REFRIGERANT **R410A**

INVERTER

AIR CONDITIONER

Wall Mounted type

DESIGN & TECHNICAL MANUAL

INDOOR

RIWH09AVFJ
RIWH12AVFJ

OUTDOOR

ROSH09AFWJ

ROSH12AFWJ

1. INDOOR UNIT

WALL MOUNTED TYPE :

RIWH09AVFJ
RIWH12AVFJ

DTR_AS129E_01
2017.01.27

WALL MOUNTED TYPE
RIWH09-12AVFJ

CONTENTS

1. INDOOR UNIT

WALL MOUNTED TYPE
RIWH09-12AVFJ

1. SPECIFICATIONS

Type					WALL MOUNTED INVERTER HEAT PUMP	
Model name					RIWH09AVFJ	RIWH12AVFJ
Power source					208/230V~60HZ	
Available voltage range					187-253V~60HZ	
Capacity	Cooling	Rated		kW	2.637	3.516
				BTU/h	9000	12000
		Min-Max		kW	0.50-3.20	0.90-3.90
				BTU/h	1700-10900	3100-13300
	Heating	Rated		kW	3.516	4.689
				BTU/h	12000	16000
		Min-Max		kW	0.50-4.40	0.90-5.60
				BTU/h	1700-15000	3100-19100
Input power	Cooling	Rated		kW	0.65	0.96
		Min - Max			0.25 - 1.27	0.25 - 1.40
	Heating	Rated			0.89	1.28
		Min - Max			0.25 - 1.60	0.25 - 1.99
Current	Cooling	Rated		A	3.2	4.4
	Heating				4.2	5.9
EER		Cooling		kW/kW	4.05	3.66
				BTU/hW	13.8	12.5
COP		Heating		kW/kW	3.95	3.66
				BTU/hW	13.50	12.50
SEER		Cooling		BTU/hW	23.0	22.0
HSPF		Heating		BTU/hW	11.0	11.0
POWER FACTOR		Cooling		%	88	95
		Heating			92	94
Moisture removal				pints/h(l/h)	2.75(1.3)	3.80(1.8)
Maximum operating current *1		Cooling		A	6.0	6.5
		Heating			7.5	9.0
Fan	Airflow rate	Cooling	High	CFM (m^3/h)	441(750)	
			Med		376(640)	
			Low		282(480)	
			Quiet		182(310)	
		Heating	High		441(750)	
			Med		376(640)	
			Low		306(520)	
			Quiet		194(330)	
	Type×Q'ty				Cross flow fan×1	
	Motor output			W	30	
Sound pressure level *2		Cooling	High	dB(A)	43	43
			Med		40	40
			Low		32	32
			Quiet		21	21
		Heating	High		43	43
			Med		38	38
			Low		33	33
			Quiet		22	22
Heat exchanger type		Dimensions (H×W×D)		in.(mm)	Main: 12-5/8 x 24-13/16 x 13/16 (320×630×20) Sub: 3-5/16 x 24-13/16 x 1/2 (84×630×13.3)	
		Fin pitch		FPI	Main:23 Sub:18	
		Rows×Stages			Main:2×20 Sub:1×4	
		Pipe type			Copper	
		Fin type			Aluminum	
Enclosure		Material			Polystyrene	
		Color			White Approximate color of MUNSELL N9.25/	
Dimensions (H×W×D)	Net			mm	268 x 840 x 203	
				in.	10-9/16 x 33-1/16 x 8	
	Gross			mm	270 x 884 x 336	
				in.	10-5/8 x 34-13/16 x 13-1/4	
Weight	Net			lbs.(kg)	19(8.5)	
	Gross				24(10.5)	
Connection pipe	Size	Liquid		in.(mm)	Ø1/4(Ø6.35)	
		Gas			Ø3/8(Ø9.52)	
	Method				Flare	
Operation range		Cooling		°F(°C)	64 to 90(18 to 32)	
				%RH	80 or less	
		Heating		°F(°C)	88(30) or less	
Remote controller type					Wireless	
Drain hose	Material				PP + LLDPE	
	Size			mm (Reference in.)	Ø 9/16 (13.8) (I.D.) Ø5/8 to Ø11/16 (15.8 to 16.7) (O.D.)	

NOTE :

●Specifications are based on the following conditions.

Cooling:Indoor temperature of 80°F(26.67°C)DB/67°F(19.44°C)WB,and outdoor temperature of 95°F(35°C)DB/75°F(23.9°C)WB.

Heating:Indoor temperature of 70°F(21.11°C)DB/59°F(15°C)WB,and outdoor temperature of 47°F(8.33°C)DB/43°F(6.11°C)WB.

Pipe length:24ft.(7.5m),Height difference:0ft. (0m) (Outdoor unit-Indoor unit)

●The protective function might work when using it in environment out of the temperature range mentioned above.

*1: The maximum current is the maximum value when operated within the operation range.

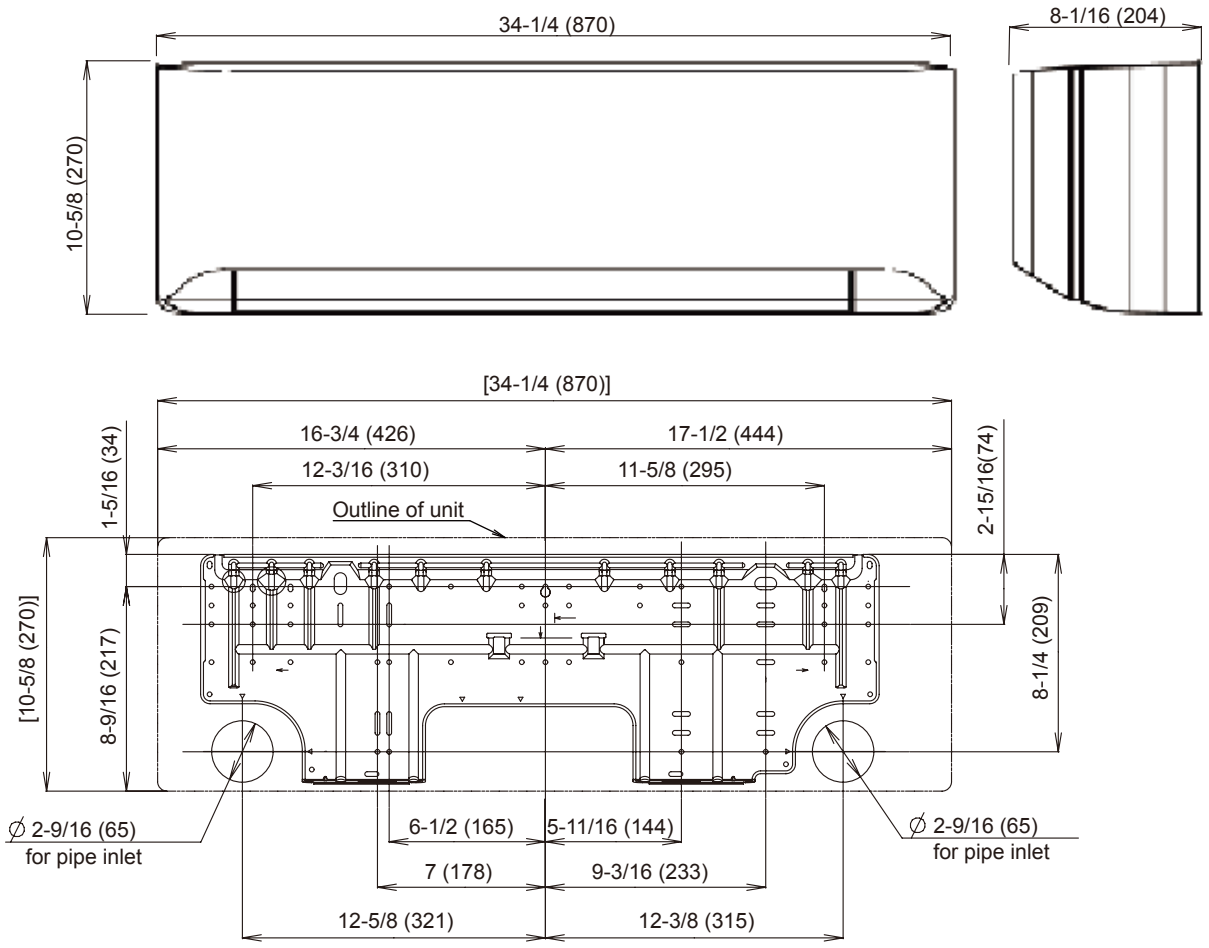
*2: These are the measured values in the manufacturer's anechoic chamber.
Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

WALL MOUNTED TYPE
RIWH09-12AVFJ

2. DIMENSIONS

■ MODELS: RIWH09AVFJ, RIWH12AVFJ

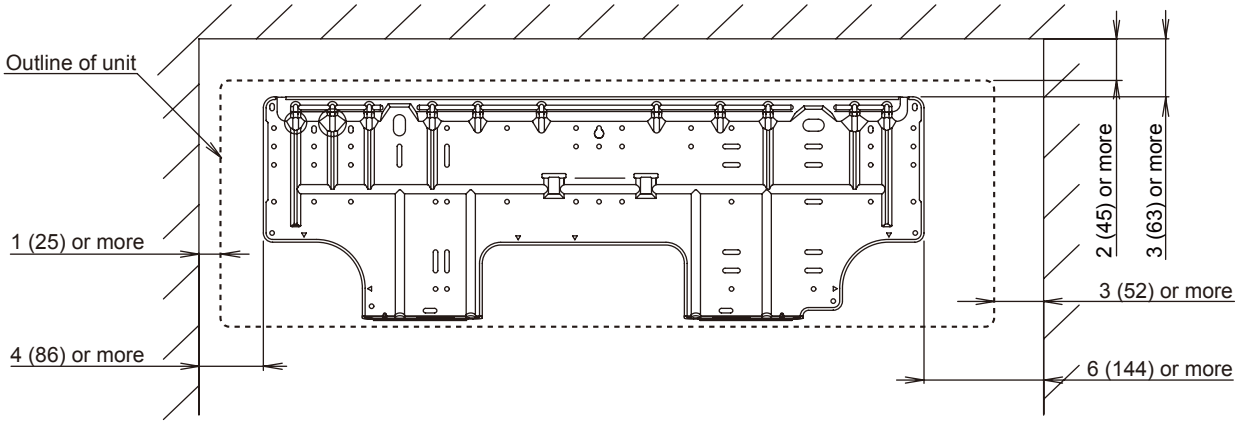
Unit: in (mm)

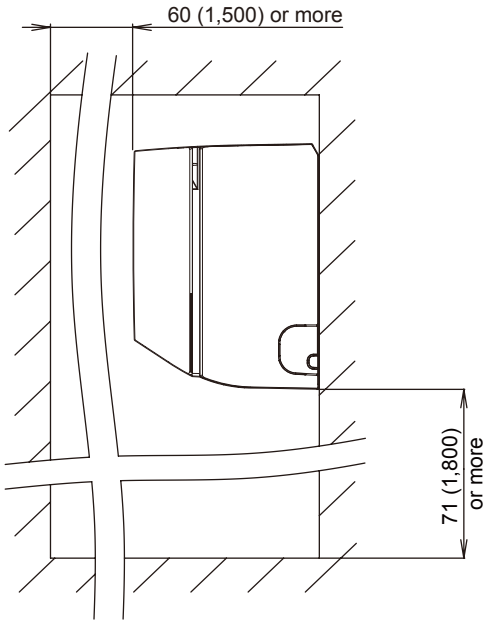


WALL MOUNTED TYPE
RIWH09-12AVFJ

■ INSTALLATION PLACE

Unit: in (mm)

