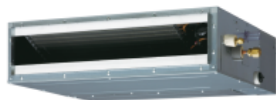


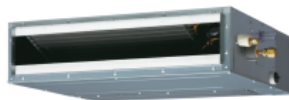
AIR CONDITIONER
Duct type

DESIGN & TECHNICAL MANUAL

INDOOR



ARU9RLF
ARU12RLF



ARU18RLF

OUTDOOR



AOU9RLFC
AOU12RLFC
AOU18RLFC

1. INDOOR UNIT

DUCT TYPE :

ARU9RLF

ARU12RLF

ARU18RLF

CONTENTS

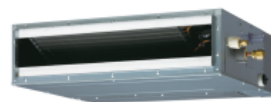
1. INDOOR UNIT

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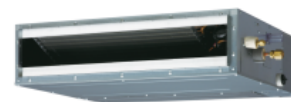
1. FEATURES

MODELS

ARU9RLF / AOU9RLFC
 ARU12RLF / AOU12RLFC
 ARU18RLF / AOU18RLFC



ARU9RLF
AOU9RLFC



ARU12RLF
AOU12RLFC



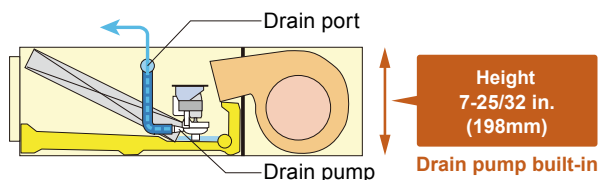
FEATURES

Energy saving

High energy saving was realized by converting indoor unit/outdoor unit fan motors and compressor to all DC, and also by optimal design of the refrigerant cycle.

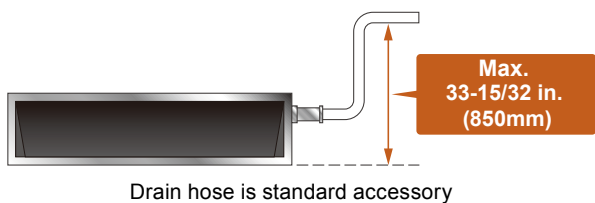
Slim design

The slim design allows installations where ceilings are narrow.



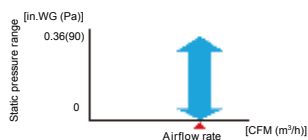
Compact design

Condensate lift-up to 33-15/32 in. (850mm).



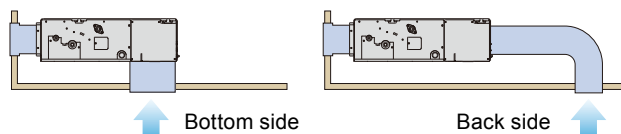
Selectable with a wide range of static pressure

By using DC fan motor, it is possible to change the static pressure range from 0 to 0.36in. WG (0 to 90Pa). The change of static pressure range is possible by remote controller.

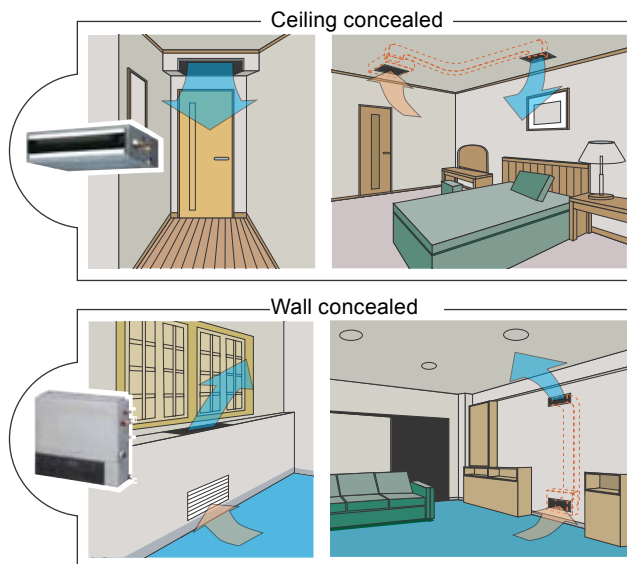


Air - intake

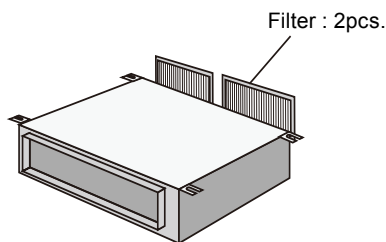
Air intake direction can be selected to match the installation site.



Flexible installation

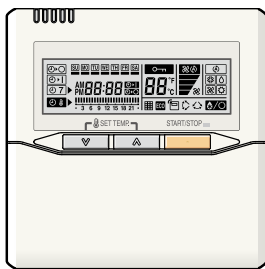


Filter (Accessory)



2. WIRED REMOTE CONTROLLER

FEATURES



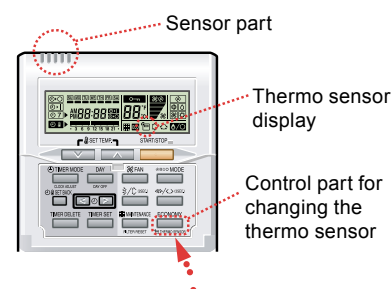
- Various timer setup available (ON/OFF/WEEKLY).
- Equipped with weekly timer as standard function. (Start/Stop function is twice per day for a week)
- When setting up the timer, start/stop and temperature setup can be changed.
- When a failure occurs, the error code is displayed.
- Error history.(Last 16 error codes can be accessed.)
- The room temperature can be controlled by detecting the temperature accurately with Built-in thermo sensor.

High performance and compact size



Accurate and comfortable

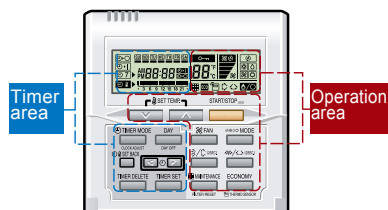
Indoor temperature can be detected accurately by the inclusion of a thermo sensor in the body of the wired controller. Our system can correspond to various scenes. This wired remote controller and the optional remote sensor allows flexibility in sensor location, and suitable for all requirements.



Built-in timers

Weekly timer	Setback timer
<p>Possible to set ON/OFF time to operate twice each day of the week.</p> <p>Easy-to-understand time bar display</p> <p>Screen after setup</p> <p>Example : setup screen (Set to Wednesday: 8:00 to 20:00.)</p>	<p>Possible to set temperature for two time spans and for each day of the week.</p> <p>Example : setup screen (Set from Sunday to Saturday: 12:00 to 15:00, 28 °C.)</p>
<p>At "Weekly timer" + "Set back timer" setup</p> <p>76°F (24°C) → 84°F (28°C) → 76°F (24°C) 24°C → 28°C → 24°C</p>	

Easy-to-understand operation

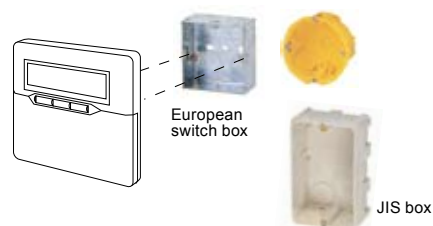


[Variable timer control]

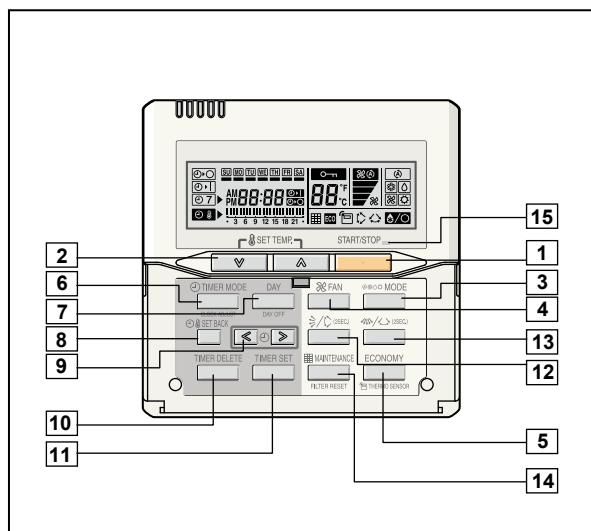
The operation/display sections are zoned according to time and operation, enabling variable programming to match application.

Simple installation

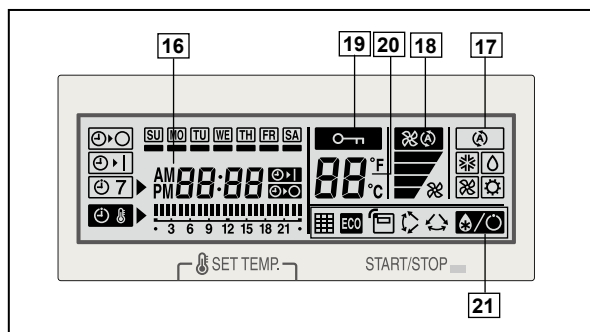
Components are compatible with standard switch boxes. Flat back surface allows equipment to be installed wherever it is needed.



FUNCTIONS

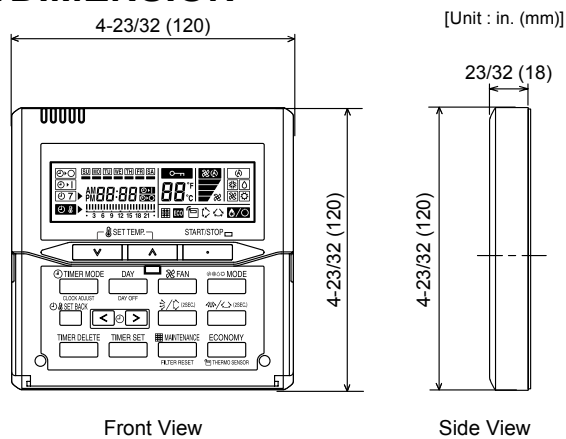


Display panel



- 1 START/STOP button**
Pressed to start and stop operation.
- 2 SET TEMP. button**
Selects the setting temperature.
- 3 MODE button**
Selects the operating mode (AUTO, HEAT, FAN, COOL, DRY).
- 4 FAN button**
Selects the fan speed (AUTO, QUIET, LOW, MED, HIGH).
- 5 ECONOMY (THERMO SENSOR) button**
Turns the economy efficient mode on and off.
- 6 TIMER MODE (CLOCK ADJUST) button**
Selects the timer mode (OFF TIMER, ON TIMER, WEEKLY TIMER). Sets the current time.
- 7 DAY (DAY OFF) button**
Temporarily cancels one day timer.
- 8 SET BACK button**
Pressed to select the set back timer.
- 9 Set time button**
Pressed to set time.
- 10 TIMER DELETE button**
Deletes the weekly timer schedule.
- 11 TIMER SET button**
Sets the date, hour, minute and on-off time.
- 12 Vertical airflow direction and swing button**
Push for two seconds to change the swing mode.
- 13 Horizontal airflow direction and swing button**
Push for two seconds to change the swing mode.
- 14 FILTER RESET button**
- 15 Operation lamp**
Lights during operation and when the timer is on.

DIMENSION



SPECIFICATION

SIZE	[H x W x D]: in.(mm)	4-23/32 x 4-23/32 x 23/32 (120 x 120 x 18)
WEIGHT	oz. (g)	5.6 (160)
CABLE LENGTH	ft. (m)	33 (10)
POWER	(V)	12

- 16 Timer and clock display**
- 17 Operation mode display**
- 18 Fan speed display**
- 19 Operation lock display**
- 20 Temperature display**
- 21 Function display**
 - Defrost display
 - Thermo sensor display
 - Economy display
 - Vertical swing display
 - Horizontal swing display
 - Filter display

Functions will be different due to type of indoor unit.
For details, please see operation manual.

WIRING SPECIFICATIONS

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

3. SPECIFICATIONS

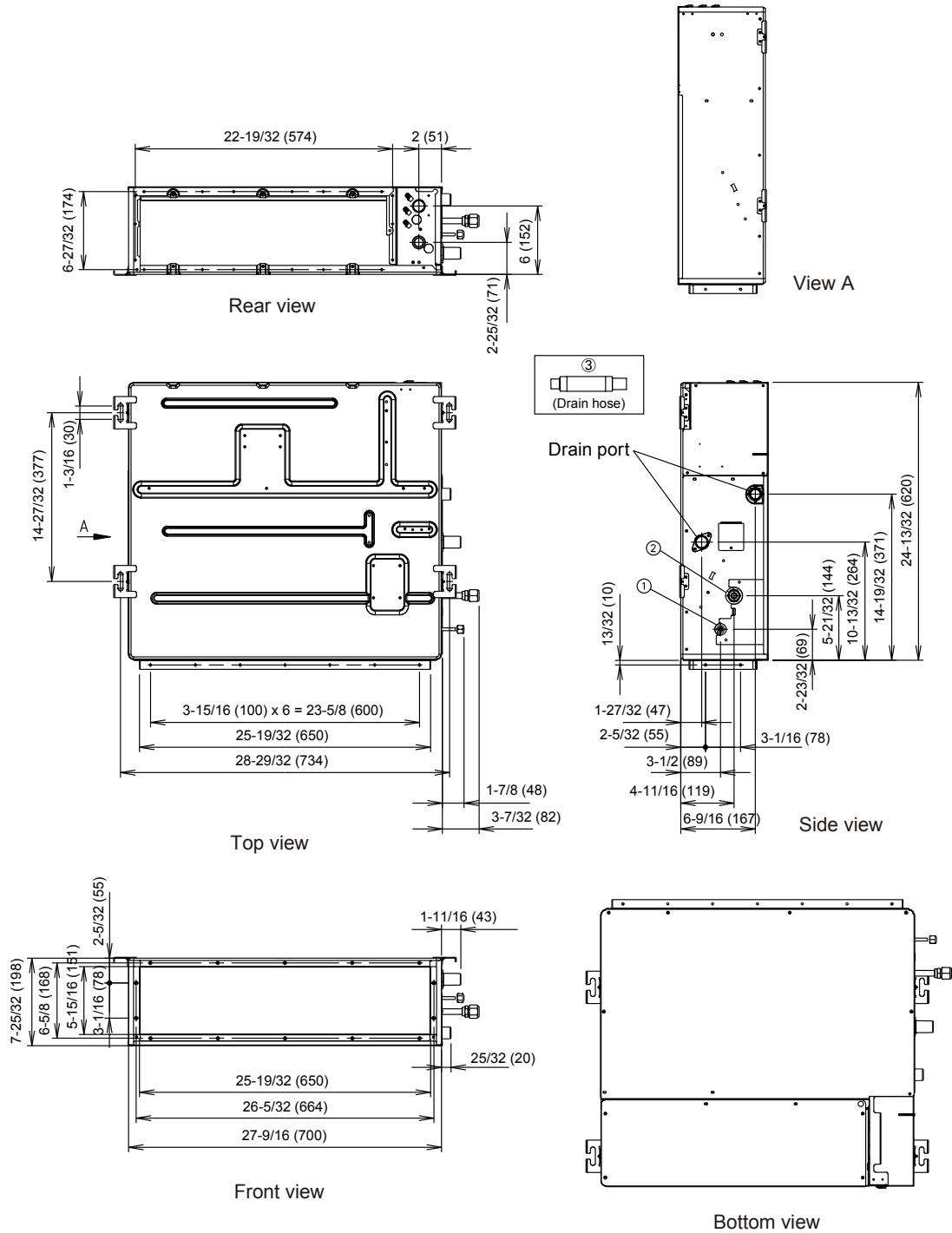
Type				DUCTED MODEL			
				INVERTER HEAT PUMP			
Model name				ARU9RLF	ARU12RLF	ARU18RLF	
Power source				208 / 230V ~ 60Hz			
Available voltage range				187 - 253V ~ 60Hz			
Capacity	Cooling	Rated	kW	2.64	3.52	5.28	
			Btu/h	9,000	12,000	18,000	
		Min - Max	kW	0.90 - 3.60	0.90 - 4.00	0.90 - 5.90	
	Heating	Rated	kW	3.52	4.69	6.33	
			Btu/h	12,000	16,000	21,600	
		Min - Max	kW	0.90 - 5.28	0.90 - 5.70	0.90 - 7.50	
Input power	Cooling	Rated	kW	0.62	0.94	1.50	
				Max	1.40	1.45	2.15
		Heating		Rated	0.85	1.30	1.67
	Max			1.80	2.00	2.60	
	Rated			3.0	4.4	6.6	
	Current	Heating		Rated	A	3.9	6.0
EER	Cooling		kW/kW	4.25	3.74	3.52	
			Btu/hW	14.5	12.8	12.0	
COP	Heating		kW/kW	4.14	3.60	3.79	
			Btu/hW	14.1	12.3	12.9	
SEER	Cooling		Btu/hW	21.5	20.0	19.7	
HSPF	Heating		Btu/hW	12.2	11.5	11.3	
Power factor	Cooling		%	90	94	98	
	Heating			94	94	99	
Moisture removal			pints/h (l/h)	1.5 (0.7)	2.7 (1.3)	4.2 (2.0)	
Maximum operating current *	Cooling		A	9.3	9.4	10.0	
	Heating			10.8	10.9	14.0	
Fan	Airflow rate	Cooling	High	353 (600)	383 (650)	554 (940)	
			Med	324 (550)	353 (600)	518 (880)	
			Low	294 (500)	324 (550)	483 (820)	
		Heating	Quiet	265 (450)	283 (480)	442 (750)	
			High	353 (600)	383 (650)	554 (940)	
			Med	324 (550)	353 (600)	518 (880)	
	Type × Q'ty				Sirocco fan × 2		Sirocco fan × 3
		Motor Output		W	81		96
		Recommended static pressure			in. WG (Pa)	0 to 0.36 (0 to 90)	
		Sound pressure level	Cooling	High	dB (A)	28	29
Med	27			28		30	
Low	26			27		29	
Quiet	25			26		27	
Heating	High		28	29		32	
	Med		26	28		30	
	Low		25	27		29	
	Quiet		24	24		27	
Heat exchanger	Dimension (H × W × D)		in. (mm)	11-9/16 × 19-11/16 × 1-9/16 (294×500×39.9)		11-9/16 × 27-9/16 × 1-9/16 (294×700×39.9)	
	Fin pitch		FPI	20			
	Rows × Stages			3 × 14			
	Pipe type			Copper tube			
	Fin type			Aluminum			
Enclosure	Material		GALVANIZED STEEL SHEET				
	Color		-				
Dimensions (H × W × D)	Net		in. (mm)	7-25/32 × 27-9/16 × 24-13/32 (198 × 700 × 620)		7-25/32 × 35-7/16 × 24-13/32 (198 × 900 × 620)	
	Gross			10-7/8 × 38-1/8 × 30-13/32 (276 × 968 × 772)		10-7/8 × 46 × 30-13/32 (276 × 1168 × 772)	
Weight	Net		lb. (kg)	41 (19)		50 (23)	
	Gross			58 (26)		59 (27)	
Connection pipe	Size	Liquid	in. (mm)	Ø1/4 (Ø6.35)			
		Gas		Ø3/8 (Ø9.52)	Ø1/2 (Ø12.7)		
	Method			Flare			
Operation range	Cooling		°F (°C)	64 to 90 (18 to 32)			
		%RH	80 or less				
	Heating		°F (°C)	60 to 88 (16 to 30)			
Remote controller type				Wired [Wireless (option)]			
Drain hose	Material		HARD PVC				
	Size		in. (mm)	Ø3/4 (Ø20.7) (I.D.) Ø1-1/16 (Ø26.6) (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.
 Standard static pressure : 0.10in.WG (25Pa)
 Pipe length : 24ft.7in (7.5m), Height difference:0 m. (Outdoor unit-Indoor unit)
 The protective function may work when using it outside the operation range.
 *: The maximum current is the maximum value when operated within the operation range.

