



REFRIGERANT R410A
INVERTER

AIR CONDITIONER

Wall mounted type

DESIGN & TECHNICAL MANUAL

For Extra Cold Climate Area

INDOOR



UIWH09AHWJ
UIWH12AHWJ
UIWH15AHWJ

OUTDOOR



ROSH09AHHJ
ROSH12AHHJ
ROSH15AHHJ

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

WALL MOUNTED TYPE:

UIWH09AHWJ

UIWH12AHWJ

UIWH15AHWJ

1. Specifications

Type			Wall mounted			
			Inverter heat pump			
Model name			UIWH09AHWJ	UIWH12AHWJ	UIWH15AHWJ	
Power supply			208/230 V ~ 60 Hz			
Power supply intake			Outdoor unit			
Available voltage range			188—253 V			
Capacity	Cooling	Rated	kW	2.64	3.52	4.25
			Btu/h	9,000	12,000	14,500
		Min.—Max.	kW	0.90—3.60	0.90—4.00	0.90—5.40
		Btu/h	3,100—12,000	3,100—13,600	3,100—18,400	
	Heating	Rated	kW	3.52	4.69	5.28
			Btu/h	12,000	16,000	18,000
Min.—Max.		kW	0.90—6.45	0.90—6.48	0.90—7.00	
	Btu/h	3,100—22,000	3,100—22,100	3,100—23,900		
Input power	Cooling	Rated	kW	0.50	0.79	1.04
		Min.—Max.		0.20—0.85	0.20—0.99	0.18—1.56
	Heating	Rated		0.66	1.01	1.15
		Min.—Max.		0.20—1.93	0.20—1.94	0.17—2.19
Current	Cooling	Rated	A	2.5	3.8	4.8
	Heating			3.3	4.7	5.2
EER	Cooling		kW/kW	5.28	4.46	4.09
				Btu/hW	18.0	15.2
COP	Heating		kW/kW	5.33	4.64	4.59
				Btu/hW	18.2	15.8
SEER	Cooling		Btu/hW	33.0	29.3	25.3
HSPF	Heating		Btu/hW	14.0	13.8	13.3
Power factor	Cooling		%	87	90	94
	Heating			87	93	96
Moisture removal			pints/h (L/h)	2.6 (1.2)	2.7 (1.3)	4.0 (1.9)
Maximum operating current *1	Cooling		A	9.4	9.4	9.9
	Heating			11.9	11.9	14.9
Fan	Airflow rate	Cooling	HIGH	CFM (m ³ /h)	489 (830)	547 (930)
			MED		400 (680)	459 (780)
			LOW		341 (580)	371 (630)
			QUIET		224 (380)	259 (440)
		Heating	HIGH		489 (830)	547 (930)
			MED		400 (680)	459 (780)
			LOW		341 (580)	371 (630)
			QUIET		224 (380)	294 (500)
	Type × Q'ty		Cross flow fan × 1			
	Motor output		W			
		61				
Sound pressure level *2	Cooling	HIGH	dB (A)	42	45	
		MED		37	40	
		LOW		32	34	
		QUIET		23	26	
	Heating	HIGH		41	45	
		MED		35	39	
		LOW		31	33	
		QUIET		23	27	
Heat exchanger type	Dimensions (H × W × D)		in (mm)	Main: 15-1/8 × 28-3/8 × 1-3/16 (384 × 720 × 30) Sub 1: 3-5/16 × 28-3/8 × 1/2 (84 × 720 × 13.3) Sub 2: 4-15/16 × 28-3/8 × 1/2 (126 × 720 × 13.3)		
	Fin pitch		FPI	Main: 21, Sub 1 and Sub 2: 18		
	Rows × Stages			Main: 3 × 24, Sub 1: 1 × 4, Sub 2: 1 × 6		
	Pipe type			Copper tube		
	Fin type			Aluminum		
Enclosure	Material		Polystyrene			
	Color		White Approximate color of Munsell 5PB 9.25/0.5			
Dimensions (H × W × D)	Net	in	11-5/8 × 37 × 10-5/8			
		mm	295 × 940 × 270			
	Gross	in	14-3/8 × 40-15/16 × 14			
		mm	365 × 1,040 × 355			
Weight	Net	lb (kg)	31 (14)			
			Gross	37 (17)		
Connection pipe	Size	Liquid	Ø 1/4 (Ø 6.35)			
		Gas	Ø 3/8 (Ø 9.52)			
	Method	Flare				
Drain hose	Material		PP+LLDPF			
	Size	in (mm)	Ø 9/16 (Ø 13.8) (I.D.)			
Ø 5/8 to Ø 11/16 (Ø 15.8 to Ø 16.7) (O.D.)						
Operation range	Cooling	°F (°C)	64 to 90 (18 to 32)			
		%RH	80 or less			
Remote controller	Remote controller	°F (°C)	60 to 88 (16 to 30)			
		Wireless (Wired [option])				

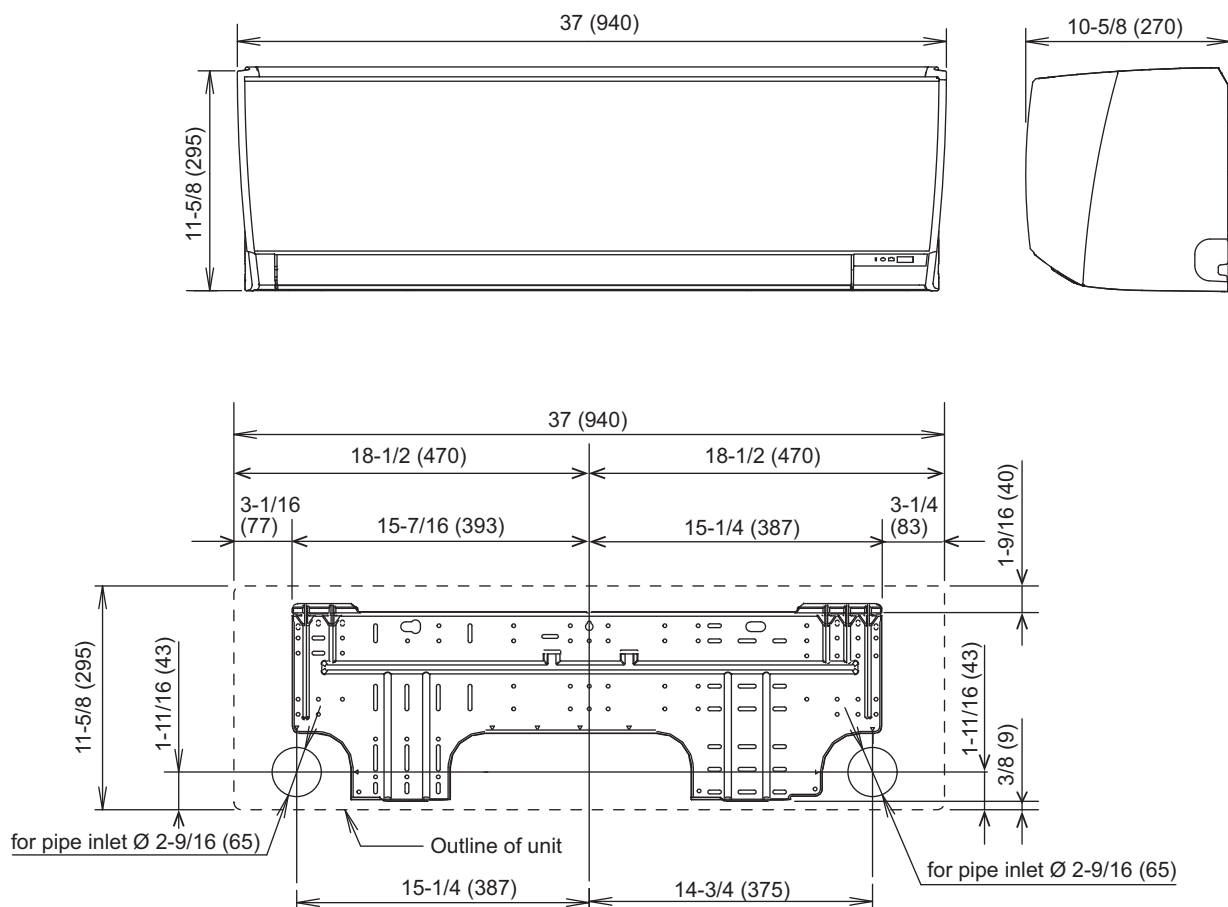
NOTES:

- Specifications are based on the following conditions:
 - Cooling: Indoor temperature of 80 °FDB (26.67 °CDB) / 67 °FWB (19.44 °CWB), and outdoor temperature of 95 °FDB (35 °CDB) / 75 °FWB (23.9 °CWB).
 - Heating: Indoor temperature of 70 °FDB (21.11 °CDB) / 59 °FWB (15 °CWB), and outdoor temperature of 47 °FDB (8.33 °CDB) / 43 °FWB (6.11 °CWB).
 - Pipe length: 24 ft 6 in (7.5 m), Height difference: 0 ft (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. For details, refer to the setting manual.

2. Dimensions

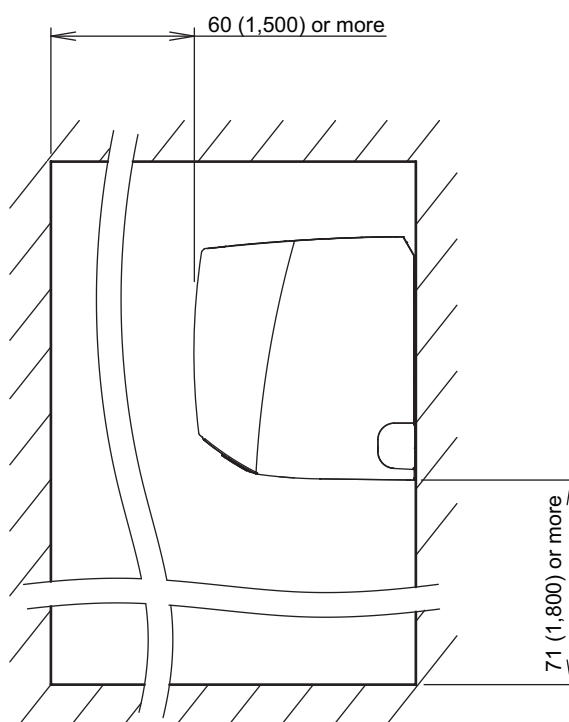
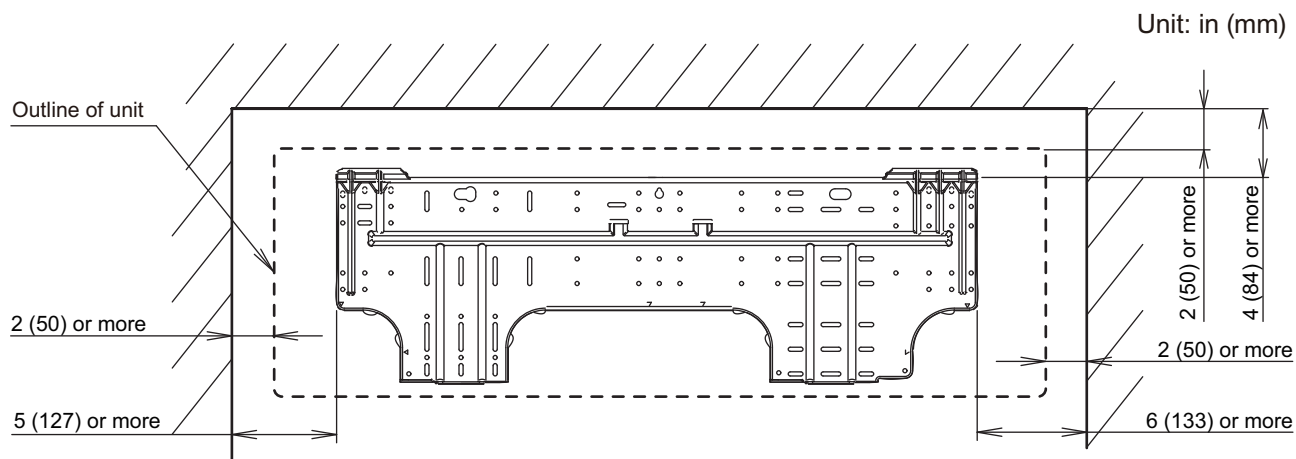
2-1. Models: UIWH09AHWJ, UIWH12AHWJ, and UIWH15AHWJ

Unit: in (mm)



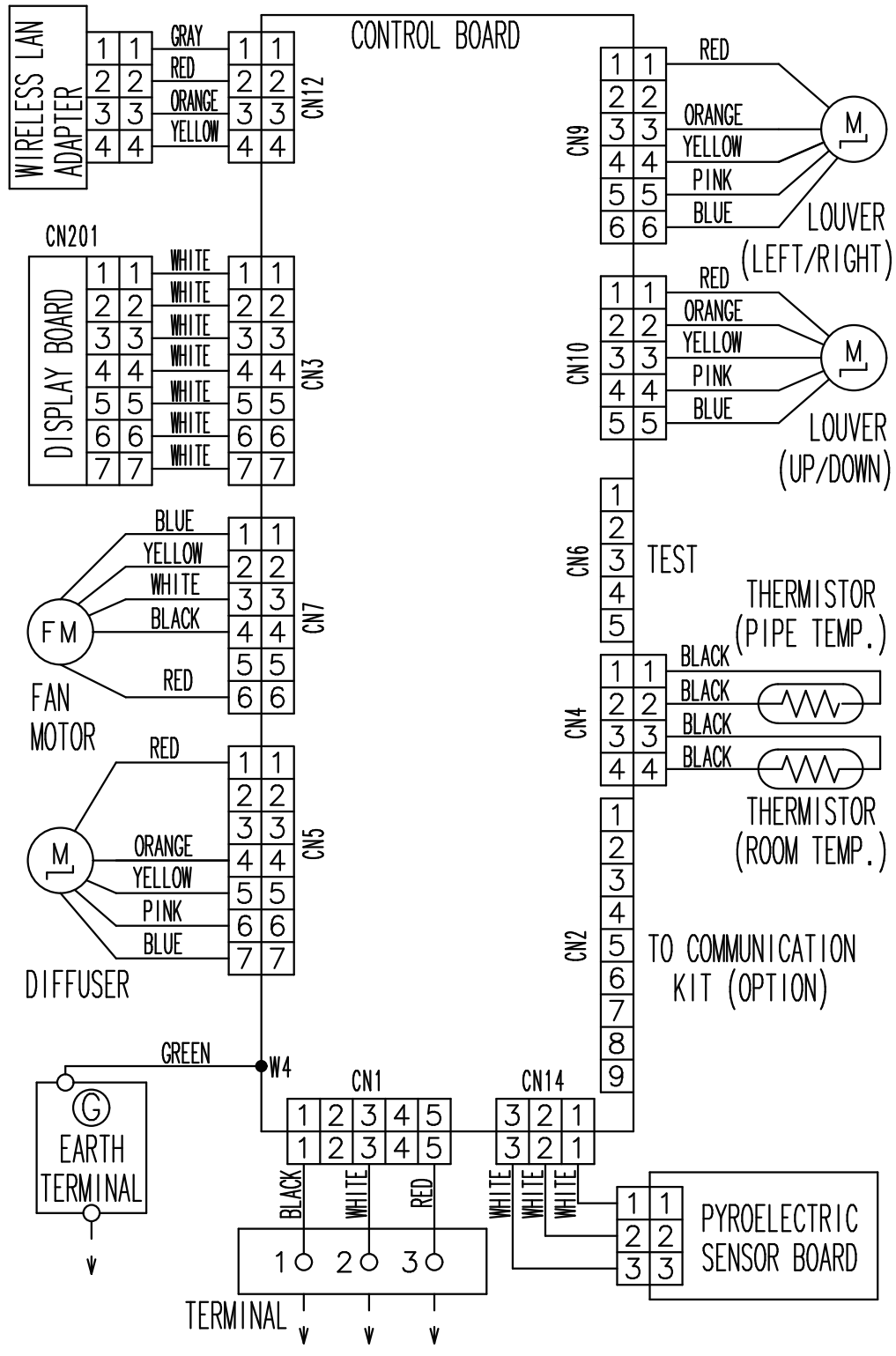
Installation space requirement

Provide sufficient installation space for product safety.



