Fuji Electric

REFRIGERANT R32
INVERTER

AIR CONDITIONER

Wall mounted type

DESIGN & TECHNICAL MANUAL

For Cold Climate Region

INDOOR

RSG09KMCEN
RSG12KMCEN
RSG14KMCEN

OUTDOOR

ROG09KMCEN

ROG12KMCEN

ROG14KMCEN

Fuji Furukawa Engineering & Construction Co.Ltd.

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Part 1. INDOOR UNIT

WALL MOUNTED TYPE:

RSG09KMCEN
RSG12KMCEN
RSG14KMCEN

WALL MOUNTED
RSG09-14KMCEN

1. Specifications

Type					Wall mounted		
					Inverter, Heat pump		
Model name					RSG09KMCEN	RSG12KMCEN	RSG14KMCEN
Power supply					230 V~ 50 Hz		
Power supply intake					Outdoor unit		
Available voltage range					198—264 V		
Capacity		Cooling	Rated	kW	2.5	3.4	4.2
				Btu/h	8,500	11,600	14,300
			Min.—Max.	kW	1.00—3.80	1.00—4.20	1.20—4.65
				Btu/h	3,400—13,000	3,400—14,300	4,100—15,900
		Heating	Rated	kW	3.2	4.0	5.4
				Btu/h	10,900	13,600	18,400
			Min.—Max.	kW	0.9—5.7	0.9—5.9	0.9—6.4
				Btu/h	3,100—19,400	3,100—20,100	3,100—21,800
Input power		Cooling	Rated	kW	0.54	0.80	1.10
			Min.—Max.		0.21—1.08	0.21—1.25	0.26—1.25
		Heating	Rated		0.72	0.96	1.40
			Min.—Max.		0.180—2.350	0.180—1.800	0.185—1.900
Current		Cooling	Rated	A	2.5	3.6	4.9
		Heating			3.3	4.3	6.2
Energy efficiency class		Cooling				A^{++}	
		Heating (Average)				A^{++}	
Pdesign		Cooling		kW	2.5	3.4	4.2
		Heating (Average)			2.5	3.6	4.2
SEER		Cooling		kWh/kWh	6.5	7.5	7.3
SCOP		Heating (Average)			4.6	4.6	4.6
Annual energy consumption		QCE		kWh/a	135	159	201
		QHE (Average)			761	1,096	1,278
EER		Cooling		kW/kW	4.63	4.25	3.82
COP		Heating			4.44	4.17	3.86
Sensible capacity		Cooling		kW	2.37	2.74	3.26
Power factor		Cooling		%	94	96	97
		Heating			95	97	98
Moisture removal				L/h (pints/h)	1.3 (2.3)	1.8 (3.2)	2.1 (3.7)
Maximum operating current *1		Cooling		A	6.0	7.0	8.5
		Heating			9.5	11.5	16.0
Fan	Airflow rate	Cooling	HIGH	m^3/h	670	690	770
			MED		530	560	600
			LOW		410	450	450
			QUIET		280	280	280
		Heating	HIGH		750	780	820
			MED		620	630	650
			LOW		510	520	520
			QUIET		290	290	340
	Type × Qty					Crossflow fan × 1	
	Motor output			W		27	
Sound pressure level *2		Cooling	HIGH	dB (A)	40	42	43
			MED		36	37	40
			LOW		30	32	33
			QUIET		20	20	20
		Heating	HIGH		42	43	44
			MED		38	39	40
			LOW		33	35	35
			QUIET		22	22	24
Sound power level		Cooling	HIGH	dB (A)	55	56	58
		Heating			57	58	60
Heat exchanger		Dimensions (H × W × D)		mm		Main 1: 210 × 670 × 26.6 Main 2: 112 × 670 × 20.0 Sub 1: 84 × 670 × 13.3	
		Fin pitch				Man 1: 1.2 Main 2: 1.1 Sub 1: 1.4	
		Rows × Stages				Main 1: 2 × 10 Main 2: 2 × 7 Sub 1: 1 × 4	
		Pipe type				Copper tube	
		Fin type				Aluminum	
Enclosure		Material				Polystyrene	
		Color				White Approximate color of Munsell N9.25/	
Dimensions (H × W × D)		Net		mm		270 × 834 × 215	
		Gross				277 × 914 × 332	
Weight		Net		kg		10.0	
		Gross				13.0	
Connection pipe		Size	Liquid	mm (in)		Ø6.35 (Ø1/4)	
			Gas			Ø9.52 (Ø3/8)	
		Method				Flare	
Drain hose		Material				PP+HDPE	
		Tip diameter		mm		Ø13.8 (I.D.), Ø15.8 to Ø16.7 (O.D.)	
Operation range		Cooling		°C		18 to 32	
				%RH		80 or less	
		Heating		°C		16 to 30	
Remote controller						Wireless (Option: Wired, Mobile app*3 [AIRSTAGE Mobile])	

WALL MOUNTED
RSG09-14KMCEN

Type	Wall mounted		
	Inverter, Heat pump		
Model name	**RSG09KMCEN**	**RSG12KMCEN**	**RSG14KMCEN**

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: 5.0 m, Height difference: 0 m. (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: Maximum operating current is the total current of the indoor unit and the outdoor unit.
- *2: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.
- *3: Available on Google Play™ store or on App Store®.
- This data is based on EN 14511 standard.

WALL MOUNTED
RSG09-14KMCEN

2. Wireless LAN control

By installing mobile app on a smart device, several functions can be controlled from outside the house.

2-1. System requirement

Before using this function, prepare the following items:

- **Wireless router:**

Wireless LAN standard	IEEE802.11b/g/n
Frequency bands*	• U.S.A., Canada: 2.4 GHz (1ch—11ch) • Other countries: 2.4 GHz (1ch—13ch)
Network security standard	• Open • WEP • WPA (PSK) • WPA2 Personal (PSK) • WPS for same-LAN registration

*: Usable only in the country or region where you purchased the product.

To check whether your wireless router complies with the network security standards listed above, refer to the operation manual.

- **Smartphone:**

App-compliant operating system	iOS	Check the latest version of supported OS at Google Play store or App Store.
	Android™	

- **AIRSTAGE Mobile (mobile application):**
  Mobile app is available on Google Play store or on App Store.
  After installation of mobile app, user registration is required. For user registration and setup information, refer to Setting Manual attached with the product.

For the latest version of the wireless LAN control manuals, refer to the following web site.
https://www.fujitsu-general.com/global/support/

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2-2. Wireless LAN function list

NOTE: To use the wireless LAN control, user registration in advance and access to the wireless home network are required.

Item			Mobile app	Attached Wireless Remote Controller
Air conditioning control function	Operation on/off		○	○
	Operation mode setting		○	○
	Set temperature setting		○	○
	Fan speed setting		○	○
	Airflow direction setting	Louver position adjustment (up/down)	○	○
		Swing (up/down)	○	○
	Timer operation	Off timer	—	○*1
		On timer	—	○*1
		Sleep timer	—	○*1
		On/off program timer	—	○*1
		Weekly timer*2	○	○*1
Additional function	POWERFUL operation setting		○*1	○*1
	ECONOMY operation setting		○	○
	10 °C HEAT operation setting		○*1	○*1
	Room temperature indication		○	—
	Fan control for energy saving		○	○
	Outdoor unit low noise operation setting		○*1	○*1

*1: Not operable when Wired Remote Controller is connected.

*2: Configurable functions of the weekly timer differs on Wireless Remote Controller and on mobile application. If timer settings are done from mobile application and from Wireless Remote Controller, both timer settings will be active.

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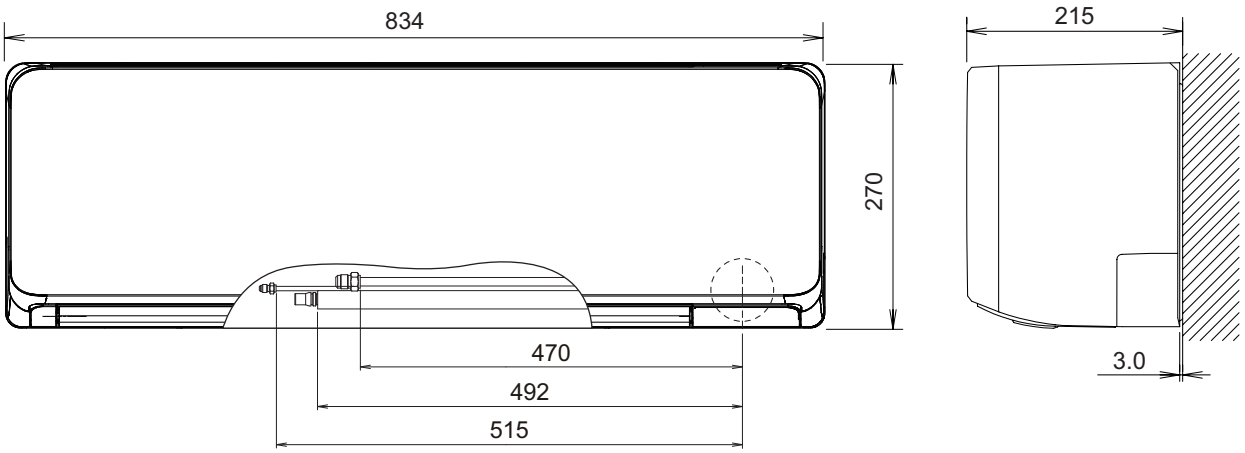
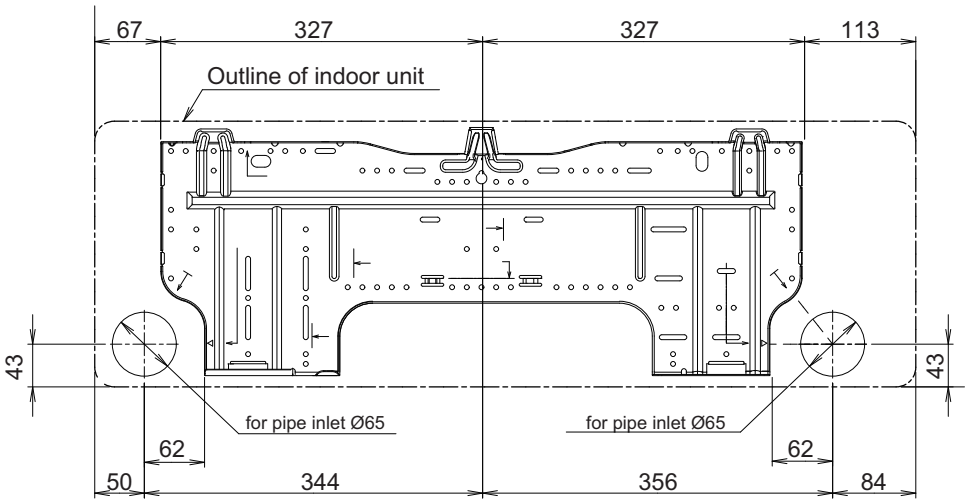
3. Dimensions

3-1. Models: RSG09KMCEN, RSG12KMCEN, and RSG14KMCEN

Unit: mm





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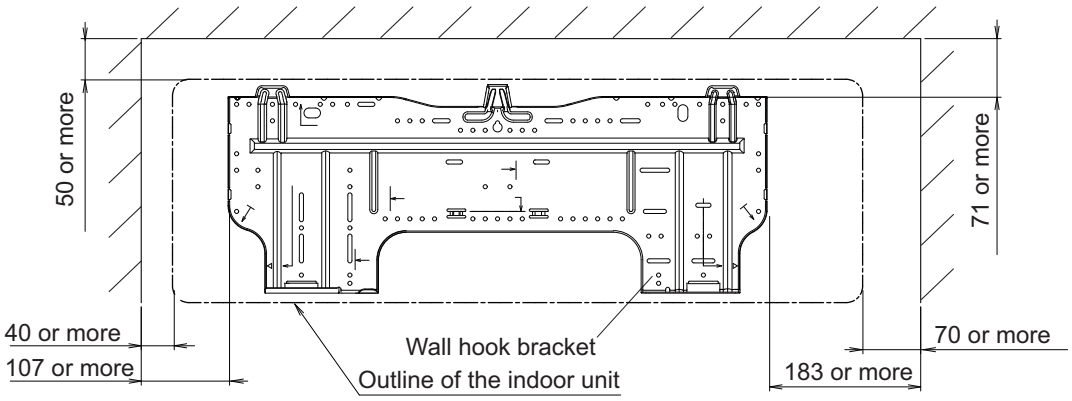
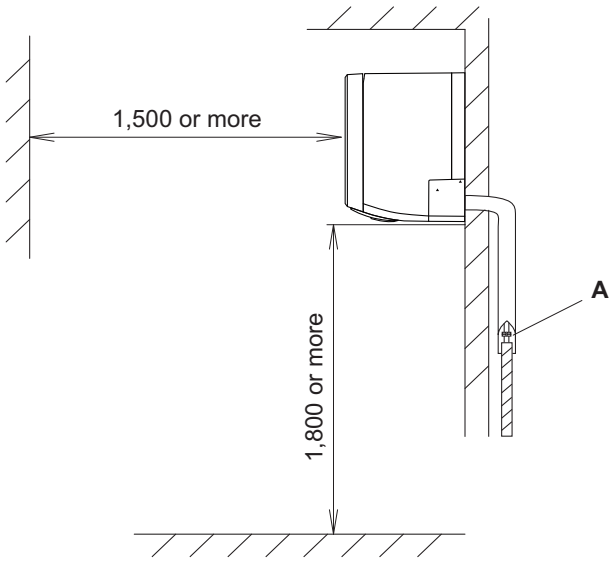
■ Installation space requirement

Provide sufficient installation space for product safety.

Unit: mm





A: Install so that the flare connection part is outdoors.

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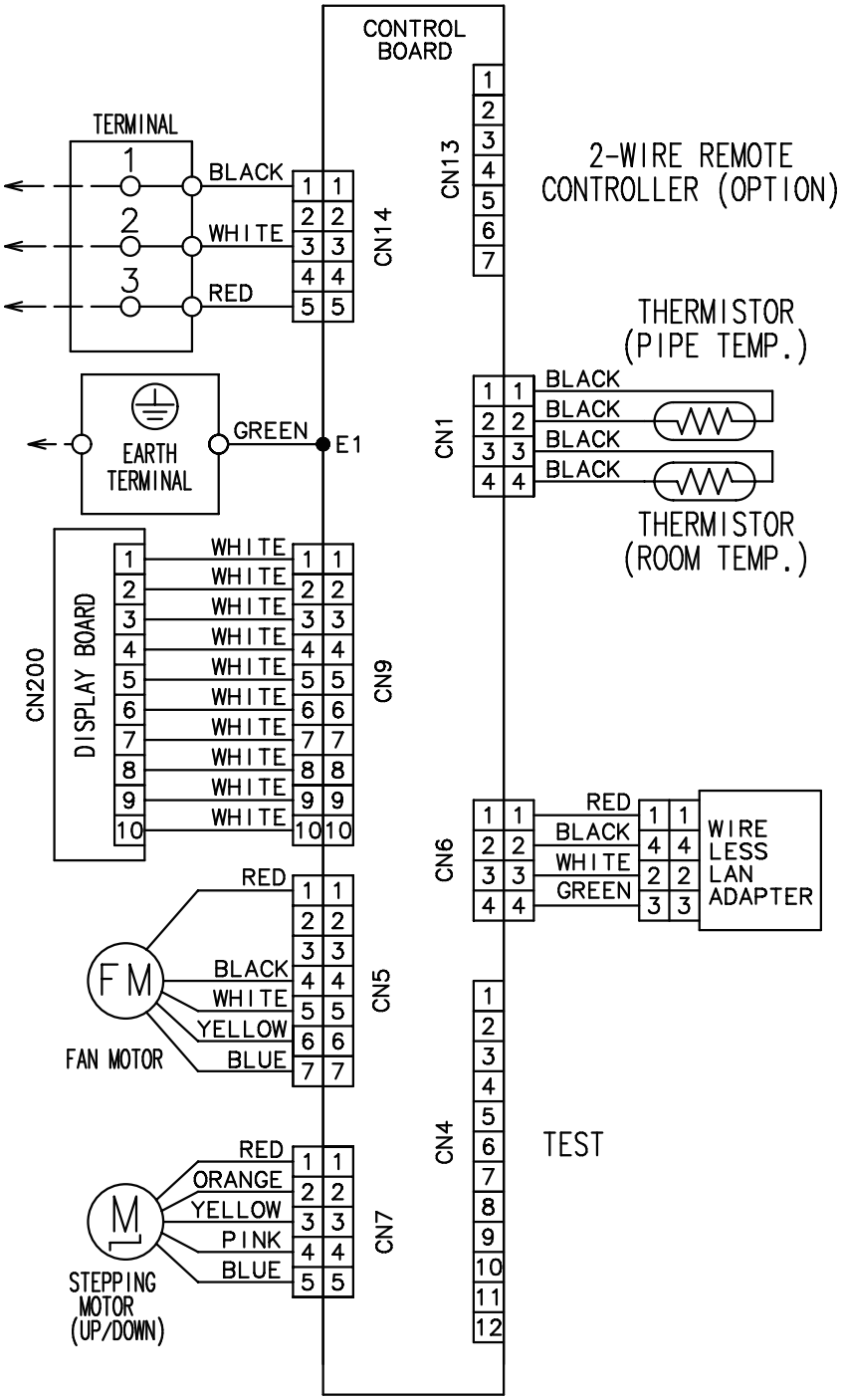
4. Wiring diagrams