4. DIMENSIONS

MODELS: ARU9RLF, ARU12RLF

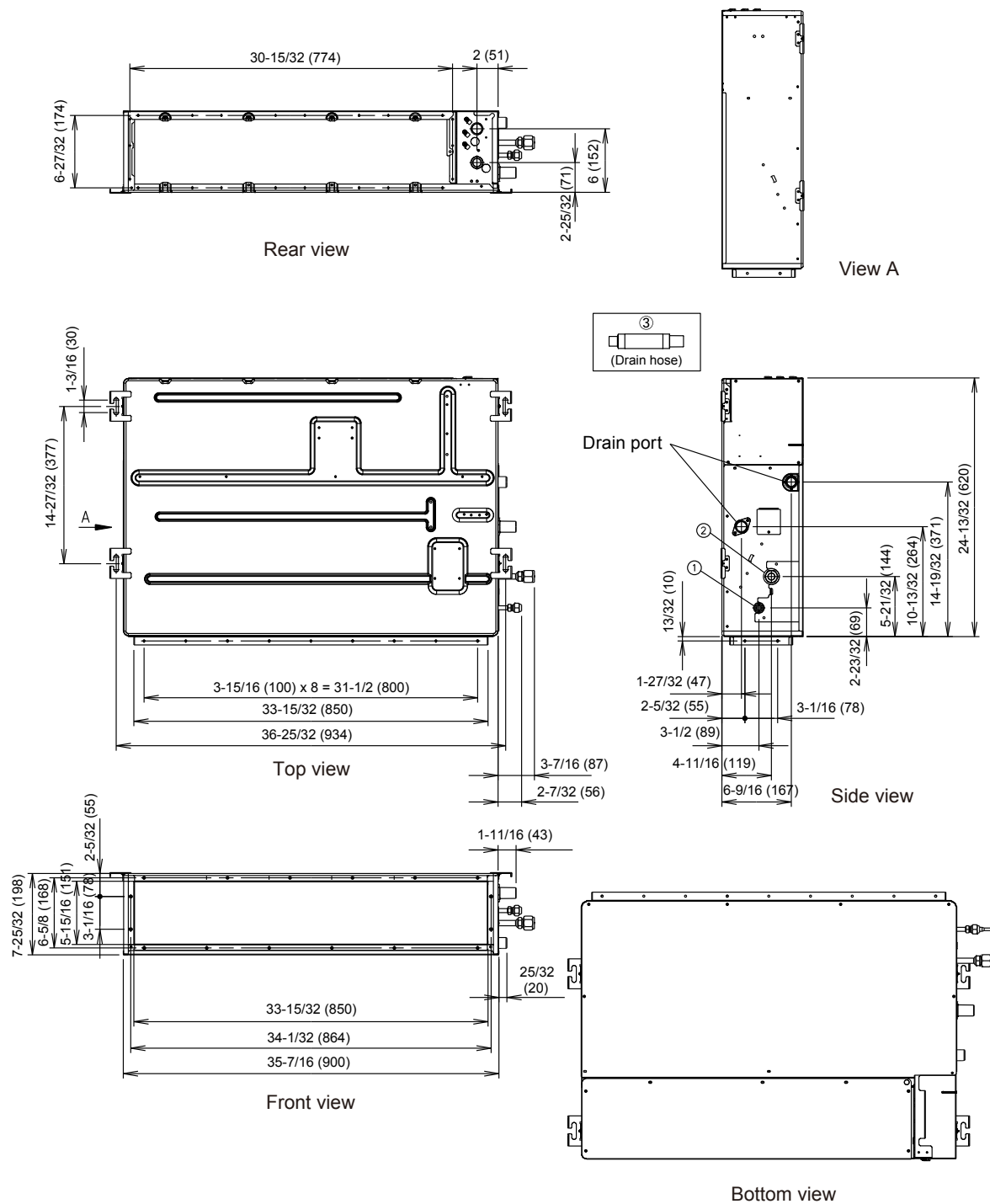
Unit : in. (mm)



			ARU9, ARU12
①	Refrigerant pipe flare connection	Liquid	Ø1/4 in. (Ø6.35 mm)
②		Gas	Ø3/8 in. (Ø9.52 mm)
③	Drain hose connection	Drain hose	I.D. Ø3/4 in. , O.D. Ø1-1/16 in.

MODEL : ARU18RLF

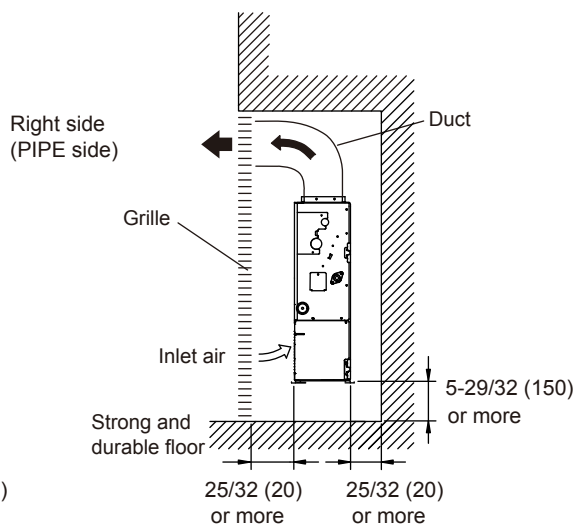
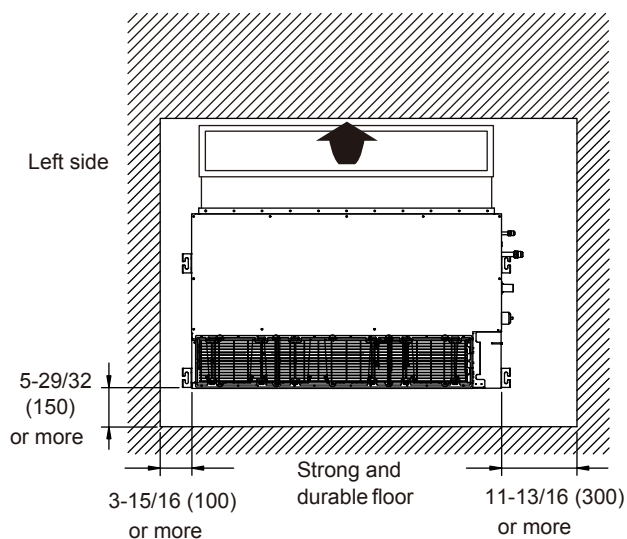
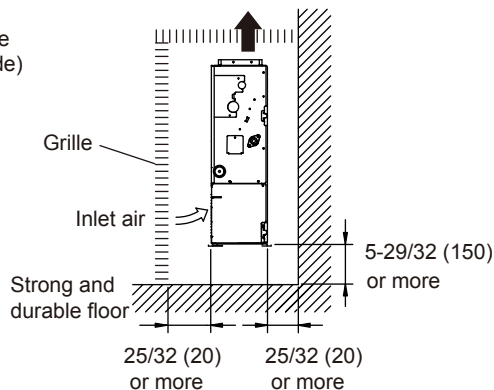
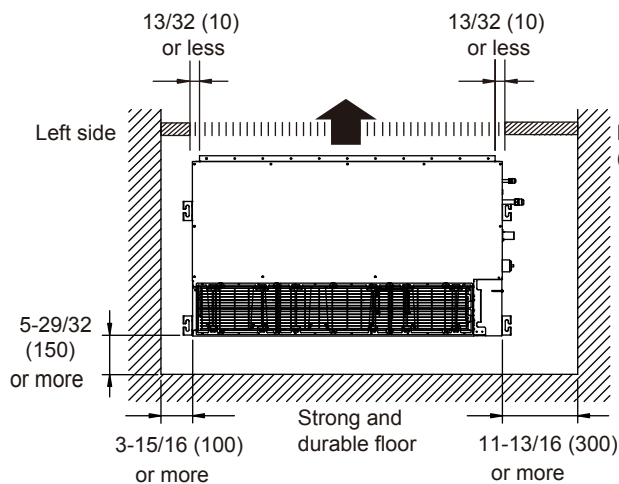
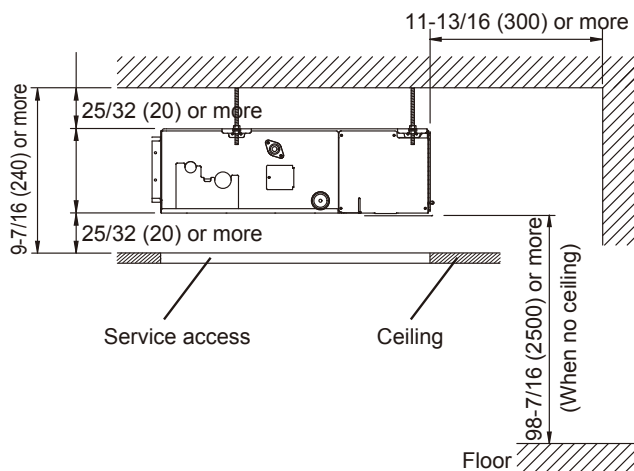
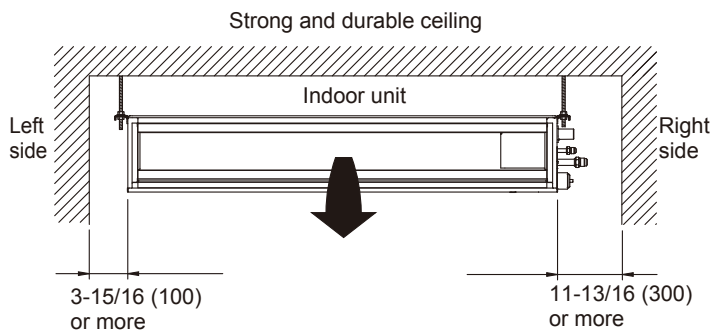
Unit : in. (mm)



			ARU18
①	Refrigerant pipe flare connection	Liquid	Ø1/4 in. (Ø6.35 mm)
②		Gas	Ø1/2 in. (Ø12.70 mm)
③	Drain hose connection	Drain hose	I.D. Ø3/4 in. , O.D. Ø1-1/16 in.

INSTALLATION PLACE

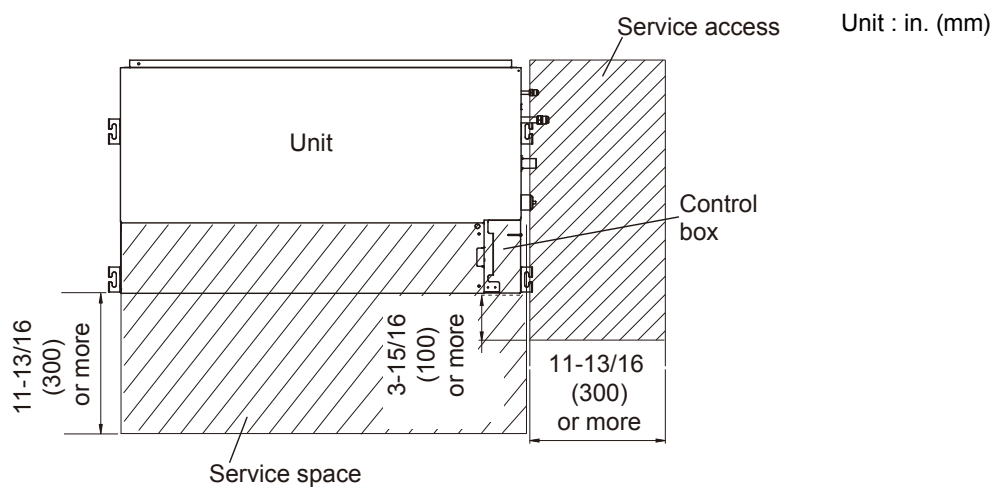
Unit : in. (mm)



MAINTENANCE SPACE

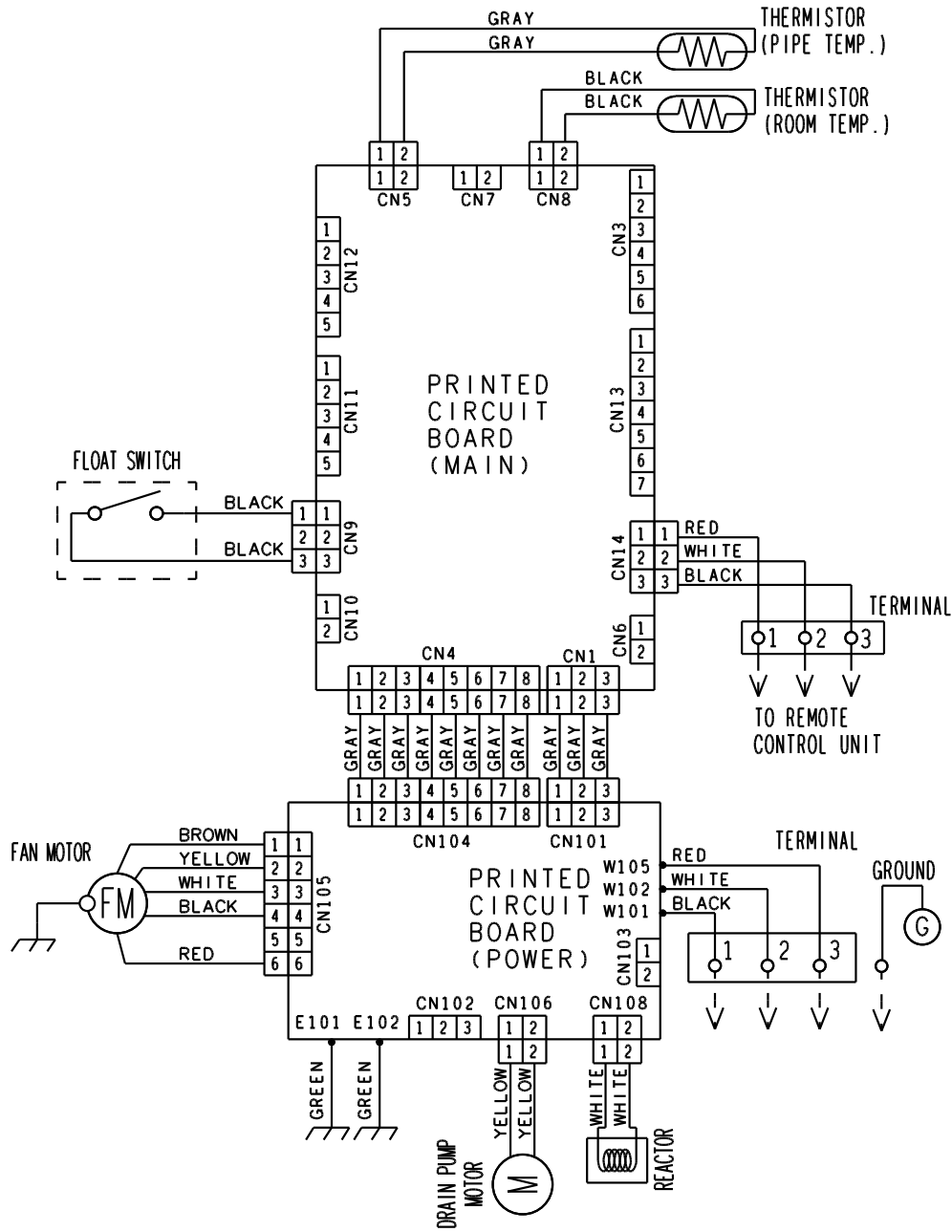
Provide a service access for inspection purposes as shown below.

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



5. WIRING DIAGRAMS

MODELS : ARU9RLF, ARU12RLF, ARU18RLF



6. CAPACITY TABLE

6-1. COOLING CAPACITY

MODEL: ARU9RLF

AFR	353
-----	-----

Outdoor temperature	Indoor temperature																							
	64			70			75			80			85			90								
	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP				
	54			60			53			67			71			73								
	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP				
67	8.6	7.0	0.50		9.7	7.0	0.50		10.2	7.7	0.51		11.0	8.1	0.51		11.7	8.3	0.52		12.1	9.2	0.52	
77	8.2	6.7	0.56		9.2	6.7	0.57		9.7	7.4	0.57		10.4	7.8	0.58		11.1	8.0	0.58		11.5	8.9	0.59	
87	7.6	6.5	0.60		8.6	6.5	0.61		9.1	7.1	0.62		9.7	7.5	0.62		10.4	7.7	0.63		10.7	8.5	0.63	
95	7.1	6.2	0.60		8.0	6.2	0.61		8.4	6.9	0.61		9.0	7.2	0.62		9.6	7.4	0.63		9.9	8.2	0.63	
104	5.9	5.8	0.50		6.7	5.8	0.51		7.1	6.3	0.52		7.6	6.7	0.52		8.1	6.8	0.53		8.3	7.6	0.53	
115	5.5	5.4	0.51		6.2	5.4	0.52		6.5	5.9	0.52		7.0	6.2	0.53		7.4	6.4	0.53		7.7	7.1	0.53	

AFR : Air Flow Rate (CFM)
 TC : Total Capacity (kBtu/h)
 SHC : Sensible Heat Capacity (kBtu/h)
 IP : Input Power (kW)

AFR	10.0
-----	------

Outdoor temperature	Indoor temperature																							
	17.8			21.1			23.9			26.7			29.4			32.2								
	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP				
	12.2			15.6			17.7			19.4			21.7			22.8								
	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP				
19.4	2.52	2.05	0.50		2.85	2.04	0.50		3.00	2.25	0.51		3.22	2.37	0.51		3.44	2.42	0.52		3.54	2.69	0.52	
25.0	2.39	1.97	0.56		2.71	1.97	0.57		2.85	2.17	0.57		3.05	2.28	0.58		3.27	2.34	0.58		3.37	2.60	0.59	
30.6	2.23	1.90	0.60		2.52	1.90	0.61		2.66	2.09	0.62		2.85	2.19	0.62		3.05	2.24	0.63		3.14	2.49	0.63	
35.0	2.07	1.83	0.60		2.34	1.82	0.61		2.46	2.01	0.61		2.64	2.11	0.62		2.82	2.16	0.63		2.91	2.40	0.63	
40.0	1.74	1.69	0.50		1.97	1.69	0.51		2.07	1.86	0.52		2.22	1.95	0.52		2.37	2.00	0.53		2.44	2.22	0.53	
46.0	1.60	1.58	0.51		1.81	1.58	0.52		1.90	1.74	0.52		2.04	1.82	0.53		2.18	1.87	0.53		2.25	2.07	0.53	

AFR : Air Flow Rate (m³/min)
 TC : Total Capacity (kW)
 SHC : Sensible Heat Capacity (kW)
 IP : Input Power (kW)

MODEL: ARU12RLF

AFR	383
-----	-----

Outdoor temperature	Indoor temperature																							
	64			70			75			80			85			90								
	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP				
	54			60			53			67			71			73								
	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP	°FDB	TC	SHC	IP				
67	11.5	8.5	0.75		13.0	8.5	0.76		13.7	9.4	0.77		14.6	9.8	0.78		15.6	10.0	0.79		16.1	11.2	0.79	
77	10.9	8.2	0.84		12.3	8.2	0.86		13.0	9.0	0.87		13.9	9.5	0.88		14.9	9.7	0.89		15.3	10.8	0.89	
87	10.2	7.9	0.91		11.5	7.9	0.93		12.1	8.7	0.93		13.0	9.1	0.94		13.9	9.3	0.95		14.3	10.4	0.96	
95	9.4	7.6	0.91		10.6	7.6	0.92		11.2	8.3	0.93		12.0	8.8	0.94		12.8	9.0	0.95		13.2	10.0	0.96	
104	7.9	7.0	0.76		8.9	7.0	0.78		9.4	7.7	0.78		10.1	8.1	0.79		10.8	8.3	0.80		11.1	9.2	0.81	
115	7.3	6.5	0.77		8.2	6.5	0.78		8.7	7.2	0.79		9.3	7.5	0.80		10.0	7.7	0.81		10.3	8.5	0.81	

AFR : Air Flow Rate (CFM)
 TC : Total Capacity (kBtu/h)
 SHC : Sensible Heat Capacity (kBtu/h)
 IP : Input Power (kW)

AFR	10.8
-----	------

Outdoor temperature	Indoor temperature																							
	17.8			21.1			23.9			26.7			29.4			32.2								
	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP				
	12.2			15.6			17.7			19.4			21.7			22.8								
	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP	°CDB	TC	SHC	IP				
19.4	3.36	2.49	0.75		3.80	2.49	0.76		4.01	2.74	0.77		4.29	2.88	0.78		4.58	2.94	0.79		4.73	3.27	0.79	
25.0	3.19	2.40	0.84		3.61	2.40	0.86		3.80	2.65	0.87		4.07	2.78	0.88		4.35	2.84	0.89		4.49	3.16	0.89	
30.6	2.98	2.31	0.91		3.37	2.31	0.93		3.55	2.54	0.93		3.80	2.67	0.94		4.06	2.73	0.95		4.19	3.04	0.96	
35.0	2.76	2.22	0.91		3.12	2.22	0.92		3.28	2.45	0.93		3.52	2.57	0.94		3.76	2.63	0.95		3.88	2.92	0.96	
40.0	2.32	2.05	0.76		2.62	2.05	0.78		2.76	2.26	0.78		2.96	2.37	0.79		3.16	2.43	0.80		3.26	2.70	0.81	
46.0	2.14	1.90	0.77		2.42	1.90	0.78		2.55	2.10	0.79		2.73	2.20	0.80		2.92	2.25	0.81		3.01	2.50	0.81	

AFR : Air Flow Rate (m³/min)
 TC : Total Capacity (kW)
 SHC : Sensible Heat Capacity (kW)
 IP : Input Power (kW)

MODEL: ARU18RLF

AFR	554
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Outdoor temperature	Indoor temperature																		
	°FDB	64			70			75			80			85			90		
	°FWB	54			60			53			67			71			73		
°FDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	
67	16.0	12.2	0.96	18.0	12.2	0.98	19.0	13.5	0.99	20.4	14.1	1.00	21.8	14.4	1.01	22.4	16.0	1.02	
77	15.1	11.7	1.09	17.1	11.7	1.11	18.0	12.9	1.12	19.2	13.5	1.14	20.6	13.9	1.15	21.2	15.4	1.15	
87	14.2	11.2	1.23	16.0	11.2	1.25	16.9	12.3	1.26	18.1	12.9	1.28	19.3	13.2	1.29	19.9	14.7	1.30	
95	14.1	11.2	1.45	15.9	11.2	1.47	16.8	12.4	1.48	18.0	13.0	1.50	19.2	13.3	1.52	19.8	14.7	1.53	
104	10.3	9.4	1.03	11.7	9.3	1.05	12.3	10.3	1.06	13.2	10.8	1.07	14.1	11.1	1.08	14.5	12.3	1.08	
115	9.6	8.6	1.03	10.8	8.6	1.05	11.4	9.5	1.06	12.2	10.0	1.07	13.0	10.2	1.08	13.5	11.4	1.09	