3. Wiring diagrams

3-1. Models: UIWH09AHWJ, UIWH12AHWJ, and UIWH15AHWJ



4. Capacity table

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

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

For heating capacity: Total Capacity (TC) and Input Power (IP)

4-1. Cooling capacity

■ Model: UIWH09AHWJ

AFR	CFM	489
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		Indoor temperature																						
		64			70			75			80			85			90							
		54			60			63			67			71			73							
Outdoor temperature	°FDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP					
	°FWB	kBTu			kW			kBTu			kW			kBTu			kW			kBTu			kW	
15	8.33	8.06	0.19	9.29	8.11	0.19	10.25	8.87	0.20	10.57	9.53	0.20	11.17	9.50	0.20	11.81	10.07	0.21						
23	8.16	7.88	0.22	9.09	7.91	0.22	10.03	8.65	0.23	10.35	9.31	0.22	10.94	9.28	0.22	11.56	9.91	0.23						
32	7.99	7.69	0.22	8.90	7.75	0.23	9.81	8.45	0.24	10.13	9.16	0.23	10.70	9.09	0.23	11.32	9.68	0.24						
41	7.81	7.58	0.24	8.71	7.61	0.24	9.60	8.28	0.25	9.90	8.97	0.24	10.47	8.90	0.24	11.07	9.50	0.25						
50	7.64	7.36	0.22	8.51	7.41	0.22	9.38	8.07	0.24	9.68	8.76	0.23	10.24	8.70	0.23	10.83	9.26	0.24						
59	7.47	7.24	0.27	8.32	7.27	0.27	9.16	7.91	0.28	9.46	8.57	0.28	10.01	8.51	0.28	10.58	9.08	0.28						
67	8.42	8.15	0.34	9.38	8.18	0.35	10.33	8.94	0.36	10.67	9.63	0.36	11.28	9.59	0.36	11.93	10.18	0.37						
77	8.01	7.74	0.39	8.93	7.77	0.39	9.85	8.49	0.40	10.16	9.15	0.40	10.74	9.11	0.41	11.35	9.73	0.41						
87	7.57	7.29	0.44	8.45	7.36	0.44	9.31	8.01	0.45	9.58	8.67	0.45	10.16	8.63	0.46	10.74	9.18	0.46						
95	7.09	6.88	0.48	7.91	6.91	0.49	8.73	7.53	0.50	9.00	8.15	0.50	9.55	8.12	0.51	10.06	8.63	0.51						
104	6.00	5.67	0.45	6.68	6.16	0.46	7.36	6.71	0.46	7.60	7.26	0.46	8.05	7.22	0.47	8.52	7.70	0.47						
115	5.52	5.33	0.45	6.17	5.71	0.46	6.78	6.22	0.46	6.99	6.74	0.46	7.43	6.71	0.47	7.84	7.15	0.47						

AFR	m³/h	830
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		Indoor temperature																	
		17.8			21.1			23.9			26.7			29.4			32.2		
		12.2			15.6			17.2			19.4			21.7			22.8		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	°CWB	kW			kW			kW			kW			kW			kW		
-10.0	2.44	2.36	0.19	2.72	2.38	0.19	3.00	2.60	0.20	3.10	2.79	0.20	3.27	2.78	0.20	3.46	2.95	0.21	
-5.0	2.39	2.31	0.22	2.67	2.32	0.22	2.94	2.53	0.23	3.03	2.73	0.22	3.21	2.72	0.22	3.39	2.90	0.23	
0.0	2.34	2.25	0.22	2.61	2.27	0.23	2.88	2.48	0.24	2.97	2.68	0.23	3.14	2.67	0.23	3.32	2.84	0.24	
5.0	2.29	2.22	0.24	2.55	2.23	0.24	2.81	2.43	0.25	2.90	2.63	0.24	3.07	2.61	0.24	3.25	2.79	0.25	
10.0	2.24	2.16	0.22	2.49	2.17	0.22	2.75	2.37	0.24	2.84	2.57	0.23	3.00	2.55	0.23	3.17	2.71	0.24	
15.0	2.19	2.12	0.27	2.44	2.13	0.27	2.69	2.32	0.28	2.77	2.51	0.28	2.93	2.49	0.28	3.10	2.66	0.28	
19.4	2.47	2.39	0.34	2.75	2.40	0.35	3.03	2.62	0.36	3.13	2.82	0.36	3.31	2.81	0.36	3.50	2.98	0.37	
25.0	2.35	2.27	0.39	2.62	2.28	0.39	2.89	2.49	0.40	2.98	2.68	0.40	3.15	2.67	0.41	3.33	2.85	0.41	
30.6	2.22	2.14	0.44	2.48	2.16	0.44	2.73	2.35	0.45	2.81	2.54	0.45	2.98	2.53	0.46	3.15	2.69	0.46	
35.0	2.08	2.02	0.48	2.32	2.03	0.49	2.56	2.21	0.50	2.64	2.39	0.50	2.8	2.38	0.51	2.95	2.53	0.51	
40.0	1.76	1.66	0.45	1.96	1.80	0.46	2.16	1.97	0.46	2.23	2.13	0.46	2.36	2.12	0.47	2.50	2.26	0.47	
46.0	1.62	1.56	0.45	1.81	1.67	0.46	1.99	1.82	0.46	2.05	1.98	0.46	2.18	1.97	0.47	2.30	2.10	0.47	

4-2. Heating capacity

■ Model: UIWH09AHWJ

AFR	CFM	489
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		Indoor temperature									
		°FDB	°FWB	60		65		70		75	
				TC kBtu/h	IP kW	TC kBtu/h	IP kW	TC kBtu/h	IP kW	TC kBtu/h	IP kW
Outdoor temperature	-15	-17	11.6	2.15	11.4	2.19	11.1	2.23	10.5	2.31	
	-5	-7	14.7	2.16	14.3	2.20	14.0	2.24	13.3	2.32	
	5	3	16.1	2.17	15.7	2.21	15.4	2.25	14.6	2.34	
	14	12	16.8	2.13	16.4	2.17	16.0	2.22	15.2	2.30	
	23	19	18.3	2.10	17.9	2.14	17.5	2.18	16.6	2.26	
	32	28	18.8	2.06	18.4	2.10	17.9	2.14	17.0	2.22	
	41	37	21.3	1.88	20.8	1.92	20.3	1.95	19.3	2.03	
	47	43	23.1	1.85	22.6	1.89	22.0	1.93	20.9	2.01	
	50	47	25.5	1.84	24.9	1.88	24.3	1.91	23.1	1.99	
	59	50	26.5	1.63	25.8	1.67	25.2	1.70	23.9	1.77	

AFR	m ³ /h	830
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		Indoor temperature									
		°CDB	°CWB	15.6		18.3		21.1		23.9	
				TC kW	IP	TC kW	IP	TC kW	IP	TC kW	IP
Outdoor temperature	-26.1	-27.0	3.41	2.15	3.33	2.19	3.25	2.23	3.09	2.31	
	-20.6	-21.7	4.31	2.16	4.20	2.20	4.10	2.24	3.90	2.32	
	-15.0	-16.1	4.73	2.17	4.61	2.21	4.50	2.25	4.28	2.34	
	-10.0	-11.1	4.91	2.13	4.80	2.17	4.68	2.22	4.45	2.30	
	-5.0	-7.2	5.38	2.10	5.25	2.14	5.12	2.18	4.86	2.26	
	0.0	-2.2	5.52	2.06	5.39	2.10	5.26	2.14	5.00	2.22	
	5.0	2.8	6.25	1.88	6.10	1.92	5.95	1.95	5.65	2.03	
	8.3	6.1	6.77	1.85	6.61	1.89	6.45	1.93	6.13	2.01	
	10.0	8.3	7.48	1.84	7.30	1.88	7.13	1.91	6.77	1.99	
	15.0	10.0	7.75	1.63	7.57	1.67	7.38	1.70	7.02	1.77	

■ Model: UIWH12AHWJ

AFR	CFM	489
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		Indoor temperature									
		°FDB	°FWB	60		65		70		75	
				TC kBtu/h	IP kW	TC kBtu/h	IP kW	TC kBtu/h	IP kW	TC kBtu/h	IP kW
Outdoor temperature	-15	-17	12.4	2.15	12.1	2.19	11.8	2.23	11.2	2.31	
	-5	-7	15.8	2.16	15.4	2.20	15.0	2.24	14.3	2.32	
	5	3	17.4	2.17	17.0	2.21	16.6	2.25	15.8	2.34	
	14	12	18.3	2.13	17.8	2.18	17.4	2.22	16.5	2.30	
	23	19	20.0	2.10	19.5	2.14	19.0	2.18	18.1	2.26	
	32	28	20.6	2.07	20.1	2.11	19.6	2.15	18.6	2.23	
	41	37	22.5	1.88	21.9	1.92	21.4	1.96	20.3	2.04	
	47	43	23.2	1.86	22.7	1.90	22.1	1.94	21.0	2.02	
	50	47	25.6	1.85	25.0	1.89	24.4	1.93	23.2	2.00	
	59	50	26.6	1.64	25.9	1.68	25.3	1.71	24.0	1.78	

AFR	m ³ /h	830
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		Indoor temperature									
		°CDB	°CWB	15.6		18.3		21.1		23.9	
				TC kW	IP	TC kW	IP	TC kW	IP	TC kW	IP
Outdoor temperature	-26.1	-27.0	3.62	2.15	3.54	2.19	3.45	2.23	3.28	2.31	
	-20.6	-21.7	4.63	2.16	4.52	2.20	4.41	2.24	4.19	2.32	
	-15.0	-16.1	5.11	2.17	4.99	2.21	4.86	2.25	4.62	2.34	
	-10.0	-11.1	5.36	2.13	5.23	2.18	5.10	2.22	4.85	2.30	
	-5.0	-7.2	5.86	2.10	5.72	2.14	5.58	2.18	5.30	2.26	
	0.0	-2.2	6.03	2.07	5.88	2.11	5.74	2.15	5.45	2.23	
	5.0	2.8	6.58	1.88	6.43	1.92	6.27	1.96	5.96	2.04	
	8.3	6.1	6.80	1.86	6.64	1.90	6.48	1.94	6.15	2.02	
	10.0	8.3	7.52	1.85	7.34	1.89	7.16	1.93	6.80	2.00	
	15.0	10.0	7.79	1.64	7.60	1.68	7.42	1.71	7.05	1.78	

Model: UIWH15AHWJ

AFR	CFM	547
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		Indoor temperature								
		°FDB	60		65		70		75	
Outdoor temperature	°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP
			kBtu/h	kW	kBtu/h	kW	kBtu/h	kW	kBtu/h	kW
	-15	-17	17.1	2.77	16.7	2.82	16.3	2.88	15.5	2.98
	-5	-7	19.6	2.78	19.1	2.84	18.6	2.89	17.7	3.00
	5	3	22.0	2.79	21.5	2.85	21.0	2.90	19.9	3.01
	14	12	22.7	2.68	22.2	2.73	21.6	2.78	20.5	2.89
	23	19	23.3	2.56	22.8	2.61	22.2	2.66	21.1	2.76
	32	28	24.0	2.45	23.4	2.49	22.9	2.54	21.7	2.64
	41	37	24.7	2.18	24.1	2.22	23.5	2.27	22.3	2.36
	47	43	25.1	2.10	24.5	2.15	23.9	2.19	22.7	2.28
50	47	26.1	1.97	25.5	2.01	24.9	2.05	23.6	2.13	
59	50	27.2	1.75	26.5	1.79	25.9	1.82	24.6	1.89	

AFR	m ³ /h	930
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		Indoor temperature								
		°CDB	15.6		18.3		21.1		23.9	
Outdoor temperature	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW	
	-26.1	-27.0	5.01	2.77	4.89	2.82	4.77	2.88	4.53	2.98
	-20.6	-21.7	5.73	2.78	5.60	2.84	5.46	2.89	5.19	3.00
	-15.0	-16.1	6.46	2.79	6.31	2.85	6.15	2.90	5.84	3.01
	-10.0	-11.1	6.65	2.68	6.49	2.73	6.33	2.78	6.02	2.89
	-5.0	-7.2	6.84	2.56	6.68	2.61	6.52	2.66	6.19	2.76
	0.0	-2.2	7.04	2.45	6.87	2.49	6.70	2.54	6.37	2.64
	5.0	2.8	7.23	2.18	7.06	2.22	6.88	2.27	6.54	2.36
	8.3	6.1	7.35	2.10	7.18	2.15	7.00	2.19	6.65	2.28
10.0	8.3	7.66	1.97	7.47	2.01	7.29	2.05	6.93	2.13	
15.0	10.0	7.97	1.75	7.78	1.79	7.59	1.82	7.21	1.89	

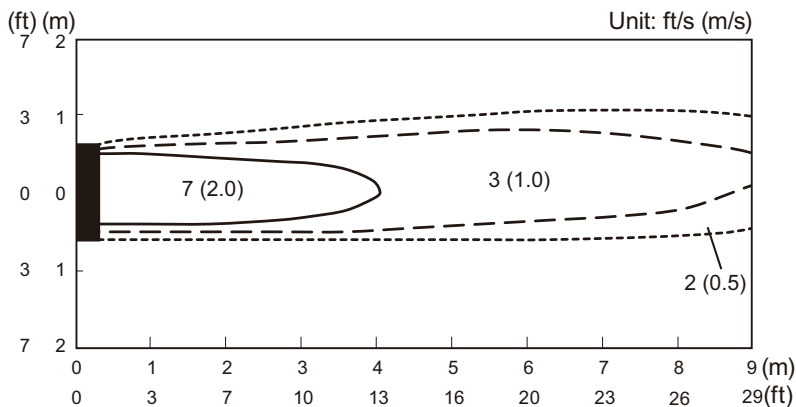
5. Fan performance

5-1. Air velocity distributions

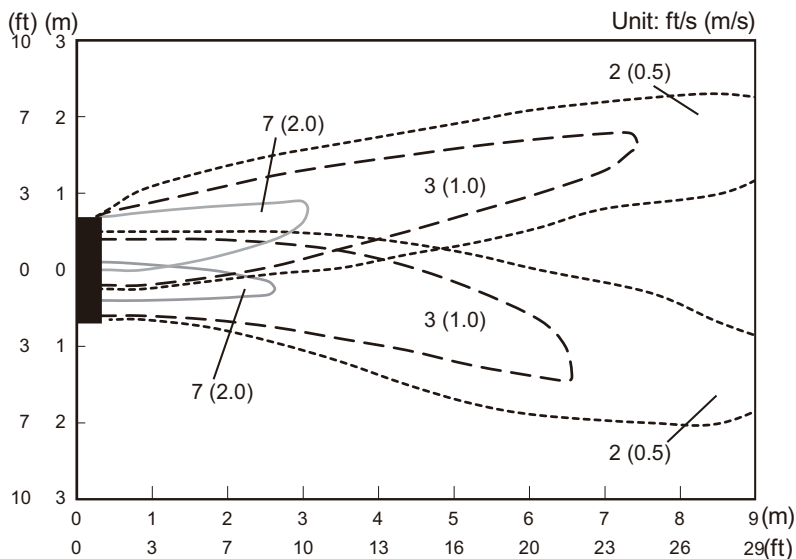
Models: UIWH09AHWJ and UIWH12AHWJ

Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

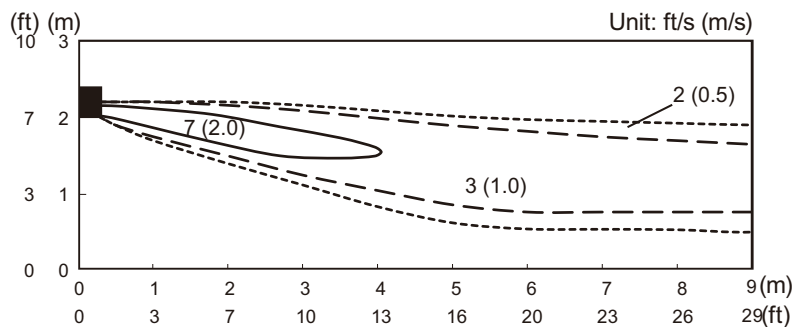
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