4-1. Models: RSG09KMCEN, RSG12KMCEN, and RSG14KMCEN



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5. Capacity table

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

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

5-1. Cooling capacity

■ Model: RSG09KMCEN

AFR	m^3/h	670

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
		kW			kW			kW			kW			kW			kW			kW		
	-10	2.45	2.41	0.57	2.73	2.42	0.58	2.82	2.63	0.58	3.01	2.64	0.58	3.10	2.85	0.59	3.29	2.84	0.59	3.47	3.03	0.60
	-5	2.64	2.59	0.56	2.94	2.61	0.56	3.04	2.84	0.57	3.24	2.85	0.57	3.34	3.07	0.58	3.54	3.06	0.58	3.74	3.26	0.59
	0	2.83	2.78	0.55	3.15	2.80	0.55	3.26	3.04	0.56	3.47	3.05	0.56	3.58	3.29	0.57	3.79	3.28	0.57	4.01	3.49	0.58
	5	2.92	2.87	0.48	3.25	2.88	0.48	3.36	3.13	0.49	3.58	3.14	0.49	3.69	3.39	0.49	3.91	3.38	0.50	4.13	3.60	0.50
	10	3.00	2.95	0.41	3.34	2.97	0.41	3.46	3.23	0.41	3.69	3.24	0.42	3.80	3.50	0.42	4.03	3.48	0.42	4.26	3.71	0.43
	15	2.67	2.63	0.38	2.98	2.64	0.39	3.08	2.87	0.39	3.28	2.88	0.39	3.38	3.11	0.40	3.58	3.10	0.40	3.79	3.30	0.40
	20	2.34	2.30	0.36	2.61	2.31	0.36	2.70	2.52	0.37	2.87	2.52	0.37	2.96	2.73	0.37	3.14	2.71	0.37	3.32	2.89	0.38
	25	2.22	2.18	0.40	2.48	2.20	0.41	2.56	2.39	0.41	2.73	2.40	0.41	2.81	2.59	0.42	2.98	2.58	0.42	3.15	2.75	0.43
	30	2.10	2.06	0.45	2.34	2.07	0.45	2.42	2.25	0.46	2.58	2.26	0.46	2.66	2.44	0.46	2.82	2.43	0.47	2.98	2.59	0.47
	35	1.98	1.94	0.49	2.20	1.95	0.50	2.28	2.12	0.50	2.43	2.13	0.51	2.50	2.30	0.51	2.65	2.29	0.52	2.80	2.44	0.52
	40	1.90	1.73	0.49	2.12	1.74	0.50	2.19	1.89	0.50	2.34	1.90	0.51	2.41	2.05	0.51	2.55	2.04	0.51	2.70	2.17	0.52
	46	1.84	1.60	0.49	2.04	1.61	0.50	2.11	1.75	0.50	2.25	1.76	0.51	2.32	1.90	0.51	2.46	1.89	0.51	2.60	2.01	0.52

■ Model: RSG12KMCEN

AFR	m^3/h	690

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
		kW			kW			kW			kW			kW			kW			kW		
	-10	2.50	2.08	0.41	2.78	2.09	0.41	2.88	2.28	0.41	3.07	2.28	0.42	3.16	2.46	0.42	3.35	2.45	0.43	3.54	2.62	0.43
	-5	2.50	2.09	0.44	2.79	2.10	0.45	2.88	2.28	0.45	3.07	2.29	0.46	3.17	2.47	0.46	3.36	2.46	0.47	3.55	2.62	0.47
	0	2.51	2.09	0.48	2.80	2.11	0.49	2.89	2.29	0.49	3.08	2.30	0.50	3.18	2.48	0.50	3.37	2.47	0.51	3.56	2.63	0.51
	5	2.51	2.09	0.39	2.80	2.11	0.40	2.89	2.29	0.40	3.08	2.30	0.40	3.18	2.48	0.41	3.37	2.47	0.41	3.56	2.63	0.41
	10	2.51	2.07	0.30	2.80	2.09	0.31	2.89	2.27	0.31	3.08	2.27	0.31	3.18	2.46	0.31	3.37	2.45	0.32	3.56	2.61	0.32
	15	2.85	1.98	0.43	3.17	1.99	0.44	3.28	2.16	0.44	3.50	2.17	0.44	3.60	2.35	0.45	3.82	2.34	0.45	4.04	2.49	0.46
	20	3.18	2.66	0.56	3.55	2.67	0.57	3.67	2.90	0.57	3.91	2.91	0.58	4.03	3.15	0.58	4.27	3.13	0.59	4.51	3.34	0.59
	25	3.02	2.52	0.63	3.37	2.54	0.64	3.48	2.76	0.64	3.71	2.77	0.65	3.83	2.99	0.65	4.06	2.98	0.66	4.28	3.17	0.67
	30	2.86	2.38	0.70	3.18	2.40	0.71	3.29	2.61	0.72	3.51	2.62	0.72	3.62	2.82	0.73	3.83	2.81	0.73	4.05	3.00	0.74
	35	2.69	2.24	0.77	2.99	2.25	0.78	3.09	2.45	0.79	3.30	2.46	0.80	3.40	2.66	0.80	3.60	2.64	0.81	3.81	2.82	0.82
	40	2.39	2.00	0.77	2.67	2.01	0.78	2.76	2.18	0.79	2.94	2.19	0.80	3.03	2.37	0.80	3.21	2.36	0.81	3.39	2.51	0.82
	46	2.22	1.85	0.77	2.47	1.86	0.78	2.56	2.03	0.79	2.73	2.03	0.79	2.81	2.19	0.80	2.98	2.19	0.80	3.15	2.33	0.81

■ Model: RSG14KMCEN

AFR	m^3/h	770

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
		kW			kW			kW			kW			kW			kW			kW		
	-10	3.58	2.86	0.40	3.98	2.88	0.41	4.12	3.13	0.41	4.39	3.14	0.41	4.53	3.39	0.42	4.80	3.38	0.42	5.07	3.60	0.42
	-5	3.47	2.78	0.45	3.86	2.79	0.45	3.99	3.04	0.46	4.26	3.05	0.46	4.39	3.29	0.46	4.65	3.28	0.47	4.92	3.49	0.47
	0	3.36	2.69	0.49	3.74	2.71	0.50	3.87	2.94	0.50	4.12	2.95	0.51	4.25	3.19	0.51	4.51	3.18	0.51	4.76	3.38	0.52
	5	3.18	2.55	0.48	3.55	2.57	0.49	3.67	2.79	0.49	3.91	2.80	0.50	4.03	3.02	0.50	4.27	3.01	0.51	4.51	3.21	0.51
	10	3.01	2.41	0.48	3.35	2.42	0.48	3.46	2.63	0.49	3.69	2.64	0.49	3.81	2.85	0.49	4.03	2.84	0.50	4.26	3.03	0.50
	15	3.47	2.78	0.62	3.86	2.80	0.63	4.00	3.04	0.64	4.26	3.05	0.64	4.39	3.29	0.65	4.65	3.28	0.65	4.92	3.49	0.66
	20	3.93	3.15	0.77	4.38	3.17	0.78	4.53	3.45	0.79	4.83	3.46	0.80	4.98	3.73	0.80	5.28	3.72	0.81	5.57	3.96	0.82
	25	3.73	2.99	0.87	4.16	3.01	0.88	4.30	3.27	0.89	4.58	3.28	0.89	4.73	3.54	0.90	5.01	3.53	0.91	5.29	3.76	0.92
	30	3.53	2.84	0.96	3.93	2.86	0.98	4.07	3.11	0.98	4.33	3.12	0.99	4.47	3.37	1.00	4.74	3.35	1.01	5.00	3.57	1.02
	35	3.32	2.67	1.06	3.70	2.69	1.08	3.82	2.92	1.08	4.07	2.93	1.09	4.20	3.16	1.10	4.45	3.15	1.11	4.70	3.36	1.12
	40	3.20	2.38	1.06	3.56	2.39	1.08	3.68	2.60	1.08	3.93	2.61	1.09	4.05	2.82	1.10	4.29	2.81	1.11	4.53	2.99	1.12
	46	3.08	2.21	1.06	3.43	2.22	1.07	3.55	2.41	1.08	3.79	2.42	1.09	3.90	2.62	1.10	4.14	2.60	1.11	4.37	2.77	1.12

WALL MOUNTED
RSG09-14KMCEN

5-2. Heating capacity

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

■ Model: RSG09KMCEN

AFR	m^3/h	750

			Indoor temperature									
			16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-25	-26	2.91	1.55	2.84	1.58	2.77	1.62	2.70	1.65	2.63	1.68
	-20	-21	3.24	1.66	3.16	1.70	3.09	1.73	3.01	1.77	2.93	1.80
	-15	-16	3.57	1.77	3.49	1.81	3.40	1.85	3.32	1.88	3.23	1.92
	-10	-11	4.12	1.84	4.02	1.88	3.92	1.92	3.82	1.96	3.73	2.00
	-5	-7	4.67	1.91	4.56	1.95	4.45	1.99	4.33	2.03	4.22	2.07
	0	-2	5.22	1.98	5.09	2.02	4.97	2.06	4.84	2.10	4.72	2.14
	5	3	5.77	2.04	5.63	2.09	5.49	2.13	5.35	2.16	5.22	2.16
	7	6	5.99	2.07	5.84	2.11	5.70	2.16	5.56	2.16	5.42	2.16
	10	8	5.47	1.85	5.34	1.89	5.21	1.93	5.08	1.96	4.95	2.00
	15	10	5.43	1.79	5.30	1.83	5.17	1.86	5.04	1.90	4.91	1.94

■ Model: RSG12KMCEN

AFR	m^3/h	780

			Indoor temperature									
			16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-25	-26	3.44	1.78	3.36	1.81	3.28	1.85	3.20	1.89	3.12	1.92
	-20	-21	3.98	1.94	3.88	1.98	3.79	2.02	3.70	2.06	3.60	2.10
	-15	-16	4.52	2.10	4.41	2.14	4.30	2.19	4.19	2.23	4.09	2.27
	-10	-11	4.90	1.99	4.78	2.03	4.66	2.08	4.55	2.12	4.43	2.16
	-5	-7	5.28	1.88	5.15	1.92	5.03	1.96	4.90	2.00	4.78	2.04
	0	-2	5.66	1.78	5.53	1.81	5.39	1.85	5.26	1.89	5.12	1.93
	5	3	6.04	1.67	5.90	1.70	5.75	1.74	5.61	1.77	5.47	1.81
	7	6	6.20	1.63	6.05	1.66	5.90	1.69	5.75	1.73	5.61	1.76
	10	8	6.20	1.55	6.05	1.58	5.90	1.61	5.75	1.64	5.61	1.67
	15	10	6.20	1.47	6.05	1.50	5.90	1.53	5.75	1.56	5.61	1.59

■ Model: RSG14KMCEN

AFR	m^3/h	820

			Indoor temperature									
			16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	-25	-26	4.90	2.61	4.79	2.66	4.67	2.71	4.55	2.77	4.44	2.82
	-20	-21	5.60	2.89	5.47	2.95	5.34	3.01	5.20	3.07	5.07	3.13
	-15	-16	6.30	3.17	6.15	3.23	6.00	3.30	5.85	3.36	5.70	3.43
	-10	-11	6.40	2.84	6.24	2.90	6.09	2.96	5.94	3.02	5.79	3.08
	-5	-7	6.49	2.52	6.34	2.57	6.18	2.63	6.03	2.68	5.87	2.73
	0	-2	6.59	2.20	6.43	2.24	6.27	2.29	6.12	2.34	5.96	2.38
	5	3	6.68	1.88	6.52	1.91	6.36	1.95	6.20	1.99	6.05	2.03
	7	6	6.72	1.75	6.56	1.78	6.40	1.82	6.24	1.86	6.08	1.89
	10	8	6.72	1.62	6.56	1.65	6.40	1.68	6.24	1.72	6.08	1.75
	15	10	6.72	1.50	6.56	1.53	6.40	1.56	6.24	1.59	6.08	1.62

WALL MOUNTED
RSG09-14KMCEN

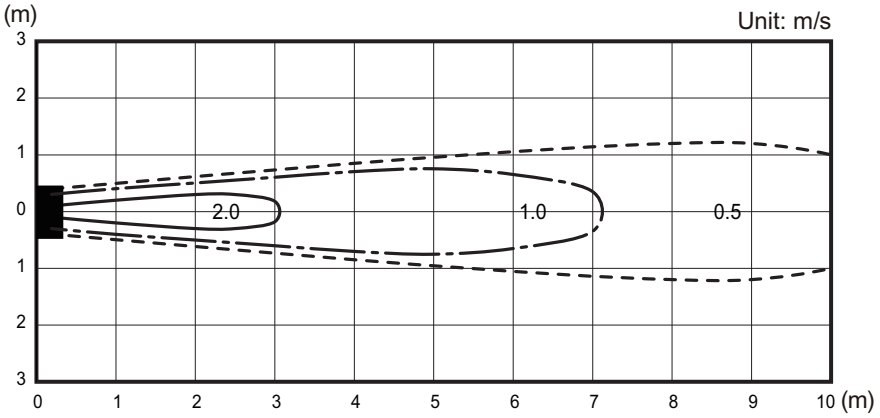
6. Fan performance

6-1. Air velocity distributions

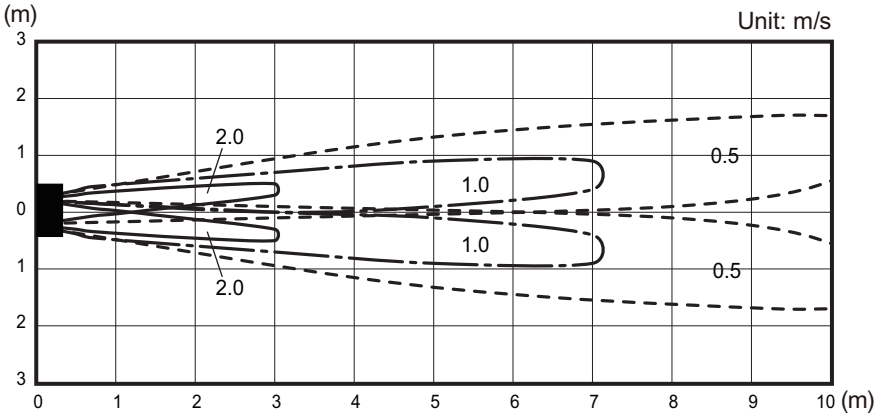
■ Models: RSG09KMCEN, RSG12KMCEN, and RSG14KMCEN

Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

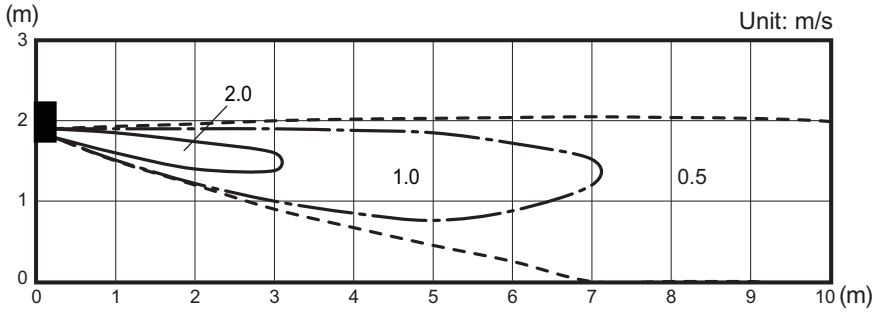
Top view
Horizontal louver: Up
Vertical louver: Center



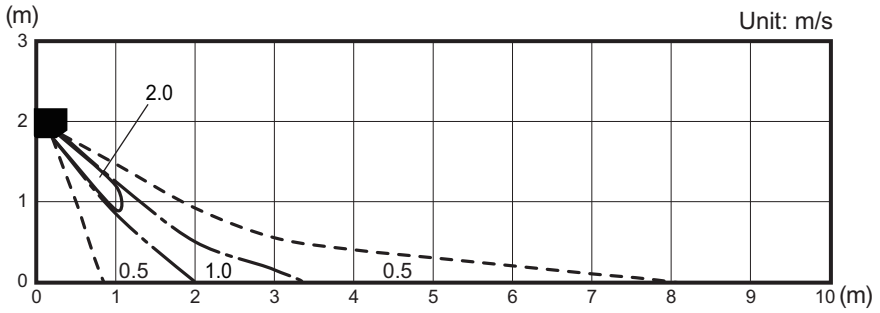
Top view
Horizontal louver: Up
Vertical louver: Left & Right



Side view
Horizontal louver: Up
Vertical louver: Center



Side view
Horizontal louver: Down
Vertical louver: Center



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6-2. Airflow

■ Model: RSG09KMCEN

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	670
	l/s	186
	CFM	394
MED	m^3/h	530
	l/s	147
	CFM	312
LOW	m^3/h	410
	l/s	114
	CFM	241
QUIET	m^3/h	280
	l/s	78
	CFM	165

● Heating

Fan speed	Airflow	
HIGH	m^3/h	750
	l/s	208
	CFM	441
MED	m^3/h	620
	l/s	172
	CFM	365
LOW	m^3/h	510
	l/s	142
	CFM	300
QUIET	m^3/h	290
	l/s	81
	CFM	171

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■ Model: RSG12KMCEN

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	690
	l/s	192
	CFM	406
MED	m^3/h	560
	l/s	156
	CFM	330
LOW	m^3/h	450
	l/s	125
	CFM	265
QUIET	m^3/h	280
	l/s	78
	CFM	165

● Heating

Fan speed	Airflow	
HIGH	m^3/h	780
	l/s	217
	CFM	459
MED	m^3/h	630
	l/s	175
	CFM	371
LOW	m^3/h	520
	l/s	144
	CFM	306
QUIET	m^3/h	290
	l/s	81
	CFM	171

WALL MOUNTED
RSG09-14KMCEN

■ Model: RSG14KMCEN

● Cooling

Fan speed	Airflow	
HIGH	m^3/h	770
	l/s	214
	CFM	453
MED	m^3/h	600
	l/s	167
	CFM	353
LOW	m^3/h	450
	l/s	125
	CFM	265
QUIET	m^3/h	280
	l/s	78
	CFM	165

