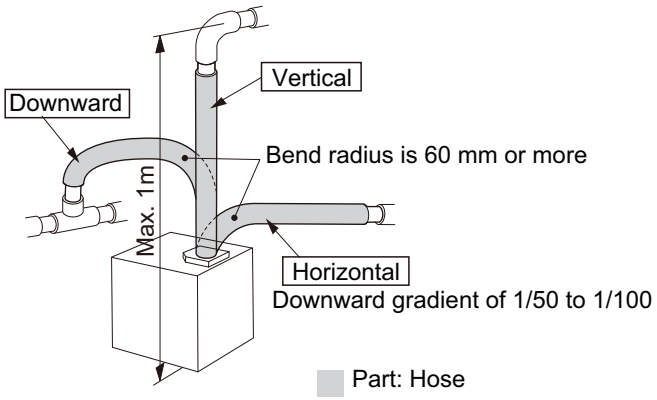
■ Installing drain pump unit

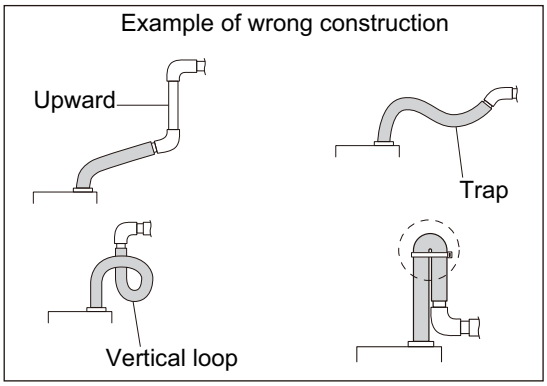




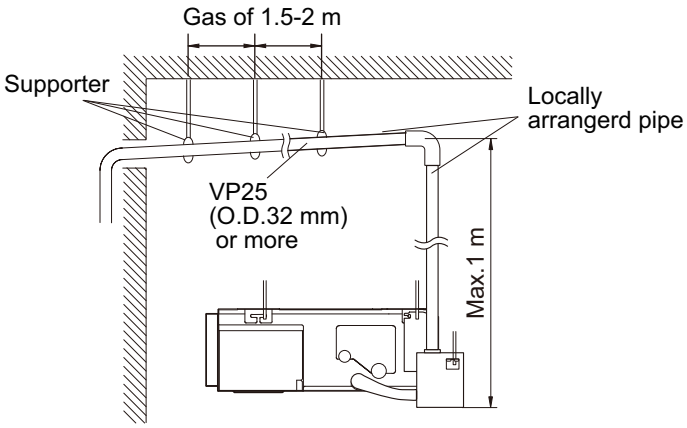
SYSTEM DESIGN

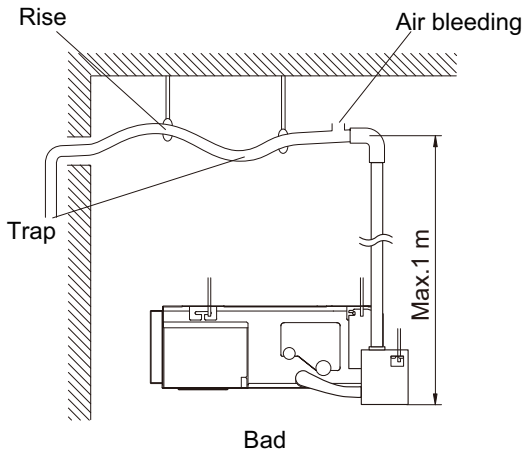
■ Installing hose

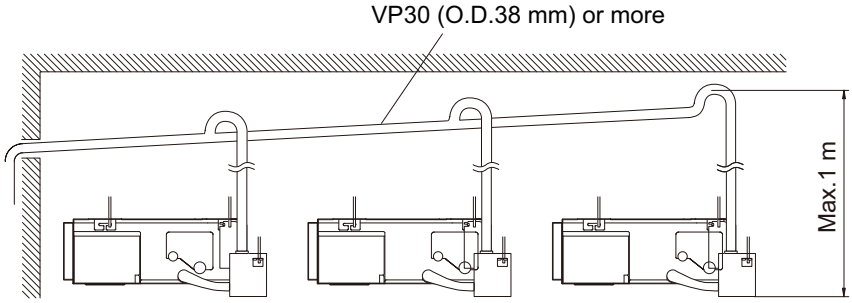




■ Installing pipe

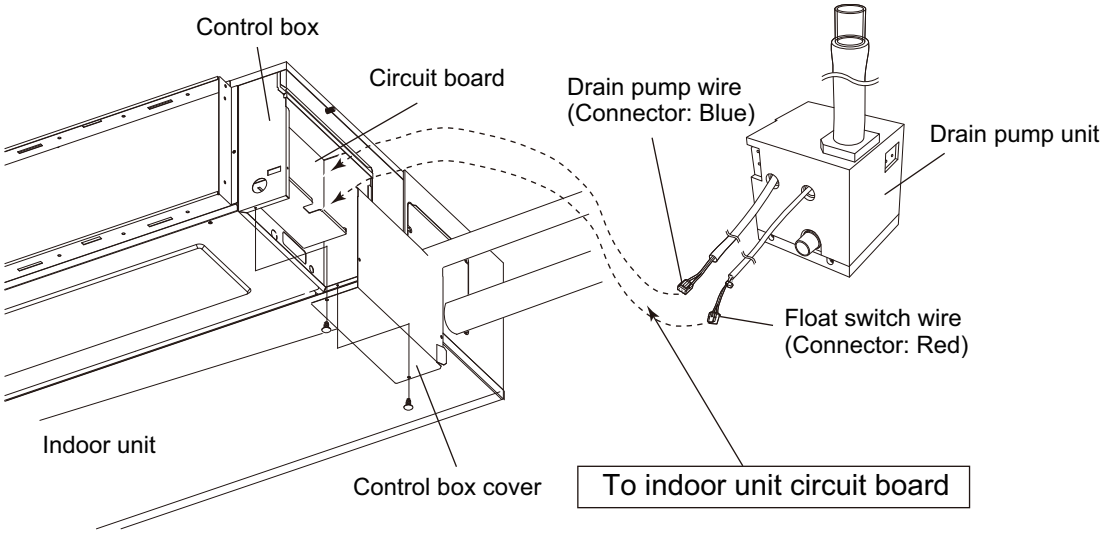






For construct centralized drain pipe fittings, refer to the electrical wiring.