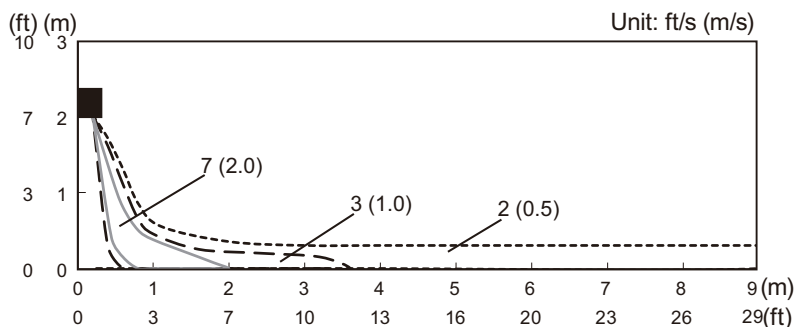
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



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



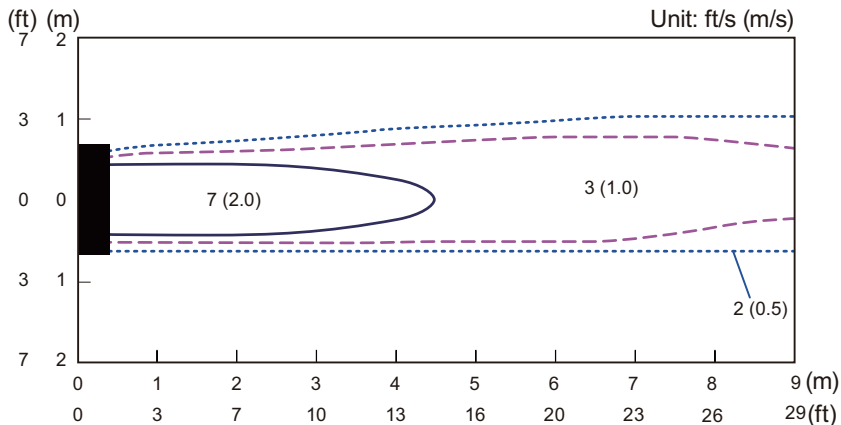
Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



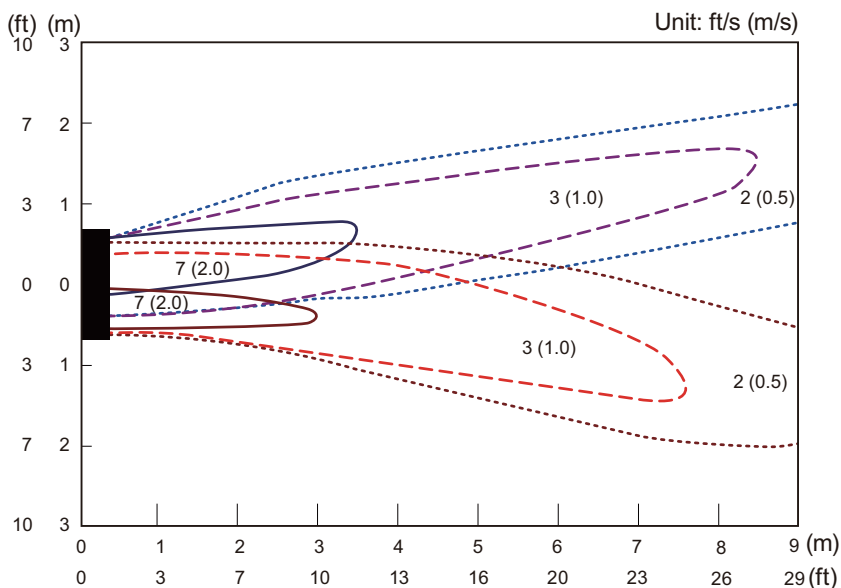
Model: UIWH15AHWJ

Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

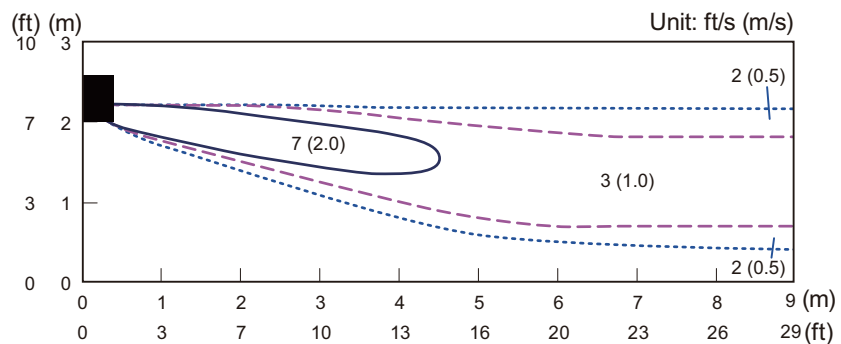
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



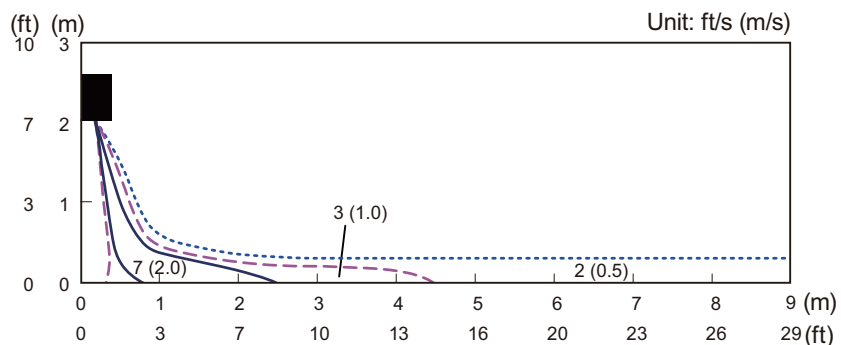
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



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



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



5-2. Airflow

■ Models: UIWH09AHWJ and UIWH12AHWJ

● Cooling

Fan speed	Airflow	
HIGH	m ³ /h	830
	l/s	231
	CFM	489
MED	m ³ /h	680
	l/s	189
	CFM	400
LOW	m ³ /h	580
	l/s	161
	CFM	341
QUIET	m ³ /h	380
	l/s	106
	CFM	224

● Heating

Fan speed	Airflow	
HIGH	m ³ /h	830
	l/s	231
	CFM	489
MED	m ³ /h	680
	l/s	189
	CFM	400
LOW	m ³ /h	580
	l/s	161
	CFM	341
QUIET	m ³ /h	380
	l/s	106
	CFM	224

■ Model: UIWH15AHWJ

● Cooling

Fan speed	Airflow	
HIGH	m ³ /h	930
	l/s	258
	CFM	547
MED	m ³ /h	780
	l/s	217
	CFM	459
LOW	m ³ /h	630
	l/s	175
	CFM	371
QUIET	m ³ /h	440
	l/s	122
	CFM	259

● Heating

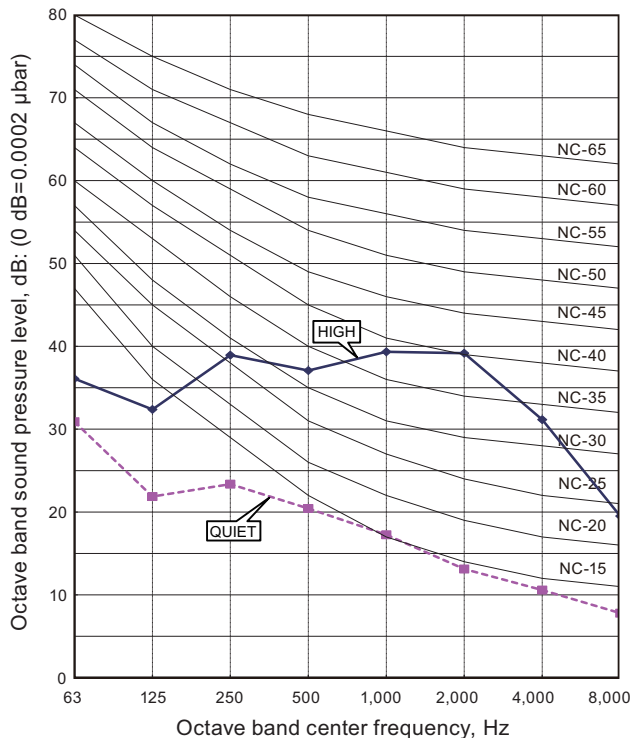
Fan speed	Airflow	
HIGH	m ³ /h	930
	l/s	258
	CFM	547
MED	m ³ /h	780
	l/s	217
	CFM	459
LOW	m ³ /h	630
	l/s	175
	CFM	371
QUIET	m ³ /h	500
	l/s	139
	CFM	294

6. Operation noise (sound pressure)

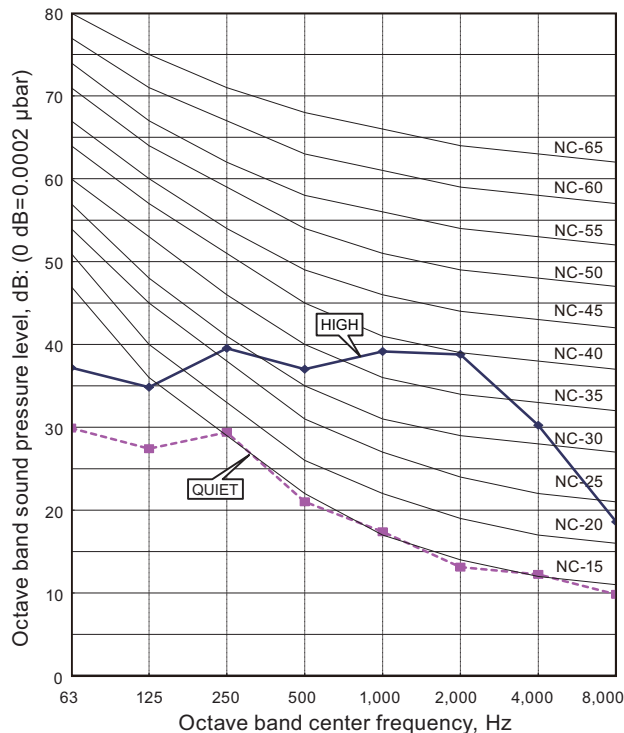
6-1. Noise level curve

Model: UIWH09AHWJ

Cooling

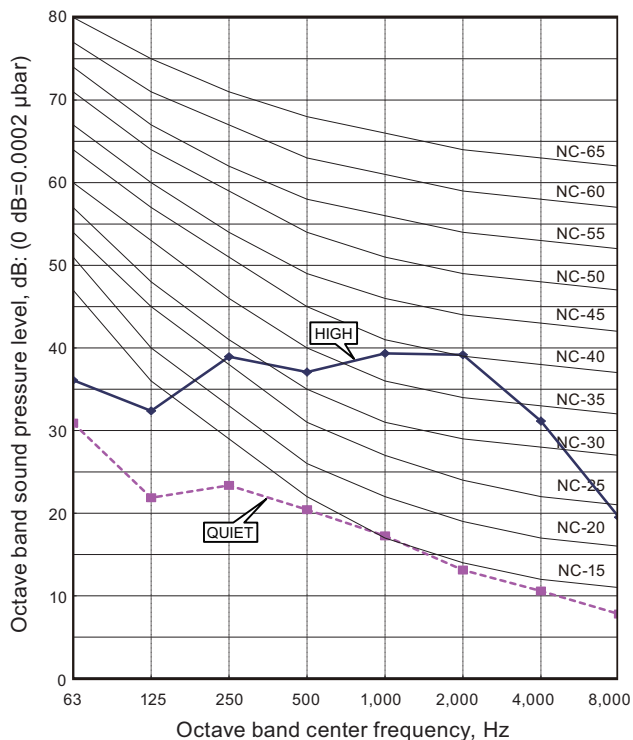


Heating

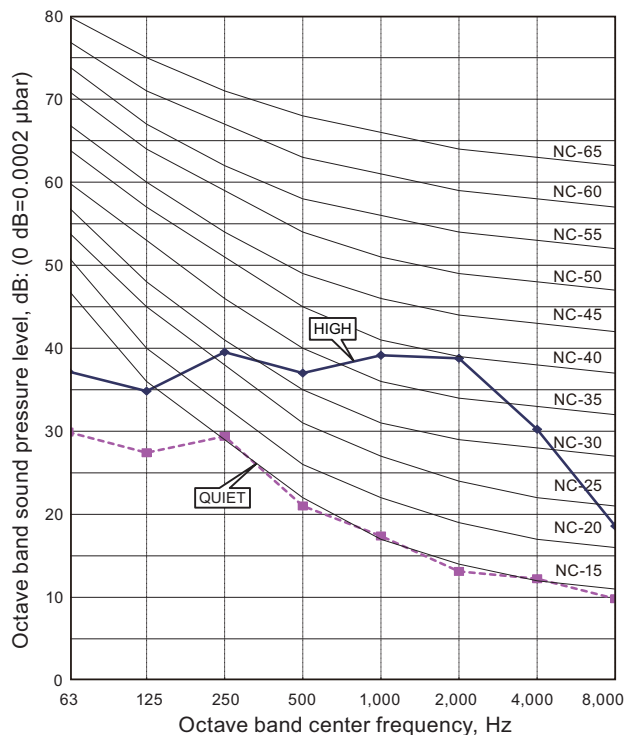


Model: UIWH12AHWJ

Cooling

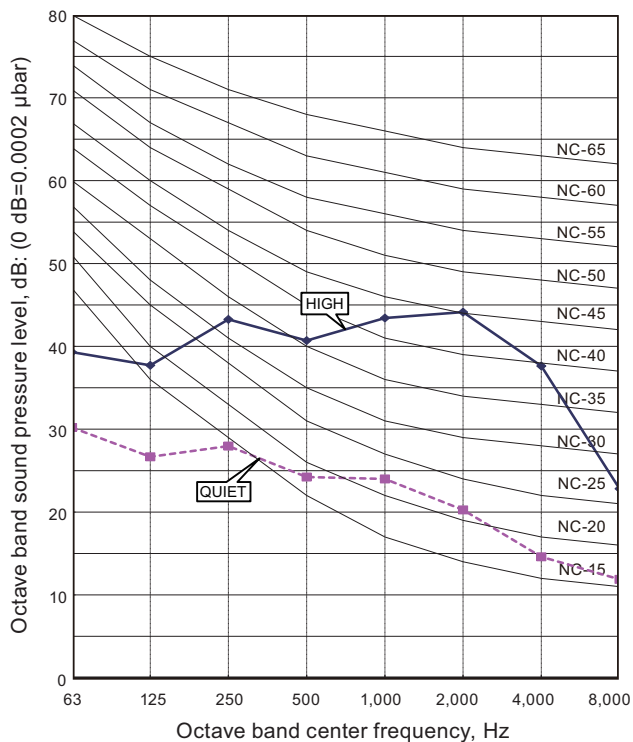


Heating

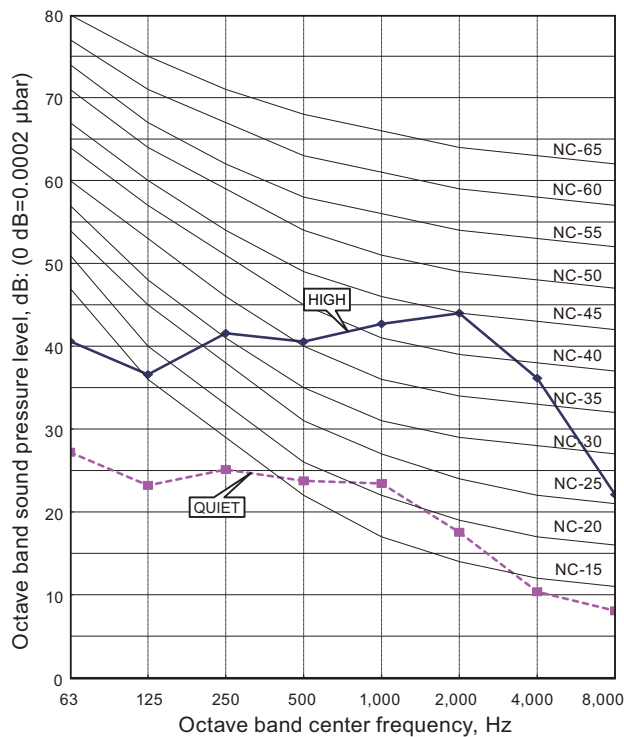


Model: UIWH15AHWJ

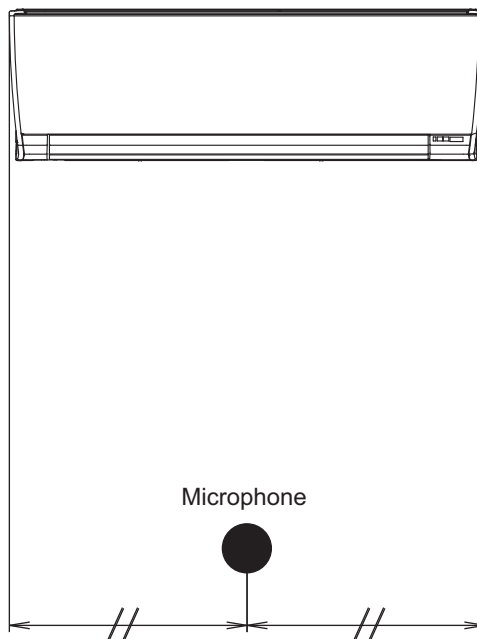
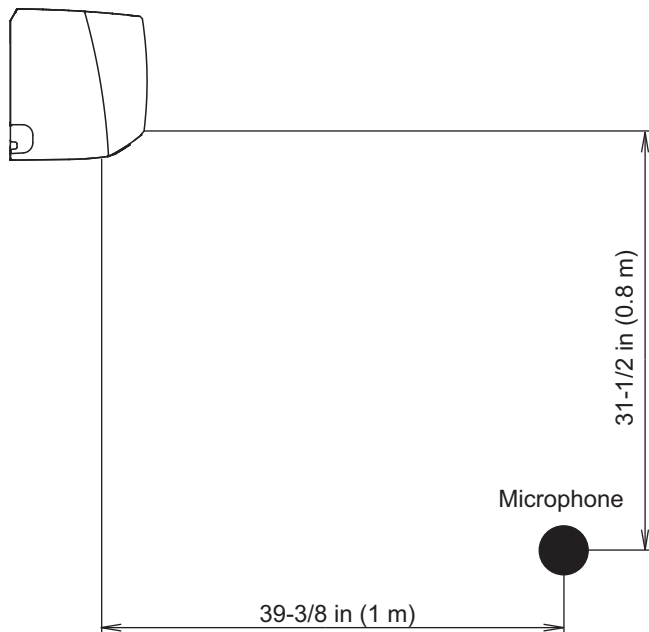
● Cooling



