

2 . CEILING TYPE :

☐ **ABU18RULX, ABU24RULX**

2-1. FEATURE

MODELS :

ABU18RULX / AOU18RLX

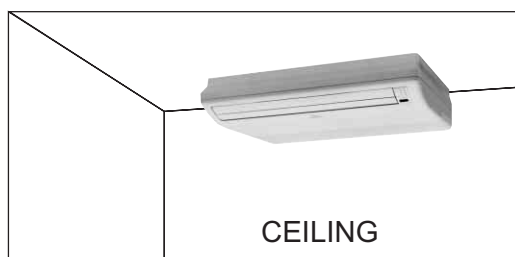
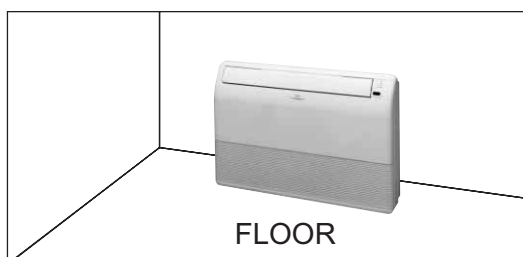
ABU24RULX / AOU24RLX

FEATURES

● Compact design

Symmetrical thin and compact design
Flat and round form

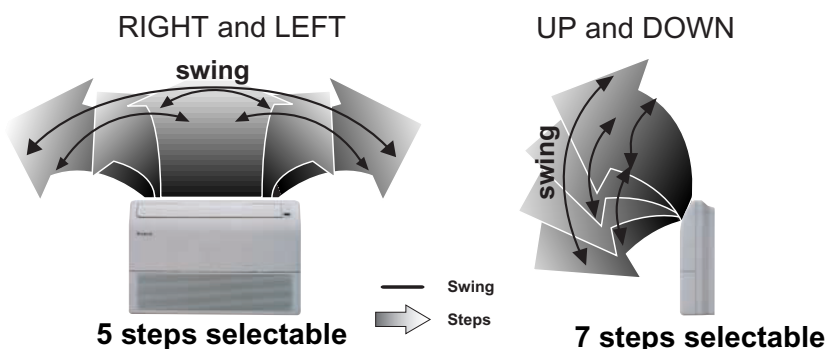
● Flexible installation



● Double auto swing

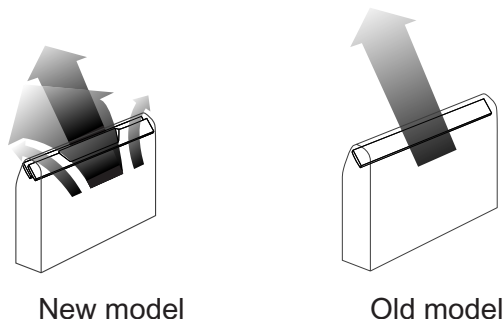
Combination of up/down and right/left air direction swing allows three-dimensional air direction control.

Since up/down air direction flaps operate automatically, according to the operating mode of the unit, it is possible to set the air direction based on the operating mode.



● Super vane

The double-flap "Super Vane" with newly developed special configuration boosts the air flow, sending cool air quickly to every corner of the room.



● Others

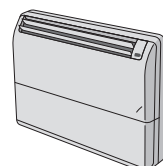
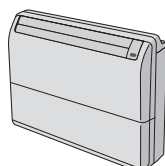
*Auto Restart

*Detachable and Washable Open Panel

*Auto Shut Flaps

Non-operation mode

Operation mode



2-2. REMOTE CONTROLLER

2-2-1. WIRELESS REMOTE CONTROLLER

Wireless remote controller is an accessory of all indoor units.

■ FEATURES



- * Four kinds of timer setup (ON / OFF / PROGRAM / SLEEP) are possible.
- * Four kinds of timers. Easy operation.
- * Can be used jointly with Wired remote controllers.
- * Easy to change transmission code (4 patterns) by button operation.

● Built-in timers

Select from four different timer programs (On/Off/Program/Sleep).

● Program timer

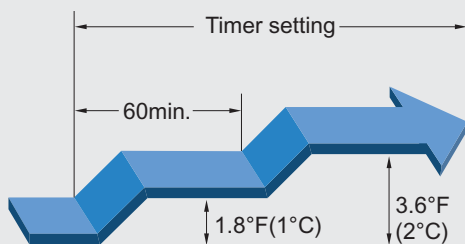
The program timer operates the ON and OFF timer once within a 24 hour period.

● Sleep timer

The sleep timer function automatically corrects the temperature thermostat setting according to the time setting to prevent excessive cooling and heating while sleeping.

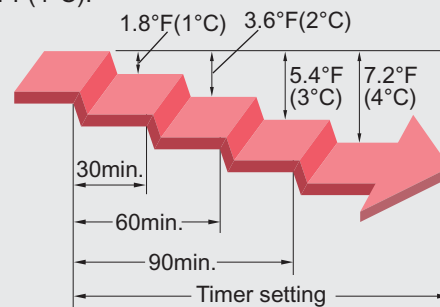
Cooling operation/dry operation

When the sleep timer is set, the set temperature automatically rises $1.8^{\circ}\text{F}(1^{\circ}\text{C})$ every hour. The set temperature can rise up to a maximum of $3.6^{\circ}\text{F}(2^{\circ}\text{C})$.

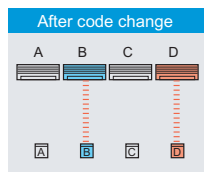
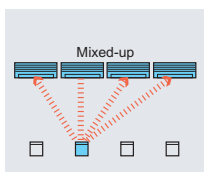


Heating operation

When the sleep timer is set, the set temperature automatically drops $1.8^{\circ}\text{F}(1^{\circ}\text{C})$ every 30 minutes. The set temperature can drop to a maximum of $7.2^{\circ}\text{F}(4^{\circ}\text{C})$.



● Simple operation

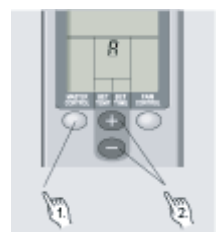


- Code selector switch eliminates unit being wrongly switched. (Up to 4 codes can be set.)

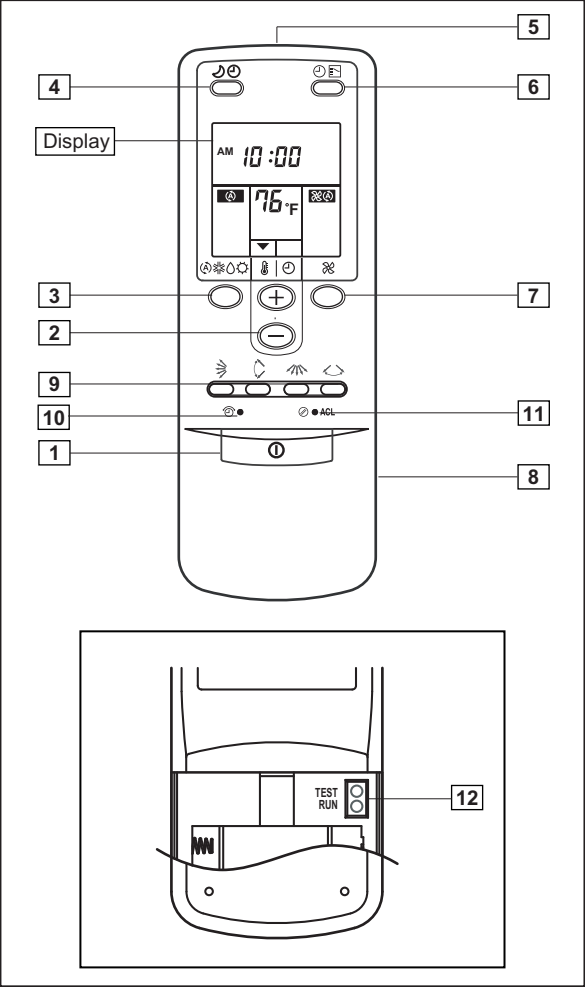


- Wide and precise transmitting range.

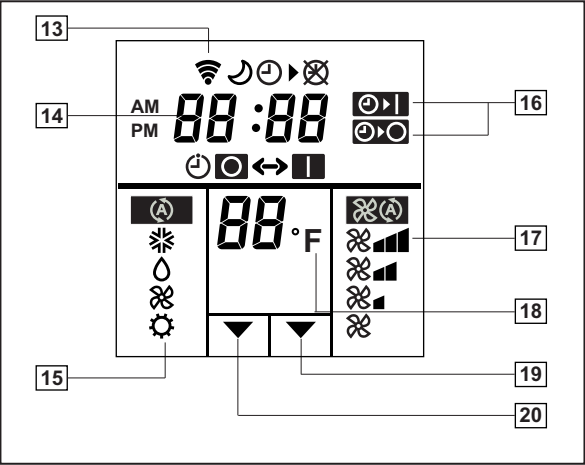
1. Press the MASTER CONTROL button for more than five seconds to start the code change.
2. Press the (+) or (-) button to select the desired code.
A → B → C → D
3. Press the MASTER CONTROL button again to end the code change.



FUNCTIONS



Display panel



SPECIFICATION

SIZE [H x W x D in.(mm)]	6 - 7 / 32 x 2 - 13 / 64 x 25 / 32 (158 x 56 x 20)
WEIGHT oz.(g)	2 - 15 / 32 (70)

2-3. SPECIFICATIONS

FLOOR / CEILING TYPE
ABU18-24R

FLOOR / CEILING TYPE
ABU18-24R

TYPE				UNIVERSAL MODELS			
				INVERTER HEAT PUMP TYPE			
MODEL NAME		INDOOR		ABU18RULX	ABU24RULX		
		OUTDOOR		AOU18RLX	AOU24RLX		
POWER SOURCE				208/230V ~ 60Hz			
AVAILABLE VOLTAGE RANGE				187-253V ~ 60Hz			
CAPACITY	COOLING	RATED/MAX	kW	5.2/6.3	6.5/8.0		
			BTU/h	17,800/21,500	22,200/27,300		
	HEATING	RATED/MAX	kW	6.30/7.50	7.03/8.50		
			BTU/h	21,500/25,600	24,000/29,000		
INPUT POWER	COOLING	RATED/MAX	kW	1.63/2.88	2.25/2.88		
	HEATING	RATED/MAX		2.25/2.88	2.35/2.88		
CURRENT	COOLING	RATED/MAX	A	7.1/12.5	9.8/12.5		
	HEATING	RATED/MAX		9.8/12.5	10.2/12.5		
STARTING CURRENT			A	9.1	9.6		
SEER		COOLING		16.0	15.0		
HSPF		HEATING		8.5	8.5		
MOISTURE REMOVAL			pints/h(l/h)	5.3(2.5)	7.4(3.5)		
AIR CIRCULATION COOL/HEAT	INDOOR	High	CFM(m³/h)	459(780) / 459(780)	518(880) / 518(880)		
		Med		383(650) / 383(650)	435(740) / 435(740)		
		Low		324(550) / 324(550)	371(630) / 371(630)		
		Quiet		-	-		
	OUTDOOR	High	1942(3300) / 1942(3300)	2119(3600) / 2119(3600)			
		Low	-	-			
FAN SPEED COOL/HEAT	INDOOR	High	r.p.m	1060/1060	1180/1180		
		Med		890/890	1000/1000		
		Low		770/770	900/900		
		Quiet		-	-		
	OUTDOOR	High		780/780	850/900		
		Low		-	-		
FAN TYPE x Q'ty		INDOOR		SIROCCO × 2			
		OUTDOOR		PROPELLER × 1			
FAN MOTOR OUTPUT		INDOOR	W	42			
		OUTDOOR		100			
NOISE LEVEL (SOUND PRESSURE)	INDOOR	High	dB(A)	43.0/43.0(Floor console) , 43.0/43.0(Under ceiling)	47.0/47.0(Floor console) , 47.0/47.0(Under ceiling)		
		Med		39.0/39.0(Floor console) , 39.0/39.0(Under ceiling)	43.0/43.0(Floor console) , 43.0/43.0(Under ceiling)		
		Low		35.0/35.0(Floor console) , 35.0/35.0(Under ceiling)	38.0/38.0(Floor console) , 38.0/38.0(Under ceiling)		
COOL/HEAT	OUTDOOR			51.0/51.0	53.0/53.0		
COMPRESSOR	TYPE		DC TWIN ROTARY (INVERTER)				
	OUTPUT		W	1300			
	STARTING METHOD		Inverter				
HEAT EXCHANGER TYPE	INDOOR	Coil		Copper tube			
		Fin		Aluminium			
		Rows x Stages		3 × 12			
		Fin Pitch	FPI	20			
	OUTDOOR	Coil Dimensions		in.(mm)		9 - 29/32 × 31 - 1/4 × 1 - 7/16 (252 × 800 × 36.38)	
		Coil		Copper tube			
		Fin		Aluminium			
		Rows x Stages		2 × 38			
	Fin Pitch	FPI	20				
	Coil Dimensions		in.(mm)		31 - 13/32 × 35 - 7/16 × 1 - 7/16 (798 × 900 × 36.38)		
CASING COLOR		INDOOR		White (5Y9/0.5NN)			
		OUTDOOR		Beige (10YR7.5/1.0NN)			
DIMENSIONS H × W × D	INDOOR	NET	in.(mm)	7 - 27/32 × 38 - 31/32 × 25 - 25/32 (199 × 990 × 655)			
	OUTDOOR			32 - 11/16 × 35 - 7/16 × 13 (830 × 900 × 330)			
	INDOOR	GROSS		12 - 19/32 × 45 - 9/32 × 31 - 3/32 (320 × 1150 × 790)			
	OUTDOOR			38 - 3/16 × 41 - 11/32 × 17 - 17/32 (970 × 1050 × 445)			
WEIGHT	INDOOR	NET	lb.(kg)	62(28)	62(28)		
	OUTDOOR			141(64)	141(64)		
	INDOOR	GROSS		82(37)	82(37)		
	OUTDOOR			154(70)	154(70)		
PIPE	CONNECTION METHOD			FLARE	FLARE		
	SIZE	LIQUID	in.(mm)	Φ 1/4(6.35)	Φ 3/8(9.52)		
		GAS		Φ 1/2(12.70)	Φ 5/8(15.88)		
	MAX LENGTH		ft.(m)	164(50) [chargeless:49(15)]			
	MAX HEIGHT		ft.(m)	66(20)			
REFRIGERANT		TYPE		R410A			
		CHARGE	lb. oz.(g)	4lb. 3-1/32oz.(1900)			
REFRIGERANT OIL		TYPE		POE			
OPERATION(OUTDOOR)		COOLING		°F (°C)	0 to 115 (-18 to 46)		
		HEATING			14 to 75 (-10 to 24)		
REMOTE CONTROLLER TYPE				WIRELESS (Option WIRED)			
DRAIN PIPE	MATERIAL			ABS			
	SIZE		mm (Reference in.)	Outer diameter 29.0(1-5/32) Inner diameter 25.0(31/32)			

