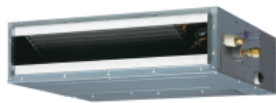


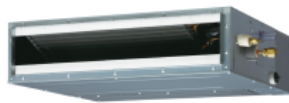
AIR CONDITIONER
Duct type

DESIGN & TECHNICAL MANUAL

INDOOR



ARU9RLF
ARU12RLF



ARU18RLF

OUTDOOR



AOU9RLFC
AOU12RLFC
AOU18RLFC

1. INDOOR UNIT

DUCT TYPE :

ARU9RLF

ARU12RLF

ARU18RLF

CONTENTS

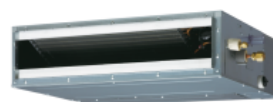
1. INDOOR UNIT

1. FEATURES	01 - 01
2. WIRED REMOTE CONTROLLER	01 - 02
3. SPECIFICATIONS	01 - 04
4. DIMENSIONS	01 - 05
5. WIRING DIAGRAMS	01 - 09
6. CAPACITY TABLE	01 - 10
6-1. COOLING CAPACITY	01 - 10
6-2. HEATING CAPACITY	01 - 13
7. FAN PERFORMANCE	01 - 15
7-1. FAN PERFORMANCE CURVE	01 - 15
7-2. AIRFLOW	01 - 21
8. OPERATION NOISE (SOUND PRESSURE)	01 - 24
8-1. NOISE LEVEL CURVE.....	01 - 24
8-2. SOUND LEVEL CHECK POINT	01 - 26
9. ELECTRICAL CHARACTERISTICS	01 - 27
10. SAFETY DEVICES	01 - 28
11. EXTERNAL INPUT & OUTPUT	01 - 29
11-1. EXTERNAL INPUT.....	01 - 29
11-2. EXTERNAL OUTPUT	01 - 30
12. FUNCTION SETTINGS	01 - 33
12-1. INDOOR UNIT.....	01 - 33
12-2. INDOOR UNIT (Setting by remote controller)	01 - 35
12-3. WIRED REMOTE CONTROLLER.....	01 - 41
13. OPTIONAL PARTS	01 - 44
13-1. CONTROLLERS.....	01 - 44
13-2. OTHERS	01 - 44

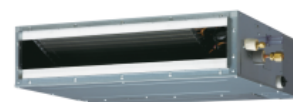
1. FEATURES

MODELS

ARU9RLF / AOU9RLFC
 ARU12RLF / AOU12RLFC
 ARU18RLF / AOU18RLFC



ARU9RLF
AOU9RLFC



ARU12RLF
AOU12RLFC



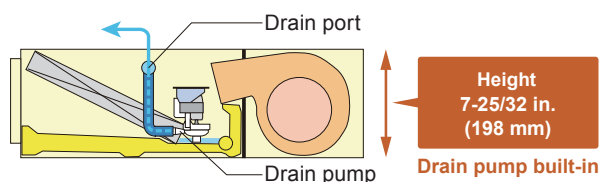
FEATURES

● 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.

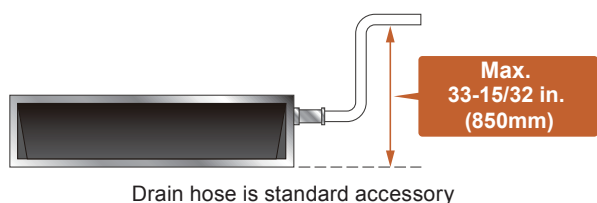
● Slim design

The slim design allows installations where ceilings are narrow.



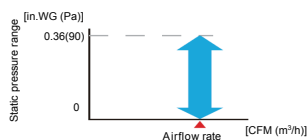
● Compact design

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



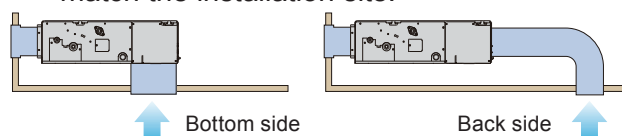
● Selectable with a wide range of static pressure

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

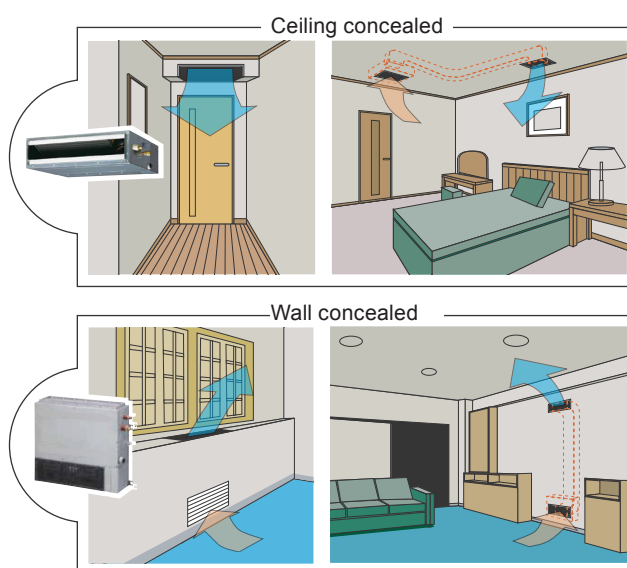


● Air-intake

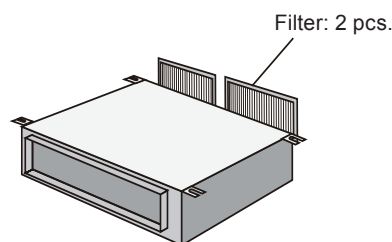
Air intake direction can be selected to match the installation site.



● Flexible installation

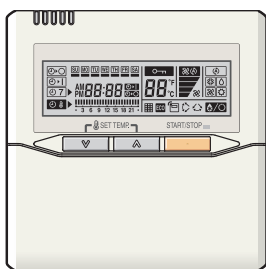


● Filter (Accessory)



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

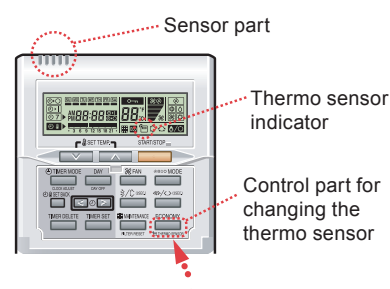


Accurate and comfortable

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

Possible to set ON/OFF time to operate twice each day of the week.

Easy-to-understand time bar display

Example: setup screen
(Set to Wednesday: 8:00 to 20:00.)

Setback timer

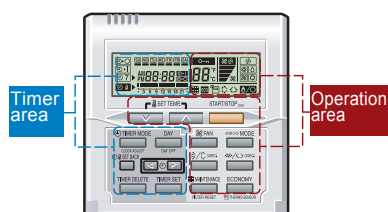
Possible to set temperature for two time spans and for each day of the week.

Example: setup screen
(Set from Sunday to Saturday: 12:00 to 15:00, 28 °C.)

At "Weekly timer" + "Set back timer" setup

76 °F → 84 °F → 76 °F
24 °C → 28 °C → 24 °C

Easy-to-understand operation

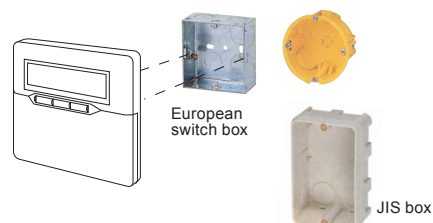


[Variable timer control]

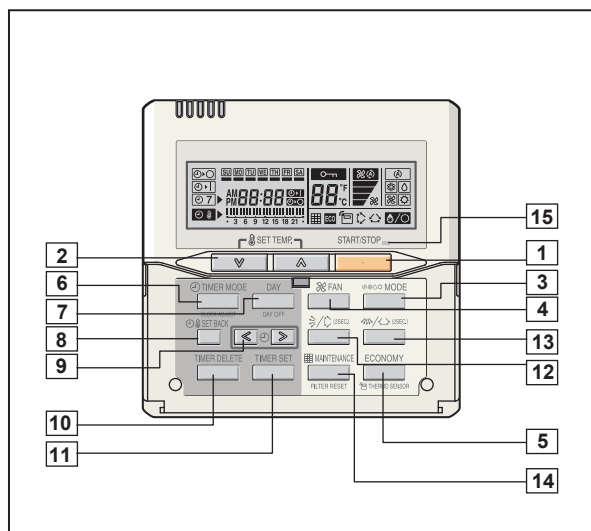
The operation/display sections are zoned according to time and operation, enabling variable programming to match application.

Simple installation

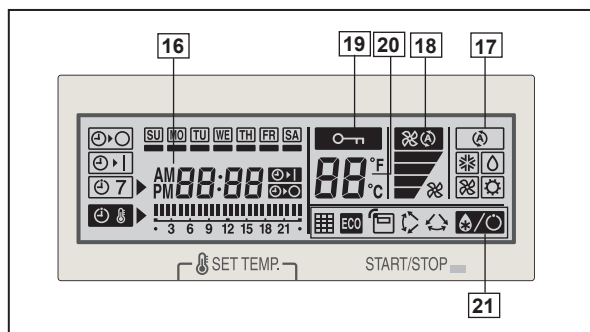
Components are compatible with standard switch boxes. Flat back surface allows equipment to be installed wherever it is needed.



FUNCTIONS

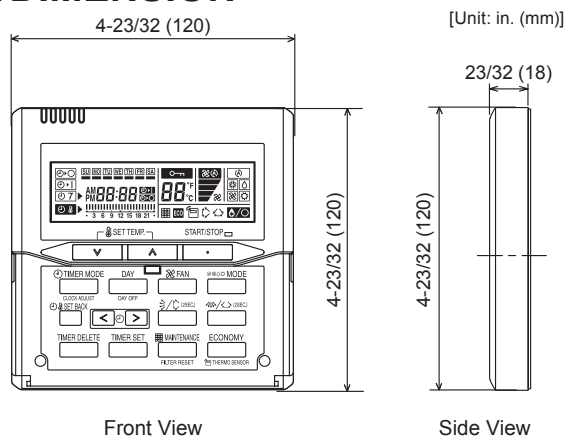


Display panel



- 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



Front View

Side View

- 16 Timer and clock indicator**
- 17 Operation mode indicator**
- 18 Fan speed indicator**
- 19 Operation lock indicator**
- 20 Temperature indicator**
- 21 Function indicators**

- Defrost indicator
- Thermo sensor indicator
- Economy indicator
- Vertical swing indicator
- Horizontal swing indicator
- Filter display

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

SPECIFICATION

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

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				DUCT			
				INVERTER HEAT PUMP			
Model name				ARU9RLF	ARU12RLF	ARU18RLF	
Power source				208/230 V ~ 60 Hz			
Available voltage range				187-253 V			
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	Btu/h	3,100-12,000	3,100-13,600	3,100-20,100	
			kW	3.52	4.69	6.33	
		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	kW	0.85	1.30	1.67
	Max.			1.80	2.00	2.60	
	Current		Rated	A	3.0	4.4	6.6
		kW/kW		4.25	3.74	3.52	
EER	Cooling	Btu/hW	14.5	12.8	12.0		
		kW/kW	4.14	3.60	3.79		
COP	Heating	Btu/hW	14.1	12.3	12.9		
		Btu/hW	21.5	20.0	19.7		
SEER	Cooling	Btu/hW	12.2	11.5	11.3		
HSPF	Heating	Btu/hW	90	94	98		
Power factor	Cooling	%	94	94	99		
	Heating	pints/h (l/h)	1.5 (0.7)	2.7 (1.3)	4.2 (2.0)		
Moisture removal	Cooling	A	9.3	9.4	10.0		
	Heating	A	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	Motor Output	W	Sirocco fan × 2		Sirocco fan × 3	
				81		96	
		Recommended static pressure		in.WG (Pa)	0 to 0.36 (0 to 90)		
		Sound pressure level *2	Cooling	High	dB (A)	28	29
27	28					30	
Low	26			27	29		
	Quiet			25	26	27	
Heating	High		dB (A)	28	29	32	
				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)			
	Fin pitch		FPI	20			
	Rows × Stages			3 × 14			
	Pipe type			Copper tube			
	Fin type			Aluminum			
	Material			GALVANIZED STEEL SHEET			
Enclosure	Color		-				
	Dimensions (H × W × D)	Net	in. (mm)	7-25/32 × 27-9/16 × 24-13/32 (198 × 700 × 620)			
Gross		in. (mm)	10-7/8 × 38-1/8 × 30-13/32 (276 × 968 × 772)				
Weight	Net	lb. (kg)	41 (19)				
	Gross	lb. (kg)	58 (26)				
Connection pipe	Size	Liquid	Ø 1/4 (Ø6.35)				
		Gas	Ø 3/8 (Ø 9.52)				
	Method		Ø 1/2 (Ø 12.7)				
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)	Ø 3/4 (Ø 20.7) (I.D.) Ø 1-1/16 (Ø 26.6) (O.D.)			

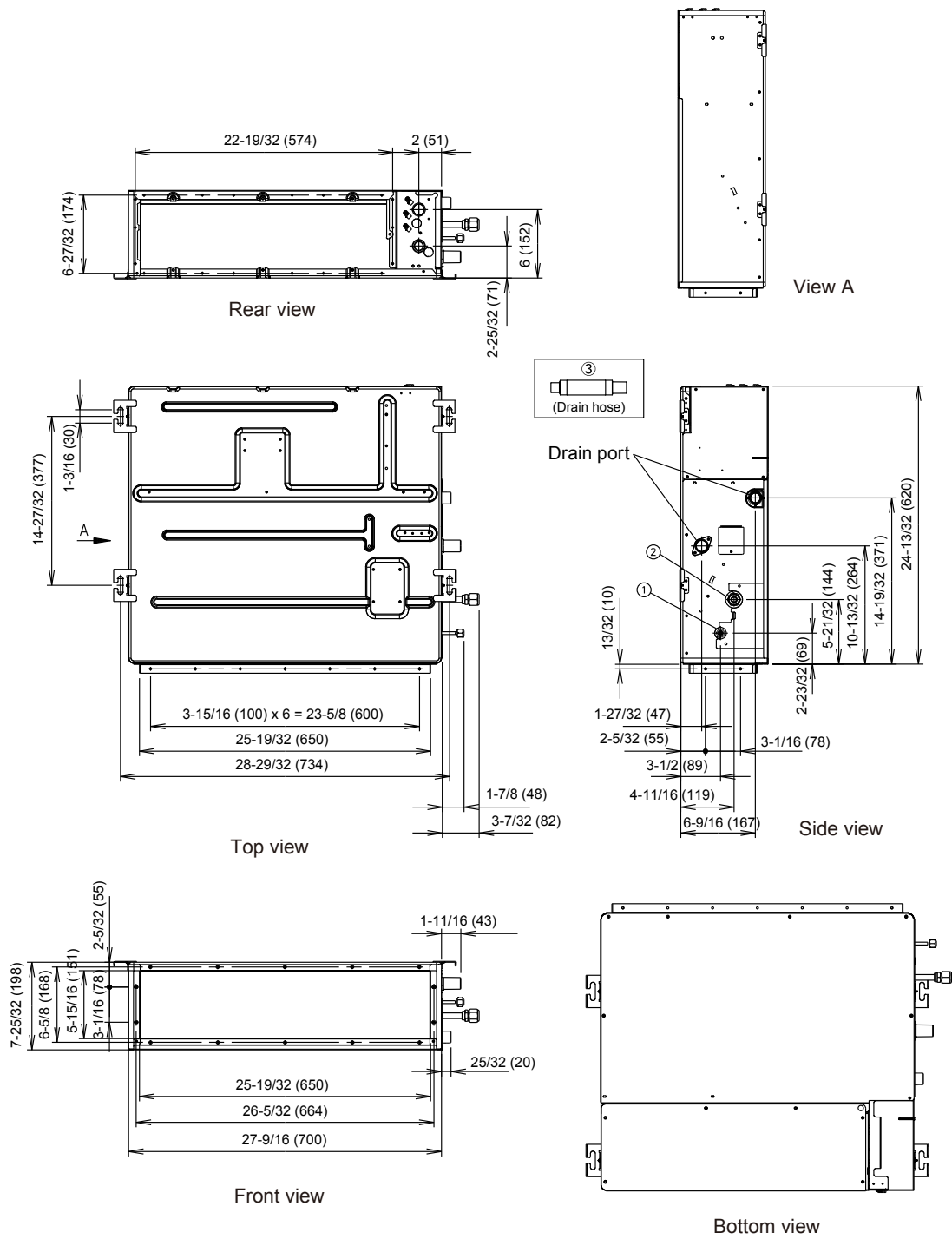
NOTES:

- 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: 0.10 in.WG (25 Pa)
 Pipe length: 24 ft. 7 in. (7.5 m), Height difference: 0 m (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.