● Heating



6-2. Sound level check point



7. Safety devices

Type of protection	Protection form	Model		
		UIWH09AHWJ	UIWH12AHWJ	UIWH15AHWJ
Circuit protection	Current fuse (PCB*)	250 V, 3.15 A		
Fan motor protection	Thermal protector program	Activate	302±27 °F (150±15 °C) Fan motor speed down	
		Reset	248±27 °F (120±15 °C) Fan motor speed recover	

*PCB: Printed Circuit Board

8. External input and output

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

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

8-1. External input

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

- "Operation/Stop" mode or "Forced stop" mode can be selected with function setting of indoor unit.
- A twisted pair cable (22AWG) should be used. Maximum length of cable is 492 ft (150 m).
- The wire connection should be separate from the power cable line.

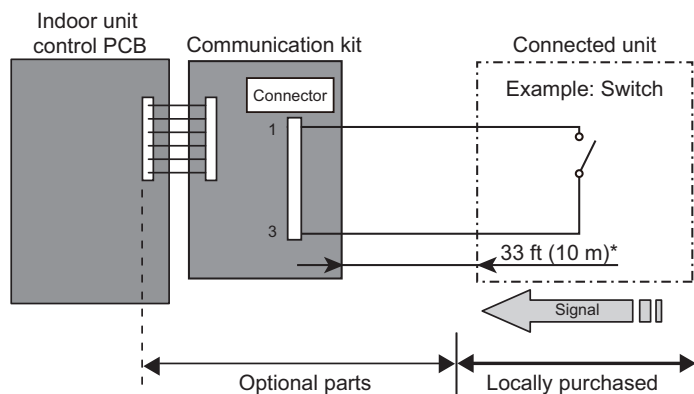
■ Control input (Operation/Stop or Forced stop)

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

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

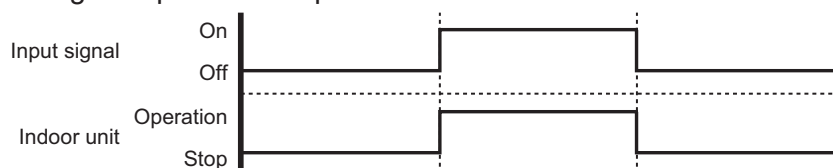
Unit operation	Initial setting after power is on	Starting mode other than initial setting
Operation mode	Auto changeover	Mode at previous operation
Set temperature	75 °F (24 °C)	Temperature at previous operation
Airflow mode	AUTO	Mode at previous operation
Air direction (swing)	Standard air direction (swing: off)	Air direction at previous operation

• **Circuit diagram example**

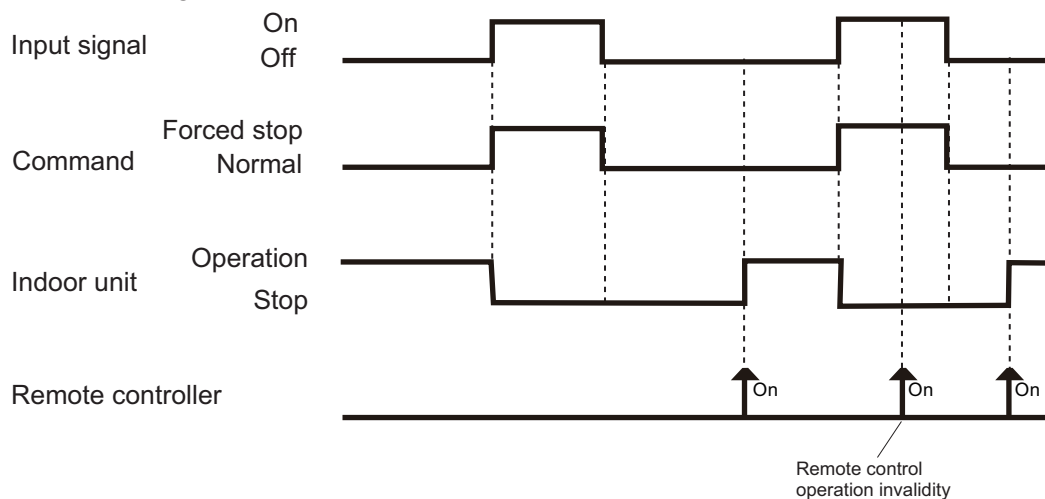


- Contact capacity: DC 24 V or more, 10 mA or more.
- *: Make the distance from the PCB to the connected unit within 33 ft (10 m).
- Use non-polar relays and switches.

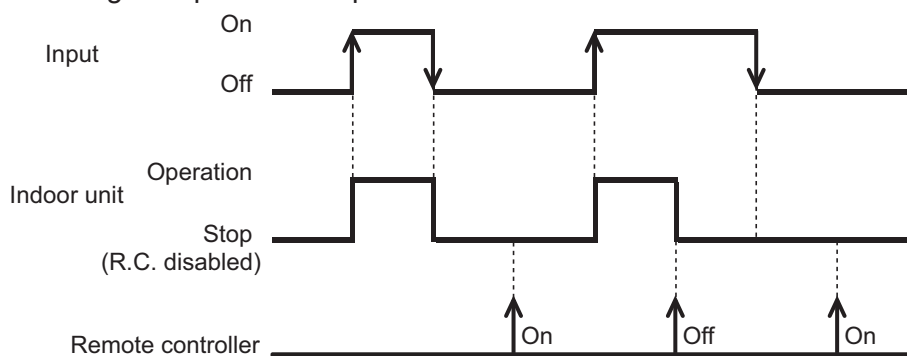
– When function setting is “Operation/Stop” mode



– When function setting is “Forced stop” mode

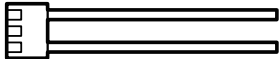



– When function setting is "Operation/Stop" mode 2



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.

- Optional part

Part name	Model name	Exterior
External connect kit	RXXWZXZ5	External input wire 
Communication kit	RXTWBXF1	

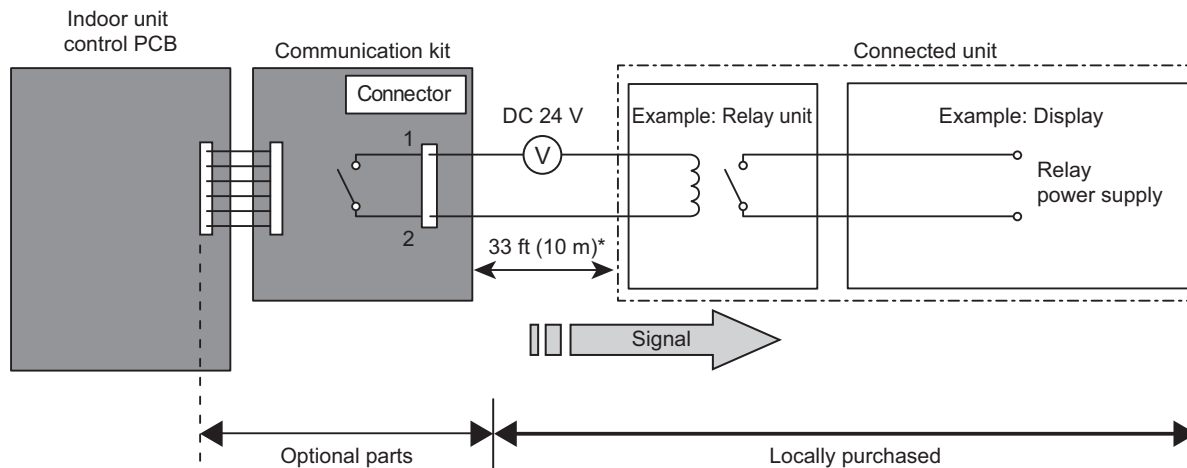
* For operating the external function, the wall mounted type requires the communication kit in addition to the wire (RXXWZXZ5).

8-2. External output

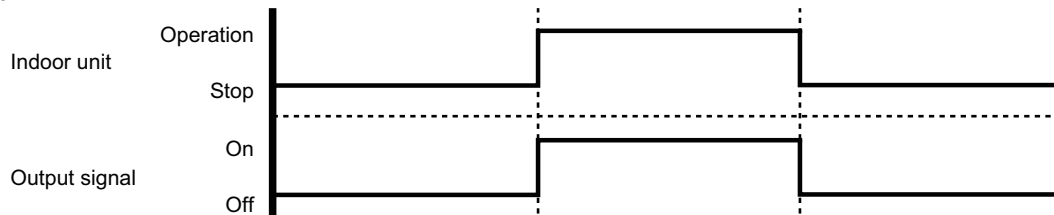
With using external output function, operating status of this product can be transmitted to the external device, and also, this product can be inter-connected with the external device.

■ Operation status output

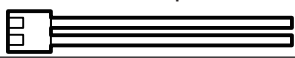

● Circuit diagram example



- *: Make the distance from the PCB to the connected unit within 33 ft (10 m).
- Relay spec: Max. DC 24 V, 10 mA to less than 500 mA.



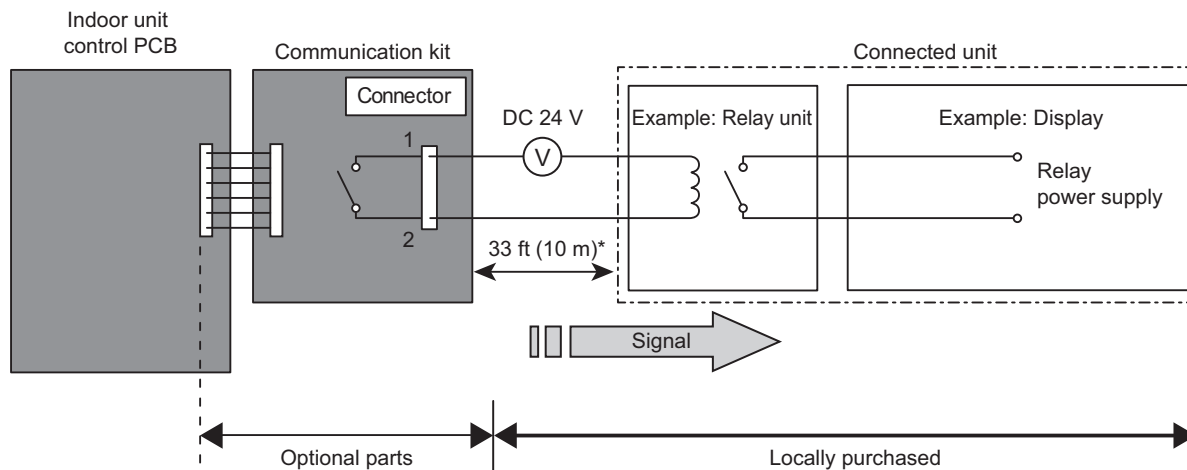
● Optional part

Part name	Model name	Exterior
External connect kit	RXXWZXZ5	External output wire 
Communication kit	RXTWBXF1	

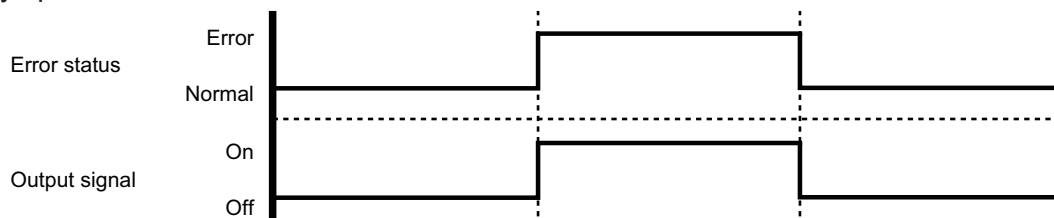
* For operating the external function, the wall mounted type requires the communication kit in addition to the wire (RXXWZXZ5).

■ Error status output

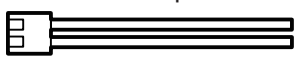

● Circuit diagram example



- *: Make the distance from the PCB to the connected unit within 33 ft (10 m).
- Relay spec: Max. DC 24 V, 10 mA to less than 500 mA.



● Optional part

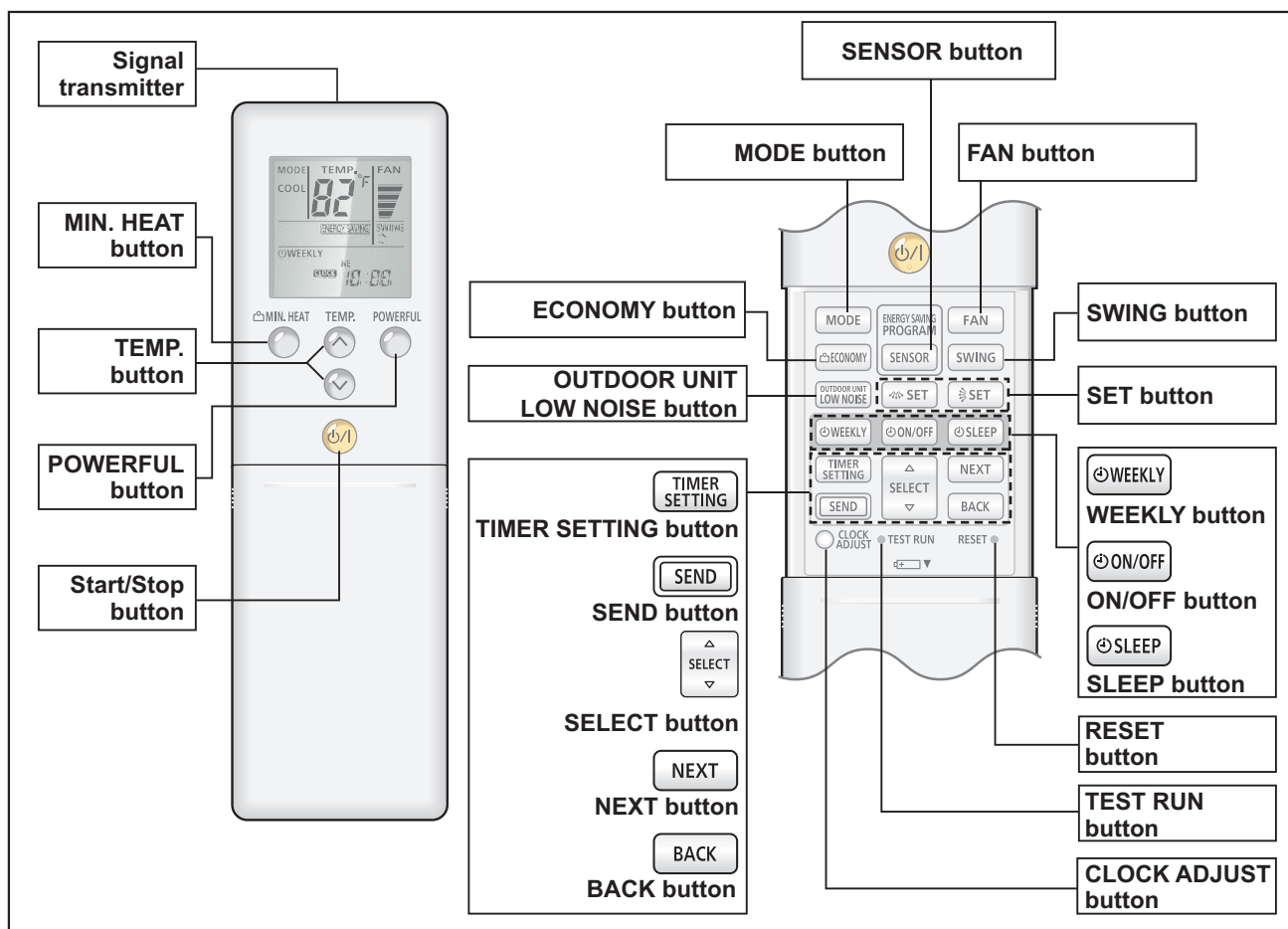
Part name	Model name	Exterior
External connect kit	RXXWZXZ5	External output wire 
Communication kit	RXTWBXF1	

* For operating the external function, the wall mounted type requires the communication kit in addition to the wire (RXXWZXZ5).