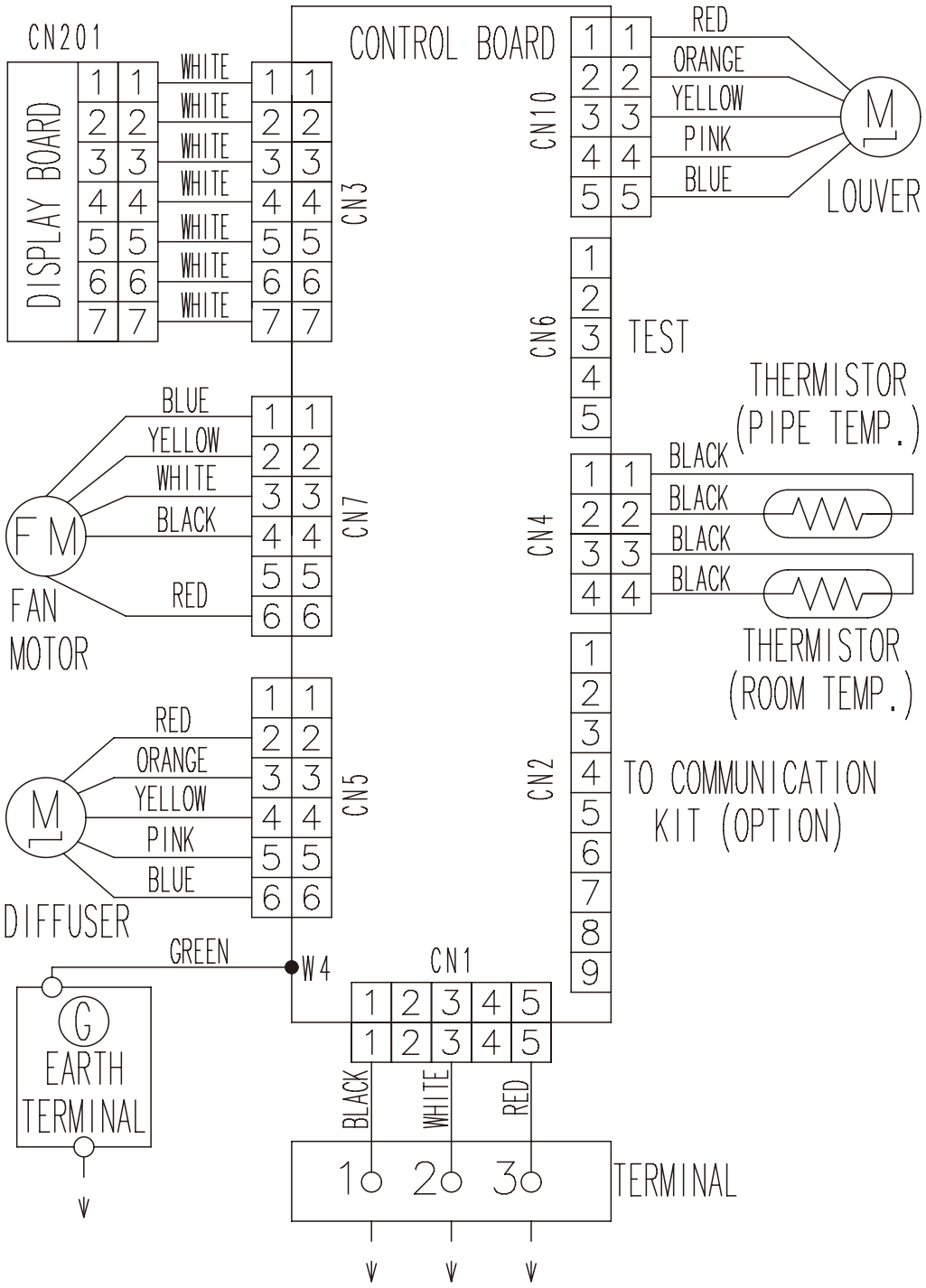




WALL MOUNTED TYPE
RIWH09-12AVFJ

3. WIRING DIAGRAMS

■ MODELS: RIWH09AVFJ, RIWH12AVFJ



WALL MOUNTED TYPE
RIWH09-12AVFJ

4. CAPACITY TABLE

4-1. COOLING CAPACITY

■ MODEL: RIWH09AVFJ

AFR	441

		Indoor temperature																	
	°FDB	64			70			75			80			85			90		
	°FWB	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
	15	8.34	5.55	0.22	9.30	6.19	0.22	10.26	6.82	0.23	10.57	7.04	0.22	11.21	7.46	0.22	11.85	7.89	0.23
	23	7.95	5.29	0.24	8.86	5.90	0.24	9.78	6.51	0.25	10.08	6.71	0.24	10.69	7.11	0.25	11.30	7.52	0.25
	32	7.57	5.04	0.24	8.43	5.61	0.24	9.31	6.19	0.25	9.59	6.38	0.25	10.17	6.77	0.25	10.74	7.15	0.25
	41	7.18	4.78	0.24	8.00	5.32	0.24	8.83	5.88	0.26	9.10	6.06	0.25	9.64	6.42	0.25	10.19	6.78	0.26
	50	6.80	4.52	0.22	7.56	5.03	0.22	8.36	5.56	0.23	8.61	5.73	0.23	9.12	6.07	0.23	9.63	6.41	0.24
	59	6.41	4.85	0.22	7.13	4.85	0.23	7.88	5.29	0.23	8.12	5.73	0.23	8.60	5.70	0.23	9.08	6.07	0.24
	67	8.53	5.29	0.44	9.52	5.32	0.45	10.47	5.80	0.46	10.82	6.28	0.46	11.46	6.24	0.46	12.11	6.65	0.47
	77	8.02	5.29	0.51	8.94	5.32	0.52	9.86	5.83	0.52	10.17	6.28	0.53	10.78	6.24	0.53	11.40	6.65	0.54
	87	7.54	5.12	0.57	8.39	5.15	0.58	9.25	5.60	0.59	9.52	6.04	0.59	10.10	6.04	0.60	10.68	6.41	0.61
	95	7.10	4.98	0.63	7.92	5.02	0.64	8.73	5.46	0.65	9.01	5.90	0.65	9.55	5.87	0.66	10.07	6.24	0.66
	104	5.90	4.64	0.51	6.59	4.67	0.52	7.27	5.08	0.53	7.47	5.49	0.53	7.95	5.46	0.54	8.39	5.83	0.54
	115	4.20	3.28	0.39	4.67	3.31	0.39	5.12	3.62	0.40	5.29	3.89	0.40	5.60	3.86	0.41	5.94	4.13	0.41

AFR : Air flow rate (CFM)
TC : Total capacity (kBTU)
SHC : Sensible Heat capacity (kBTU)
IP : Input Power (kW)

AFR	750

		Indoor temperature																	
	°CDB	17.8			21.1			23.9			26.7			29.4			32.2		
	°CWB	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
	-10.0	2.44	1.63	0.22	2.72	1.81	0.22	3.01	2.00	0.23	3.10	2.06	0.22	3.29	2.19	0.22	3.47	2.31	0.23
	-5.0	2.33	1.55	0.24	2.60	1.73	0.24	2.87	1.91	0.25	2.96	1.97	0.24	3.13	2.09	0.25	3.31	2.20	0.25
	0.0	2.22	1.48	0.24	2.47	1.64	0.24	2.73	1.82	0.25	2.81	1.87	0.25	2.98	1.98	0.25	3.15	2.10	0.25
	5.0	2.11	1.40	0.24	2.34	1.56	0.24	2.59	1.72	0.26	2.67	1.78	0.25	2.83	1.88	0.25	2.99	1.99	0.26
	10.0	1.99	1.33	0.22	2.22	1.48	0.22	2.45	1.63	0.23	2.52	1.68	0.23	2.67	1.78	0.23	2.82	1.88	0.24
	15.0	1.88	1.42	0.22	2.09	1.42	0.23	2.31	1.55	0.23	2.38	1.68	0.23	2.52	1.67	0.23	2.66	1.78	0.24
	19.4	2.50	1.55	0.44	2.79	1.56	0.45	3.07	1.70	0.46	3.17	1.84	0.46	3.36	1.83	0.46	3.55	1.95	0.47
	25.0	2.35	1.55	0.51	2.62	1.56	0.52	2.89	1.71	0.52	2.98	1.84	0.53	3.16	1.83	0.53	3.34	1.95	0.54
	30.6	2.21	1.50	0.57	2.46	1.51	0.58	2.71	1.64	0.59	2.79	1.77	0.59	2.96	1.77	0.60	3.13	1.88	0.61
	35.0	2.08	1.46	0.63	2.32	1.47	0.64	2.56	1.60	0.65	2.64	1.73	0.65	2.80	1.72	0.66	2.95	1.83	0.66
	40.0	1.73	1.36	0.51	1.93	1.37	0.52	2.13	1.49	0.53	2.19	1.61	0.53	2.33	1.60	0.54	2.46	1.71	0.54
	46.1	1.23	0.96	0.39	1.37	0.97	0.39	1.50	1.06	0.40	1.55	1.14	0.40	1.64	1.13	0.41	1.74	1.21	0.41

AFR : Air flow rate (m^3/h)
TC : Total capacity (kW)
SHC : Sensible Heat capacity (kW)
IP : Input Power (kW)

WALL MOUNTED TYPE
RIWH09-12AVFJ

■ MODEL: RIWH12AVFJ

AFR	441

		Indoor temperature																	
	°FDB	64			70			75			80			85			90		
	°FWB	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
	15	11.25	7.76	0.33	12.53	8.65	0.33	13.80	9.53	0.35	14.23	9.82	0.34	15.08	10.41	0.34	15.93	11.00	0.35
	23	10.66	7.36	0.37	11.87	8.19	0.38	13.08	9.03	0.40	13.49	9.31	0.39	14.30	9.87	0.39	15.10	10.42	0.40
	32	10.07	6.95	0.40	11.21	7.74	0.40	12.36	8.53	0.42	12.74	8.79	0.41	13.51	9.33	0.41	14.27	9.85	0.42
	41	9.47	6.54	0.40	10.56	7.29	0.40	11.64	8.04	0.42	12.00	8.28	0.41	12.73	8.78	0.41	13.44	9.27	0.43
	50	8.88	6.13	0.39	9.90	6.84	0.39	10.92	7.54	0.41	11.25	7.77	0.40	11.94	8.24	0.40	12.60	8.70	0.41
	59	8.29	6.35	0.40	9.25	6.38	0.41	10.20	6.96	0.42	10.51	7.51	0.42	11.16	7.47	0.42	11.77	7.98	0.43
	67	11.43	7.47	0.65	12.73	7.51	0.66	14.06	8.19	0.67	14.47	8.84	0.68	15.35	8.80	0.68	16.21	9.38	0.69
	77	10.82	7.13	0.75	12.04	7.17	0.76	13.27	7.85	0.77	13.68	8.46	0.77	14.50	8.43	0.78	15.32	8.97	0.79
	87	10.10	6.99	0.85	11.26	7.03	0.86	12.39	7.68	0.87	12.80	8.29	0.88	13.55	8.26	0.88	14.30	8.77	0.89
	95	9.49	6.69	0.93	10.58	6.72	0.94	11.63	7.34	0.96	12.01	7.92	0.96	12.73	7.88	0.97	13.44	8.39	0.98
	104	8.05	6.35	0.87	8.97	6.38	0.89	9.89	6.96	0.90	10.20	7.51	0.91	10.78	7.51	0.92	11.40	7.98	0.92
	115	5.66	5.15	0.69	6.28	5.19	0.70	6.93	5.63	0.71	7.17	6.11	0.71	7.57	6.07	0.72	8.02	6.48	0.73

AFR : Air flow rate (CFM)
TC : Total capacity (kBTU)
SHC : Sensible Heat capacity (kBTU)
IP : Input Power (kW)

AFR	750

		Indoor temperature																	
	°CDB	17.8			21.1			23.9			26.7			29.4			32.2		
	°CWB	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
	-10.0	3.30	2.28	0.33	3.67	2.53	0.33	4.05	2.79	0.35	4.17	2.88	0.34	4.42	3.05	0.34	4.67	3.22	0.35
	-5.0	3.12	2.16	0.37	3.48	2.40	0.38	3.83	2.65	0.40	3.95	2.73	0.39	4.19	2.89	0.39	4.43	3.05	0.40
	0.0	2.95	2.04	0.40	3.29	2.27	0.40	3.62	2.50	0.42	3.73	2.58	0.41	3.96	2.73	0.41	4.18	2.89	0.42
	5.0	2.78	1.92	0.40	3.09	2.14	0.40	3.41	2.36	0.42	3.52	2.43	0.41	3.73	2.57	0.41	3.94	2.72	0.43
	10.0	2.60	1.80	0.39	2.90	2.00	0.39	3.20	2.21	0.41	3.30	2.28	0.40	3.50	2.42	0.40	3.69	2.55	0.41
	15.0	2.43	1.86	0.40	2.71	1.87	0.41	2.99	2.04	0.42	3.08	2.20	0.42	3.27	2.19	0.42	3.45	2.34	0.43
	19.4	3.35	2.19	0.65	3.73	2.20	0.66	4.12	2.40	0.67	4.24	2.59	0.68	4.50	2.58	0.68	4.75	2.75	0.69
	25.0	3.17	2.09	0.75	3.53	2.10	0.76	3.89	2.30	0.77	4.01	2.48	0.77	4.25	2.47	0.78	4.49	2.63	0.79
	30.6	2.96	2.05	0.85	3.30	2.06	0.86	3.63	2.25	0.87	3.75	2.43	0.88	3.97	2.42	0.88	4.19	2.57	0.89
	35.0	2.78	1.96	0.93	3.10	1.97	0.94	3.41	2.15	0.96	3.52	2.32	0.96	3.73	2.31	0.97	3.94	2.46	0.98
	40.0	2.36	1.86	0.87	2.63	1.87	0.89	2.90	2.04	0.90	2.99	2.20	0.91	3.16	2.20	0.92	3.34	2.34	0.92
	46.1	1.66	1.51	0.69	1.84	1.52	0.70	2.03	1.65	0.71	2.10	1.79	0.71	2.22	1.78	0.72	2.35	1.90	0.73

AFR : Air flow rate (m^3/h)
TC : Total capacity (kW)
SHC : Sensible Heat capacity (kW)
IP : Input Power (kW)

WALL MOUNTED TYPE
RIWH09-12AVFJ

4-2. HEATING CAPACITY

■ MODEL: RIWH09AVFJ

AFR	441

			Indoor temperature							
		°FDB	60		65		70		75	
	°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	5	3	7.18	0.68	7.01	0.69	6.84	0.71	6.66	0.72
	14	12	8.13	0.73	7.94	0.75	7.74	0.76	7.55	0.78
	23	19	9.10	0.76	8.88	0.78	8.66	0.79	8.45	0.81
	32	28	10.48	0.81	10.23	0.83	9.98	0.84	9.73	0.86
	41	37	11.91	0.86	11.63	0.88	11.34	0.90	11.06	0.92
	47	43	12.60	0.85	12.30	0.87	12.00	0.89	11.70	0.91
	50	47	12.26	0.73	11.97	0.75	11.68	0.76	11.39	0.78
	59	50	12.47	0.72	12.18	0.74	11.88	0.75	11.58	0.77
	68	59	12.82	0.67	12.51	0.68	12.21	0.70	11.90	0.71
	75	65	13.32	0.67	13.00	0.68	12.68	0.69	12.36	0.71

AFR : Air flow rate (CFM)
TC : Total capacity (kBTU)
IP : Input Power (kW)

AFR	750

			Indoor temperature							
		°CDB	15.6		18.3		21.1		23.9	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-15	2.10	2.10	0.68	2.05	0.69	2.00	0.71	1.95	0.72
	-10	2.38	2.38	0.73	2.33	0.75	2.27	0.76	2.21	0.78
	-5	2.67	2.67	0.76	2.60	0.78	2.54	0.79	2.48	0.81
	0	3.07	3.07	0.81	3.00	0.83	2.93	0.84	2.85	0.86
	5	3.49	3.49	0.86	3.41	0.88	3.32	0.90	3.24	0.92
	7	3.69	3.69	0.85	3.61	0.87	3.52	0.89	3.43	0.91
	10	3.59	3.59	0.73	3.51	0.75	3.42	0.76	3.34	0.78
	15	3.66	3.66	0.72	3.57	0.74	3.48	0.75	3.40	0.77
	20	15	3.76	0.67	3.67	0.68	3.58	0.70	3.49	0.71
	24	18	3.90	0.67	3.81	0.68	3.72	0.69	3.62	0.71

AFR : Air flow rate (m^3/h)
TC : Total capacity (kW)
IP : Input Power (kW)

■ MODEL: RIWH12AVFJ

AFR	441

			Indoor temperature							
		°FDB	60		65		70		75	
	°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	5	3	10.71	1.09	10.46	1.12	10.20	1.14	9.95	1.16
	14	12	12.04	1.13	11.76	1.15	11.47	1.18	11.18	1.20
	23	19	13.35	1.18	13.03	1.20	12.71	1.23	12.40	1.25
	32	28	15.17	1.26	14.80	1.29	14.44	1.31	14.08	1.34
	41	37	16.13	1.23	15.75	1.25	15.36	1.28	14.98	1.30
	47	43	16.80	1.23	16.40	1.25	16.00	1.28	15.60	1.31
	50	47	17.20	1.23	16.79	1.25	16.38	1.28	15.97	1.30
	59	50	16.87	1.15	16.47	1.17	16.07	1.20	15.67	1.22
	68	59	15.63	0.91	15.25	0.92	14.88	0.94	14.51	0.96
	75	65	15.94	0.89	15.56	0.91	15.18	0.93	14.80	0.95

AFR : Air flow rate (CFM)
TC : Total capacity (kBTU)
IP : Input Power (kW)

AFR	750

			Indoor temperature							
		°CDB	15.6		18.3		21.1		23.9	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-15	-16	3.14	1.09	3.07	1.12	2.99	1.14	2.92	1.16
	-10	-11	3.53	1.13	3.45	1.15	3.36	1.18	3.28	1.20
	-5	-7	3.91	1.18	3.82	1.20	3.73	1.23	3.63	1.25
	0	-2	4.44	1.26	4.34	1.29	4.23	1.31	4.13	1.34
	5	3	4.73	1.23	4.62	1.25	4.50	1.28	4.39	1.30
	7	6	4.92	1.23	4.81	1.25	4.69	1.28	4.57	1.31
	10	8	5.04	1.23	4.92	1.25	4.80	1.28	4.68	1.30
	15	10	4.94	1.15	4.83	1.17	4.71	1.20	4.59	1.22
	20	15	4.58	0.91	4.47	0.92	4.36	0.94	4.25	0.96
	24	18	4.67	0.89	4.56	0.91	4.45	0.93	4.34	0.95

AFR : Air flow rate (m^3/h)
TC : Total capacity (kW)
IP : Input Power (kW)