● Heating

Fan speed	Airflow	
HIGH	m^3/h	820
	l/s	228
	CFM	483
MED	m^3/h	650
	l/s	181
	CFM	383
LOW	m^3/h	520
	l/s	144
	CFM	306
QUIET	m^3/h	340
	l/s	94
	CFM	200

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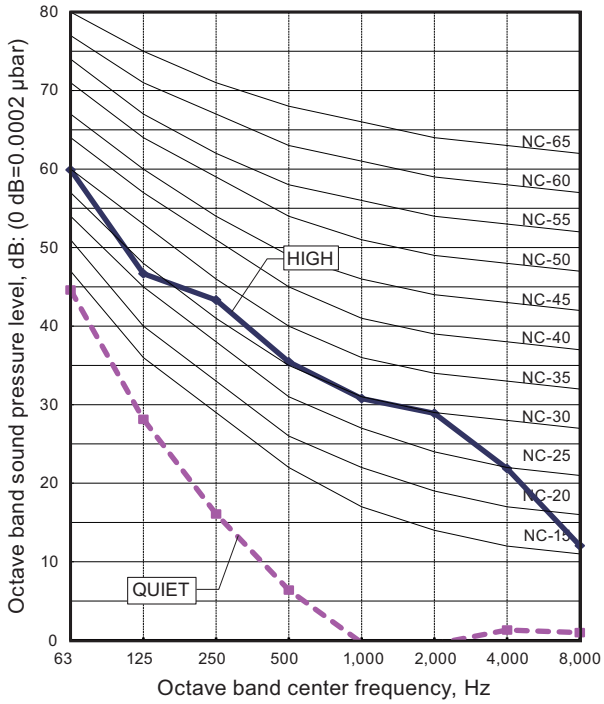
7. Operation noise (sound pressure)

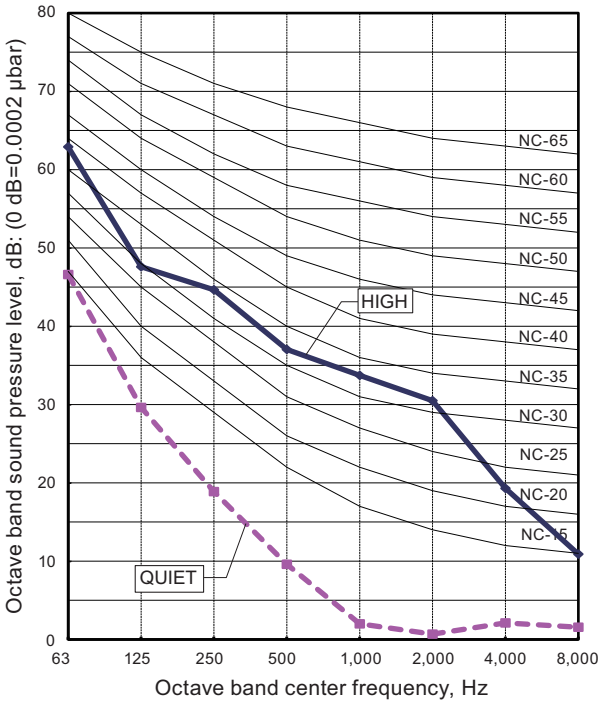
7-1. Noise level curve

■ Model: RSG09KMCEN

● Cooling

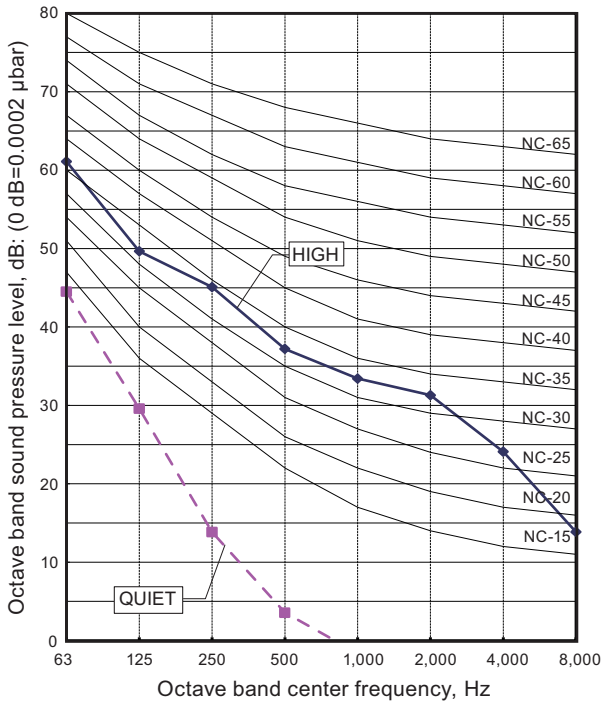


● Heating

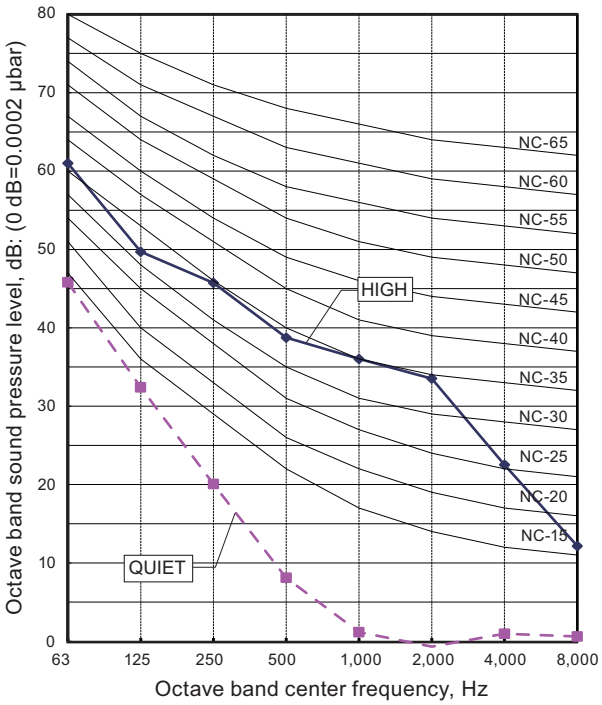


■ Model: RSG12KMCEN

● Cooling



● Heating



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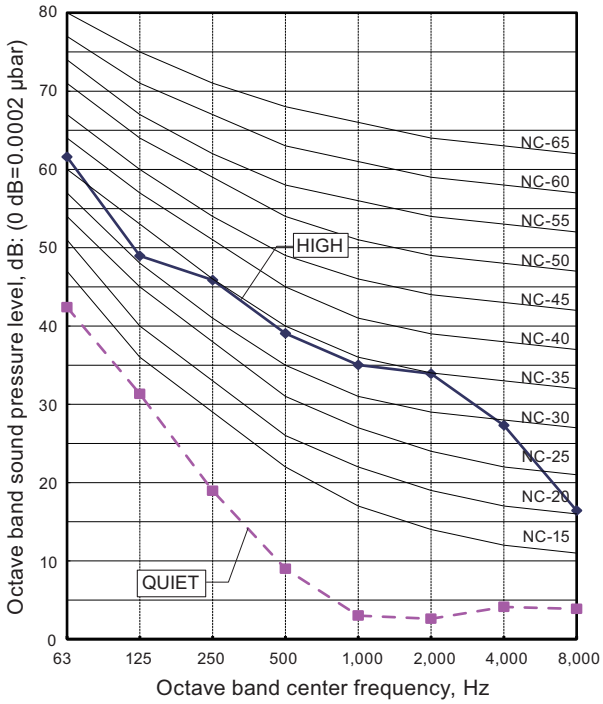
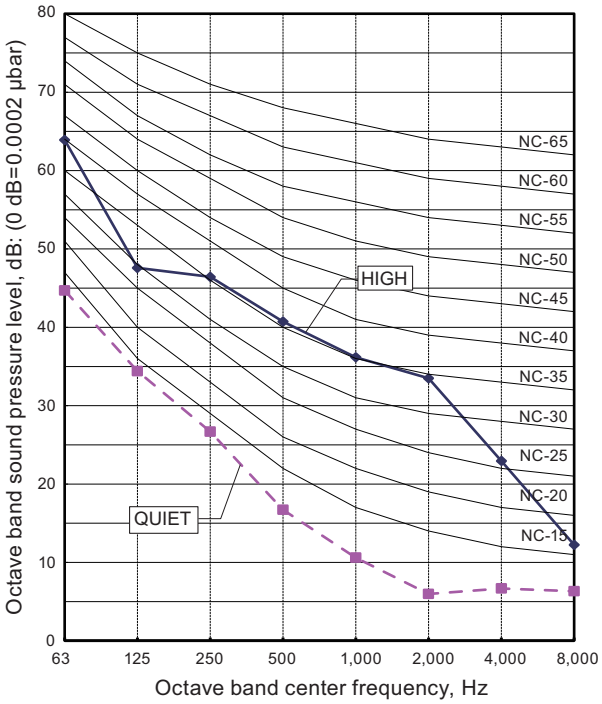
RSG09-14KMCEN

■ Model: RSG14KMCEN

● Cooling



● Heating



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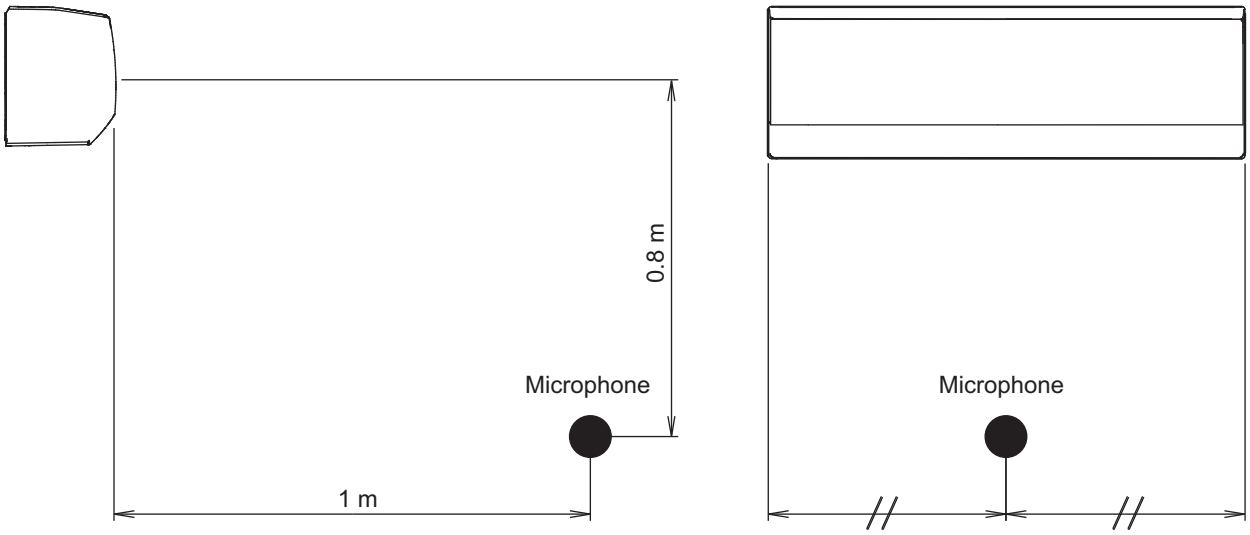
7-2. Sound level check point



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

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8. Safety devices

Type of protection	Protection form		Model		
			RSG09KMCEN	RSG12KMCEN	RSG14KMCEN
Circuit protection	Current fuse (PCB*)		250 V, 3.15 A		
Fan motor protection	Thermal protection	Activate	170 $^{+25}_{-30}$°C Fan motor stop		
		Reset	145 $^{+25}_{-30}$°C Fan motor restart		

*PCB: Printed Circuit Board

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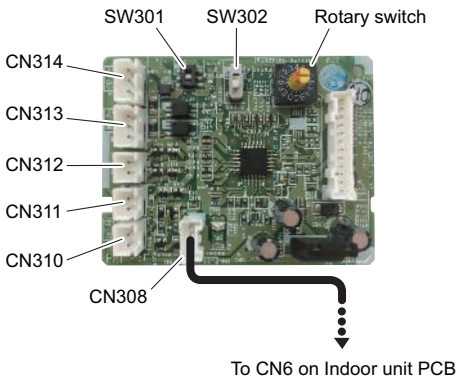
RSG09-14KMCEN

9. External input and output

External input and output PCB



Connecting point		Input/Output	Function	Input select	Input signal
External Input and Output PCB (UTY-XCSXZ2)	CN313 CN314	Input	Operation/Stop	Dry contact/Apply voltage	Edge/Pulse
			Forced stop		
	CN313		Forced thermostat off		Edge
	CN310 CN311 CN312	Output	Operation/Stop	—	—
			Error status		
			Indoor unit fan operation status		

NOTE: For details of the switching function, refer to "Setting of external input and output" on page 23.

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RSG09-14KMCEN

9-1. External input

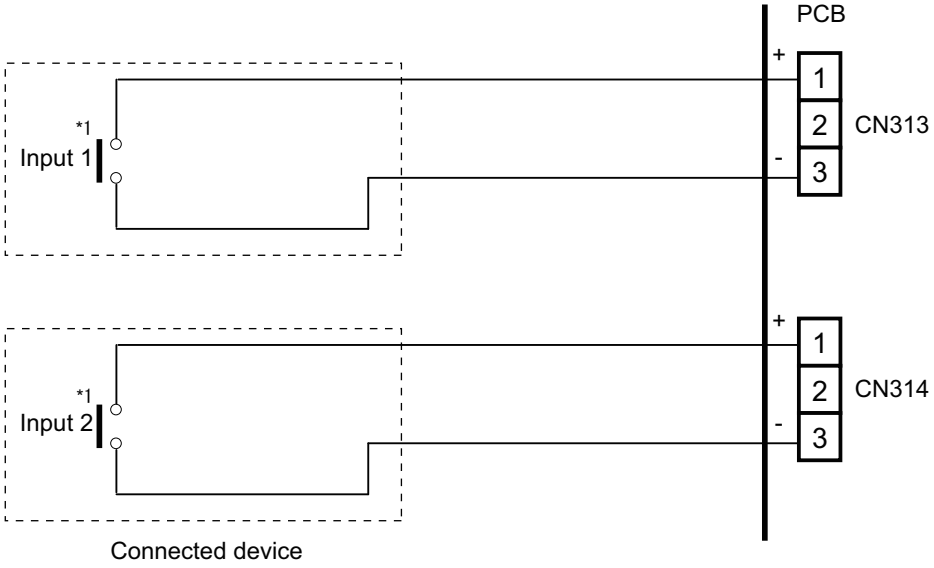
With using external input function, some functions on this product can be controlled from an external device.

- “Operation/Stop” mode or "Forced stop" mode can be selected with function setting of indoor unit.
- A twisted pair cable should be used. Maximum length of cable is 150 m.
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- The wire connection should be separate from the power cable line.

■ External Input and Output PCB

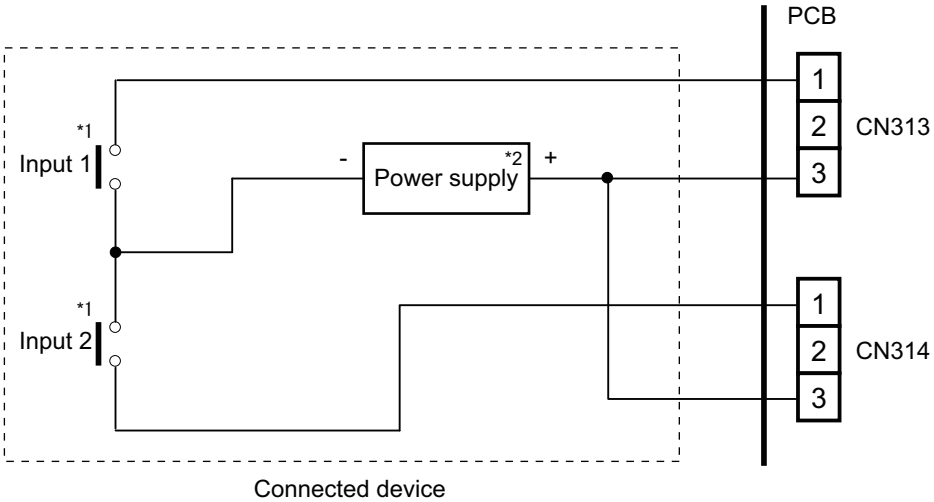
The indoor unit Operation/Stop can be set by using the input connector on the PCB.

- **Input select**
  Use either one of these types of connectors according to the application. (Both types of connectors cannot be used simultaneously.)
  – **Dry contact**
  In case of internal power supply, set the slide switch of SW301 to "NON VOL" side.



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

  – **Apply voltage**
  In case of external power supply, set the slide switch of SW301 to "VOL" side.



*1: The switches can be used on the following condition: DC 12 V to 24 V, 1 mA to 15 mA.
*2: Make the power supply DC 12 V to 24 V, 10 mA or more.

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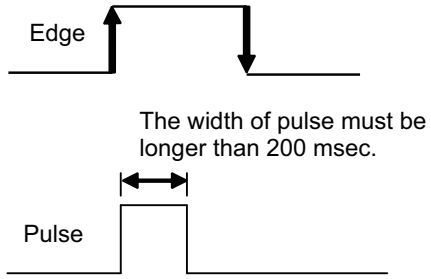
RSG09-14KMCEN

■ Input signal type

The input signal type can be selected.

Signal type (edge or pulse) can be switched by the DIP switch 2 (SW302) on the External Input and Output PCB.