Note:
Specifications are based on the following conditions.
Power source of specifications : 230V
Cooling : Indoor temperature of 80.6°F(27°C)/DB/66.2°F(19°C)/WB,and outdoor temperature of 95.0°F(35°C)/DB/75.2°F(24°C)/WB.
Heating : Indoor temperature of 68.0°F(20°C)/DB/59.0°F(15°C)/WB,and outdoor temperature of 44.6°F(7°C)/DB/42.8°F(6°C)/WB.
Pipe length : 24ft. 7in.(7.5m),Height difference : 0 ft.(0m) [Outdoor unit - Indoor unit]

2-4. DIMENSIONS

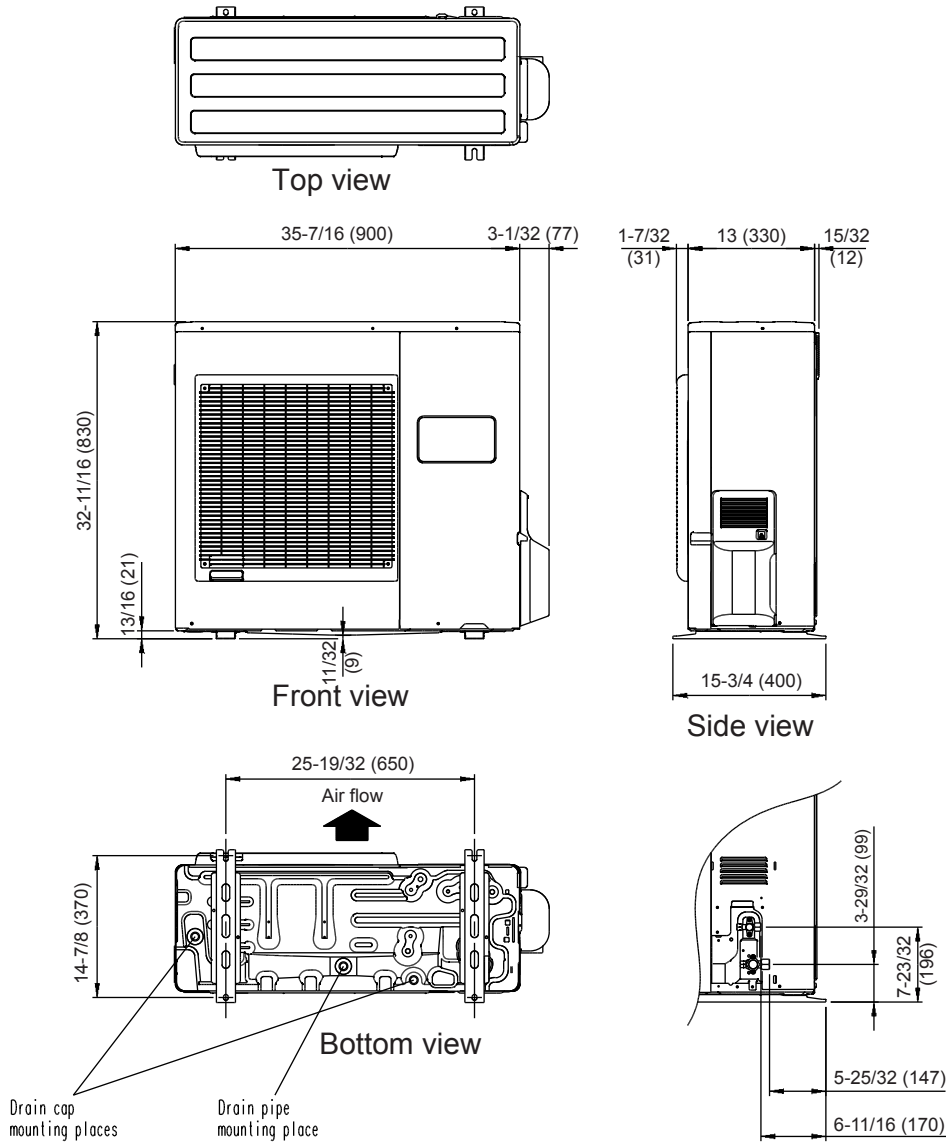
2-4-1. OUTDOOR UNIT

MODELS : AOU18R, AOU24R

Unit : in.(mm)

FLOOR / CEILING TYPE
ABU18-24R

FLOOR / CEILING TYPE
ABU18-24R

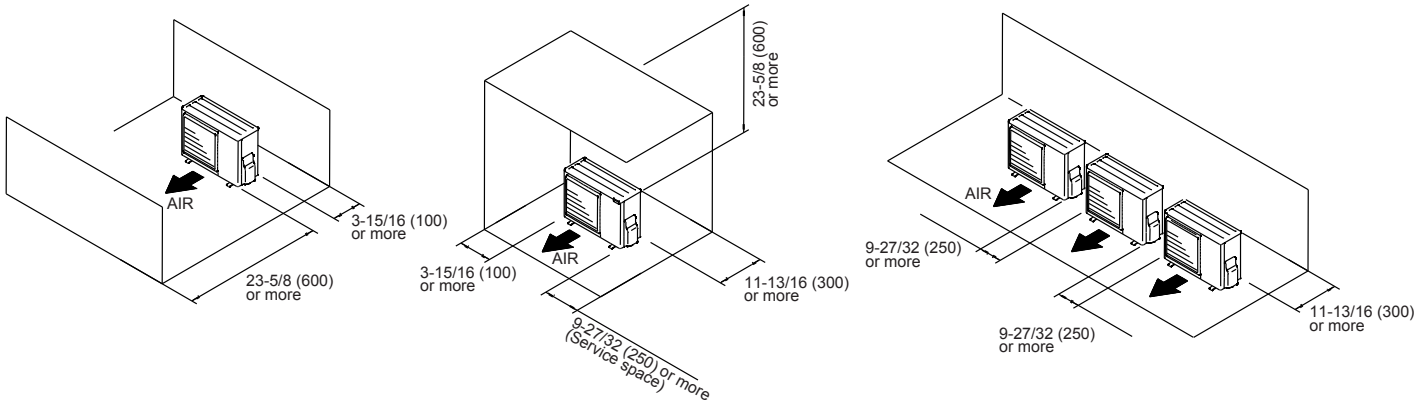


MOUNTING POSITION

When there are obstacles at the back or front sides.

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

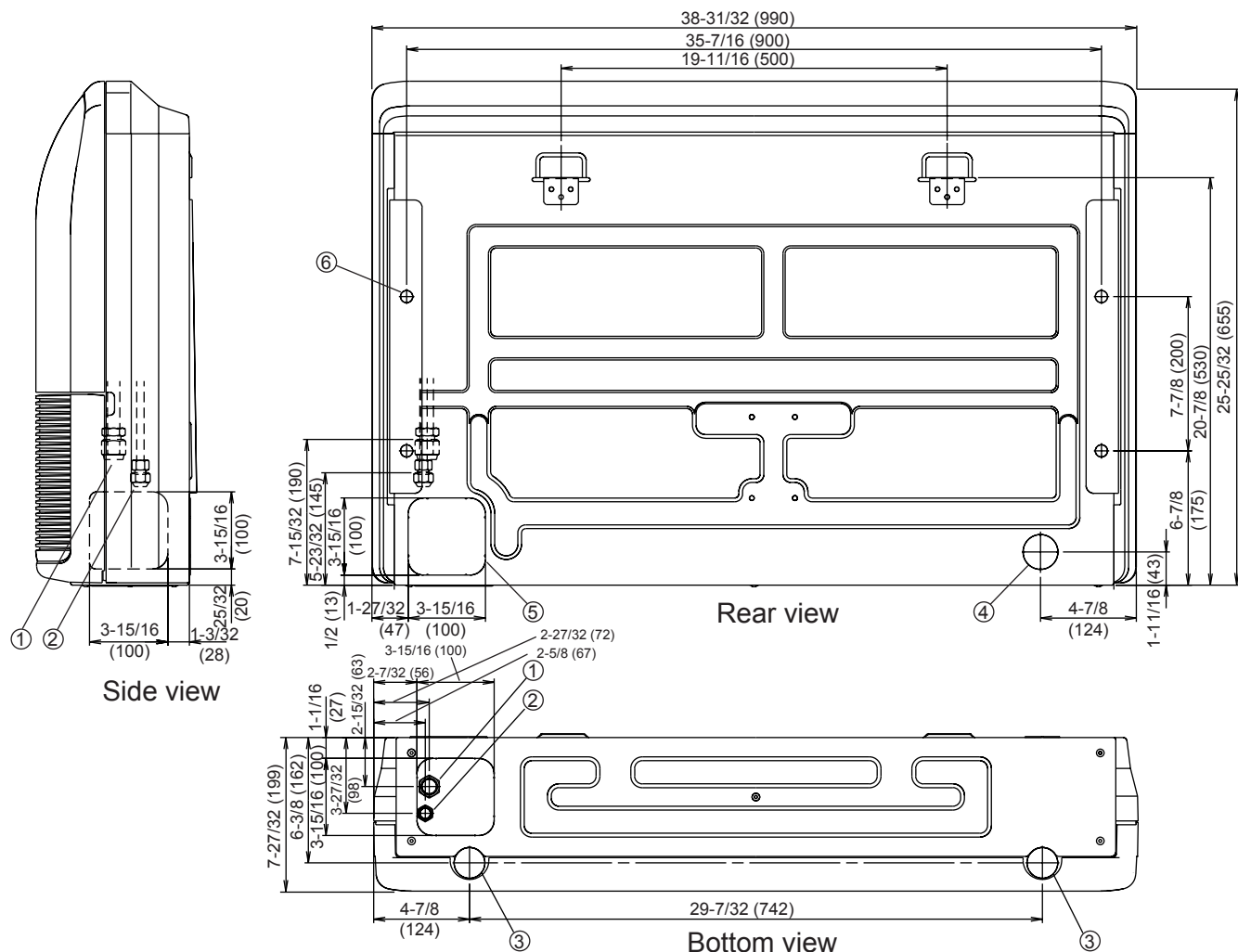
When there are obstacles at the back, side with the installation of more than one unit.



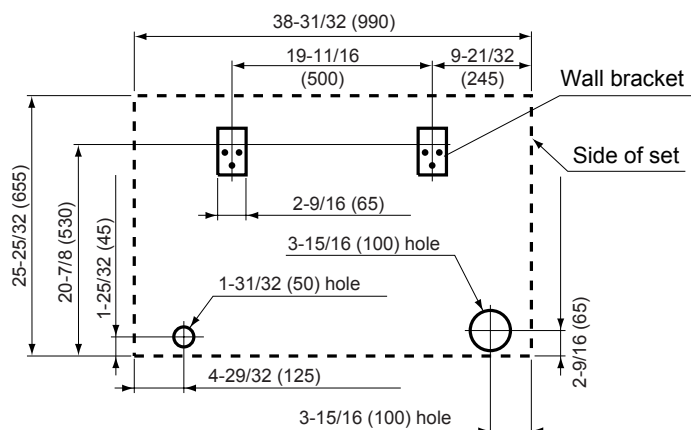
2-4-2. INDOOR UNIT

MODELS : ABU18R, ABU24R

Unit :in.(mm)



- ① Refrigerant piping flare connection (Gas)
- ② Refrigerant piping flare connection (Liquid)
- ③ Drain piping connection [(Drain pipe : I.D. ϕ 25mm(31/32"), O.D. ϕ 29mm(1-5/32"), L700mm(7-9/16")]
- ④ Knock out hole for drain piping
- ⑤ Knock out hole for refrigerant piping
- ⑥ Hole for lifting bolt (Use M10 screw bolt)

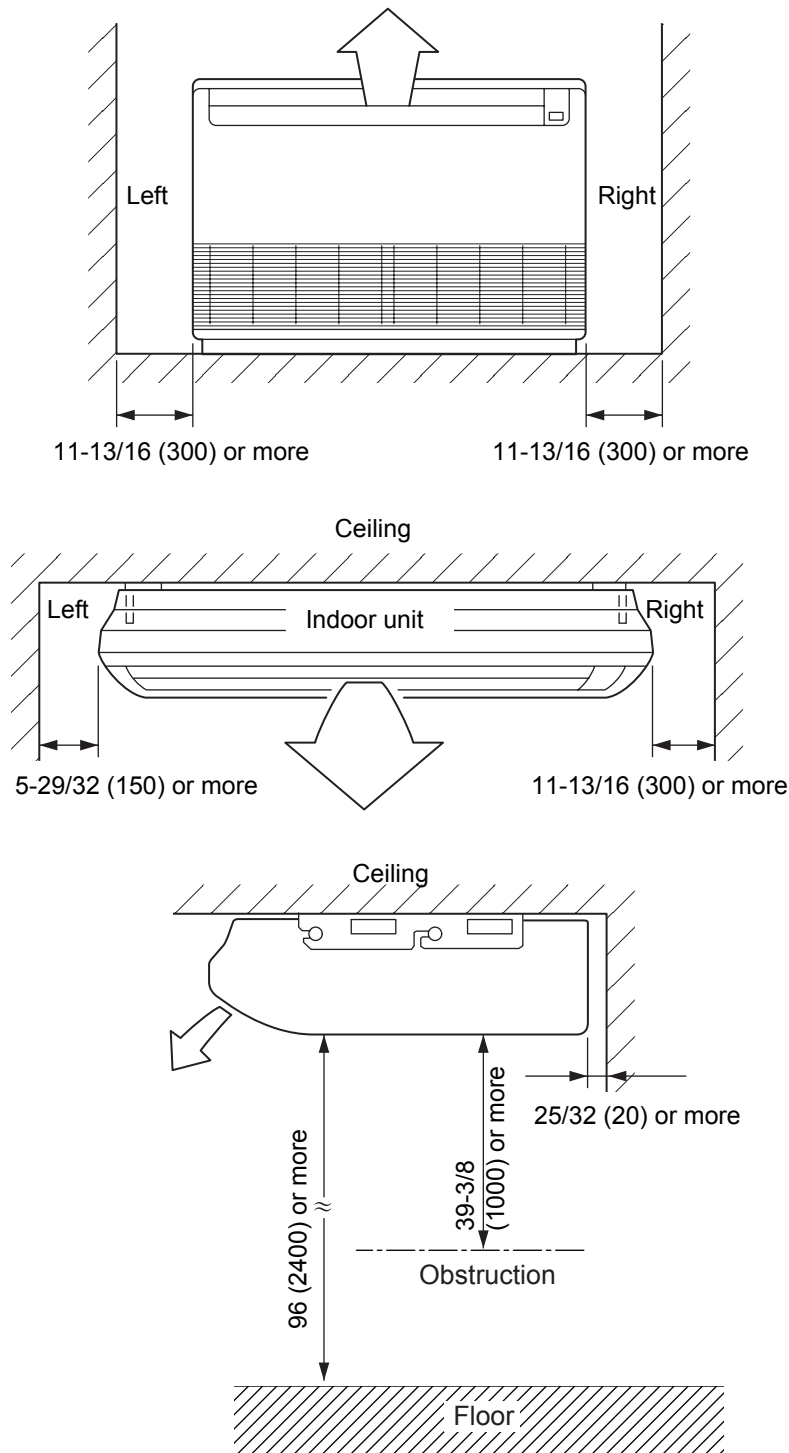


■ MOUNTING POSITION

FLOOR / CEILING TYPE
ABU18-24R

Unit : in.(mm)