■ Electrical wiring



10-2. Fresh air intake kit for compact cassette type (UTZ-VXAA)

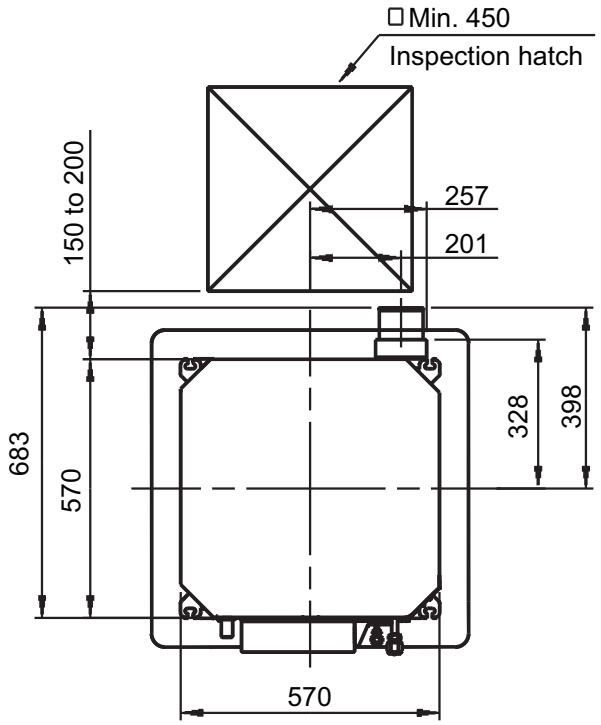
■ Specifications

Model name				UTZ-VXAA
Fresh air intake	Max. fresh air intake volume		% (For High)	10
Connection duct type			mm	Ø 100
			Pcs	1
Dimensions (H × W × D)		Net	mm	120 × 570 × 570
		Gross		165 × 585 × 585
Weight		Net	kg	3.5
		Gross		5.5

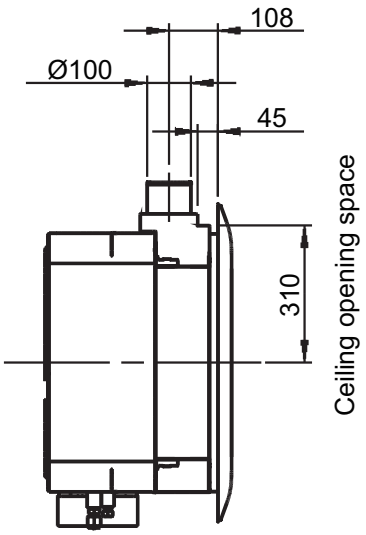
SYSTEM DESIGN

■ Dimensions

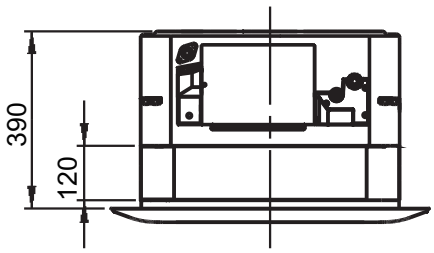
Unit: mm



Top view



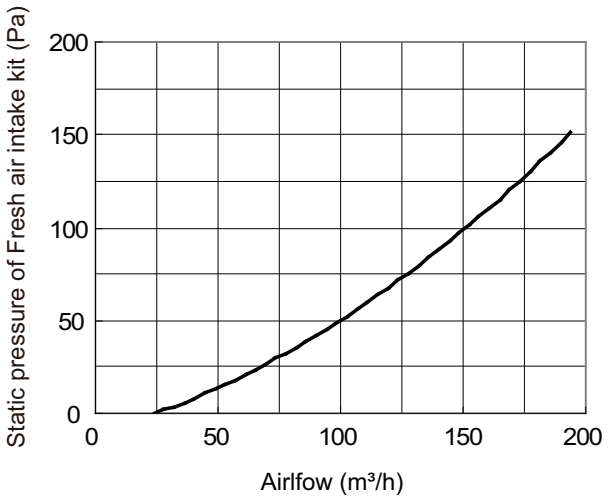
Side view



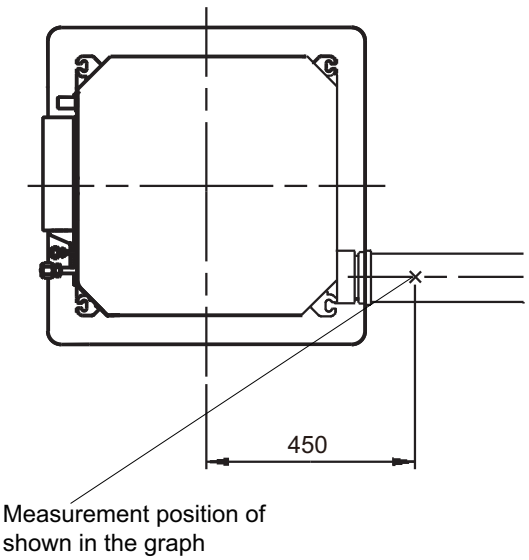
Side view

NOTE: When installing this kit, inspection hatch is necessary. (It is necessary when servicing.)

■ Airflow



Unit: mm



SYSTEM DESIGN

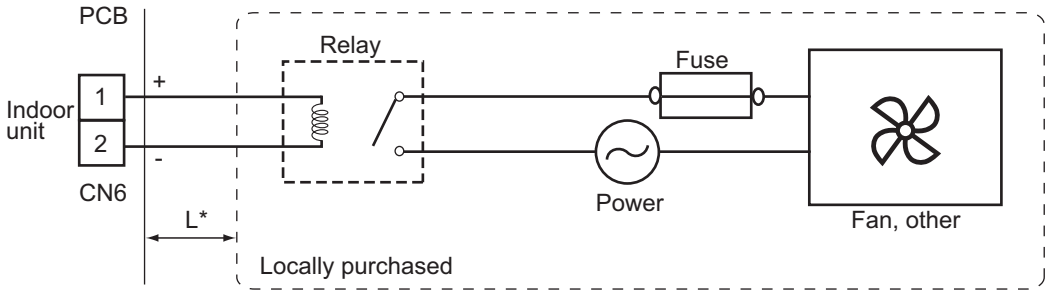
■ External control output

- You can control duct fan by synchronization with fan operation of indoor unit.
- Wire for fresh air control output is supplied with Fresh air intake kit.