NOTE: The input signal supports the following switch type:

- Edge: Alternate type switch
- Pulse: Momentary type switch

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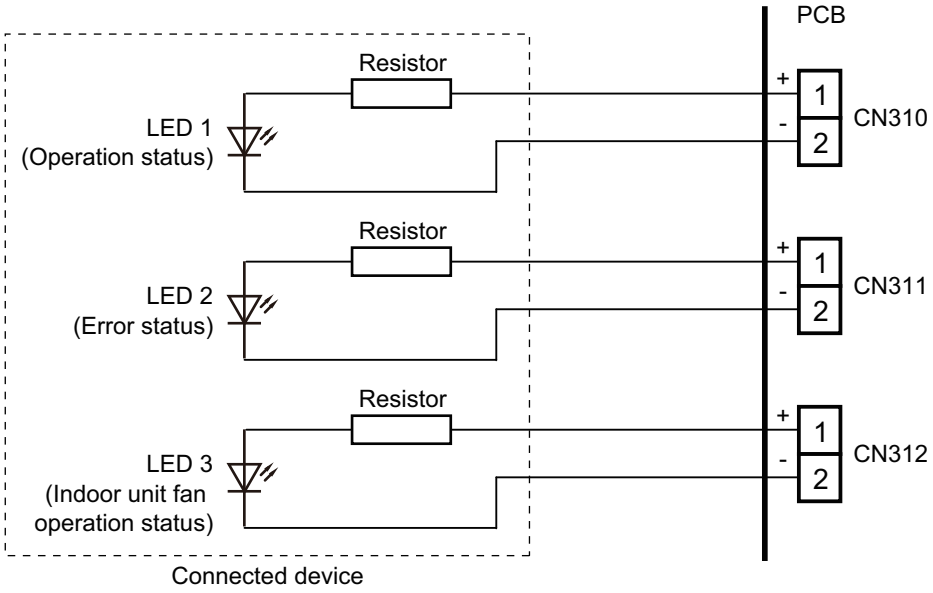
9-2. External output

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

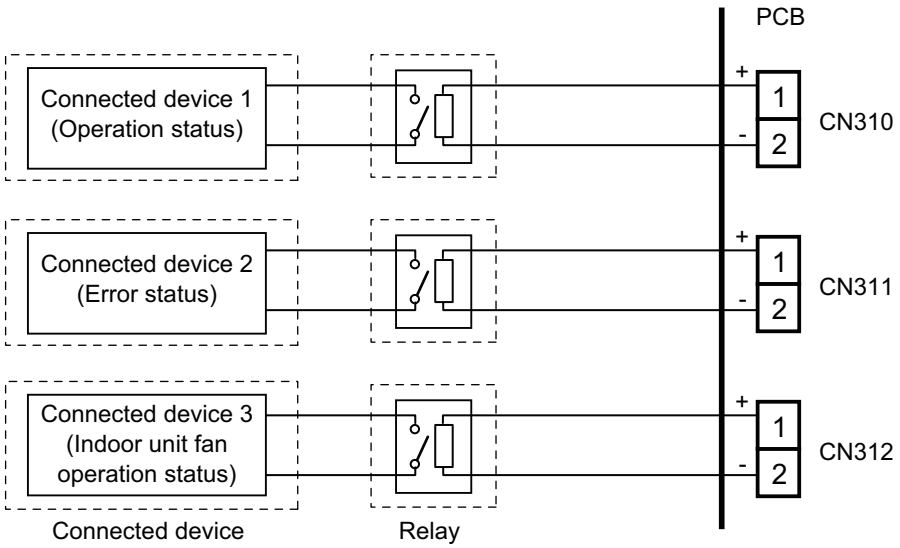
■ External Input and Output PCB

- A twisted pair cable 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 "Setting of external input and output" on page 23.

- **When indicator or other components are connected directly:**
  Example: Rotary SW on External Input and Output PCB is set to “1”.



- **When connecting with a device equipped with a power supply:**
  Example: Rotary SW on External Input and Output PCB is set to “1”.



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RSG09-14KMCEN

9-3. Setting of external input and output

Switch setting		Input		Output		
Rotary switch	**SW302**	**CN313**	**CN314**	**CN310**	**CN311**	**CN312**
1	Edge	Operation/Stop	Not available	Operation/Stop	Error status	Indoor unit fan status
	Pulse	Operation	Stop			
2	Edge*	Forced thermostat off	Not available	Error status	Indoor unit fan operation status	Not available
3 to 9, A		(Setting prohibited)				
B		Forced thermostat off	Not available	Operation/Stop	Indoor unit fan operation status	Not available
C		Forced thermostat off	Not available	Operation/Stop	Error status	Not available
D		Forced thermostat off	Not available	Operation/Stop	Indoor unit fan operation status	Error status

NOTES:

- The operation content depends on the setting of function setting number 46.
- *: The external input other than “Operation/Stop” is available only when the SW302 is set to “Edge”.

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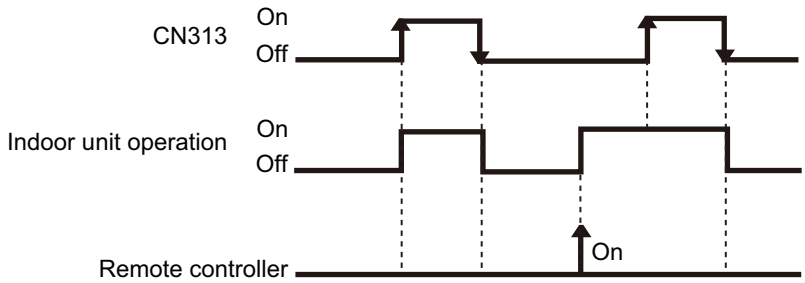
9-4. Details of control input function

■ Operation/Stop mode 1

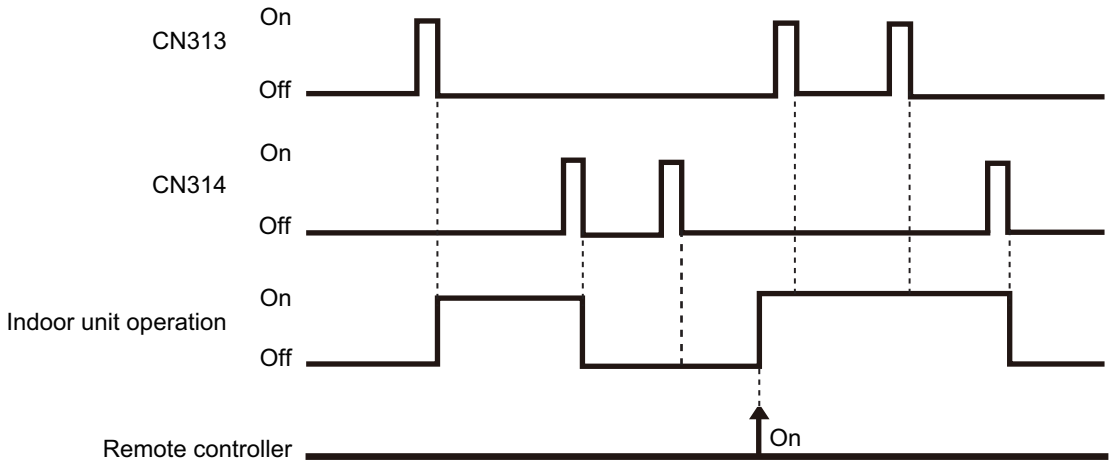
- **In the case of "Edge" input**

Function setting	External Input and Output PCB		External input		Input signal	Command
	Rotary switch	SW302				
46-00	1	Edge	External Input and Output PCB	CN313	Off → On	Operation
					On → Off	Stop



- **In the case of "Pulse" input**

Function setting	External Input and Output PCB		External input		Input signal	Command
	Rotary switch	SW302				
46-00	1	Pulse	External Input and Output PCB	CN313	Pulse	Operation
				CN314		Stop



NOTES:

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

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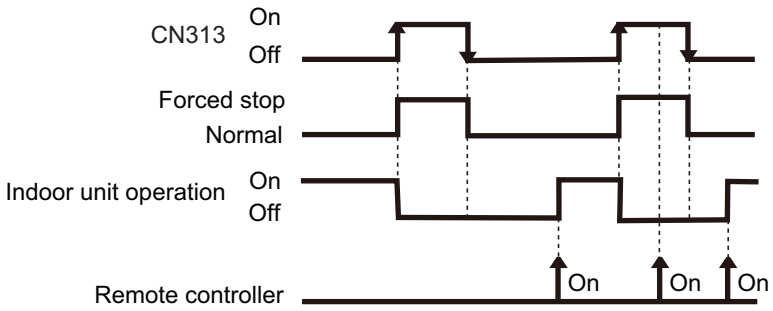
■ Forced stop

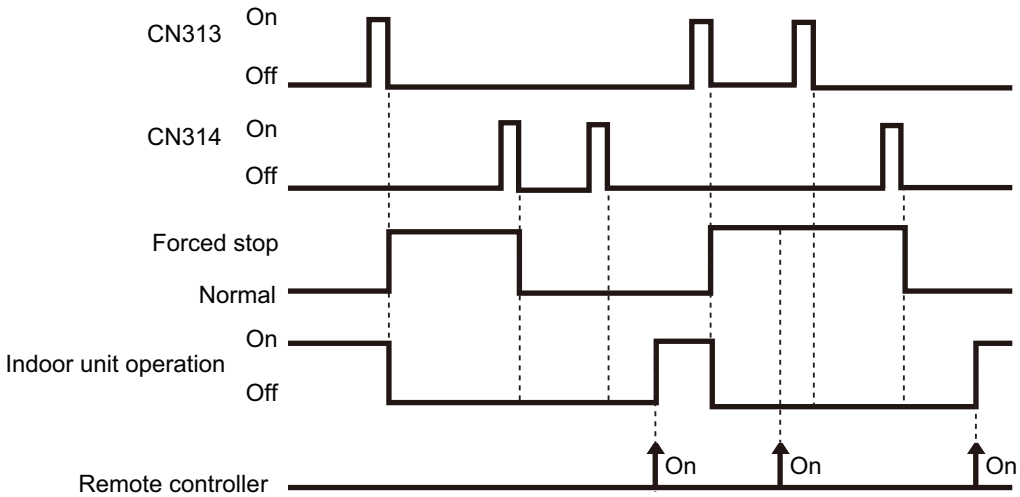
- **In the case of "Edge" input**

Function setting	External Input and Output PCB		External input		Input signal	Command
	Rotary switch	SW302				
46-02	1	Edge	External Input and Output PCB	CN313	Off → On	Forced stop (R.C. disabled)
					On → Off	Normal (R.C. enabled)



- **In the case of "Pulse" input**

Function setting	External Input and Output PCB		External input		Input signal	Command
	Rotary switch	SW302				
46-02	1	Pulse	External Input and Output PCB	CN313	Pulse	Forced stop (R.C. disabled)
				CN314		Normal (R.C. enabled)



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.

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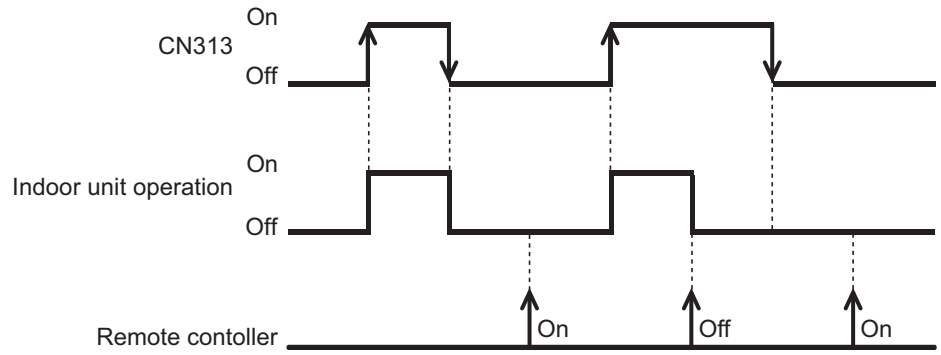
RSG09-14KMCEN

■ Operation/Stop mode 2

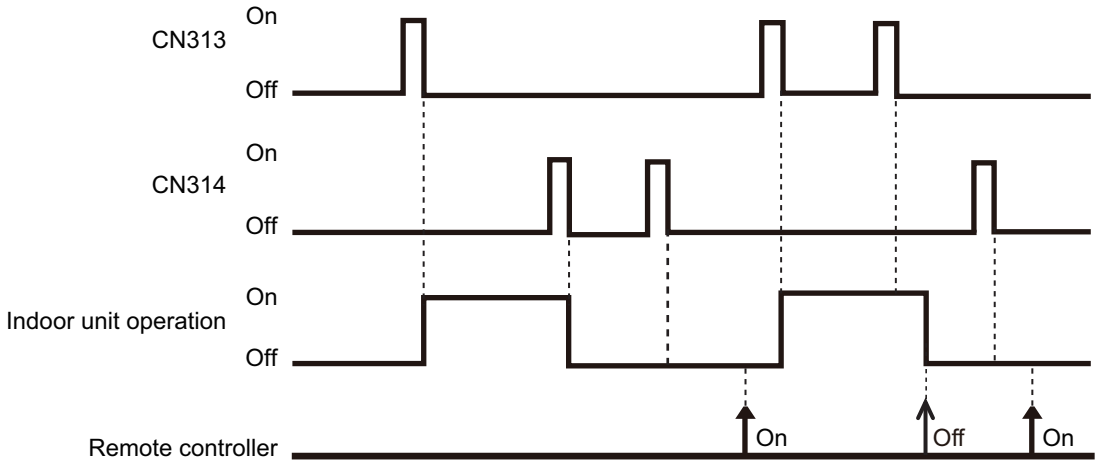
- **In the case of "Edge" input**

Function setting	External Input and Output PCB		External input		Input signal	Command
	Rotary switch	SW302				
46-03	1	Edge	External Input and Output PCB	CN313	Off → On	Operation (R.C. enabled)
					On → Off	Stop (R.C. disabled)



- **In the case of "Pulse" input**

Function setting	External Input and Output PCB		External input		Input signal	Command
	Rotary switch	SW302				
46-03	1	Pulse	External Input and Output PCB	CN313	Pulse	Operation (R.C. enabled)
				CN314		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.

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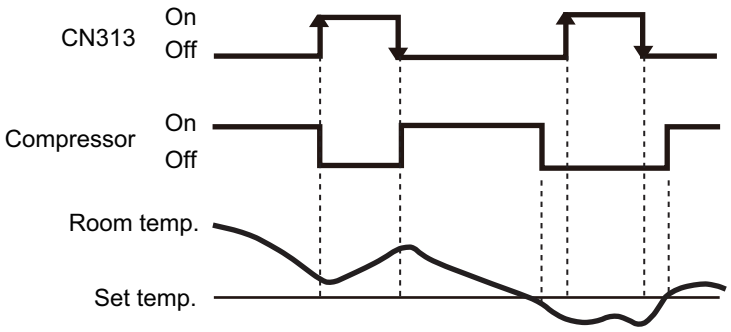
■ Forced thermostat off

External Input and Output PCB Rotary switch	External input		Input signal	Command
2, B, C, D	External Input and Output PCB	CN313	Off → On	Thermostat off
			On → Off	Normal operation



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RSG09-14KMCEN

9-5. Details of control output function

■ Operation status

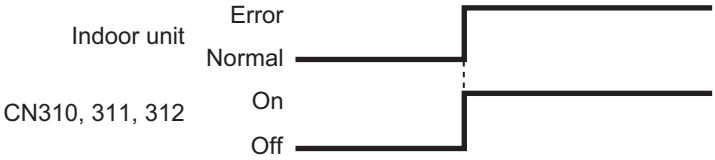
External Input and Output PCB Rotary switch	External output		Output signal	Status
1, B, C, D	External Input and Output PCB	CN310	Off → On	Operation
			On → Off	Stop

The output is low when the unit is stopped.

■ Error status

External Input and Output PCB Rotary switch	External output		Output signal	Status
2	External Input and Output PCB	CN310	Off → On	Error
			On → Off	Normal
1, C	External Input and Output PCB	CN311	Off → On	Error
			On → Off	Normal
D	External Input and Output PCB	CN312	Off → On	Error
			On → Off	Normal

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



■ Indoor unit fan operation status

External Input and Output PCB Rotary switch	External output		Output signal	Status
2, B, D	External Input and Output PCB	CN311	Off → On	Fan run
			On → Off	Fan stop
1	External Input and Output PCB	CN312	Off → On	Fan run
			On → Off	Fan stop

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

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RSG09-14KMCEN

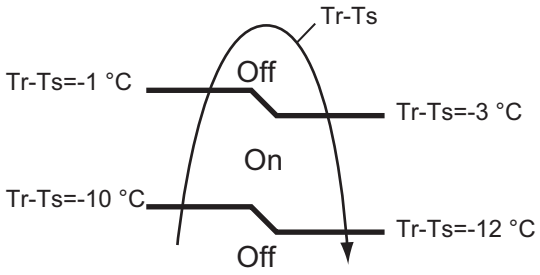
■ External heater output

Function setting	External Input and Output PCB Rotary switch	External output		Output signal	Control
60-11	—	Output of indoor unit	CN47	Off → On	Heater on
				On → Off	Heater off
—	2, B, C	External Input and Output PCB	CN312	Off → On	Heater on
				On → Off	Heater off

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

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

Example: When set temperature (Ts) is set at 22°C;
- And room temperature (Tr) increase above 12°C, signal output is on.
- And Tr increase above 21°C, signal output is off.
- And Tr decrease below 19°C, signal output is on.
- And Tr decrease below 10°C, signal output is off.



The output also turns off in defrost operation.

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10. Group connection

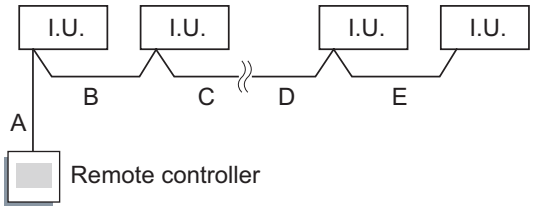
NOTE: Group control cannot be used together with Wireless LAN Adapter.

Installation procedure for group control system:

A number of indoor units can be operated at the same time using a single remote controller.