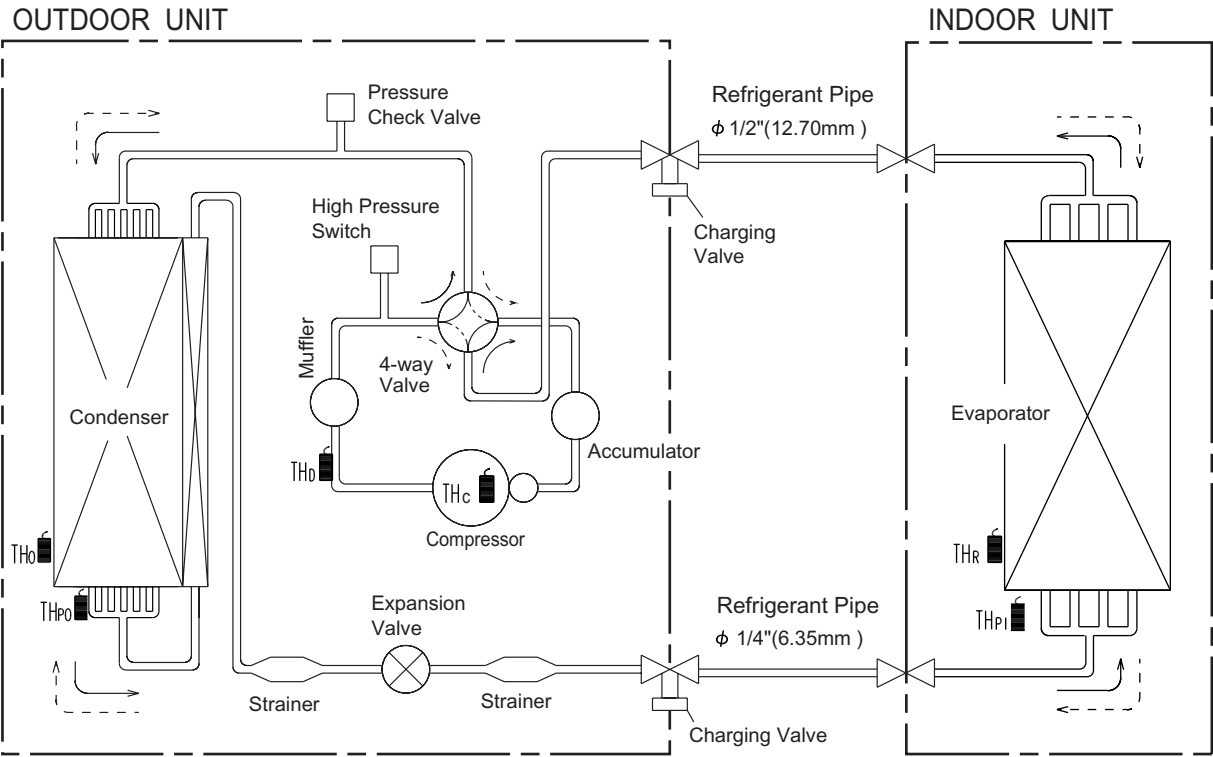
FLOOR / CEILING TYPE
ABU18-24R



2-5. REFRIGERANT CIRCUIT

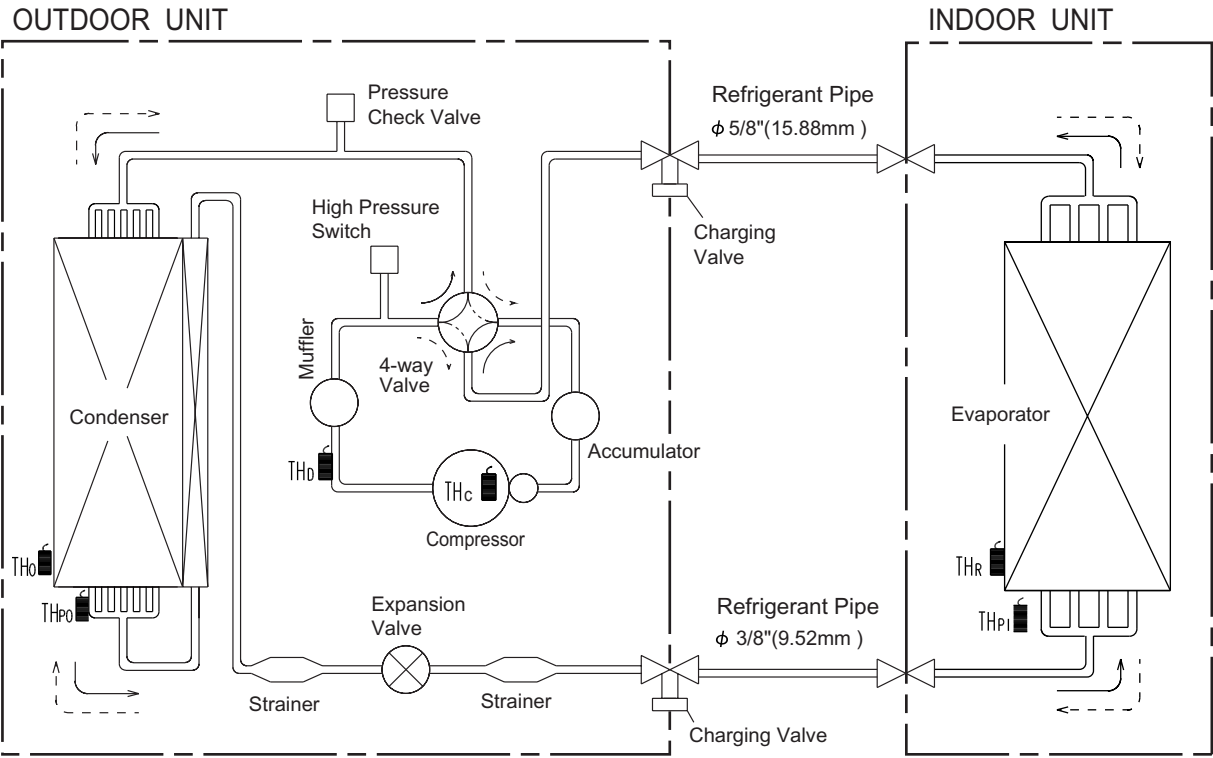
MODELS : ABU18R / AOU18R

FLOOR / CEILING TYPE
ABU18-24R



FLOOR / CEILING TYPE
ABU18-24R

MODELS : ABU24R / AOU24R



— : COOL
- - - : HEAT

THo : THERMISTOR(DISCHARGE TEMP.)
THo : THERMISTOR(OUTDOOR TEMP.)
THPo : THERMISTOR(PIPE TEMP.)
THc : THERMISTOR(COMPRESSOR TEMP.)

THr : THERMISTOR(ROOM TEMP.)
THPi : THERMISTOR(PIPE TEMP.)