AFR : Air Flow Rate (CFM)
 TC : Total Capacity (kBtu/h)
 SHC : Sensible Heat Capacity (kBtu/h)
 IP : Input Power (kW)

AFR	15.7
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Outdoor temperature	Indoor temperature																		
	°CDB	17.8			21.1			23.9			26.7			29.4			32.2		
	°CWB	12.2			15.6			17.7			19.4			21.7			22.8		
°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	
19.4	4.68	3.58	0.96	5.29	3.57	0.98	5.58	3.94	0.99	5.97	4.14	1.00	6.38	4.23	1.01	6.58	4.70	1.02	
25.0	4.42	3.43	1.09	5.00	3.43	1.11	5.27	3.78	1.12	5.64	3.97	1.14	6.03	4.06	1.15	6.22	4.51	1.15	
30.6	4.15	3.28	1.23	4.69	3.28	1.25	4.95	3.62	1.26	5.30	3.79	1.28	5.66	3.88	1.29	5.84	4.32	1.30	
35.0	4.14	3.29	1.45	4.67	3.28	1.47	4.93	3.62	1.48	5.28	3.80	1.50	5.64	3.89	1.52	5.81	4.32	1.53	
40.0	3.02	2.74	1.03	3.42	2.74	1.05	3.60	3.02	1.06	3.86	3.17	1.07	4.12	3.24	1.08	4.25	3.60	1.08	
46.0	2.80	2.53	1.03	3.17	2.53	1.05	3.34	2.79	1.06	3.58	2.93	1.07	3.82	2.99	1.08	3.94	3.33	1.09	

AFR : Air Flow Rate (m³/min)
 TC : Total Capacity (kW)
 SHC : Sensible Heat Capacity (kW)
 IP : Input Power (kW)

6-2. HEATING CAPACITY

■ MODEL: ARU9RLF

AFR	353
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		Indoor temperature								
		°FDB	60		65		70		75	
Outdoor temperature	°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP
	-5	-7	14.7	1.84	14.3	1.88	14.0	1.92	13.3	1.99
	5	3	16.1	1.79	15.7	1.83	15.4	1.87	14.6	1.94
	14	12	16.8	1.73	16.4	1.76	16.0	1.80	15.2	1.87
	23	19	17.3	1.67	16.9	1.70	16.5	1.74	15.7	1.81
	32	28	17.4	1.61	17.0	1.64	16.6	1.68	15.7	1.74
	41	37	17.4	1.67	17.0	1.71	16.6	1.74	15.8	1.81
	47	43	18.9	1.73	18.5	1.76	18.0	1.80	17.1	1.87
	50	47	20.9	1.75	20.4	1.79	19.9	1.83	18.9	1.90
	59	50	21.6	1.76	21.1	1.80	20.6	1.84	19.6	1.91

AFR : Air Flow Rate (CFM)
TC : Total Capacity (kBtu/h)
IP : Input Power (kW)

AFR	10.0
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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
	-20.6	-21.7	4.31	1.84	4.20	1.88	4.10	1.92	3.90	1.99
	-15.0	-16.1	4.73	1.79	4.61	1.83	4.50	1.87	4.28	1.94
	-10.0	-11.1	4.91	1.73	4.80	1.76	4.68	1.80	4.45	1.87
	-5.0	-7.2	5.08	1.67	4.96	1.70	4.84	1.74	4.59	1.81
	0.0	-2.2	5.10	1.61	4.98	1.64	4.86	1.68	4.61	1.74
	5.0	2.8	5.11	1.67	4.99	1.71	4.87	1.74	4.62	1.81
	8.3	6.1	5.54	1.73	5.41	1.76	5.28	1.80	5.01	1.87
	10.0	8.3	6.12	1.75	5.98	1.79	5.83	1.83	5.54	1.90
	15.0	10.0	6.34	1.76	6.19	1.80	6.04	1.84	5.74	1.91

AFR : Air Flow Rate (m³/min)
TC : Total Capacity (kW)
IP : Input Power (kW)

■ MODEL: ARU12RLF

AFR	383
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		Indoor temperature								
		°FDB	60		65		70		75	
Outdoor temperature	°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP
	-5	-7	15.8	2.23	15.4	2.27	15.0	2.32	14.3	2.36
	5	3	17.6	2.16	17.2	2.21	16.8	2.25	15.9	2.34
	14	12	18.3	2.09	17.8	2.13	17.4	2.17	16.5	2.26
	23	19	19.2	2.01	18.7	2.05	18.2	2.10	17.3	2.18
	32	28	19.5	1.95	19.0	1.99	18.5	2.03	17.6	2.11
	41	37	19.7	1.86	19.2	1.90	18.8	1.94	17.8	2.02
	47	43	20.4	1.92	19.9	1.96	19.4	2.00	18.4	2.08
	50	47	22.5	1.94	22.0	1.98	21.4	2.02	20.4	2.10
	59	50	23.3	1.95	22.8	1.99	22.2	2.03	21.1	2.11

AFR : Air Flow Rate (CFM)
TC : Total Capacity (kBtu/h)
IP : Input Power (kW)

AFR	10.8
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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
	-20.6	-21.7	4.63	2.23	4.52	2.27	4.41	2.32	4.19	2.36
	-15.0	-16.1	5.16	2.16	5.03	2.21	4.91	2.25	4.66	2.34
	-10.0	-11.1	5.36	2.09	5.23	2.13	5.10	2.17	4.85	2.26
	-5.0	-7.2	5.61	2.01	5.48	2.05	5.35	2.10	5.08	2.18
	0.0	-2.2	5.70	1.95	5.57	1.99	5.43	2.03	5.16	2.11
	5.0	2.8	5.78	1.86	5.64	1.90	5.50	1.94	5.23	2.02
	8.3	6.1	5.99	1.92	5.84	1.96	5.70	2.00	5.42	2.08
	10.0	8.3	6.60	1.94	6.44	1.98	6.28	2.02	5.97	2.10
	15.0	10.0	6.84	1.95	6.67	1.99	6.51	2.03	6.19	2.11

AFR : Air Flow Rate (m³/min)
TC : Total Capacity (kW)
IP : Input Power (kW)

■ MODEL: ARU18RLF

AFR	554
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		Indoor temperature									
		°FDB		60		65		70		75	
		°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-5	-7	19.3	2.42	18.9	2.47	18.4	2.52	17.5	2.63	
	5	3	20.7	2.63	20.2	2.68	19.7	2.74	18.8	2.85	
	14	12	22.2	2.68	21.6	2.73	21.1	2.79	20.1	2.90	
	23	19	23.1	2.79	22.6	2.85	22.0	2.91	20.9	3.03	
	32	28	23.3	3.02	22.8	3.08	22.2	3.14	21.1	3.19	
	41	37	25.5	2.67	24.9	2.73	24.3	2.78	23.1	2.90	
	47	43	26.9	2.50	26.2	2.55	25.6	2.60	24.3	2.70	
	50	47	29.7	2.23	29.0	2.28	28.3	2.32	26.9	2.42	
	59	50	30.8	2.24	30.1	2.29	29.3	2.34	27.9	2.43	

AFR : Air Flow Rate (CFM)
 TC : Total Capacity (kBtu/h)
 IP : Input Power (kW)

AFR	15.7
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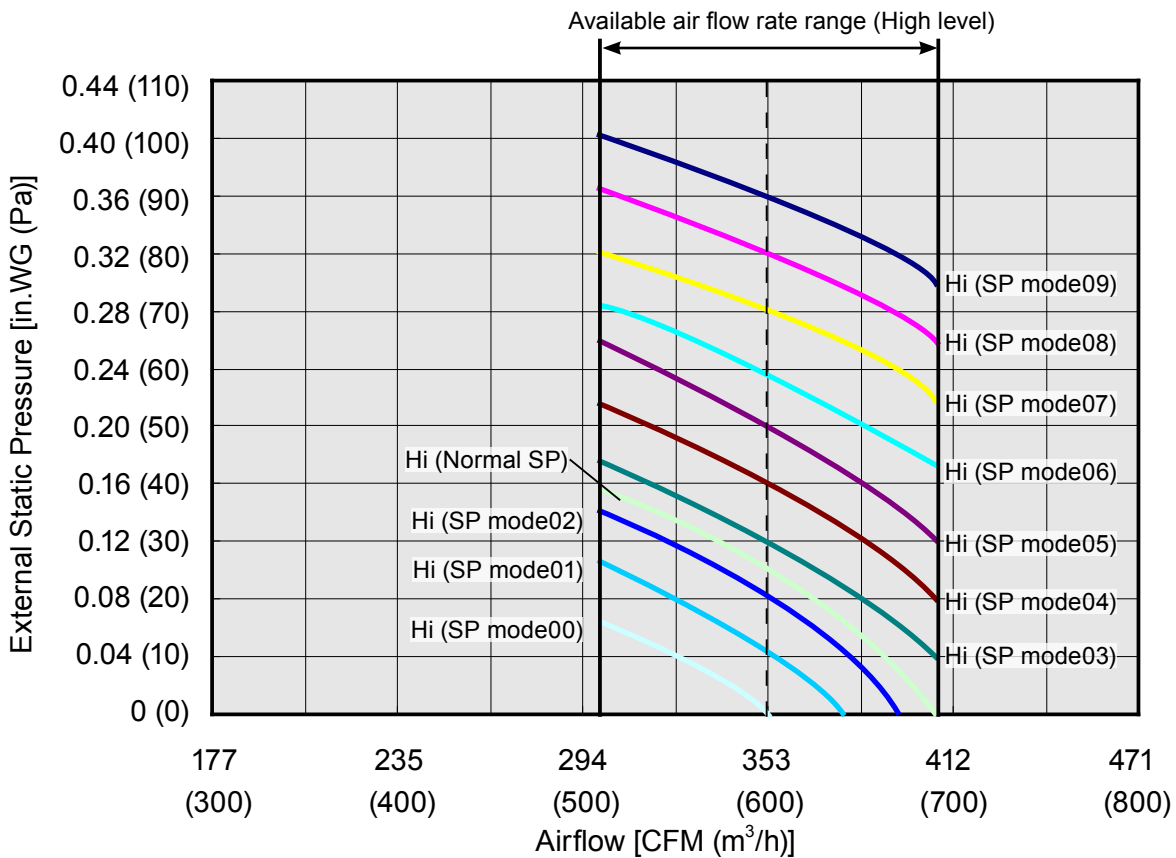
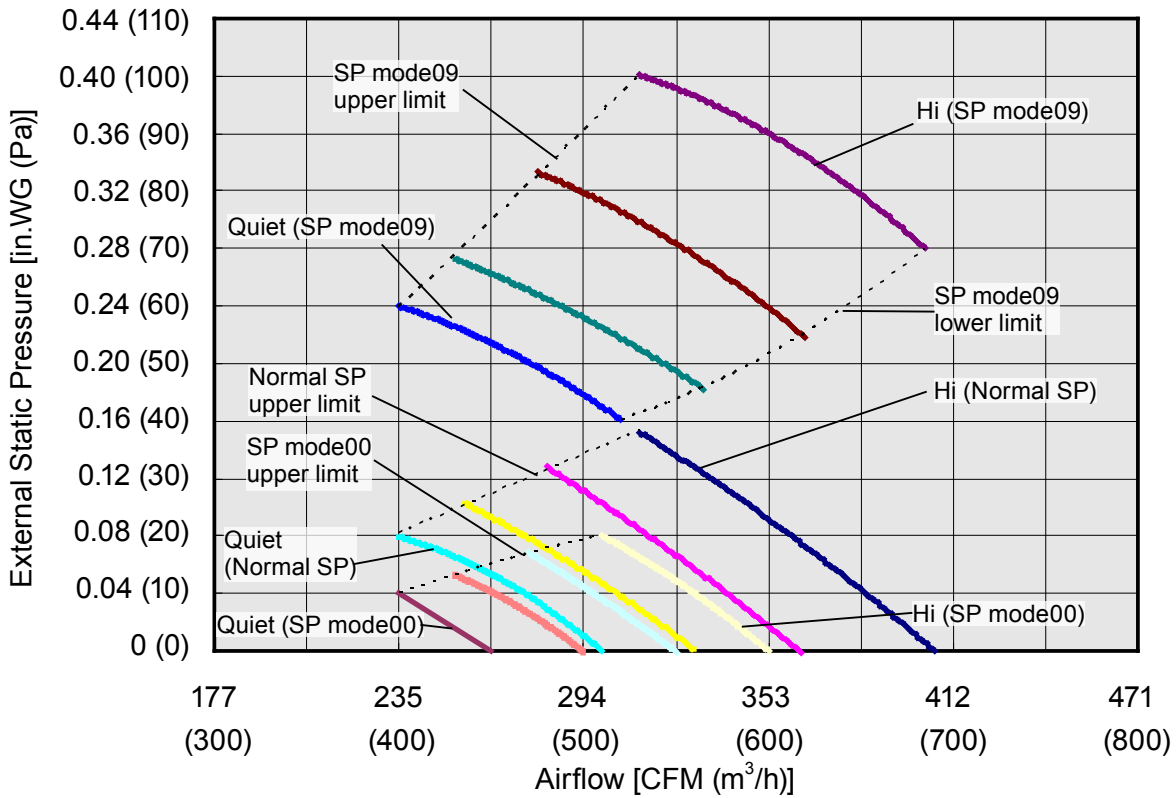
		Indoor temperature									
		°CDB		15.6		18.3		21.1		23.9	
		°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-20.6	-21.7	5.67	2.42	5.53	2.47	5.40	2.52	5.13	2.63	
	-15.0	-16.1	6.08	2.63	5.93	2.68	5.79	2.74	5.50	2.85	
	-10.0	-11.1	6.50	2.68	6.34	2.73	6.19	2.79	5.88	2.90	
	-5.0	-7.2	6.78	2.79	6.62	2.85	6.45	2.91	6.13	3.03	
	0.0	-2.2	6.84	3.02	6.68	3.08	6.51	3.14	6.19	3.19	
	5.0	2.8	7.47	2.67	7.29	2.73	7.12	2.78	6.76	2.90	
	8.3	6.1	7.88	2.50	7.69	2.55	7.50	2.60	7.13	2.70	
	10.0	8.3	8.71	2.23	8.50	2.28	8.29	2.32	7.88	2.42	
	15.0	10.0	9.02	2.24	8.81	2.29	8.59	2.34	8.16	2.43	

AFR : Air Flow Rate (m³/min)
 TC : Total Capacity (kW)
 IP : Input Power (kW)

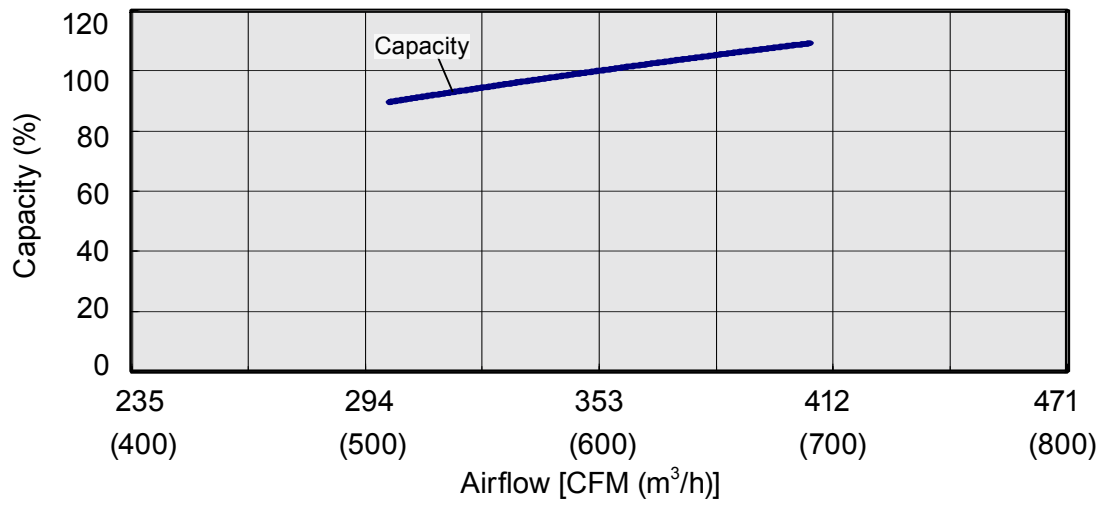
7. FAN PERFORMANCE

7-1. FAN PERFORMANCE CURVE

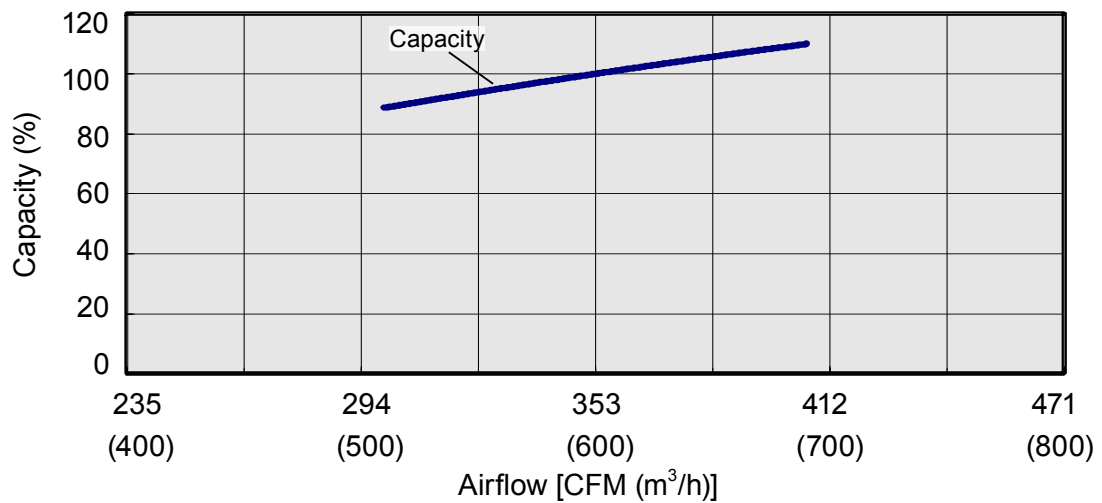
MODEL : ARU9RLF



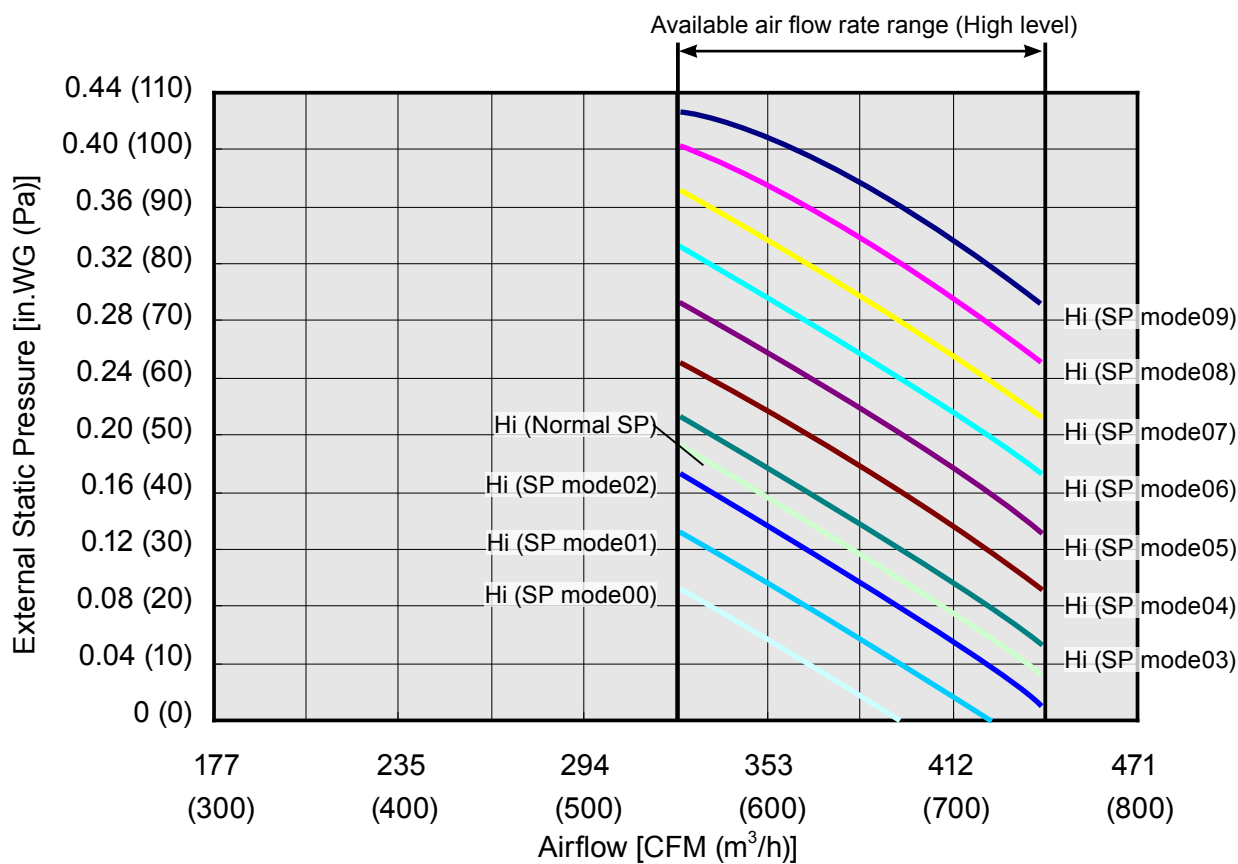
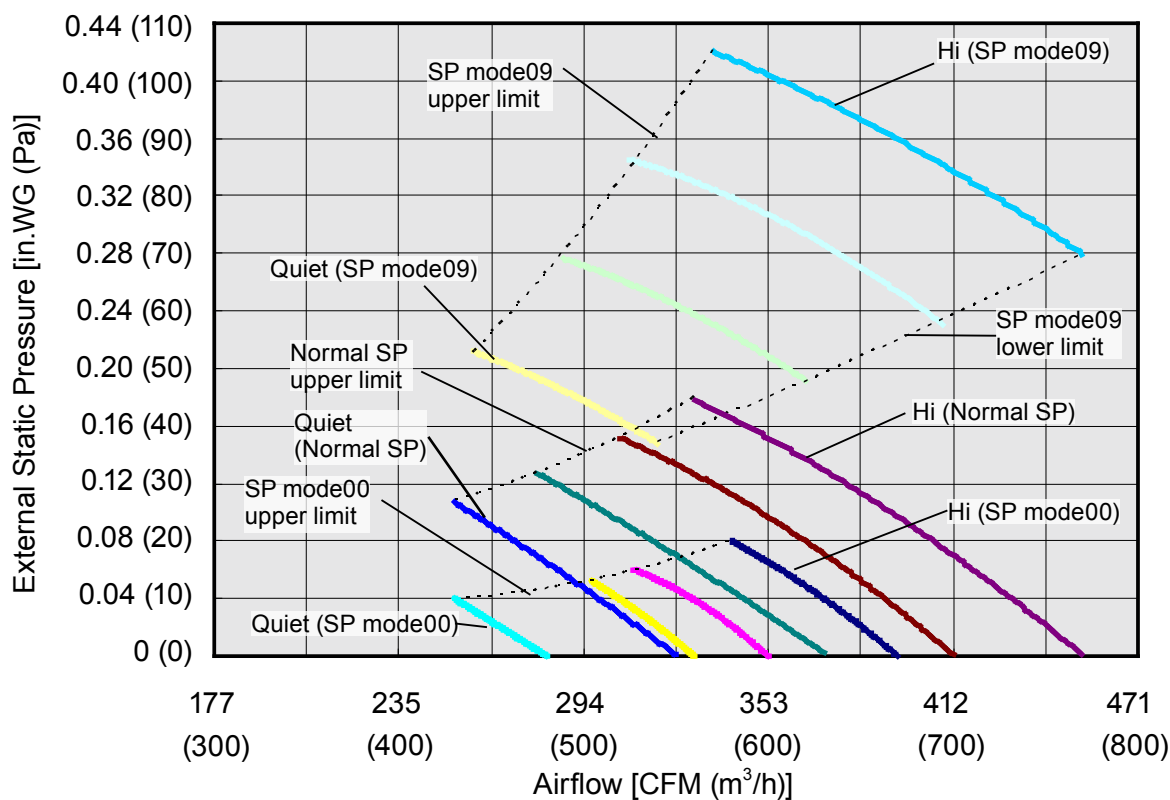
● Cooling