9. Remote controller

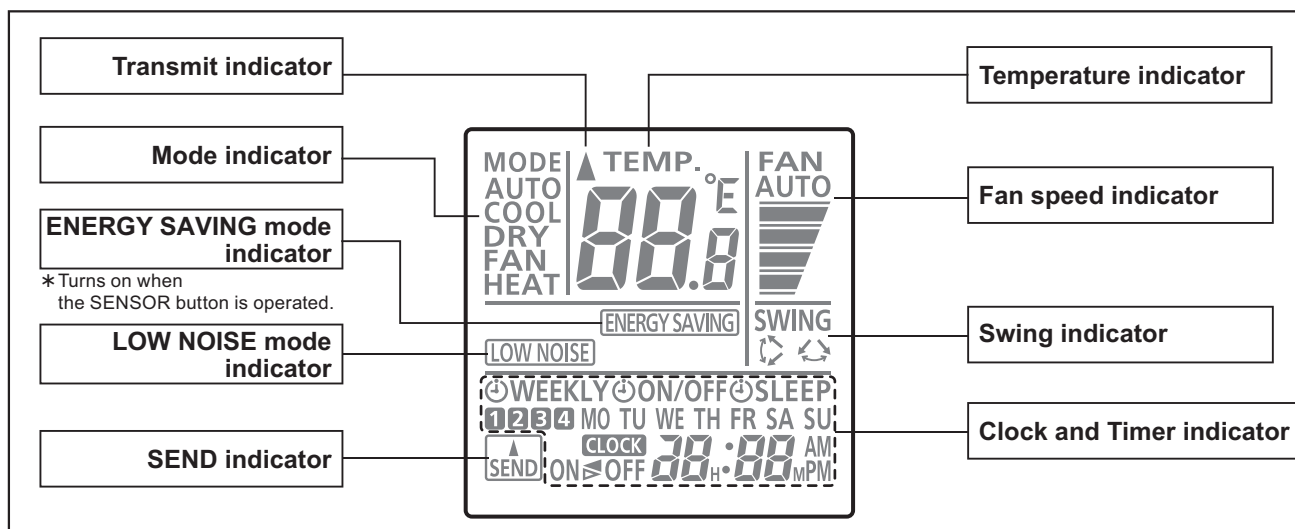
9-1. Wireless remote controller

Overview



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

Display panel

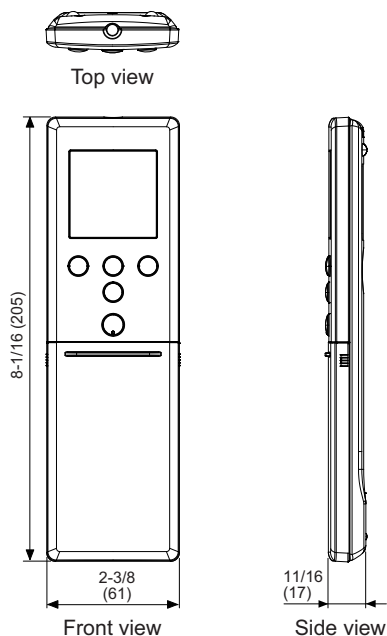


To facilitate explanation, the accompanying illustration has been drawn to show all possible indicators; in actual operation, however, the display will only show those indicators appropriate to the current operation.

■ Specifications

● Controller

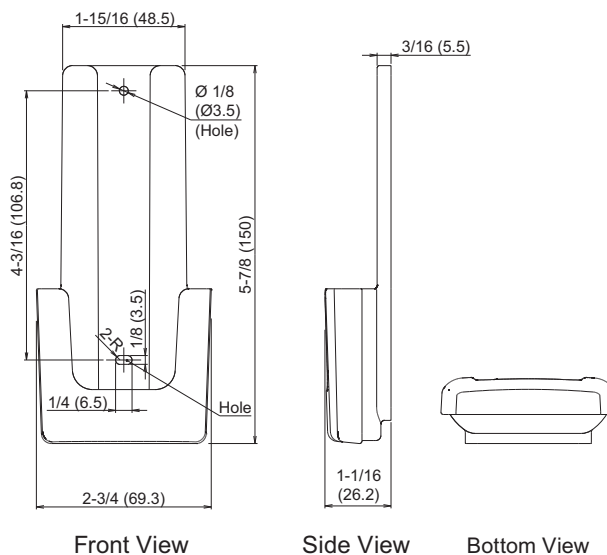
Unit: in (mm)



Size (H × W × D)	in (mm)	8-1/16 × 2-3/8 × 11/16 (205 × 61 × 17)
Weight	oz (g)	4.4 (124) (without batteries)

● Holder

Unit: in (mm)



Size (H × W × D)	in (mm)	5-7/8 × 2-3/4 × 1-1/16 (150 × 69.3 × 26.2)
Weight	oz (g)	1 (27)

10. 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.

10-1. 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 tight 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:

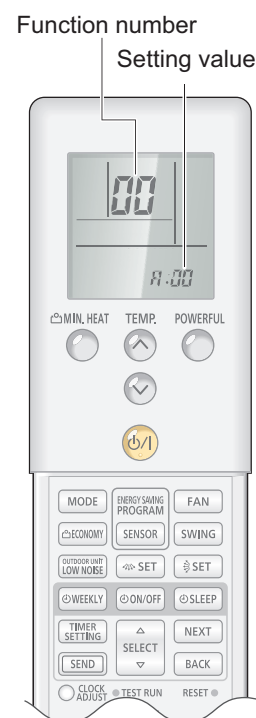
- Settings will not be changed if invalid numbers or setting values are selected.
- When optional wired remote controller is used, refer to the installation manual enclosed with the remote controller.

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. (^) (v) buttons to select the function number. To switch between the left and right digits, press the MIN. 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. (^) (v) buttons to select the setting value. To switch between the left and right digits, press the MIN. 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.

NOTES:

- The air conditioner custom code is set to \overline{H} prior to shipment.
- If you do not know the air conditioner custom code setting, try each of the custom codes ($\overline{H} \rightarrow \overline{b}$
 $\rightarrow \overline{c} \rightarrow \overline{d}$) until you find the code that operates the air conditioner.

■ Contents of function setting

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

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

● Function setting list

	Function no.	Functions
1)	11	Filter sign
2)	30/31	Room temperature control for indoor unit sensor
3)	40	Auto restart
4)	42	Room temperature sensor switching
5)	44	Remote controller custom code
6)	46	External input control
7)	48	Room temperature sensor switching (Aux.)
8)	49	Indoor unit fan control for energy saving for cooling
9)	92/93	Room temperature control for wired remote controller sensor
10)	95	Heat insulation condition (building insulation)

1) Filter sign

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

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

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

2) Room temperature control for indoor unit sensor

NOTE: Before performing this setting, refer to Function 95.

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 78°F and the setting value is "03" (-2°F), the corrected temp. will be 80°F (78°F - [-2°F]).

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

*When Function 95-01 (High insulation) is set, the Standard setting "00" will be the same as "No correction 0.0 °F (0.0 °C)" (01).

Function number		Setting value	Setting description	Factory setting	
30 (For cooling)	31 (For heating)	00	Standard setting*	◆	
		01	No correction 0.0 °F (0.0 °C)		
		02	-1 °F (-0.5 °C)	More cooling Less heating	
		03	-2 °F (-1.0 °C)		
		04	-3 °F (-1.5 °C)		
		05	-4 °F (-2.0 °C)		
		06	-5 °F (-2.5 °C)		
		07	-6 °F (-3.0 °C)		
		08	-7 °F (-3.5 °C)		
		09	-8 °F (-4.0 °C)		
		10	+1 °F (+0.5 °C)	Less cooling More heating	
		11	+2 °F (+1.0 °C)		
		12	+3 °F (+1.5 °C)		
		13	+4 °F (+2.0 °C)		
		14	+5 °F (+2.5 °C)		
		15	+6 °F (+3.0 °C)		
		16	+7 °F (+3.5 °C)		
17	+8 °F (+4.0 °C)				

3) 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.

4) 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.

5) 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	

6) External input control

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

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

7) 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	

8) 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	

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.

9) Room temperature control for wired remote controller sensor

NOTE: Before performing this setting, refer to Function 95.

Depending on the installed environment, correction of the room 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	
92 (For cooling)	93 (For heating)	00	No correction 0.0 °F (0.0 °C)	◆	
		01	No correction 0.0 °F (0.0 °C)		
		02	-1 °F (-0.5 °C)	More cooling Less heating	
		03	-2 °F (-1.0 °C)		
		04	-3 °F (-1.5 °C)		
		05	-4 °F (-2.0 °C)		
		06	-5 °F (-2.5 °C)		
		07	-6 °F (-3.0 °C)		
		08	-7 °F (-3.5 °C)		
		09	-8 °F (-4.0 °C)		
		10	+1 °F (+0.5 °C)	Less cooling More heating	
		11	+2 °F (+1.0 °C)		
		12	+3 °F (+1.5 °C)		
		13	+4 °F (+2.0 °C)		
		14	+5 °F (+2.5 °C)		
		15	+6 °F (+3.0 °C)		
		16	+7 °F (+3.5 °C)		
17	+8 °F (+4.0 °C)				

10) Heat insulation condition (building insulation)

Heat insulation conditions differ according to the installed environment.

"Standard insulation" (00) allows system to rapidly respond to the cooling or heating load changes.

"High insulation" (01) is when the heat insulation structure of the building is high and does not require system to rapidly respond to cooling or heating load changes.

When "High insulation" (01) is selected:

- Overheating (overcooling) is prevented at the start-up.
- All room-temperature control settings (Function 30, 31, 92, and 93) will reset to "No correction 0.0 °F (0.0 °C)".

Function number	Setting value	Setting description	Factory setting
95	00	Standard insulation	◆
	01	High insulation	

NOTE: When changing Function 95, perform this setting before other room-temperature control settings (Function 30, 31, 92, and 93). If Function 95 is not set first, room-temperature control settings (Function 30, 31, 92, and 93) will be reset and you must re-do them again.

10-2. 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. (\wedge) (\vee) buttons to change the custom code between $\text{A} \rightarrow \text{B} \rightarrow \text{C} \rightarrow \text{D}$. 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:

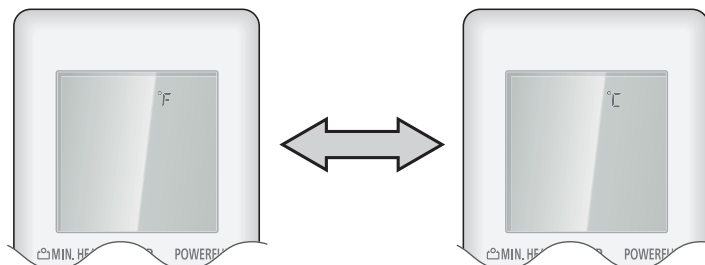
- If no button is pressed within 30 seconds after the custom code is displayed, the system returns to the original clock indicator. In this case, start again from step 1.
- The air conditioner custom code is set to A prior to shipment. To change the custom code, contact your retailer.
- If you do not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

10-3. Switching the temperature unit of remote controller


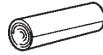

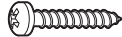
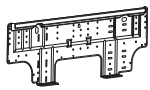

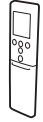
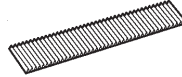
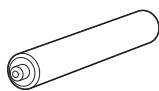
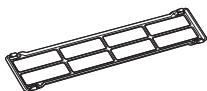


Displayed temperature unit on the remote controller LCD can be switched between °F (Fahrenheit) and °C (Celsius).

To change temperature unit, do as follows:

1. Press the TEMP. (Up) button (∧) for at least 5 seconds to display the current temperature unit. (Factory setting: °F)
2. Press the TEMP. (∧) (∨) buttons to switch the temperature unit between °F and °C.
3. With either of pressing the START/STOP button or no additional button operation for 30 seconds in step 2., the temperature unit currently selected will be set.

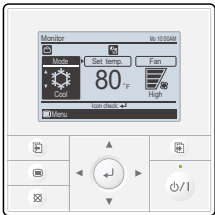
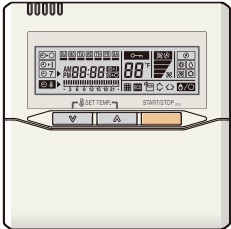



11. Accessories

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Operating manual		1	Cloth tape		1
Installation manual		1	Tapping screw (large)		5
Wall hook bracket		1	Tapping screw (small)		2
Remote controller		1	Air cleaning filter		2
Battery		2	Filter holder		2
Remote controller holder		1	Seal A (for 15 model)		1

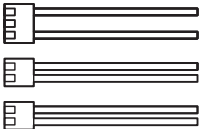

12. Optional parts

12-1. Controllers

Exterior	Part name	Model name	Summary
	Wired remote controller	UXRVNUM	Large and full-dot liquid crystal screen, wide and large keys easy to press, user-intuitive arrow key. Wire type: Polar 3-wire Optional communication kit is necessary for installation.
	Wired remote controller	UXRNNUM	Room temperature can be controlled by detecting the temperature accurately with built-in thermo sensor. Wire type: Polar 3-wire Optional communication kit is necessary for installation.
	Simple remote controller	UXRSNUM	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting, and operation mode. Wire type: Polar 3-wire Optional communication kit is necessary for installation.

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

12-2. Others

Exterior	Part name	Model name	Summary
	External connect kit	RXXWZXZ5	Required when external device is connected.
	Communication kit	RXTWBXF1	Use to connect with optional devices and air conditioner PCB. Optional External connect kit is necessary for installation.