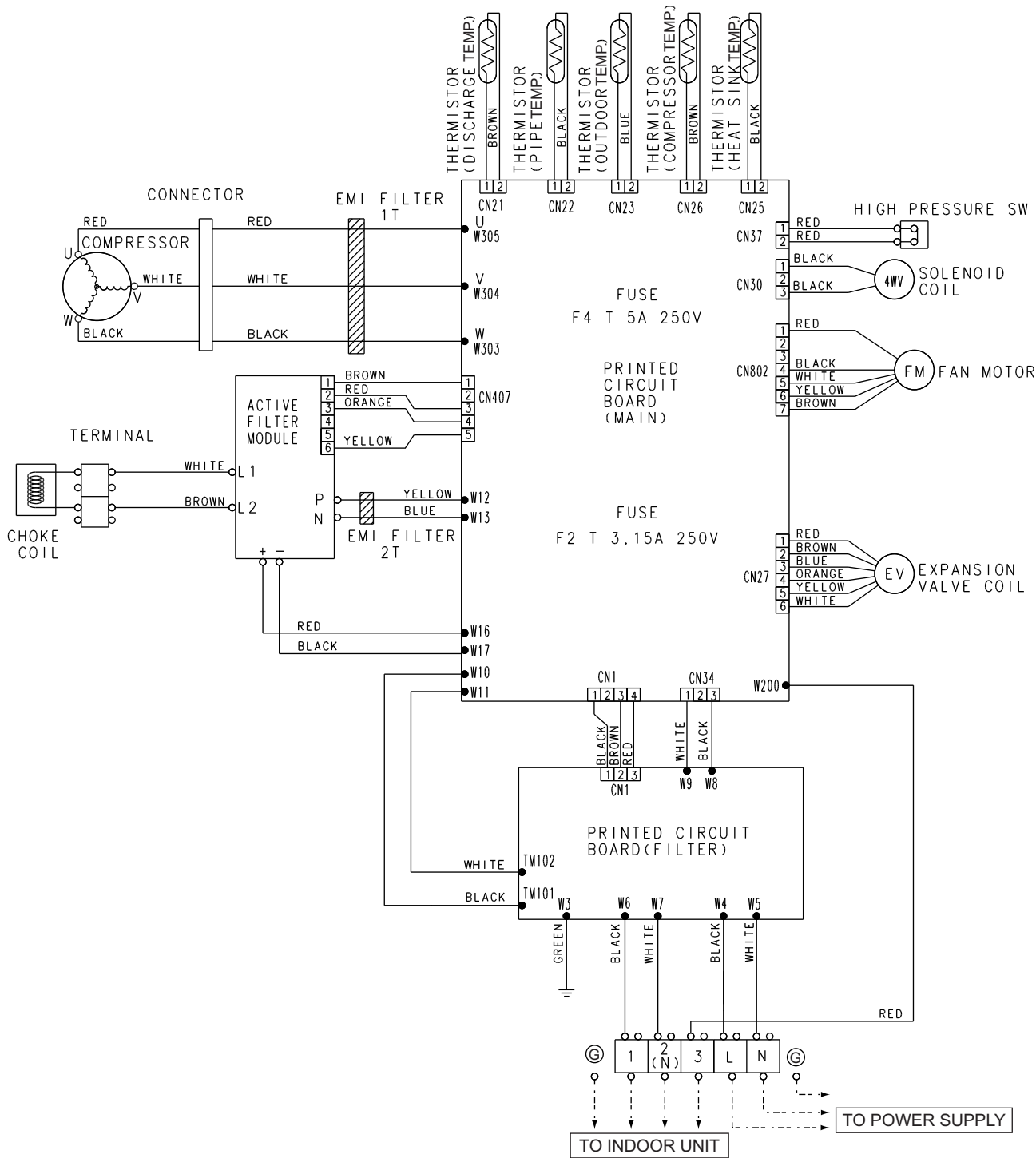
2-6. WIRING DIAGRAMS

2-6-1. OUTDOOR UNIT

■ MODELS : AOU18R, AOU24R

FLOOR / CEILING TYPE
ABU18-24R

FLOOR / CEILING TYPE
ABU18-24R

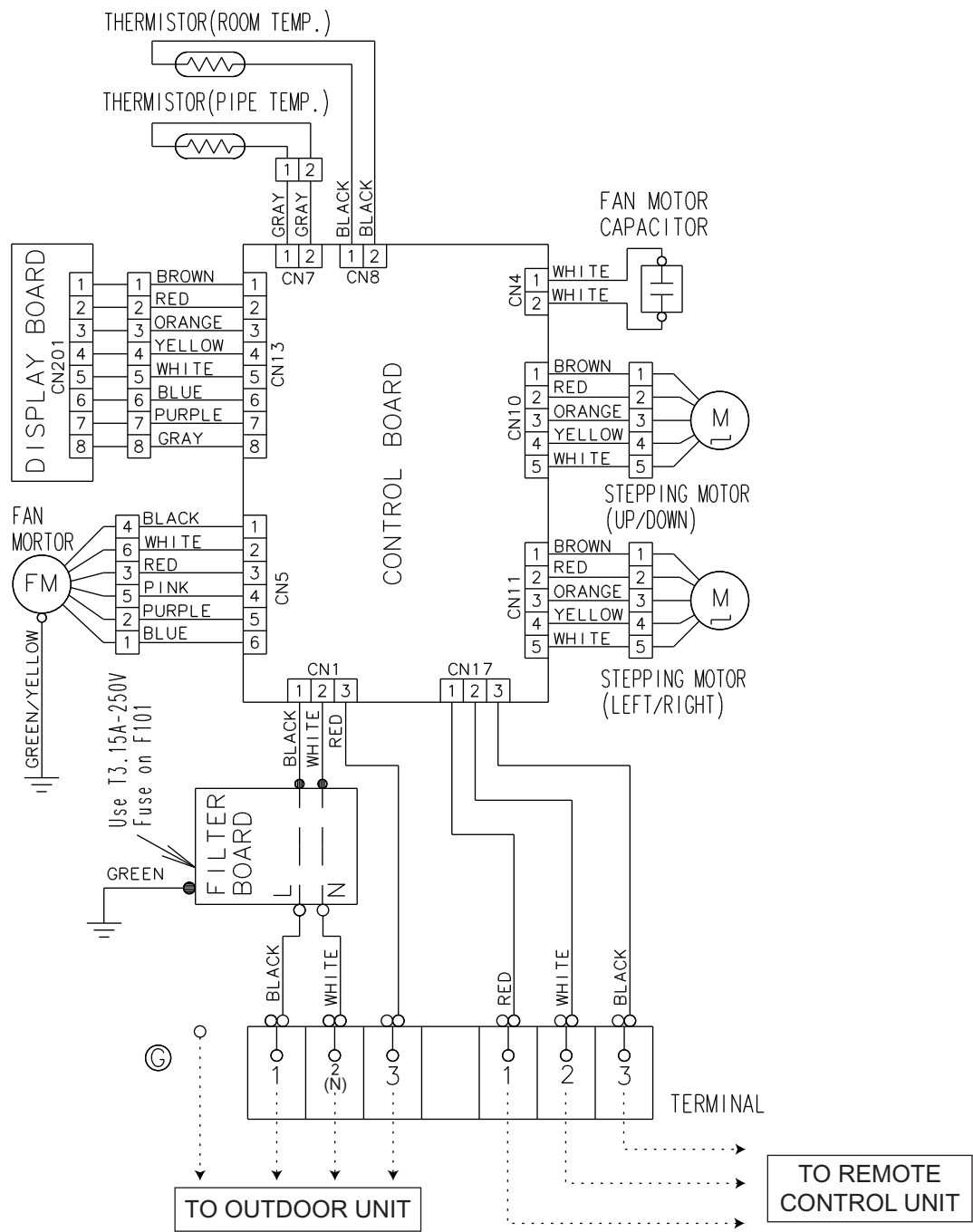


2-6-2. INDOOR UNIT

MODELS : ABU18R, ABU24R

FLOOR / CEILING TYPE
ABU18-24R

FLOOR / CEILING TYPE
ABU18-24R



2-7. CAPACITY TABLE

■ MODELS : ABU18R / AOU18R

● COOLING

AFR	459
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		Indoor temperature																	
		64°FDB			70°FDB			75°FDB			80°FDB			85°FDB			90°FDB		
		54°FWB			60°FWB			63°FWB			67°FWB			71°FWB			73°FWB		
Outdoor temperature	(°FDB)	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
	0	17.14	11.55	0.76	19.34	11.62	0.77	20.43	12.73	0.78	21.89	13.32	0.79	23.35	13.75	0.80	24.08	15.24	0.80
	14	16.48	11.40	1.00	18.58	11.47	1.02	19.63	12.56	1.03	21.03	13.14	1.04	22.44	13.58	1.05	23.14	15.05	1.06
	32	15.03	11.72	1.30	16.95	11.79	1.32	17.91	12.92	1.34	19.19	13.52	1.35	20.47	13.96	1.37	21.11	15.48	1.37
	41	13.99	11.96	1.41	15.78	12.03	1.43	16.67	13.18	1.44	17.86	13.79	1.46	19.05	14.25	1.48	19.65	15.79	1.48
	50	16.05	11.52	2.00	18.10	11.59	2.04	19.12	12.69	2.06	20.49	13.28	2.08	21.86	13.72	2.10	22.54	15.20	2.11
	59	17.87	11.22	1.85	20.15	11.29	1.88	21.29	12.37	1.90	22.81	12.94	1.92	24.33	13.36	1.94	25.09	14.81	1.95
	67	16.24	11.46	1.96	18.31	11.53	1.99	19.34	12.63	2.01	20.72	13.21	2.03	22.11	13.65	2.05	22.80	15.13	2.06
	77	18.83	11.10	2.39	21.24	11.17	2.43	22.44	12.24	2.45	24.04	12.80	2.48	25.64	13.22	2.51	26.44	14.66	2.52
	87	17.60	11.25	2.59	19.85	11.32	2.64	20.97	12.40	2.66	22.47	12.97	2.69	23.97	13.40	2.72	24.72	14.85	2.73
	95	16.85	11.37	2.78	19.00	11.44	2.82	20.07	12.53	2.85	21.50	13.11	2.88	22.94	13.54	2.91	23.66	15.01	2.93
	104	14.07	11.93	2.43	15.87	12.00	2.47	16.76	13.15	2.49	17.96	13.76	2.52	19.16	14.21	2.55	19.76	15.75	2.56
	115	12.22	9.74	1.96	13.79	9.80	1.99	14.56	10.74	2.01	15.60	11.23	2.03	16.65	11.60	2.05	17.17	12.86	2.06

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

AFR	13.0
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		Indoor temperature																	
		17.78°CDB			21.11°CDB			23.89°CDB			26.67°CDB			29.44°CDB			32.22°CDB		
		12.22°CWB			15.56°CWB			17.72°CWB			19.44°CWB			21.67°CWB			22.78°CWB		
Outdoor temperature	(°CDB)	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
	-17.78	5.02	3.38	0.76	5.66	3.40	0.77	5.98	3.73	0.78	6.41	3.90	0.79	6.84	4.03	0.80	7.05	4.46	0.80
	-10.00	4.83	3.34	1.00	5.44	3.36	1.02	5.75	3.68	1.03	6.16	3.85	1.04	6.57	3.98	1.05	6.78	4.41	1.06
	0.00	4.40	3.43	1.30	4.97	3.45	1.32	5.25	3.78	1.34	5.62	3.96	1.35	6.00	4.09	1.37	6.18	4.53	1.37
	5.00	4.10	3.50	1.41	4.62	3.52	1.43	4.88	3.86	1.44	5.23	4.04	1.46	5.58	4.17	1.48	5.75	4.62	1.48
	10.00	4.70	3.37	2.00	5.30	3.39	2.04	5.60	3.72	2.06	6.00	3.89	2.08	6.40	4.02	2.10	6.60	4.45	2.11
	15.00	5.23	3.29	1.85	5.90	3.31	1.88	6.24	3.62	1.90	6.68	3.79	1.92	7.13	3.91	1.94	7.35	4.34	1.95
	19.44	4.76	3.36	1.96	5.36	3.38	1.99	5.67	3.70	2.01	6.07	3.87	2.03	6.48	4.00	2.05	6.68	4.43	2.06
	25.00	5.52	3.25	2.39	6.22	3.27	2.43	6.57	3.58	2.45	7.04	3.75	2.48	7.51	3.87	2.51	7.75	4.29	2.52
	30.56	5.15	3.29	2.59	5.81	3.32	2.64	6.14	3.63	2.66	6.58	3.80	2.69	7.02	3.92	2.72	7.24	4.35	2.73
	35.00	4.93	3.33	2.78	5.56	3.35	2.82	5.88	3.67	2.85	6.30	3.84	2.88	6.72	3.97	2.91	6.93	4.40	2.93
	40.00	4.12	3.49	2.43	4.65	3.52	2.47	4.91	3.85	2.49	5.26	4.03	2.52	5.61	4.16	2.55	5.79	4.61	2.56
	46.11	3.58	2.85	1.96	4.04	2.87	1.99	4.27	3.14	2.01	4.57	3.29	2.03	4.88	3.40	2.05	5.03	3.77	2.06

AFR : Air flow rate(m³/min) TC : Total capacity (kW) SHC : Sensible Heat capacity (kW) PI : Power Input (kW)

● HEATING

AFR	459
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			Indoor temperature									
			60°FDB		65°FDB		70°FDB		75°FDB		78°FDB	
Outdoor temperature	(°FDB)	(°FWB)	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	14	12	17.93	2.72	17.35	2.80	16.76	2.88	16.18	2.96	15.83	3.01
	23	19	20.96	2.72	20.28	2.80	19.60	2.88	18.92	2.96	18.51	3.01
	32	28	23.84	2.72	23.07	2.80	22.29	2.88	21.52	2.96	21.05	3.01
	41	37	24.97	2.72	24.16	2.80	23.35	2.88	22.54	2.96	22.05	3.01
	47	43	27.38	2.72	26.49	2.80	25.60	2.88	24.71	2.96	24.18	3.01
	50	47	28.30	2.72	27.38	2.80	26.46	2.88	25.54	2.96	24.99	3.01
	59	50	29.87	2.72	28.90	2.80	27.93	2.88	26.96	2.96	26.37	3.01
	68	59	27.27	2.40	26.39	2.47	25.50	2.54	24.62	2.61	24.09	2.65
	75	65	28.08	2.38	27.17	2.45	26.26	2.52	25.34	2.59	24.79	2.63

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

AFR	13.0
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			Indoor temperature									
			15.66°CDB		18.33°CDB		21.11°CDB		23.89°CDB		25.56°CDB	
Outdoor temperature	(°CDB)	(°CWB)	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	-10.00	-11.11	5.25	2.72	5.08	2.80	4.91	2.88	4.74	2.96	4.64	3.01
	-5.00	-7.22	6.14	2.72	5.94	2.80	5.74	2.88	5.54	2.96	5.42	3.01
	0.00	-2.22	6.98	2.72	6.76	2.80	6.53	2.88	6.30	2.96	6.17	3.01
	5.00	2.78	7.31	2.72	7.08	2.80	6.84	2.88	6.60	2.96	6.46	3.01
	8.33	6.11	8.02	2.72	7.76	2.80	7.50	2.88	7.24	2.96	7.08	3.01
	10.00	8.33	8.29	2.72	8.02	2.80	7.75	2.88	7.48	2.96	7.32	3.01
	15.00	10.00	8.75	2.72	8.46	2.80	8.18	2.88	7.90	2.96	7.72	3.01
	20.00	15.00	7.99	2.40	7.73	2.47	7.47	2.54	7.21	2.61	7.05	2.65
	23.89	18.33	8.22	2.38	7.96	2.45	7.69	2.52	7.42	2.59	7.26	2.63

AFR : Air flow rate(m³/min) TC : Total capacity (kW) PI : Power Input (kW)

MODELS : ABU24R / AOU24R

COOLING

FLOOR / CEILING TYPE
ABU18-24R

FLOOR / CEILING TYPE
ABU18-24R

AFR	518
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		Indoor temperature																	
		64°FDB			70°FDB			75°FDB			80°FDB			85°FDB			90°FDB		
		54°FWB			60°FWB			63°FWB			67°FWB			71°FWB			73°FWB		
Outdoor temperature	(°FDB)	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
	0	20.51	14.98	0.67	23.14	15.07	0.68	24.44	16.51	0.68	26.19	17.28	0.69	27.94	17.84	0.70	28.81	19.78	0.70
	14	19.79	13.94	0.95	22.32	14.03	0.97	23.58	15.37	0.98	25.27	16.08	0.99	26.96	16.61	1.00	27.80	18.41	1.01
	32	18.29	13.06	1.28	20.63	13.14	1.30	21.80	14.39	1.32	23.35	15.06	1.33	24.92	15.55	1.34	25.69	17.24	1.35
	41	17.79	13.03	1.40	20.06	13.11	1.42	21.19	14.36	1.43	22.70	15.02	1.45	24.22	15.52	1.47	24.98	17.20	1.47
	50	19.50	13.65	2.00	21.99	13.73	2.04	23.23	15.04	2.06	24.89	15.74	2.08	26.55	16.26	2.10	27.38	18.02	2.11
	59	22.23	15.01	1.84	25.07	15.10	1.87	26.48	16.54	1.89	28.37	17.31	1.91	30.27	17.88	1.93	31.21	19.81	1.94
	67	20.92	14.54	1.97	23.59	14.62	2.00	24.92	16.02	2.02	26.70	16.76	2.04	28.49	17.31	2.06	29.37	19.19	2.07
	77	23.75	15.81	2.39	26.79	15.91	2.43	28.30	17.43	2.45	30.32	18.23	2.48	32.35	18.83	2.51	33.36	20.87	2.52
	87	22.28	15.04	2.58	25.13	15.13	2.63	26.55	16.58	2.65	28.44	17.34	2.68	30.34	17.91	2.71	31.29	19.85	2.72
	95	21.38	14.59	2.78	24.12	14.68	2.82	25.48	16.09	2.85	27.30	16.83	2.88	29.12	17.38	2.91	30.03	19.27	2.93
	104	17.68	12.76	2.44	19.94	12.84	2.48	21.06	14.06	2.50	22.57	14.72	2.53	24.08	15.20	2.56	24.83	16.84	2.57
	115	12.87	10.54	1.95	14.51	10.60	1.98	15.33	11.62	2.00	16.42	12.15	2.02	17.52	12.55	2.04	18.07	13.91	2.05

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

AFR	14.7
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		Indoor temperature																	
		17.78°CDB			21.11°CDB			23.89°CDB			26.67°CDB			29.44°CDB			32.22°CDB		
		12.22°CWB			15.56°CWB			17.72°CWB			19.44°CWB			21.67°CWB			22.78°CWB		
Outdoor temperature	(°CDB)	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
	-17.78	6.01	4.39	0.67	6.78	4.41	0.68	7.16	4.84	0.68	7.67	5.06	0.69	8.18	5.23	0.70	8.44	5.79	0.70
	-10.00	5.80	4.08	0.95	6.54	4.11	0.97	6.91	4.50	0.98	7.40	4.71	0.99	7.90	4.86	1.00	8.14	5.39	1.01
	0.00	5.36	3.82	1.28	6.04	3.85	1.30	6.38	4.22	1.32	6.84	4.41	1.33	7.30	4.55	1.34	7.53	5.05	1.35
	5.00	5.21	3.82	1.40	5.88	3.84	1.42	6.21	4.21	1.43	6.65	4.40	1.45	7.09	4.54	1.47	7.32	5.04	1.47
	10.00	5.71	4.00	2.00	6.44	4.02	2.04	6.80	4.41	2.06	7.29	4.61	2.08	7.78	4.76	2.10	8.02	5.28	2.11
	15.00	6.51	4.40	1.84	7.34	4.42	1.87	7.76	4.85	1.89	8.31	5.07	1.91	8.87	5.24	1.93	9.14	5.80	1.94
	19.44	6.13	4.26	1.97	6.91	4.28	2.00	7.30	4.69	2.02	7.82	4.91	2.04	8.34	5.07	2.06	8.60	5.62	2.07
	25.00	6.96	4.63	2.39	7.85	4.66	2.43	8.29	5.10	2.45	8.88	5.34	2.48	9.47	5.52	2.51	9.77	6.11	2.52
	30.56	6.53	4.40	2.58	7.36	4.43	2.63	7.78	4.86	2.65	8.33	5.08	2.68	8.89	5.25	2.71	9.16	5.82	2.72
	35.00	6.26	4.27	2.78	7.06	4.30	2.82	7.46	4.71	2.85	8.00	4.93	2.88	8.53	5.09	2.91	8.80	5.64	2.93
	40.00	5.18	3.74	2.44	5.84	3.76	2.48	6.17	4.12	2.50	6.61	4.31	2.53	7.05	4.45	2.56	7.27	4.93	2.57
	46.11	3.77	3.09	1.95	4.25	3.11	1.98	4.49	3.40	2.00	4.81	3.56	2.02	5.13	3.68	2.04	5.29	4.08	2.05