- **Connection diagram**

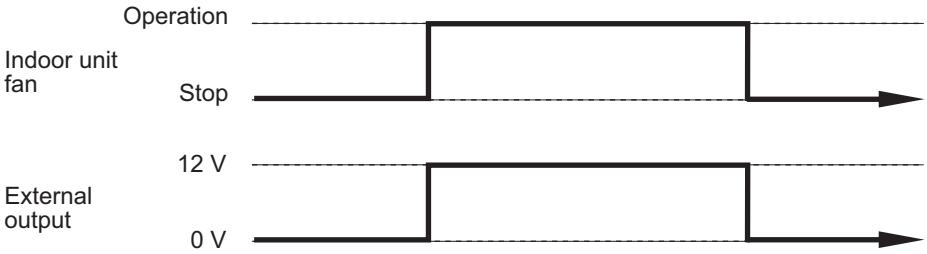
For Relay Output voltage: DC 12 V

Permissible current: 15 mA



L*: Make the distance from the PCB to the Relay unit within 10 m.

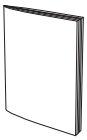
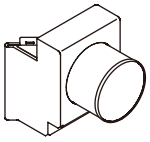
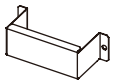
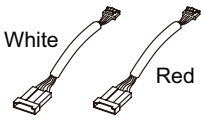
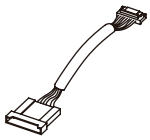
- **Operation status**



- **Wire (External output 1)**

SYSTEM DESIGN

■ Accessories

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Wire (External output 1)		1
Chamber		1	Wire (External output 2)		1
Wire cover		1	Wire (External output 3)		1
Screw		4	Bolt		4
Extension wire for louver		1 set	Cable tie		1
Extension wire for receiver kit		1			

SYSTEM DESIGN

■ Installation precautions

- **About Fresh air intake kit**
  - The Fresh air intake kit can be installed onto cassette type air conditioners.
  - The volume of ventilated air provided by the Fresh air intake kit may be unable to fulfill ventilation regulations in all countries. On such occasions we ask that this kit be used along with Energy recovery ventilators.
  - When intaking outside air, ensure correct air conditioning design as based on air conditioning load calculations. As outside air is not being processing an increase in outside air load can affect air conditioning.

- **Installation location**
  - Area that generated substances that adversely affect the equipment, such as sulfuric gas, chlorine gas, add, or alkali it will cause the copper pipes and brazed joints to corrode, which can cause refrigerant leakage.
  - Area with high salt content, such as at the seaside. It will deteriorate metal parts, causing the parts to fall or the unit to leak water.
  - Be certain to use electric dampers and shutters to avoid infiltration of cold air, wind and fog during shutdown in areas with cold climate, strong winds, or where fogs are common.
  - Ensure the product in installed a distance of at least three times the duct diameter away from exterior wall air inlets, or air exhausts for the prevention of short circuits.

- **Temperature conditions**
  - Condensation may from on the product when outside air temperature is low, and the temperature and humidity surrounding the product are high. Don't intake the air of below 0 °C into the Fresh air intake kit.
  - The upper limit of the product's temperature range should respond to the outdoor temperature range.

- **About duct fan**
  - When installing the duct fan, connect the drive relay (locally purchased) and operate with the indoor unit.
  - Ensure the intake air volume is below 10 % of the product's air volume High. When the intake air volume becomes too large there the operating noise may increase and room temperature detection may be affected.

- **About the duct connection**
  - Purchase a duct with internal diameter that fits the external diameter of the duct flange.
  - Note that regulations of some countries may require the use of a nonflammable duct.
  - IF the duct penetrates a fire-retarding division or other fire-proofing measures, the installation of fire dampers, or a construction that does not adversely affect fire control measure is a regulatory requirement of some countries.
  - When using metallic ducts, ensure metals (i.e., metal lath, wire lath, stainless sheeting) are electrically insulated. (A short occurring by electrical connection can cause fire.)
  - Ensure the thermally insulate connected ducts to prevent condensation.
  - Make certain that netting or other measures are installed in parts exposed to the outside air to prevent infiltration of small animals such as birds and insects.
  - Be certain to install external air filters to parts exposed to the outside air for heat exchanger protection of indoor equipment.
  - Avoid the infiltration of rain water by installing outside ducts with an incline of at least 1/30, and fitting hoods on openings.

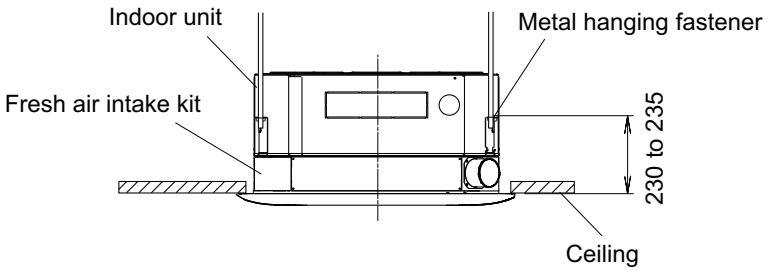
SYSTEM DESIGN

■ Installation

● Mounting of indoor unit

- For mounting, refer to the installation manual provided with indoor unit.
- When installing this product to existing indoor units, adjust the installation height of the indoor units to height 230 to 235 mm as shown below.