Part 2. OUTDOOR UNIT

SINGLE TYPE:

ROSH09AHHJ

ROSH12AHHJ

ROSH15AHHJ

1. Specifications

OUTDOOR UNIT
ROSH09-15AHHJ

OUTDOOR UNIT
ROSH09-15AHHJ

Type				Inverter heat pump		
Model name				ROSH09AHHJ	ROSH12AHHJ	ROSH15AHHJ
Power supply				208/230 V ~ 60 Hz		
Available voltage range				188—253 V		
Starting current				3.3	4.7	5.2
Fan	Airflow rate	Cooling	CFM (m ³ /h)	989 (1,680)		1,206 (2,050)
		Heating		1,082 (1,840)		
	Type × Q'ty	Propeller fan × 1				
Motor output			W			
Sound pressure level *1		Cooling	dB (A)	42	43	49
		Heating		47		50
Heat exchanger type	Dimensions (H × W × D)	in	23-1/8 × 34-11/16 × 1-7/16			
		mm	588 × 881 × 36.4			
	Fin pitch	FPI	20			
	Rows × Stages	2 × 28				
	Pipe type	Copper				
	Fin type	Type (Material)	Corrugate (Aluminum)			
		Surface treatment	Corrosion resistance (Blue fin)			
Compressor	Type × Q'ty	Rotary × 1				
	Motor output	W	850		1,000	
Refrigerant	Type	R410A				
	Charge	lb oz	2 lb 14 oz	3 lb 1 oz		
		g	1,300	1,400		
Refrigerant oil	Type	FREOL (ø68SZ)				
	Amount	in ³ (cm ³)	12.5 (205)			
Enclosure	Material	Steel sheet				
	Color	Beige Approximate color of Munsell 10YR 7.5/1.0				
Dimensions (H × W × D)	Net	in	24-1/2 × 31-1/8 × 11-7/16			
		mm	620 × 790 × 290			
	Gross	in	28-1/16 × 37-3/16 × 15-9/16			
		mm	713 × 945 × 395			
Weight	Net	lb (kg)	86 (39)		88 (40)	
	Gross		95 (43)			
Connection pipe	Size	Liquid	in (mm)	Ø 1/4 (Ø 6.35)		
		Gas		Ø 3/8 (Ø 9.52)	Ø 1/2 (Ø 12.7)	
	Method			Flare		
	Pre-charge length			49 (15)		
	Max. length			66 (20)		
	Max. height difference			49 (15)		
Operation range		Cooling	°F (°C)	14 to 115 (-10 to 46)		
		Heating		-15 to 75 (-26 to 24)		
Drain hose	Material			LDPE		
	Size	in (mm)	Ø 9/16 (Ø 13.8) [I. D.] Ø 5/8 to Ø 11/16 (Ø 15.8 to Ø 16.7) [O. D.]			
NOTES:						
<ul style="list-style-type: none"> • Specifications are based on the following conditions: <ul style="list-style-type: none"> – Cooling: Indoor temperature of 80 °FDB (26.67 °CDB) / 67 °FWB (19.44 °CWB), and outdoor temperature of 95 °FDB (35 °CDB) / 75 °FWB (23.9 °CWB). – Heating: Indoor temperature of 70 °FDB (21.11 °CDB) / 59 °FWB (15 °CWB), and outdoor temperature of 47 °FDB (8.33 °CDB) / 43 °FWB (6.11 °CWB). – Pipe length: 24.6 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.) • Protective function might work when using it outside the operation range. • *1: Sound pressure level <ul style="list-style-type: none"> – Measured values in manufacturer's anechoic chamber. – Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here. 						

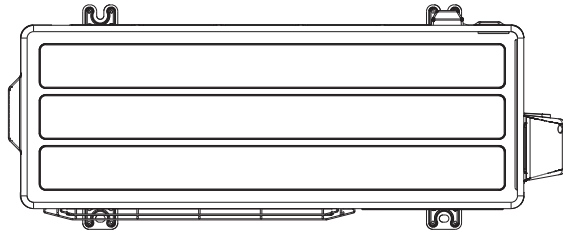
2. Dimensions

2-1. Models: ROSH09AHHJ, ROSH12AHHJ, and ROSH15AHHJ

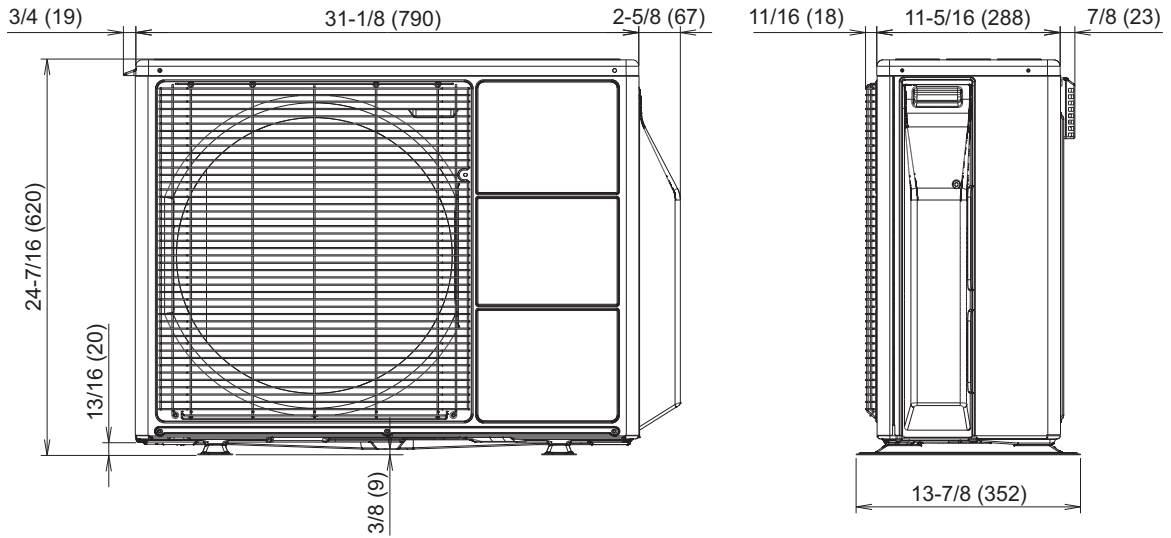
Unit: in (mm)

OUTDOOR UNIT
ROSH09-15AHHJ

OUTDOOR UNIT
ROSH09-15AHHJ

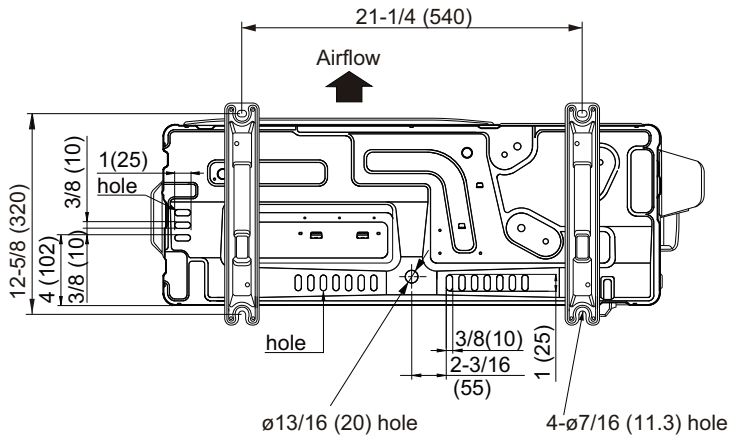


Top view

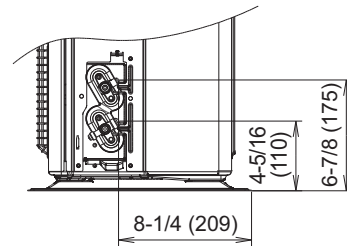


Front view

Side view



Bottom view



3. Installation space

3-1. Models: ROSH09AHHJ, ROSH12AHHJ, and ROSH15AHHJ

■ Space requirement

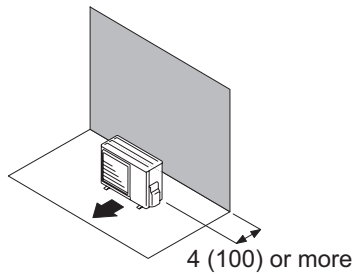
Provide sufficient installation space for product safety.

● Single outdoor unit installation

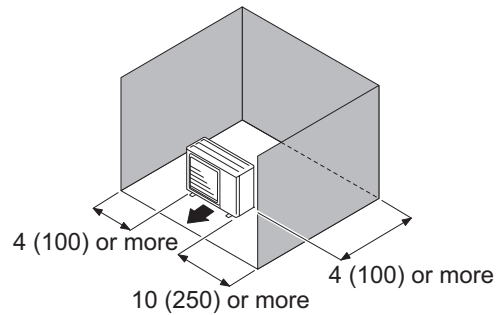
- When the upper space is open:

Unit: in (mm)

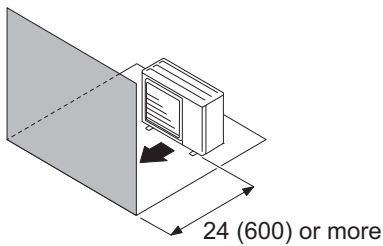
When there are obstacles at the rear only.



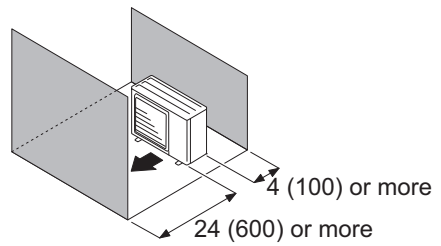
When there are obstacles at the rear and sides.



When there are obstacles at the front only.



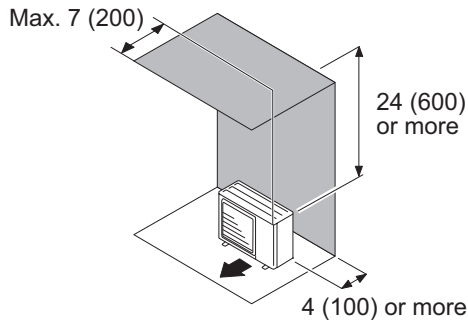
When there are obstacles at the front and rear.



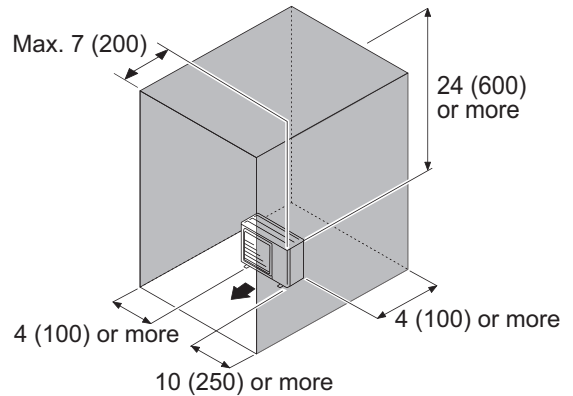
- When there is an obstruction in the upper space:

Unit: in (mm)

When there are obstacles at the rear and above.



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

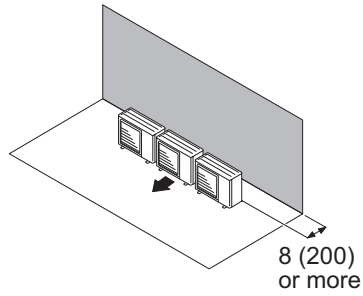


● Multiple outdoor unit installation

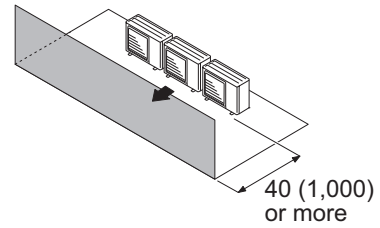
- When the upper space is open:

Unit: in (mm)

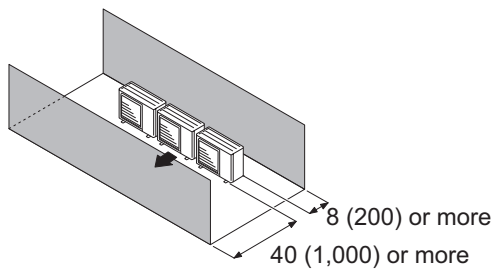
When there are obstacles at the rear only.



When there are obstacles at the front only.



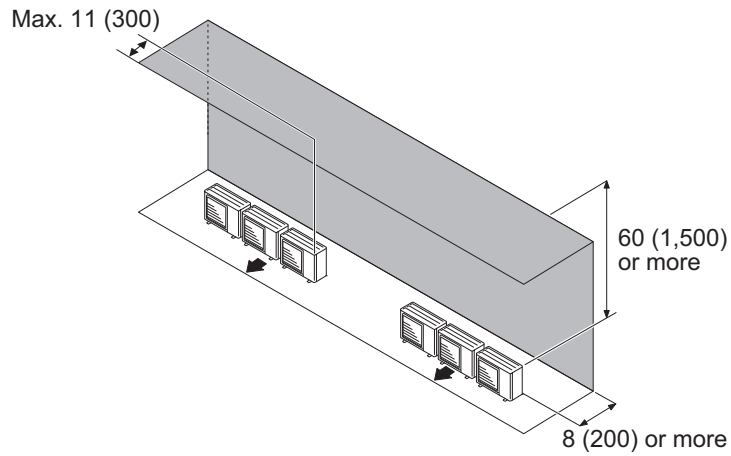
When there are obstacles at the front and rear.



- When there is an obstruction in the upper space:

Unit: in (mm)

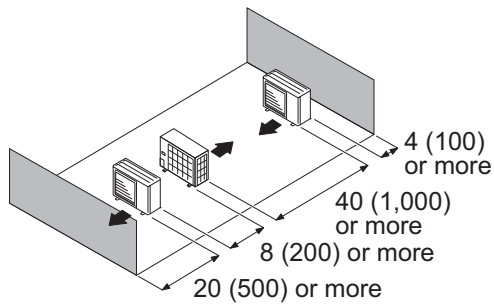
When there are obstacles at the rear and above.



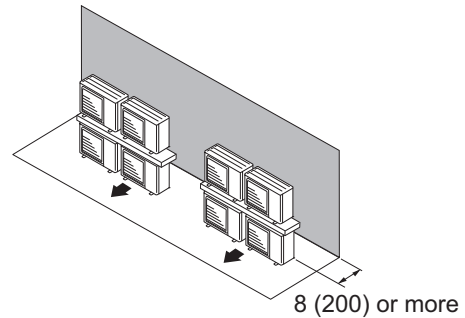
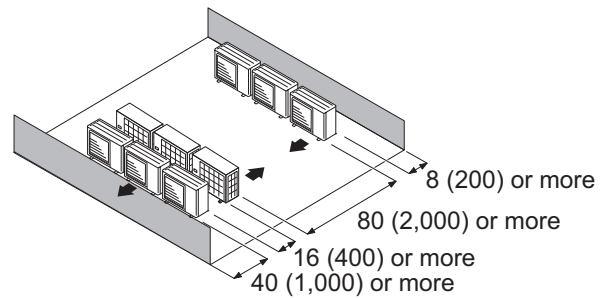
● Outdoor unit installation in multi-row

Unit: in (mm)

Single parallel unit arrangement



Multiple parallel unit arrangement

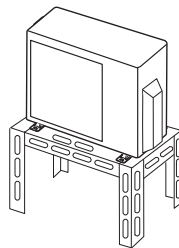


NOTES:

- 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 2 in (50 mm) or more.
- When installing the outdoor unit, be sure to open the front and left side to obtain better operation efficiency.