AFR : Air flow rate(m³/min) TC : Total capacity (kW) SHC : Sensible Heat capacity (kW) PI : Power Input (kW)

● HEATING

AFR	518
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			Indoor temperature									
			60°FDB		65°FDB		70°FDB		75°FDB		78°FDB	
Outdoor temperature	(°FDB)	(°FWB)	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	14	12	23.15	2.72	22.40	2.80	21.65	2.88	20.89	2.96	20.44	3.01
	23	19	25.96	2.72	25.12	2.80	24.27	2.88	23.43	2.96	22.92	3.01
	32	28	28.33	2.72	27.41	2.80	26.49	2.88	25.57	2.96	25.02	3.01
	41	37	29.39	2.72	28.44	2.80	27.48	2.88	26.53	2.96	25.96	3.01
	47	43	31.02	2.72	30.01	2.80	29.00	2.88	28.00	2.96	27.39	3.01
	50	47	31.80	2.72	30.77	2.80	29.74	2.88	28.70	2.96	28.08	3.01
	59	50	32.82	2.72	31.76	2.80	30.69	2.88	29.63	2.96	28.99	3.01
	68	59	29.28	2.28	28.33	2.34	27.38	2.41	26.43	2.48	25.86	2.52
	75	65	30.23	2.30	29.25	2.36	28.27	2.43	27.29	2.50	26.70	2.54

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

AFR	14.7
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			Indoor temperature									
			15.56°CDB		18.33°CDB		21.11°CDB		23.89°CDB		25.56°CDB	
Outdoor temperature	(°CDB)	(°CWB)	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	-10.00	-11.11	6.78	2.72	6.56	2.80	6.34	2.88	6.12	2.96	5.99	3.01
	-5.00	-7.22	7.60	2.72	7.36	2.80	7.11	2.88	6.86	2.96	6.71	3.01
	0.00	-2.22	8.30	2.72	8.03	2.80	7.76	2.88	7.49	2.96	7.33	3.01
	5.00	2.78	8.61	2.72	8.33	2.80	8.05	2.88	7.77	2.96	7.60	3.01
	8.33	6.11	9.08	2.72	8.79	2.80	8.50	2.88	8.20	2.96	8.02	3.01
	10.00	8.33	9.31	2.72	9.01	2.80	8.71	2.88	8.41	2.96	8.23	3.01
	15.00	10.00	9.61	2.72	9.30	2.80	8.99	2.88	8.68	2.96	8.49	3.01
	20.00	15.00	8.58	2.28	8.30	2.34	8.02	2.41	7.74	2.48	7.57	2.52
	23.89	18.33	8.85	2.30	8.57	2.36	8.28	2.43	7.99	2.50	7.82	2.54

AFR : Air flow rate(m³/min) TC : Total capacity (kW) PI : Power Input (kW)

2-8. CAPACITY COMPENSATION FOR PIPE LENGTH AND HEIGHT DIFFERENCE

■ MODELS : ABU18R / AOU18R

● COEFFICIENT OF COMPENSATION FOR HEIGHT DIFFERENCE

COOLING				PIPE LENGTH						
				5m	7.5m	15m	20m	30m	40m	50m
				16 ft.	25 ft.	49 ft.	66 ft.	98 ft.	131ft.	164 ft.
HEIGHT DIFFERENCE	Outdoor unit is bottom-side	20m	66ft.	-	-	-	0.921	0.892	0.860	0.840
		10m	33ft.	-	-	0.943	0.921	0.892	0.860	0.840
		7.5m	25ft.	-	1.000	0.943	0.921	0.892	0.860	0.840
		5m	16ft.	1.029	1.000	0.943	0.921	0.892	0.860	0.840
	Outdoor unit is up-side	0m	0ft.	1.029	1.000	0.943	0.921	0.892	0.860	0.840
		-5m	-16ft.	1.021	0.992	0.936	0.914	0.885	0.853	0.833
		-7.5m	-25ft.	-	0.988	0.932	0.910	0.881	0.850	0.830
		-10m	-33ft.	-	-	0.928	0.906	0.878	0.846	0.827
		-20m	-66ft.	-	-	-	0.892	0.863	0.832	0.813

HEATING				PIPE LENGTH						
				5m	7.5m	15m	20m	30m	40m	50m
				16 ft.	25 ft.	49 ft.	66 ft.	98 ft.	131ft.	164 ft.
HEIGHT DIFFERENCE	Outdoor unit is bottom-side	20m	66ft.	-	-	-	0.963	0.950	0.926	0.905
		10m	33ft.	-	-	0.982	0.973	0.959	0.935	0.914
		7.5m	25ft.	-	0.993	0.984	0.976	0.962	0.938	0.917
		5m	16ft.	0.995	0.995	0.987	0.978	0.964	0.940	0.919
	Outdoor unit is up-side	0m	0ft.	1.000	1.000	0.992	0.983	0.969	0.945	0.923
		-5m	-16ft.	1.000	1.000	0.992	0.983	0.969	0.945	0.923
		-7.5m	-25ft.	-	1.000	0.992	0.983	0.969	0.945	0.923
		-10m	-33ft.	-	-	0.992	0.983	0.969	0.945	0.923
		-20m	-66ft.	-	-	-	0.983	0.969	0.945	0.923

MODELS : ABU24R / AOU24R

COEFFICIENT OF COMPENSATION FOR HEIGHT DIFFERENCE

COOLING				PIPE LENGTH						
				5m	7.5m	15m	20m	30m	40m	50m
				16 ft.	25 ft.	49 ft.	66 ft.	98 ft.	131ft.	164 ft.
HEIGHT DIFFERENCE	Outdoor unit is bottom-side	20m	66ft.	-	-	-	0.947	0.920	0.901	0.880
		10m	33ft.	-	-	0.967	0.947	0.920	0.901	0.880
		7.5m	25ft.	-	1.000	0.967	0.947	0.920	0.901	0.880
		5m	16ft.	1.022	1.000	0.967	0.947	0.920	0.901	0.880
	Outdoor unit is up-side	0m	0ft.	1.022	1.000	0.967	0.947	0.920	0.901	0.880
		-5m	-16ft.	1.014	0.992	0.959	0.939	0.913	0.894	0.873
		-7.5m	-25ft.	-	0.988	0.955	0.935	0.909	0.890	0.869
		-10m	-33ft.	-	-	0.952	0.932	0.905	0.887	0.866
		-20m	-66ft.	-	-	-	0.916	0.891	0.872	0.852

HEATING				PIPE LENGTH						
				5m	7.5m	15m	20m	30m	40m	50m
				16 ft.	25 ft.	49 ft.	66 ft.	98 ft.	131ft.	164 ft.
HEIGHT DIFFERENCE	Outdoor unit is bottom-side	20m	66ft.	-	-	-	0.963	0.950	0.926	0.905
		10m	33ft.	-	-	0.982	0.973	0.959	0.936	0.914
		7.5m	25ft.	-	0.993	0.985	0.976	0.962	0.938	0.916
		5m	16ft.	0.995	0.995	0.987	0.978	0.964	0.940	0.918
	Outdoor unit is up-side	0m	0ft.	1.000	1.000	0.992	0.983	0.969	0.945	0.923
		-5m	-16ft.	1.000	1.000	0.992	0.983	0.969	0.945	0.923
		-7.5m	-25ft.	-	1.000	0.992	0.983	0.969	0.945	0.923
		-10m	-33ft.	-	-	0.992	0.983	0.969	0.945	0.923
		-20m	-66ft.	-	-	-	0.983	0.969	0.945	0.923

2-9. ADDITIONAL CHARGE CALCULATION

MODELS : ABU18R / AOU18R

REFRIGERANT TYPE	R410A
REFRIGERANT AMOUNT	4 lb. 3-1/32 oz. (1900g)

REFRIGERANT CHARGE

PIPE LENGTH	ft.	~ 49	66	98	131	164(MAX)	23/32oz./ft. (20g/m)
	m	~ 15	20	30	40	50(MAX)	
ADDITIONAL CHARGE	lb. oz.	0(Charge less)	3-17/32 oz.	10-19/32 oz.	1 lb. 1-5/8 oz.	1 lb.8-11/16 oz.	
	g	0(Charge less)	100	300	500	700	

MODELS : ABU24R / AOU24R

REFRIGERANT TYPE	R410A
REFRIGERANT AMOUNT	4 lb. 3-1/32 oz. (1900g)

REFRIGERANT CHARGE

PIPE LENGTH	ft.	~ 49	66	98	131	164(MAX)	1-13/32oz./ft. (40g/m)
	m	~ 15	20	30	40	50(MAX)	
ADDITIONAL CHARGE	lb. oz.	0(Charge less)	7-1/16 oz.	1lb. 5-5/32 oz.	2 lb. 3-9/32 oz.	3 lb. 1-3/8 oz.	
	g	0(Charge less)	200	600	1000	1400	

FLOOR / CEILING TYPE
ABU18-24R

FLOOR / CEILING TYPE
ABU18-24R

2-10. OPERATION RANGE

Model		Mode	Operation Range		
Indoor unit	Outdoor unit		Indoor temperature	Indoor humidity	Outdoor temperature
ABU18R ABU24R	AOU18R AOU24R	Cooling Dry	64 to 88°F (18 to 31°C)	About 80% or less	0 to 115°F (-18 to 46°C)
		Heating	60 to 88°F (16 to 31°C)	-	14 to 75°F (-10 to 24°C)

FLOOR / CEILING TYPE
ABU18-24R

FLOOR / CEILING TYPE
ABU18-24R

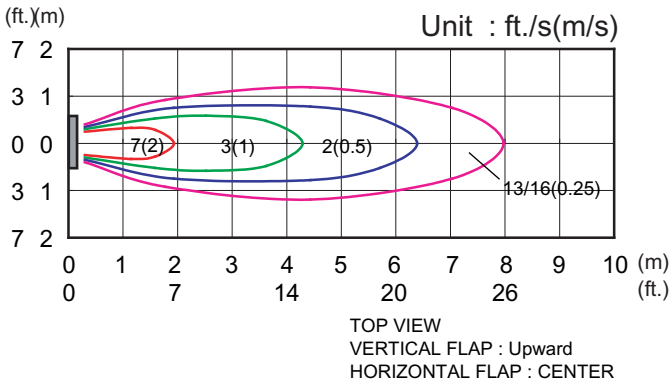
2-11. FAN PERFORMANCE AND AIR FLOW

2-11-1. AIR VELOCITY DISTRIBUTION

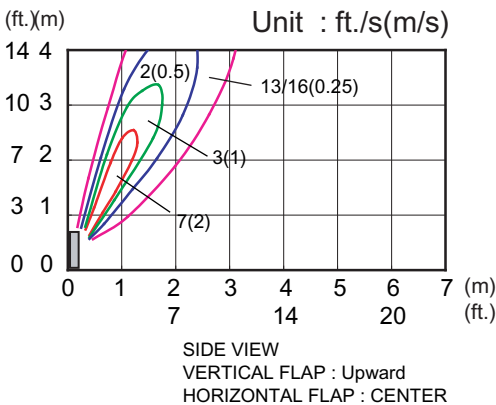
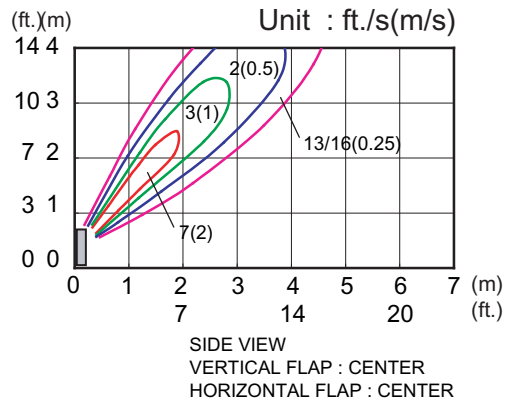
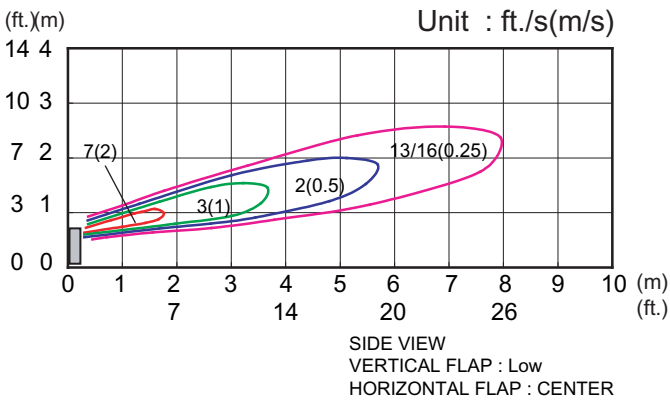
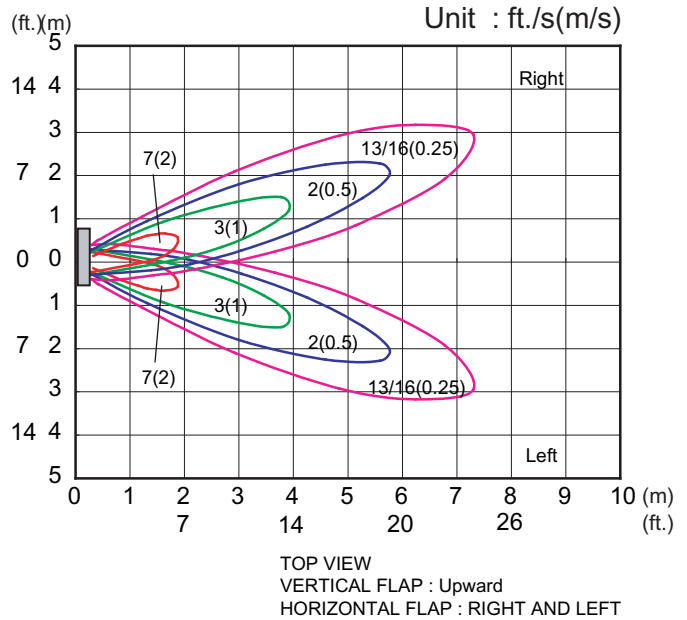
■ MODEL : ABU18R (FLOOR CONSOLE)