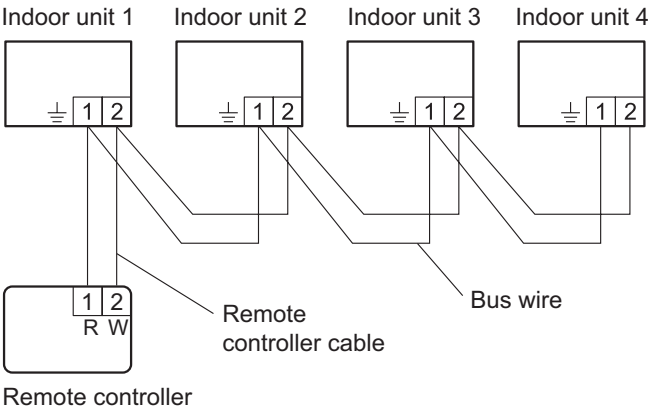
NOTE: When different type of indoor units (such as wall-mounted type and cassette type, cassette type and duct type, or other combinations) are connected using group control system, some functions may no longer be available.

1. Connect up to 16 indoor units in a system.



A, B, C, D, E: Remote controller cable	
Wiring length limitation	A + B + C + D + E ≤ 500 m

Example of wiring method



2. Automatic address setting
   After the remote controller connection in the system, the automatic address setting runs in the initial starting up. Do not change the remote controller address for the indoor unit.

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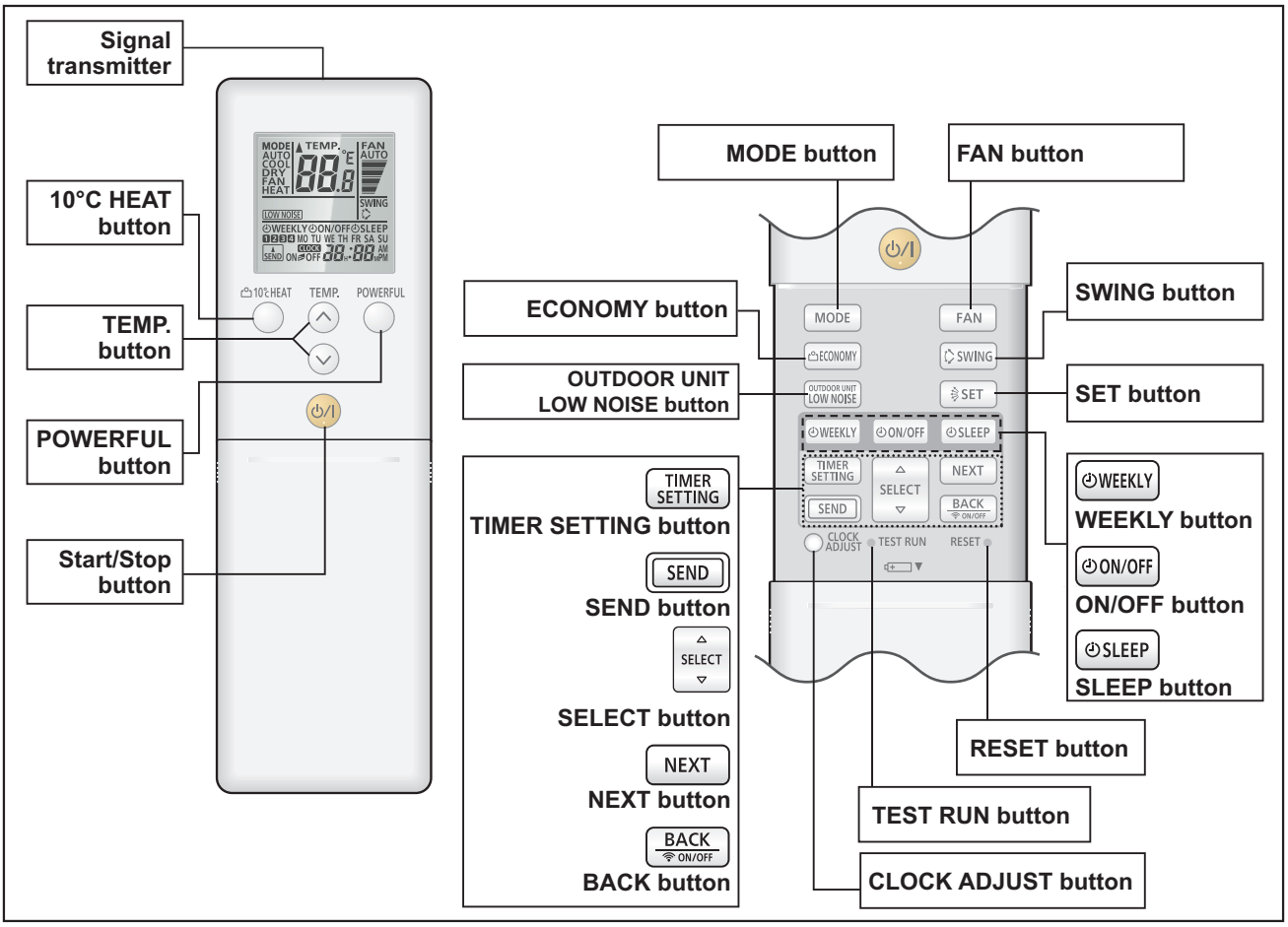
11. Remote controller

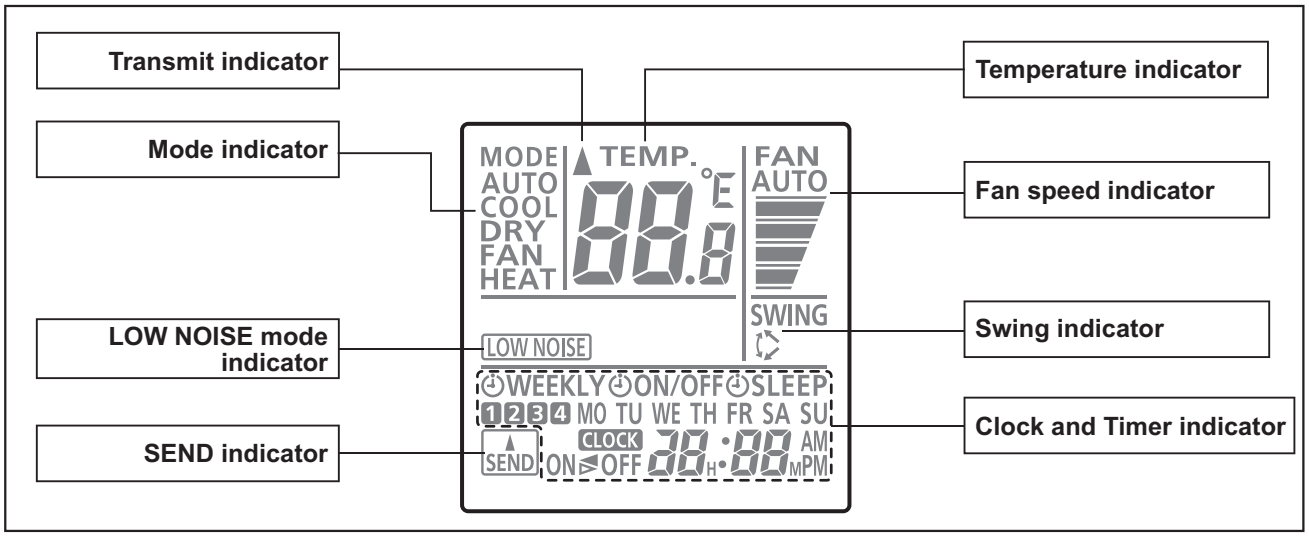
11-1. Wireless remote controller

■ 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.

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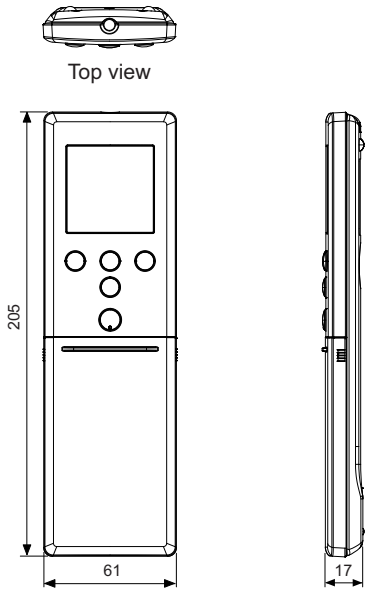
■ Specifications

● Controller

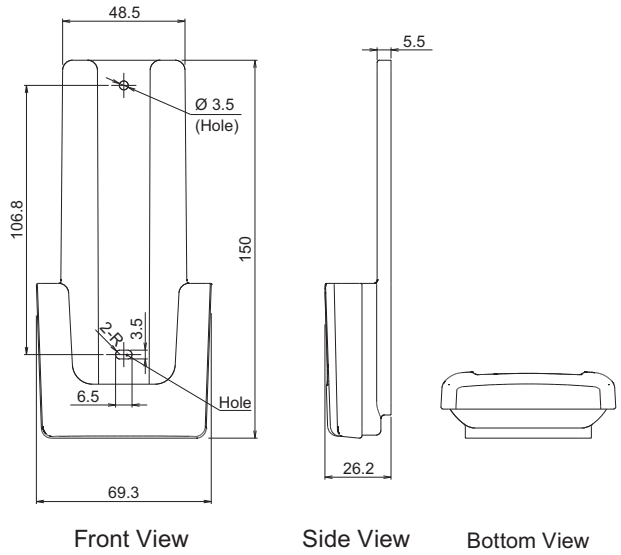
Unit: mm



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

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12. 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.

12-1. Function settings by using remote controller

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

■ Setting procedure by using wireless remote controller

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

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

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

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

NOTES:

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

Entering function setting mode:

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

Selecting the function number and setting value:

1. Press the TEMP. (∧) (∨) buttons to select the function number. To switch between the left and right digits, press the 10 °C HEAT button.
2. Press the POWERFUL button to proceed to value setting. To return the function number selection, press the POWERFUL button again.
3. Press the TEMP. (∧) (∨) buttons to select the setting value. To switch between the left and right digits, press the 10 °C HEAT button.
4. Press the MODE button once. Confirm that you hear the beep sound.
5. Press the START/STOP button to fix the function setting. Confirm that you hear the beep sound.
6. Press the RESET button to end the function setting mode.
7. After completing the function setting, be sure to disconnect the power supply and then reconnect it.

⚠ CAUTION

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

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NOTES:

- 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 that operates the air conditioner.

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■ Contents of function setting

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

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

● Function setting list

	Function no.	Functions
1)	00	Remote controller address setting
2)	11	Filter sign
3)	30/31	Room temperature control for indoor unit sensor
4)	35/36	Room temperature control for wired remote controller sensor
5)	40	Auto restart
6)	42	Room temperature sensor switching
7)	43	Cold air prevention
8)	44	Remote controller custom code
9)	46	External input control
10)	48	Room temperature sensor switching (Aux.)
11)	49	Indoor unit fan control for energy saving for cooling

1) Remote controller address setting

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

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

Set the unit number of each indoor unit.

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

NOTE: When different type of indoor units (such as wall mounted type and cassette type, cassette type and duct type, or other combinations) are connected using group control system, some functions may no longer be available.

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2) Filter sign

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

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

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

3) Room temperature 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 of the room temperature sensor is corrected as follows:

Corrected temp. = Temp. of the room temp. sensor - Correction temp. value

Example of correction:

When the temperature of the room temp. sensor is 26°C and the setting value is “03” (-1.0°C), corrected temp. will be 27°C (26°C - [-1.0°C]).

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		

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4) Room temperature control for wired remote controller sensor

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

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

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

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

5) Auto restart

Enables or disables automatic restart after a power interruption.

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

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

6) Room temperature sensor switching

(Only for wired remote controller)

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

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

00: Sensor on the indoor unit is active.

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

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

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7) Cold air prevention

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

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

NOTE: The customer may feel the cold air at the time heating operation starts, and at the time outdoor unit recovers from defrosting operation if the “Cold air prevention control” is disabled by the local function setting.

8) Remote controller custom code

(Only for wireless remote controller)

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

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

9) External input control

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

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

NOTE: If this function is necessary, the rotary switch on the External input and output PCB should be set to 1.

10) Room temperature sensor switching (Aux.)

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

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

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	

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11) Indoor unit fan control for energy saving for cooling

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

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

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

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

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

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

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12-2. Custom code setting for wireless remote controller

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

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

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

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

1. Press the START/STOP button until only the clock is displayed on the remote controller display.
2. Press the MODE button for at least 5 seconds to display the current custom code. (Initially set to A.)
3. Press the TEMP. (∧) (∨) buttons to change the custom code between A →b →c →d. Match the code on the display to the air conditioner custom code. (Initially set to A.)
4. Press the MODE button again to return to the clock display. The custom code will be changed.

NOTES:

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

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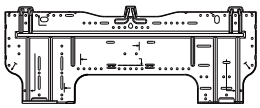
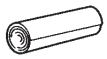
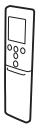
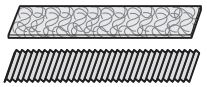
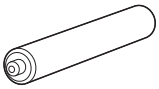
13. Accessories

13-1. Models: RSG09KMCEN, RSG12KMCEN, and RSG14KMCEN

Part name	Exterior	Qty	Part name	Exterior	Qty
Operation manual		1	Tapping screw (large)		5
Installation manual		1	Tapping screw (small)		2
Wall hook bracket		1	Cloth tape		1
Remote controller		1	Filter holder		2
Remote controller holder		1	Air cleaning filters		1
Battery		2			

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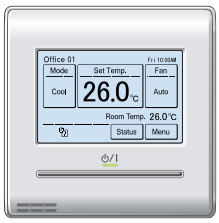
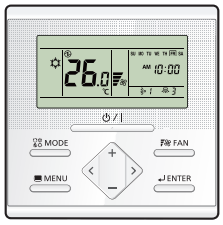
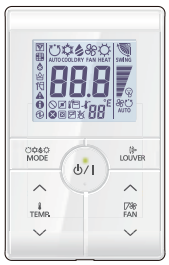
14. Optional parts

14-1. Controllers

Exterior	Part name	Model name	Summary
	Wired Remote Controller	UTY-RNRXZ*	Easy finger touch operation with LCD panel. Backlit LCD enables easy operation in a dark room. Wire type: Non-polar 2-wire Optional Communication Kit is necessary for installation.
	Wired Remote Controller	UTY-RLRX	High visibility and easy operation. Room temperature can be accurately controlled using the thermo sensor. Wire type: Non-polar 2-wire Optional Communication Kit is necessary for installation.
	Compact Wired Remote Controller	UTY-RCRXZ1	Compact body and easy operation. Room temperature can be accurately controlled using the thermo sensor. Wire type: Non-polar 2-wire Optional Communication Kit is necessary for installation.
	Simple Remote Controller	UTY-RSRX	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting, and operation mode. Wire type: Non-polar 2-wire Optional Communication Kit is necessary for installation.

NOTES:

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

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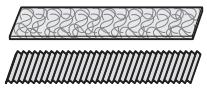
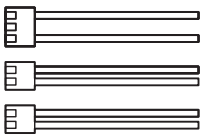
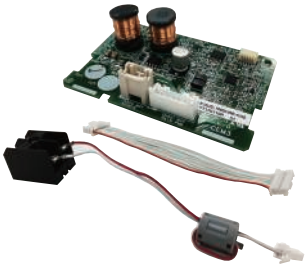
14-2. Others

Exterior	Part name	Model name	Summary
	Air Cleaning Filter	UTR-FA16-5	Air Cleaning Filter can be mounted to the indoor unit.
	External Connect Kit	UTY-XWZXZ5	Required when external device is connected. Connecting point: CN6 on Main PCB
	External Input and Output PCB	UTY-XCSXZ2	Use to connect with external devices and air conditioner PCB. Optional External Connect Kit is necessary for installation. Connecting point: CN6 on Main PCB
	Communication Kit	UTY-TWRXZ2	Use to connect Non-polar 2-core wired remote controller.
	Modbus Converter	UTY-VMSX	For connection between indoor unit with UART interface and a Modbus open network. Connecting point: CN6 on Main PCB
	KNX Converter	UTY-VKSX	For connection between indoor unit with UART interface and a KNX open network. Connecting point: CN6 on Main PCB
	Network Converter	UTY-VTGX	This converter is required when connecting single split system to VRF network system. Connecting point: CN6 on Main PCB
	Network Converter (AC power supply)	UTY-VTGXV	This converter is required when connecting single split system to VRF network system. Connecting point: CN6 on Main PCB
	External Switch Controller	UTY-TERX	Air conditioner switching can be controlled by connecting other external sensor switches. Connecting point: CN6 on Main PCB

NOTE: Combined use of following optional parts and Wireless LAN Adapter is not allowed.