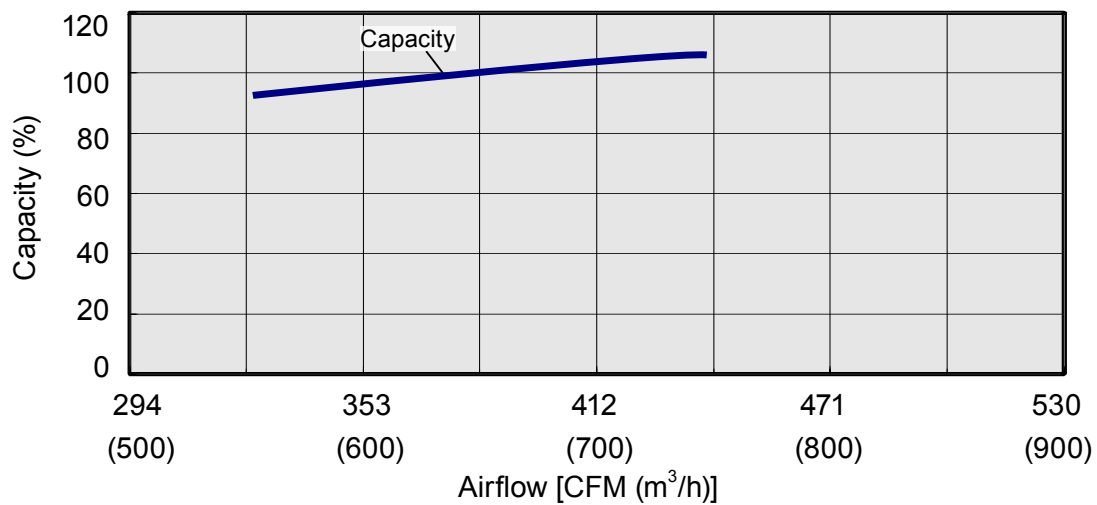
● Heating



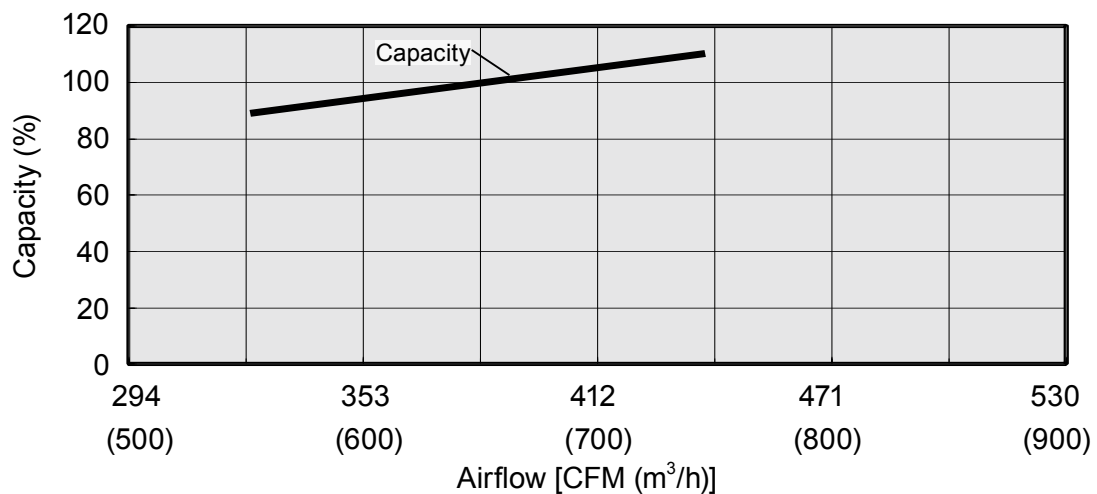
MODEL : ARU12RLF



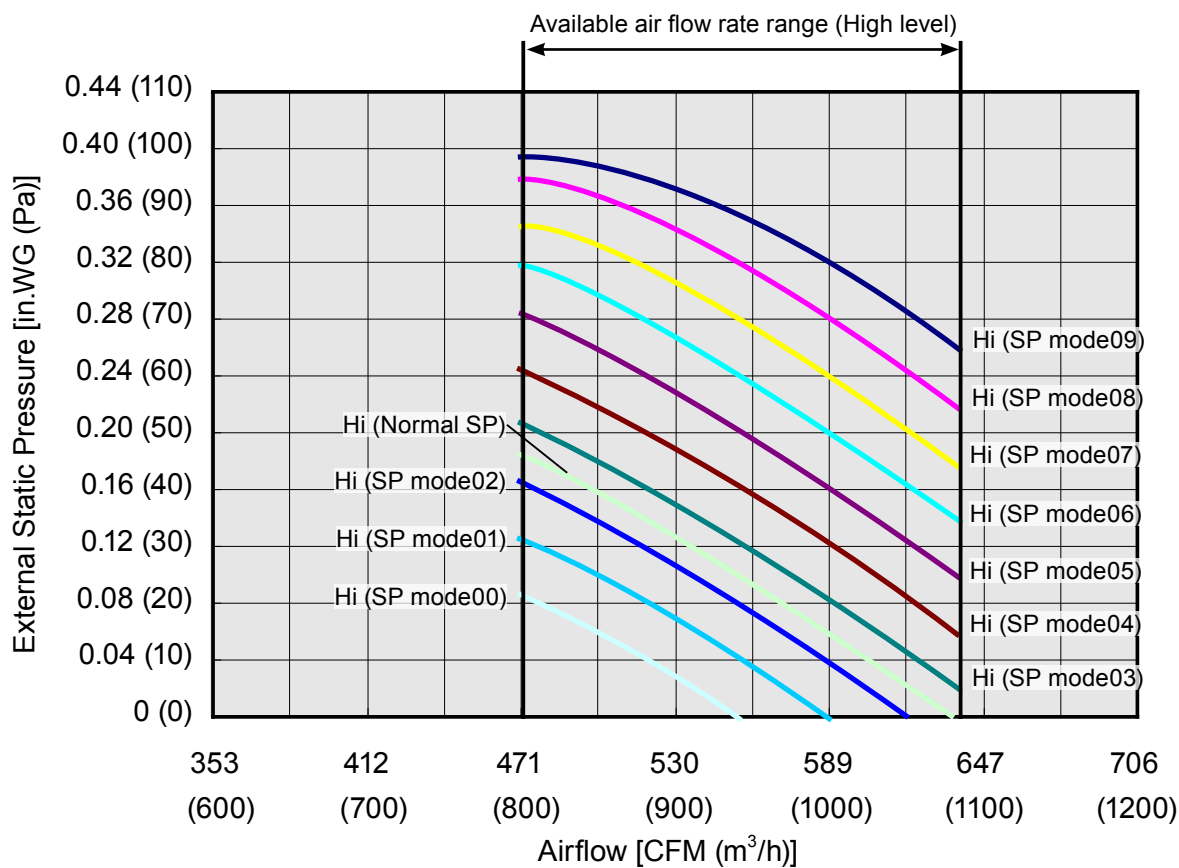
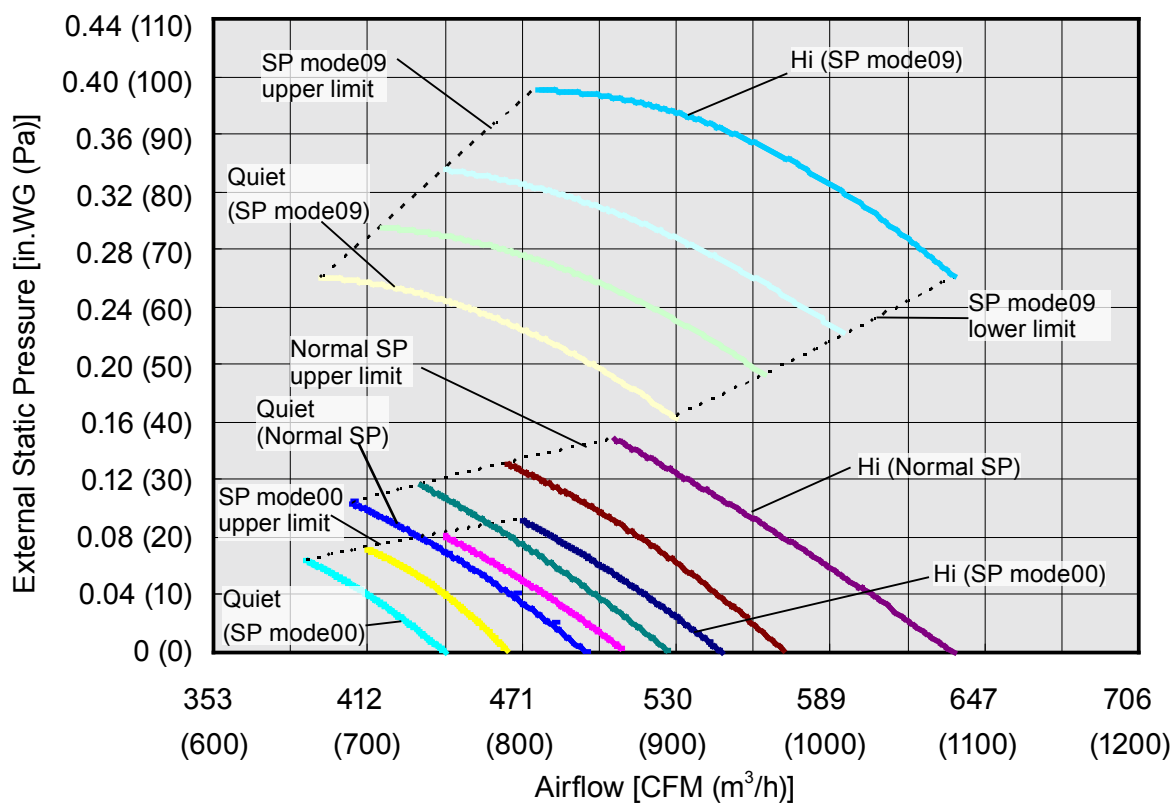
● Cooling



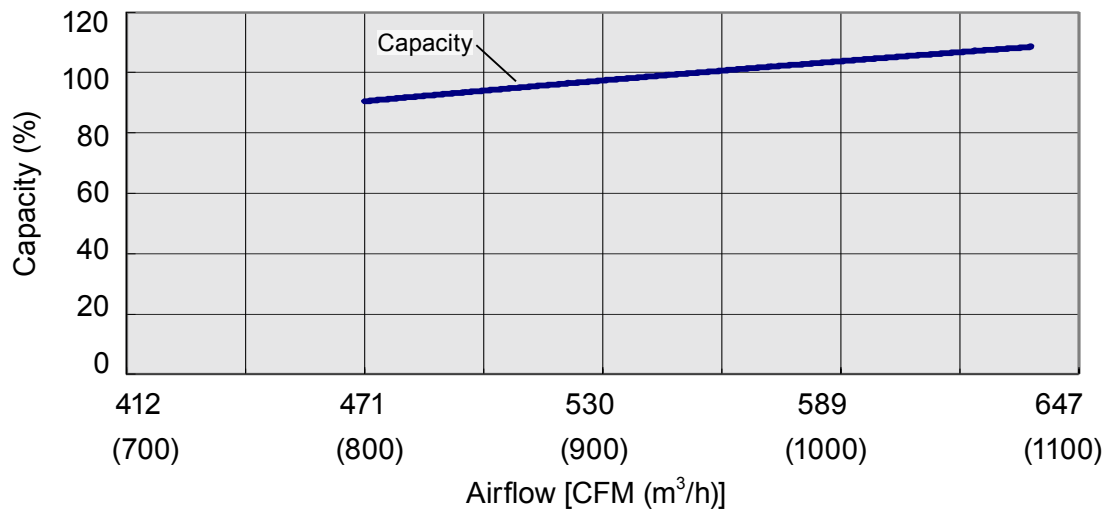
● Heating



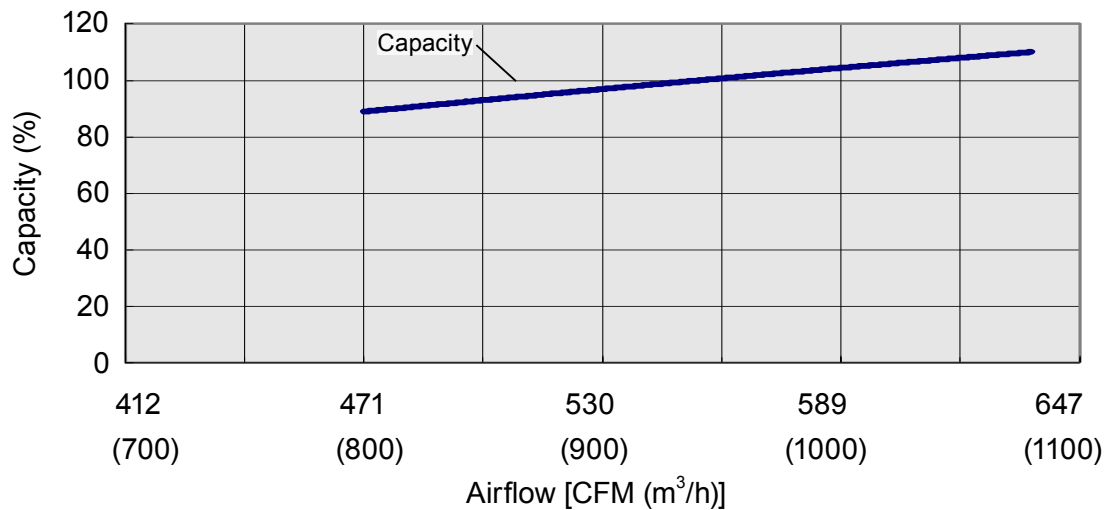
MODEL : ARU18RLF



● Cooling



● Heating



7-2. AIRFLOW

■ MODEL: ARU9RLF

● Cooling

Fan speed	Number of rotations (r.p.m.)	Airflow	
HIGH	1260	m ³ /h	600
		l/s	167
		CFM	353
MED	1160	m ³ /h	550
		l/s	153
		CFM	324
LOW	1060	m ³ /h	500
		l/s	139
		CFM	294
QUIET	960	m ³ /h	450
		l/s	125
		CFM	265

● Heating

Fan speed	Number of rotations (r.p.m.)	Airflow	
HIGH	1260	m ³ /h	600
		l/s	167
		CFM	353
MED	1160	m ³ /h	550
		l/s	153
		CFM	324
LOW	1060	m ³ /h	500
		l/s	139
		CFM	294
QUIET	960	m ³ /h	450
		l/s	125
		CFM	265

■ MODEL: ARU12RLF

● Cooling

Fan speed	Number of rotations (r.p.m.)	Airflow	
		m ³ /h	l/s
HIGH	1340	m ³ /h	650
		l/s	181
		CFM	383
MED	1240	m ³ /h	600
		l/s	167
		CFM	353
LOW	1140	m ³ /h	550
		l/s	153
		CFM	324
QUIET	1030	m ³ /h	480
		l/s	133
		CFM	283

● Heating

Fan speed	Number of rotations (r.p.m.)	Airflow	
		m ³ /h	l/s
HIGH	1340	m ³ /h	650
		l/s	181
		CFM	383
MED	1240	m ³ /h	600
		l/s	167
		CFM	353
LOW	1140	m ³ /h	550
		l/s	153
		CFM	324
QUIET	1030	m ³ /h	480
		l/s	133
		CFM	283

■ MODEL: ARU18RLF

● Cooling

Fan speed	Number of rotations (r.p.m.)	Airflow	
HIGH	1380	m ³ /h	940
		l/s	261
		CFM	554
MED	1300	m ³ /h	880
		l/s	224
		CFM	518
LOW	1220	m ³ /h	820
		l/s	228
		CFM	483
QUIET	1140	m ³ /h	750
		l/s	208
		CFM	442

● Heating

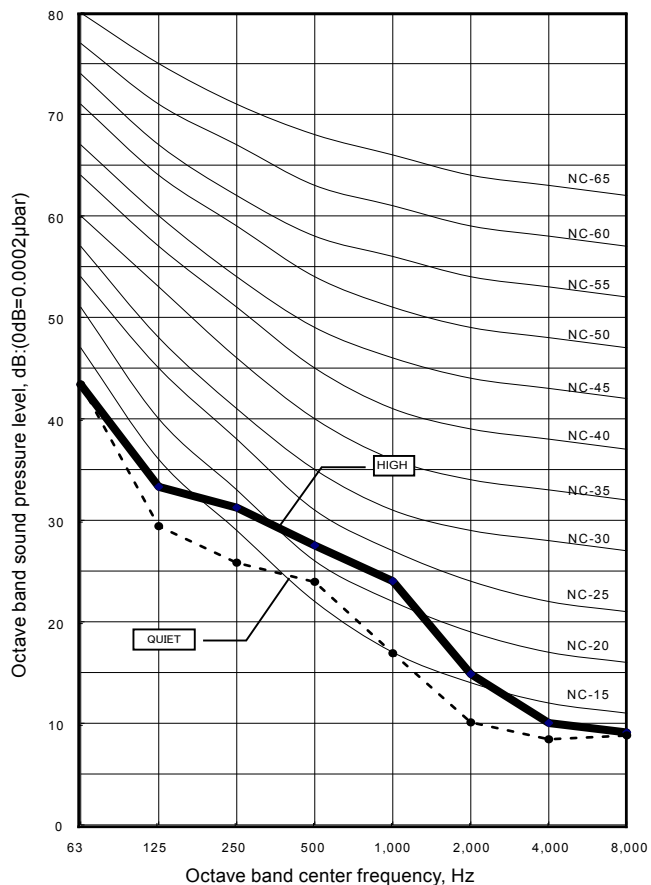
Fan speed	Number of rotations (r.p.m.)	Airflow	
HIGH	1380	m ³ /h	940
		l/s	261
		CFM	554
MED	1300	m ³ /h	880
		l/s	224
		CFM	518
LOW	1220	m ³ /h	820
		l/s	228
		CFM	483
QUIET	1140	m ³ /h	750
		l/s	208
		CFM	442