FLOOR / CEILING TYPE
ABU18-24R

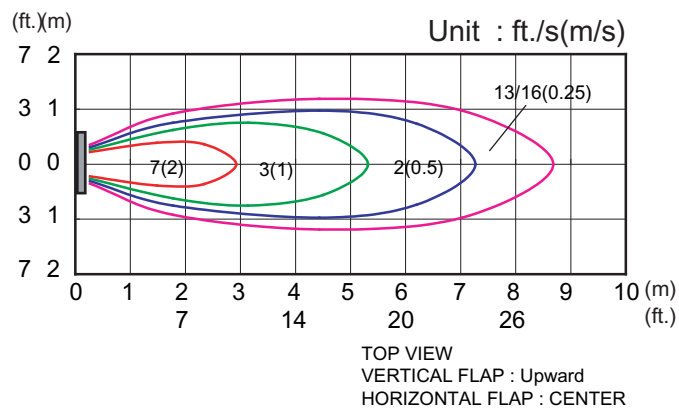
FLOOR / CEILING TYPE
ABU18-24R



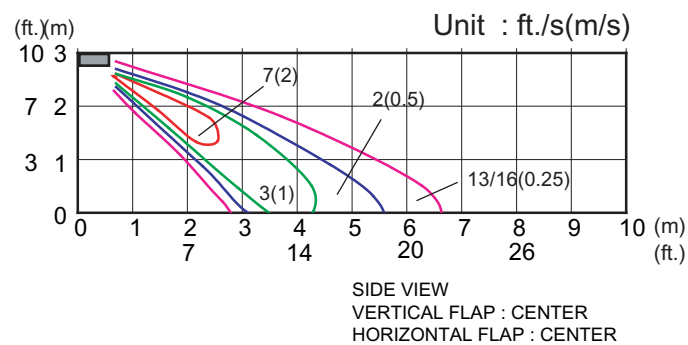
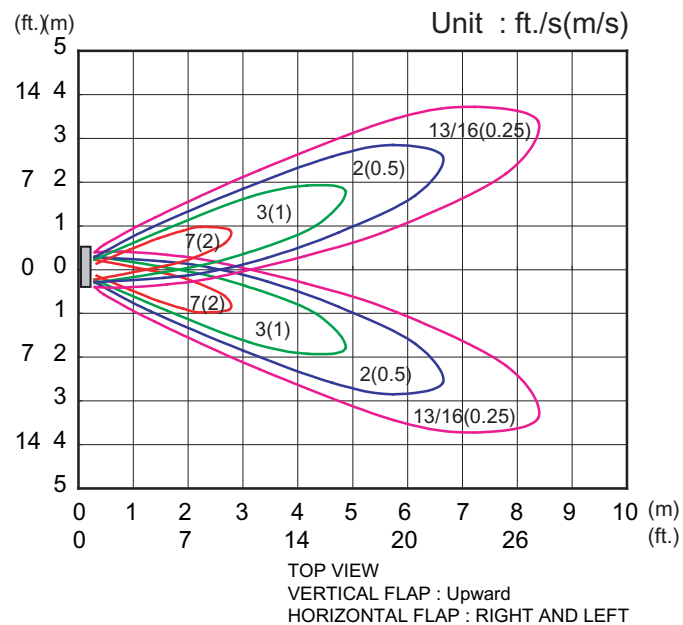
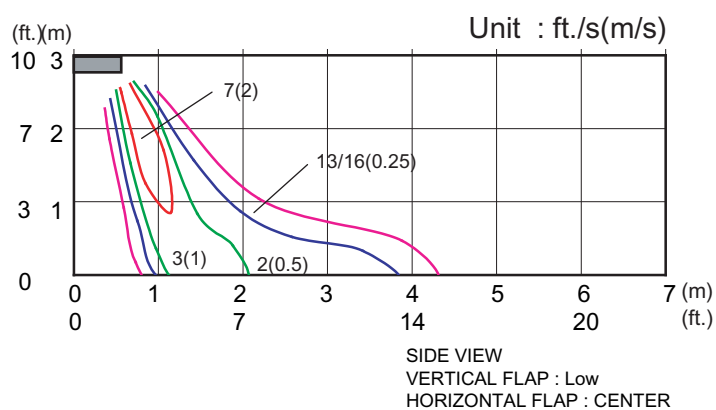
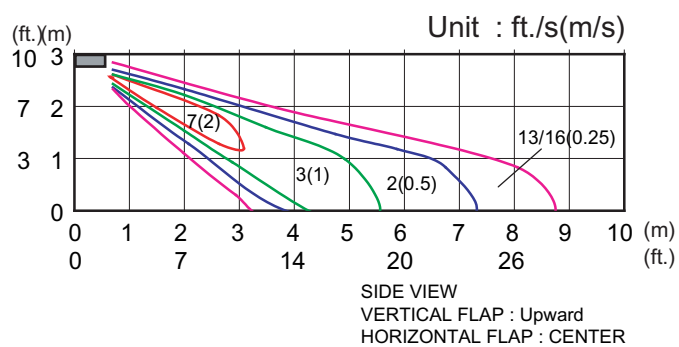
Note :
Condition
Fan speed : High
Operation mode :FAN



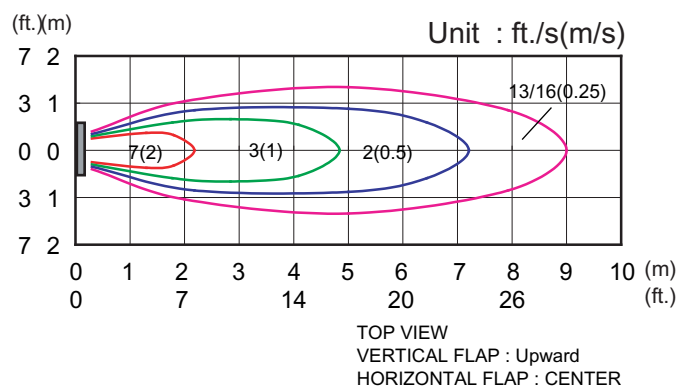
MODEL : ABU18R (UNDER CEILING)



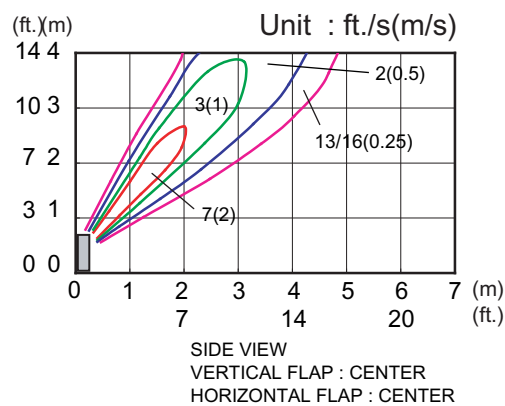
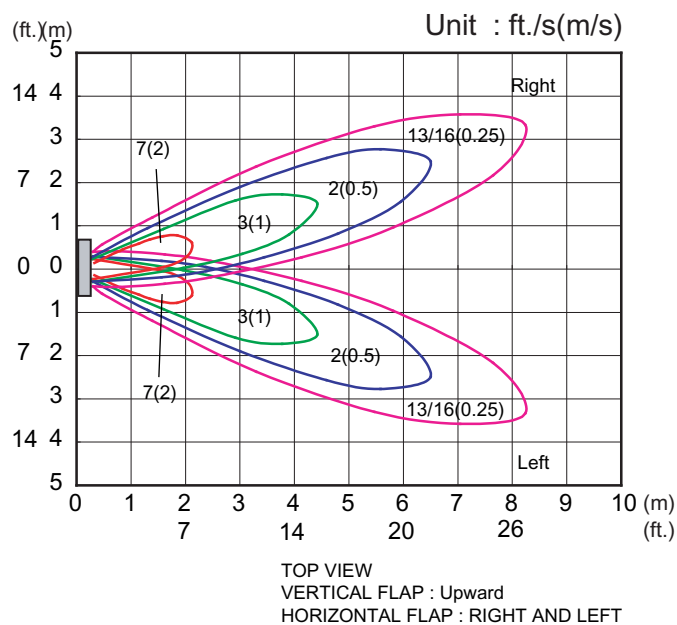
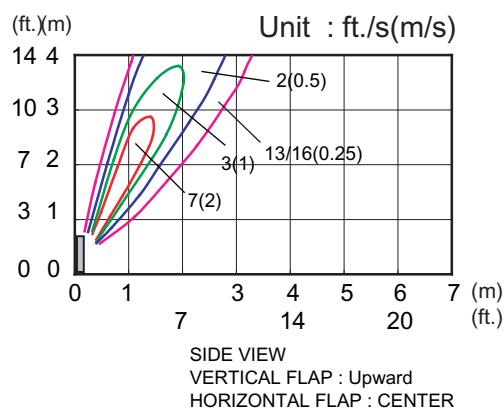
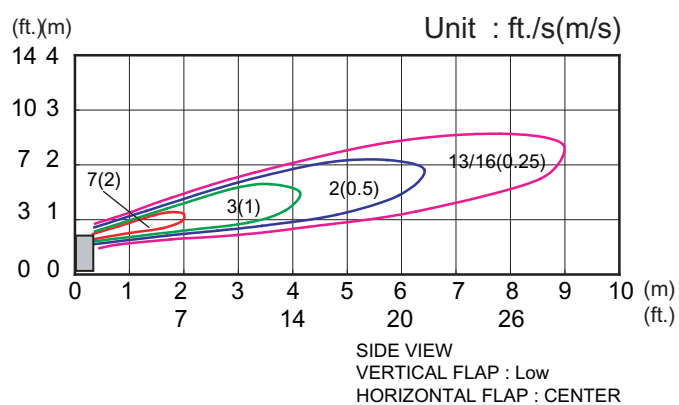
Note :
Condition
Fan speed : High
Operation mode :FAN



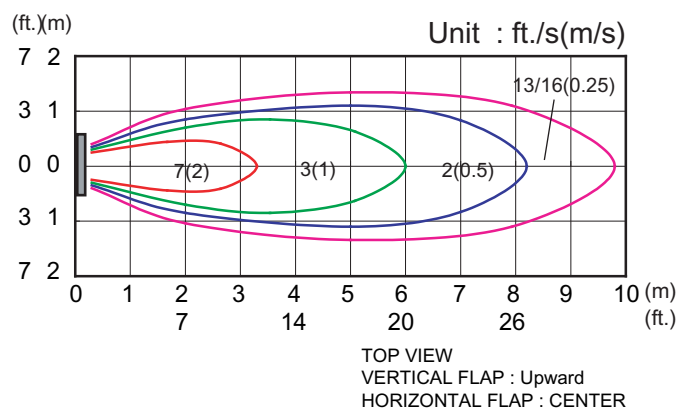
MODEL : ABU24R (FLOOR CONSOLE)



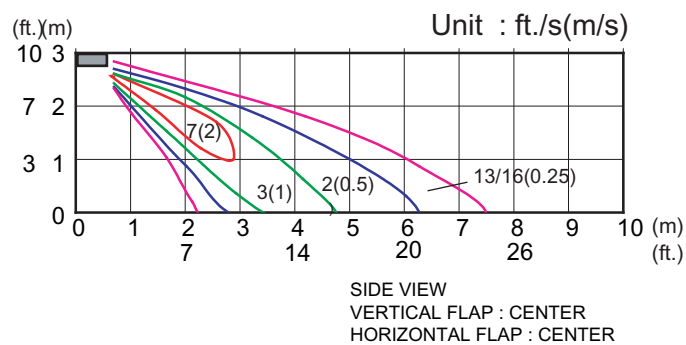
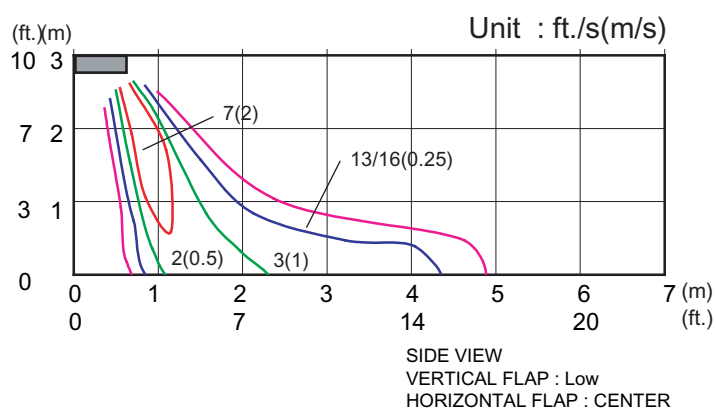
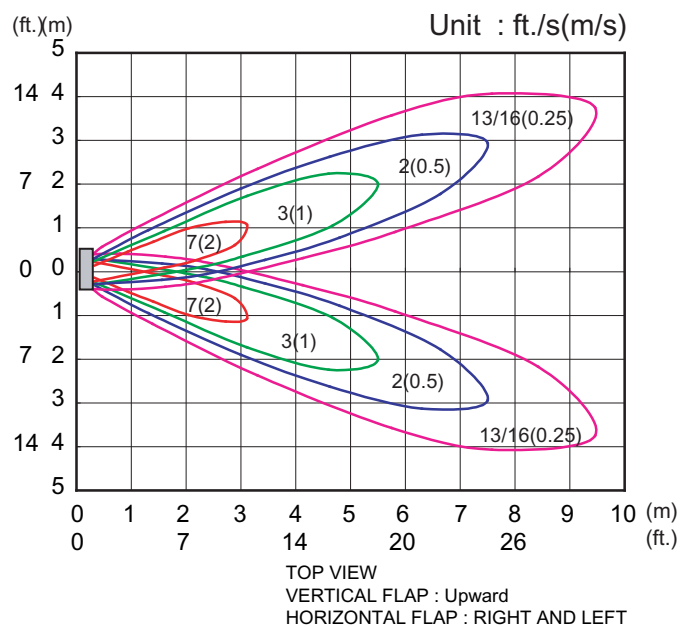
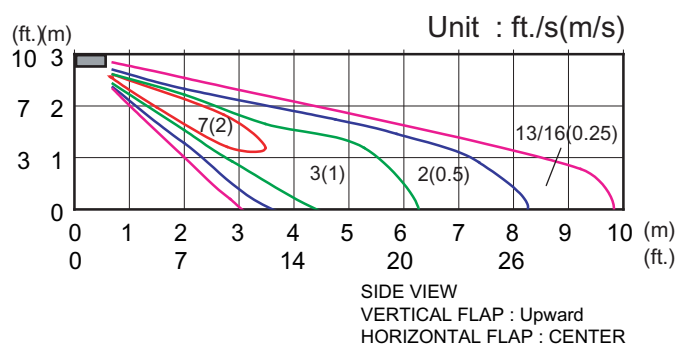
Note :
Condition
Fan speed : High
Operation mode :FAN