- External Input and Output PCB
- Modbus Converter
- KNX Converter
- Network Converter
- Network Converter (AC power supply)
- External Switch Controller

WALL MOUNTED
RSG09-14KMCEN

Part 2. OUTDOOR UNIT

SINGLE TYPE:

ROG09KMCEN
ROG12KMCEN
ROG14KMCEN

1. Specifications

Type					Inverter, Heat pump		
Model name					ROG09KMCEN	ROG12KMCEN	ROG14KMCEN
Power supply					230 V~ 50 Hz		
Power supply intake					Outdoor unit		
Available voltage range					198—264 V		
Starting current				A	3.3	4.3	6.2
Fan	Airflow rate		Cooling	m^3/h	1,770	2,210	2,450
			Heating		1,313	1,335	2,330
	Type × Qty				Propeller fan × 1		
	Motor output			W	23	49	
Sound pressure level *			Cooling	dB (A)	48	49	
			Heating		43		49
Sound power level			Cooling	dB (A)	59		61
			Heating		56		59
Heat exchanger type			Dimensions (H × W × D)	mm	Main 1: 504 × 881 × 18.19 Main 2: 504 × 851 × 18.19	Main 1: 588 × 881 × 18.19 Main 2: 588 × 851 × 18.19	Main 1: 672 × 881 × 18.19 Main 2: 672 × 851 × 18.19
			Fin pitch		1.3		
			Rows × Stages		Main 1: 1 × 24 Main 2: 1 × 24	Main 1: 1 × 28 Main 2: 1 × 28	Main 1: 1 × 32 Main 2: 1 × 32
			Pipe type		Copper		
			Fin type	Type (Material)	Aluminum		
				Surface treatment	PC fin		
Compressor	Type				DC twin rotary		
	Motor output			W	810	900	1,060
Refrigerant			Type (Global warming potential)		R32 (675)		
			Charge	g	850	940	1,120
Refrigerant oil			Type		FW68S		RmM68AF
			Amount	cm^3	350		400
Enclosure			Material		Steel sheet		
			Color		Beige Approximate color of Munsell 10YR 7.5/1.0		
Dimensions (H × W × D)	Net			mm	542 × 799 × 290	632 × 799 × 290	716 × 820 × 315
	Gross				602 × 940 × 375	692 × 940 × 375	776 × 961 × 450
Weight	Net			kg	33	36	42
	Gross				37	41	47
Connection pipe	Size		Liquid	mm (in)	Ø6.35 (Ø1/4)		
			Gas		Ø9.52 (Ø3/8)		
	Method				Flare		
	Pre-charge length			m	15		
	Max. length				20		
	Max. height difference				15		
	Additional charge			g/m	20		
Operation range			Cooling	°C	-10 to 43		
			Heating		-25 to 24		

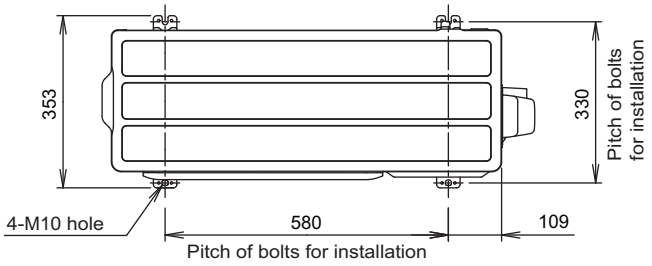
NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 27°CDB/19°CWB, and outdoor temperature of 35°CDB/24°CWB.
  - Heating: Indoor temperature of 20°CDB/15°CWB, and outdoor temperature of 7°CDB/6°CWB.
  - Pipe length: 5 m, Height difference: 0 m.
- Protective function might work when using it outside the operation range.
- *: 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.

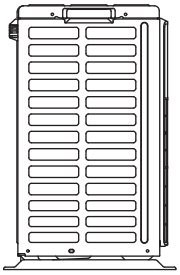
2. Dimensions

2-1. Model: ROG09KMCEN

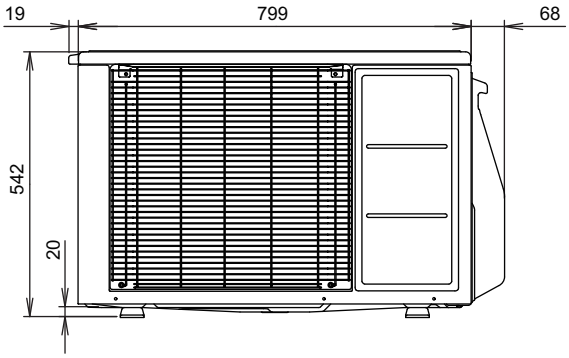
Unit: mm



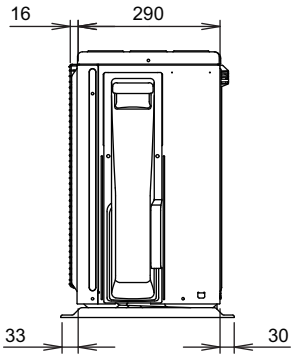
Top view



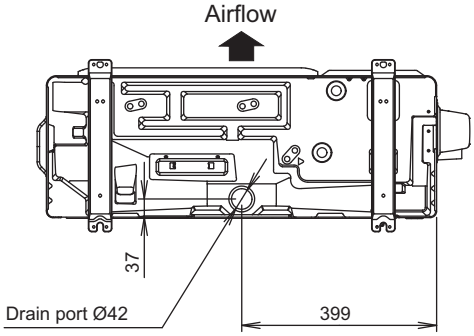
Side view



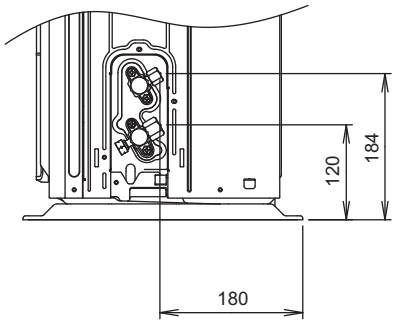
Front view



Side view



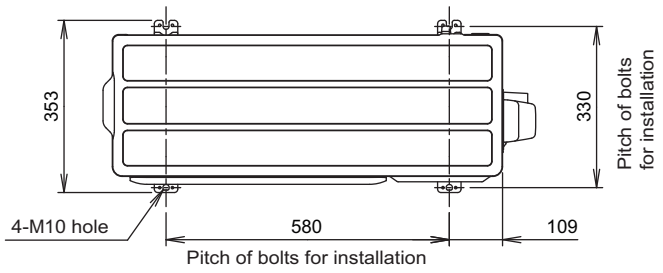
Bottom view



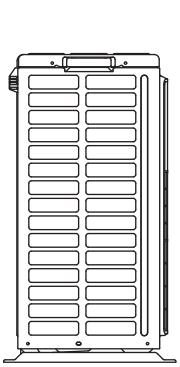
Side view (Valve part)

2-2. Model: ROG12KMCEN

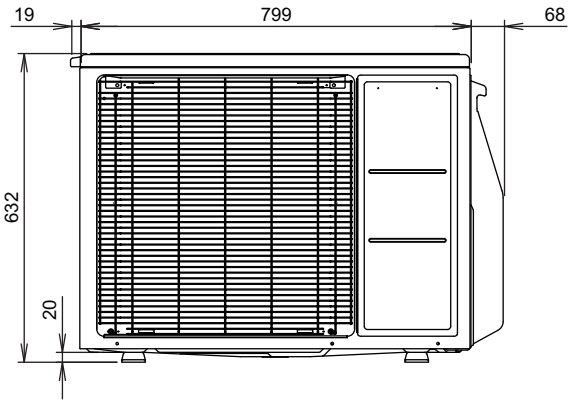
Unit: mm



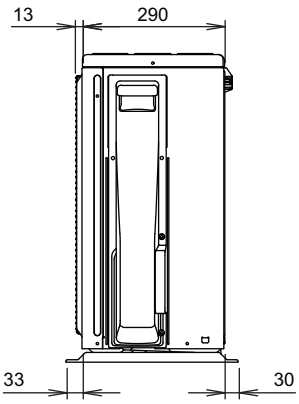
Top view



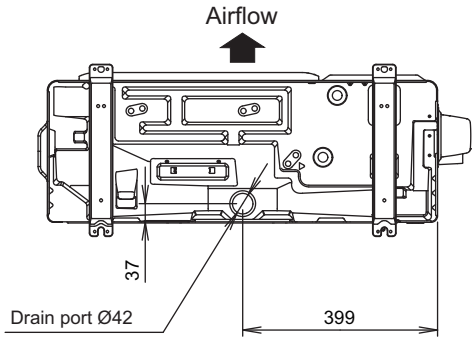
Side view



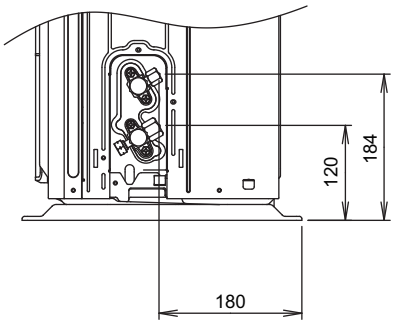
Front view



Side view



Bottom view

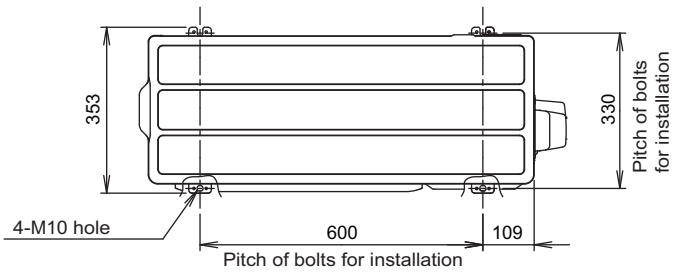


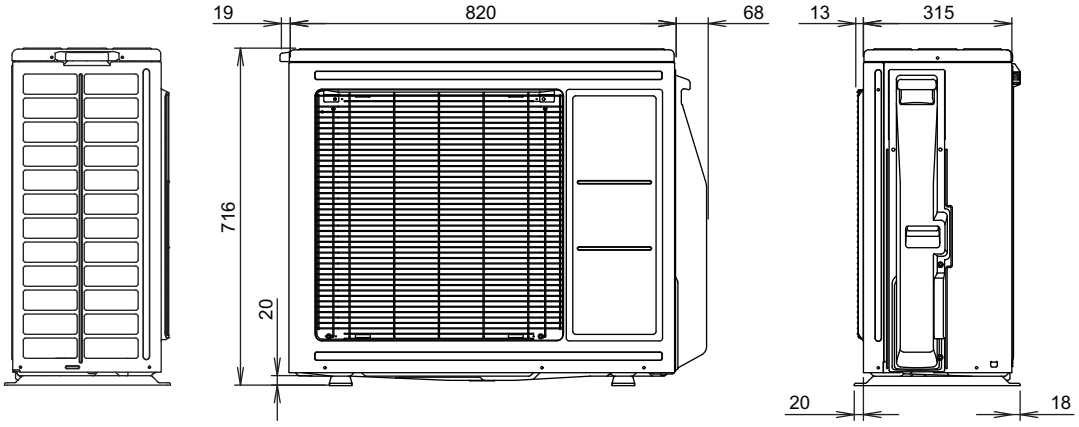
Side view (Valve part)

OUTDOOR UNIT
ROG09-14KMCEN

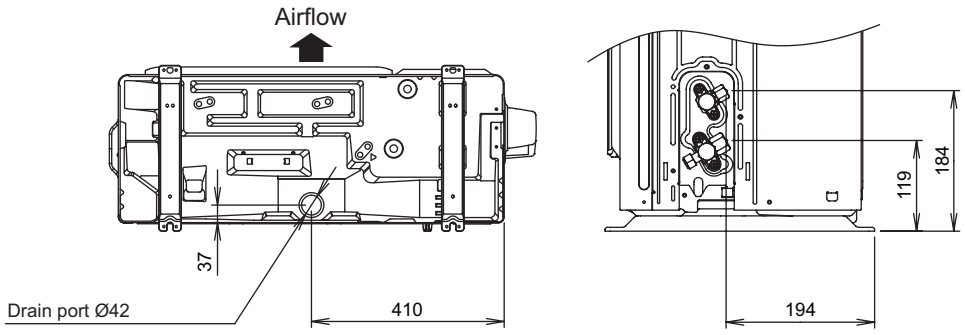
2-3. Model: ROG14KMCEN

Unit: mm





Side view　　Front view　　Side view



Bottom view　　Side view (Valve part)

OUTDOOR UNIT
ROG09-14KMCEN

3. Installation space

3-1. Models: ROG09KMCEN, ROG12KMCEN, and ROG14KMCEN

■ Space requirement

Provide sufficient installation space for product safety.

⚠ CAUTION

Keep the space shown in the installation examples.

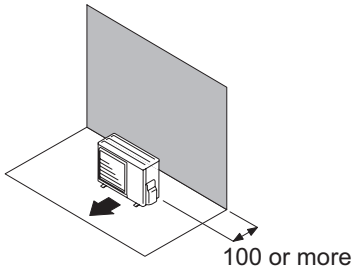
If the installation is not performed accordingly, it could cause a short circuit and result in a lack of operating performance.

● Single outdoor unit installation

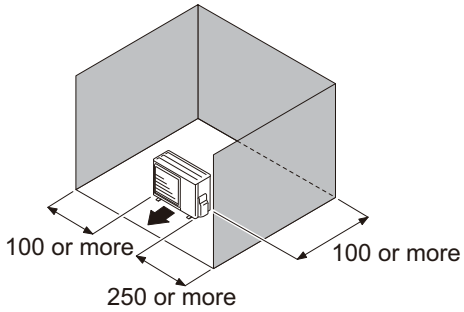
- **When the upper space is open:**

Unit: mm

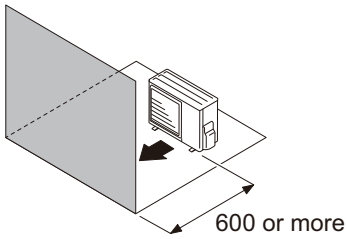
Obstacles at rear only



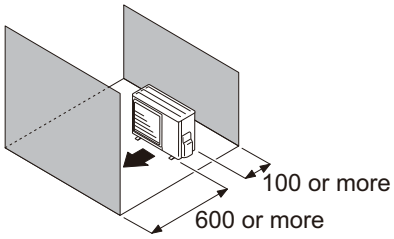
Obstacles at rear and sides



Obstacles at front



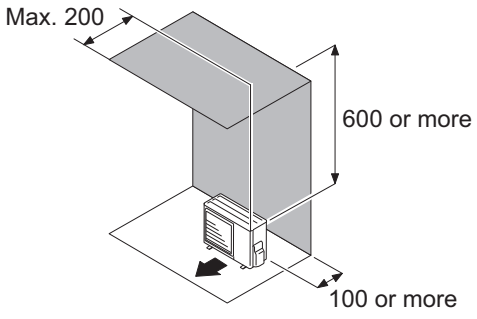
Obstacles at front and rear



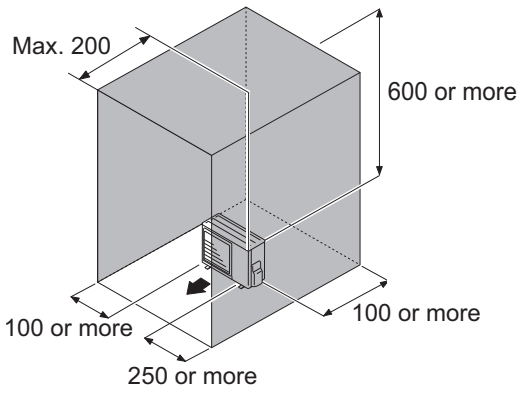
- **When an obstruction in the upper space:**

Unit: mm

Obstacles at rear and above



Obstacles at rear, sides, and above



OUTDOOR UNIT
ROG09-14KMCEN

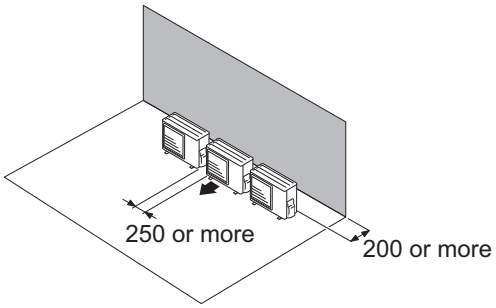
● Multiple outdoor unit installation

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

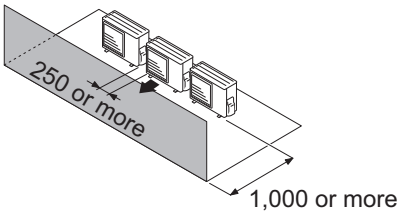
- **When the upper space is open:**

Unit: mm

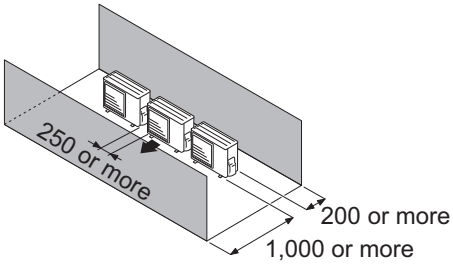
Obstacles at rear only



Obstacles at front only



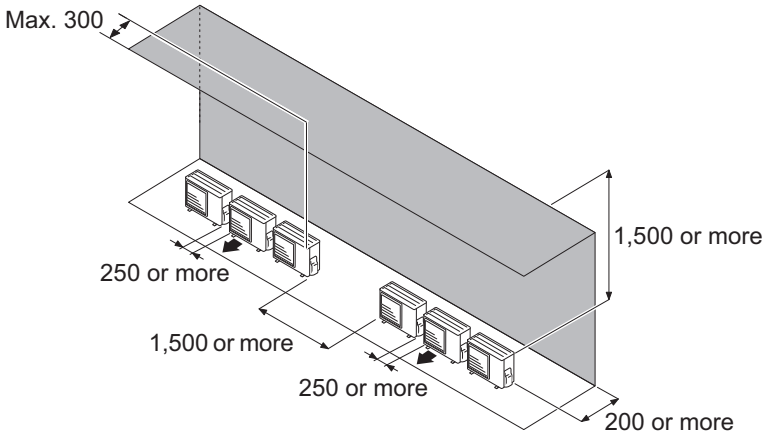
Obstacles at front and rear



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

Unit: mm

Obstacles at rear and above.