4. DIMENSIONS

MODELS: ARU9RLF, ARU12RLF

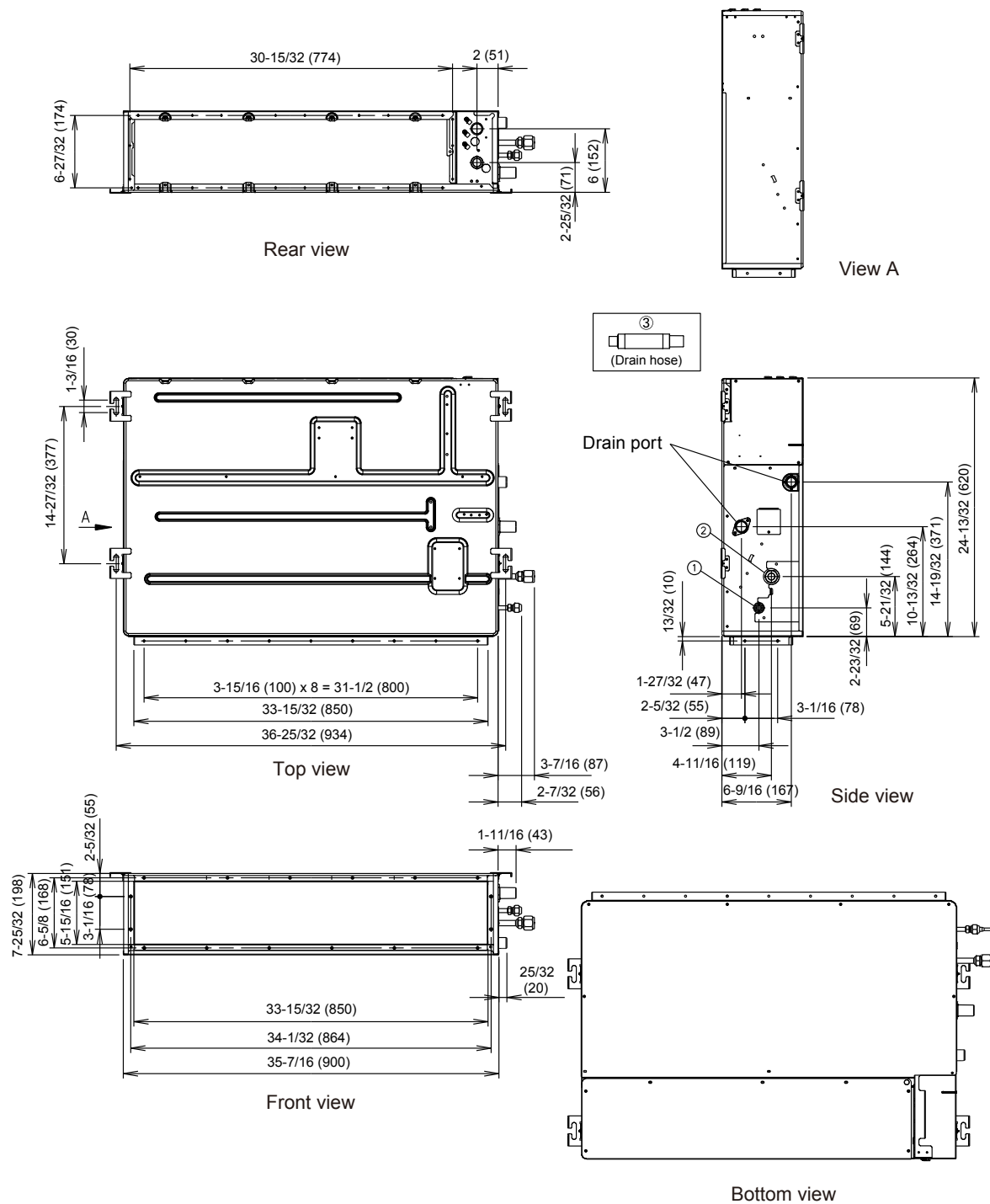
Unit : in. (mm)



			ARU9, ARU12
①	Refrigerant pipe flare connection	Liquid	Ø 1/4 in. (Ø 6.35 mm)
②		Gas	Ø 3/8 in. (Ø 9.52 mm)
③	Drain hose connection	Drain hose	I.D. Ø 3/4 in., O.D. Ø 1-1/16 in.

MODEL : ARU18RLF

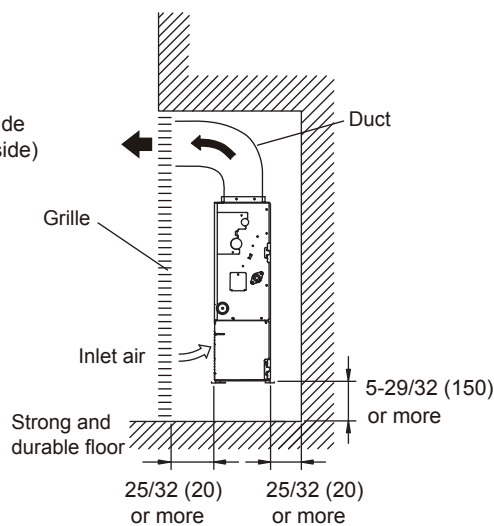
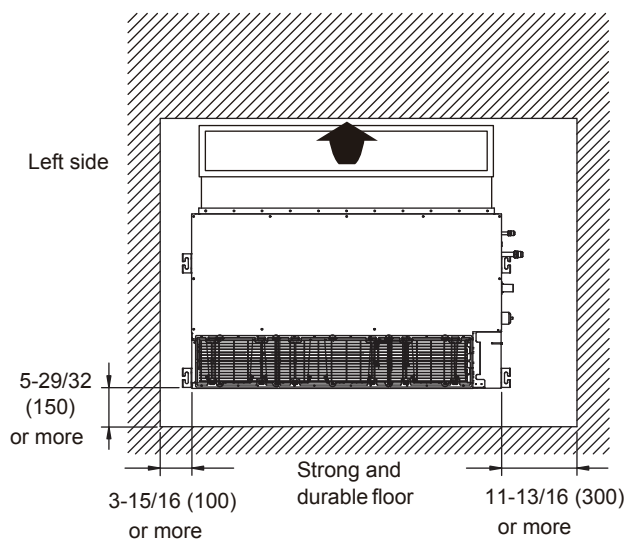
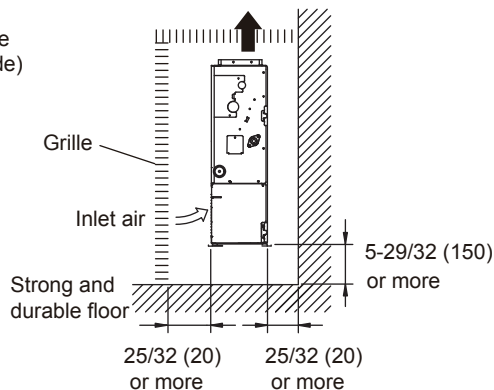
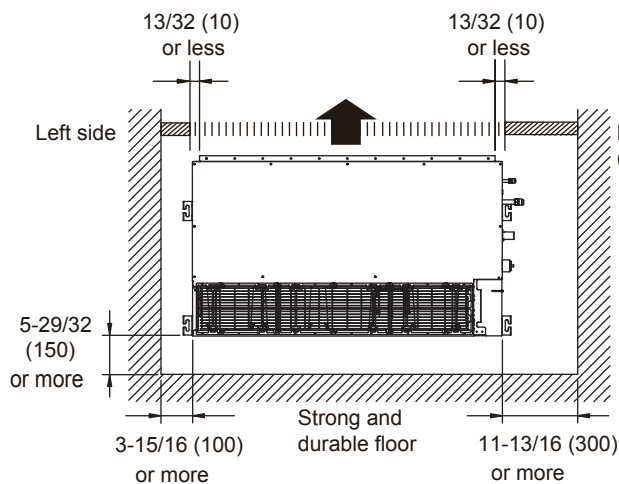
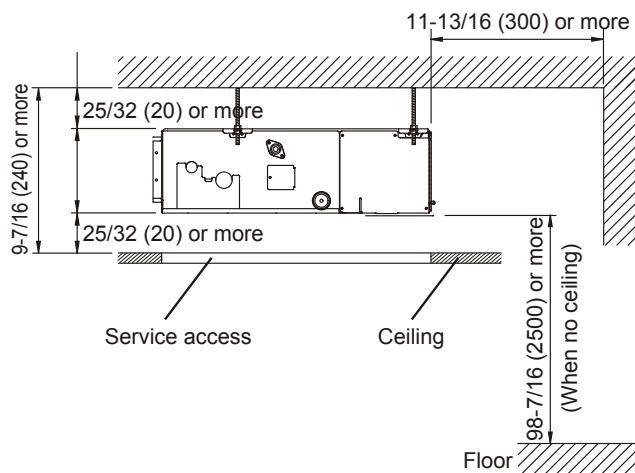
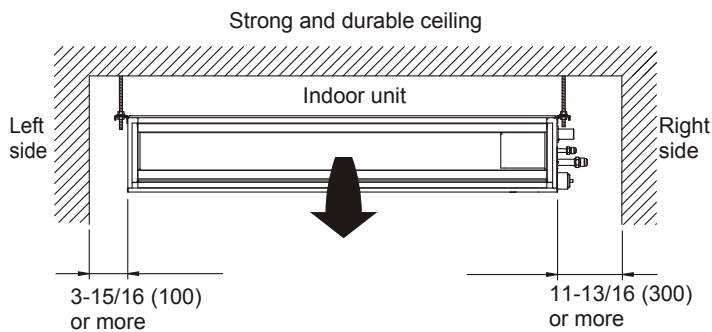
Unit : in. (mm)



			ARU18
①	Refrigerant pipe flare connection	Liquid	Ø 1/4 in. (Ø 6.35 mm)
②		Gas	Ø 1/2 in. (Ø 12.70 mm)
③	Drain hose connection	Drain hose	I.D. Ø 3/4 in., O.D. Ø 1-1/16 in.

INSTALLATION PLACE

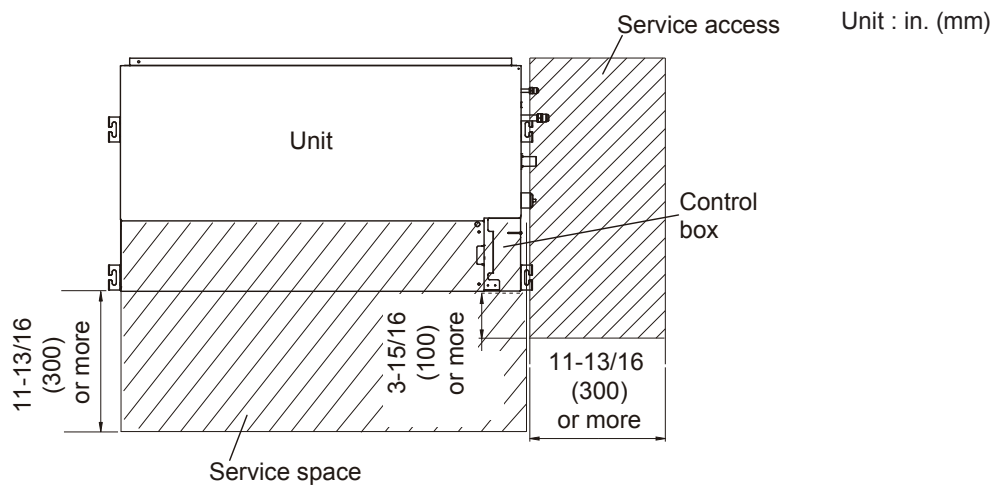
Unit : in. (mm)



MAINTENANCE SPACE

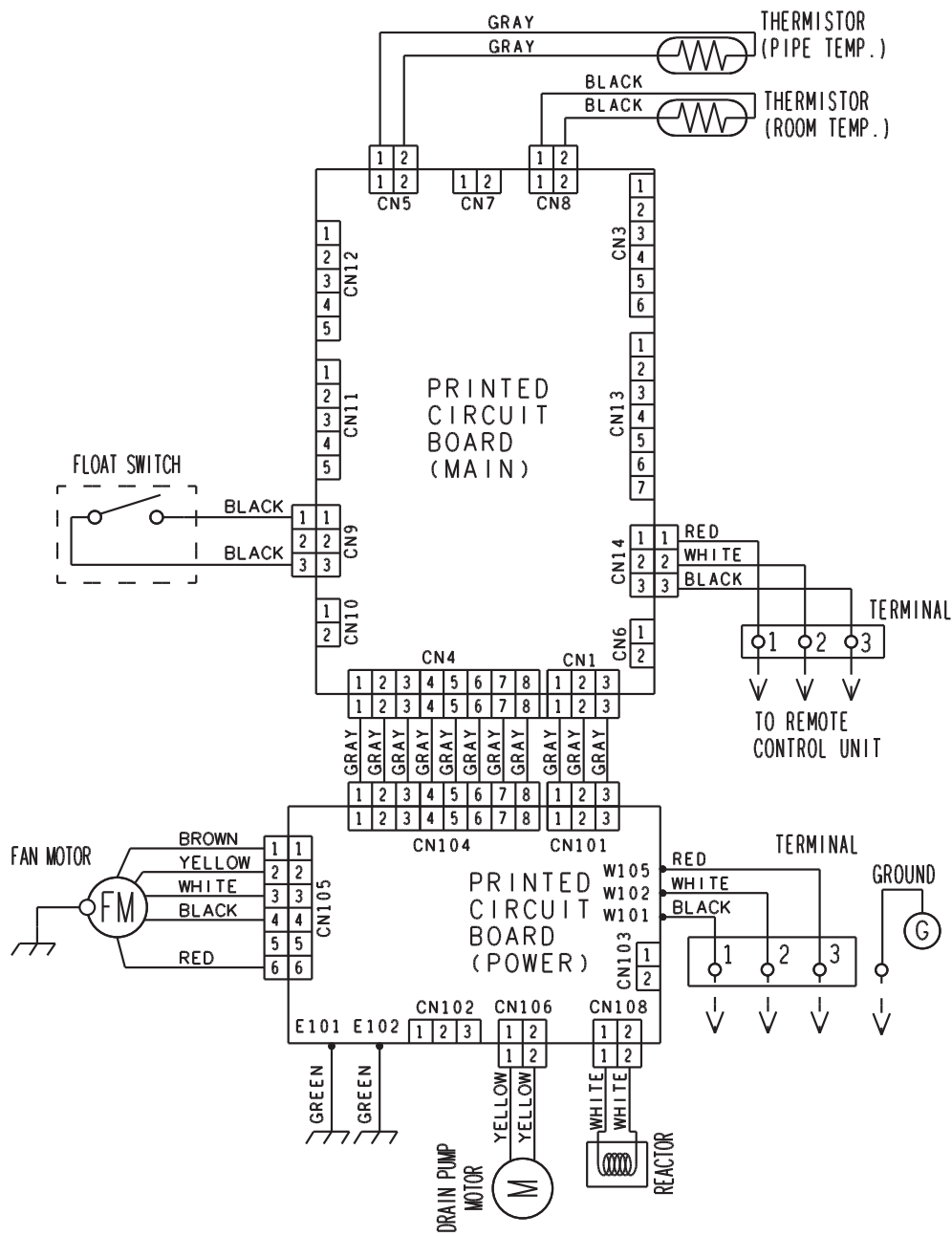
Provide a service access for inspection purposes as shown below.

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
-----	-----

		Indoor temperature																	
		64			70			75			80			85			90		
		°FDB			°FWB			°FDB			°FWB			°FDB			°FWB		
Outdoor temperature	°FDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	15	8.50	6.74	0.22	9.60	7.62	0.22	10.12	8.03	0.23	10.84	8.60	0.23	11.59	9.19	0.23	11.94	9.47	0.23
	23	8.32	6.71	0.25	9.40	7.57	0.25	9.90	7.98	0.25	10.60	8.54	0.26	11.33	9.13	0.26	11.67	9.40	0.26
	32	8.15	6.68	0.26	9.20	7.54	0.26	9.70	7.94	0.26	10.38	8.51	0.27	11.10	9.09	0.27	11.43	9.37	0.27
	41	7.98	6.53	0.27	9.01	7.38	0.28	9.49	7.78	0.28	10.17	8.33	0.28	10.87	8.90	0.28	11.20	9.17	0.29
	50	7.80	6.36	0.25	8.82	7.19	0.26	9.29	7.57	0.26	9.95	8.11	0.26	10.64	8.67	0.27	10.96	8.94	0.27
	59	7.63	5.70	0.31	8.62	6.44	0.31	9.09	6.79	0.31	9.73	7.27	0.32	10.41	7.77	0.32	10.73	8.01	0.32
	67	8.60	6.98	0.50	9.72	6.97	0.50	10.25	7.69	0.51	10.97	8.07	0.51	11.73	8.26	0.52	12.09	9.18	0.52
	77	8.17	6.74	0.56	9.23	6.73	0.57	9.73	7.42	0.57	10.42	7.79	0.58	11.14	7.97	0.58	11.49	8.85	0.59
	87	7.62	6.47	0.60	8.61	6.47	0.61	9.08	7.13	0.62	9.72	7.49	0.62	10.39	7.66	0.63	10.72	8.51	0.63
	95	7.06	6.23	0.60	7.97	6.22	0.61	8.41	6.86	0.61	9.00	7.20	0.62	9.62	7.37	0.63	9.92	8.19	0.63
	104	5.93	5.76	0.50	6.70	5.75	0.51	7.07	6.35	0.52	7.57	6.66	0.52	8.09	6.81	0.53	8.34	7.57	0.53
115	5.45	5.38	0.51	6.16	5.38	0.52	6.50	5.93	0.52	6.96	6.22	0.53	7.44	6.37	0.53	7.67	7.08	0.53	

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

AFR	600
-----	-----

		Indoor temperature																	
		17.8			21.1			23.9			26.7			29.4			32.2		
		°CDB			°CWB			°CDB			°CWB			°CDB			°CWB		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-10.0	2.49	1.98	0.22	2.81	2.23	0.22	2.97	2.35	0.23	3.18	2.52	0.23	3.40	2.69	0.23	3.50	2.78	0.23
	-5.0	2.44	1.97	0.25	2.75	2.22	0.25	2.90	2.34	0.25	3.11	2.50	0.26	3.32	2.68	0.26	3.42	2.76	0.26
	0.0	2.39	1.96	0.26	2.70	2.21	0.26	2.84	2.33	0.26	3.04	2.49	0.27	3.25	2.66	0.27	3.35	2.75	0.27
	5.0	2.34	1.92	0.27	2.64	2.16	0.28	2.78	2.28	0.28	2.98	2.44	0.28	3.19	2.61	0.28	3.28	2.69	0.29
	10.0	2.29	1.86	0.25	2.58	2.11	0.26	2.72	2.22	0.26	2.92	2.38	0.26	3.12	2.54	0.27	3.21	2.62	0.27
	15.0	2.24	1.67	0.31	2.53	1.89	0.31	2.66	1.99	0.31	2.85	2.13	0.32	3.05	2.28	0.32	3.14	2.35	0.32
	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: Airflow Rate (m³/h)
 TC: Total Capacity (kW)
 SHC: Sensible Heat Capacity (kW)
 IP: Input Power (kW)