8. OPERATION NOISE (SOUND PRESSURE)

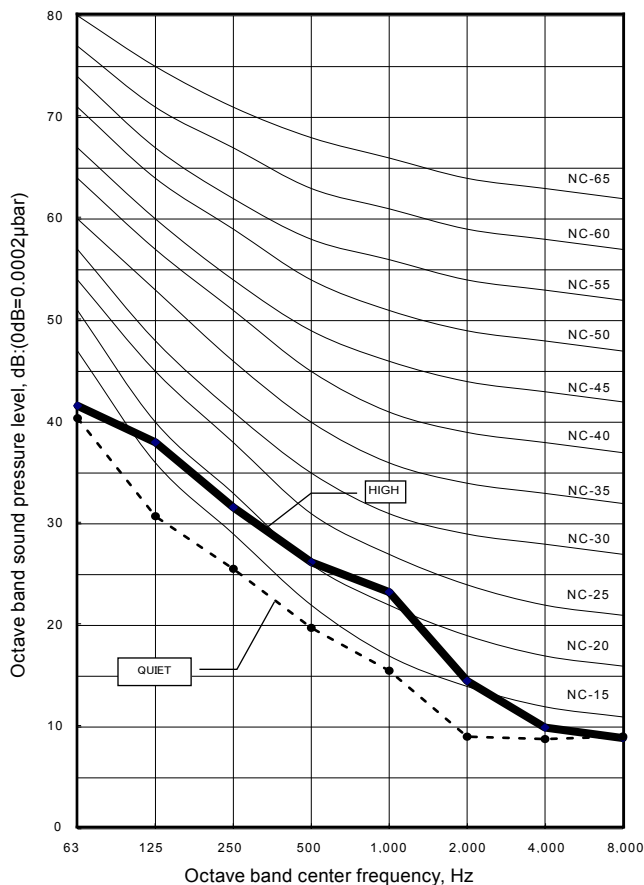
8-1. NOISE LEVEL CURVE

MODEL : ARU9RLF

● Cooling

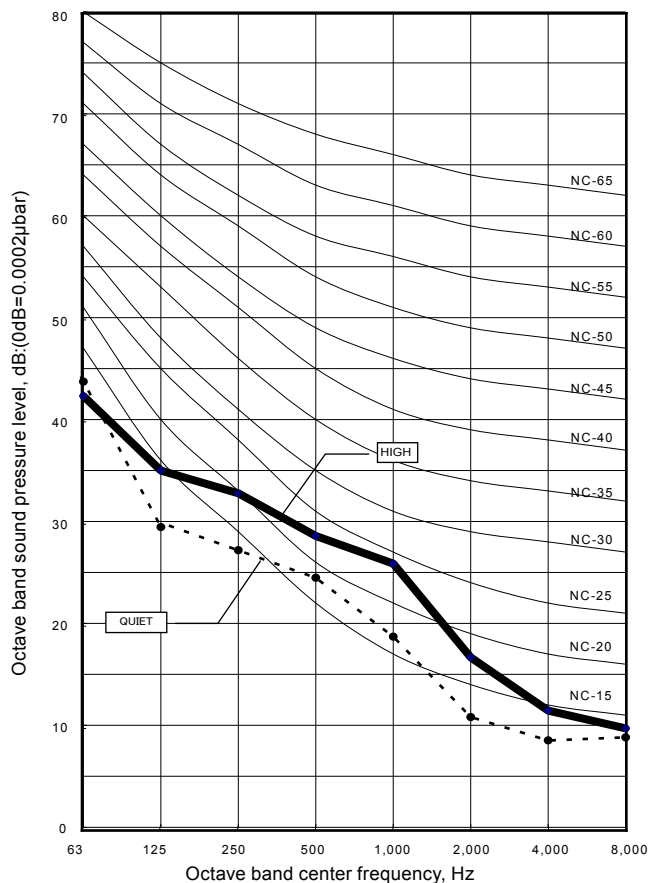


● Heating

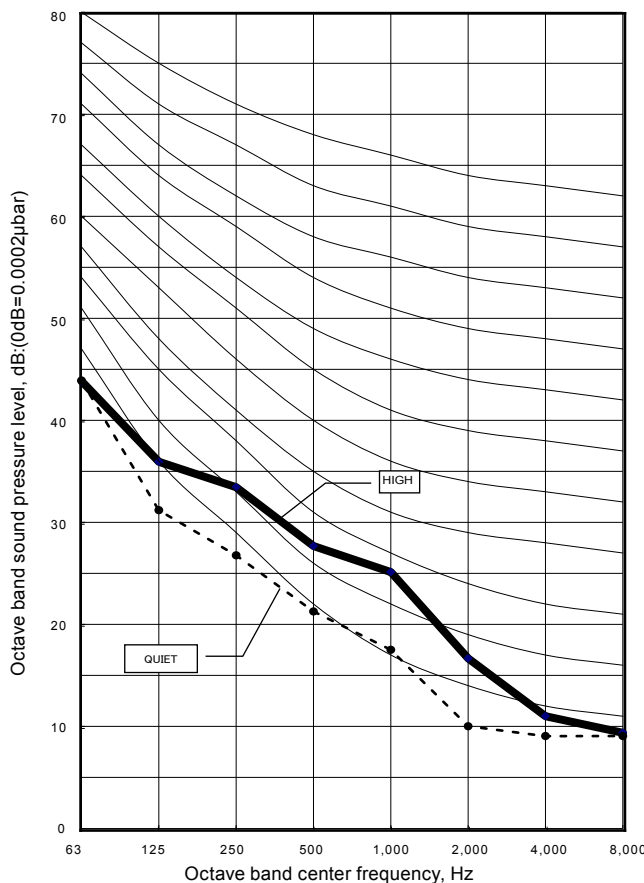


MODEL : ARU12RLF

● Cooling

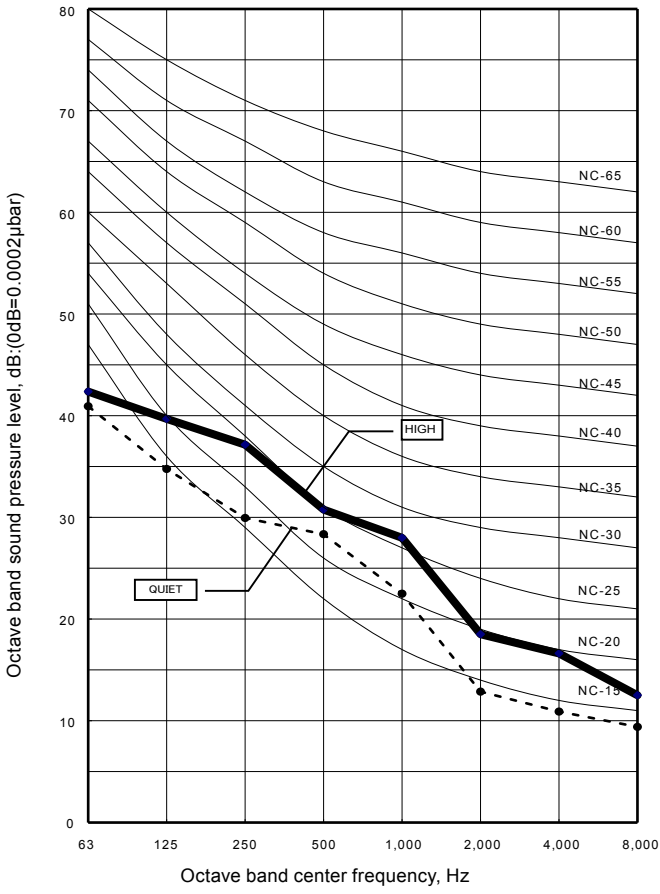


● Heating

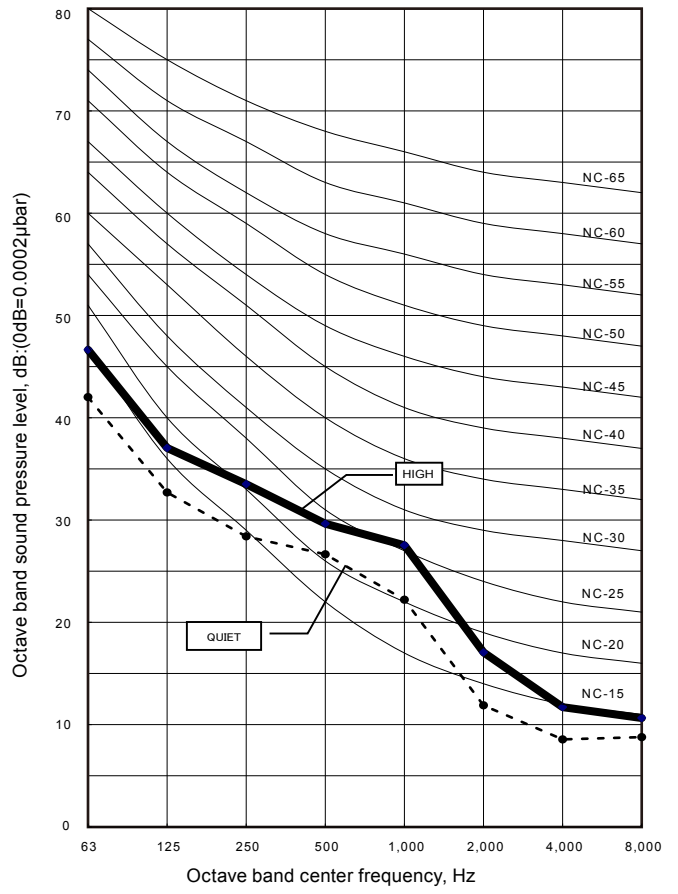


MODEL : ARU18RLF

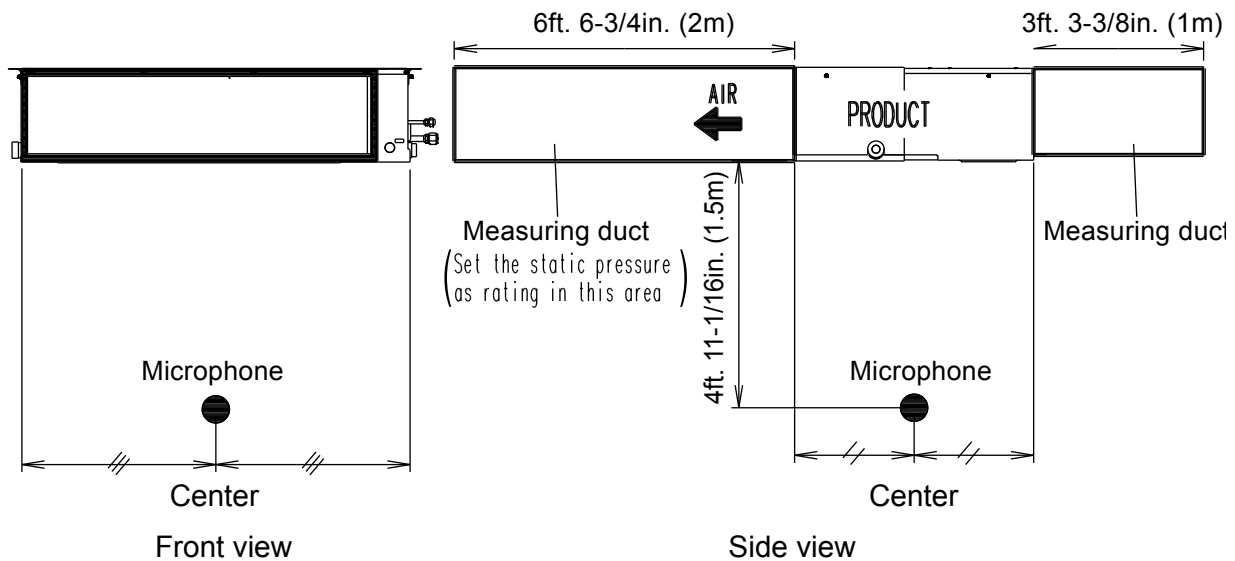
● Cooling



● Heating



8-2. SOUND LEVEL CHECK POINT



9. ELECTRIC CHARACTERISTICS

Model name			ARU9RLF	ARU12RLF	ARU18RLF
Power supply	Voltage	V	208/ 230 ~		
	Frequency	Hz	60		
Max. operating current (Indoor unit)		A	0.32	0.37	0.47
*1) Wiring Spec.	Connection cable	AWG	14		
	Limited wiring length	ft. (m)	85 (26)		

*1) Wiring Spec.
 Selected Sample
 (Selected based on Japan Electrotechnical Standards and Codes Committee E0005)

10. SAFETY DEVICES

	Protection form	Model		
		ARU9RLF	ARU12RLF	ARU18RLF
Circuit protection	Current fuse (PCB)	250V 3.15A		
Fan motor protection	Thermal protection program	OFF: 275±27°F (135±15°C) ON: 239±27°F (115±15°C)		

11. EXTERNAL INPUT & OUTPUT

Connector	INPUT	OUTPUT	REMARKS
CN102	Control input	—	See external input/output settings for details.
CN103	—	Operation status output	
CN6	—	Fresh air control output	
CN10	—	Auxiliary heater output	

11-1. EXTERNAL INPUT

■ CONTROL INPUT (Operation/Stop or Forced stop)

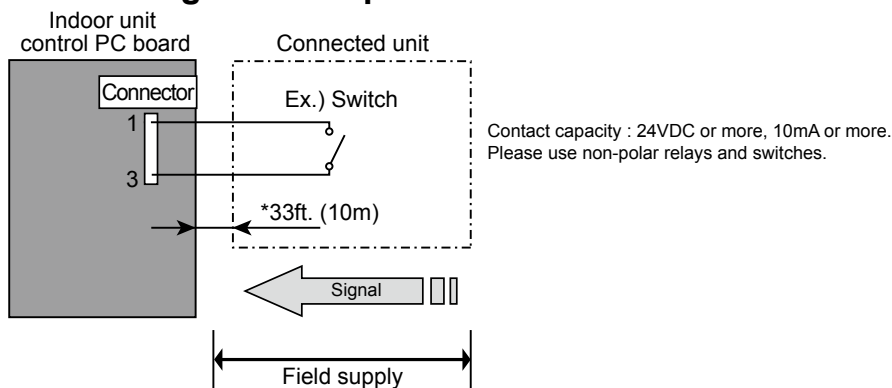
The air conditioner can be remotely operated by means of the following on-site work.

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

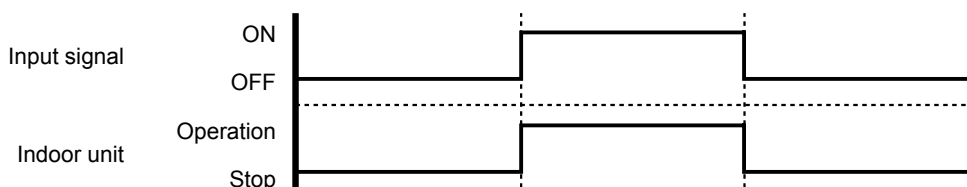
Unit operation is started at the following contents by adding the contact input of a commercial ON/OFF switch to a connector on the external control PC board and turning it ON.

Unit operation	Initial setting after power is ON	Starting mode other than initial setting
Operation mode	Auto changeover	Mode at previous operation
Set temperature	76°F (24°C)	Temperature at previous operation
Air flow mode	AUTO	Mode at previous operation
Up-down air direction (swing)	Standard air direction (swing OFF)	Air direction at previous operation
Left-right air direction (swing)	Standard air direction (swing OFF)	Air direction at previous operation

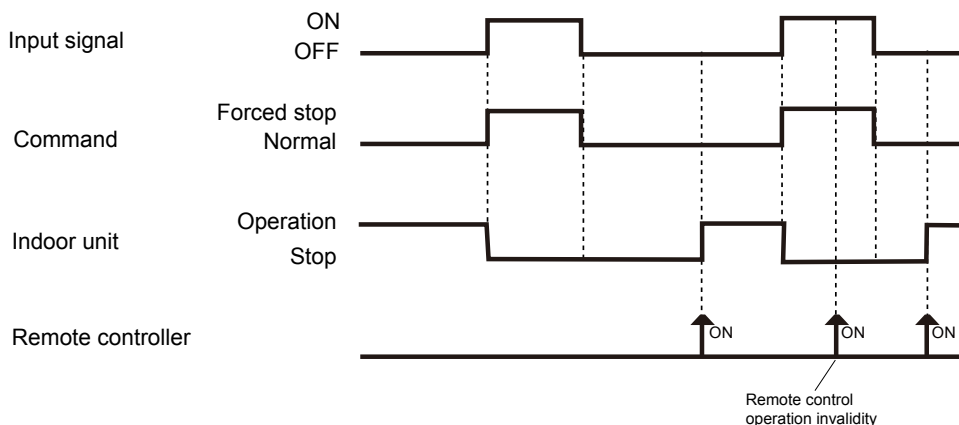
● Circuit diagram example



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



● When function setting is in "Forced stop" mode



● Parts (Optional)

Model name
UTD-ECS5A

Wire (External input)

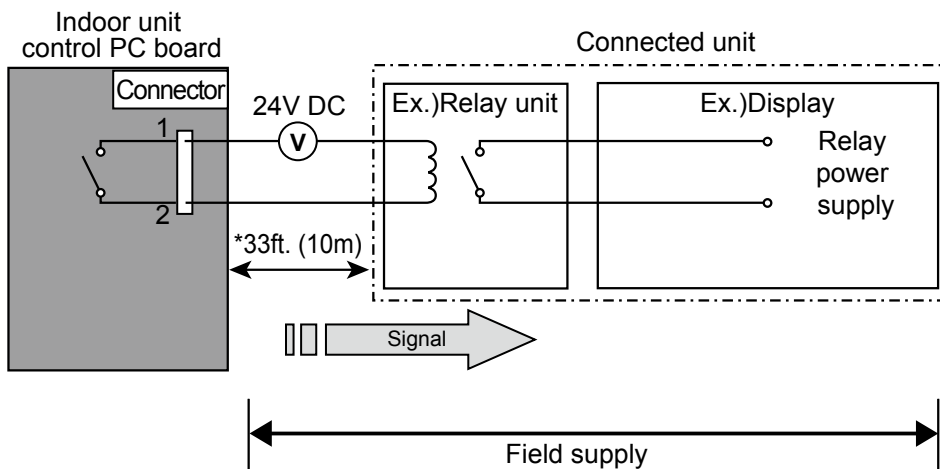


11-2. EXTERNAL OUTPUT

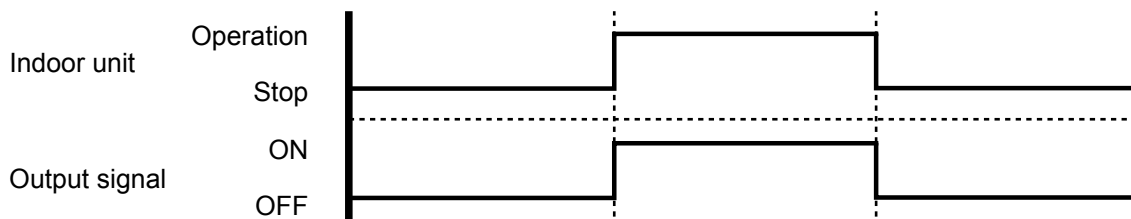
■ OPERATION STATUS OUTPUT

An air conditioner operation status signal can be output.

● Circuit diagram example



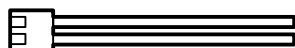
* Make the distance from the PC board to the connected unit within 33ft. (10m).
Relay spec. : Max.24VDC, 10mA to less than 500mA.



● Parts (Optional)

Model name
UTD-ECS5A

Wire (External output)

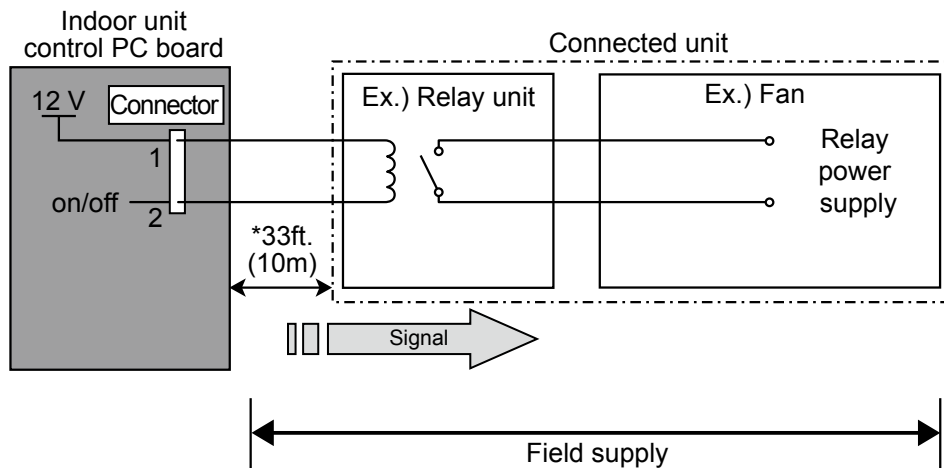


■ FRESH AIR CONTROL OUTPUT

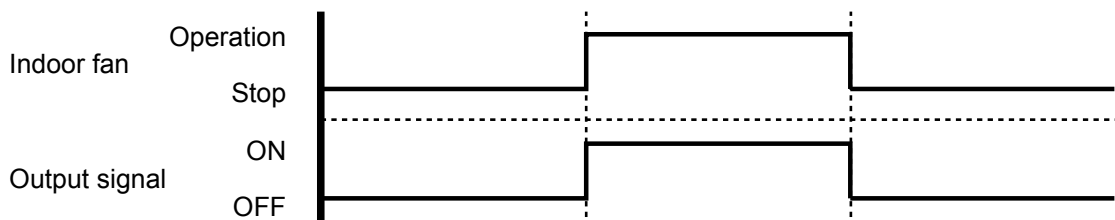
A signal linked to air conditioner indoor fan ON can be output.