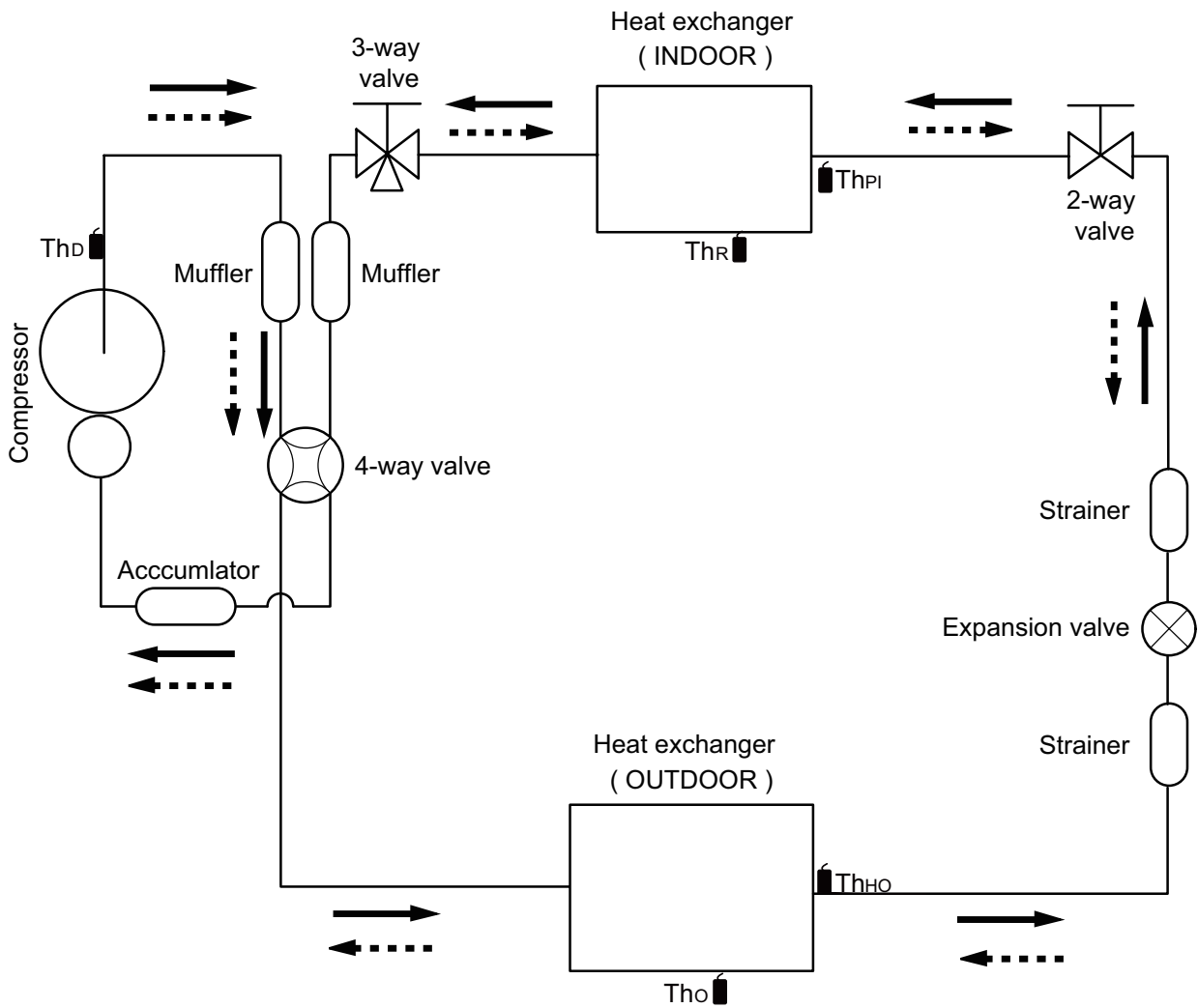
⚠ CAUTION

- 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 32 °F (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: ROSH09AHHJ and ROSH12AHHJ



Cooling
 Heating

- Th_D : Thermistor (Discharge temperature)
- Th_O : Thermistor (Outdoor temperature)
- Th_{HO} : Thermistor (Heat exchanger out temperature)
- Th_R : Thermistor (Room temperature)
- Th_{PI} : Thermistor (Pipe temperature)

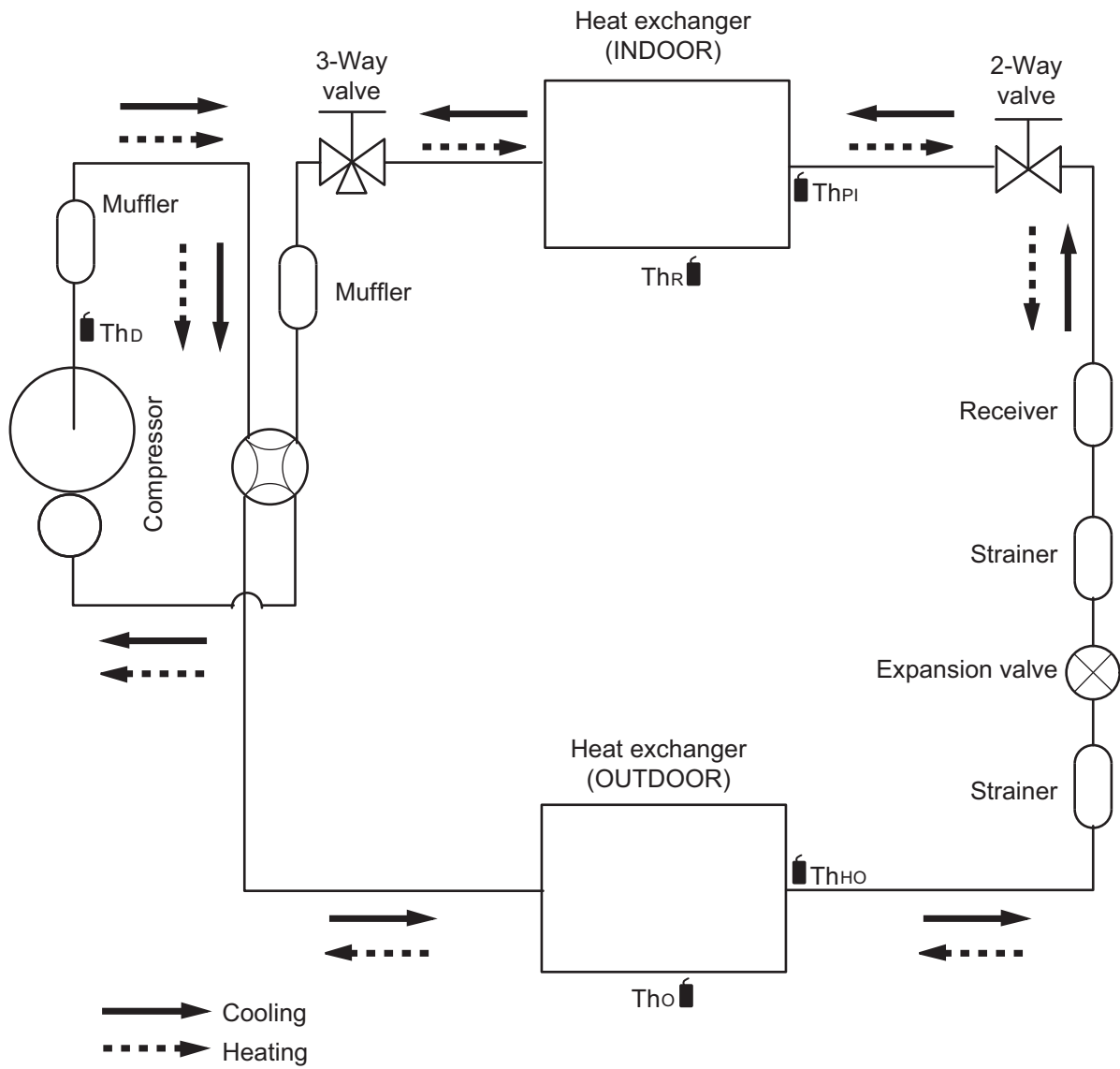
OUTDOOR UNIT
ROSH09-15AHHJ

OUTDOOR UNIT
ROSH09-15AHHJ

4-2. Model: ROSH15AHHJ

OUTDOOR UNIT
ROSH09-15AHHJ

OUTDOOR UNIT
ROSH09-15AHHJ



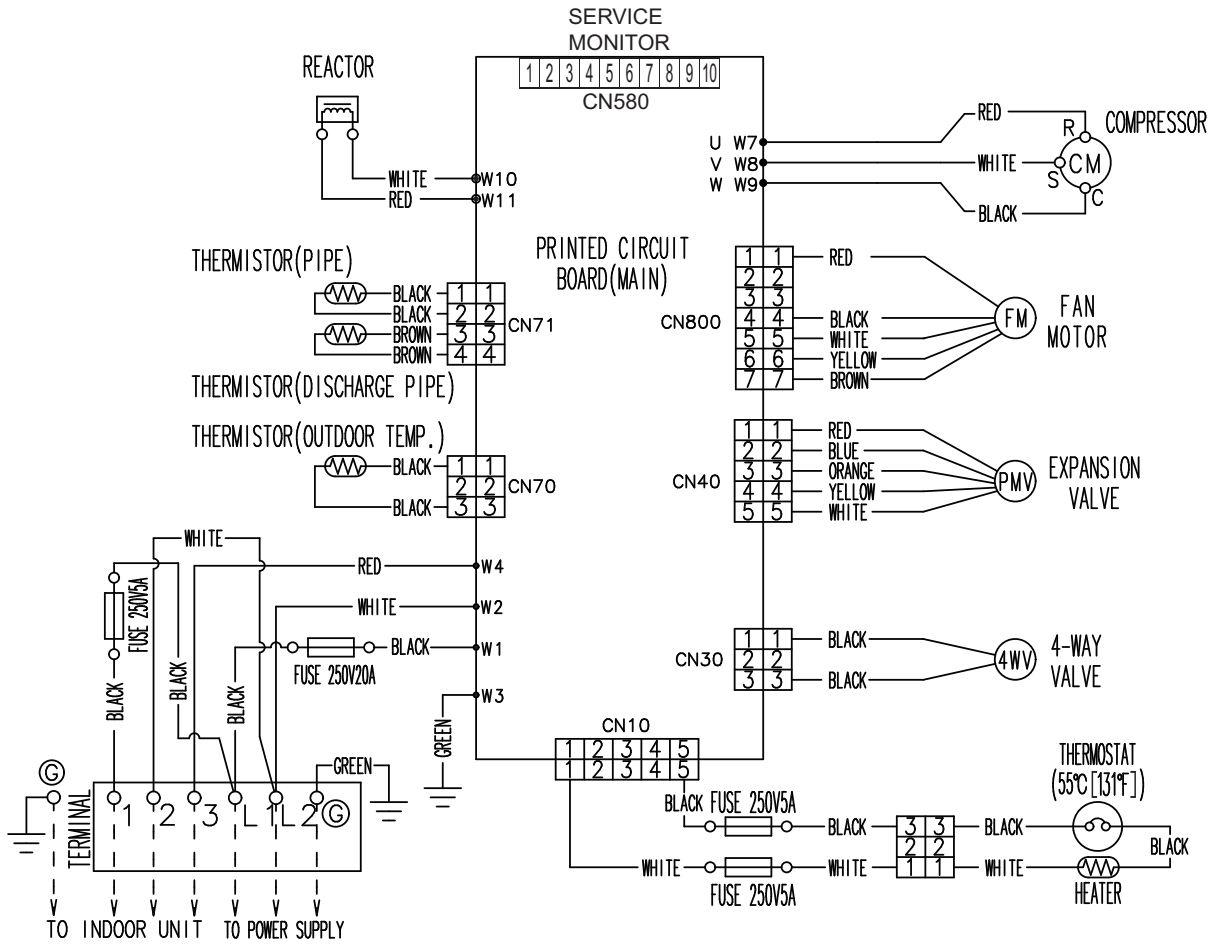
- Th_D : Thermistor (Discharge temp.)
- Th_O : Thermistor (Outdoor temp.)
- Th_{HO} : Thermistor (Heat exchanger out temp.)
- Th_R : Thermistor (Room temp.)
- Th_{PI} : Thermistor (Pipe temp.)

5. Wiring diagrams

5-1. Models: ROSH09AHHJ and ROSH12AHHJ

OUTDOOR UNIT
ROSH09-15AHHJ

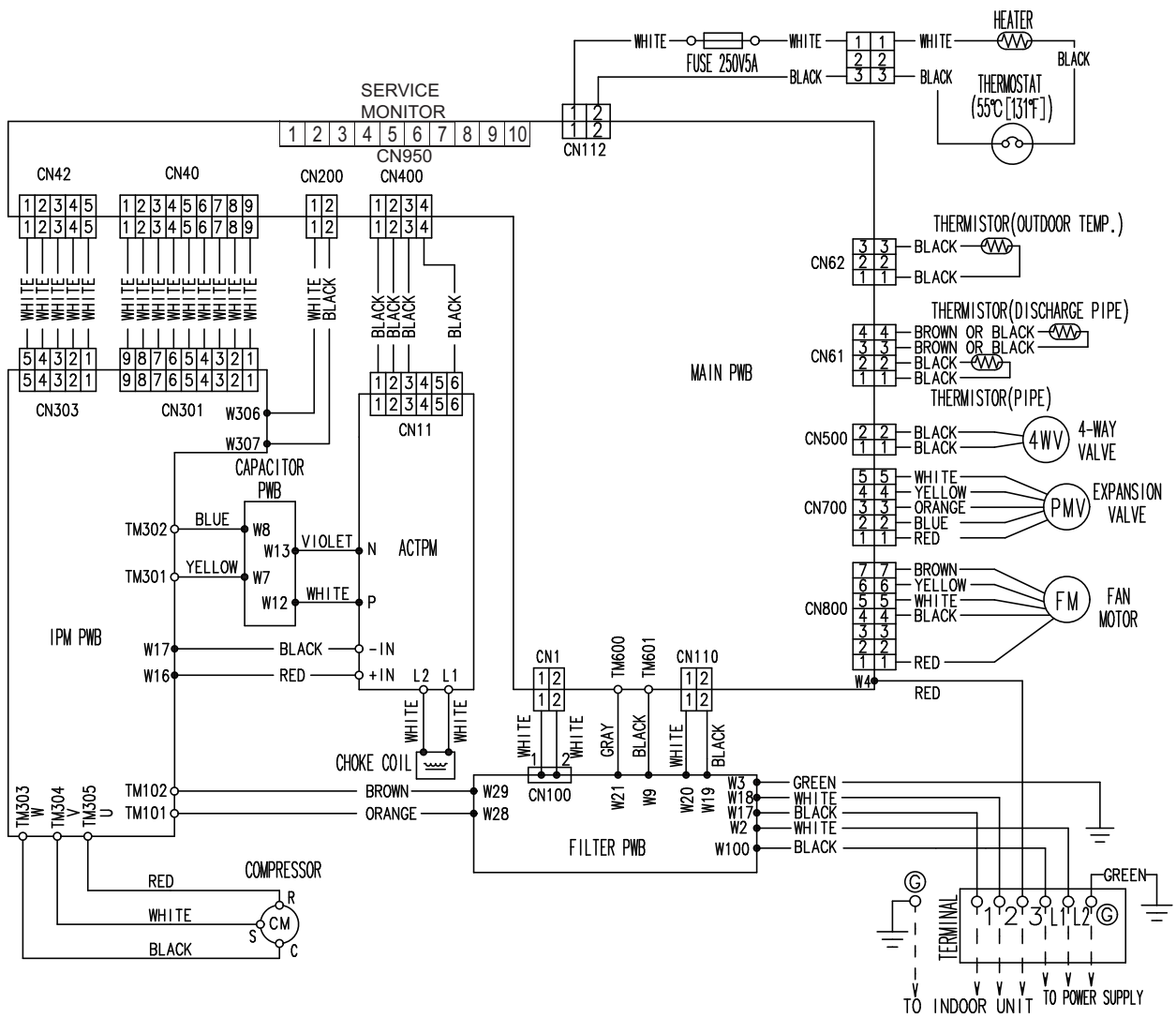
OUTDOOR UNIT
ROSH09-15AHHJ



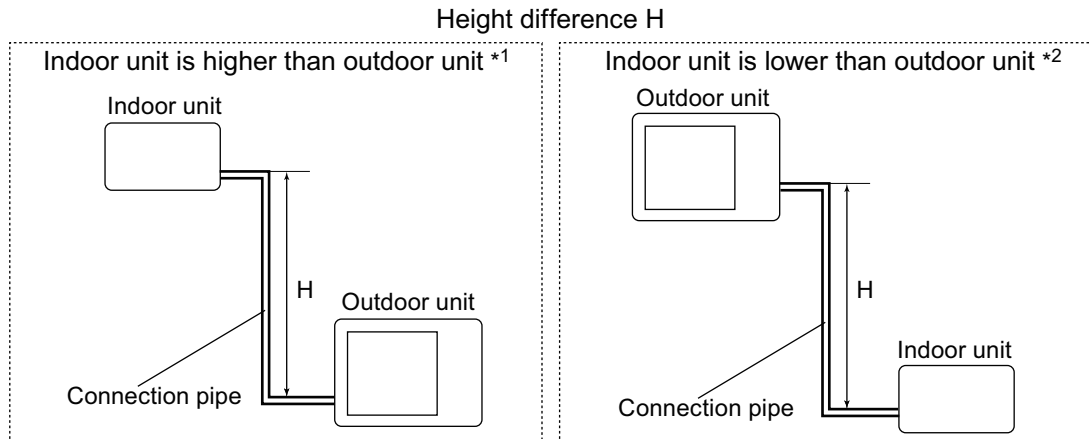
5-2. Model: ROSH15AHHJ

OUTDOOR UNIT
ROSH09-15AHHJ

OUTDOOR UNIT
ROSH09-15AHHJ



6. Capacity compensation rate for pipe length and height difference



6-1. Models: ROSH09AHHJ and ROSH12AHHJ

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

COOLING		Pipe length						
		m						
			ft	5	7.5	10	15	20
Height difference H	Indoor unit is higher than outdoor unit *1	15	49	-	-	-	0.877	0.874
		10	33	-	-	0.956	0.891	0.888
		7.5	25	-	0.988	0.960	0.895	0.892
		5	16	1.017	0.992	0.964	0.899	0.895
	0	0	1.025	1.000	0.971	0.906	0.902	
Indoor unit is lower than outdoor unit *2	-5	-16	1.025	1.000	0.971	0.906	0.902	
	-7.5	-25	-	1.000	0.971	0.906	0.902	
	-10	-33	-	-	0.971	0.906	0.902	
	-15	-49	-	-	-	0.906	0.902	