MODEL: ARU12RLF

AFR	383
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		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	11.32	8.02	0.34	12.81	9.07	0.34	13.48	9.55	0.34	14.44	10.23	0.35	15.44	10.93	0.35	15.93	11.29	0.35			
	23	11.06	7.98	0.39	12.52	9.03	0.40	13.21	9.53	0.40	14.15	10.20	0.40	15.09	10.88	0.41	15.57	11.23	0.41			
	32	10.84	7.88	0.43	12.26	8.91	0.43	12.94	9.40	0.44	13.85	10.07	0.44	14.78	10.74	0.45	15.26	11.08	0.45			
	41	10.62	7.74	0.45	12.01	8.76	0.46	12.67	9.24	0.46	13.56	9.89	0.47	14.47	10.56	0.47	14.94	10.90	0.47			
	50	10.39	7.55	0.45	11.76	8.54	0.46	12.40	9.01	0.46	13.27	9.64	0.47	14.17	10.29	0.47	14.63	10.63	0.48			
	59	10.17	6.95	0.46	11.50	7.86	0.47	12.14	8.29	0.48	12.98	8.87	0.48	13.86	9.47	0.49	14.32	9.78	0.49			
	67	11.46	8.50	0.75	12.97	8.50	0.76	13.68	9.35	0.77	14.64	9.83	0.78	15.63	10.03	0.79	16.14	11.16	0.79			
	77	10.88	8.19	0.84	12.32	8.19	0.86	12.97	9.04	0.87	13.89	9.49	0.88	14.84	9.69	0.89	15.32	10.78	0.89			
	87	10.17	7.88	0.91	11.50	7.88	0.93	12.11	8.67	0.93	12.97	9.11	0.94	13.85	9.31	0.95	14.30	10.37	0.96			
	95	9.42	7.57	0.91	10.65	7.57	0.92	11.19	8.36	0.93	12.01	8.77	0.94	12.83	8.97	0.95	13.24	9.96	0.96			
	104	7.92	6.99	0.76	8.94	6.99	0.78	9.42	7.71	0.78	10.10	8.09	0.79	10.78	8.29	0.80	11.12	9.21	0.81			
115	7.30	6.48	0.77	8.26	6.48	0.78	8.70	7.17	0.79	9.31	7.51	0.80	9.96	7.68	0.81	10.27	8.53	0.81				

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

AFR	650
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		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	3.32	2.35	0.34	3.75	2.66	0.34	3.95	2.80	0.34	4.23	3.00	0.35	4.52	3.20	0.35	4.67	3.31	0.35			
	-5.0	3.24	2.34	0.39	3.67	2.65	0.40	3.87	2.79	0.40	4.15	2.99	0.40	4.42	3.19	0.41	4.56	3.29	0.41			
	0.0	3.18	2.31	0.43	3.59	2.61	0.43	3.79	2.76	0.44	4.06	2.95	0.44	4.33	3.15	0.45	4.47	3.25	0.45			
	5.0	3.11	2.27	0.45	3.52	2.57	0.46	3.71	2.71	0.46	3.98	2.90	0.47	4.24	3.09	0.47	4.38	3.19	0.47			
	10.0	3.05	2.21	0.45	3.45	2.50	0.46	3.64	2.64	0.46	3.89	2.83	0.47	4.15	3.02	0.47	4.29	3.12	0.48			
	15.0	2.98	2.04	0.46	3.37	2.30	0.47	3.56	2.43	0.48	3.81	2.60	0.48	4.06	2.77	0.49	4.20	2.87	0.49			
	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: Airflow Rate (m³/h)
 TC: Total Capacity (kW)
 SHC: Sensible Heat Capacity (kW)
 IP: Input Power (kW)

MODEL: ARU18RLF

AFR	554
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		Indoor temperature																																	
		64						70						85						90															
		54						60						63						67						71						73			
Outdoor temperature	°FDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP																
	15	15.68	11.22	0.52	17.74	12.69	0.53	18.70	13.37	0.53	20.01	14.31	0.54	21.40	15.30	0.54	22.07	15.78	0.55																
	23	15.44	11.04	0.56	17.45	12.48	0.57	18.42	13.17	0.58	19.70	14.09	0.58	21.03	15.04	0.59	21.72	15.53	0.59																
	32	15.12	10.81	0.58	17.09	12.22	0.59	18.04	12.90	0.59	19.30	13.80	0.60	20.60	14.73	0.60	21.27	15.21	0.61																
	41	14.80	10.58	0.58	16.73	11.96	0.59	17.65	12.62	0.60	18.89	13.51	0.61	20.17	14.42	0.61	20.82	14.88	0.62																
	50	14.48	10.36	0.60	16.37	11.71	0.61	17.27	12.35	0.61	18.48	13.21	0.62	19.74	14.12	0.63	20.36	14.56	0.63																
	59	14.16	10.13	0.63	16.01	11.45	0.64	16.89	12.08	0.65	18.07	12.92	0.66	19.31	13.81	0.66	19.91	14.24	0.67																
	67	15.97	12.21	0.96	18.05	12.18	0.98	19.04	13.44	0.99	20.37	14.13	1.00	21.77	14.43	1.01	22.45	16.04	1.02																
	77	15.08	11.70	1.09	17.06	11.70	1.11	17.98	12.90	1.12	19.24	13.55	1.14	20.57	13.85	1.15	21.22	15.39	1.15																
	87	14.16	11.19	1.23	16.00	11.19	1.25	16.89	12.35	1.26	18.08	12.93	1.28	19.31	13.24	1.29	19.93	14.74	1.30																
	95	14.13	11.23	1.45	15.93	11.19	1.47	16.82	12.35	1.48	18.02	12.97	1.50	19.24	13.27	1.52	19.82	14.74	1.53																
	104	10.30	9.35	1.03	11.67	9.35	1.05	12.28	10.30	1.06	13.17	10.82	1.07	14.06	11.05	1.08	14.50	12.28	1.08																
115	9.55	8.63	1.03	10.82	8.63	1.05	11.40	9.52	1.06	12.21	10.00	1.07	13.03	10.20	1.08	13.44	11.36	1.09																	

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

AFR	940
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		Indoor temperature																																			
		17.8						21.1						23.9						26.7						29.4						32.2					
		12.2						15.6						17.2						19.4						21.7						22.8					
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP																		
	-10.0	4.60	3.29	0.52	5.20	3.72	0.53	5.48	3.92	0.53	5.87	4.19	0.54	6.27	4.48	0.54	6.47	4.63	0.55																		
	-5.0	4.53	3.24	0.56	5.11	3.66	0.57	5.40	3.86	0.58	5.78	4.13	0.58	6.16	4.41	0.59	6.36	4.55	0.59																		
	0.0	4.43	3.17	0.58	5.01	3.58	0.59	5.29	3.78	0.59	5.66	4.04	0.60	6.04	4.32	0.60	6.23	4.46	0.61																		
	5.0	4.34	3.10	0.58	4.90	3.51	0.59	5.17	3.70	0.60	5.54	3.96	0.61	5.91	4.23	0.61	6.10	4.36	0.62																		
	10.0	4.24	3.04	0.60	4.80	3.43	0.61	5.06	3.62	0.61	5.42	3.87	0.62	5.79	4.14	0.63	5.97	4.27	0.63																		
	15.0	4.15	2.97	0.63	4.69	3.36	0.64	4.95	3.54	0.65	5.30	3.79	0.66	5.66	4.05	0.66	5.84	4.17	0.67																		
	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: Airflow Rate (m³/h)
 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: Airflow Rate (CFM)
TC: Total Capacity (kBtu/h)
IP: Input Power (kW)

AFR	600
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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: Airflow Rate (m³/h)
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: Airflow Rate (CFM)
TC: Total Capacity (kBtu/h)
IP: Input Power (kW)

AFR	650
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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: Airflow Rate (m³/h)
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: Airflow Rate (CFM)
 TC: Total Capacity (kBtu/h)
 IP: Input Power (kW)

AFR	940
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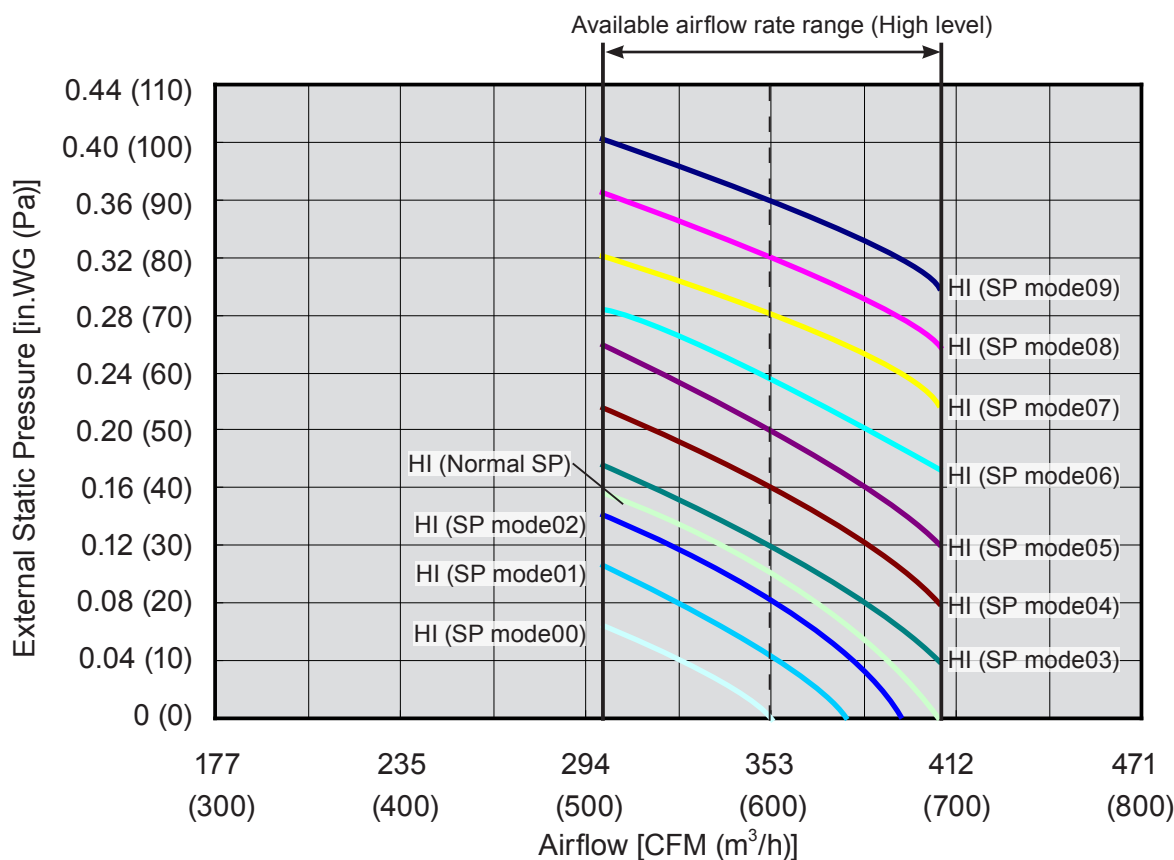
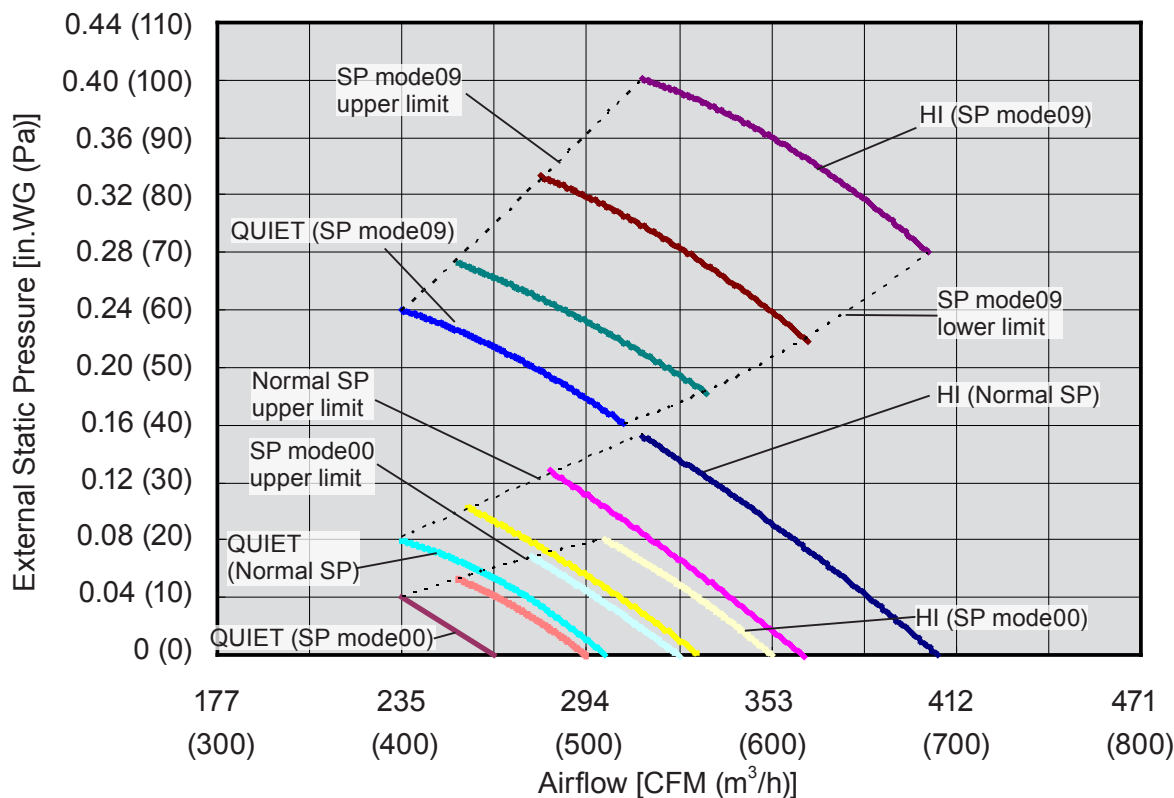
		Indoor temperature									
		°CDB		15.6		18.3		21.1		23.9	
		°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-20.6	-21.7	5.67	2.42	5.53	2.47	5.40	2.52	5.13	2.63	
	-15.0	-16.1	6.08	2.63	5.93	2.68	5.79	2.74	5.50	2.85	
	-10.0	-11.1	6.50	2.68	6.34	2.73	6.19	2.79	5.88	2.90	
	-5.0	-7.2	6.78	2.79	6.62	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: Airflow Rate (m³/h)
 TC: Total Capacity (kW)
 IP: Input Power (kW)