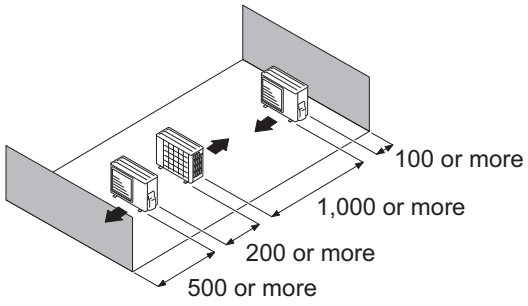


OUTDOOR UNIT
ROG09-14KMCEN

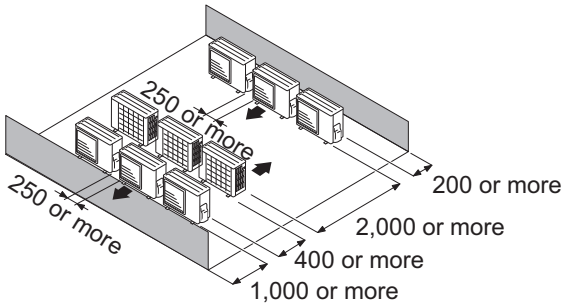
● Outdoor units installation in multi-row

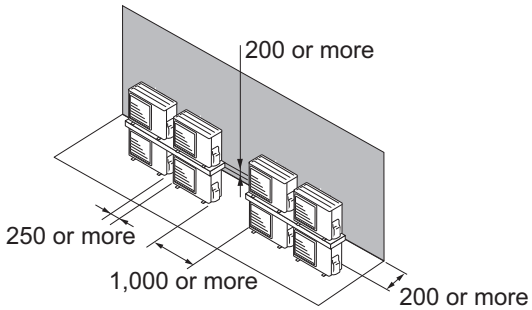
Unit: mm

Single parallel unit arrangement



Multiple parallel unit arrangement



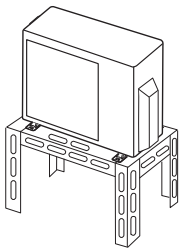


NOTES:

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

⚠ CAUTION

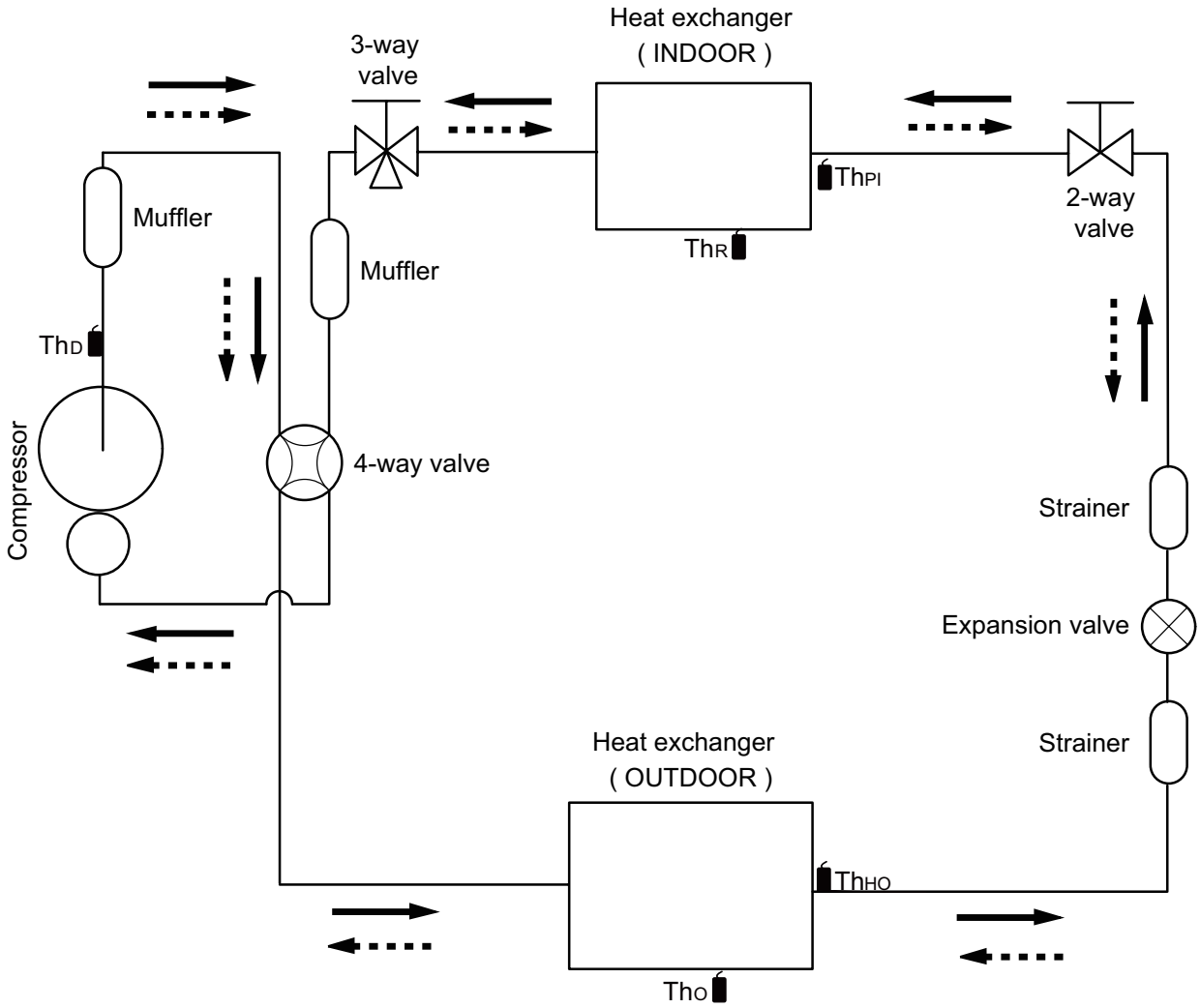
- Do not install the outdoor unit in two-stage where the drain water could freeze. Otherwise the drainage from the upper unit may form ice and cause a malfunction of the lower unit.
- When the outdoor temperature is 0 °C or less, do not use the accessory drain pipe and drain cap. If the drain pipe and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



OUTDOOR UNIT
ROG09-14KMCEN

4. Refrigerant circuit

4-1. Models: ROG09KMCEN and ROG12KMCEN



Cooling

Heating

ThD :Thermistor (Discharge temp.)

ThO :Thermistor (Outdoor temp.)

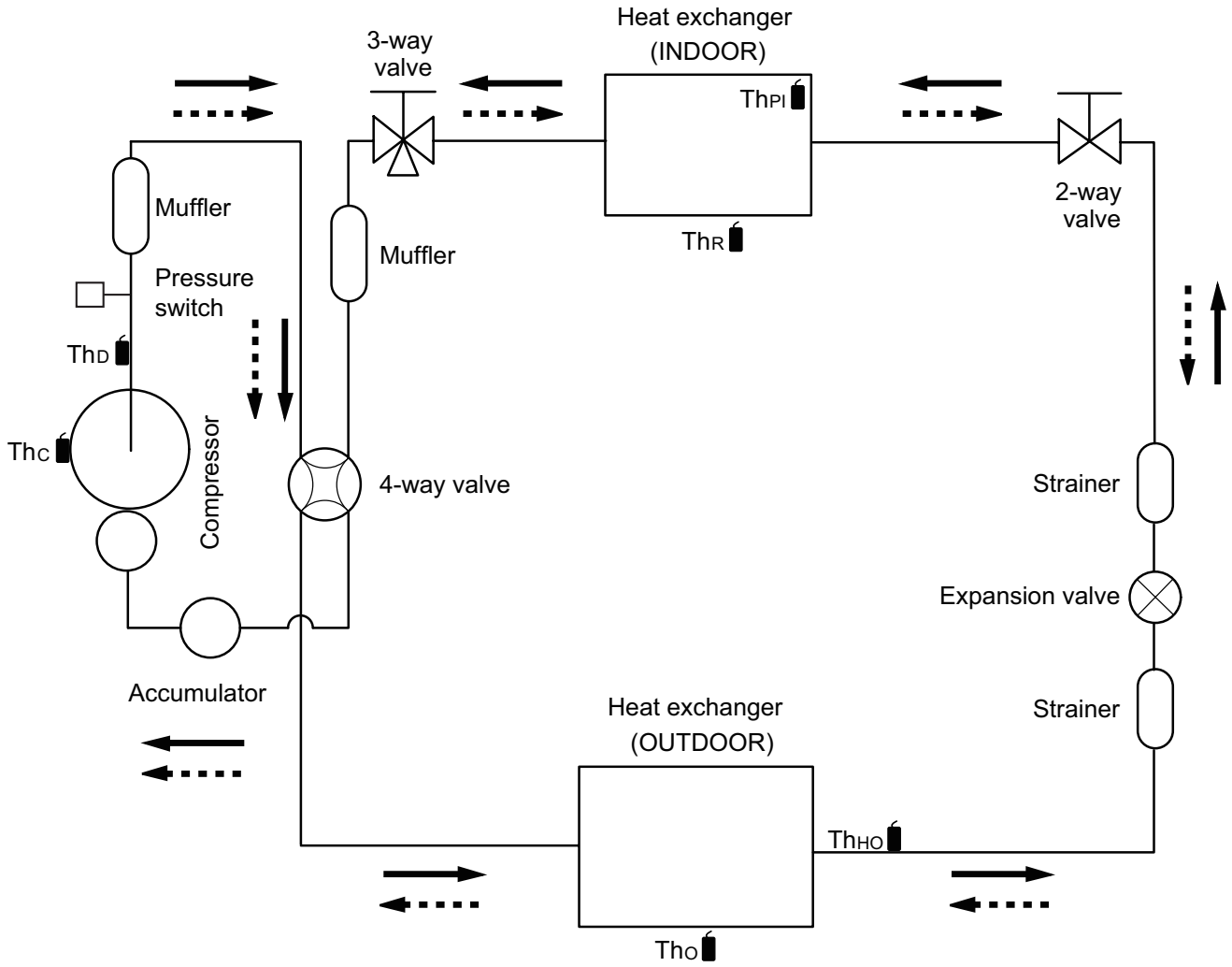
ThHO :Thermistor (Heat exchanger out temp.)

ThPI :Thermistor (Pipe temp.)

ThR :Thermistor (Room temp.)

OUTDOOR UNIT
ROG09-14KMCEN

4-2. Model: ROG14KMCEN

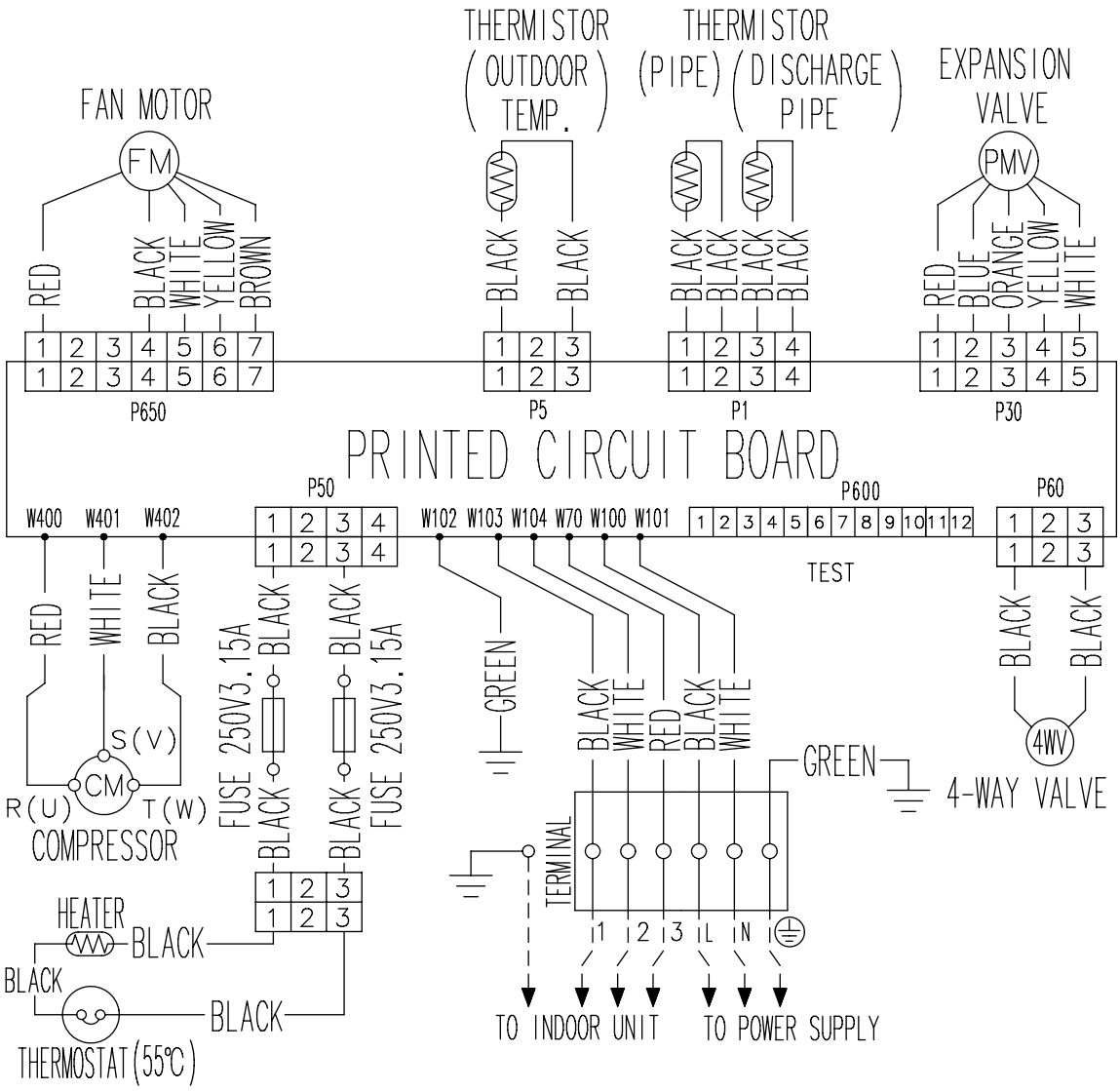


ThC : Thermistor (Compressor temperature)
ThD : Thermistor (Discharge temperature)
ThO : Thermistor (Outdoor temperature)
ThHO : Thermistor (Heat exchanger out temperature)
ThPI : Thermistor (Pipe temperature)
ThR : Thermistor (Room temperature)

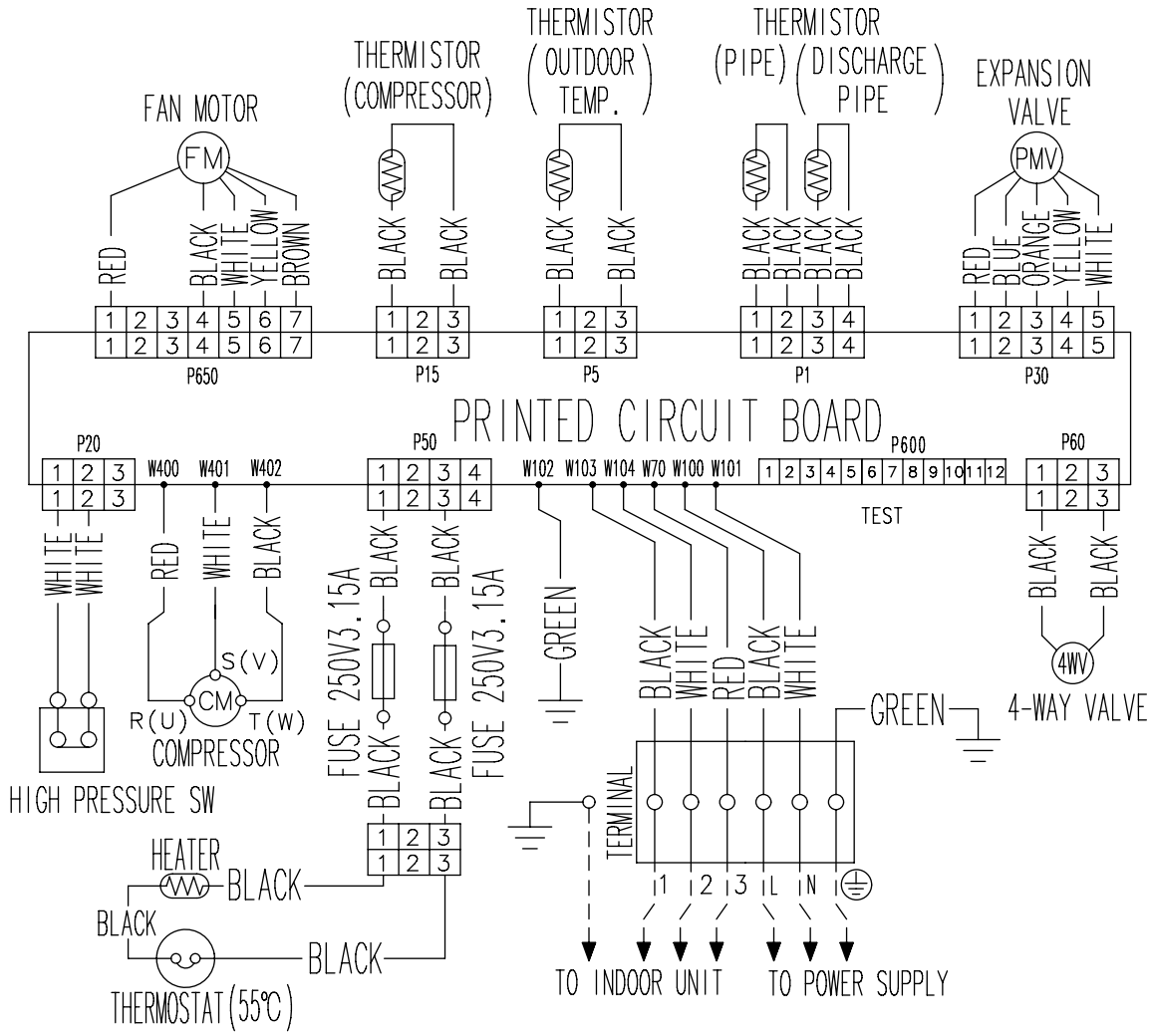
OUTDOOR UNIT
ROG09-14KMCEN

5. Wiring diagrams

5-1. Models: ROG09KMCEN and ROG12KMCEN



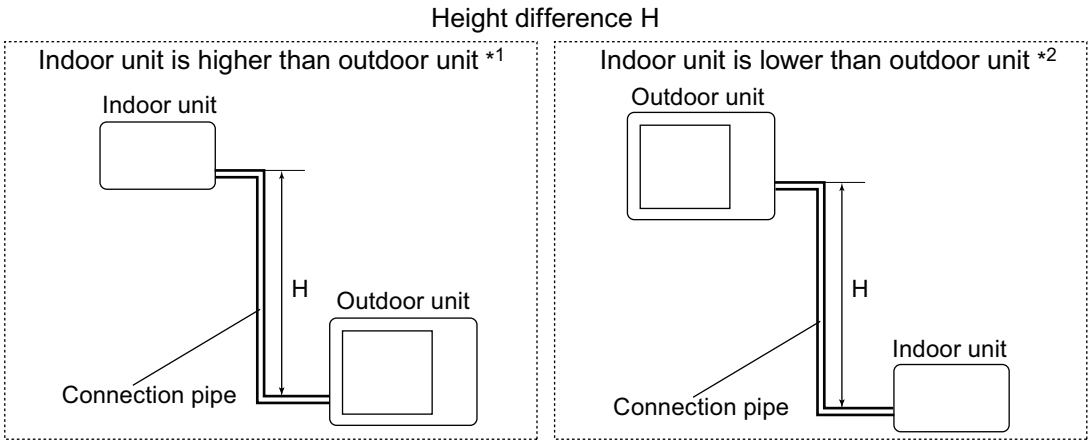
5-2. Model: ROG14KMCEN



OUTDOOR UNIT
ROG09-14KMCEN

OUTDOOR UNIT
ROG09-14KMCEN

6. Capacity compensation rate for pipe length and height difference



6-1. Model: ROG09KMCEN

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

COOLING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	Indoor unit is higher than outdoor unit *1	15	—	—	—	0.904	0.879
		10	—	—	0.951	0.919	0.879
		7.5	—	0.972	0.955	0.923	0.893
		5	0.992	0.975	0.959	0.925	0.897
		0	1.000	0.983	0.967	0.933	0.901
	Indoor unit is lower than outdoor unit *2	-5	1.000	0.983	0.967	0.933	0.908
		-7.5	—	0.983	0.967	0.933	0.908
		-10	—	—	0.967	0.933	0.908
		-15	—	—	—	0.933	0.908