* However, signal becomes OFF during cold air prevention control operation.

● Circuit diagram example



* Make the distance from the PC board to the connected unit within 33ft. (10m).
Relay spec. : Rated 12VDC, 50mA or less.



● Parts (Optional)

Model name
UTD-ECS5A

Wire (Fresh air output)



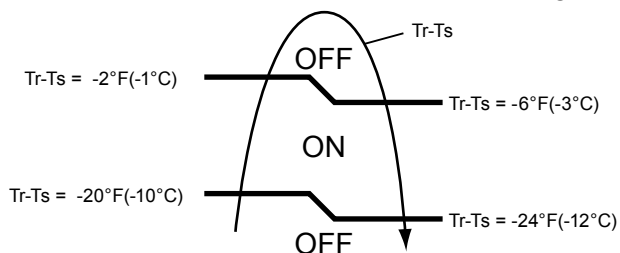
AUXILIARY HEATER OUTPUT

A signal is outputted from Connector when indoor fan and compressor is turned on under heating operation.

*Signal output performance specifications are as shown on the right

Ex. When Set Temperature(T_s) is 72°F(22°C) ;

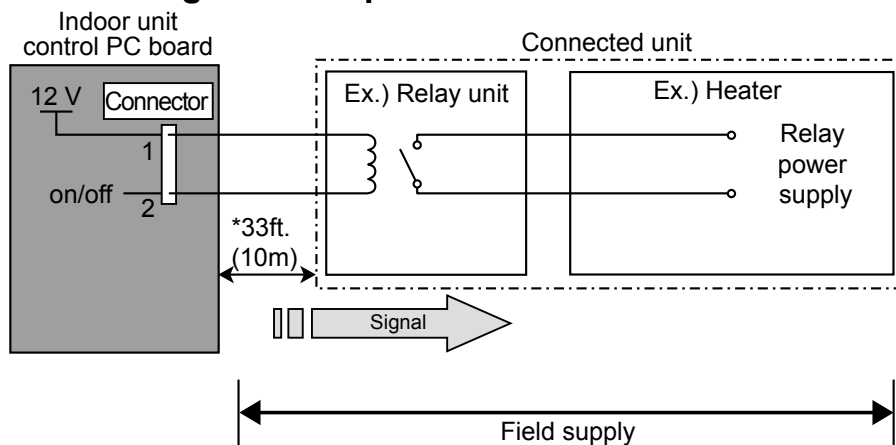
- and Room Temperature(T_r) increase above 52°F(12°C), signal output is on.
- and Room Temperature(T_r) increase above 70°F(21°C), signal output is off.
- and Room Temperature(T_r) decrease below 66°F(19°C), signal output is ON.
- and Room Temperature(T_r) decrease below 48°F(10°C), signal output is OFF.



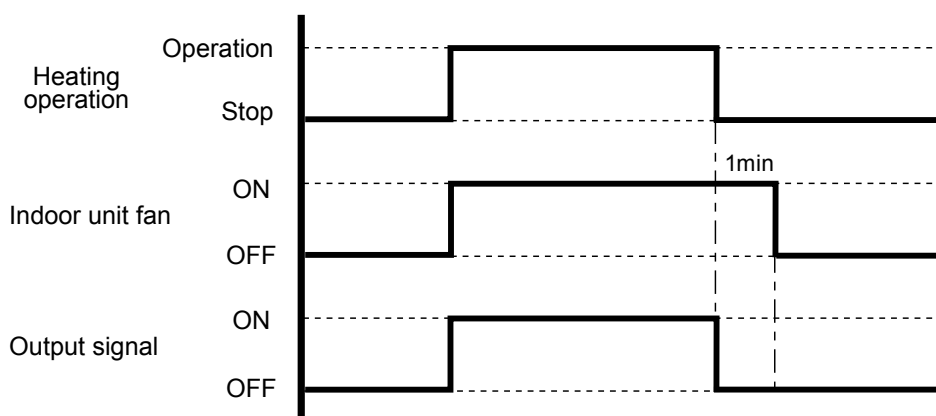
Jumper wire (Indoor Unit)

This is used to continue indoor unit fan operation for 1 minute after thermo OFF in heating mode. 1 minute delay control set by cutting jumper wire on PCB.

Circuit diagram example



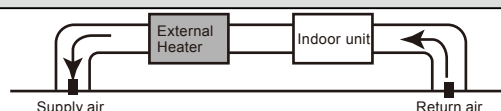
* Make the distance from the PC board to the connected unit within 33ft. (10m).
Relay spec. : Rated 12VDC, 50mA or less.



CAUTION

Please place an external heater between the indoor unit and the outlet.

Please be sure to use delay control of the fan.



Parts (Optional)

Model name
UTD-ECS5A

Wire (Heater output)



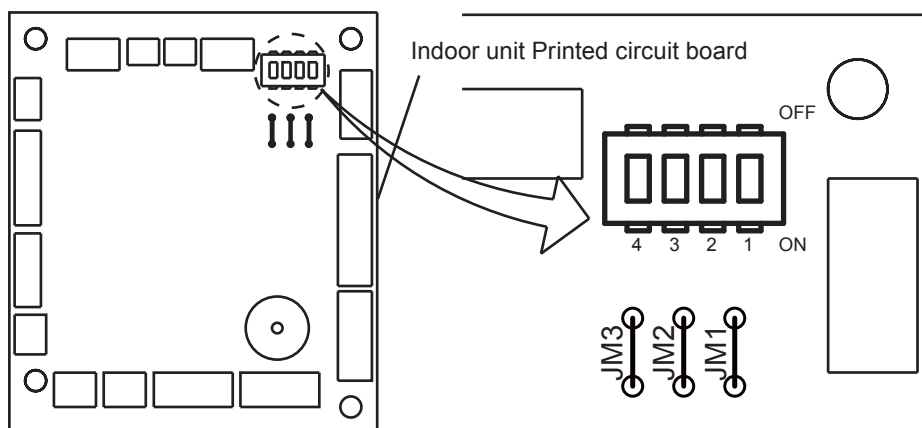
12. FUNCTION SETTINGS

12-1. INDOOR UNIT

INDOOR UNIT		
DIP SW	1	Remote controller address setting
	2	
	3	
	4	
Jumper Wire	JM1	Drainage function setting
	JM2	Setting forbidden
	JM3	Fan delay setting

■ SWITCH POSITION

MAIN PCB



■ DIP-SW SETTING

● Remote controller address setting

A number of indoor units can be operated at the same time using a wired remote controller. Set the unit number of each indoor unit using the DIP switches on the indoor unit circuit board. (See the following table.)

The DIP switches are normally set to make the unit number 00.

(◆...Factory setting)

Remote controller address setting	DIP switch No.			
	1	2	3	4
◆ 00	OFF	OFF	OFF	OFF
01	ON	OFF	OFF	OFF
02	OFF	ON	OFF	OFF
03	ON	ON	OFF	OFF
04	OFF	OFF	ON	OFF
05	ON	OFF	ON	OFF
06	OFF	ON	ON	OFF
07	ON	ON	ON	OFF
08	OFF	OFF	OFF	ON
09	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

■ JUMPER WIRE SETTING

● Drainage function setting (JM1)

(◆...Factory setting)

	JM1	Drainage function
◆	Connect	Valid
	Disconnect	Invalid

● Setting forbidden (JM2)

● Fan delay setting (JM3)

(◆...Factory setting)

	JM3	Fan delay
◆	Connect	Invalid
	Disconnect	Valid

12-2. 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 or Setting Value.
- Settings will not be changed if invalid numbers or setting values are selected.

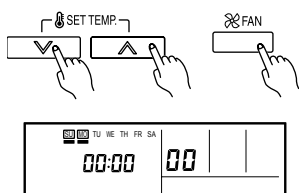
■ PREPARATION

- Turn on the power.
 - * Before turning on the power of the indoor units, make sure the piping air-tight test and vacuuming have been conducted.
 - * Also check again to make sure no wiring mistakes were made before turning on the power.

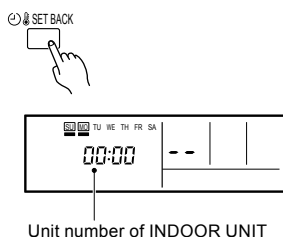
■ FUNCTION SETTING METHOD (for Wired remote controller)

● Setting method

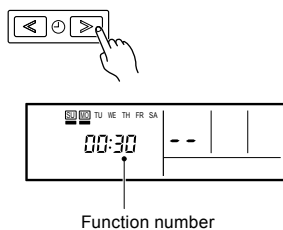
(1) Press the SET TEMP. buttons (▼) (▲) and FAN button simultaneously for more than 5 seconds to enter the function setting mode.



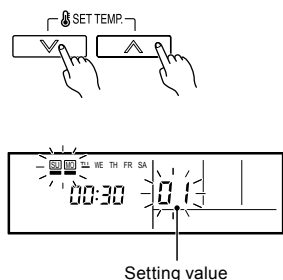
2) Press the SET BACK button to select the indoor unit number.



3) Press the Set time buttons to select the function number.



(4) Press the SET TEMP. buttons (▼) (▲) to select the setting value. The display flashes during setting value selection.



- (5) Press the TIMER SET button to confirm the setting. Press the TIMER SET button for a few seconds until the setting value stops flashing. If the setting value display changes or if “-” is displayed when the flashing stops, the setting value has not been set correctly. (An invalid setting value may have been selected for the indoor unit.)
- (6) Repeat steps 2 to 5 to perform additional settings. Press the SET TEMP. buttons (▼) (▲) and FAN control button simultaneously again for more than 5 seconds to cancel the function setting mode. In addition, the function setting mode will be automatically canceled after 1 minute if no operation is performed.
- (7) 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 it on again. The Function Setting will not become active unless the power is turned off then on again.

■ CONTENTS OF FUNCTION SETTING

- Follow the instructions in the Local Setup Procedure, which is supplied with the remote controller, in accordance with the installed condition.
After the power is turned on, perform the Function Setting on the remote controller.
- The settings may be selected between the following two: Function Number or Setting Value.
- Settings will not be changed if invalid numbers or setting values are selected.

1)	Filter sign
2)	Static pressure
3)	Cooler room temperature correction
4)	Heater room temperature correction
5)	Auto restart
6)	Indoor room temperature sensor switching function
7)	Remote controller signal code
8)	External input control

1) Filter sign

The indoor unit has a sign to inform the user that it is time to clean the filter. Select the time setting for the filter sign display interval in the table below according to the amount of dust or debris in the room. If you do not wish the filter sign to be displayed, select the setting value for "No indication".

(◆... Factory setting)

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

◆

2) Static pressure

Select appropriate static pressure according to the installation conditions.

(◆... Factory setting)

Setting description	Function number	Setting value
0 in.WG (0 Pa)	26	00
0.04 in.WG (10 Pa)		01
0.08 in.WG (20 Pa)		02
0.12 in.WG (30 Pa)		03
0.16 in.WG (40 Pa)		04
0.20 in.WG (50 Pa)		05
0.24 in.WG (60 Pa)		06
0.28 in.WG (70 Pa)		07
0.32 in.WG (80 Pa)		08
0.36 in.WG (90 Pa)		09
0.10 in.WG (25 Pa) [Standard]		31

◆

3) Cooler room temperature correction

Depending on the installed environment, the room temperature sensor may require a correction.

The settings may be selected as shown in the table below.

(◆... Factory setting)

Setting description	Function number	Setting value
Standard	30	00
Slightly lower control		01
Lower control		02
Warmer control		03

◆

When using floor console installation, change the setting value to "01".

4) Heater room temperature correction

Depending on the installed environment, the room temperature sensor may require a correction.

The settings may be changed as shown in the table below.

(◆... Factory setting)

Setting description	Function number	Setting value
◆ Standard	31	00
Lower control		01
Slightly warmer control		02
Warmer control		03

When using floor console installation, change the setting value to "01".

5) Auto restart

Enable or disable automatic system restart after a power outage.

(◆... Factory setting)

Setting description	Function number	Setting value
◆ Yes	40	00
No		01

*Auto restart is an emergency function such as for power failure etc.
Do not start and stop the indoor unit by this function in normal operation.
Be sure to operate by the control unit, or external input device.

6) Indoor room temperature sensor switching function

(Only for Wired remote controller)

The following settings are needed when use the control by Wired remote controller temperature sensor.

(◆... Factory setting)

Setting description	Function number	Setting value
◆ No	42	00
Yes		01

*If setting value is "00" :
Room temperature is controlled by the indoor unit temperature sensor.

*If setting value is "01" :
Room temperature is controlled by either indoor unit temperature sensor or remote controller unit sensor.

7) Remote controller signal code

Change the indoor unit Signal Code, depending on the remote controllers.

(◆... Factory setting)

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

8) External input control

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

(◆... Factory setting)

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

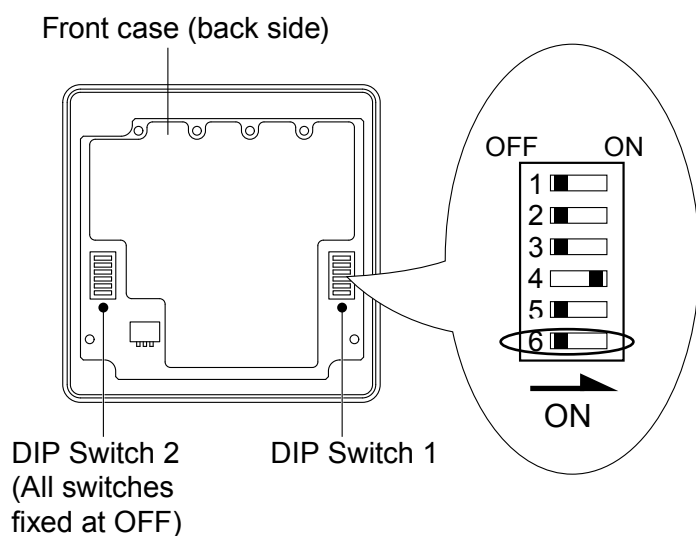
12-3. WIRED REMOTE CONTROLLER

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

* Do not use DIP Switch 2

■ SWITCH POSITION

● Wired remote controller



■ DIP SWITCH 1 SETTING

● SW1 setting forbidden

(◆...Factory setting)

◆	SW1	
	OFF	Fixed at OFF
	ON	Setting forbidden

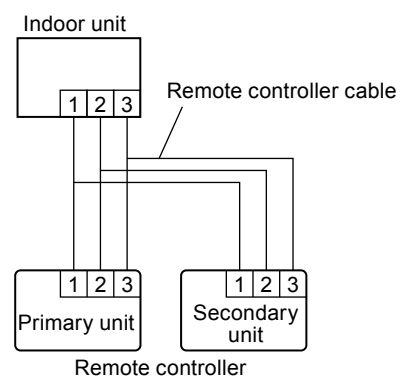
● SW2 setting

● Dual remote controller setting

Set the remote controller SW2 according to the following table.

(◆...Factory setting)

◆	Number of remote controller	Primary unit	Secondary unit
		SW2	SW2
	1 (Normal)	OFF	-
	2 (Dual)	OFF	ON



● SW3 setting forbidden

(◆...Factory setting)

◆	SW3	
	OFF	Fixed at OFF
	ON	Setting forbidden

● SW4 setting

● °F / °C switch

Temperature display is Fahrenheit(°F) / Celsius(°C)

(◆...Factory setting)

◆	SW4	
	OFF	°C
	ON	°F

● SW5 setting forbidden

(◆...Factory setting)

SW5	
OFF	Fixed at OFF
ON	Setting forbidden

● SW6 setting

● Memory backup setting (Wired remote controller only)

Set to ON to use batteries for the memory backup.

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

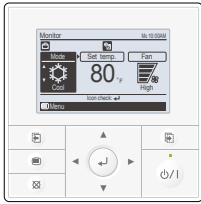
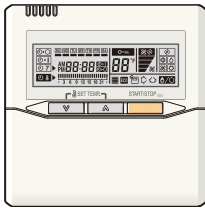


(◆...Factory setting)

SW6	Memory backup
OFF	Invalidity
ON	Validity

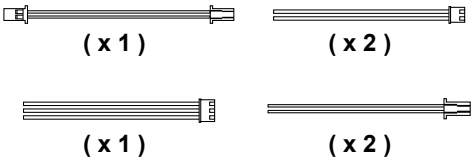

Never turn it ON in the case of simple remote controller.

13. OPTIONAL PARTS

13-1. CONTROLLERS

Exterior	Parts name	Model No.	Summary
	Wired remote controller	UTY-RVNUM	Large and full-dot liquid crystal screen, wide and large keys easy to press, user-intuitive arrow key.
	Wired remote controller	UTY-RNNUM	The room temperature can be controlled by detecting the temperature accurately with built-in thermo sensor.
	Simple remote controller	UTY-RSNUM	Compact remote controller concentrates on the basic functions such as Start/Stop, Fan Control, Temperature Setting and Operation mode.
	IR receiver unit	UTY - LRHUM	Unit control is performed by wireless remote controller.

13-2. OTHERS

Exterior	Parts name	Model No.	Summary
	External control set	UTD-ECS5A	Use to connect with various peripheral devices and air conditioner PC board. (Set of 6)
	Remote sensor unit	UTY-XSZX	New amenity space can be offered by installing the Remote sensor in the remote controller.

2. OUTDOOR UNIT

SINGLE TYPE :

AOU9RLFC

AOU12RLFC

AOU18RLFC

CONTENTS

2. OUTDOOR UNIT

1. SPECIFICATIONS.....	02 - 01
2. DIMENSIONS	02 - 02
3. REFRIGERANT CIRCUIT	02 - 03
4. WIRING DIAGRAMS.....	02 - 04
5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE	02 - 06
6. ADDITIONAL CHARGE CALCULATION.....	02 - 08
7. AIRFLOW	02 - 09
8. OPERATION NOISE (SOUND PRESSURE).....	02 - 11
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8-2. SOUND LEVEL CHECK POINT	02 - 13
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1. SPECIFICATIONS

OUTDOOR UNIT
AOU9-18RLFC

OUTDOOR UNIT
AOU9-18RLFC

Type				INVERTER HEAT PUMP			
Model name				AOU9RLFC	AOU12RLFC	AOU18RLFC	
Power source				208 / 230V ~ 60Hz			
Available voltage range				187 - 253V ~ 60Hz			
Starting current				A	4.1	6.7	7.7
Fan	Airflow rate	Cooling	CFM (m ³ /h)	794 (1350)	1206 (2050)	[ARU18RLF] 1206 (2050)	
		Heating		989 (1680)	1083 (1840)	[AUU18RLF] 1457 (2475)	
	Type × Q'ty		Propeller fan × 1				
	Motor output		W	115			
Sound pressure level		Cooling	dB (A)	44	49	[ARU18RLF] 52	
		Heating		49	50	[AUU18RLF] 54	
Heat exchanger type		Dimensions (H × W × D)	in.	23-5/32 × 34-11/16 × 1-7/16			
			mm	588 × 881 × 36.4			
		Fin pitch	FPI	20			
		Rows × Stages	2 × 28				
		Pipe type	Copper				
		Fin Type	Aluminum				
Compressor	Type × Q'ty		Rotary × 1				
	Motor output		W	850	1000		
Refrigerant		Type	R410A				
		Charge	lbs.oz.	2lbs.10oz.	2lbs.14oz.		
			kg	1.20	1.30		
Refrigerant oil		Type	FREOL α68SZ				
Enclosure		Material	Steel				
		Color	Beige Approximate color of MUNSSELL 10YR7.5/1.0				
Dimensions (H × W × D)	Net	in.		24 - 1/2 × 31 - 3/32 × 11 - 11/32			
		mm		620 × 790 × 290			
	Gross	in.		28 - 1/16 × 37-7/32 × 15 - 9/16			
		mm		713 × 945 × 395			
Weight	Net	lbs.(kg)	84 (38)		86 (39)		
	Gross		93 (42)		95 (43)		
Connention pipe	Size	Liquid	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		ft. (m)	66 (20)			
	Max. height difference			49 (15)			
Operation range		Cooling	14 to 115 (-10 to 46)				
		Heating	-5 to 75 (-21 to 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.7in (7.5m), Height difference:0 m. (Outdoor unit - Indoor unit)

The protective function may work when using it outside the operation range.