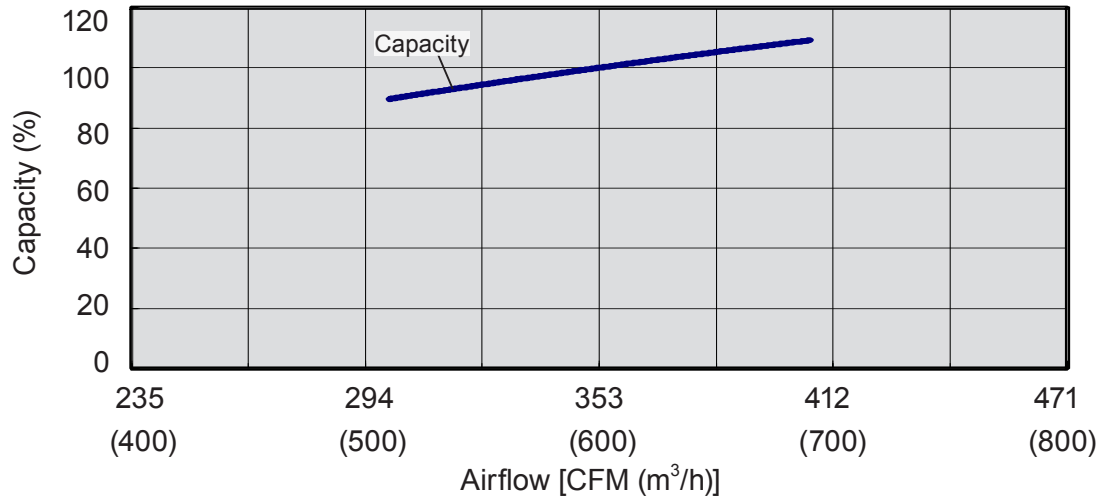
7. FAN PERFORMANCE

7-1. FAN PERFORMANCE CURVE

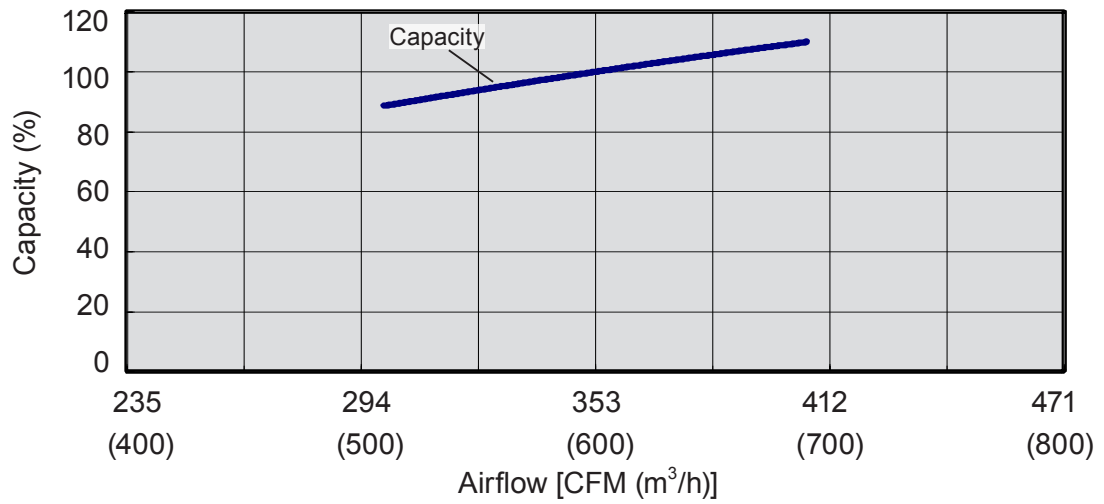
MODEL: ARU9RLF



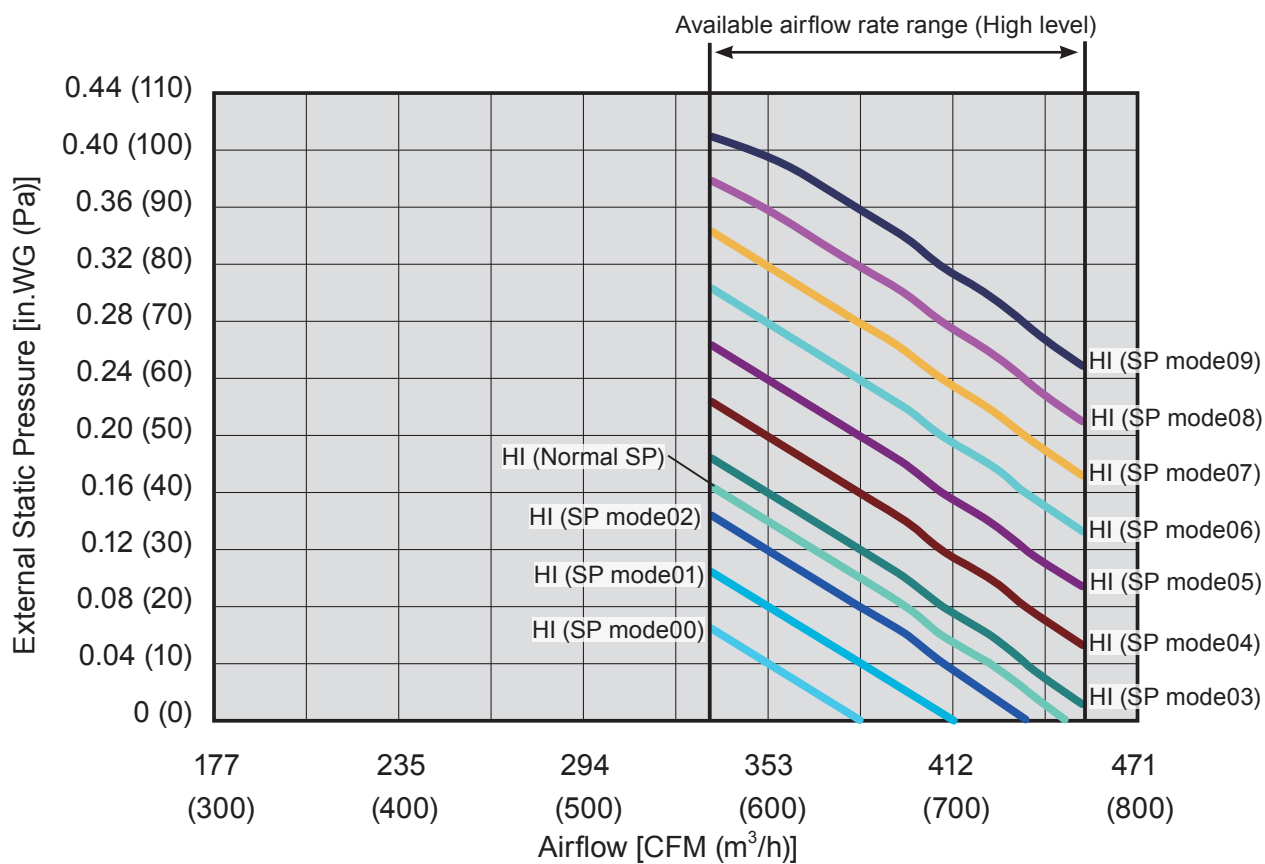
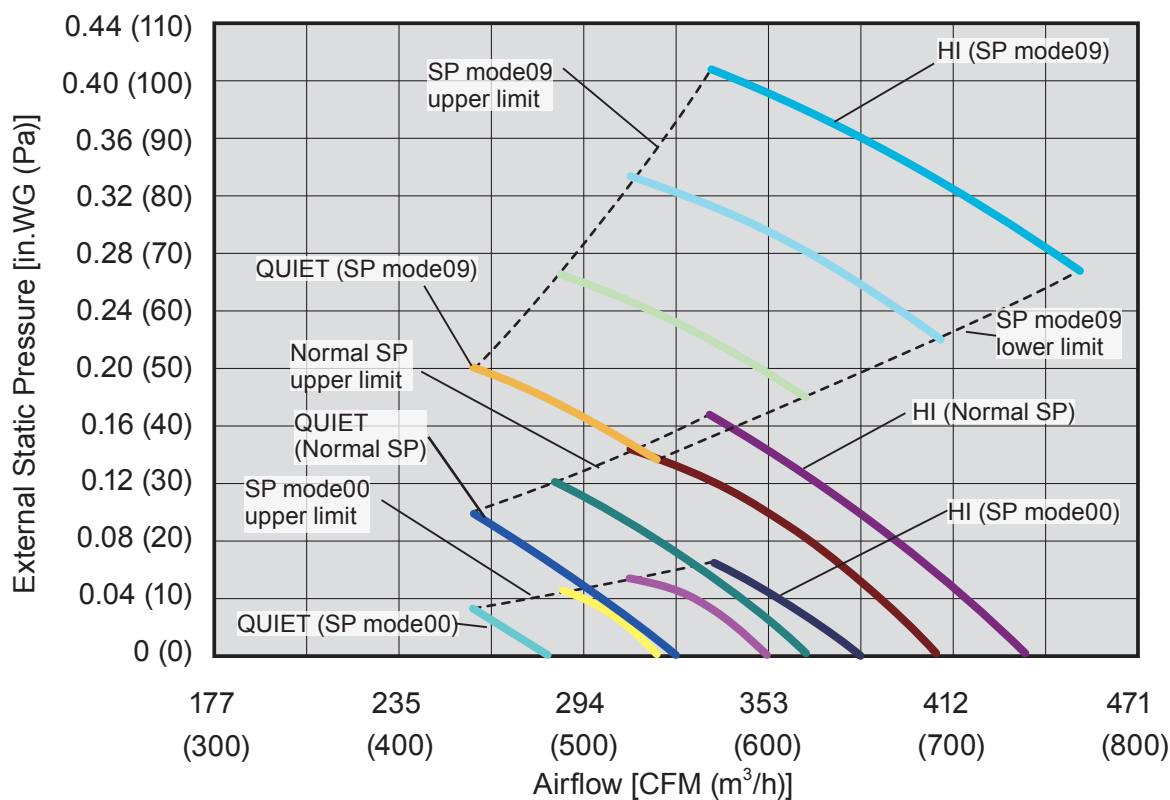
● Cooling



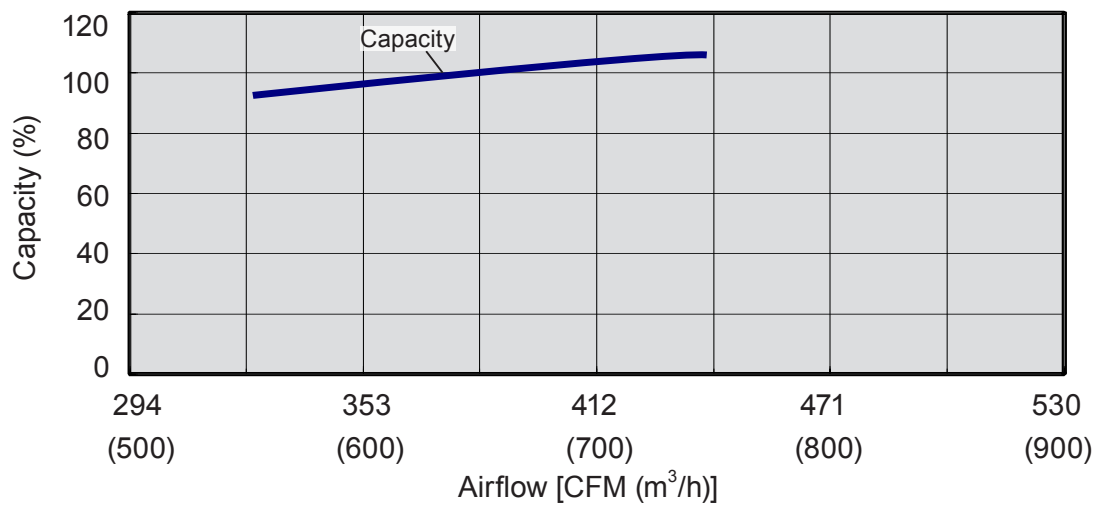
● Heating



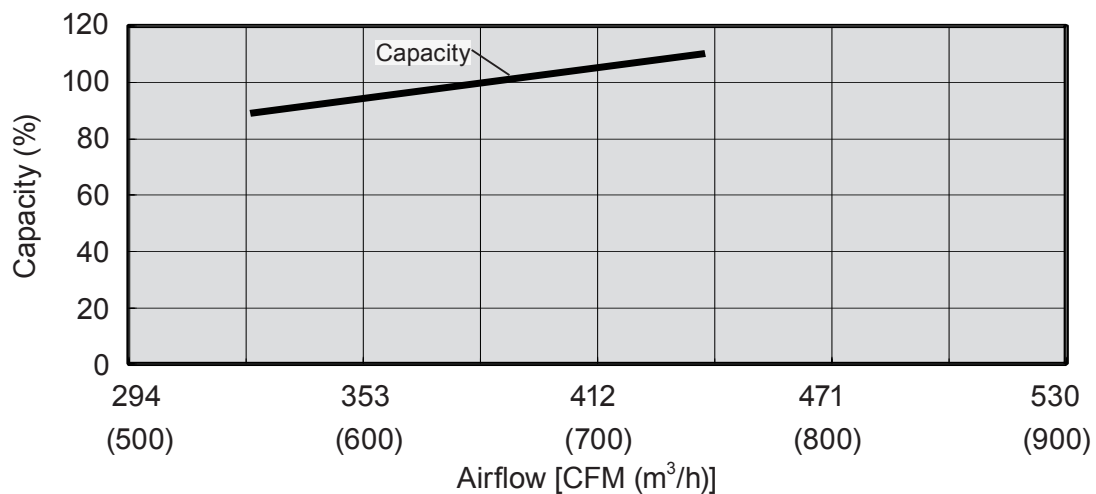
MODEL : ARU12RLF



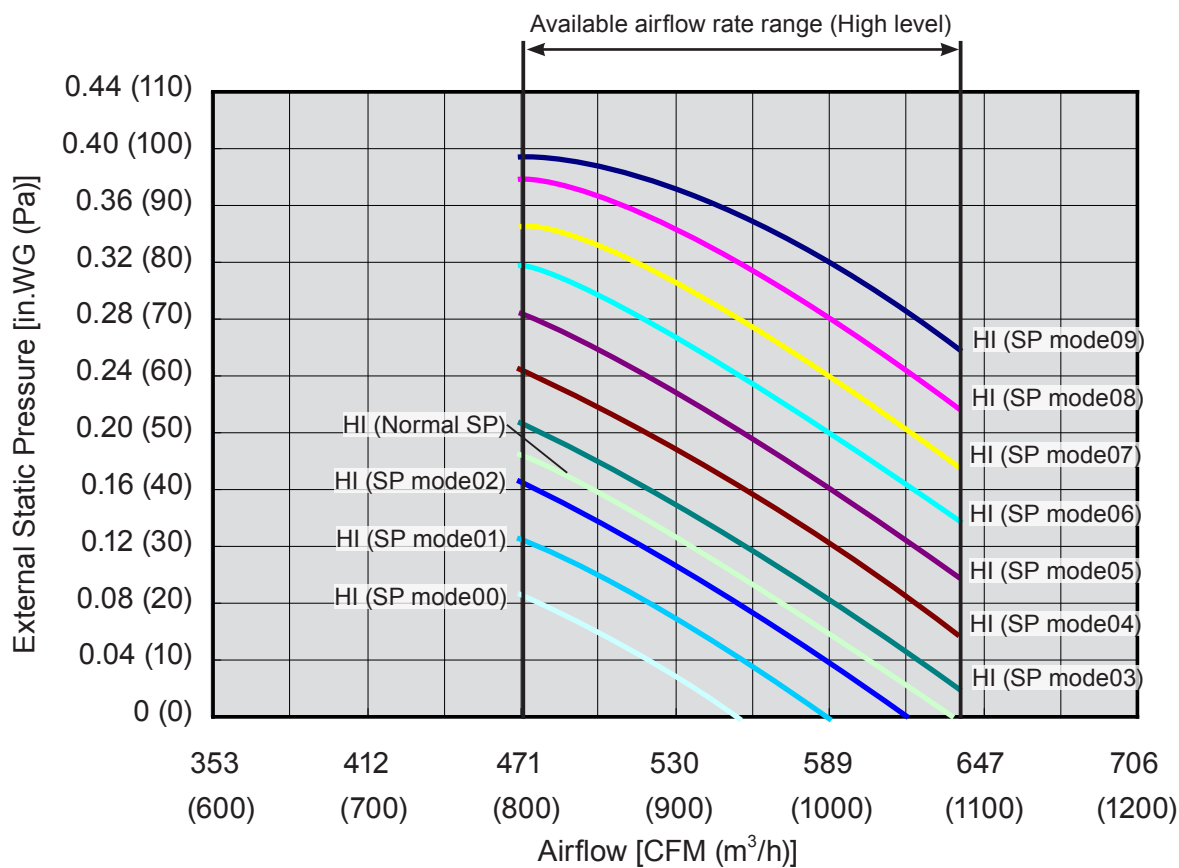
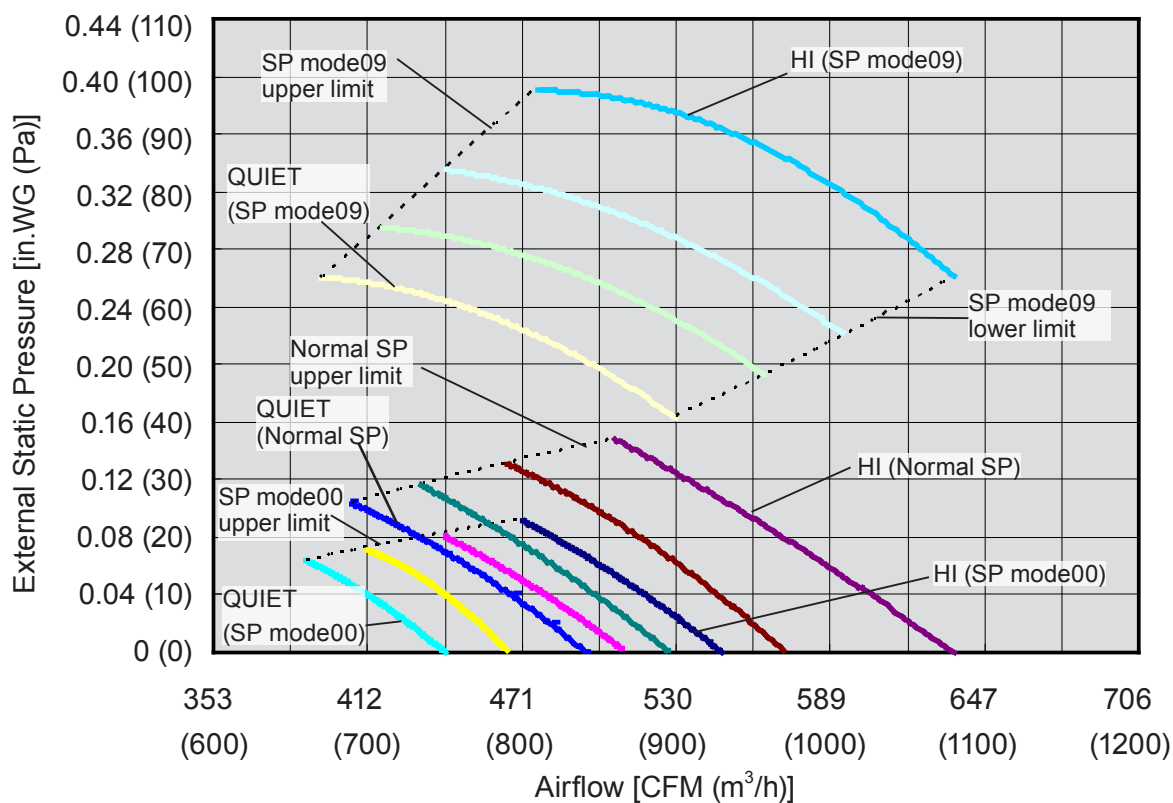
● Cooling



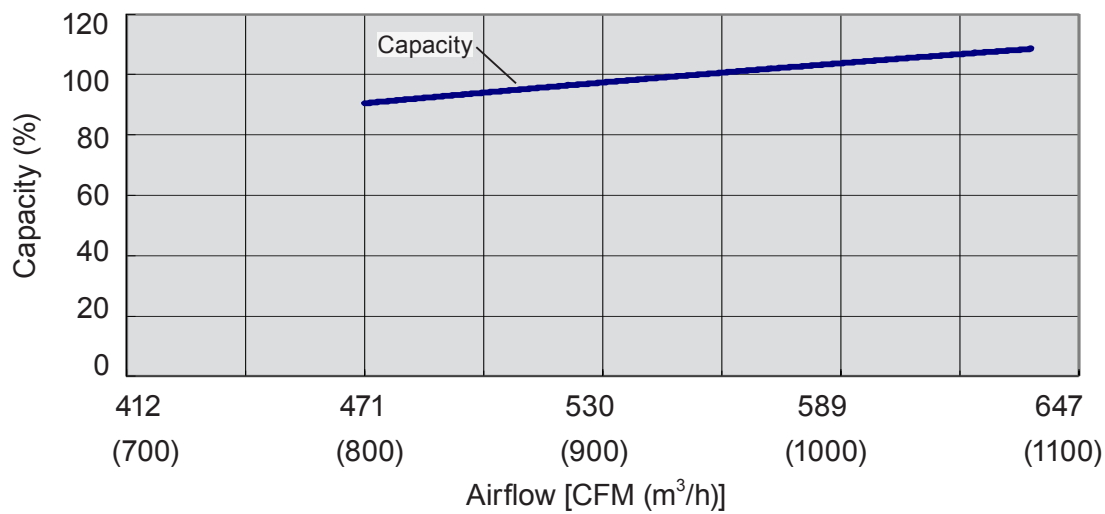
● Heating



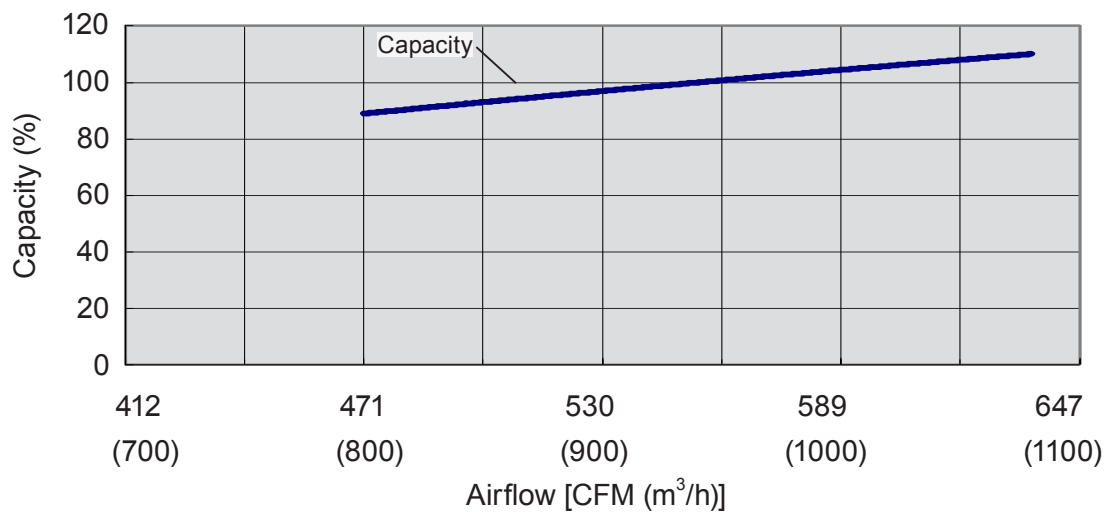
MODEL : ARU18RLF



● Cooling



● Heating



7-2. AIRFLOW

■ MODEL: ARU9RLF

● Cooling

Fan speed	Number of rotations (r.p.m.)	Airflow	
		m ³ /h	l/s
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	
		m ³ /h	l/s
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