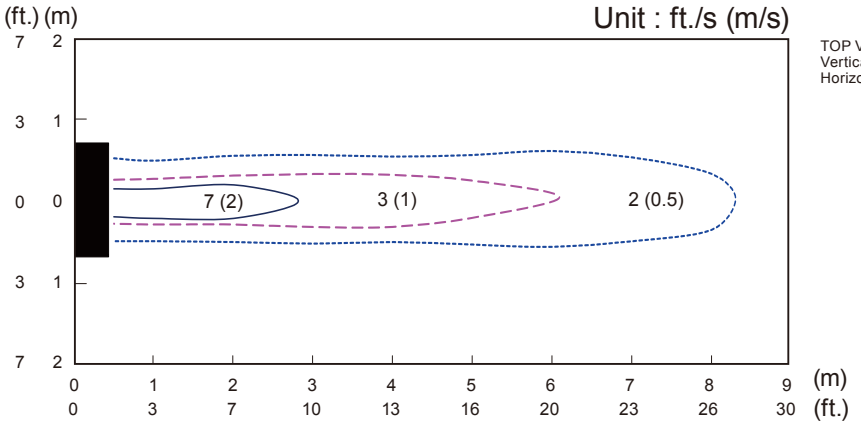
WALL MOUNTED TYPE
RIWH09-12AVFJ

5. FAN PERFORMANCE

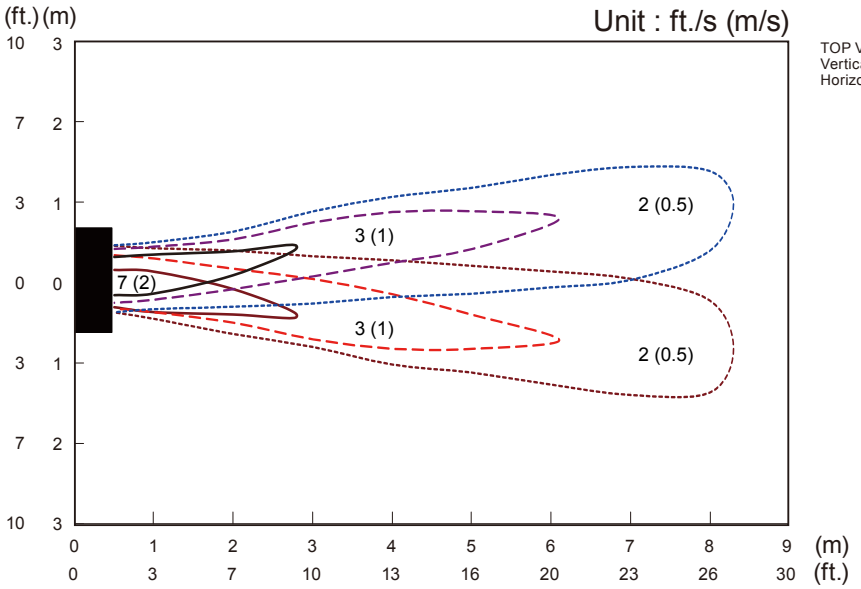
5-1. AIR VELOCITY DISTRIBUTION

■ MODELS: RIWH09AVFJ, RIWH12AVFJ

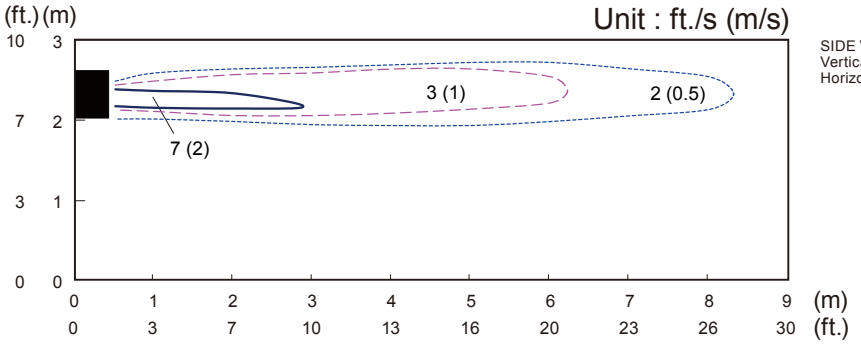
Conditions:
Fan speed: HIGH
Operation mode: FAN



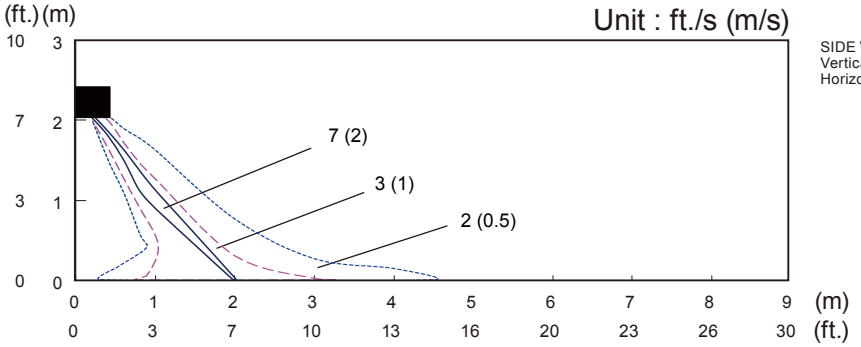
TOP VIEW
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



TOP VIEW
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Right & Left



SIDE VIEW
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



SIDE VIEW
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center

WALL MOUNTED TYPE
RIWH09-12AVFJ

5-2. AIR FLOW

■ MODELS: RIWH09AVFJ, RIWH12AVFJ

● Cooling

Fan speed	Number of rotations (r.p.m.)	Air flow	
HIGH	1320	m^3/h	750
		l/s	208
		CFM	441
MED	1160	m^3/h	640
		l/s	178
		CFM	376
LOW	930	m^3/h	480
		l/s	133
		CFM	282
QUIET	680	m^3/h	310
		l/s	86
		CFM	182

● Heating

Fan speed	Number of rotations (r.p.m.)	Air flow	
HIGH	1320	m^3/h	750
		l/s	208
		CFM	441
MED	1160	m^3/h	640
		l/s	178
		CFM	376
LOW	980	m^3/h	520
		l/s	144
		CFM	306
QUIET	710	m^3/h	330
		l/s	92
		CFM	194

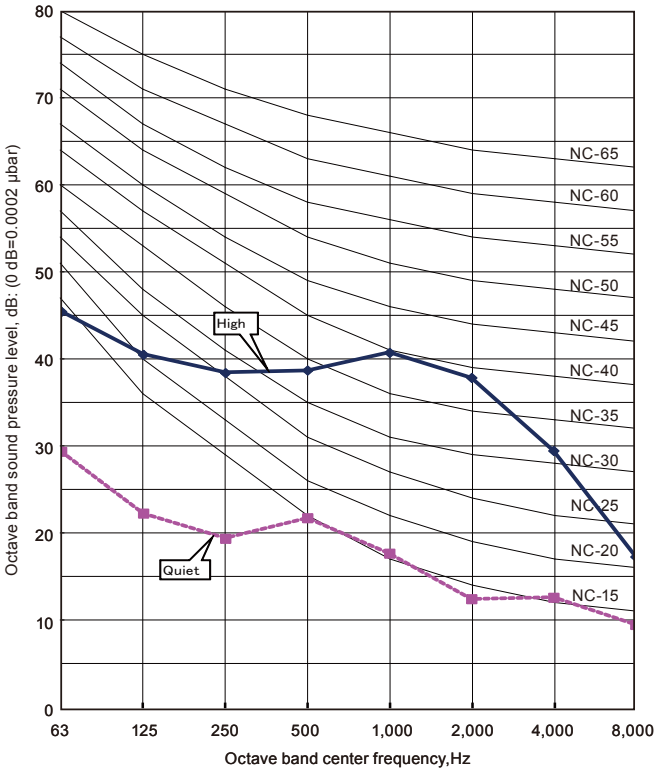
WALL MOUNTED TYPE
RIWH09-12AVFJ

6. OPERATION NOISE (SOUND PRESSURE)

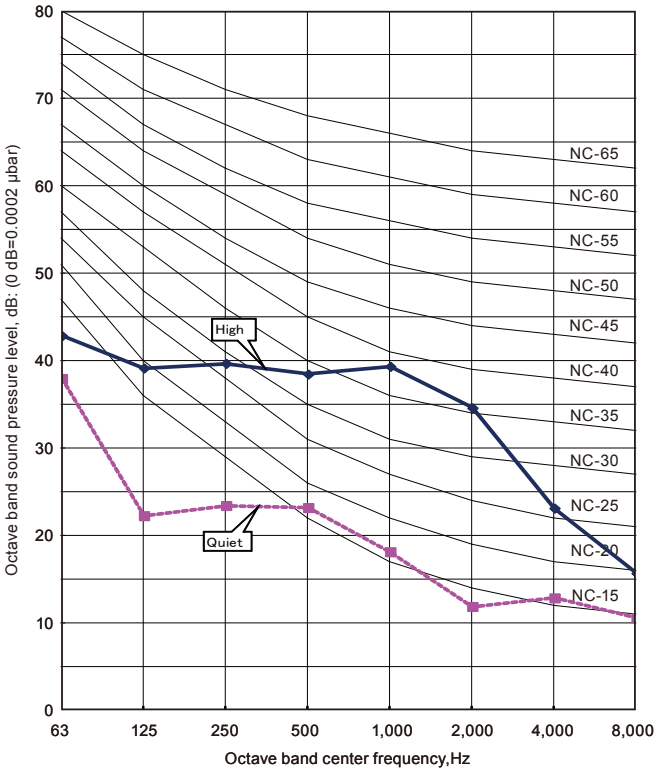
6-1. NOISE LEVEL CURVE

■ MODEL: RIWH09AVFJ

● Cooling

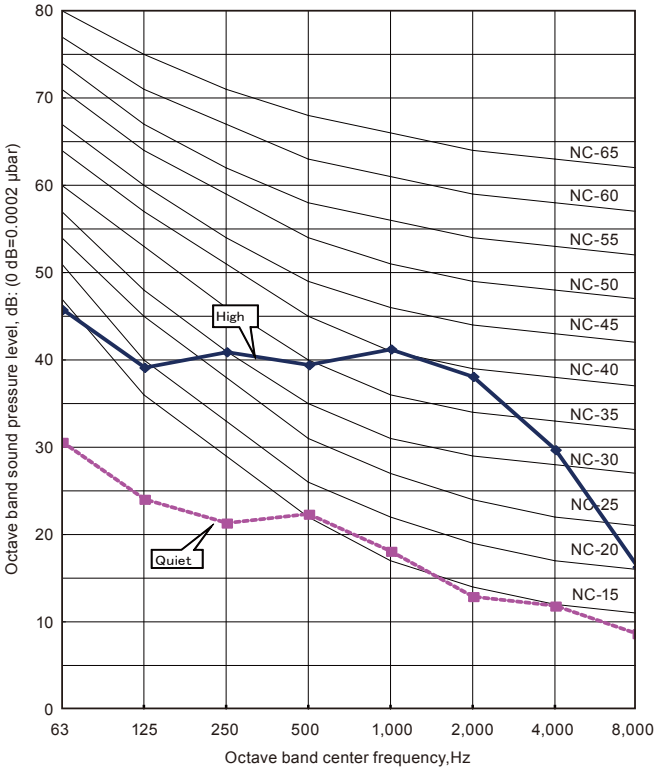


● Heating

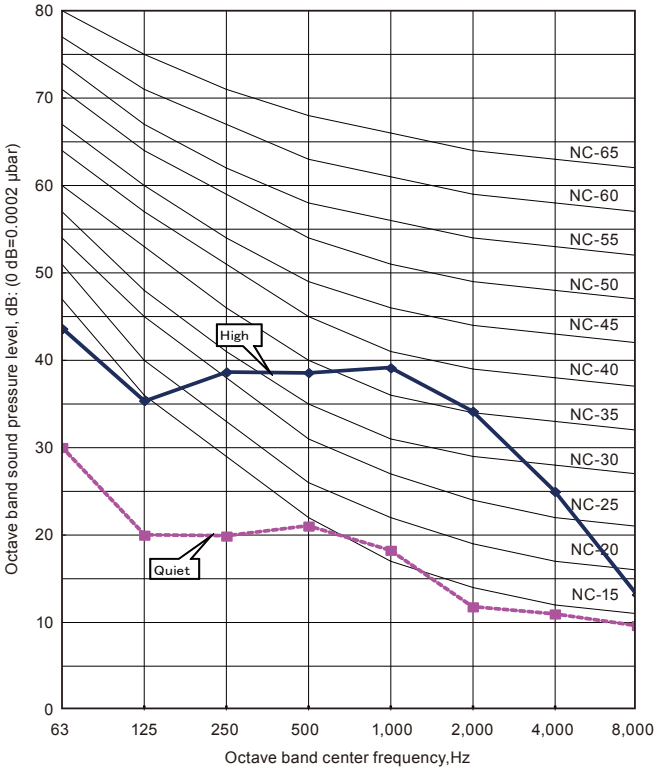


■ MODEL: RIWH12AVFJ

● Cooling

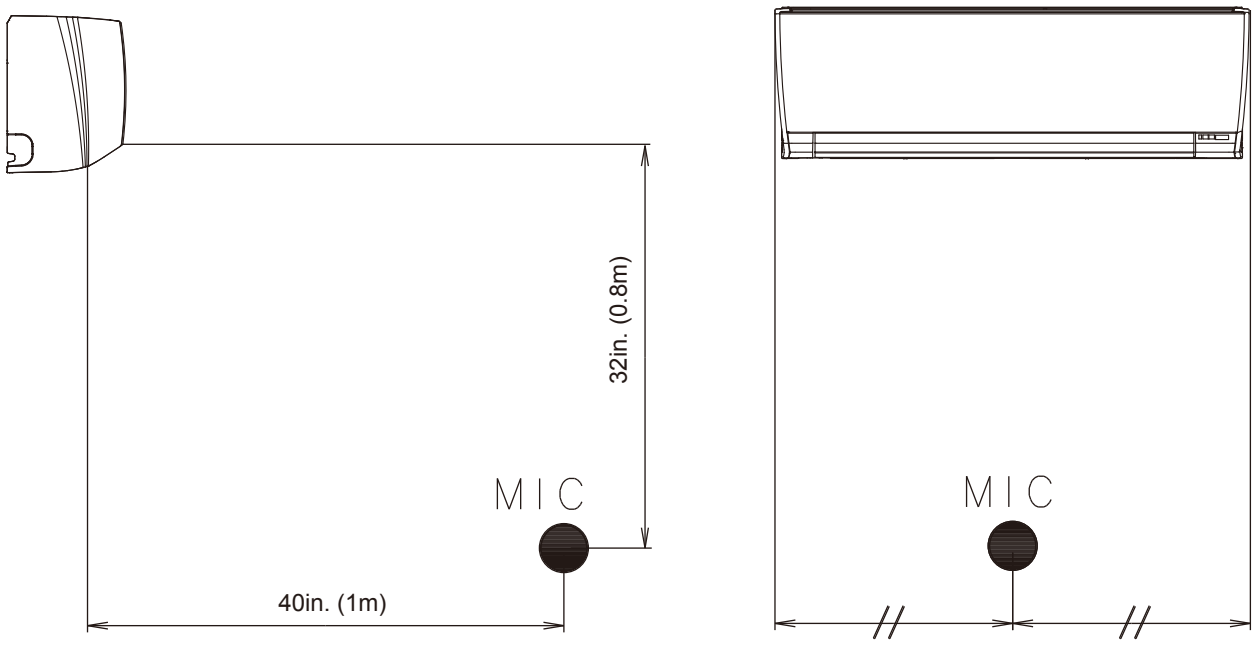


● Heating



WALL MOUNTED TYPE
RIWH09-12AVFJ

6-2. SOUND LEVEL CHECK POINT



WALL MOUNTED TYPE
RIWH09-12AVFJ

7. ELECTRICAL CHARACTERISTICS

Model name			RIWH09AVFJ	RIWH12AVFJ
Power supply	Voltage	V	208 / 230 ~	
	Frequency	Hz	60	
Max. operating current		A	0.4	
Wiring spec. *1	Connection cable	AWG	14	
	Limited wiring length	ft.(m)	68 (21)	