Unit: mm



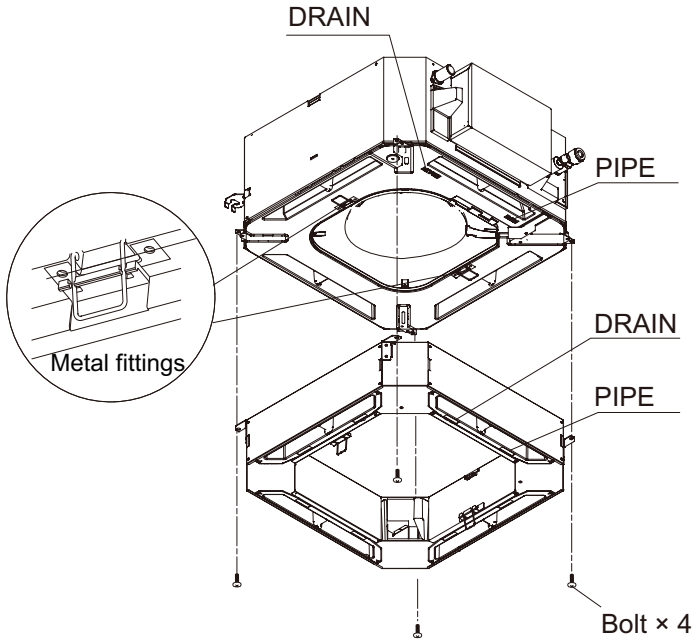
SYSTEM DESIGN

● Installation of Fresh air intake kit

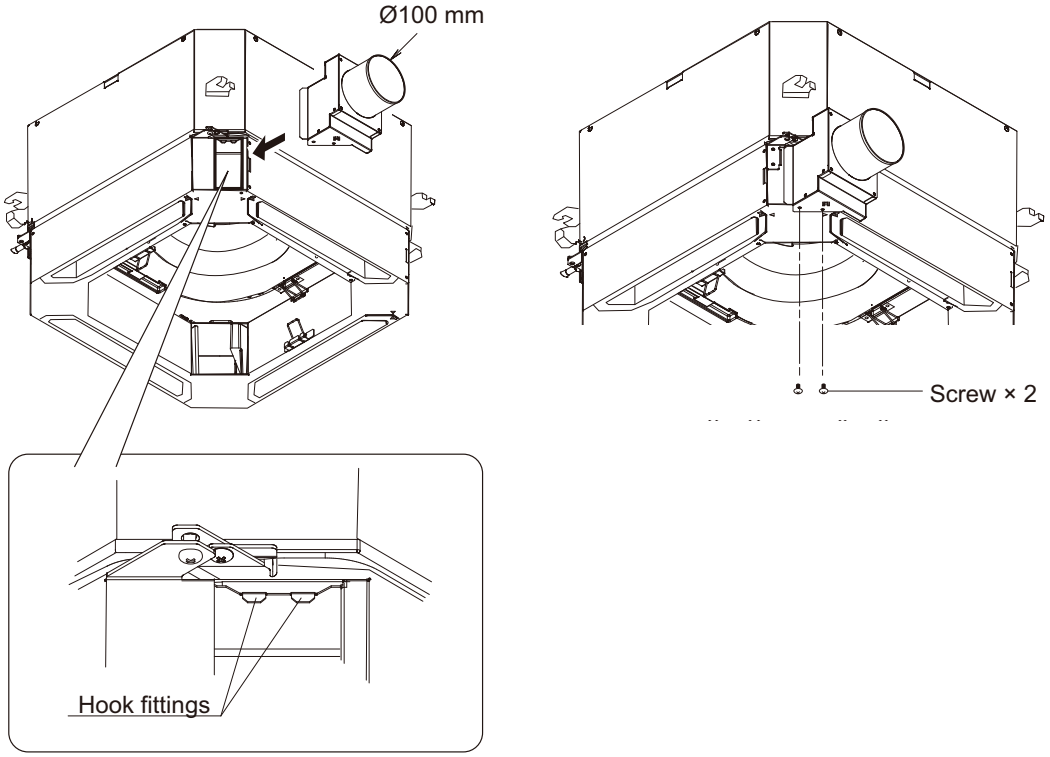
⚠ CAUTION

Installing the Fresh air intake kit with wrong direction is a cause of water leakage.

1. Attach the Fresh air intake kit to the main body using the bolts provided as shown below.

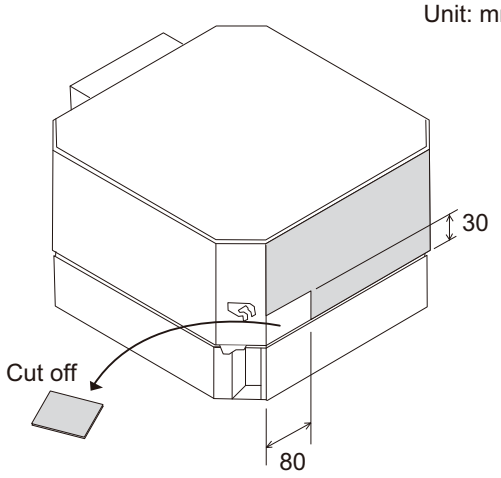


2. Install the chamber.
   Fit the four-sided holes of the chamber together with the hook fittings of the Fresh air intake kit (in two places), and secure the attached chamber in place with screws provided.



- When using the Insulation kit for high humidity (UTZ-KXGC), first cut off and remove the heat insulation as shown in the figure.
- Install the Insulation kit for high humidity according to the installation instruction sheet provided.