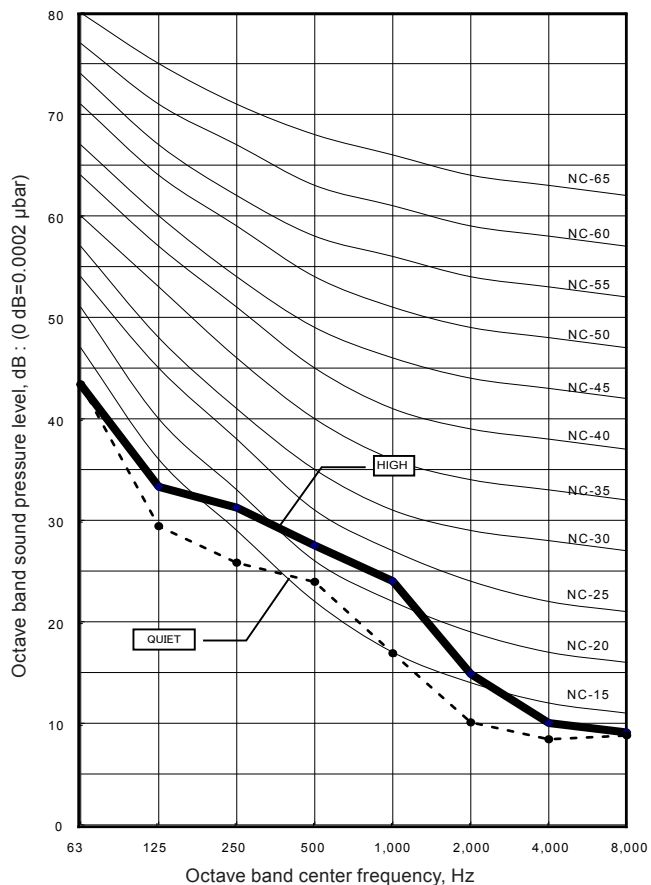
Fan speed	Number of rotations (r.p.m.)	Airflow	
HIGH	1380	m ³ /h	940
		l/s	261
		CFM	554
MED	1300	m ³ /h	880
		l/s	224
		CFM	518
LOW	1220	m ³ /h	820
		l/s	228
		CFM	483
QUIET	1140	m ³ /h	750
		l/s	208
		CFM	442

8. OPERATION NOISE (SOUND PRESSURE)

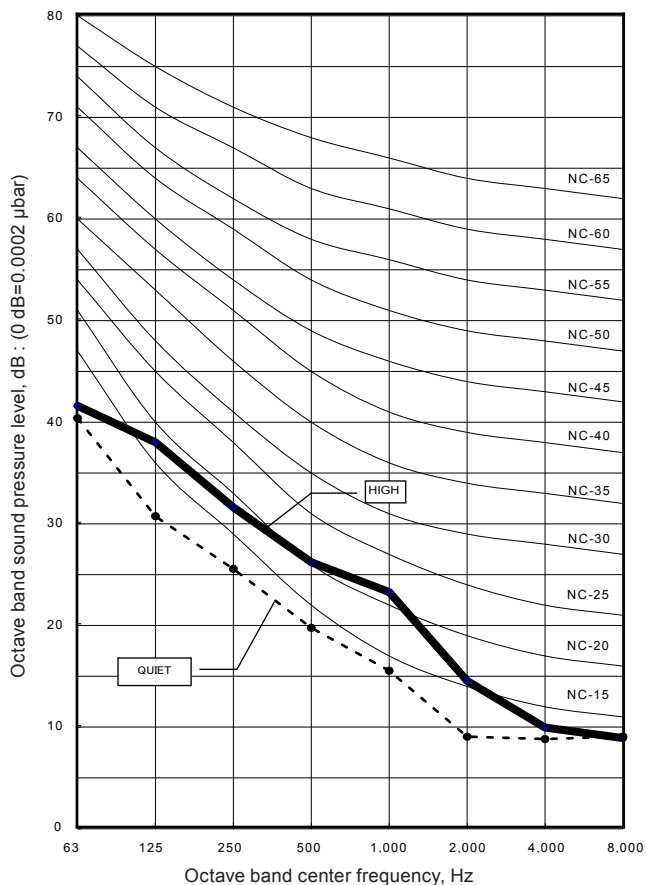
8-1. NOISE LEVEL CURVE

MODEL : ARU9RLF

● Cooling

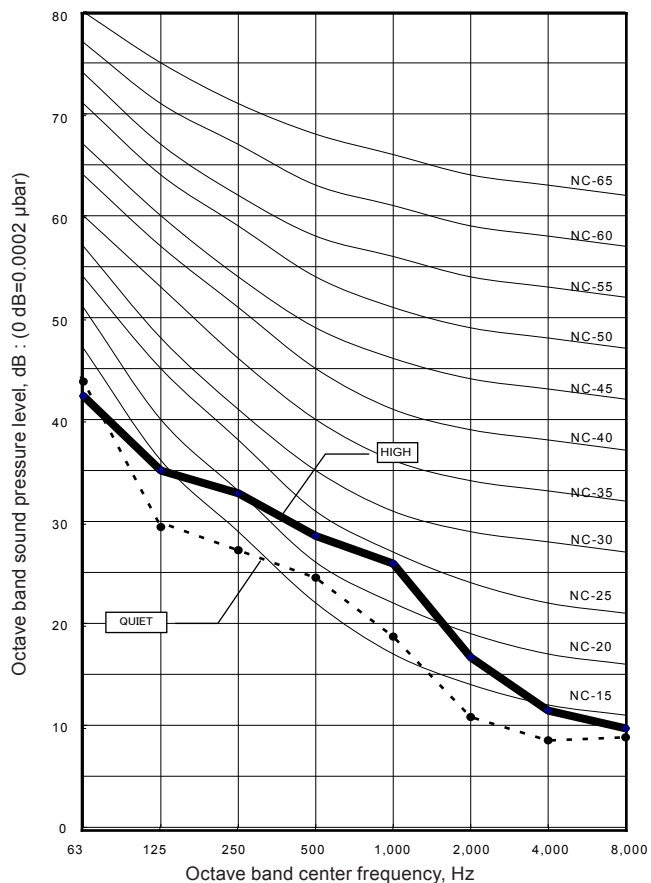


● Heating

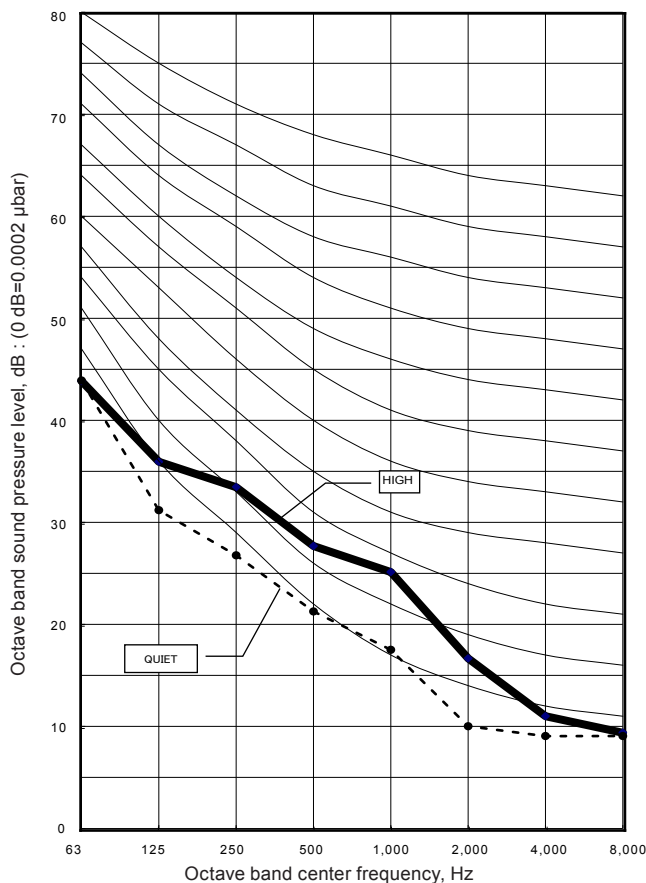


MODEL : ARU12RLF

● Cooling

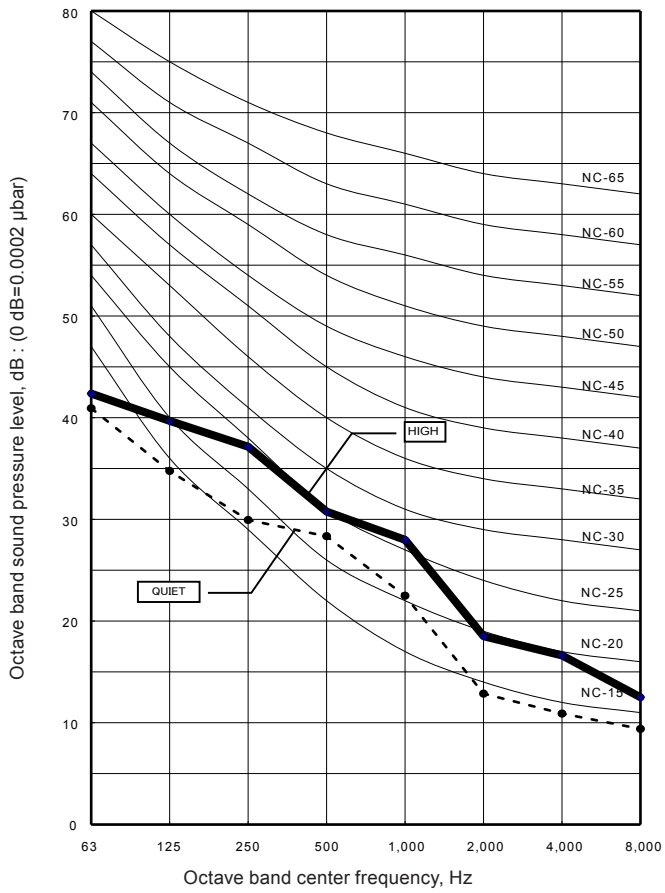


● Heating

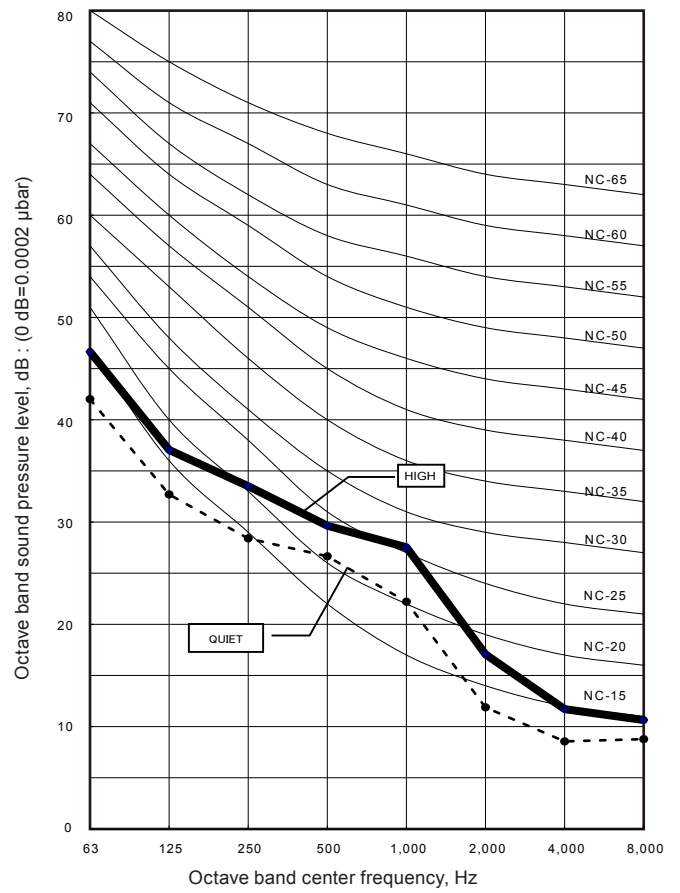


MODEL : ARU18RLF

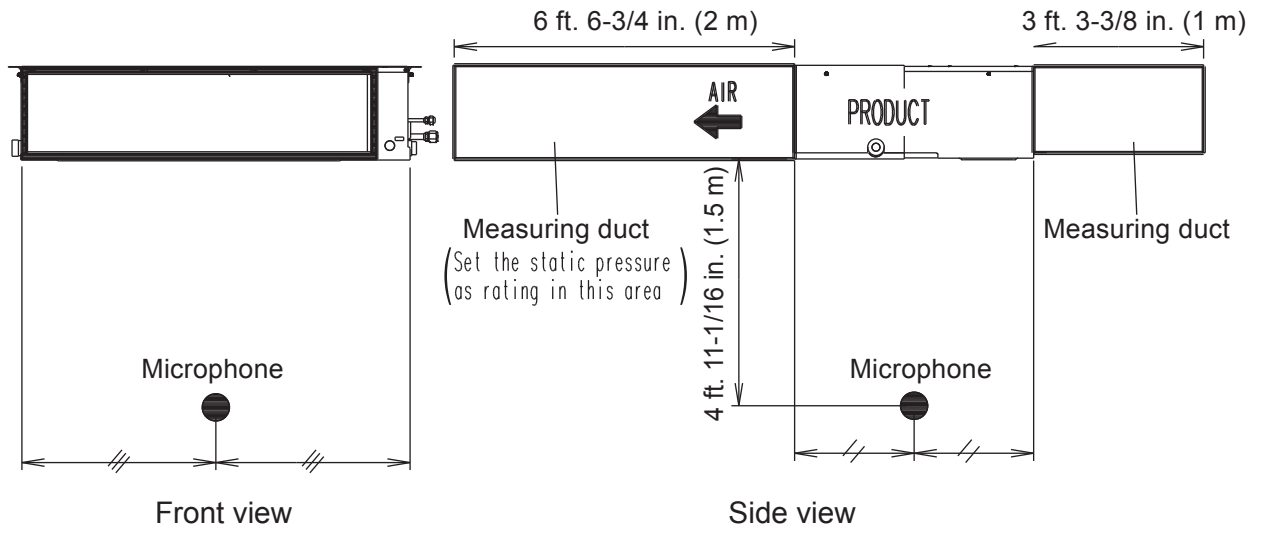
● Cooling



● Heating



8-2. SOUND LEVEL CHECK POINT



9. ELECTRICAL 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
Wiring Spec. *1	Connection cable	AWG	14		
	Limited wiring length	ft. (m)	85 (26)		

*1: Selected sample based on Japan Electrotechnical Standards and Codes Committee E0005.

10. SAFETY DEVICES

	Protection form	Model		
		ARU9RLF	ARU12RLF	ARU18RLF
Circuit protection	Current fuse (PC board)	250 V 3.15 A		
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)

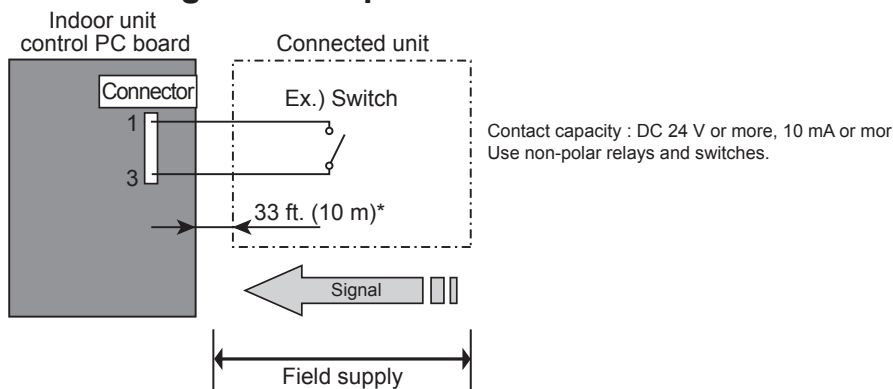
The air conditioner can be remotely operated by means of the following on-site work.

"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.