1*: Wiring specification
Selected sample
(Selected based on Japan Electrotechnical Standards and Codes Committee E0005)

WALL MOUNTED TYPE
RIWH09-12AVFJ

8. SAFETY DEVICES

	Protection form	Model
		RIWH09AVFJ RIWH12AVFJ
Circuit protection	Current fuse (PC board)	250V 3.15A
Fan motor protection	Thermal protector program	OFF: 221 ± 18 °F (105 ± 10 °C) ON: 194 ± 18 °F (90 ± 10 °C)

WALL MOUNTED TYPE
RIWH09-12AVFJ

9. EXTERNAL INPUT & OUTPUT

Connector	INPUT	OUTPUT	REMARKS
CNA01	Control input	-	See external input/output settings for details.
CNB01	-	Operation status output	
CNB02	-	Error status output	

9-1. EXTERNAL INPUT

■ CONTROL INPUT (Operation/Stop or Forced stop)

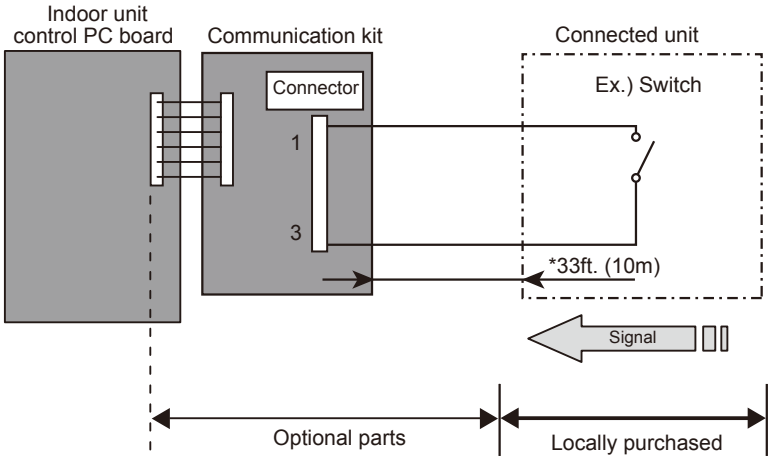
The air conditioner can be remotely operated by means of the following on-site work.

"Operation/Stop" mode or "Forced stop" mode can be selected with function setting of indoor unit.

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 PC board and turning it ON.

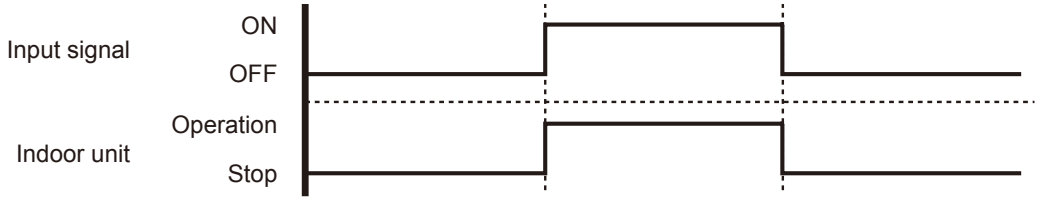
Unit operation	Initial setting after power is ON	Starting mode other than initial setting
Operation mode	Auto changeover	Mode at previous operation
Set temperature	75°F (24°C)	Temperature at previous operation
Air flow mode	AUTO	Mode at previous operation
Air direction (swing)	Standard air direction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

● Circuit diagram example



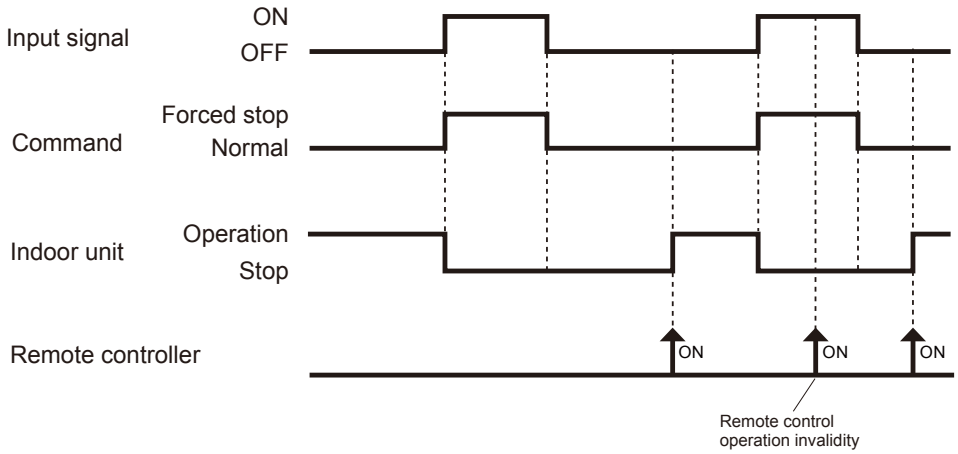
* Make the distance from the PC board to the connected unit within 33ft. (10m).
Contact capacity: DC 24 V or more, 10 mA or more.
Use non-polar relays and switches.

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



WALL MOUNTED TYPE
RIWH09-12AVFJ

● When function setting is in "Forced stop" mode



● Parts (Optional)

Parts name	Model name
External connect kit	RXXWZXZ5
Communication kit	RXXCBXZ2

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

Wire (External input) : RXXWZXZ5

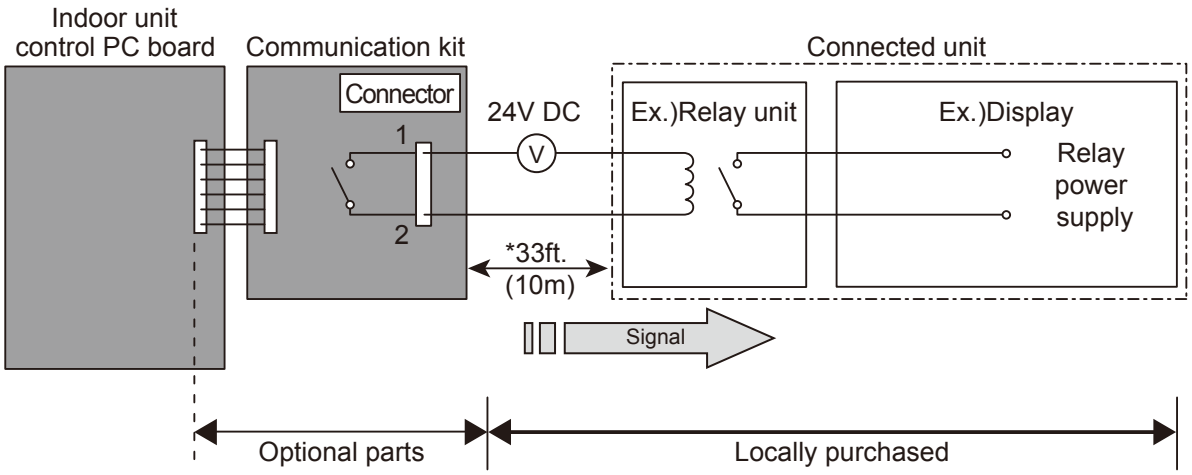
WALL MOUNTED TYPE
RIWH09-12AVFJ

9-2. EXTERNAL OUTPUT

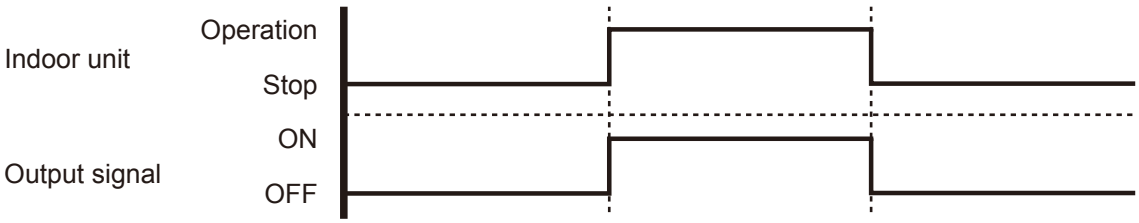
■ OPERATION STATUS OUTPUT

An air conditioner operation status signal can be output.

● Circuit diagram example



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



● Parts (Optional)

Parts name	Model name
External connect kit	RXXWZXZ5
Communication kit	RXXCBXZ2

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

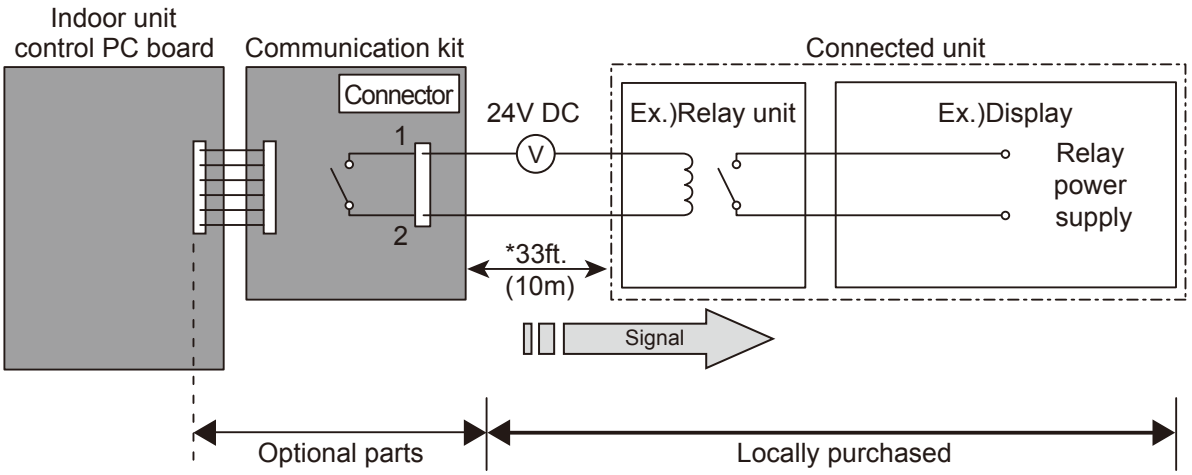
Wire (External output) : RXXWZXZ5

WALL MOUNTED TYPE
RIWH09-12AVFJ

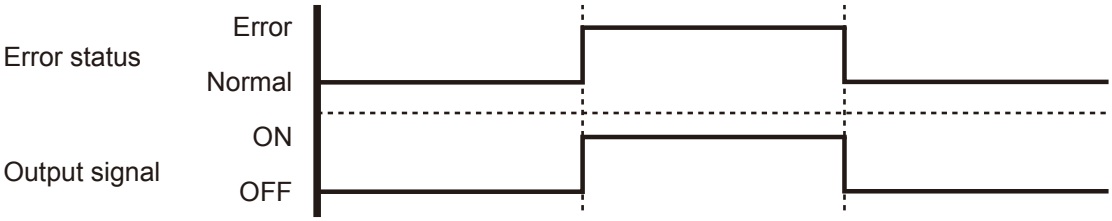
■ ERROR STATUS OUTPUT

An air conditioner error status signal can be output.

● Circuit diagram example



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



● Parts (Optional)

Parts name	Model name
External connect kit	RXXWZXZ5
Communication kit	RXXCBXZ2

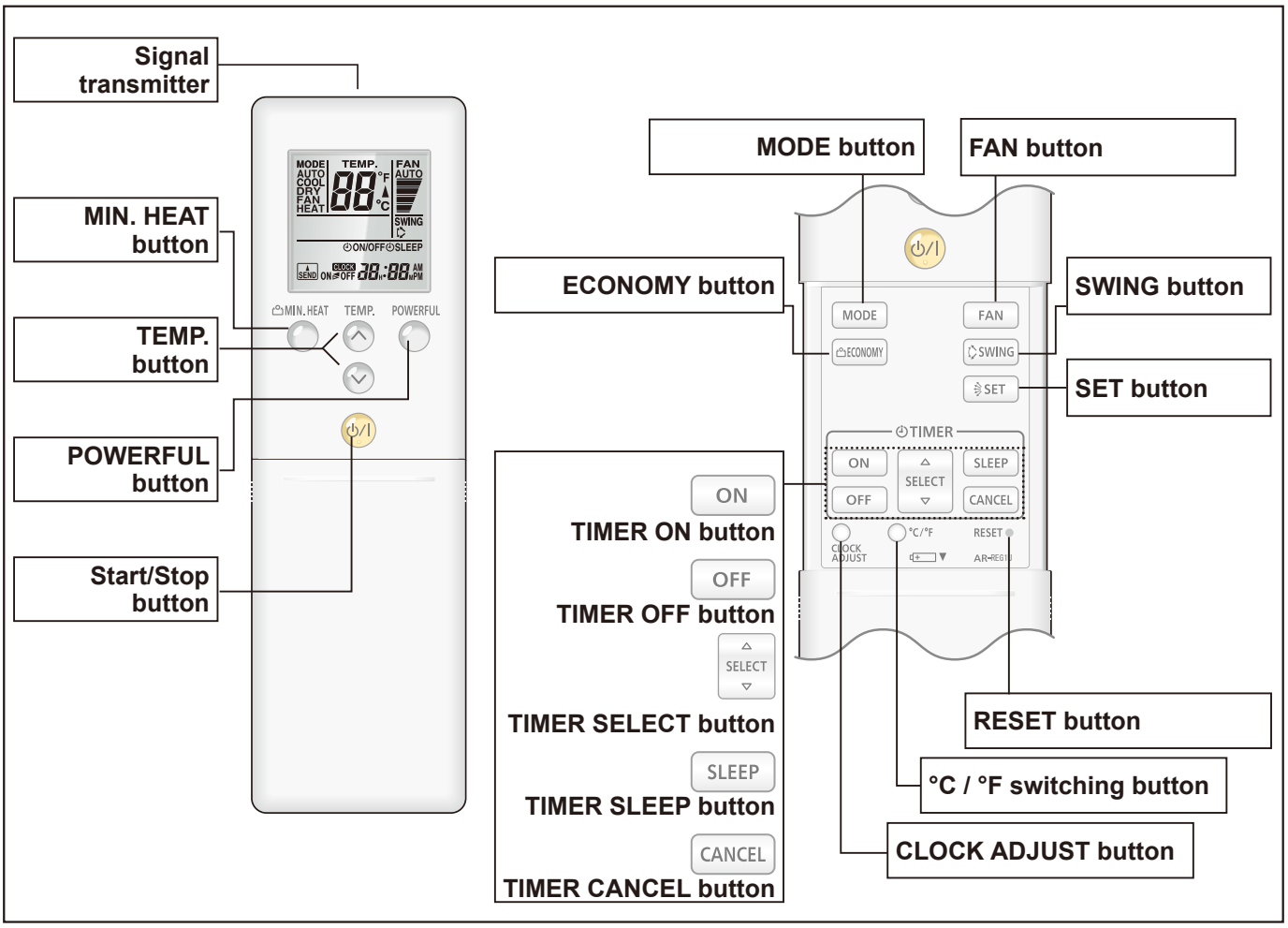
*For operating the EXTERNAL function, the wall mounted type requires the communication kit in addition to the wire (RXXWZXZ5).