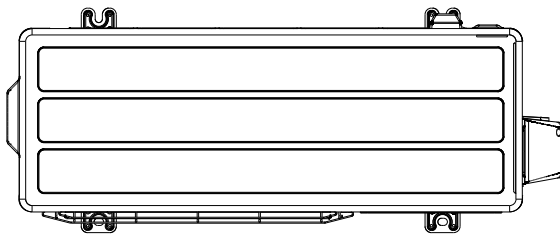
2. DIMENSIONS

■ MODEL: AOU9RLFC, AOU12RLFC, AOU18RLFC

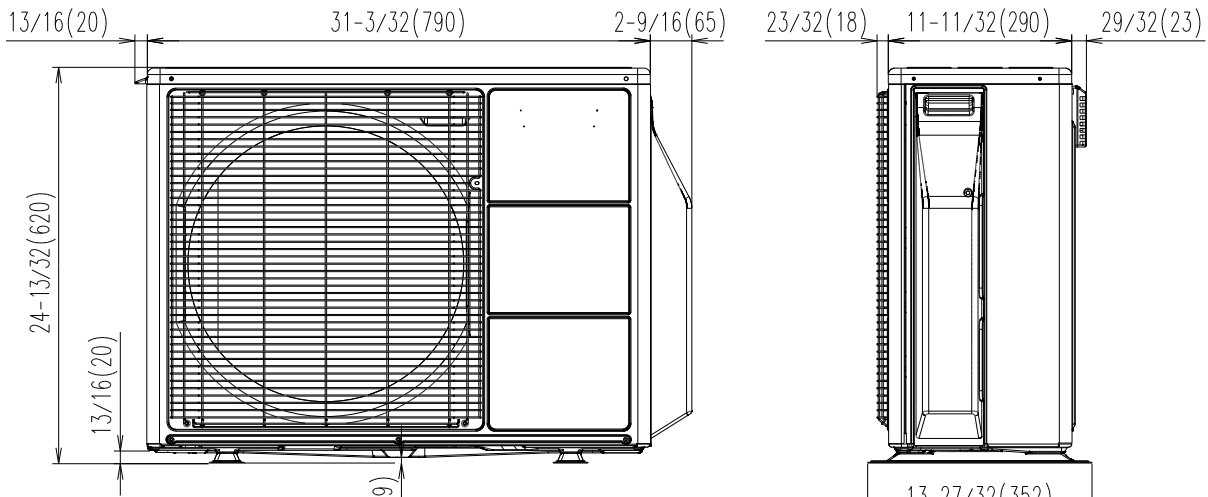
Unit : in. (mm)

OUTDOOR UNIT
AOU9-18RLFC

OUTDOOR UNIT
AOU9-18RLFC

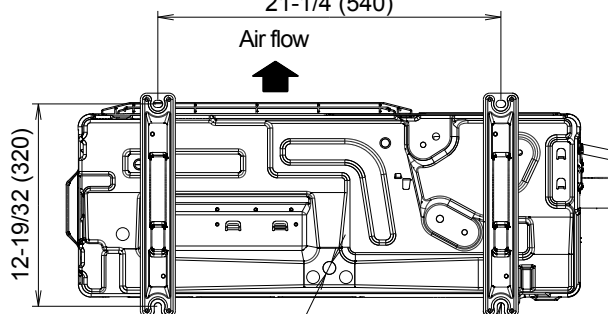


Top view

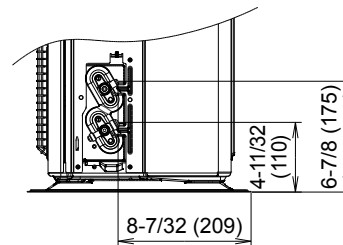


Front view

Side view



Bottom view

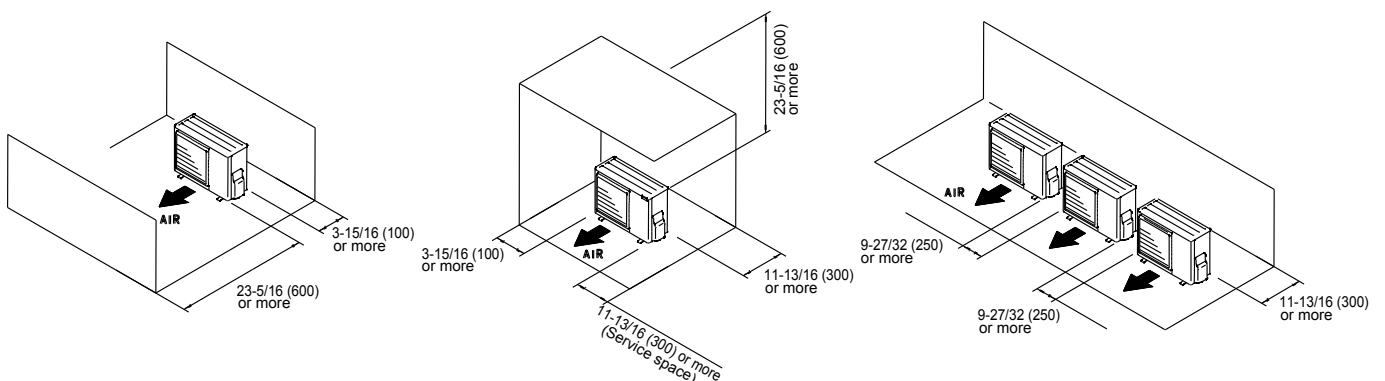


■ INSTALLATION PLACE

When there are obstacles at the back or front sides.

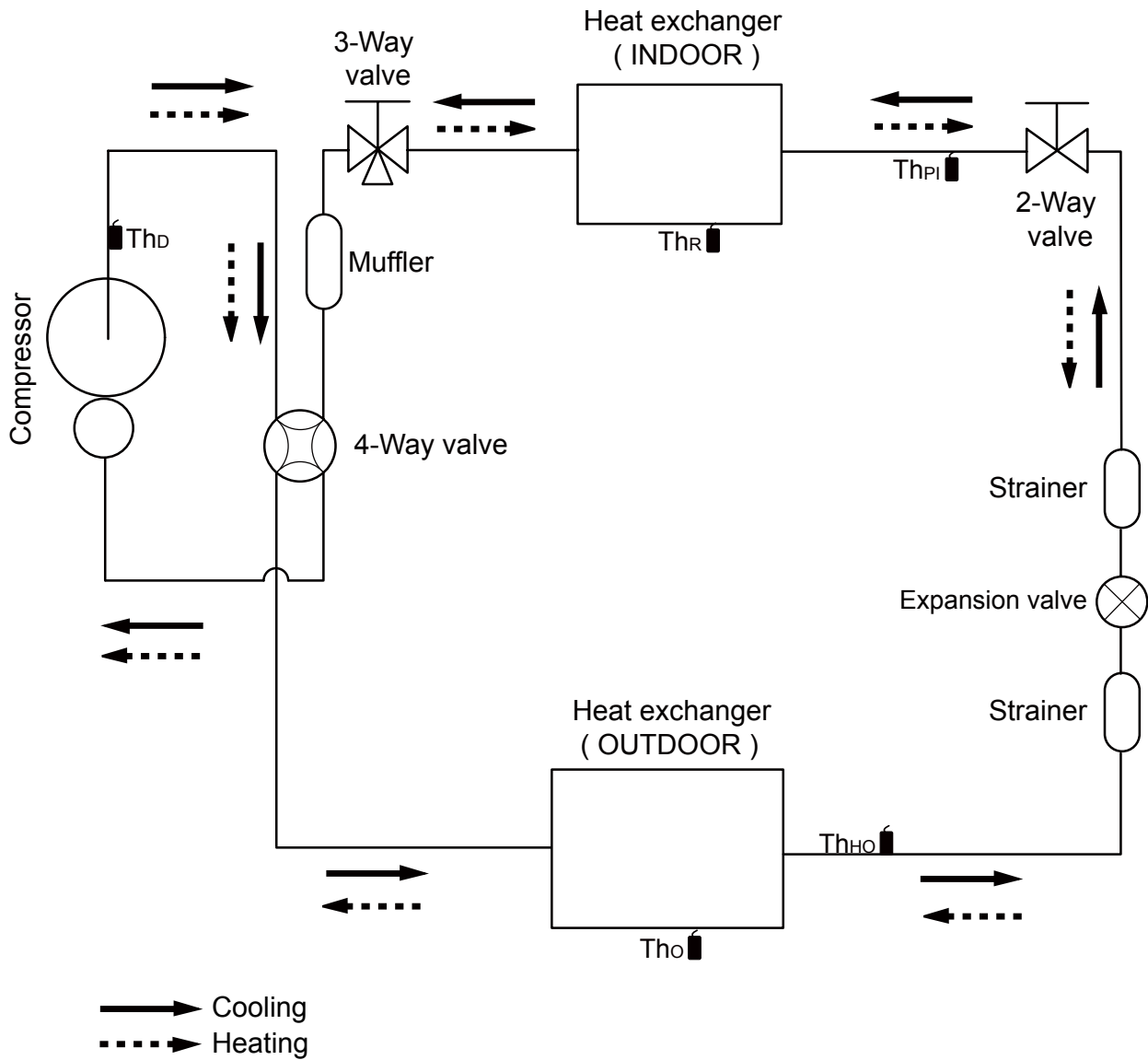
When there are obstacles at the back, side(s), and top.

When there are obstacles at the back, side with the installation of more than one unit.



3. REFRIGERANT CIRCUIT

■ MODEL: AOU9RLFC, AOU12RLFC, AOU18RLFC



- 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.)

Refrigerant pipe diameter

Liquid : 1/4" (6.35 mm)

Gas : 3/8" (9.52 mm) : 9/12RLFC

1/2" (12.70 mm) : 18RLFC

OUTDOOR UNIT
AOU9-18RLFC

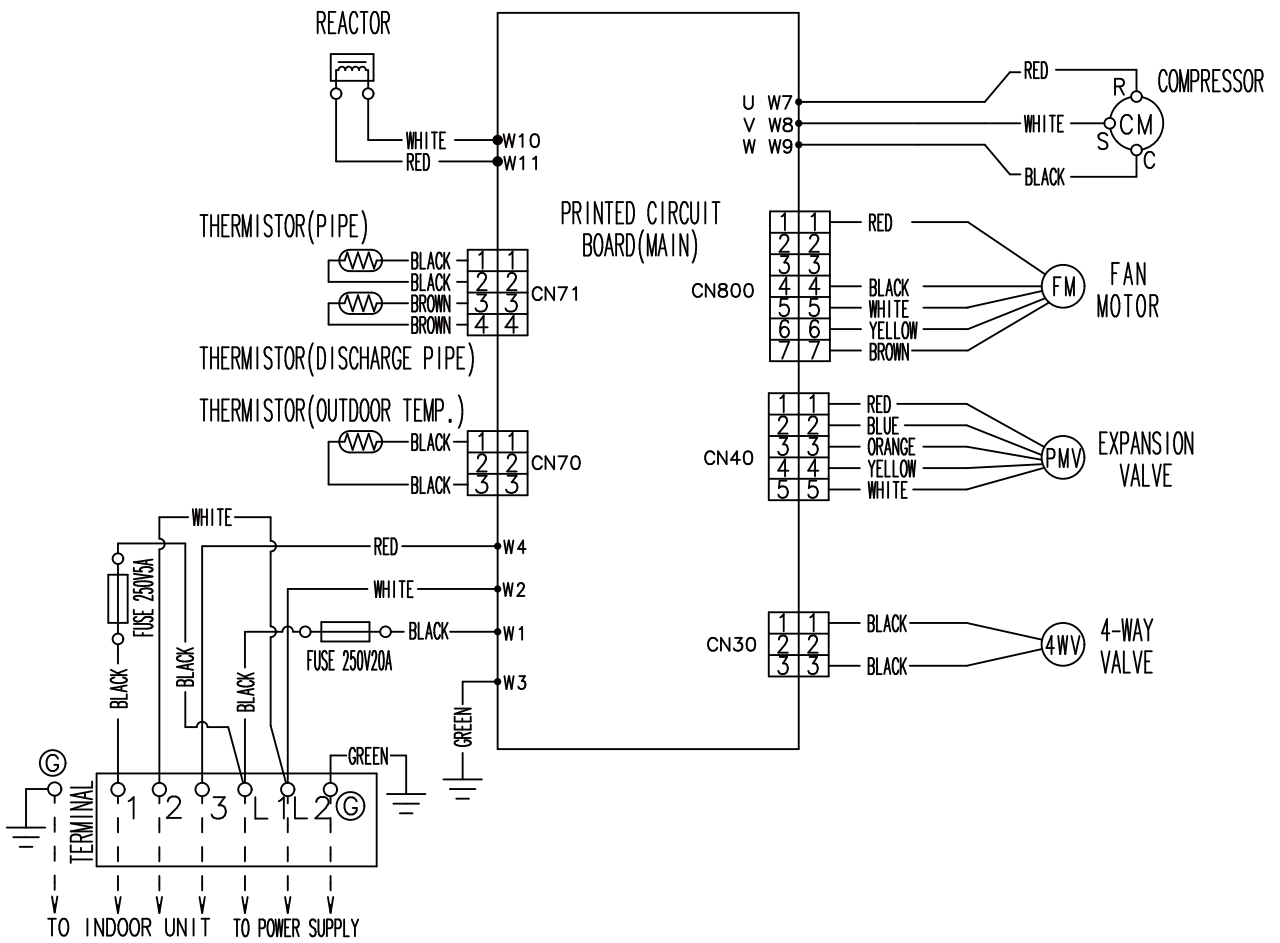
OUTDOOR UNIT
AOU9-18RLFC

4. WIRING DIAGRAMS

■ MODEL: AOU9RLFC, AOU12RLFC

OUTDOOR UNIT
AOU9-18RLFC

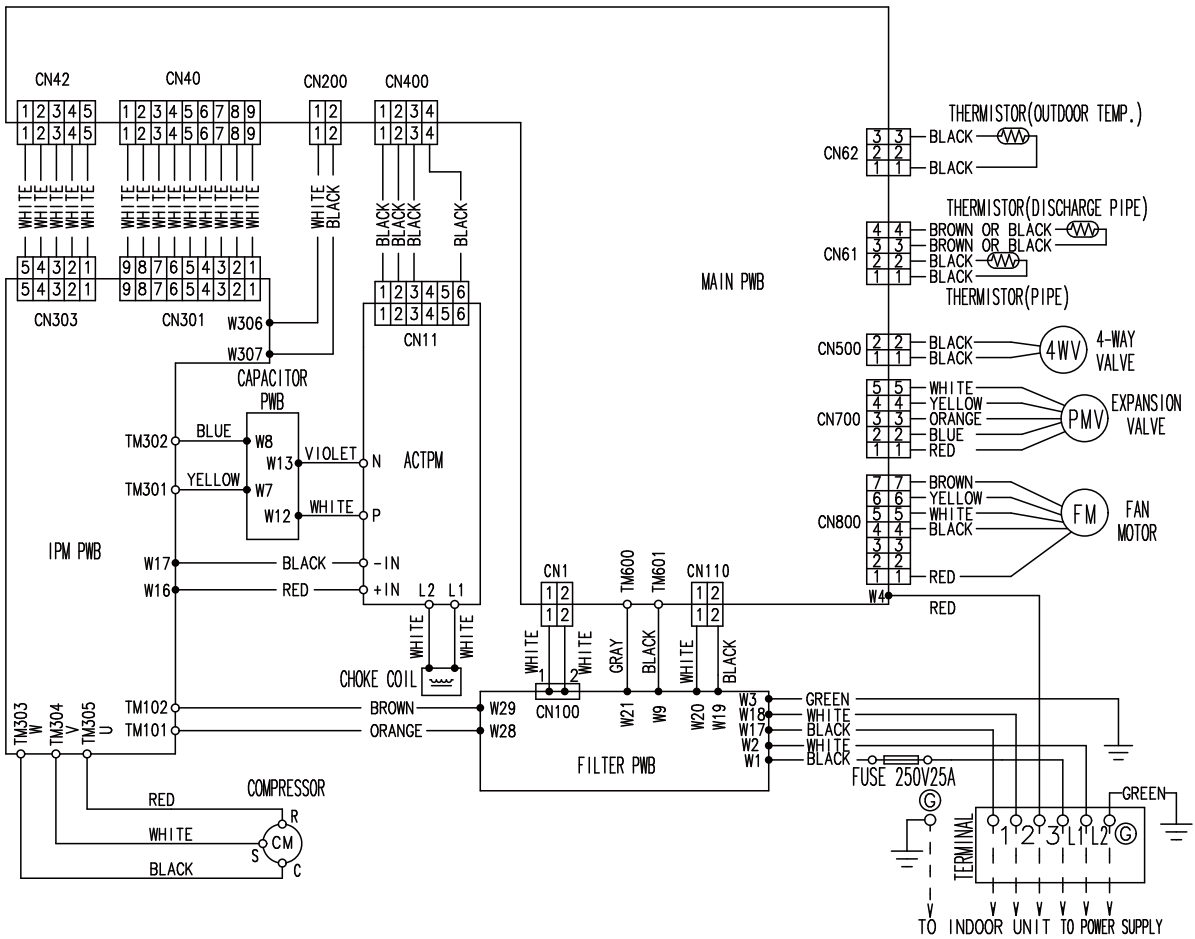
OUTDOOR UNIT
AOU9-18RLFC



MODEL: AOU18RLFC

OUTDOOR UNIT
AOU9-18RLFC

OUTDOOR UNIT
AOU9-18RLFC



5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

MODEL: AOU9RLFC, AOU12RLFC

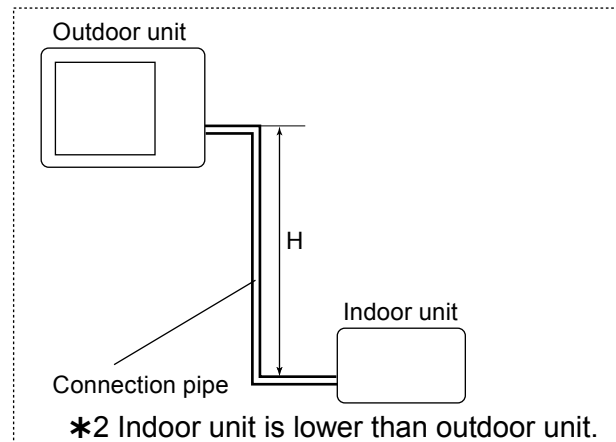
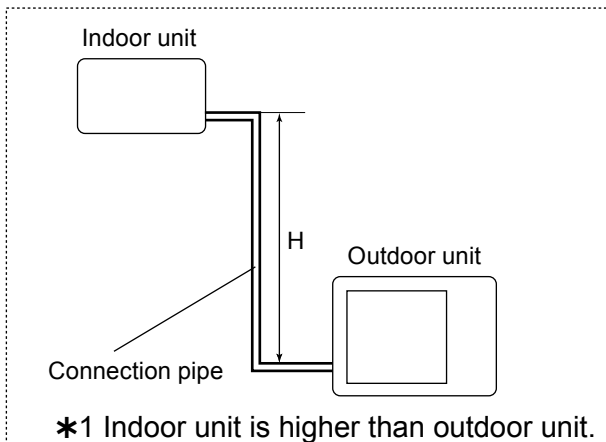
OUTDOOR UNIT
AOU9-18RLFC

OUTDOOR UNIT
AOU9-18RLFC

COOLING				Pipe length				
				5m	7.5m	10m	15m	20m
				17ft.	25ft.	33ft.	50ft.	67ft.
Height difference H	*1 Indoor unit is higher than outdoor unit.	15m	50ft.	-	-	-	0.877	0.874
		10m	33ft.	-	-	0.956	0.891	0.888
		7.5m	25ft.	-	0.988	0.960	0.895	0.892
		5m	17ft.	1.017	0.992	0.964	0.899	0.895
	*2 Indoor unit is lower than outdoor unit	0m	0ft.	1.025	1.000	0.971	0.906	0.902
		-5m	-17ft.	1.025	1.000	0.971	0.906	0.902
		-7.5m	-25ft.	-	1.000	0.971	0.906	0.902
		-10m	-33ft.	-	-	0.971	0.906	0.902
		-15m	-50ft.	-	-	-	0.906	0.902

HEATING				Pipe length				
				5m	7.5m	10m	15m	20m
				17ft.	25ft.	33ft.	50ft.	67ft.
Height difference H	*1 Indoor unit is higher than outdoor unit.	15m	50ft.	-	-	-	0.933	0.925
		10m	33ft.	-	-	0.981	0.933	0.925
		7.5m	25ft.	-	1.000	0.981	0.933	0.925
		5m	17ft.	1.017	1.000	0.981	0.933	0.925
	*2 Indoor unit is lower than outdoor unit	0m	0ft.	1.017	1.000	0.981	0.933	0.925
		-5m	-17ft.	1.012	0.995	0.976	0.928	0.920
		-7.5m	-25ft.	-	0.993	0.974	0.926	0.918
		-10m	-33ft.	-	-	0.971	0.923	0.916
		-15m	-50ft.	-	-	-	0.914	0.906

Height difference H



MODEL: AOU18RLFC

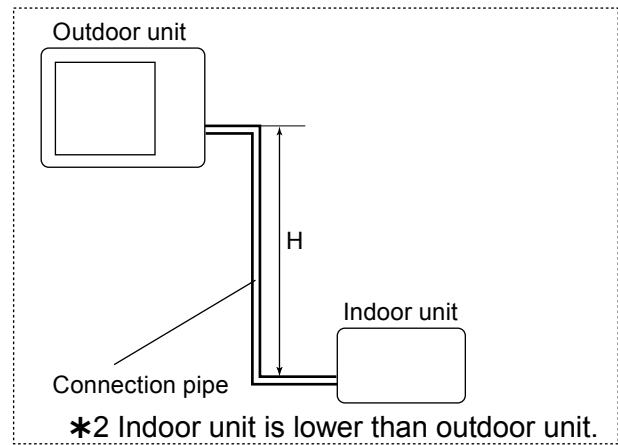
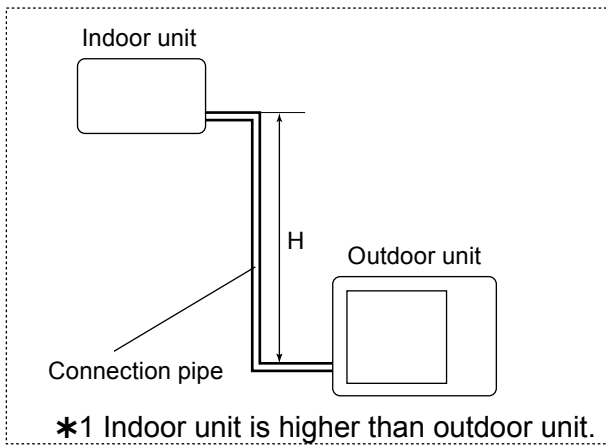
OUTDOOR UNIT
AOU9-18RLFC