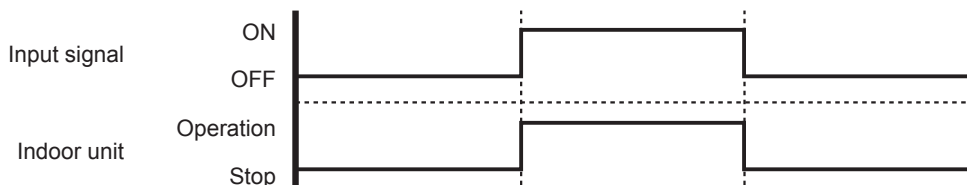
Unit operation	Initial setting after power is ON	Starting mode other than initial setting
Operation mode	Auto changeover	Mode at previous operation
Set temperature	76 °F (24 °C)	Temperature at previous operation
Air flow mode	AUTO	Mode at previous operation
Air direction (swing)	Standard air direction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

● Circuit diagram example

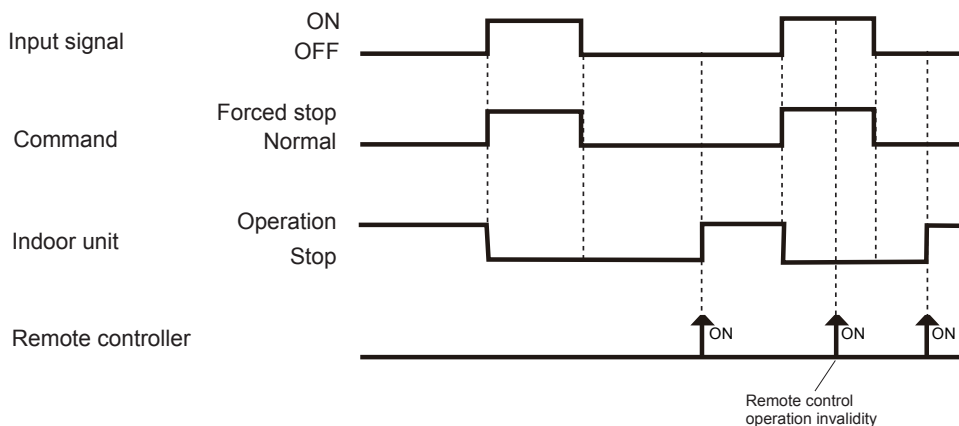


*: Make the distance from the PC board to the connected unit within 33 ft. (10 m).

● 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)

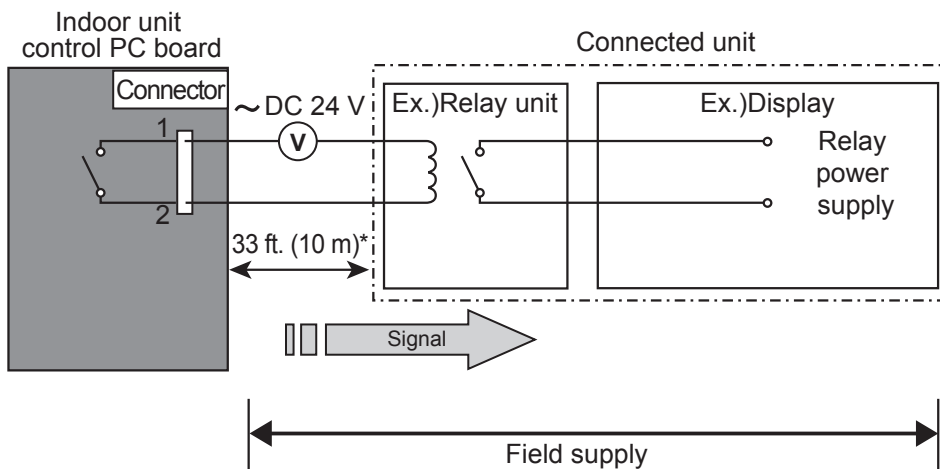


11-2. EXTERNAL OUTPUT

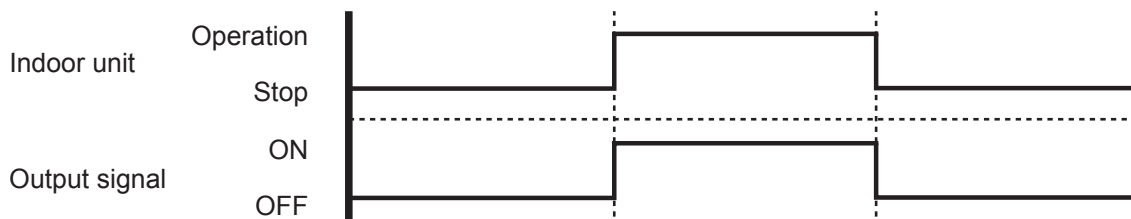
■ OPERATION STATUS OUTPUT

An air conditioner operation status signal can be output.

● Circuit diagram example



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



● Parts (Optional)

Model name
UTD-ECS5A

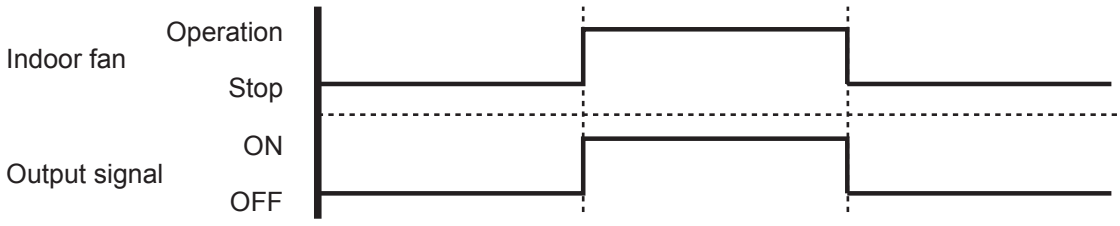
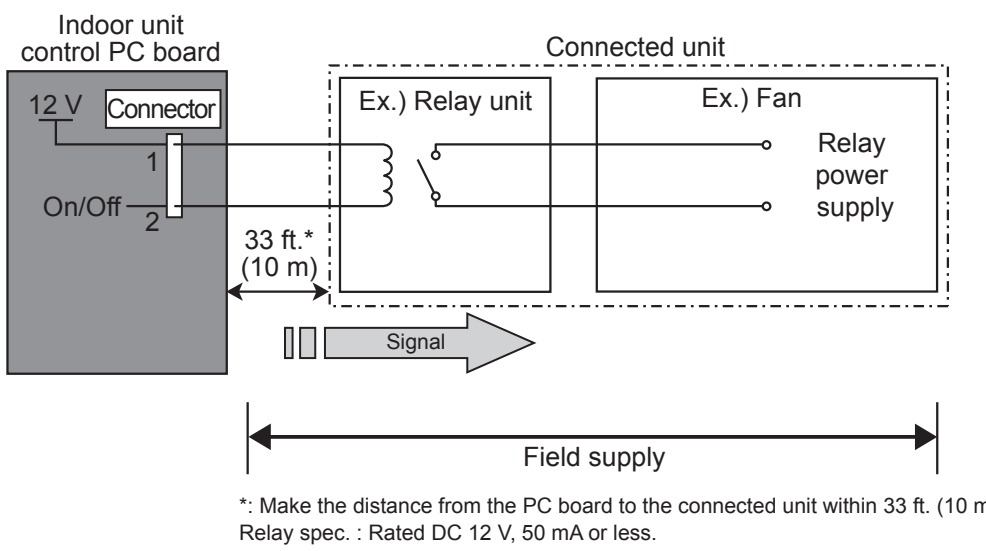
Wire (External output)



■ 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



● Parts (Optional)

Model name
UTD-ECS5A

Wire (Fresh air output)



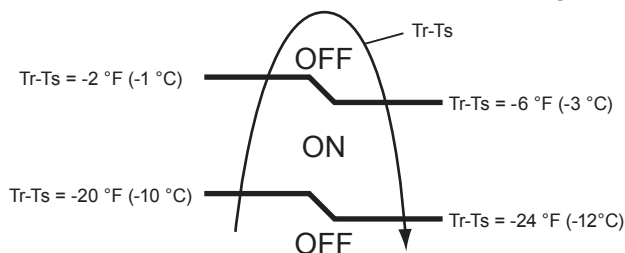
AUXILIARY HEATER OUTPUT

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);

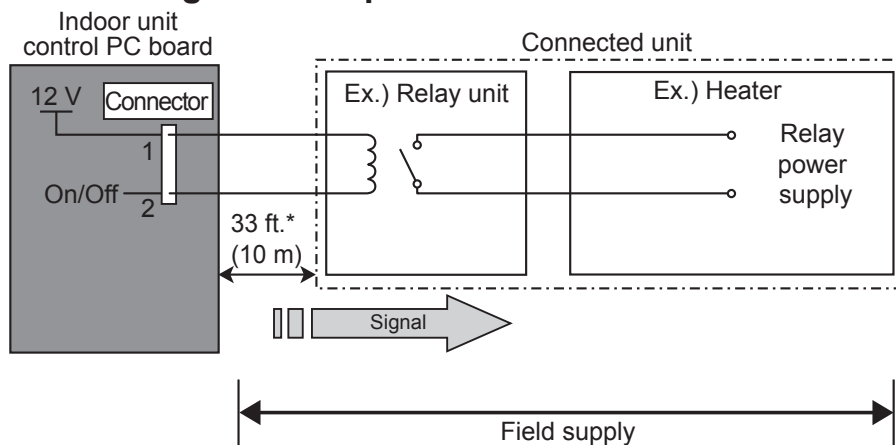
- and Room Temperature (T_r) increase above 52 °F (12°C), signal output is on.
- and Room Temperature (T_r) increase above 70 °F (21 °C), signal output is off.
- and Room Temperature (T_r) decrease below 66 °F (19 °C), signal output is ON.
- and Room Temperature (T_r) decrease below 48 °F(10 °C), signal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



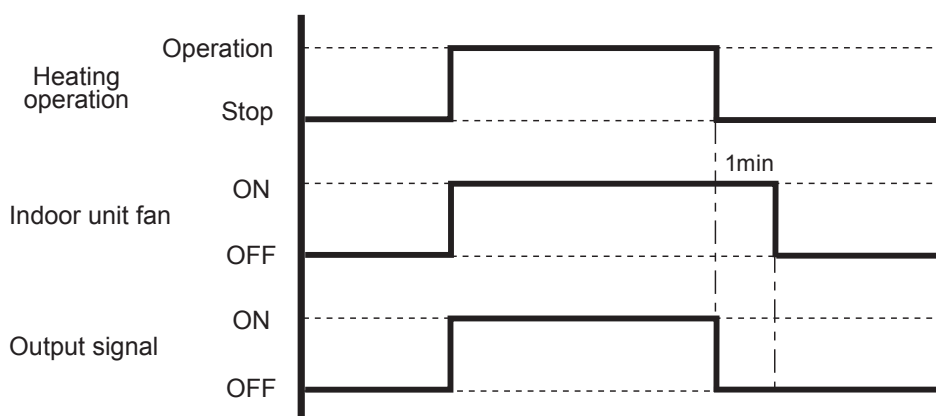
Jumper wire (Indoor Unit)

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 PC board.

Circuit diagram example



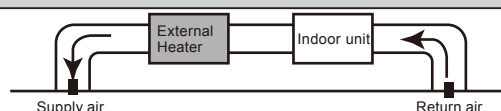
*: Make the distance from the PC board to the connected unit within 33 ft. (10 m)
Relay spec. : Rated DC 12 V, 50 mA or less.



CAUTION

Place an external heater between the indoor unit and the outlet.

Be sure to use delay control of the fan.



Parts (Optional)

Model name
UTD-ECS5A

Wire (Heater output)



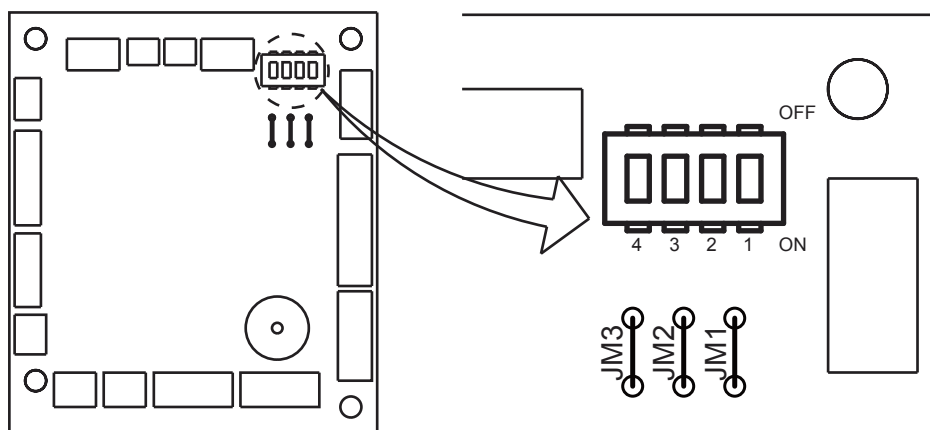
12. FUNCTION SETTINGS

12-1. INDOOR UNIT

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

■ SWITCH POSITION

MAIN PC board



■ DIP SWITCH 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 MAIN PC 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 change prohibited (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 may cause an 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.

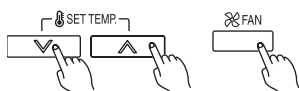
■ PREPARATION

- Before turning on the power of the indoor units:
 - 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.

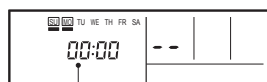
■ FUNCTION SETTING METHOD (for Wired remote controller)

● Setting method

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

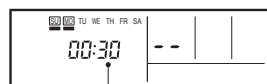
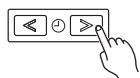


2) Press the SET BACK button to select the indoor unit number.



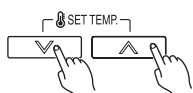
Unit number of INDOOR UNIT

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



Function number

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



Setting value

- (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.

FUNCTION DETAILS

Functions	
1)	Filter sign
2)	Static pressure
3)	Room temperature control for indoor unit sensor
4)	Auto restart
5)	Room temperature sensor switching
6)	Remote controller custom code
7)	External input control
8)	Room temperature sensor switching (Aux.)
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) Static pressure

Select the appropriate static pressure according to the installation conditions.

(◆... Factory setting)

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

3) 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)	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)	Less cooling More heating
		10	+1°F (+0.5°C)	
		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)			

In case of Slim duct type and Floor/Ceiling type models:

In floor console installations, select "01".

4) 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.

5) 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.

6) 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

7) 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

8) 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

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)
		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)
		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 Function 95 is not set first, Room temperature control settings (Function 30, 31, 92, 93) will be reset and you must re-do them again.

12-3. WIRED REMOTE CONTROLLER

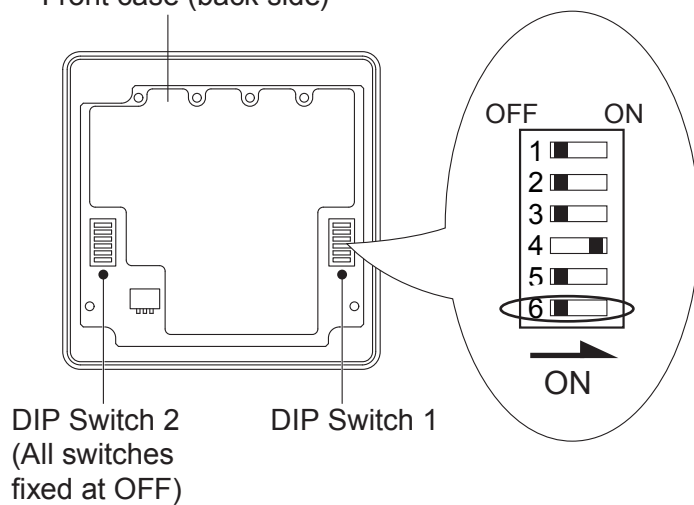
DIP Switch 1	SW1	Setting change prohibited
	SW2	Dual remote controller setting
	SW3	Setting change prohibited
	SW4	°F / °C switch
	SW5	Setting change prohibited
	SW6	Memory backup setting

* Do not use DIP Switch 2

■ SWITCH POSITION

● Wired remote controller

Front case (back side)



■ DIP SWITCH 1 SETTING

● SW1 setting change prohibited

(◆...Factory setting)

SW1	
OFF	Fixed at OFF
ON	Setting change prohibited

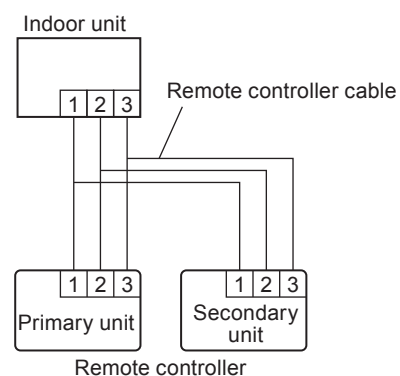
● SW2 setting

● 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 change prohibited

(◆...Factory setting)

SW3	
OFF	Fixed at OFF
ON	Setting change prohibited

● SW4 setting

● °F / °C switch

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

(◆...Factory setting)

SW4	
OFF	°C
ON	°F

● SW5 setting change prohibited

(◆...Factory setting)

SW5	
OFF	Fixed at OFF
ON	Setting change prohibited

● 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.

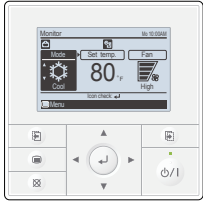
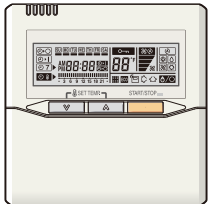


(◆...Factory setting)

SW6	Memory backup
OFF	Invalidity
ON	Validity

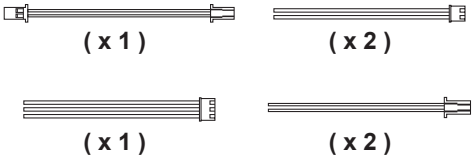

Never turn it ON in the case of simple remote controller.

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
8-1. NOISE LEVEL CURVE	02 - 11
8-2. SOUND LEVEL CHECK POINT	02 - 13
9. ELECTRIC CHARACTERISTICS.....	02 - 14
10. SAFETY DEVICES	02 - 15

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
Fan	Airflow rate	Cooling	CFM (m ³ /h)	794 (1350)	1206 (2050)
		Heating		989 (1680)	1083 (1840)
	Type × Q'ty		Propeller fan × 1		
	Motor output		W	115	
Sound pressure level		Cooling	dB (A)	44	49
		Heating		49	50
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	in. (mm)	Ø 1/4 (Ø 6.35)	
		Gas		Ø 3/8 (Ø 9.52)	Ø 1/2 (Ø 12.7)
	Method		Flare		
	Pre - charge length		49 (15)		
	Max. length		ft. (m)	66 (20)	
Max. height difference		49 (15)			
Operation range		Cooling	°F (°C)	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.