Wire (External output) : RXXWZXZ5

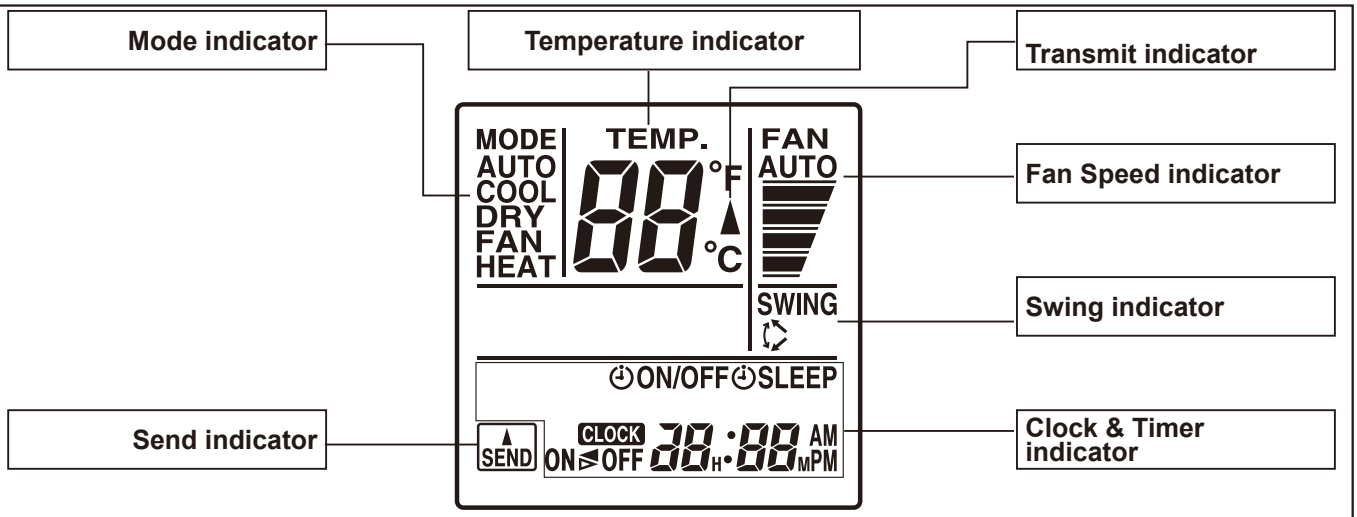
WALL MOUNTED TYPE
RIWH09-12AVFJ

10. WIRELESS REMOTE CONTROLLER

■ FUNCTIONS



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.

■ SPECIFICATION

DIMENSIONS [H × W × D]: in. (mm)	8-1/16 (205) × 2-3/8 (61) × 11/16 (17)
WEIGHT oz. (g)	4.3 (122)
ACCESSORY	Holder

NOTE: Some button operations may not be available for all units or systems.
For details, refer to the operation manual.

WALL MOUNTED TYPE
RIWH09-12AVFJ

11. FUNCTION SETTINGS

11-1. INDOOR UNIT (Setting by remote controller)

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

■ PREPARATION

- Before turning on the power of the indoor unit:
  - Confirm whether the piping air-tight test and vacuuming have been conducted.
  - Reconfirm whether there is no miswiring.
- Turn on the power of the indoor units.

■ FUNCTION SETTING METHOD (for Wireless remote controller)

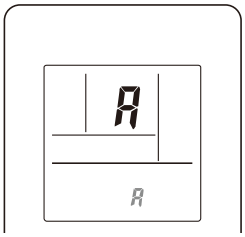
Entering the Function Setting Mode

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

STEP 1

Setting the Remote controller Custom code

Use the following steps to select the custom code of the remote controller. (Note that the air conditioner cannot receive a signal code if the air conditioner has not been set for the matching custom code.) The custom codes that are set through this process are applicable only during the Function Setting process. For details on how to set the custom codes through the normal process, refer to "REMOTE CONTROLLER CUSTOM CODE SETTING".



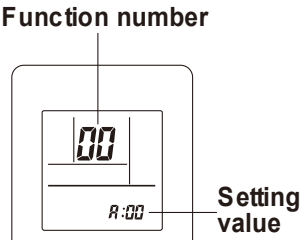
1. Press the SET TEMP. (▲) (▼) button to change the custom code between A → b → c → d.
   Match the code on the display to the air conditioner custom code. (initially set to A)
   (If the custom code does not need to be selected, press the MIN. HEAT button and proceed to **STEP 2**.)
2. Press the MODE button and check that the indoor unit can receive signals at the displayed custom code.
3. Press the MIN. HEAT button to accept the custom code, and proceed to **STEP 2**.

The air conditioner custom code is set to "A" prior to shipment.

The remote controller resets to custom code A when the batteries in the remote controller are replaced. If you use a custom code other than custom code A, reset the custom code after replacing the batteries.
If you do not know the air conditioner custom code setting, try each of the custom codes (A → b → c → d) until you find the code which operates the air conditioner.

STEP 2

Selecting the Function Number and Setting Value



1. Press the SET TEMP. (▲) (▼) buttons to select the function number. (Press the MIN. HEAT button to switch between the left and right digits.)
2. Press the POWERFUL button to proceed to setting the value. (Press the POWERFUL button again to return to the function number selection.)
3. Press the SET TEMP. (▲) (▼) buttons to select the setting value. (Press the MIN. HEAT button to switch between the left and right digits.)
4. Press the MODE button, then the START/STOP button in order to fix the settings.
5. Press the RESET button to end the function setting mode.
6. After completing the Function Setting, be sure to turn off the power and turn it on again.

⚠CAUTION
After turning off the power, wait 30 seconds or more before turning on it again. The Function Setting will not become active unless the power is turned off then on again.

WALL MOUNTED TYPE
RIWH09-12AVFJ

■ FUNCTION DETAILS

	Functions
1)	Filter sign
2)	Room temperature control for indoor unit sensor
3)	Auto restart
4)	Room temperature sensor switching
5)	Remote controller custom code
6)	External input control
7)	Room temperature sensor switching (Aux.)
8)	Indoor unit fan control for energy saving for cooling
9)	Room temperature control for wired remote controller sensor
10)	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).

(◆... Factory setting)

Function number	Setting value	Setting description	
11	00	Standard (400 hours)	
	01	Long interval (1000 hours)	
	02	Short interval (200 hours)	
	03	No indication	◆

2) Room temperature control for indoor unit sensor

Refer to Function 95, before performing this setting.
Depending on the installed environment, correction of the room temperature sensor may be required. Select the appropriate control setting according to the installed environment.
The temperature correction values show the difference from the Standard setting "00" (manufacturer's recommended value).
*When Function 95-01(High insulation) is set, the Standard setting "00" will be the same as No correction "01" [0.0°F (0.0°C)].

(◆... Factory setting)

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

WALL MOUNTED TYPE
RIWH09-12AVFJ

3) Auto restart

Enable or disable automatic restart after a power interruption.

(◆... Factory setting)

Function number	Setting value	Setting description	
40	00	Enable	◆
	01	Disable	

*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).

(◆... Factory setting)

Function number	Setting value	Setting description	
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.

*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.

(◆... Factory setting)

Function number	Setting value	Setting description	
44	00	A	◆
	01	B	
	02	C	
	03	D	

6) External input control

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

(◆... Factory setting)

Function number	Setting value	Setting description	
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)

(◆... Factory setting)

Function number	Setting value	Setting description	
48	00	Both	◆
	01	Wired remote controller	

WALL MOUNTED TYPE
RIWH09-12AVFJ

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.

(◆... Factory setting)

Function number	Setting value	Setting description	
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

Refer to Function 95, before performing this setting.
Depending on the installed environment, correction of the wired remote controller 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.

(◆... Factory setting)

Function number		Setting value	Setting description	
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 temp. control settings (Function 30, 31, 92, 93) will reset to No correction [0.0°F (0.0°C)].

(◆... Factory setting)

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

NOTE:

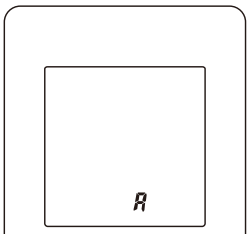
When changing Function 95, perform this setting before other Room temp. control settings (Function 30, 31, 92, 93). If Funtion 95 is not set first, Room temperature control settings (Function 30, 31, 92, 93) will be reset and you must re-do them again.

WALL MOUNTED TYPE
RIWH09-12AVFJ

■ REMOTE CONTROLLER CUSTOM CODE SETTING

Use the following steps to select the custom code of the remote controller.
(Note that the air conditioner cannot receive a signal if the air conditioner has not been set for the matching custom code.)

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 five seconds to display the current custom code (initially set to A).
3. Press the SET TEMP. (∧) (∨) button to change the custom code between A → b → c → d.
   Match the code on the display to the air conditioner custom code.
4. Press the MODE button again to return to the clock display. The custom code will be changed.



If no buttons are pressed within 30 seconds after the custom code is displayed, the system returns to the original clock display. In this case, start again from step 1.

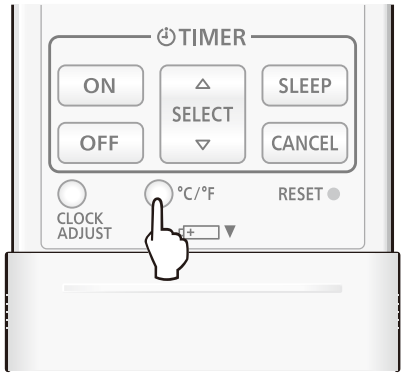
The air conditioner custom code is set to A prior to shipment.

The remote controller resets to custom code A when the batteries in the remote controller are replaced. If you use a custom code other than custom code A, reset the custom code after replacing the batteries. If you do not know the air conditioner custom code setting, try each of the custom codes (A → b → c → d) until you find the code which operates the air conditioner.

■ REMOTE CONTROLLER TEMPERATURE UNIT

To change the temperature unit:

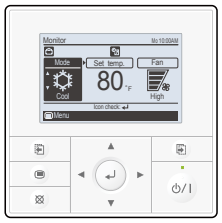
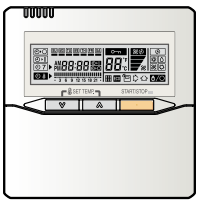
• Press the °C / °F switching button to select the preferred temperature unit. (Factory setting is °F.)



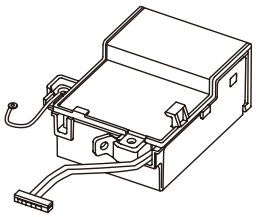
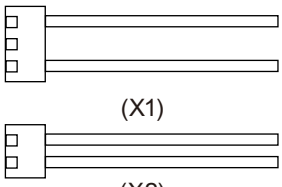
WALL MOUNTED TYPE
RIWH09-12AVFJ

12. OPTIONAL PARTS

12-1. CONTROLLERS

Exterior	Parts name	Model No.	Summary
	Wired remote controller	RXRVNUM	Large and full-dot liquid crystal screen, wide and large keys easy to press, user-intuitive arrow key. *Optional communication kit is necessary for installation.
	Wired remote controller	RXRNNUM	The room temperature can be controlled by detecting the temperature accurately with built-in thermo sensor. *Optional communication kit is necessary for installation.
	Simple remote controller	RXRSNUM	Compact remote controller concentrates on the basic functions such as Start/Stop, Fan Control, Temperature Setting and Operation mode. *Optional communication kit is necessary for installation.

12-2. OTHERS

Exterior	Parts name	Model No.	Summary
	Communication kit	RXXCBXZ2	Use to connect with optional devices and air conditioner PC board.
 (X1) (X2)	External connect kit	RXXWZXZ5	Required when external device is connected. *Optional communication kit is necessary for installation.

2. OUTDOOR UNIT

SINGLE TYPE :

ROSH09AFWJ
ROSH12AFWJ

DTR_AO230E_01
2017.01.27

CONTENTS

2. OUTDOOR UNIT

OUTDOOR UNIT
ROSH09-12AFWJ

1. SPECIFICATIONS

Type				INVERTER HEAT PUMP	
Model name				ROSH09AFWJ	ROSH12AFWJ
Power sourse				208/230V~60HZ	
Available voltage range				187-253V~60HZ	
Starting current			A	4.2	5.9
Fan	Airflow rate	Cooling	CFM (m^3/h)	995(1690)	1036(1760)
		Heating		906(1540)	889(1510)
	Type×Q'ty			Propeller fan×1	
	Motor output		W	23	37
Sound pressure level		Cooling	dB(A)	48	49
		Heating		48	49
Heat exchanger type		Dimensions (H×W×D)	in.	19-13/16×25-1/4×1-7/16	19-13/16×35-1/4×1-7/16
			mm	504×642×36.4	504×896×36.4
		Fin pitch	FPI	18	
		Rows×Stages		2×24	
		Pipe type		Copper	
		Fin Type		Aluminum	
Compressor	Type×Q'ty			Rotary×1	
	Motor output		W	500	750
Refrigerant		Type		R410A	
		Charge	lb.oz.	1lb.14oz.	2lb.5oz.
			kg	0.85	1.05
Refrigerant oil		Type		RB68	VG74
Enclosure		Material		Steel	
		Color		Beige Approximate color of MUNSELL 10YR7.5/1.0	
Dimensions (H×W×D)	Net		mm	540×660×290	540×790×290
			in.	21-1/4×26×11-7/16	21-1/4×31-1/8×11-7/16
	Gross		mm	611×797×401	648×934×400
			in.	24-1/16×31-3/8×15-13/16	25-1/2×36-3/4×15-3/4
Weight	Net		lb.(kg)	60(27)	80(36)
	Gross			67(30)	86(39)
Connenction pipe	Size	Liquid	in. (mm)	Ø1/4(Ø6.35)	
		Gas		Ø3/8(Ø9.52)	
	Method			Flare	
	Pre - charge length		ft. (m)	49(15)	
	Min. length			9(3)	
	Max.length			66(20)	
	Max.height difference			49(15)	
Operation range		Cooling	°F (°C)	14to115(-10 to 46)	
		Heating		5 to 75(-15to 24)	