MODEL : ABU24R (UNDER CEILING)



Note :
Condition
Fan speed : High
Operation mode :FAN



2-11-2. AIR FLOW

■ MODELS : ABU18R / AOU18R

	FAN SPEED	NUMBER OF ROTATIONS (r.p.m)	AIR FLOW	
Indoor unit	HIGH	1060	m ³ /h	780
			l/s	217
			CFM	459
	MED	890	m ³ /h	650
			l/s	181
			CFM	383
	LOW	770	m ³ /h	550
			l/s	153
			CFM	324
Outdoor unit	HIGH	780	m ³ /h	3300
			l/s	917
			CFM	1942

■ MODELS : ABU24R / AOU24R

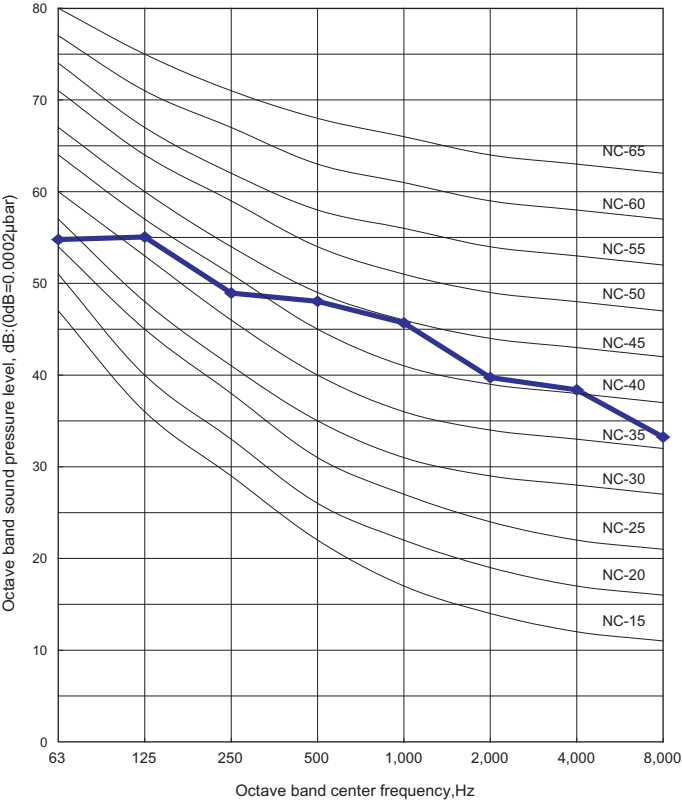
	FAN SPEED	NUMBER OF ROTATIONS (r.p.m)	AIR FLOW	
Indoor unit	HIGH	1180	m ³ /h	880
			l/s	244
			CFM	518
	MED	1000	m ³ /h	740
			l/s	206
			CFM	435
	LOW	900	m ³ /h	630
			l/s	175
			CFM	371
Outdoor unit	HIGH	850	m ³ /h	3600
			l/s	1000
			CFM	2119

2-12. NOISE LEVEL CURVE

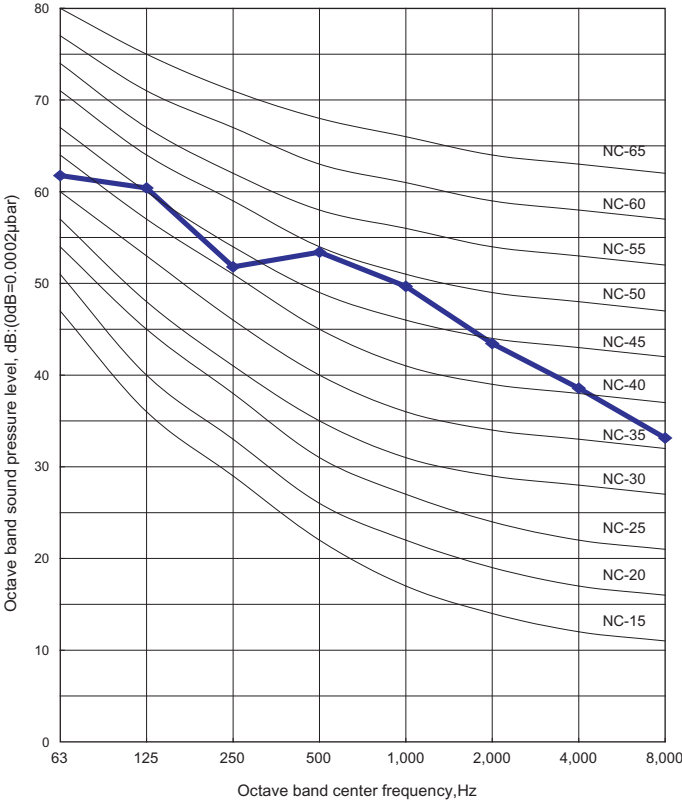
2-12-1. OUTDOOR UNIT

■ COOLING

● MODEL : AOU18R

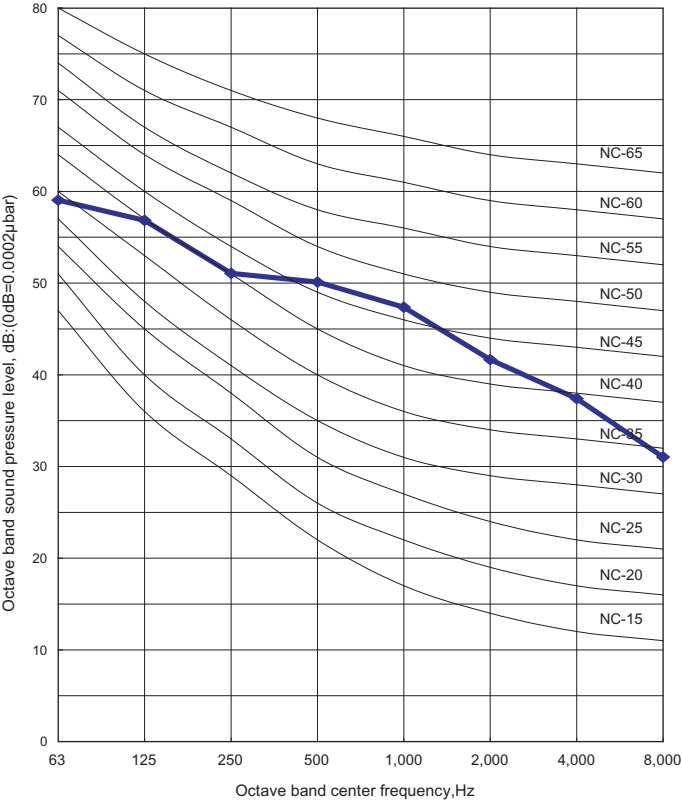


● MODEL : AOU24R

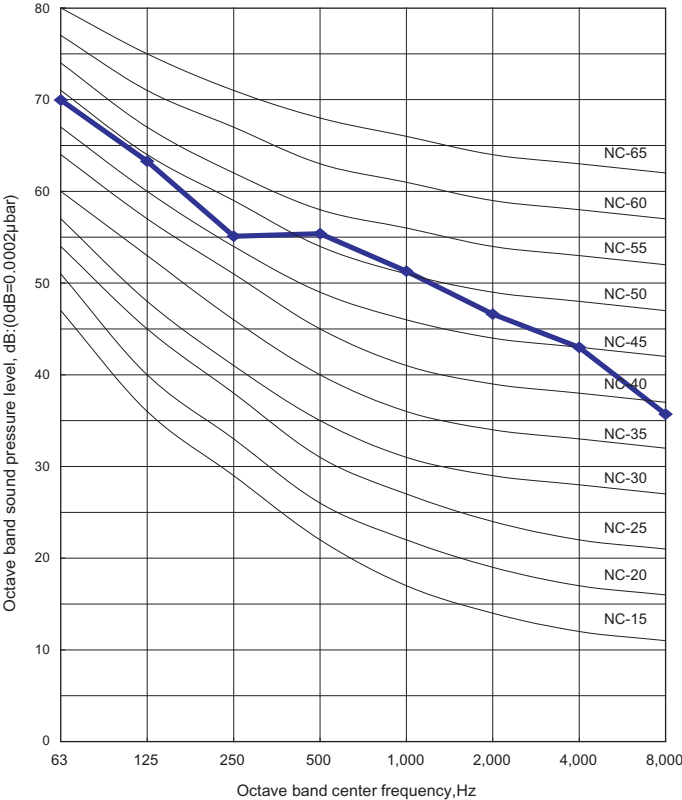


■ HEATING

● MODEL : AOU18R

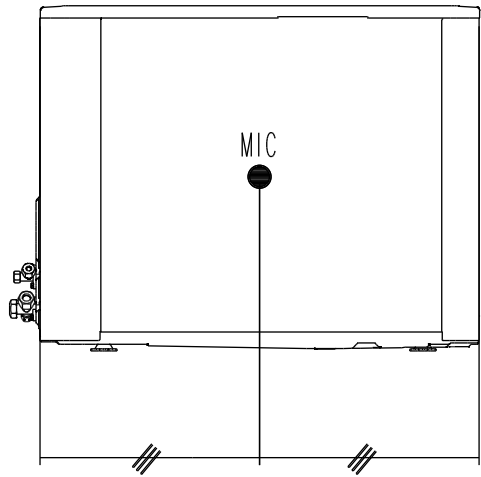
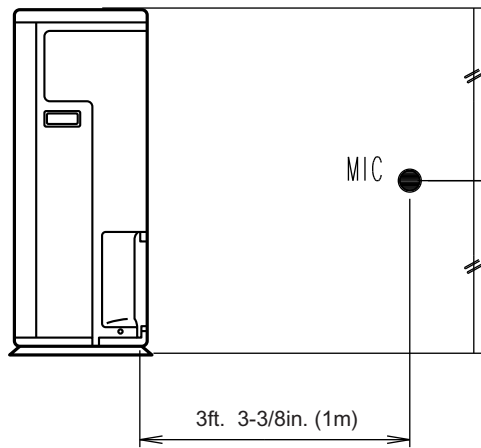