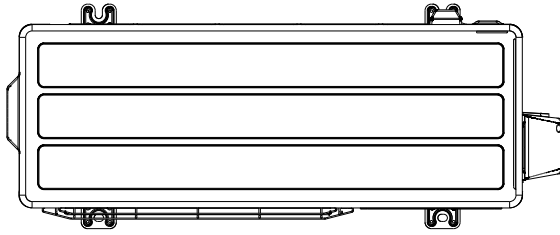
2. DIMENSIONS

■ MODEL: AOU9RLFC, AOU12RLFC, AOU18RLFC

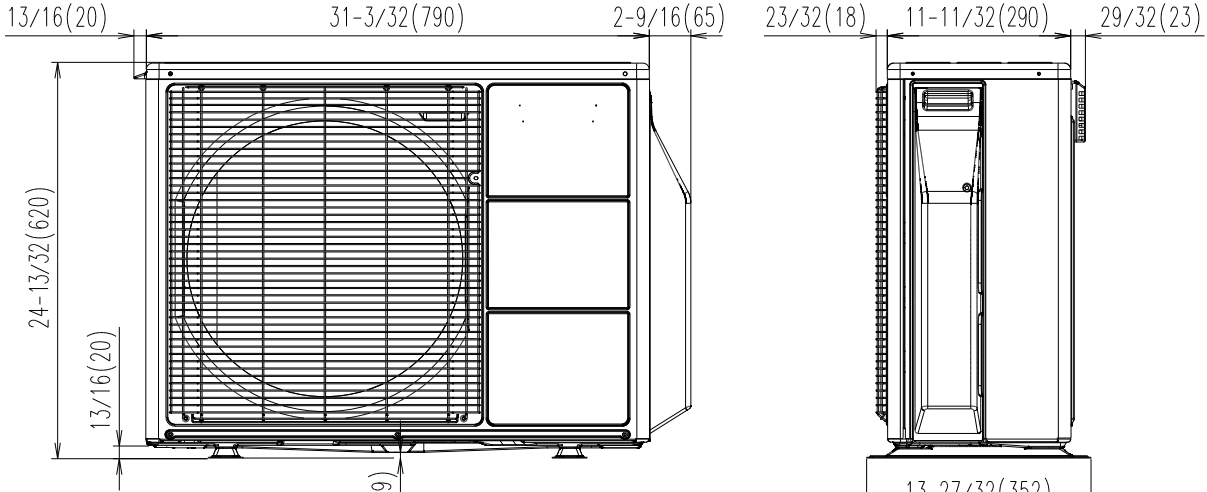
Unit : in. (mm)

OUTDOOR UNIT
AOU9-18RLFC

OUTDOOR UNIT
AOU9-18RLFC

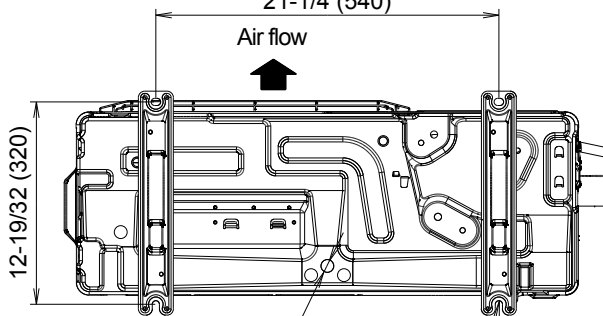


Top view

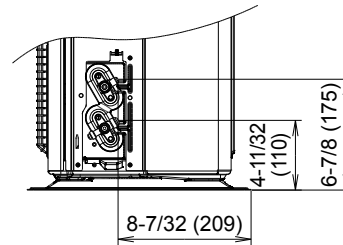


Front view

Side view



Bottom view

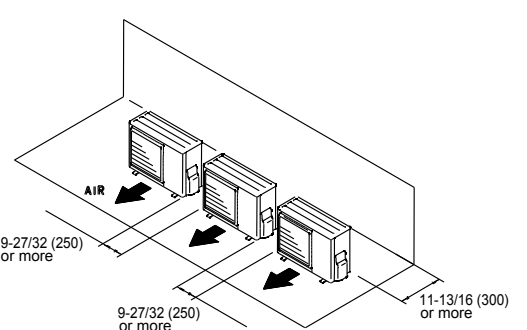
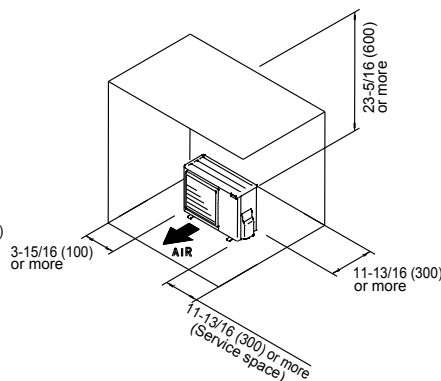
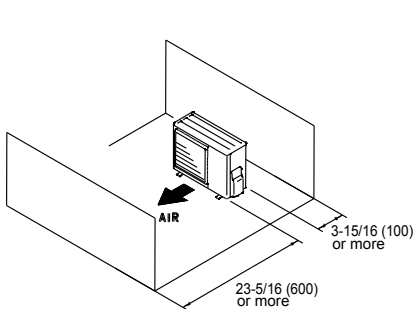


■ INSTALLATION PLACE

When there are obstacles at the back or front sides.

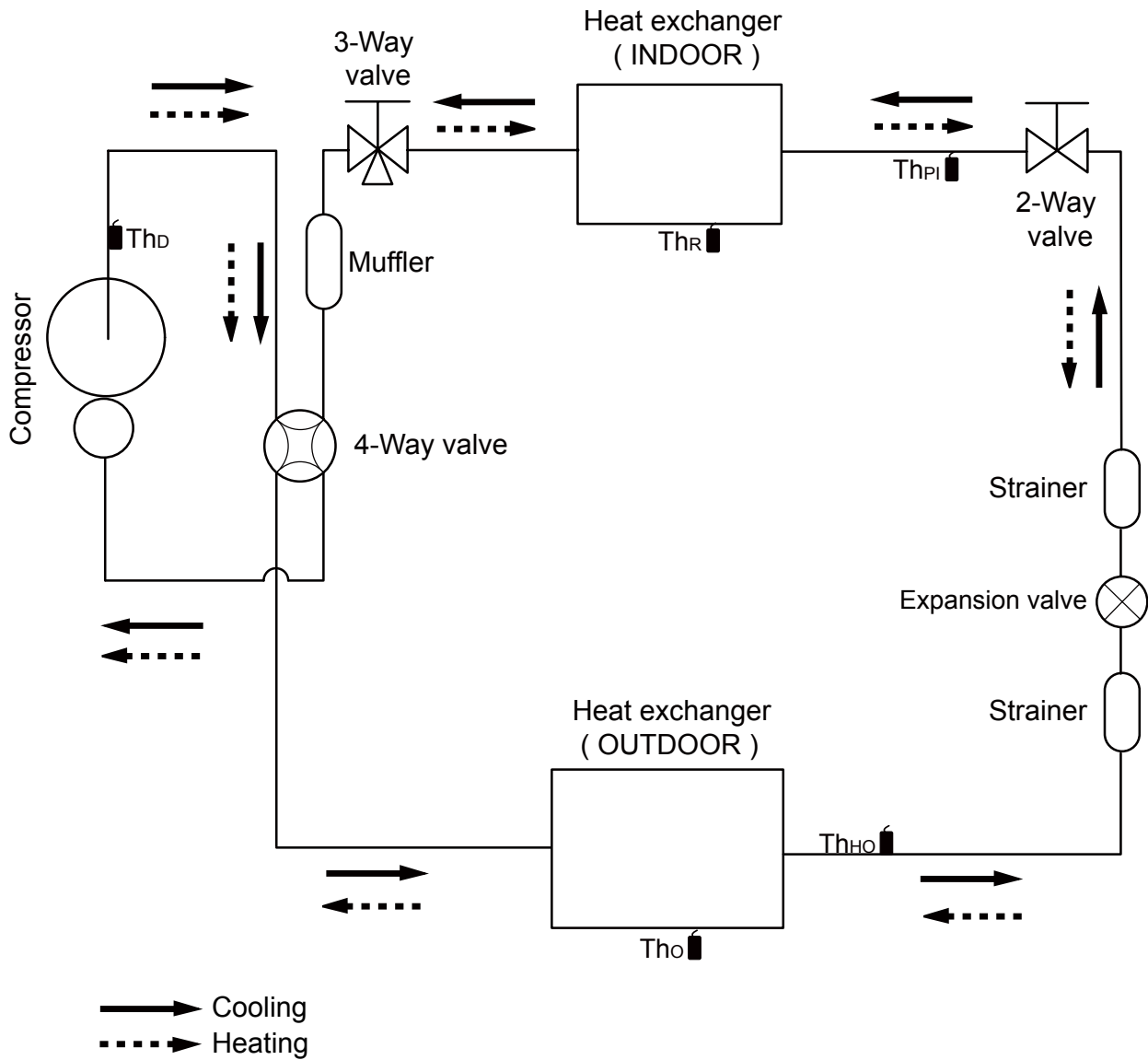
When there are obstacles at the back, side(s), and top.

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

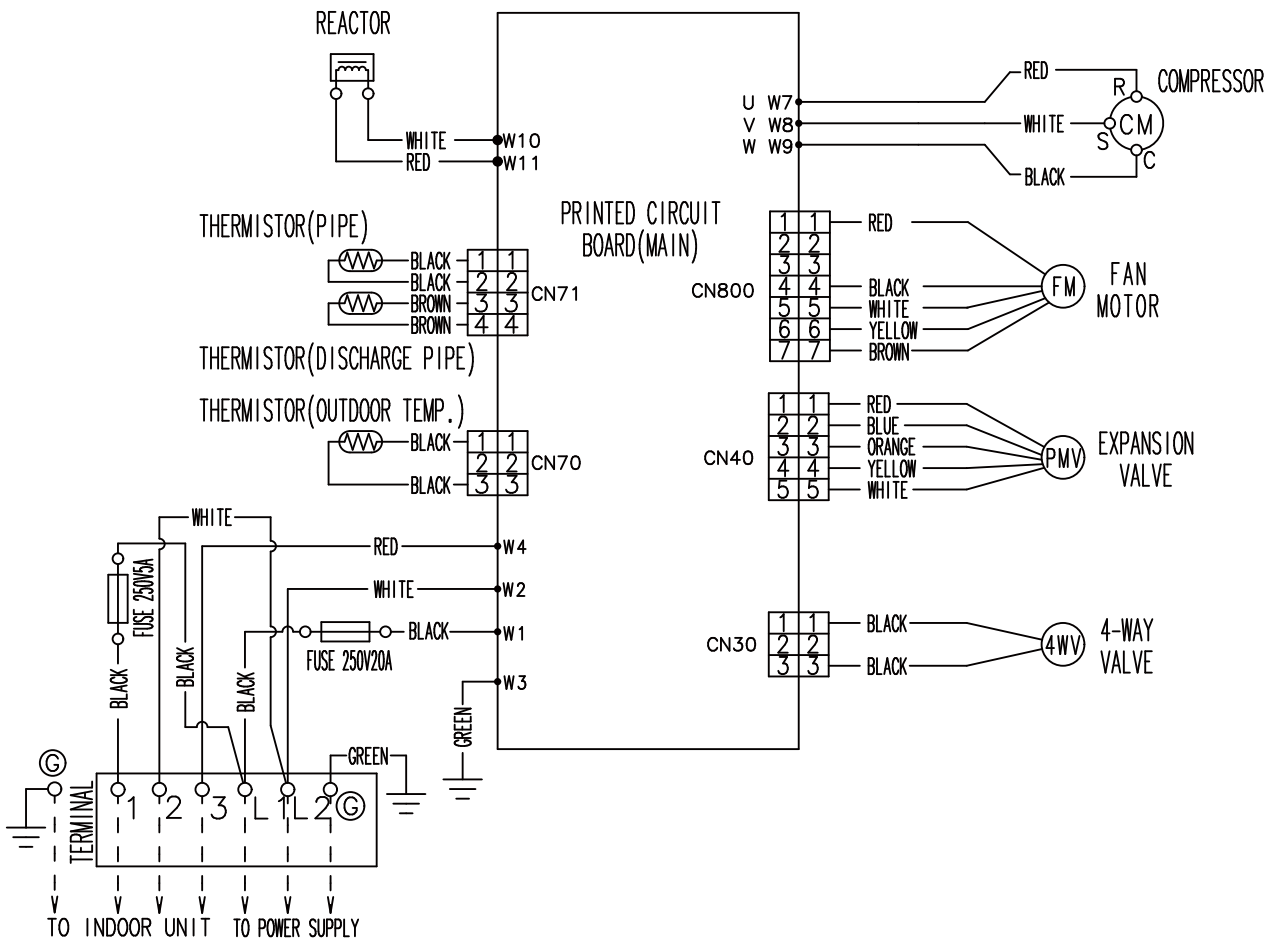
OUTDOOR UNIT
AOU9-18RLFC

4. WIRING DIAGRAMS

■ MODEL: AOU9RLFC, AOU12RLFC

OUTDOOR UNIT
AOU9-18RLFC

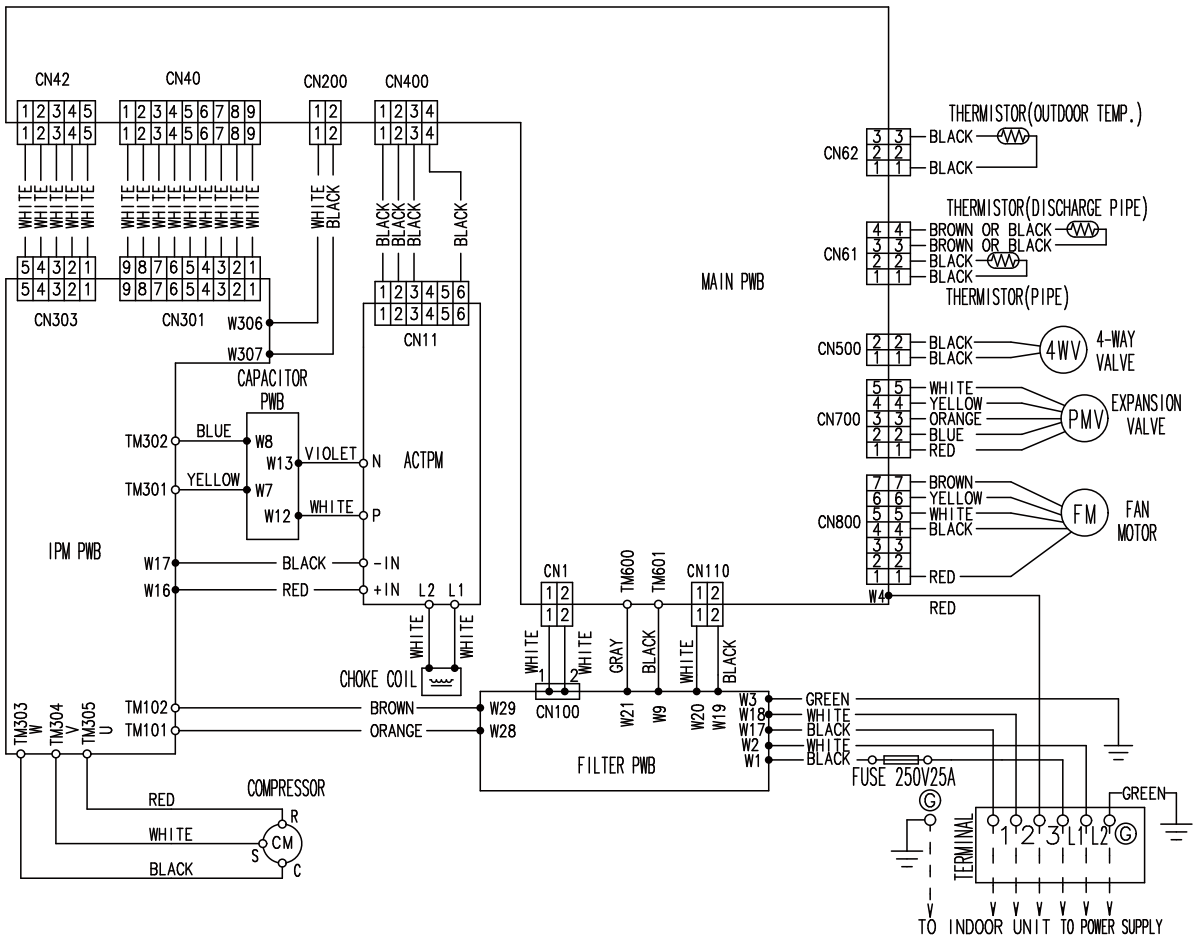
OUTDOOR UNIT
AOU9-18RLFC



MODEL: AOU18RLFC

OUTDOOR UNIT
AOU9-18RLFC

OUTDOOR UNIT
AOU9-18RLFC



5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

MODEL: AOU9RLFC, AOU12RLFC

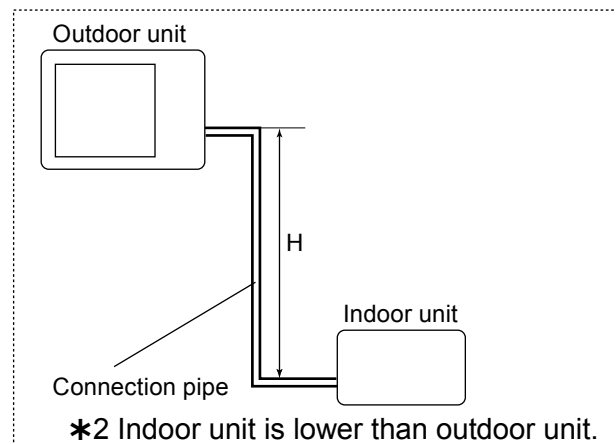
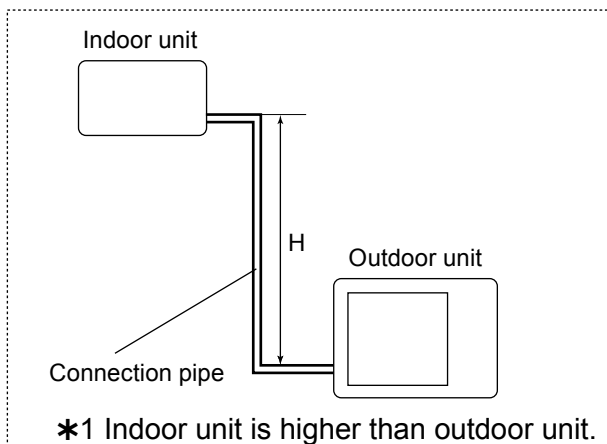
OUTDOOR UNIT
AOU9-18RLFC