Unit: mm

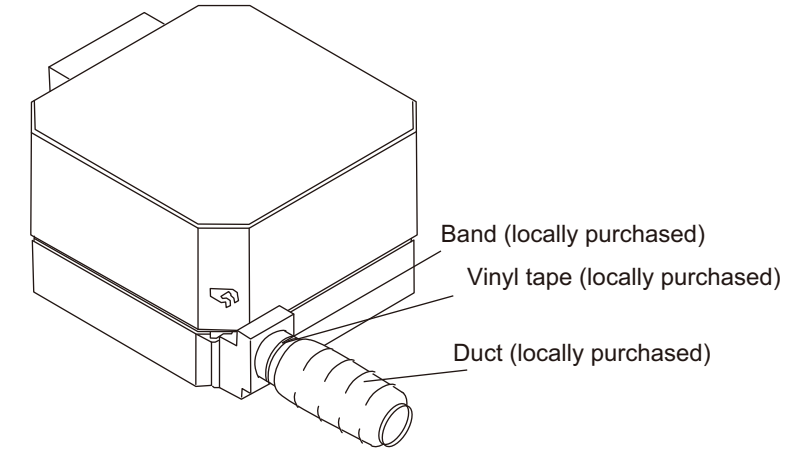


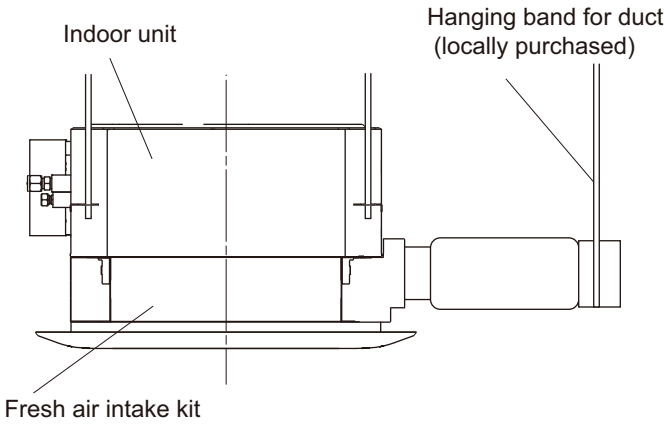
3. Install the duct.
   Fasten the connecting parts of the ducts with band, and wrap with vinyl tape to ensure no air leaks. (Carry out the work to ensure no air leakage at a pressure of 200 Pa.)

NOTE: Do not construct the duct in the manner of below.

- Extreme bends
- Highly repetitive bends
- Making the connecting duct diameters smaller

Completion figure





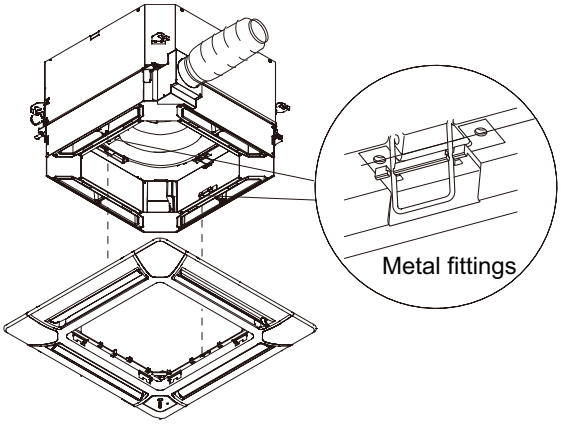
NOTE: When wiring of the duct fan is required, refer to "External control output" on page 203.

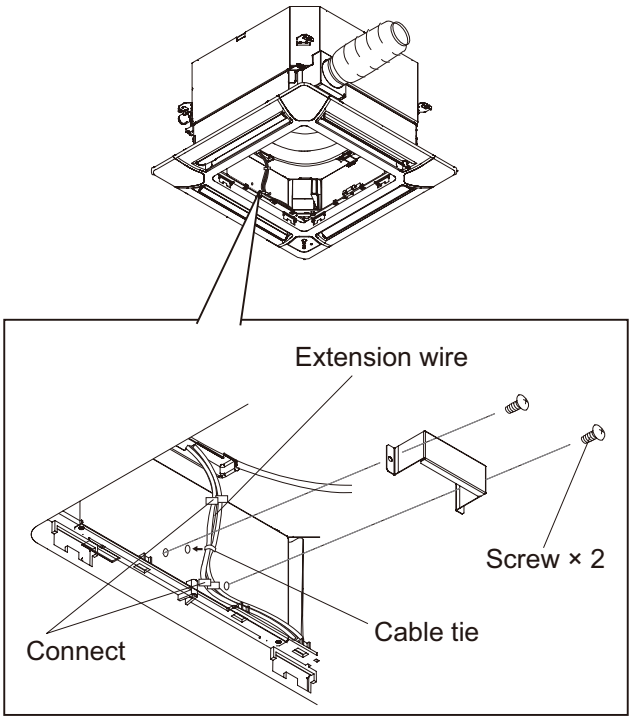
SYSTEM DESIGN

SYSTEM DESIGN

● Installation of Cassette grille

1. Connect extension wire for use with louvers, or extension wire for optical receiver after provisional attaching of the decoration panel.
2. Tie the wires together with the fasteners provided and insert into the hole of the Fresh air intake kit.
3. Install the wire-cover provided on the Fresh air intake kit.
4. Install decoration panel according to the installation instruction sheet provided.