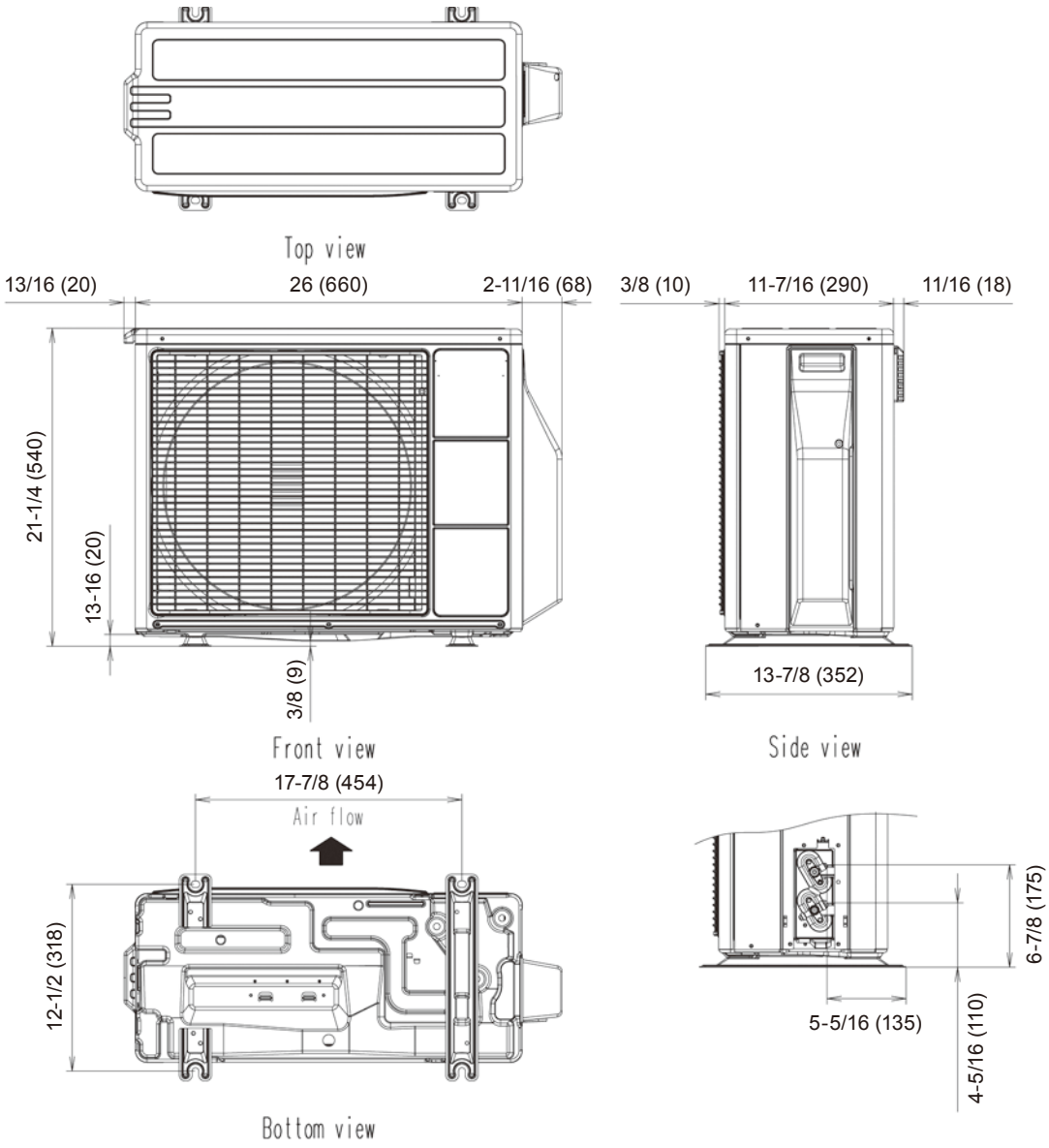
Note:
Specifications are based on the following conditions.
Cooling:Indoor temperature of 80°F(26.67°C)DB/67°F(19.44°C)WB,and outdoor temperature of 95°F(35°C)DB/75°F(23.9°C)WB.
Heating:Indoor temperature of 70°F(21.11°C)DB/59°F(15°C)WB,and outdoor temperature of 47°F(8.33°C)DB/43°F(6.11°C)WB.
Pipe length:24ft.(7.5m),Height difference:0ft. (0m)(Outdoor unit-Indoor unit)

OUTDOOR UNIT
ROSH09-12AFWJ

2. DIMENSIONS

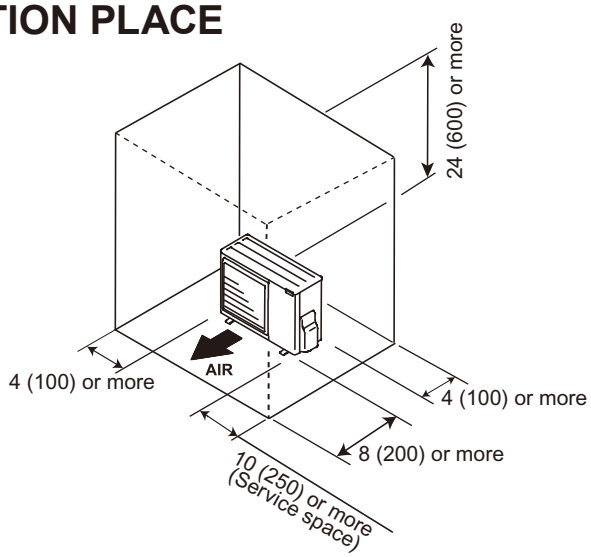
■ MODEL: ROSH09AFWJ

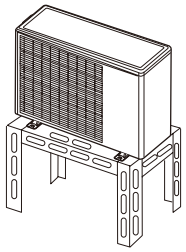
Unit : in.(mm)



Unit : in.(mm)

■ INSTALLATION PLACE





⚠ CAUTION

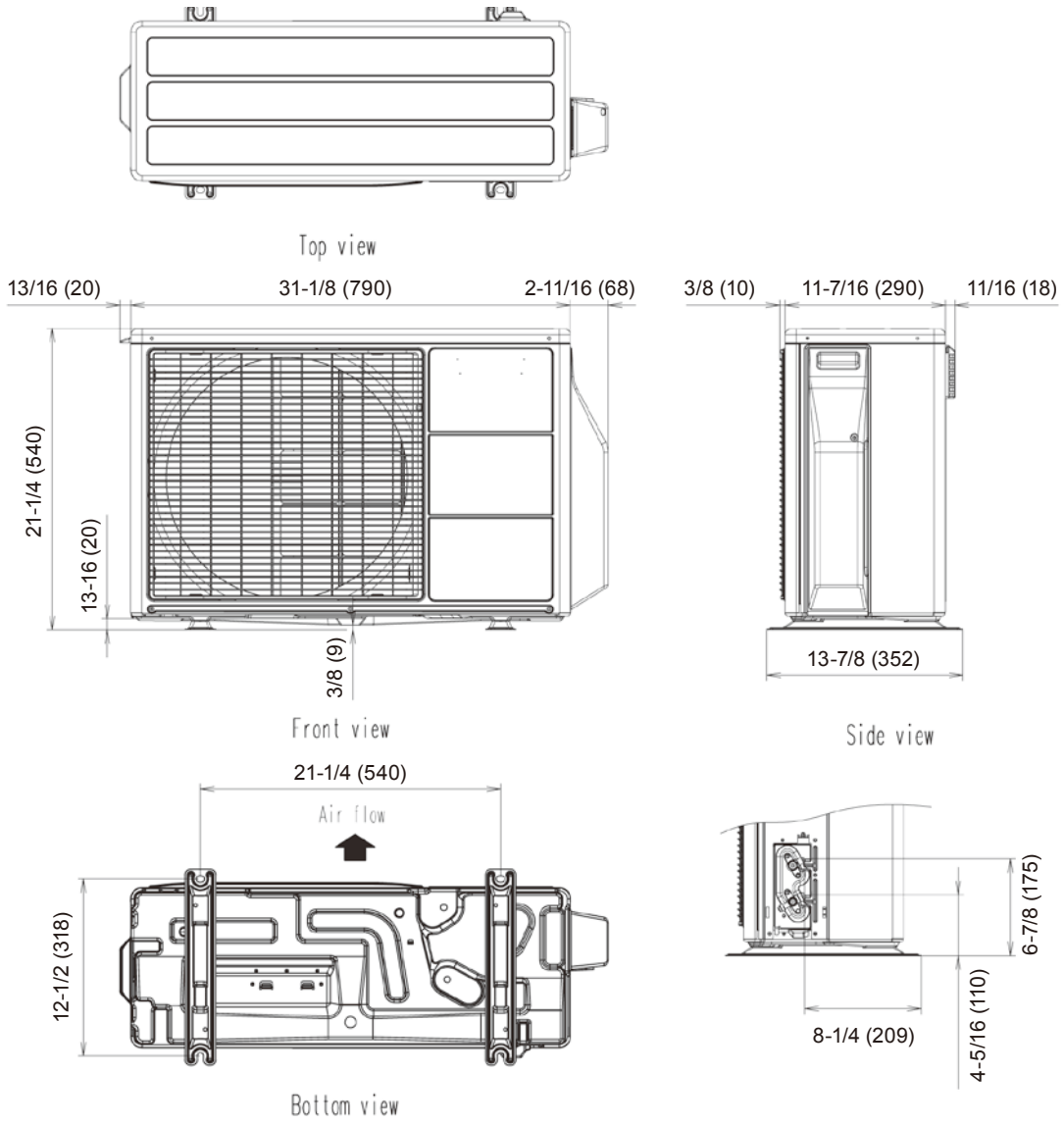
- When the outdoor temperature is 32 °F (0 °C) or less, do not use the accessory drain pipe and drain cap. If the drain pipe and drain cap are used, the drain water in the pipe may freeze in extremely cold weather. (Reverse cycle model only)
- In areas with heavy snowfall, if the intake and outlet of outdoor unit is blocked with snow, it might become difficult to get warm and it is likely to cause breakdown. Please construct a canopy and a pedestal or place the unit on a high stand (local configured).

- Height above the floor level should be 2 in. (50 mm) or more.
- To obtain better operation efficiency, when the outdoor unit is installed, be sure to open the front and left side.

OUTDOOR UNIT
ROSH09-12AFWJ

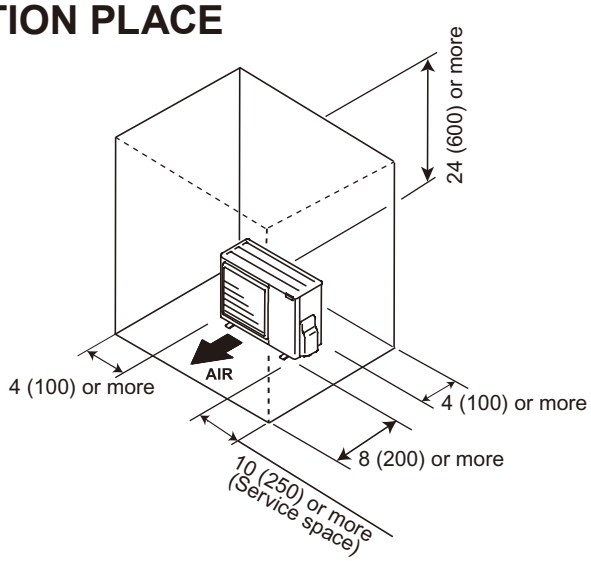
■ MODEL: ROSH12AFWJ

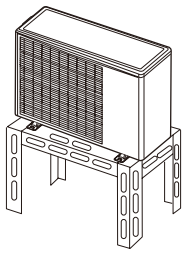
Unit : in.(mm)



Unit : in.(mm)

■ INSTALLATION PLACE





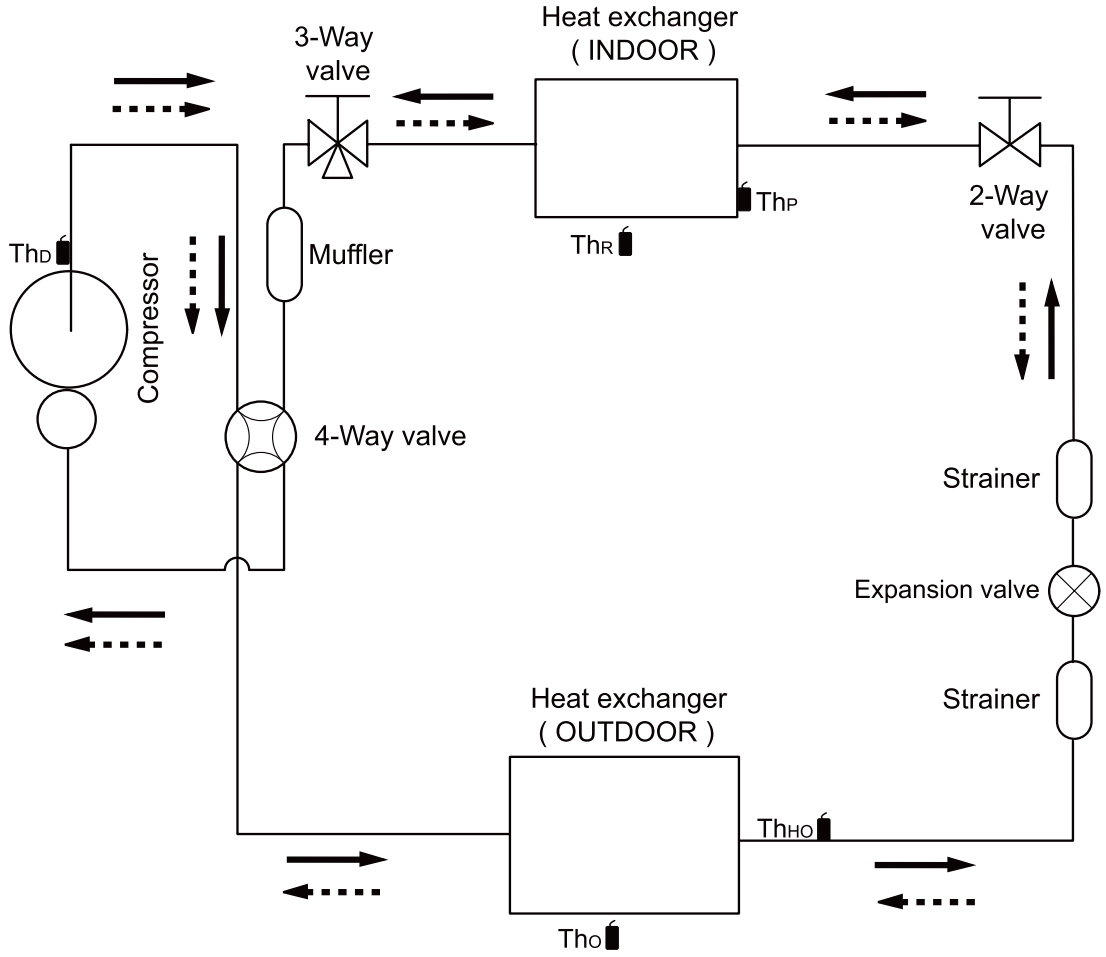
⚠ CAUTION

- 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 weather. (Reverse cycle model only)
- In areas with heavy snowfall, if the intake and outlet of outdoor unit is blocked with snow, it might become difficult to get warm and it is likely to cause breakdown. Please construct a canopy and a pedestal or place the unit on a high stand (local configured).

- Height above the floor level should be 2 in. (50 mm) or more.
- To obtain better operation efficiency, when the outdoor unit is installed, be sure to open the front and left side.