HEATING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	Indoor unit is higher than outdoor unit *1	15	—	—	—	0.869	0.863
		10	—	—	—	0.869	0.863
		7.5	—	0.967	0.934	0.869	0.863
		5	1.000	0.967	0.934	0.869	0.863
		0	1.000	0.967	0.934	0.869	0.863
	Indoor unit is lower than outdoor unit *2	-5	0.995	0.962	0.930	0.864	0.859
		-7.5	—	0.960	0.928	0.862	0.856
		-10	—	—	0.926	0.860	0.854
		-15	—	—	—	0.852	0.846

6-2. Model: ROG12KMCEN

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

COOLING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	Indoor unit is higher than outdoor unit *1	15	—	—	—	0.939	0.925
		10	—	—	0.966	0.947	0.932
		7.5	—	0.979	0.970	0.951	0.936
		5	0.992	0.983	0.974	0.955	0.939
		0	1.000	0.991	0.981	0.963	0.946
	Indoor unit is lower than outdoor unit *2	-5	1.000	0.991	0.981	0.963	0.946
		-7.5	—	0.991	0.981	0.963	0.946
		-10	—	—	0.981	0.963	0.946
		-15	—	—	—	0.963	0.946

HEATING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	Indoor unit is higher than outdoor unit *1	15	—	—	—	0.903	0.887
		10	—	—	0.952	0.903	0.887
		7.5	—	0.976	0.952	0.903	0.887
		5	1.000	0.976	0.952	0.903	0.887
		0	1.000	0.976	0.952	0.903	0.887
	Indoor unit is lower than outdoor unit *2	-5	0.995	0.971	0.947	0.899	0.883
		-7.5	—	0.969	0.945	0.897	0.881
		-10	—	—	0.942	0.894	0.879
		-15	—	—	—	0.890	0.875

6-3. Model: ROG14KMCEN

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

COOLING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	Indoor unit is higher than outdoor unit *1	15	—	—	—	0.939	0.925
		10	—	—	0.966	0.947	0.932
		7.5	—	0.979	0.970	0.951	0.936
		5	0.992	0.983	0.974	0.955	0.939
		0	1.000	0.991	0.981	0.963	0.946
	Indoor unit is lower than outdoor unit *2	-5	1.000	0.991	0.981	0.963	0.946
		-7.5	—	0.991	0.981	0.963	0.946
		-10	—	—	0.981	0.963	0.946
		-15	—	—	—	0.963	0.946

HEATING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	Indoor unit is higher than outdoor unit *1	15	—	—	—	0.903	0.887
		10	—	—	0.952	0.903	0.887
		7.5	—	0.976	0.952	0.903	0.887
		5	1.000	0.976	0.952	0.903	0.887
		0	1.000	0.976	0.952	0.903	0.887
	Indoor unit is lower than outdoor unit *2	-5	0.995	0.971	0.947	0.899	0.883
		-7.5	—	0.969	0.945	0.897	0.881
		-10	—	—	0.942	0.894	0.879
		-15	—	—	—	0.890	0.875

OUTDOOR UNIT
ROG09-14KMCEN

7. Additional charge calculation

7-1. Model: ROG09KMCEN

Refrigerant type		R32
Factory charge amount	g	850

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

7-2. Model: ROG12KMCEN

Refrigerant type		R32
Factory charge amount	g	940

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

7-3. Model: ROG14KMCEN

Refrigerant type		R32
Factory charge amount	g	1,120

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

OUTDOOR UNIT
ROG09-14KMCEN

8. Airflow

8-1. Model: ROG09KMCEN

● Cooling

m^3/h	1,770
l/s	492
CFM	1,042

● Heating

m^3/h	1,313
l/s	365
CFM	773

8-2. Model: ROG12KMCEN

● Cooling

m^3/h	2,210
l/s	614
CFM	1,301

● Heating

m^3/h	1,335
l/s	371
CFM	786

8-3. Model: ROG14KMCEN

● Cooling

m^3/h	2,450
l/s	681
CFM	1,442

● Heating

m^3/h	2,330
l/s	647
CFM	1,371

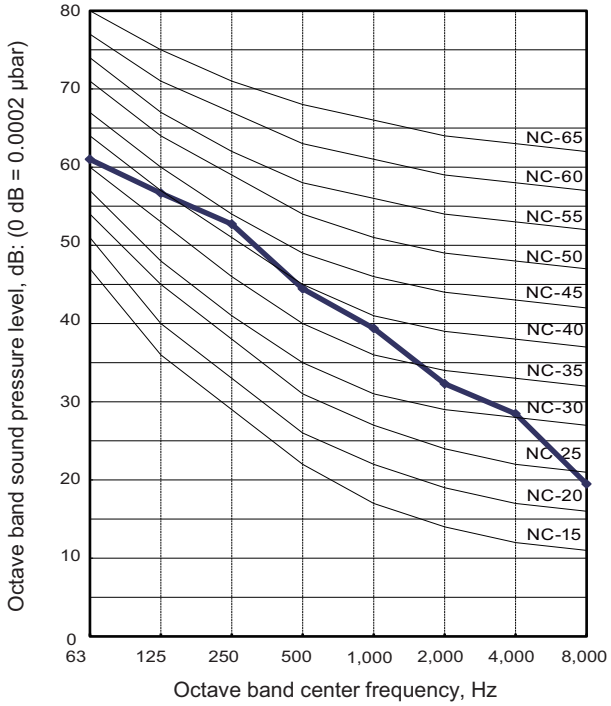
OUTDOOR UNIT
ROG09-14KMCEN

9. Operation noise (sound pressure)

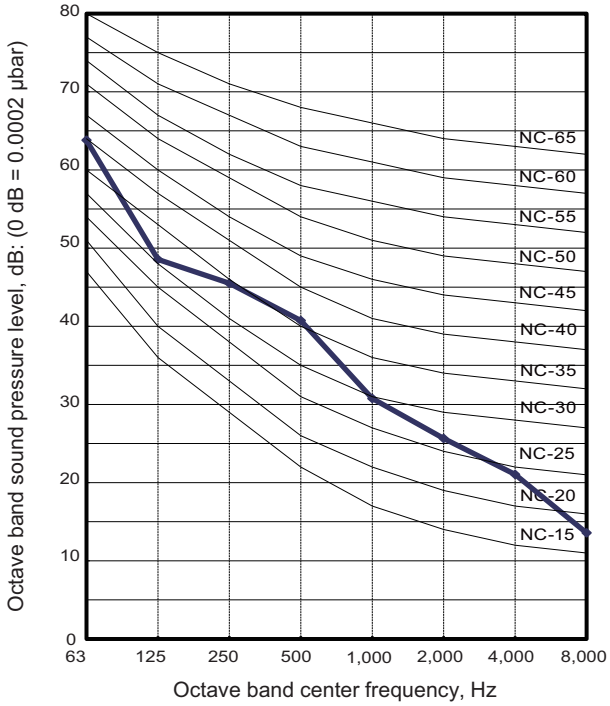
9-1. Noise level curve

■ Model: ROG09KMCEN

● Cooling

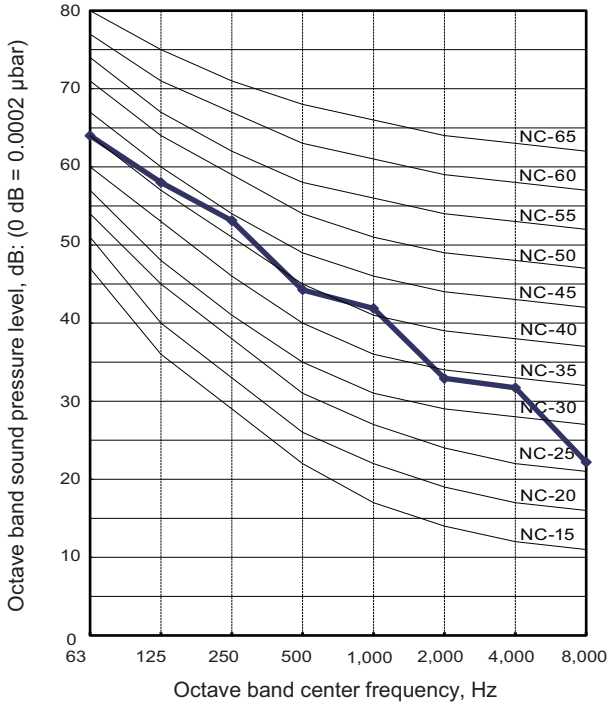


● Heating

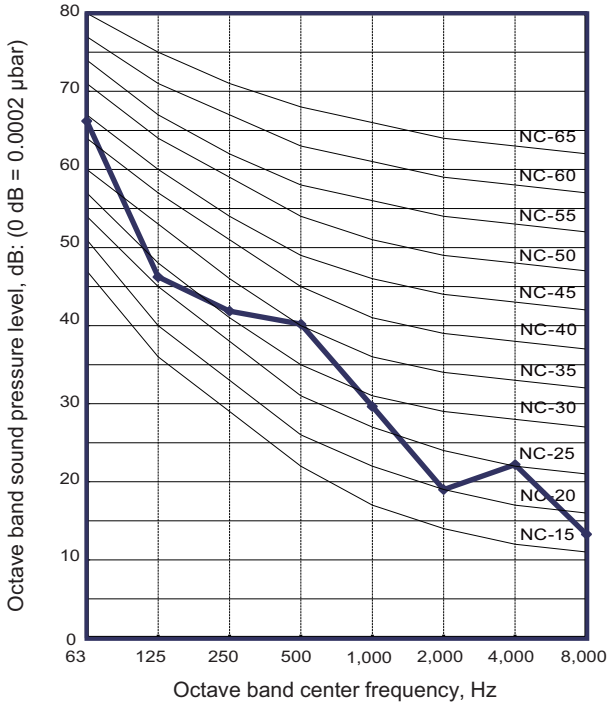


■ Model: ROG12KMCEN

● Cooling



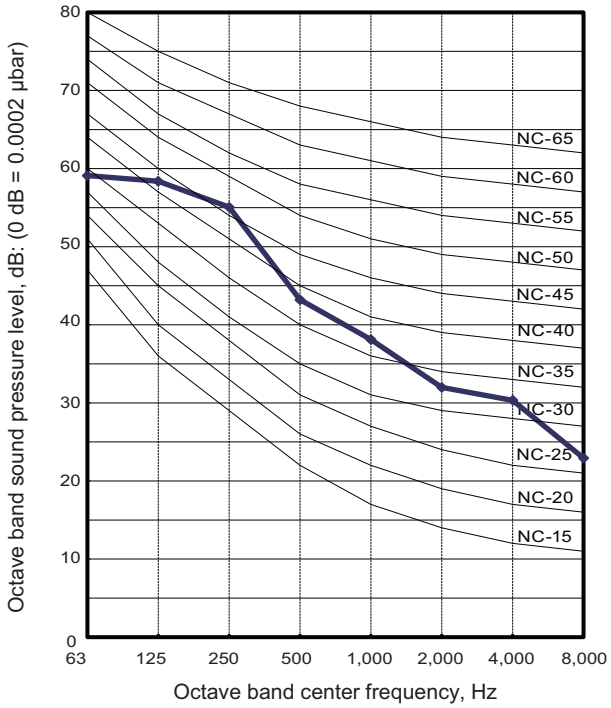
● Heating



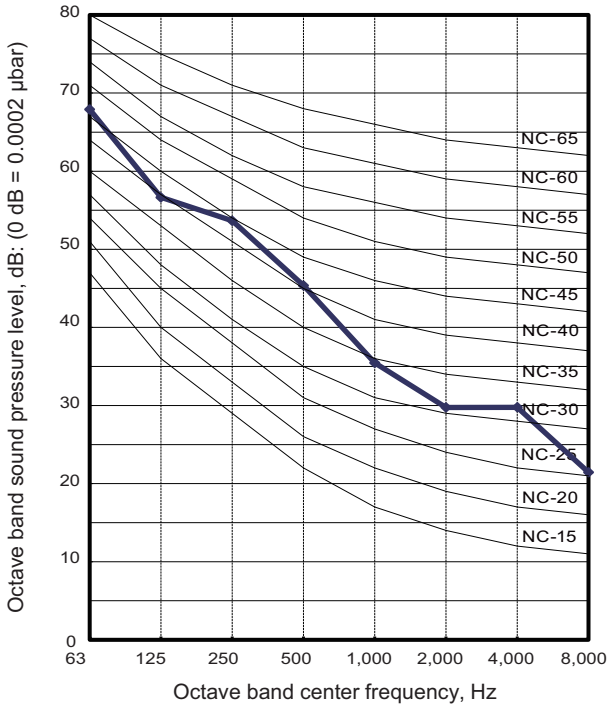
OUTDOOR UNIT
ROG09-14KMCEN

■ Model: ROG14KMCEN

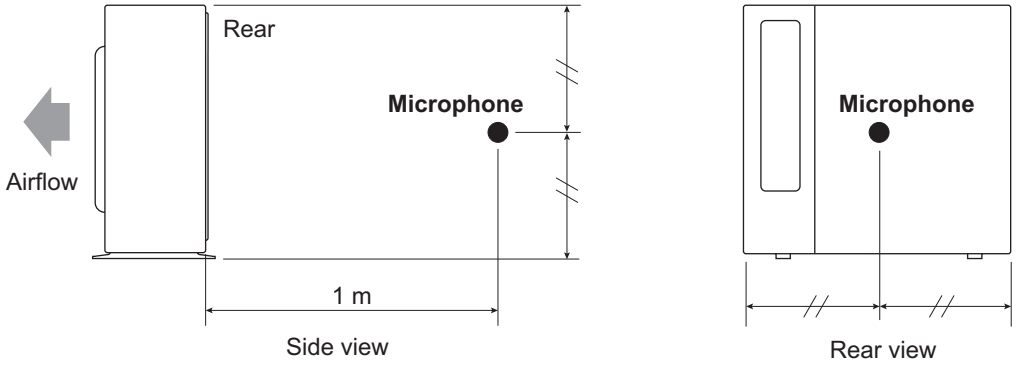
● Cooling



● Heating



9-2. Sound level check point



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

10. Electrical characteristics

Model name				ROG09KMCEN	ROG12KMCEN	ROG14KMCEN
Power supply	Voltage		V	230		
	Frequency		Hz	50		
Max operating current *1			A	9.5	11.5	16.0
Starting current			A	3.3	4.3	6.2
Wiring spec. *2	Circuit breaker current		A	15		20
	Power cable		mm^2	1.5		2.5
	Connection cable *3	Cross-sectional area	mm^2	1.5		
		Limited wiring length	m	21		

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

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

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

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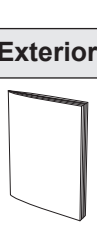
11. Safety devices

Type of protection	Protection form		Model		
			ROG09KMCEN	ROG12KMCEN	ROG14KMCEN
Circuit protection	Current fuse (Main PCB)		250 V, 25 A		
			250 V, 5 A		
Fan motor protection	Thermal protection	Activate	103 ±18°C Fan motor stop	125 ±10°C Fan motor stop	
		Reset	95 ±18°C Fan motor restart	120 ±10°C Fan motor restart	
Compressor protection	Terminal protection program (Discharge temp.)	Activate	110°C Compressor stop		
		Reset	After 7 minutes Compressor restart		
	Thermal protection program (Outdoor temp.) (Only in COOL or DRY mode)	Activate	-15°C Compressor stop		
		Reset	-10°C Compressor restart		

12. Accessories

12-1. Models: ROG09KMCEN, ROG12KMCEN, and ROG14KMCEN

OUTDOOR UNIT
ROG09-14KMCEN

Part name	Exterior	Qty	Part name	Exterior	Qty
Installation manual		1			