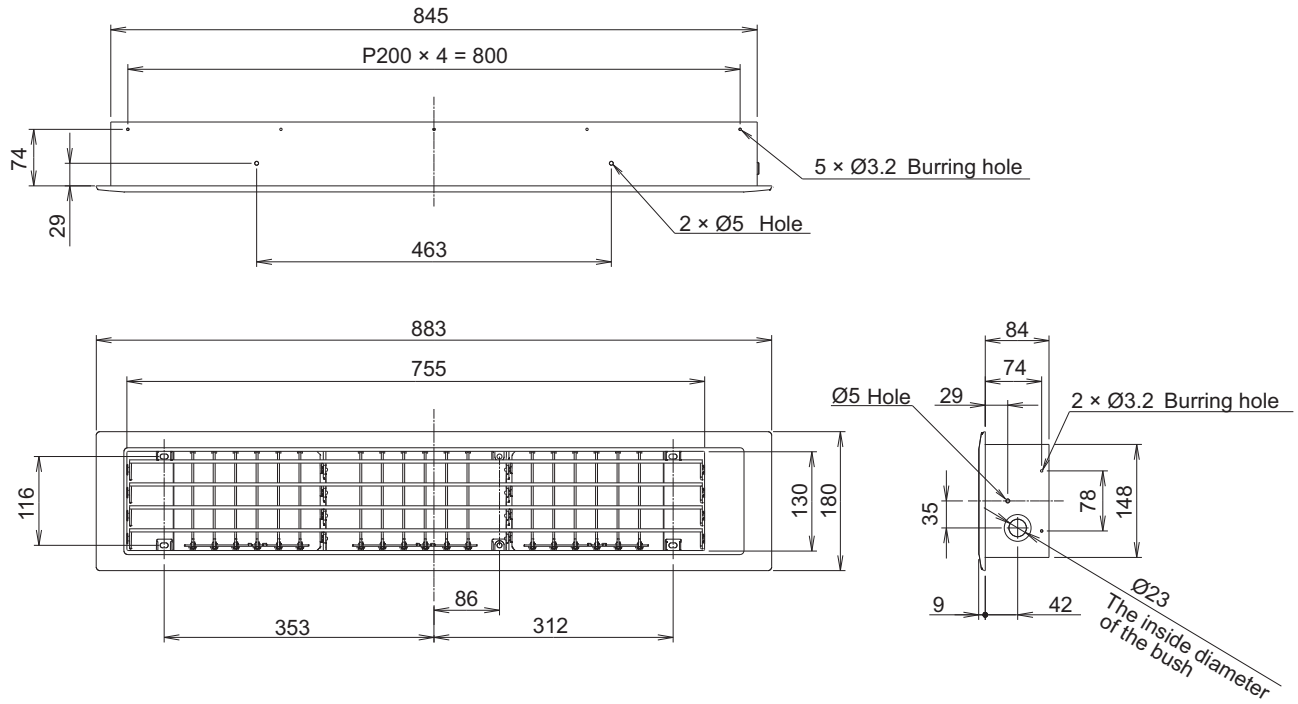
10-3. Auto louver grille kit (UTD-GXTB-W)

■ Specifications

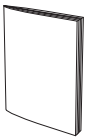
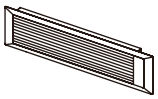
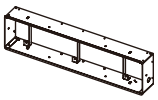
Model name			UTD-GXTB-W
Power supply			Connecting with Control box of indoor unit
Fixing of Auto louver grille			Screw fixing to flange or rectangular duct
Extension square duct limit			1.0 m (Max. duct length between indoor unit and grille)
Dimensions (H × W × D)	Net	kg	180 × 883 × (84+9)
Weight	Net	kg	2.5
	Gross		3.5
Color			White
Louver motor			Stepping motor
Material			Flame retardant ABS
Accessories			Fitting flame, etc.
Operation range	Cooling	°C	18 to 32
		%RH	80 % or less
	Heating	°C	16 to 30

■ Dimensions

Unit: mm



■ Accessories

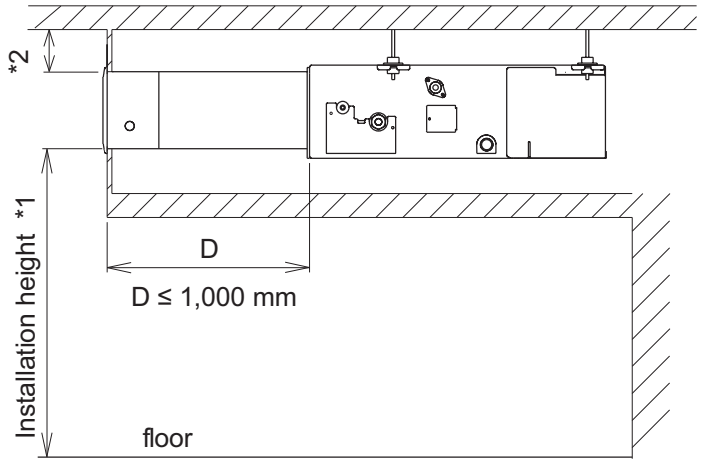
Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Screw A		16
Operating manual		1	Screw B		6
Grille		1	Cable clip		2
Bracket frame		1	Cable tie		3
Bushing		1			

SYSTEM DESIGN

SYSTEM DESIGN

■ Installation precautions

- Select the installation location that meets the following requirement and that is approved by the customer.
  - Cool and warm air should reach the entire room.



NOTE:
- *1: For air velocity and air temperature distribution during heating, refer to "Air velocity and temperature distributions" on page 14.
- *2: If the distance from the ceiling is not adequate, it may cause mildew stains on the wall or ceiling. Install at least 150 mm away from any surface.

- Do not install the unit in the following areas.
  - The upper part of the vicinity of room entrance
    It may cause condensation on the outlet port.
  - Near a wall surface
    It may cause condensation on the wall during cooling.
  - Area filled with mineral oil or containing a large amount of splashed oil or steam, such as kitchen.
  - The place where it will be exposed to direct sunlight.
    It may cause change in color.

- When the installation area is exposed direct sunlight, take measure to block the light such as covering the grille surface with a sheet. Otherwise, it may cause a change in color.

- Use an appropriate grille that is compatible with the indoor unit. If not used with the correct combination, it may cause condensation.

- Perform heat insulation and field setting according to the Installation manual of indoor unit. Not installing as per the instructions may cause condensation.

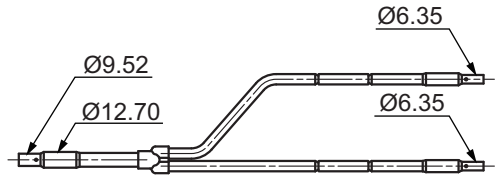
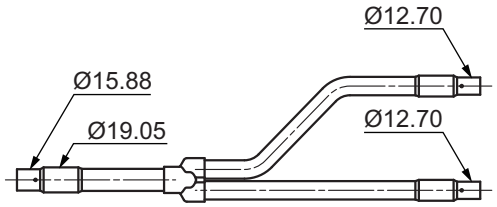
SYSTEM DESIGN

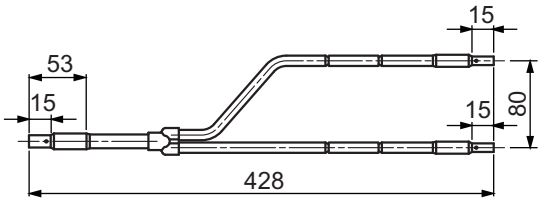
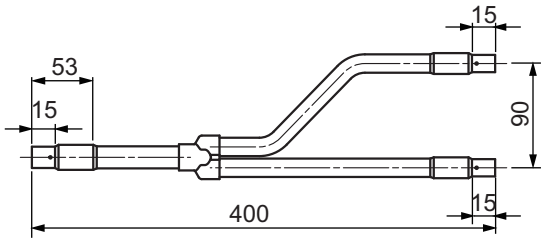
Part 4. OPTIONAL PARTS