OUTDOOR UNIT
AOU9-18RLFC

COOLING				Pipe length				
				5m	7.5m	10m	15m	20m
				17ft.	25ft.	33ft.	50ft.	67ft.
Height difference H	*1 Indoor unit is higher than outdoor unit.	15m	50ft.	-	-	-	0.951	0.950
		10m	33ft.	-	-	0.979	0.967	0.966
		7.5m	25ft.	-	0.988	0.983	0.971	0.970
		5m	17ft.	0.994	0.992	0.987	0.975	0.974
	*2 Indoor unit is lower than outdoor unit	0m	0ft.	1.002	1.000	0.995	0.983	0.982
		-5m	-17ft.	1.002	1.000	0.995	0.983	0.982
		-7.5m	-25ft.	-	1.000	0.995	0.983	0.982
		-10m	-33ft.	-	-	0.995	0.983	0.982
		-15m	-50ft.	-	-	-	0.983	0.982

HEATING				Pipe length				
				5m	7.5m	10m	15m	20m
				17ft.	25ft.	33ft.	50ft.	67ft.
Height difference H	*1 Indoor unit is higher than outdoor unit.	15m	50ft.	-	-	-	0.994	0.979
		10m	33ft.	-	-	1.012	0.994	0.979
		7.5m	25ft.	-	1.000	1.012	0.994	0.979
		5m	17ft.	0.969	1.000	1.012	0.994	0.979
	*2 Indoor unit is lower than outdoor unit	0m	0ft.	0.969	1.000	1.012	0.994	0.979
		-5m	-17ft.	0.964	0.995	1.007	0.989	0.974
		-7.5m	-25ft.	-	0.993	1.004	0.986	0.972
		-10m	-33ft.	-	-	1.002	0.984	0.969
		-15m	-50ft.	-	-	-	0.974	0.959

Height difference H



6. ADDITIONAL CHARGE CALCULATION

■ MODEL: AOU9RLFC, AOU12RLFC

Refrigerant type		R410A
Refrigerant amount	lbs. oz.	2lbs.10oz.
	g	1200

● Refrigerant Charge

Total 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: AOU18RLFC

Refrigerant type		R410A
Refrigerant amount	lbs. oz.	2lbs.14oz.
	g	1300

● Refrigerant Charge

Total 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	

7. AIRFLOW

■ MODEL: AOU9RLFC

● Cooling

Number of rotations (r.p.m.)	Airflow	
	590	m ³ /h
l/s		375
CFM		794

● Heating

Number of rotations (r.p.m.)	Airflow	
	720	m ³ /h
l/s		467
CFM		989

■ MODEL: AOU12RLFC

● Cooling

Number of rotations (r.p.m.)	Airflow	
	870	m ³ /h
l/s		569
CFM		1206

● Heating

Number of rotations (r.p.m.)	Airflow	
	780	m ³ /h
l/s		511
CFM		1083

MODEL: AOU18RLFC/ARU18RLF

● Cooling

Number of rotations (r.p.m.)	Airflow	
	870	m ³ /h
l/s		569
CFM		1206

● Heating

Number of rotations (r.p.m.)	Airflow	
	1000	m ³ /h
l/s		654
CFM		1386

MODEL: AOU18RLFC/AUU18RLF

● Cooling

Number of rotations (r.p.m.)	Airflow	
	1050	m ³ /h
l/s		687
CFM		1457

● Heating

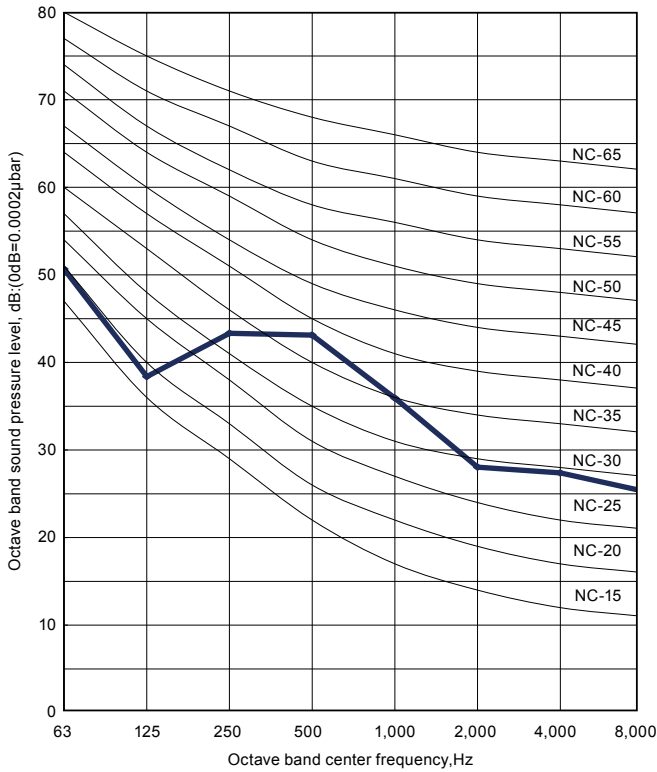
Number of rotations (r.p.m.)	Airflow	
	1000	m ³ /h
l/s		654
CFM		1386

8. OPERATION NOISE (SOUND PRESSURE)

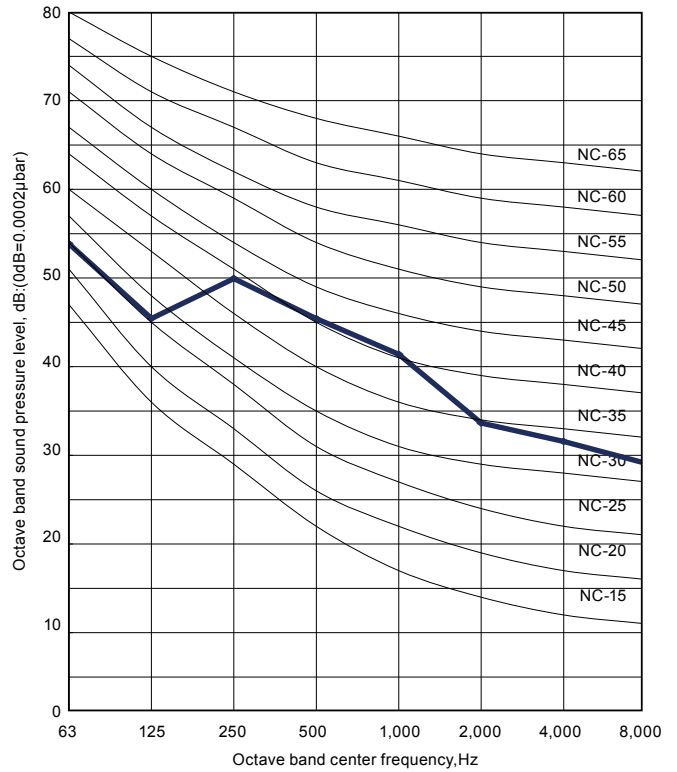
8-1. NOISE LEVEL CURVE

MODEL: AOU9RLFC

● Cooling

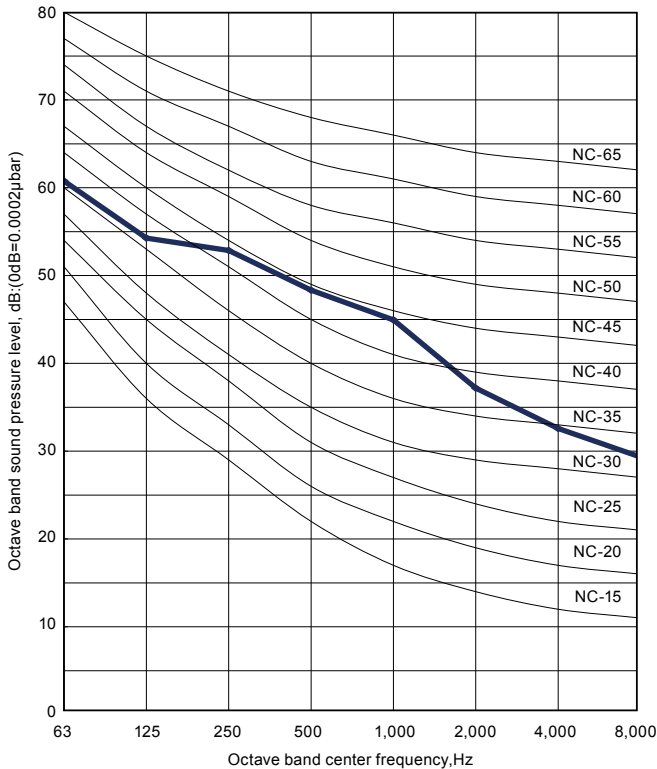


● Heating

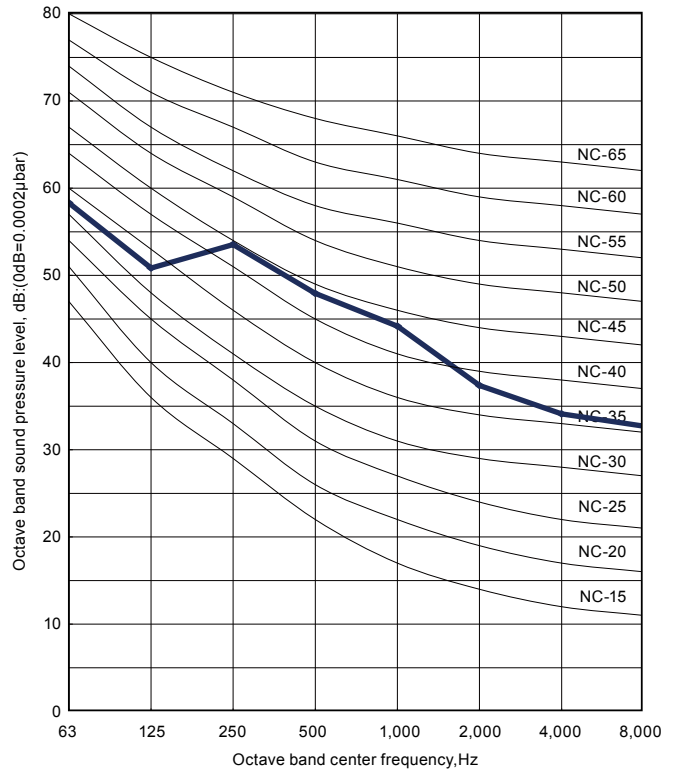


MODEL: AOU12RLFC

● Cooling



● Heating

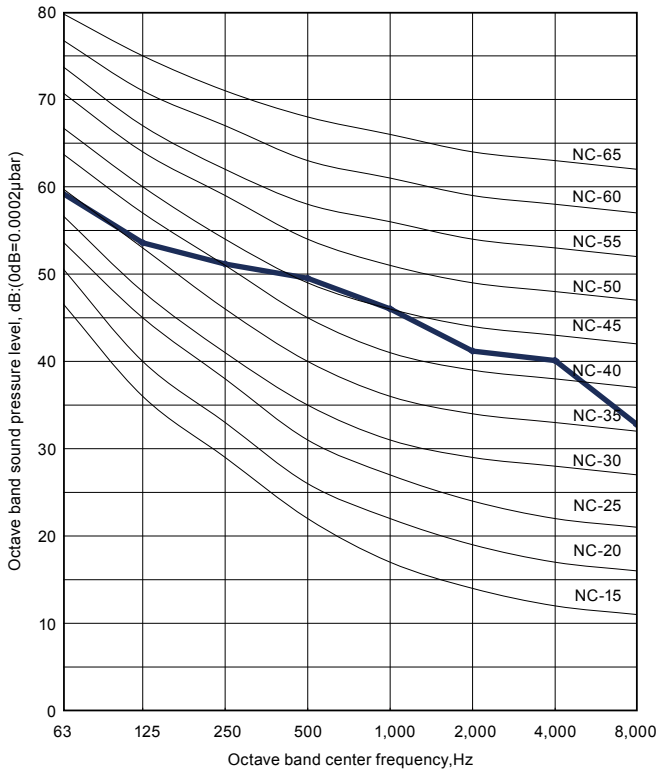


OUTDOOR UNIT
AOU9-18RLFC

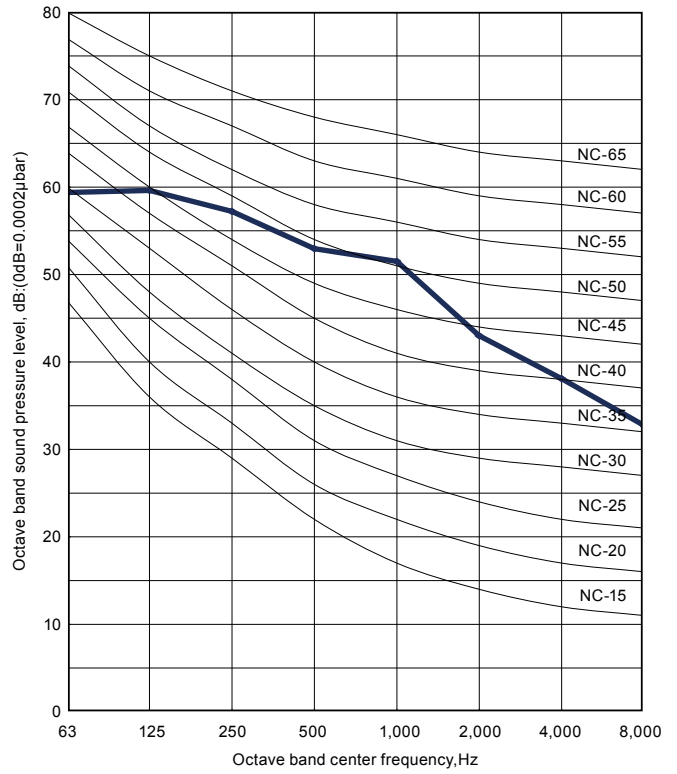
OUTDOOR UNIT
AOU9-18RLFC

MODEL: AOU18RLFC/ARU18RLF

● Cooling

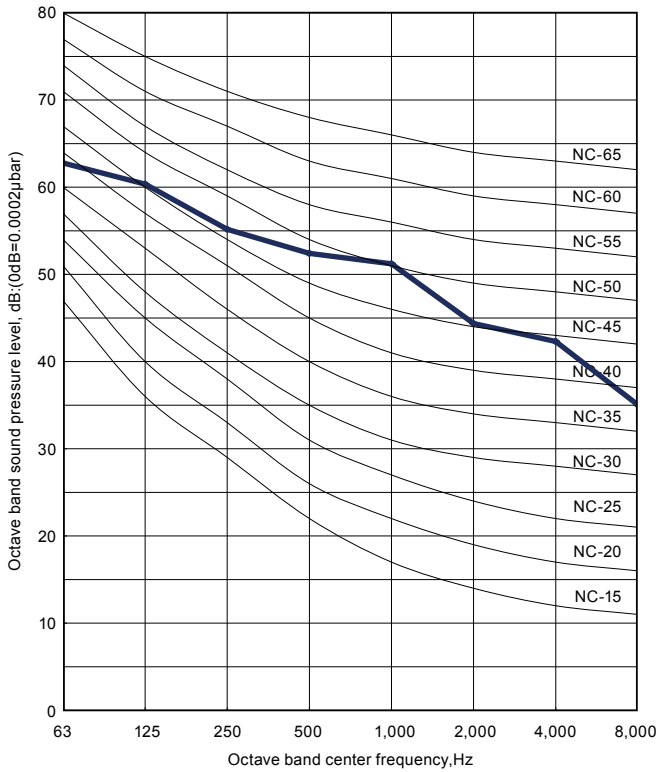


● Heating

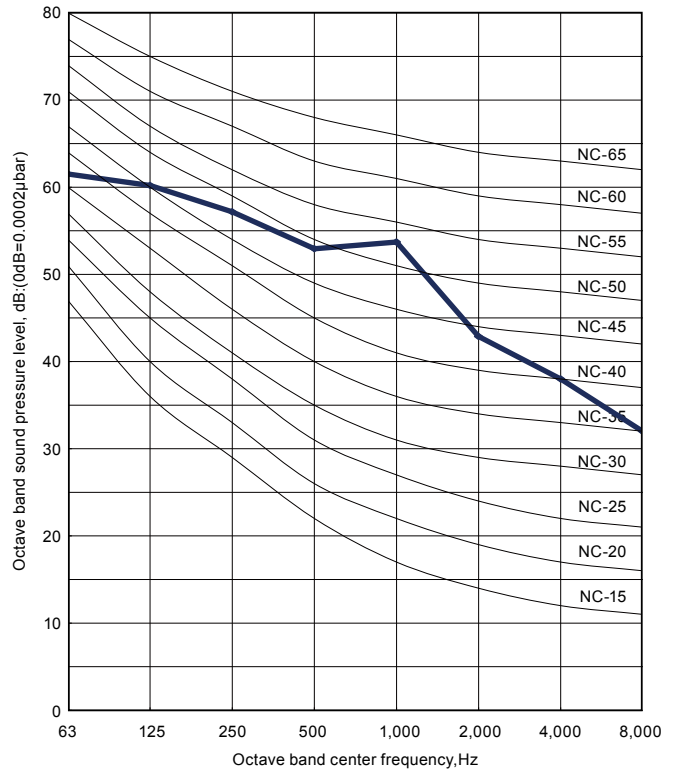


MODEL: AOU18RLFC/AUU18RLF

● Cooling

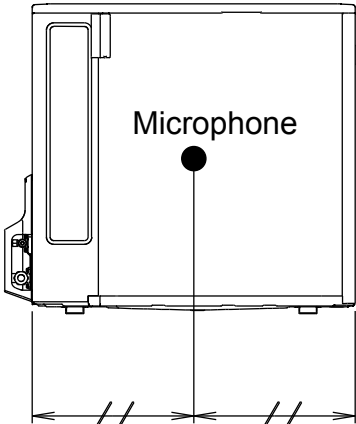
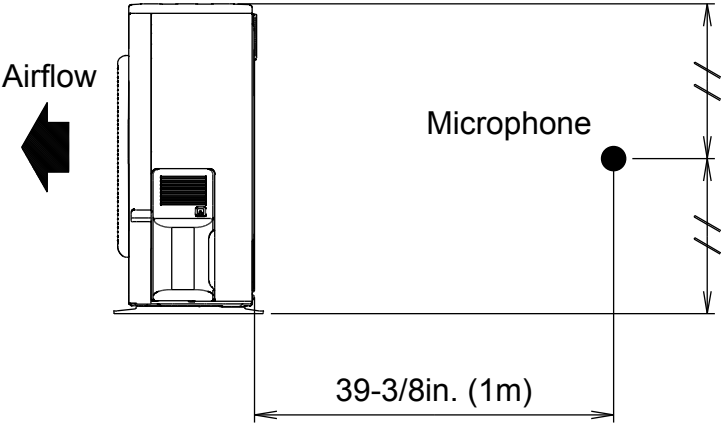


● Heating



8-2. SOUND LEVEL CHECK POINT

OUTDOOR UNIT
AOU9-18RLFC



OUTDOOR UNIT
AOU9-18RLFC

9. ELECTRIC CHARACTERISTICS

Model name			AOU9RLFC	AOU12RLFC	AOU18RLFC
Power supply	Voltage	V	208 / 230 ~		
	Frequency	Hz	60		
MCA		A	13.4		17.3
Starting Current		A	4.1	6.7	7.7
*1) Wiring Spec.	MAX CKT BKR	A	15		20
	Power Cable	AWG	14		12
	*2) Limited wiring length	ft. (m)	60 (18)		75 (22)

*1) Wiring Spec.:

Selected Sample

(Selected based on Japan Electrotechnical Standards and Codes Committee E0005)

*2) Limited wiring length :

This is the wiring length in case voltage descent is less than 2%.

When the wiring length becomes long, please select the wiring of a more larger diameter.

MCA : Minimum Circuit Ampacity (Calculation based on UL1995)

MAX CKT BKR : Maximum Circuit Breaker

10. SAFETY DEVICES

OUTDOOR UNIT
AOU9-18RLFC

OUTDOOR UNIT
AOU9-18RLFC

	Protection form	Model		
		AOU9RLFC	AOU12RLFC	AOU18RLFC
Circuit protection	Current fuse (Near the terminal)	250V 20A		250V 25A
		250V 5A		
	Current fuse (Main printed circuit board)	250V 15A		250V 10A
		250V 3.15A		
Fan motor protection	Thermal protection program	OFF : 212±27 °F (100±15 °C) ON : 203±18 °F (95±10 °C)		
Compressor protection	Thermal protection program (Discharge temp.)	OFF : 230 °F (110 °C) ON : After 7 minutes		