3. REFRIGERANT CIRCUIT

■ MODEL: ROSH09AFWJ



: Cooling
: Heating

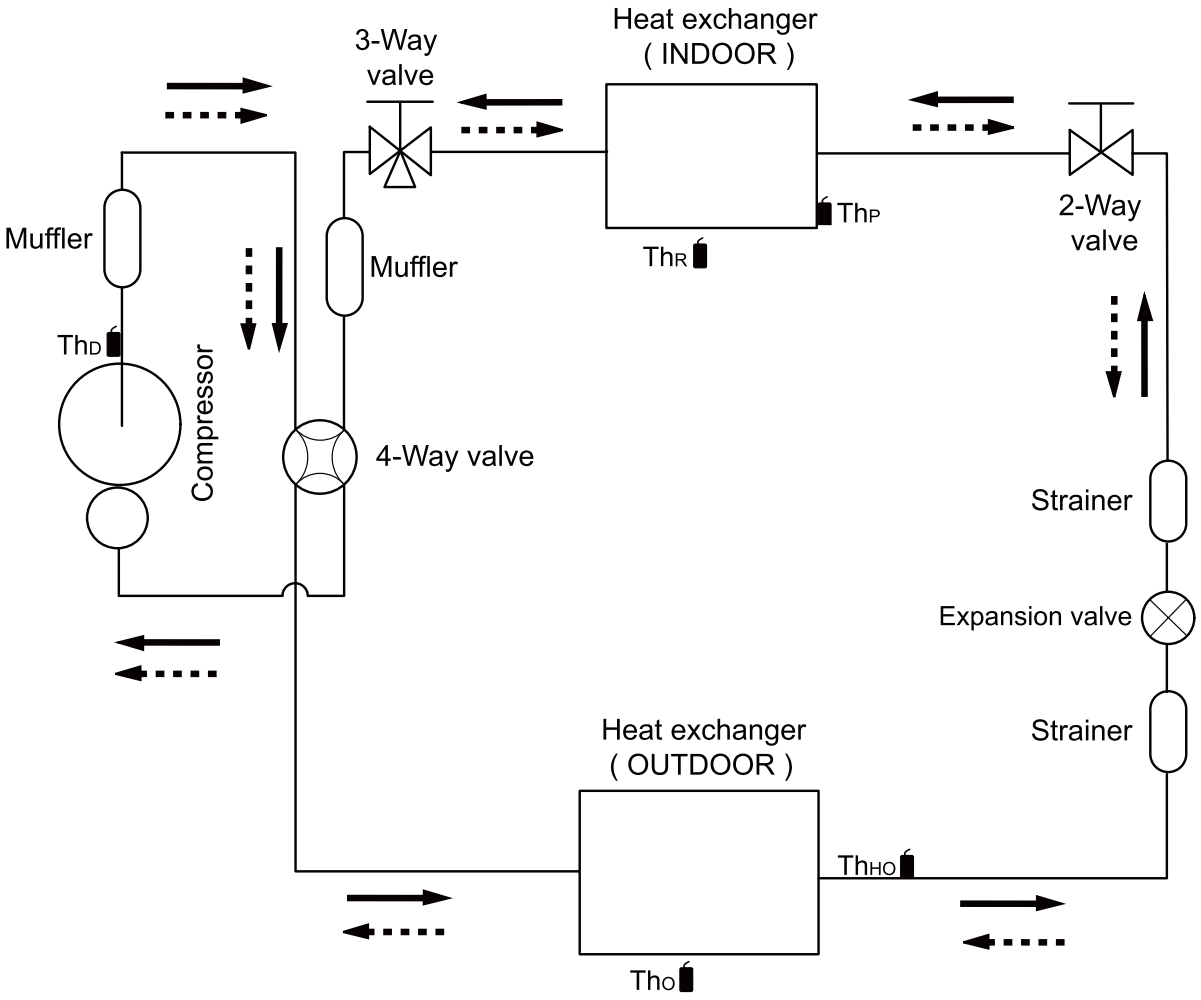
ThD: Thermistor (Discharge Temp.)
ThO: Thermistor (Outdoor Temp.)
ThHO: Thermistor (Heat Exchanger Out Temp.)
ThR: Thermistor (Room Temp.)
ThP: Thermistor (Pipe Temp.)

Refrigerant pipe diameter
Liquid: 1/4" (6.35mm)
Gas: 3/8" (9.52 mm)

OUTDOOR UNIT
ROSH09-12AFWJ

OUTDOOR UNIT
ROSH09-12AFWJ

■ MODEL: ROSH12AFWJ

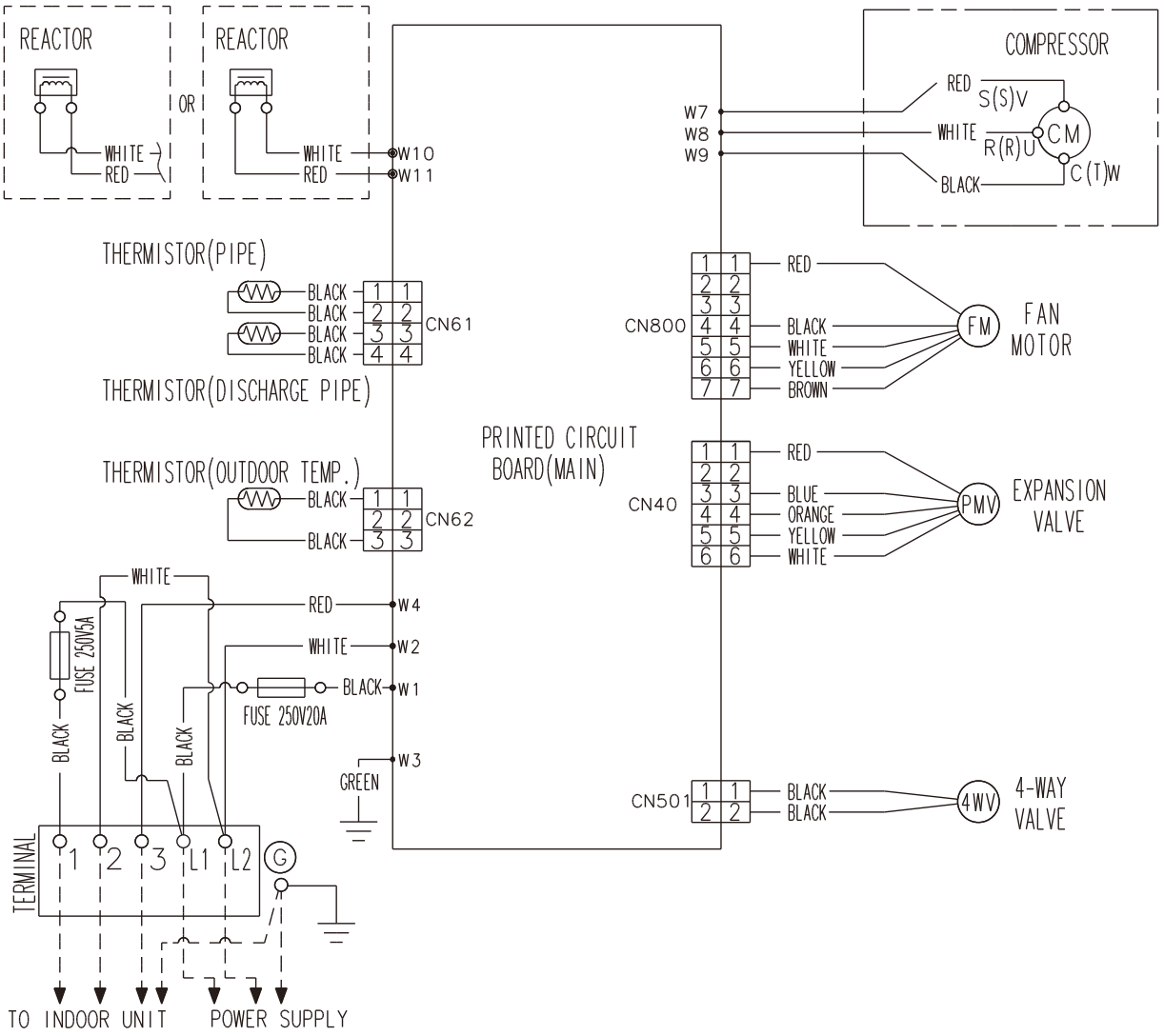


ThD : Thermistor (Discharge Temp.)
ThO : Thermistor (Outdoor Temp.)
ThHO : Thermistor (Heat Exchanger Out Temp.)
ThR : Thermistor (Room Temp.)
ThP : Thermistor (Pipe Temp.)

Refrigerant pipe diameter
Liquid : 1/4" (6.35 mm)
Gas : 3/8" (9.52 mm)

4. WIRING DIAGRAMS

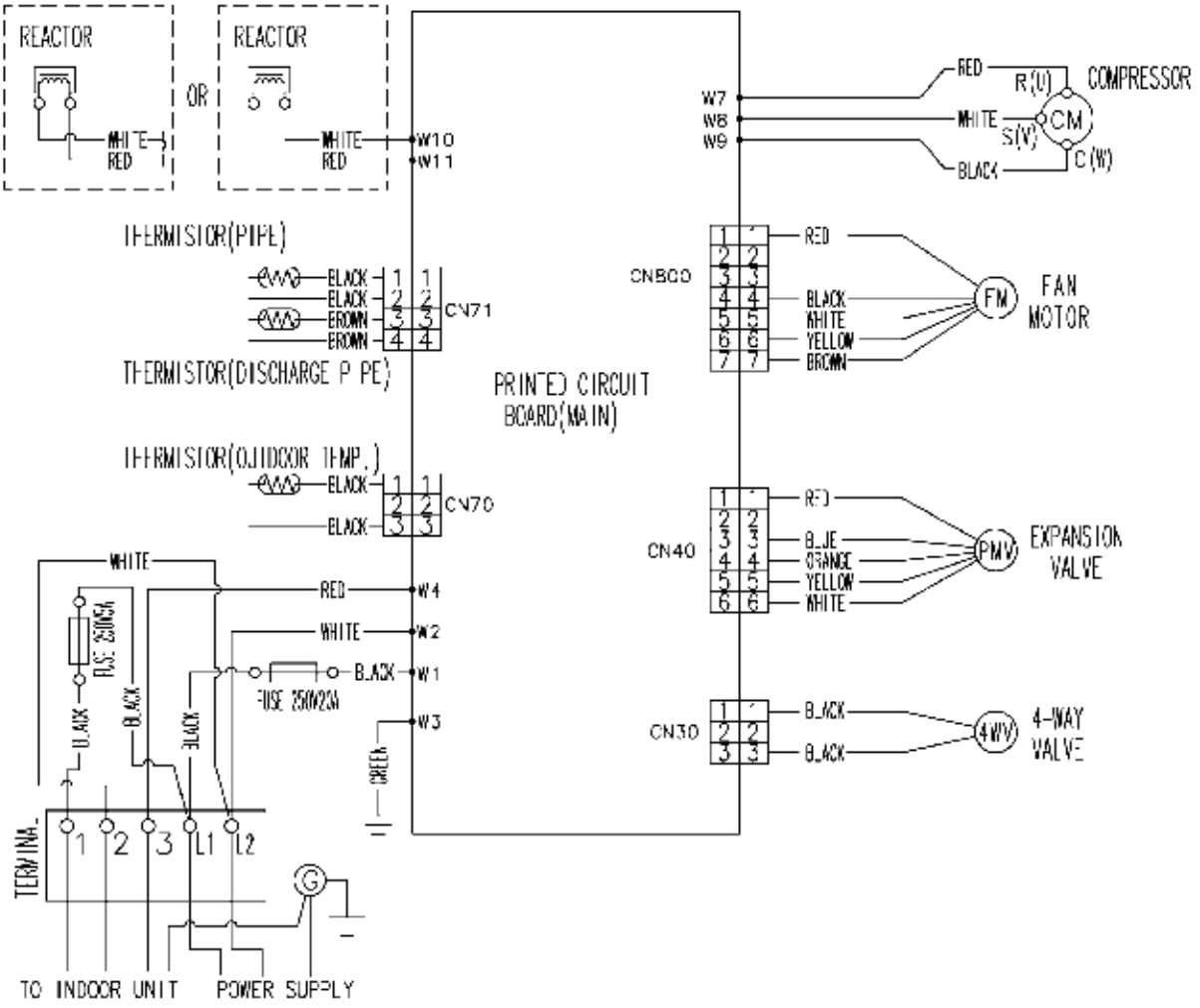
■ MODEL: ROSH09AFWJ



OUTDOOR UNIT
ROSH09-12AFWJ

OUTDOOR UNIT
ROSH09-12AFWJ

■ MODEL: ROSH12AFWJ



5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

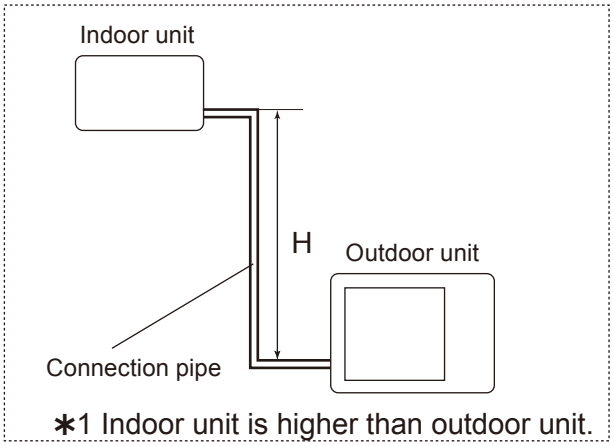
■ MODEL: ROSH09AFWJ

OUTDOOR UNIT
ROSH09-12AFWJ

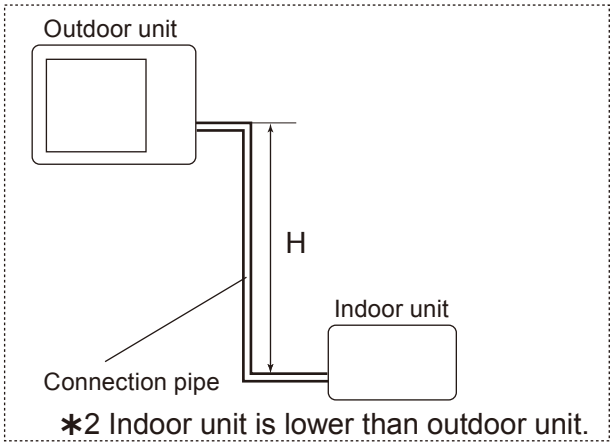
COOLING				Pipe length				
				5m	7.5m	10m	15m	20m
				16ft.	25ft.	33ft.	49ft.	66ft.
Height difference H	∗1 Indoor unit is higher than outdoor unit.	15m	49ft.	-	-	-	0.872	0.910
		10m	33ft.	-	-	0.961	0.886	0.925
		7.5m	25ft.	-	0.979	0.965	0.890	0.929
		5m	16ft.	0.992	0.983	0.969	0.893	0.933
		0m	0ft.	1.000	0.991	0.976	0.901	0.940
	∗2 Indoor unit is lower than outdoor unit	-5m	-16ft.	1.000	0.991	0.976	0.901	0.940
		-7.5m	-25ft.	-	0.991	0.976	0.901	0.940
		-10m	-33ft.	-	-	0.976	0.901	0.940
		-15m	-49ft.	-	-	-	0.901	0.940

HEATING				Pipe length				
				5m	7.5m	10m	15m	20m
				16ft.	25ft.	33ft.	49ft.	66ft.
Height difference H	∗1 Indoor unit is higher than outdoor unit.	15m	49ft.	-	-	-	0.832	0.822
		10m	33ft.	-	-	0.917	0.832	0.822
		7.5m	25ft.	-	0.961	0.917	0.832	0.822
		5m	16ft.	1.000	0.961	0.917	0.832	0.822
		0m	0ft.	1.000	0.961	0.917	0.832	0.822
	∗2 Indoor unit is lower than outdoor unit	-5m	-16ft.	0.995	0.956	0.912	0.828	0.818
		-7.5m	-25ft.	-	0.954	0.910	0.826	0.816
		-10m	-33ft.	-	-	0.908	0.824	0.814
		-15m	-49ft.	-	-	-	0.815	0.805

Height difference H



∗1 Indoor unit is higher than outdoor unit.