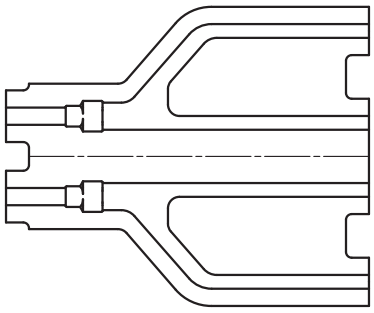
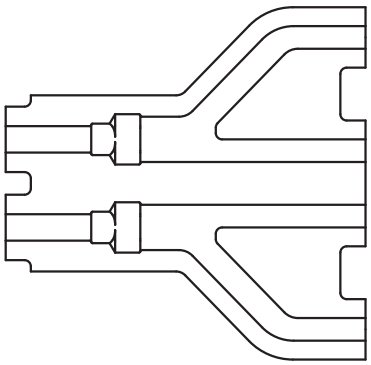
1. Branch pipes

1-1. Model: UTP-SX236A

Unit: mm

Port diameters			
Liquid pipe	**Q'ty**	**Gas pipe**	**Q'ty**
	1		1

Dimensions	
Liquid pipe	**Gas pipe**
	

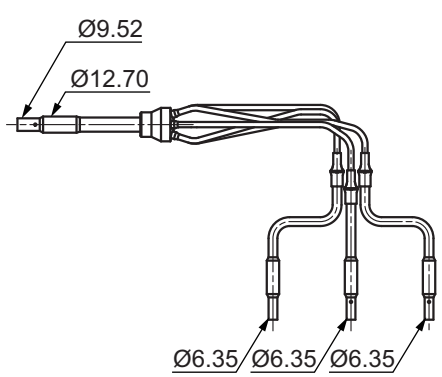
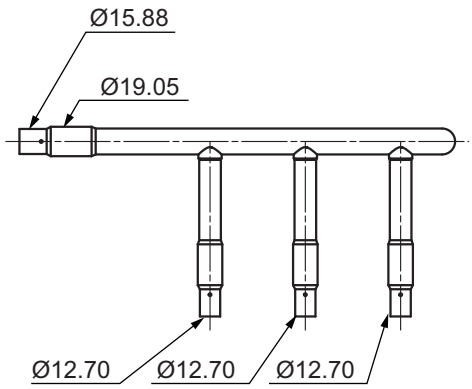
Heat insulation cover			
Liquid pipe	**Q'ty**	**Gas pipe**	**Q'ty**
	1		1

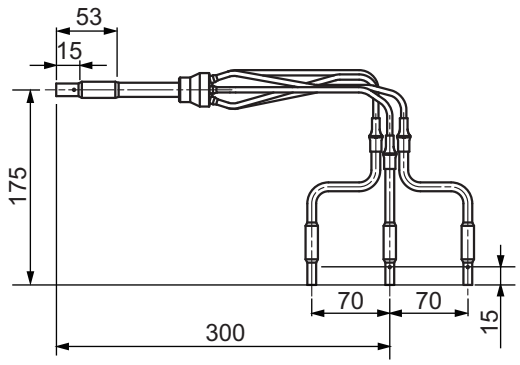
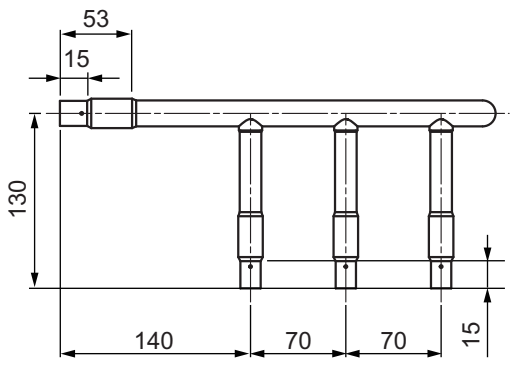
OPTIONAL PARTS

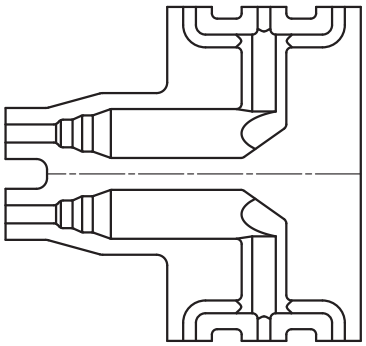
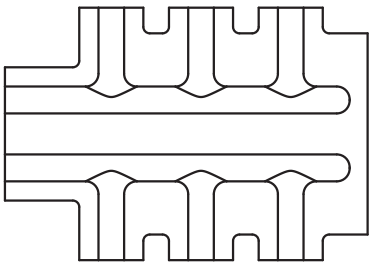
1-2. Model: UTP-SX354A

Unit: mm

OPTIONAL PARTS

Port diameters			
Liquid pipe	Q'ty	Gas pipe	Q'ty
	1		1

Dimensions	
Liquid pipe	Gas pipe
	

Heat insulation cover			
Liquid pipe	Q'ty	Gas pipe	Q'ty
	1		1

Others	
Cable tie	Q'ty
	1

2. Controllers

2-1. Lineup

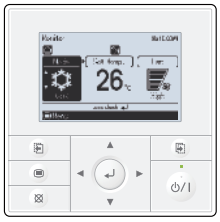
Indoor unit type	Type		
	Wired remote controller		Wireless remote controller
	UTY-RVNGM	UTY-RNNGM	UTY-LNTG
Compact cassette	○	○	○
Slim duct	○	○	—
Duct	○	○	—

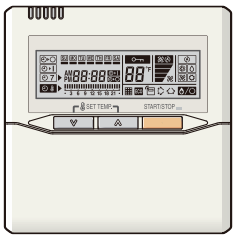
Indoor unit type	Type	
	IR receiver kit with Wireless remote controller	Simple remote controller
	UTY-LBTGM	UTY-RSNGM
Compact cassette	—	○
Slim duct	○	○
Duct	○	○