HEATING		Pipe length						
		m						
			ft	5	7.5	10	15	20
Height difference H	Indoor unit is higher than outdoor unit *1	15	49	-	-	-	0.933	0.925
		10	33	-	-	0.981	0.933	0.925
		7.5	25	-	1.000	0.981	0.933	0.925
		5	16	1.017	1.000	0.981	0.933	0.925
	0	0	1.017	1.000	0.981	0.933	0.925	
Indoor unit is lower than outdoor unit *2	-5	-16	1.012	0.995	0.976	0.928	0.920	
	-7.5	-25	-	0.993	0.974	0.926	0.918	
	-10	-33	-	-	0.971	0.923	0.916	
	-15	-49	-	-	-	0.914	0.906	

6-2. Model: ROSH15AHHJ

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

COOLING		Pipe length						
		m	ft	5	7.5	10	15	20
				16	25	33	49	66
Height difference H	Indoor unit is higher than outdoor unit *1	15	49	-	-	-	0.951	0.950
		10	33	-	-	0.979	0.967	0.966
		7.5	25	-	0.988	0.983	0.971	0.970
		5	16	0.994	0.992	0.987	0.975	0.974
	0	0	1.002	1.000	0.995	0.983	0.982	
Indoor unit is lower than outdoor unit *2	-5	-16	1.002	1.000	0.995	0.983	0.982	
	-7.5	-25	-	1.000	0.995	0.983	0.982	
	-10	-33	-	-	0.995	0.983	0.982	
	-15	-49	-	-	-	0.983	0.982	

HEATING		Pipe length						
		m	ft	5	7.5	10	15	20
				16	25	33	49	66
Height difference H	Indoor unit is higher than outdoor unit *1	15	49	-	-	-	0.994	0.979
		10	33	-	-	1.012	0.994	0.979
		7.5	25	-	1.000	1.012	0.994	0.979
		5	16	0.969	1.000	1.012	0.994	0.979
	0	0	0.969	1.000	1.012	0.994	0.979	
Indoor unit is lower than outdoor unit *2	-5	-16	0.964	0.995	1.007	0.989	0.974	
	-7.5	-25	-	0.993	1.004	0.986	0.972	
	-10	-33	-	-	1.002	0.984	0.969	
	-15	-49	-	-	-	0.974	0.959	

OUTDOOR UNIT
ROSH09-15AHHJ

OUTDOOR UNIT
ROSH09-15AHHJ

7. Additional charge calculation

7-1. Models: ROSH09AHHJ and ROSH12AHHJ

Refrigerant type	R410A	
Refrigerant amount	lb oz	2 lb 14 oz
	g	1,300

■ Refrigerant charge

Total pipe length	ft	49 or less	66 (Max.)	0.22 oz/ft (20 g/m)
	m	15 or less	20 (Max.)	
Additional charge	oz	0	+3.5	
	g	0	+100	

7-2. Model: ROSH15AHHJ

Refrigerant type	R410A	
Refrigerant amount	lb oz	3 lb 1 oz
	g	1,400

■ Refrigerant charge

Total pipe length	ft	49 or less	66 (Max.)	0.22 oz/ft (20 g/m)
	m	15 or less	20 (Max.)	
Additional charge	oz	0	+3.5	
	g	0	+100	

8. Airflow

8-1. Models: ROSH09AHHJ and ROSH12AHHJ

● Cooling

m ³ /h	1,680
l/s	467
CFM	989

● Heating

m ³ /h	1,840
l/s	510
CFM	1,082

8-2. Model: ROSH15AHHJ

● Cooling

m ³ /h	2,050
l/s	569
CFM	1,206

● Heating

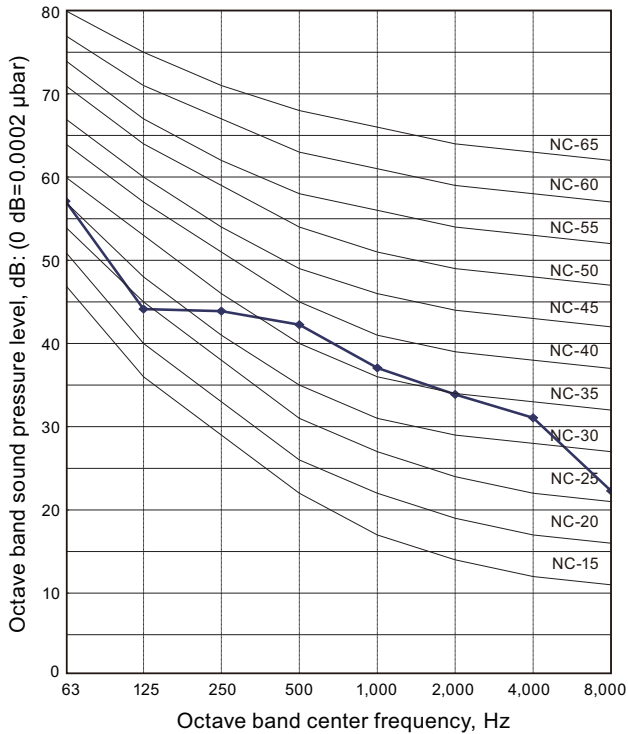
m ³ /h	1,840
l/s	510
CFM	1,082

9. Operation noise (sound pressure)

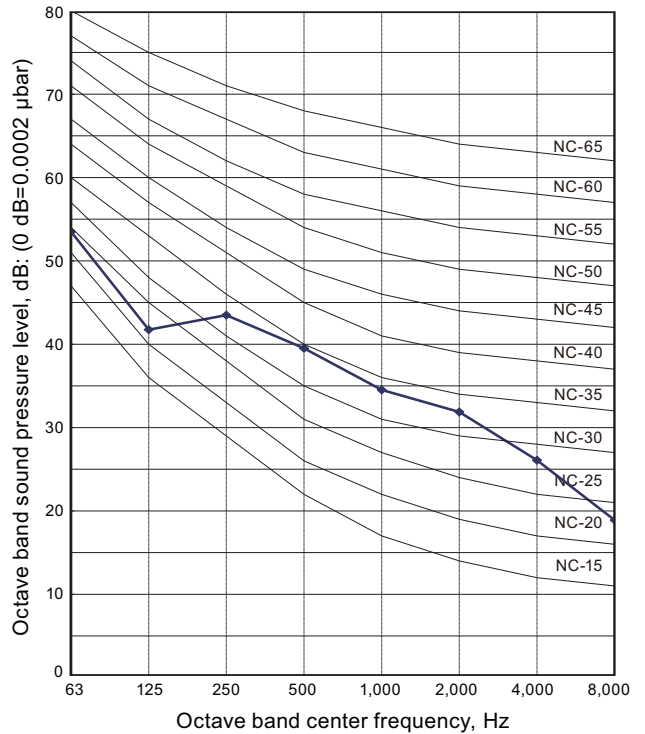
9-1. Noise level curve

Model: ROSH09AHHJ

Cooling

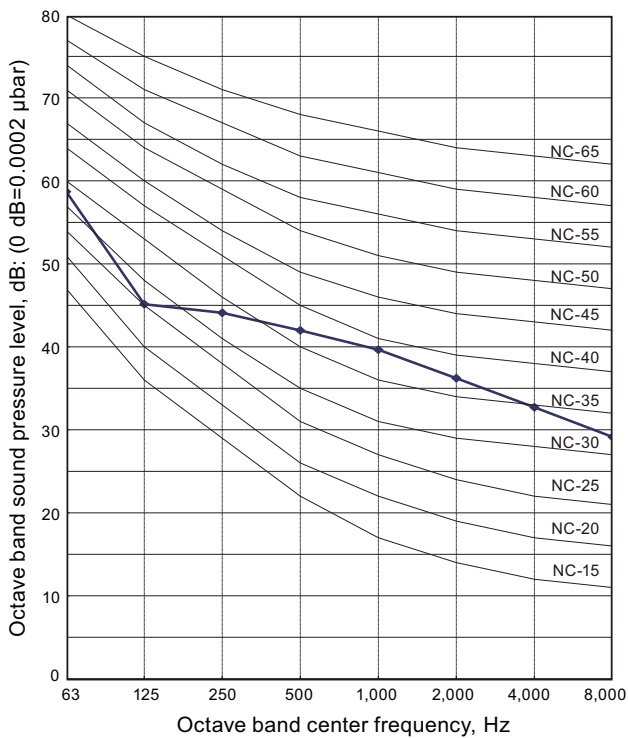


Heating

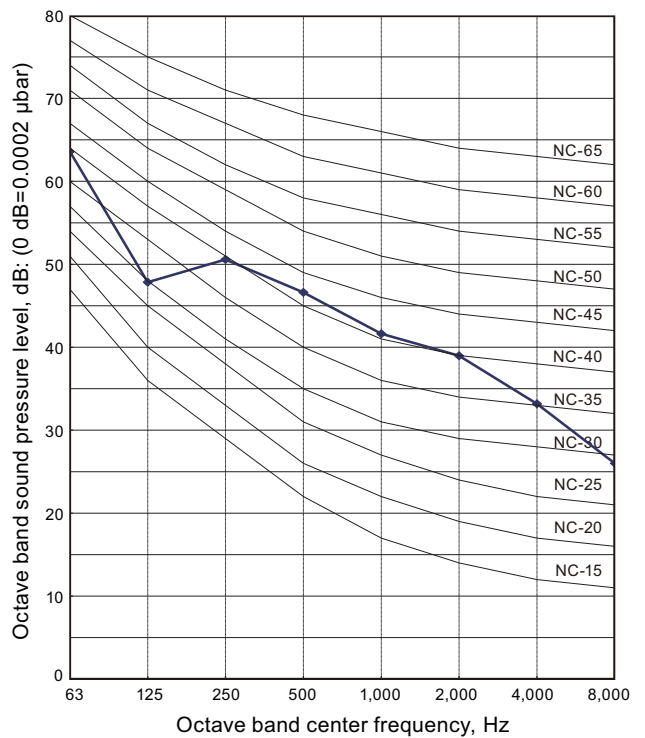


Model: ROSH12AHHJ

Cooling



Heating



OUTDOOR UNIT
ROSH09-15AHHJ

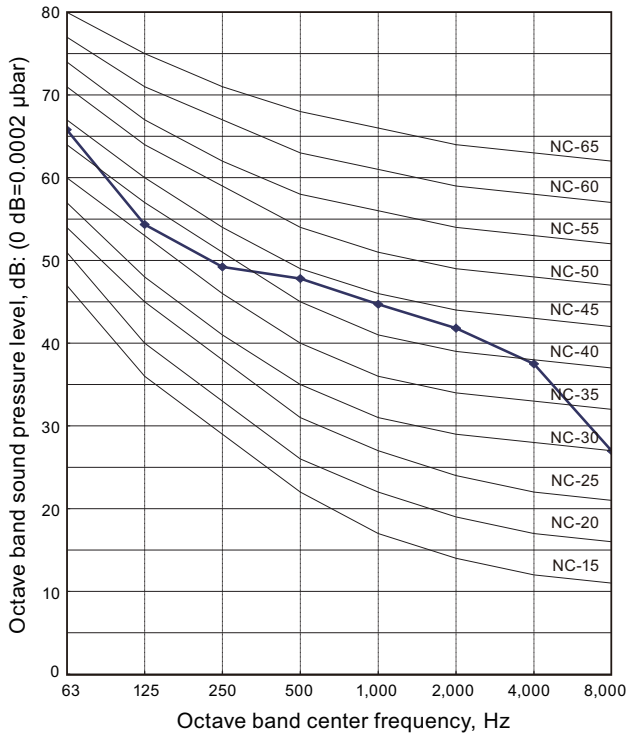
OUTDOOR UNIT
ROSH09-15AHHJ

Model: ROSH15AHHJ

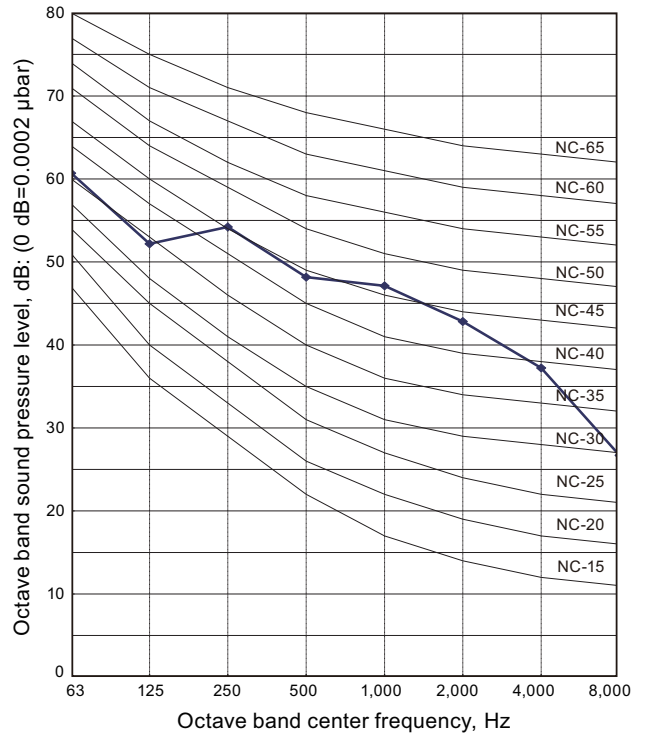
OUTDOOR UNIT
ROSH09-15AHHJ

OUTDOOR UNIT
ROSH09-15AHHJ

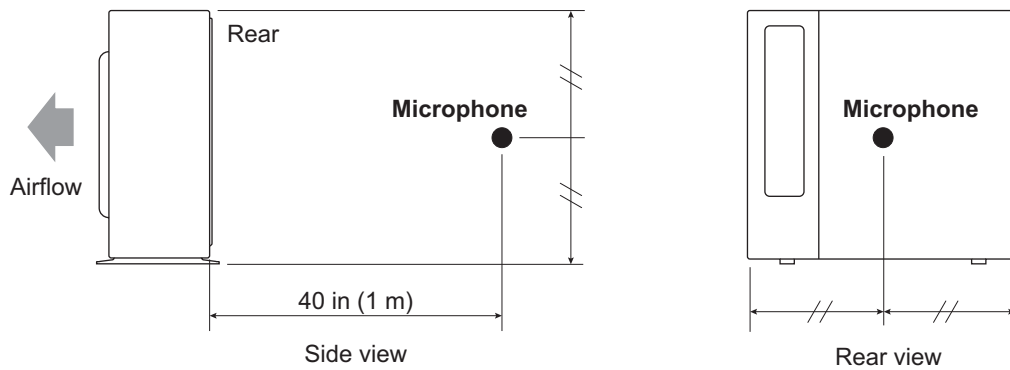
● Cooling



● 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			ROSH09AHHJ	ROSH12AHHJ	ROSH15AHHJ
Power supply	Voltage		V		
	Frequency		Hz		
MCA *1			14.4		18.2
Starting current			3.3	4.7	5.2
Wiring spec. *2	MAX. CKT. BKR *3		15		20
	Power cable		14		12
	Connection cable *4	Size	14		
		Limited wiring length	68 (21)		

*1: Minimum Circuit Ampacity (Calculation based on UL1995)

*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: Maximum Circuit Breaker

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


11. Safety devices

Type of protection	Protection form		Model		
			ROSH09AHHJ	ROSH12AHHJ	ROSH15AHHJ
Circuit protection	Current fuse (Near the terminal)	250 V, 20 A			250 V, 5 A
		250 V, 5 A			
	Current fuse (Filter PCB)	—			250 V, 25 A
					250 V, 5 A
Current fuse (Main PCB)	250 V, 15 A			250 V, 3.15 A	
	250 V, 3.15 A			250 V, 5 A	
Fan motor protection	Thermal protection program	Activate	212±27 °F (110±15 °C) Fan motor stop		
		Reset	203±18 °F (95±10 °C) Fan motor restart		
Compressor protection	Thermal protection program (Discharge temp.)	Activate	230 °F (110 °C) Compressor stop		
		Reset	After 7 minutes Compressor restart		

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12. Accessories

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1			

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