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

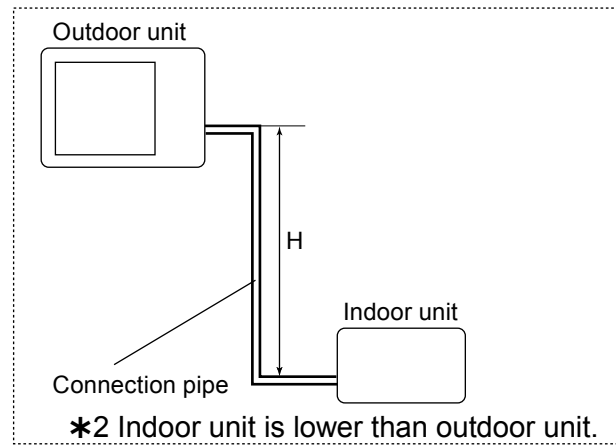
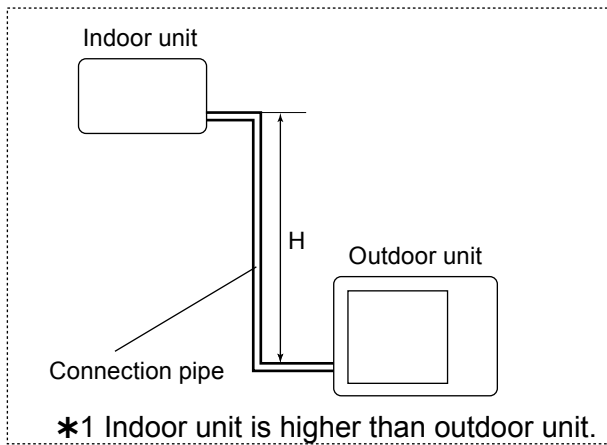
OUTDOOR UNIT
AOU9-18RLFC

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

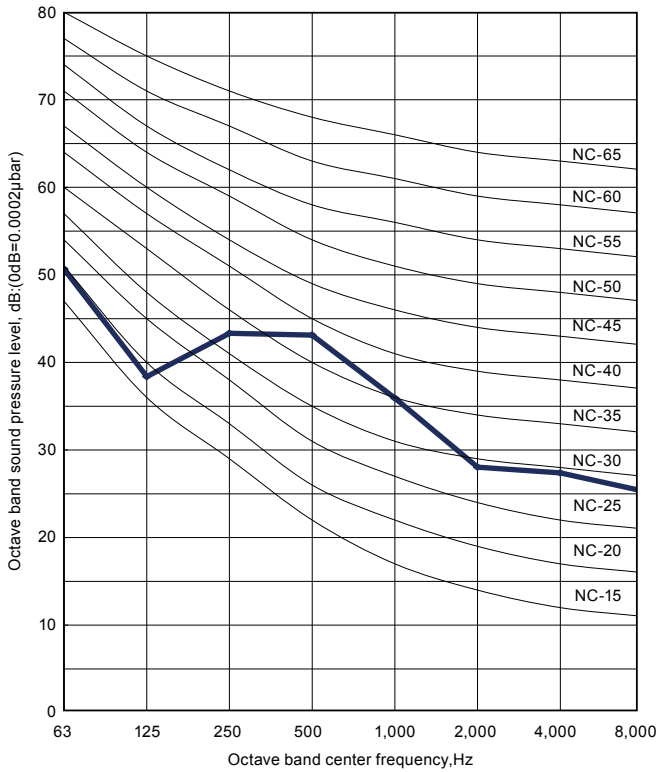
Number of rotations (r.p.m.)	Airflow	
	1000	m ³ /h
l/s		654
CFM		1386

8. OPERATION NOISE (SOUND PRESSURE)

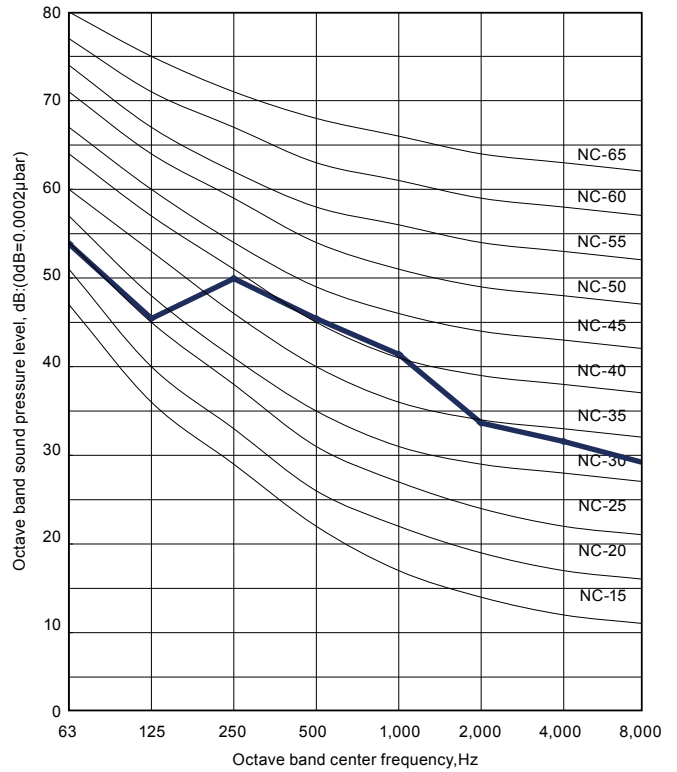
8-1. NOISE LEVEL CURVE

MODEL: AOU9RLFC

● Cooling

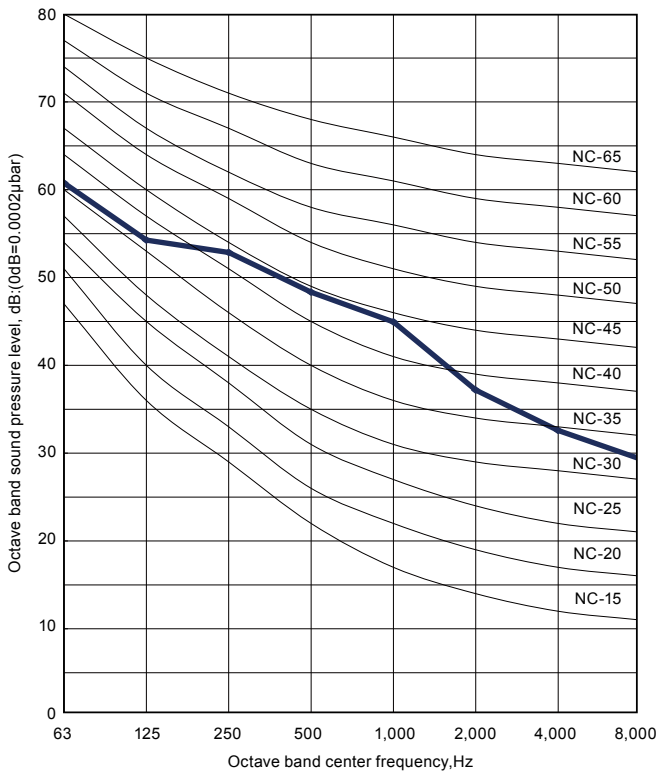


● Heating

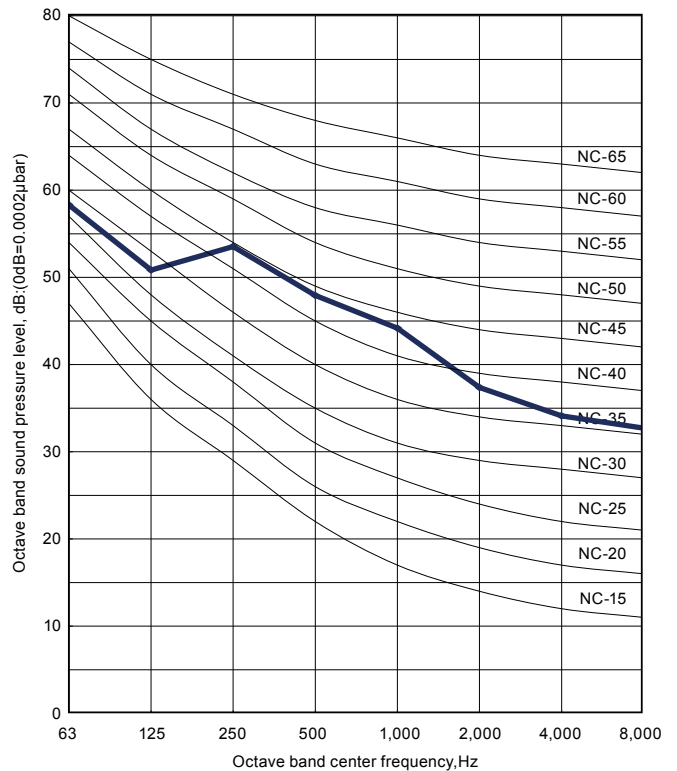


MODEL: AOU12RLFC

● Cooling



● Heating

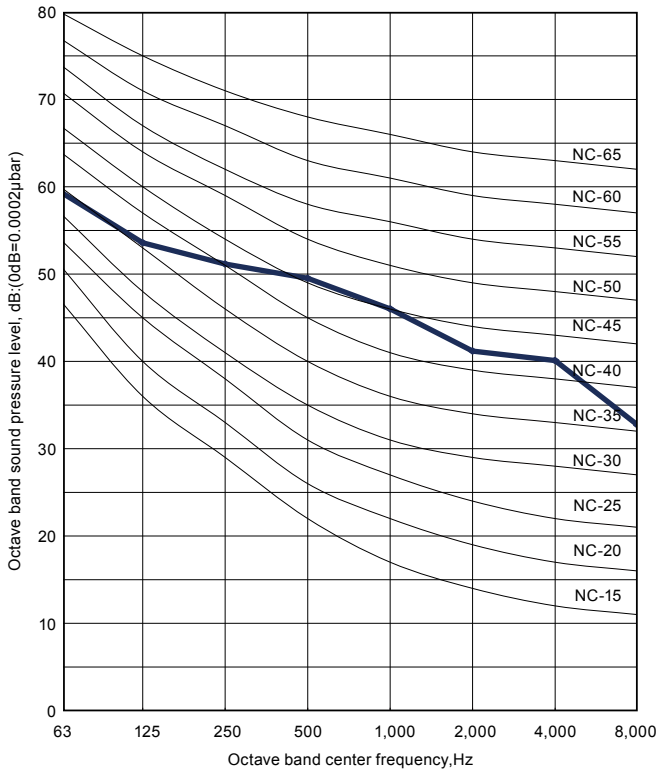


OUTDOOR UNIT
AOU9-18RLFC

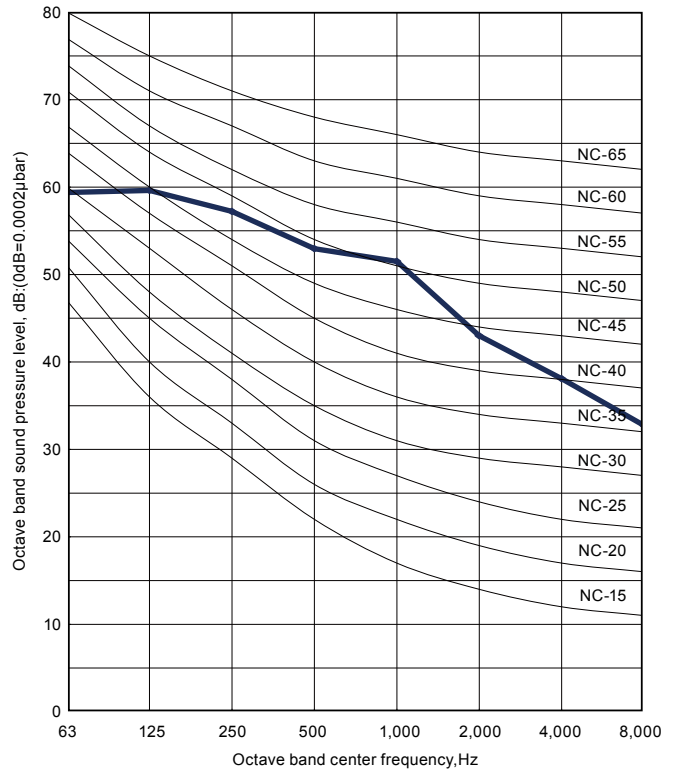
OUTDOOR UNIT
AOU9-18RLFC

MODEL: AOU18RLFC/ARU18RLF

● **Cooling**

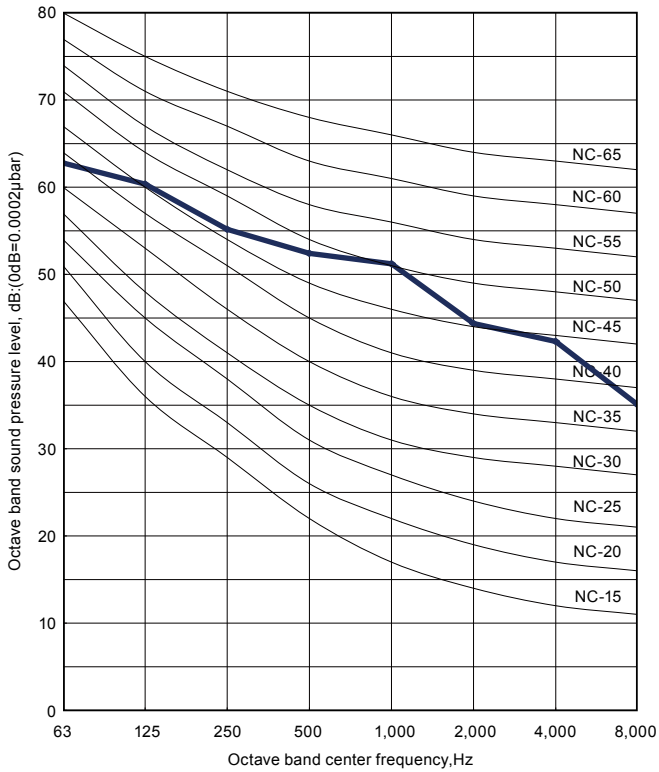


● **Heating**

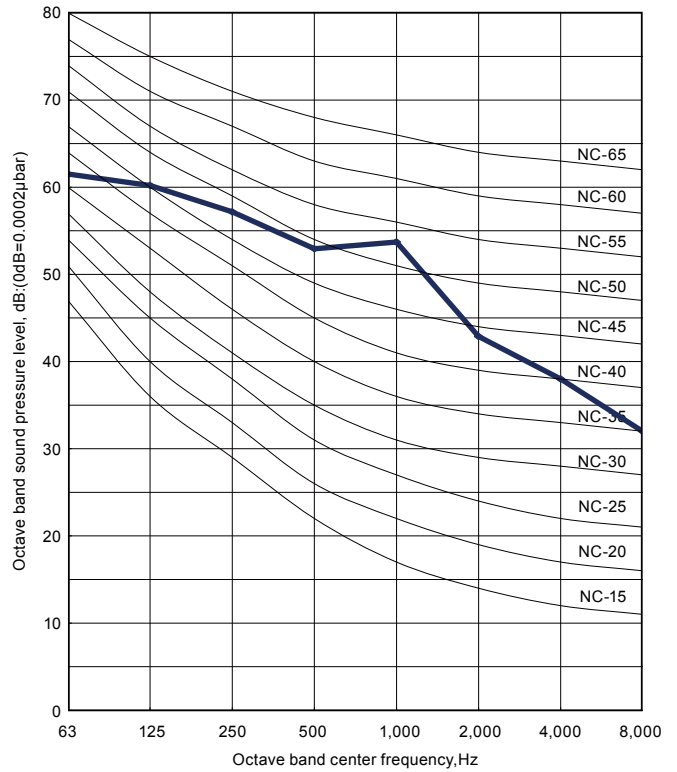


MODEL: AOU18RLFC/AUU18RLF

● **Cooling**

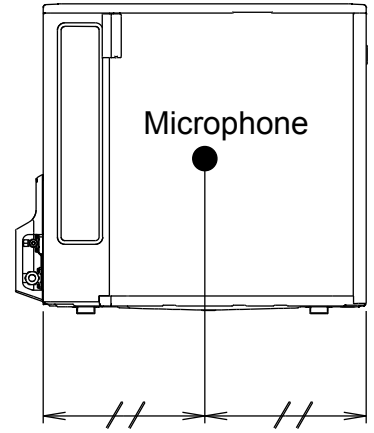
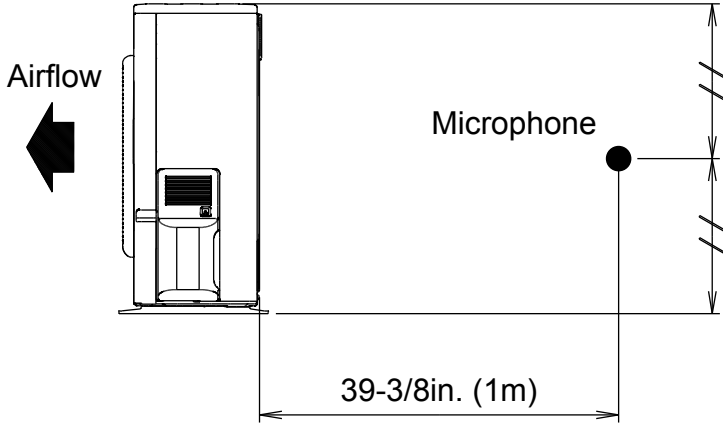


● **Heating**



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		