○: Optional, —: Not applicable

OPTIONAL PARTS

2-2. Parts

Exterior	Part name	Model name	Summary
	Wireless remote controller	UTY-LNTG	Unit control is performed by wireless remote controller.
	IR receiver kit with wireless remote controller	UTY-LBTGM	Unit control is performed by wireless remote controller.
	Wired remote controller	UTY-RVNGM	Large and full-dot liquid crystal screen, wide and large keys easy to press, user-intuitive arrow key. Wire type: Polar 3-wire

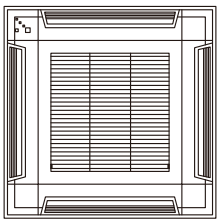
Exterior	Part name	Model name	Summary
	Wired remote controller	UTY-RNNGM	Room temperature can be controlled by detecting the temperature accurately with built-in thermo sensor. Wire type: Polar 3-wire
	Simple remote controller	UTY-RSNGM	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting, and operation mode. Wire type: Polar 3-wire

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

OPTIONAL PARTS

3. Cassette grille

3-1. Parts

Exterior	Part name	Model name	Summary
	Cassette grille	UTG-UFGF-W	This cassette grille can be installed appropriately on the grid type ceiling common in the office.

OPTIONAL PARTS

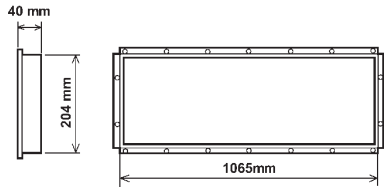
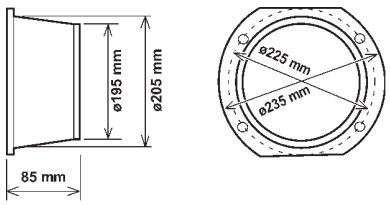
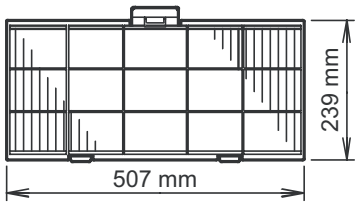
4. Others

4-1. Lineup

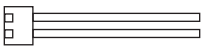
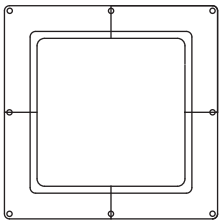
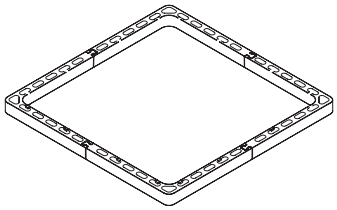
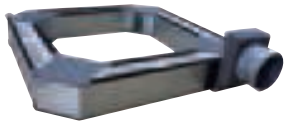
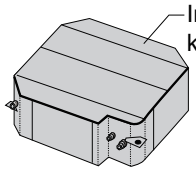
Type	Model	Indoor unit			Outdoor unit
		Compact cassette	Slim duct	Duct	
Air outlet shutter plate	UTR-YDZB	○	—	—	—
Insulation kit for high humidity	UTZ-KXGC	○	—	—	—
Fresh air intake kit	UTZ-VXAA	○	—	—	—
Square flange	UTD-SF045T	—	—	○	—
Round flange	UTD-RF204	—	—	○	—
Long-life filter	UTD-LF25NA	—	—	○	—
Remote sensor unit	UTY-XSZX	—	○	○	—
Auto louver grille kit	UTD-GXTB-W	—	○	—	—
Drain pump unit	UTZ-PX1NBA	—	—	○	—
External connect kit	UTY-XWZXZG	○	○	○	—
	UTY-XWZXZ3	—	—	—	○

OPTIONAL PARTS

4-2. Parts (for Indoor unit)

Exterior	Part name	Model name	Summary
	Remote sensor unit	UTY-XSZX	Thermo-sensor for sensing the temperature of arbitrary place in the room.
	Auto louver grille kit	UTD-GXSB-W	Width: 883mm
	Square flange	UTD-SF045T	Both the Square flange and the Round flange can be selected.
	Round flange	UTD-RF204	Round flange is used when the fresh-air duct is installed.
	Long-life filter	UTD-LF25NA	Long-life filter can be mounted to the indoor unit.

OPTIONAL PARTS

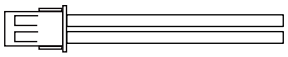
Exterior	Part name	Model name	Summary
	Drain pump unit	UTZ-PX1NBA	Optional drain lift up mechanism allows more flexible installation.
	External connect kit	UTY-XWZXZG	Use to connect with various peripheral devices and air conditioner PCB. For control output port.
	Air outlet shutter plate	UTR-YDZC	Installed at the air outlet when 3-directions mode is performed.
	Wide panel	UTG-AKXA-W	Hides the gap between the ceiling hole and the cassette grille.
	Panel spacer	UTG-BGYA-W	If there is not enough height in the ceiling space, by inserting this spacer between the cassette grille and the ceiling surface, the height of the unit body goes into the ceiling space become 50-mm lower.
	Fresh-air intake kit	UTZ-VXAA	By attaching Fresh-air intake kit to the indoor unit, it can be taken in fresh air of up to 10% of “high” air volume of the indoor unit.
	Insulation for high humidity	UTZ-KXGA	Install when the under-roof condition is expected to be the humidity of over 80% and the temperature of over 30 °C.
	Wireless LAN adapter	UTY-TFSXZ1	Remotely manage an air conditioning system using mobile devices such as smartphones and tablets. For connection indoor unit with UART interface.
	Modbus converter	UTY-VMSX	For connection between indoor unit with UART interface and a Modbus open network.
	KNX converter	UTY-VKSX	For connection between indoor unit with UART interface and a KNX open network.

Exterior	Part name	Model name	Summary
	External switch controller	UTY-TERX	Air conditioner switching can be controlled by connecting other external sensor switches.

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

- Modbus converter
- KNX converter

4-3. Parts (for Outdoor unit)

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

OPTIONAL PARTS