∗2 Indoor unit is lower than outdoor unit.

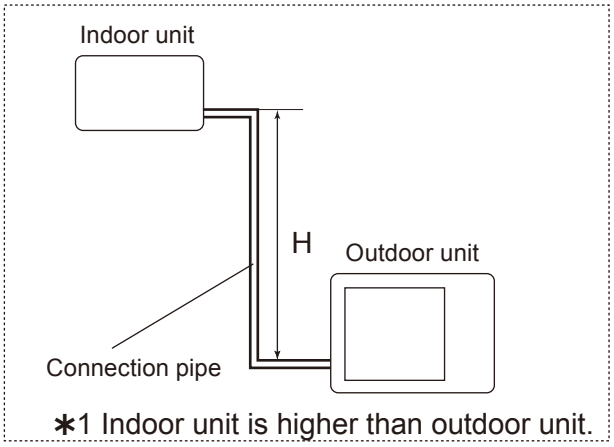
OUTDOOR UNIT
ROSH09-12AFWJ

■ MODEL: ROSH12AFWJ

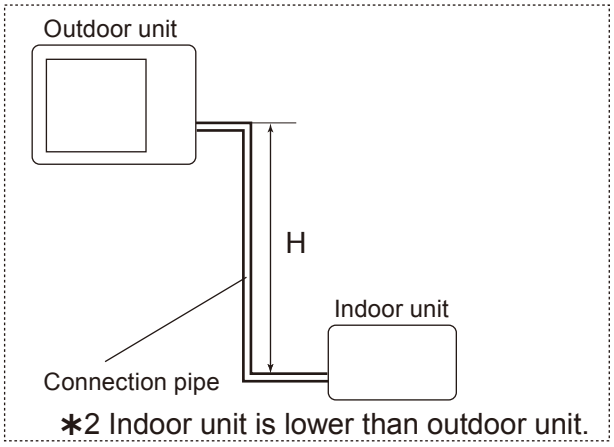
COOLING				Pipe length				
				5m	7.5m	10m	15m	20m
				16ft.	25ft.	33ft.	49ft.	66ft.
Height difference H	✳1 Indoor unit is higher than outdoor unit.	15m	49ft.	-	-	-	0.858	0.868
		10m	33ft.	-	-	0.929	0.872	0.882
		7.5m	25ft.	-	0.960	0.933	0.876	0.885
		5m	16ft.	0.992	0.964	0.937	0.879	0.889
		0m	0ft.	1.000	0.972	0.944	0.887	0.896
	✳2 Indoor unit is lower than outdoor unit	-5m	-16ft.	1.000	0.972	0.944	0.887	0.896
		-7.5m	-25ft.	-	0.972	0.944	0.887	0.896
		-10m	-33ft.	-	-	0.944	0.887	0.896
		-15m	-49ft.	-	-	-	0.887	0.896

HEATING				Pipe length				
				5m	7.5m	10m	15m	20m
				16ft.	25ft.	33ft.	49ft.	66ft.
Height difference H	✳1 Indoor unit is higher than outdoor unit.	15m	49ft.	-	-	-	0.896	0.879
		10m	33ft.	-	-	0.968	0.890	0.879
		7.5m	25ft.	-	0.994	0.968	0.896	0.879
		5m	16ft.	1.000	0.994	0.968	0.896	0.879
		0m	0ft.	1.000	0.994	0.968	0.896	0.879
	✳2 Indoor unit is lower than outdoor unit	-5m	-16ft.	0.995	0.989	0.963	0.891	0.875
		-7.5m	-25ft.	-	0.987	0.961	0.889	0.873
		-10m	-33ft.	-	-	0.959	0.887	0.871
		-15m	-49ft.	-	-	-	0.878	0.862

Height difference H



✳1 Indoor unit is higher than outdoor unit.



✳2 Indoor unit is lower than outdoor unit.

OUTDOOR UNIT
ROSH09-12AFWJ

6. ADDITIONAL CHARGE CALCULATION

■ MODEL: ROSH09AFWJ

Refrigerant type		R410A
Refrigerant amount	lb. oz.	1lb.14oz.
	g	850

● REFRIGERANT CHARGE

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

■ MODEL: ROSH12AFWJ

Refrigerant type		R410A
Refrigerant amount	lb. oz.	2lb.5oz.
	g	1050

● REFRIGERANT CHARGE

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

OUTDOOR UNIT
ROSH09-12AFWJ

7. AIR FLOW

■ MODEL: ROSH09AFWJ

● Cooling

Number of rotations (r.p.m.)	Air flow	
780	1690	m^3/h
	469	l/s
	995	CFM

● Heating

Number of rotations (r.p.m.)	Air flow	
720	1540	m^3/h
	428	l/s
	906	CFM

■ MODEL: ROSH12AFWJ

● Cooling

Number of rotations (r.p.m.)	Air flow	
780	1760	m^3/h
	489	l/s
	1036	CFM

● Heating

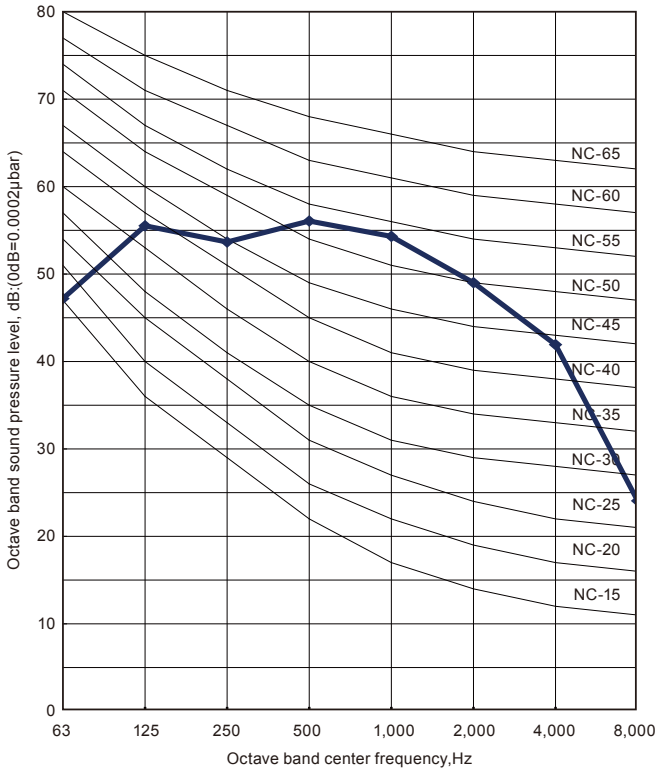
Number of rotations (r.p.m.)	Air flow	
680	1510	m^3/h
	419	l/s
	889	CFM

8. OPERATION NOISE

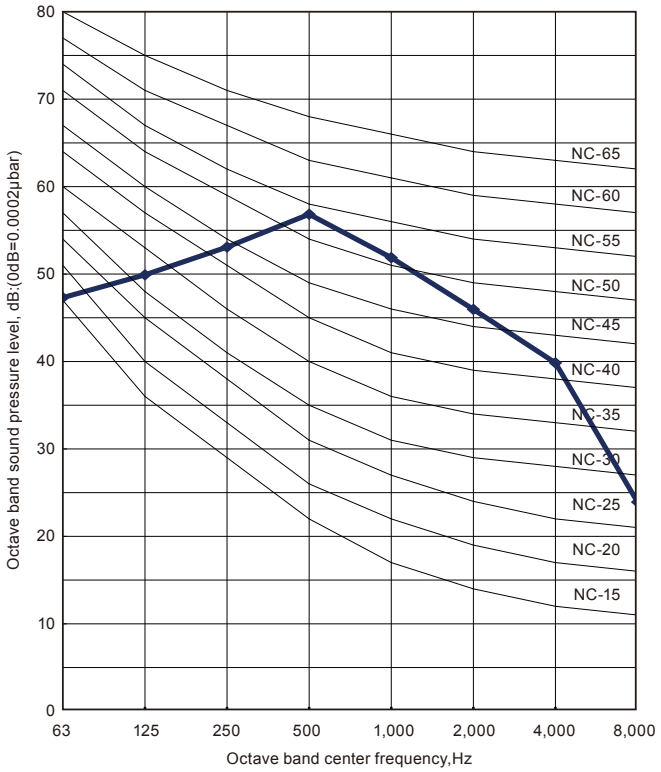
8-1. NOISE LEVEL CURVE (SOUND PRESSURE)

■ MODEL: ROSH09AFWJ

● Cooling

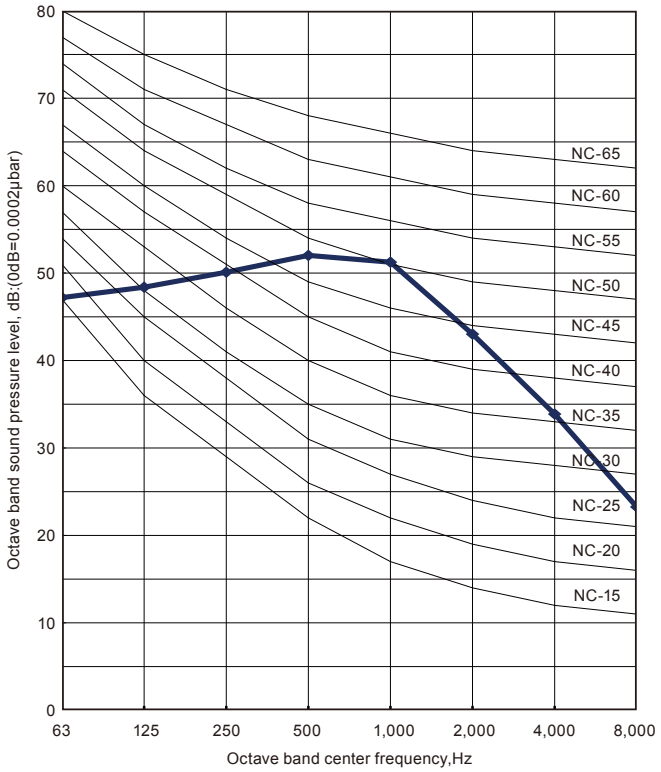


● Heating

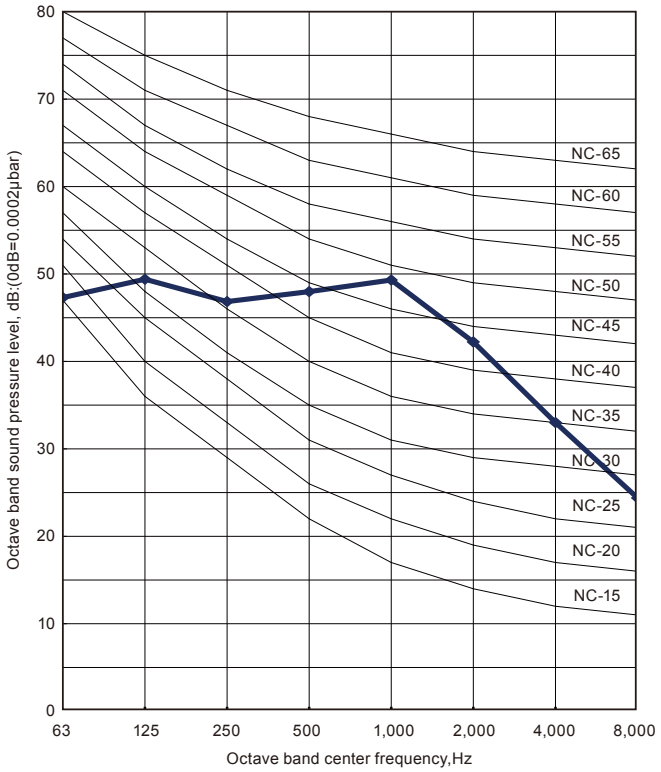


■ MODEL: ROSH12AFWJ

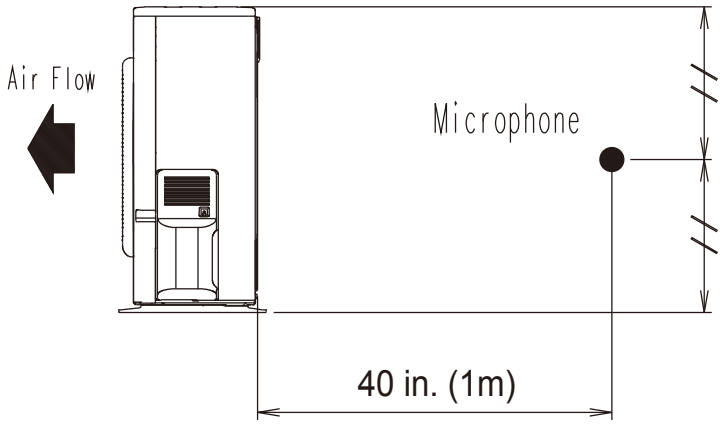
● Cooling

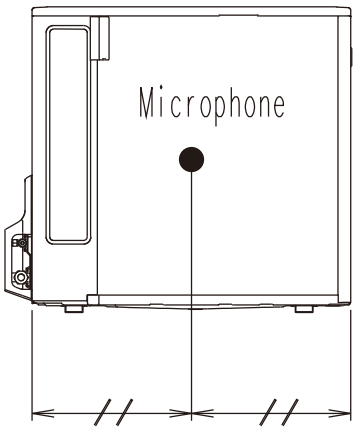


● Heating



8-2. SOUND LEVEL CHECK POINT





OUTDOOR UNIT
ROSH09-12AFWJ

9. ELECTRIC CHARACTERISTICS

Model Name			ROSH09AFWJ	ROSH12AFWJ
Power Supply	Voltage	V	208 / 230~	
	Frequency	Hz	60	
MCA		A	10	12
Starting Current		A	4.2	5.9
*1) Wiring Spec.	MAX. CKT. BKR	A	15	20
	Power Cable	AWG	14	

*1) Wiring Spec.

Selected Sample
(Selected based on Japan Electrotechnical Standard and Codes Committee E00005)

MCA: Min Circuit Amp(Calculation based on UL1995)

MAX. CKT. BKR: Maximum Circuit Breaker

OUTDOOR UNIT
ROSH09-12AFWJ

10. SAFETY DEVICES

	Protection form	Model	
		ROSH09AFWJ	ROSH12AFWJ
Circuit protection	Current fuse (IN THE INVERTER CASE)	250V 20A 250V 5A	
	Current fuse (MAIN PRINTED CIRCUIT BOARD)	—	250V 15A 250V 3.15A
Fan motor protection	Terminal protection program	OFF: 212±27°F (100±15°C) ON: 203±18°F (95±10°C)	OFF: 302±27°F (150±15°C) ON: 230±18°F (120±15°C)
Compressor protection	Terminal protection program COMPRESSOR TEMP.	OFF:230°F (110°C) ON:After 7 minutes	

OUTDOOR UNIT
ROSH09-12AFWJ