● MODEL : AOU24R



■ SOUND LEVEL CHECK POINT

FLOOR / CEILING TYPE
ABU18-24R

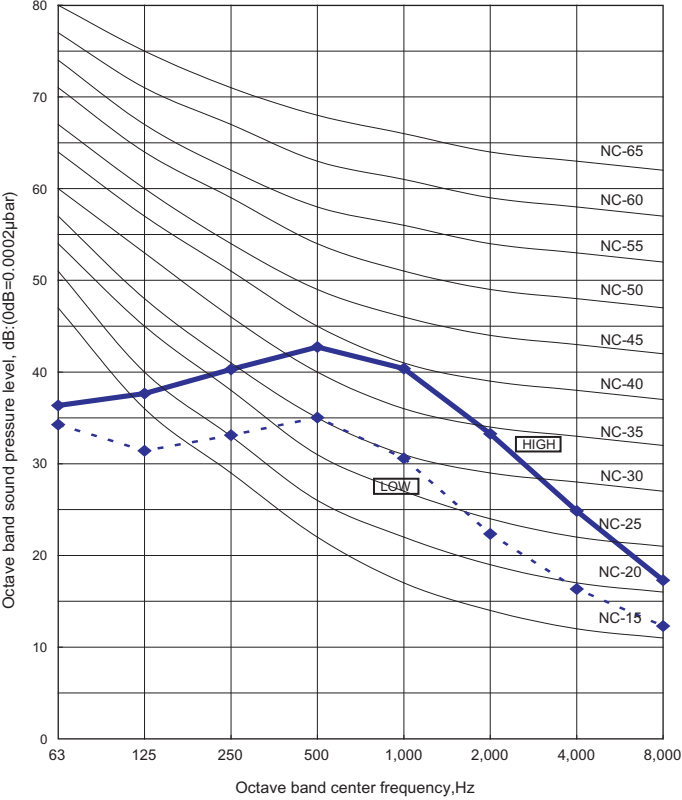


FLOOR / CEILING TYPE
ABU18-24R

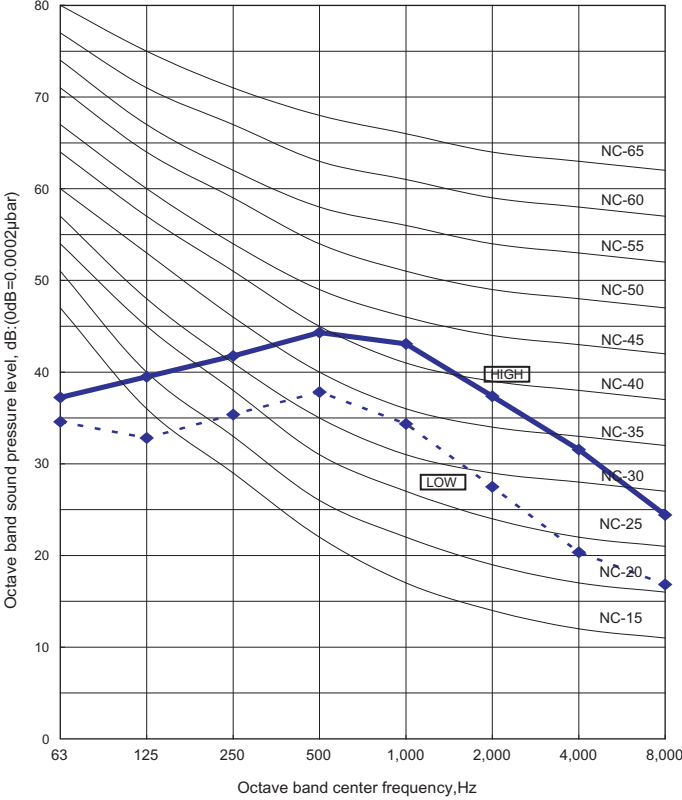
2-12-2. INDOOR UNIT

COOLING

MODEL : ABU18R

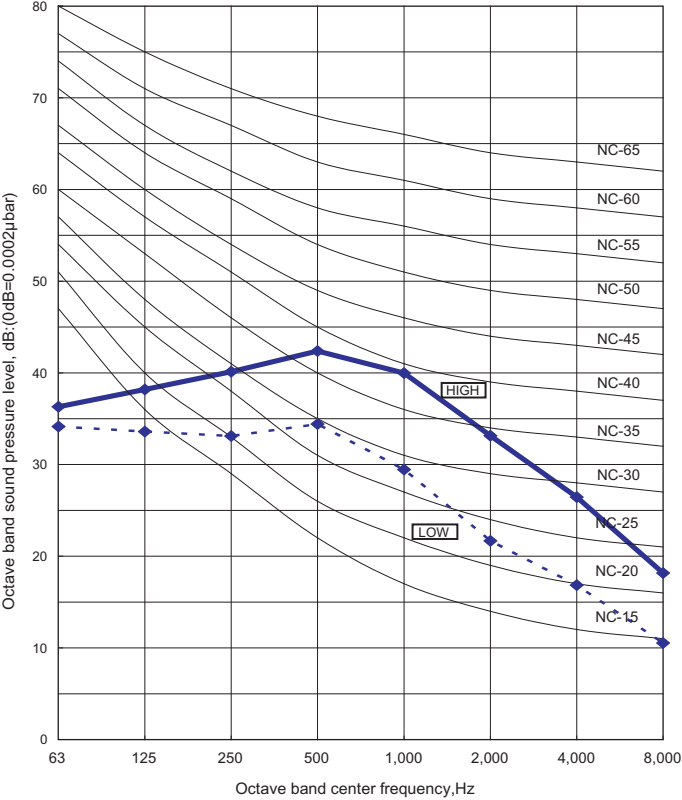


MODEL : ABU24R

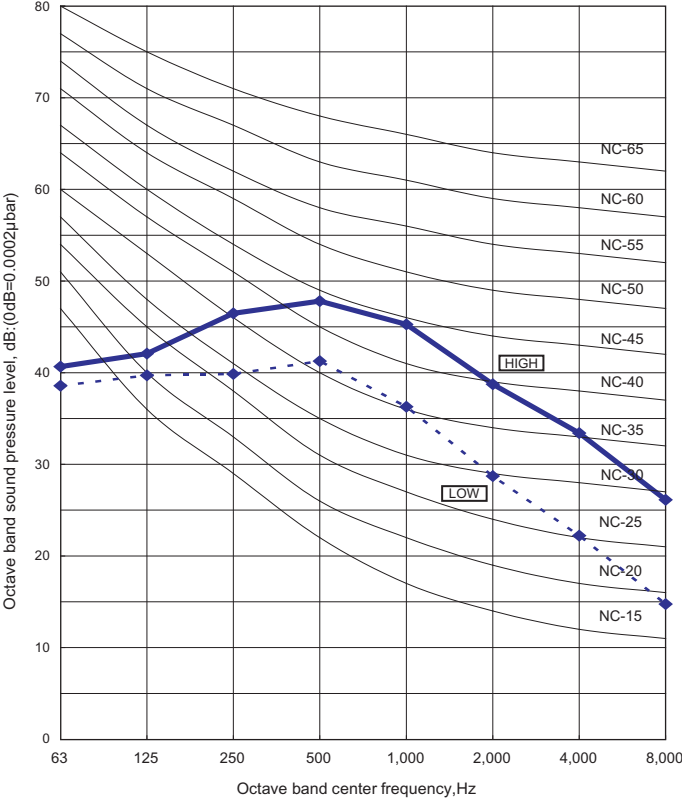


HEATING

MODEL : ABU18R

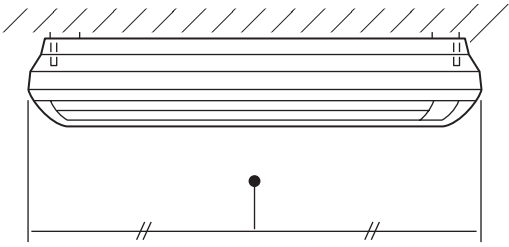
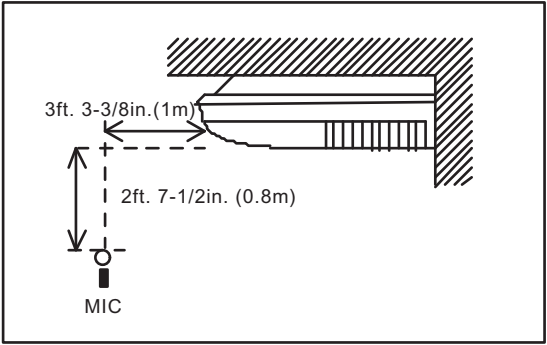


MODEL : ABU24R



■ SOUND LEVEL CHECK POINT

● UNDER CEILING



2-13. ELECTRIC CHARACTERISTICS

■ MODELS : ABU18R / AOU18R, ABU24R / AOU24R

Model Name	Indoor unit		ABU18R		ABU24R	
	Outdoor unit		AOU18R		AOU24R	
Power Supply	Voltage	V	230			
	Frequency	Hz	60			
Rated Value	Mode		Cooling	Heating	Cooling	Heating
	Current	A	7.1	9.8	9.8	10.2
	Input	kW	1.63	2.25	2.25	2.35
Max Operating Current		A	12.5	12.5	12.5	12.5
Starting Current		A	9.1		9.6	
*1) Wiring Spec.	Main Fuse (Circuit breaker) Current	A	20		20	
	Power Cable	AWG	12		12	
	*2)Limited wiring length	ft.	88		88	
Indoor Fan Motor	Input	kW	0.1		0.14	
	Full Load Amp.	A	0.45		0.63	
Outdoor Fan Motor	Input	kW	0.085		0.13	
	Full Load Amp.	A	0.38		0.59	

*1) Wiring Spec. : Selected Sample

(Selected based on Japan Electrotechnical Standard 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.

2-14. SAFETY DEVICE

■ OUTDOOR UNIT

	PROTECTION FORM	AOU18R , AOU24R	
FUSE ON MAIN PCB	CURRENT FUSE	3.15A 250V	
		5A 250V	
FAN MOTOR PROTECTION	THERMAL PROTECTOR	212 ⁺²⁷ ₋₁₈ °F	100 ⁺¹⁵ ₋₁₀ °C
COMPRESSOR PROTECTION	THERMAL PROTECTOR	OFF 257°F ON 176°F	OFF 125°C ON 80°C
HIGH PRESSURE PROTECTION	PRESSURE SWITCH	OFF : 609±15 psi ON : 464±22 psi	OFF : 4.2±0.1MPa ON : 3.2±0.15MPa

■ INDOOR UNIT

	PROTECTION FORM	ABU18R , ABU24R	
PCB FUSE	CURRENT FUSE	3.15A 250V	
FAN MOTOR PROTECTION	THERMAL PROTECTOR	248±9°F	120±5°C

2-15. FUNCTION SETTING

2-15-1. INDOOR UNIT

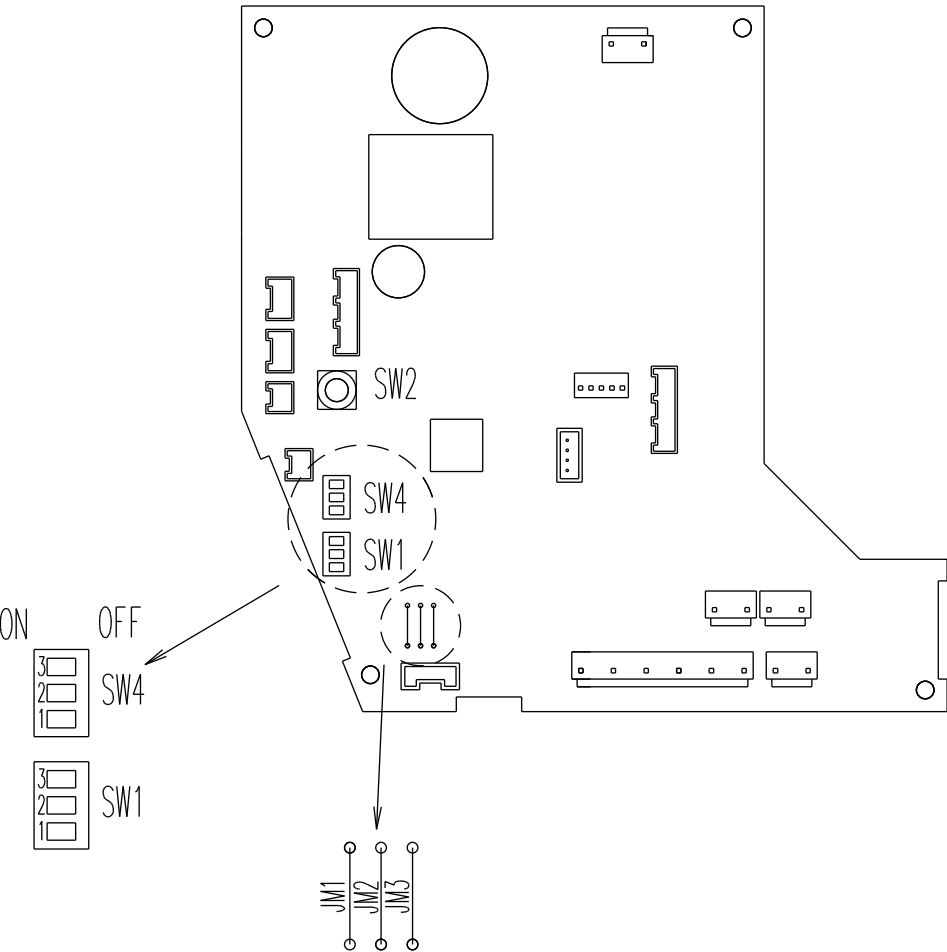
FLOOR / CEILING TYPE
ABU18-24R

INDOOR UNIT			
DIP SW	SW 1	1	Auto restart validity/invalidity
		2	Room temperature correct coefficient
		3	Room temperature correct coefficient
	SW 4	1	Forbidden
		2	Ceiling height setting
		3	
Rotary SW	SW 2		Indoor unit number setting
Jumper Wire		JM1	Forbidden
		JM2	Remote control unit signal code
		JM3	

FLOOR / CEILING TYPE
ABU18-24R

SWITCH POSITION

Indoor unit control circuit board



2-15-2. SWITCH FUNCTION (INDOOR UNIT)

■ DIP SWITCH SETTING

● SW1-1. Auto restart setting

Auto restart function can be selected by turning this switch ON/OFF.

AUTO RESTART SETTING

(◆ . . . Factory setting)

SW 1-1	SW state
OFF	Invalidity
◆ ON	Validity

● SW1-2, 1-3. Room temperature correct coefficient of heating.

Decide the heating temperature correct coefficient value of heating.

TEMPERATURE CORRECTION

(◆ . . . Factory setting)

SW 1-2	SW 1-3	SW state		
		heating	dry	cooling
OFF	OFF	+3.6degF	-3.6degF	-3.6degF
ON	OFF	-3.6degF	-3.6degF	-3.6degF
※ OFF	ON	0 degF	0 degF	0 degF
◆ ON	ON	+7.2degF	0 degF	0 degF

※ When used for Floor console type

● SW4-1. REMOTE CONTROLLER SETTING

(◆ . . . Factory setting)

SW 4-1	SW state
◆ OFF	Wireless Remote Controller
ON	Wired Remote Controller (option)

● SW4-2, 4-3. Ceiling height setting

(◆ . . . Factory setting)

Ceiling height ft.(m)		DIP - SW4		
		1	2	3
◆ 8ft. 2-7/16in. to 9ft. 10-1/8in. (2.5 to 3.0)	Normal	-	OFF	OFF
9ft. 10-1/8in. to 11ft. 5-25/32in. (3.0 to 3.5)	High ceiling 1	-	ON	OFF
More than 11ft. 5-25/32in. (3.5)	High ceiling 2	-	OFF	ON
Less than 8ft. 2-7/16in. (2.5)	Low ceiling	-	ON	ON

If the setting for a low ceiling is selected, the capacity of the air conditioner decreases slightly.

■ ROTARY SWITCH SETTING

(This function operates only when optional wired remote controller is used.)

This switch can be used when group control system.
Set the indoor unit address in the 0,1,-,15 order.

(◆ . . . Factory setting)

◆	SW 2	SW state
	0	Single
	1 - 15	Indoor unit address

■ JUMPER WIRE SETTING

● JM 1, 2, 3 setting

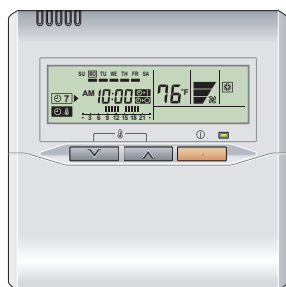
(◆ . . . Factory setting)

◆	Jumper wire		Remote control unit signal code
	JM2	JM3	
	connect	connect	A
	connect	Disconnect	B
	Disconnect	connect	C
	Disconnect	Disconnect	D

2-16. OPTIONAL PARTS

2-16-1. WIRED REMOTE CONTROLLER

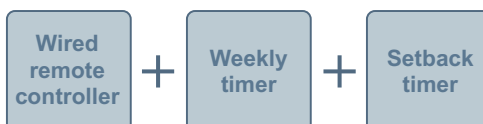
■ FEATURES



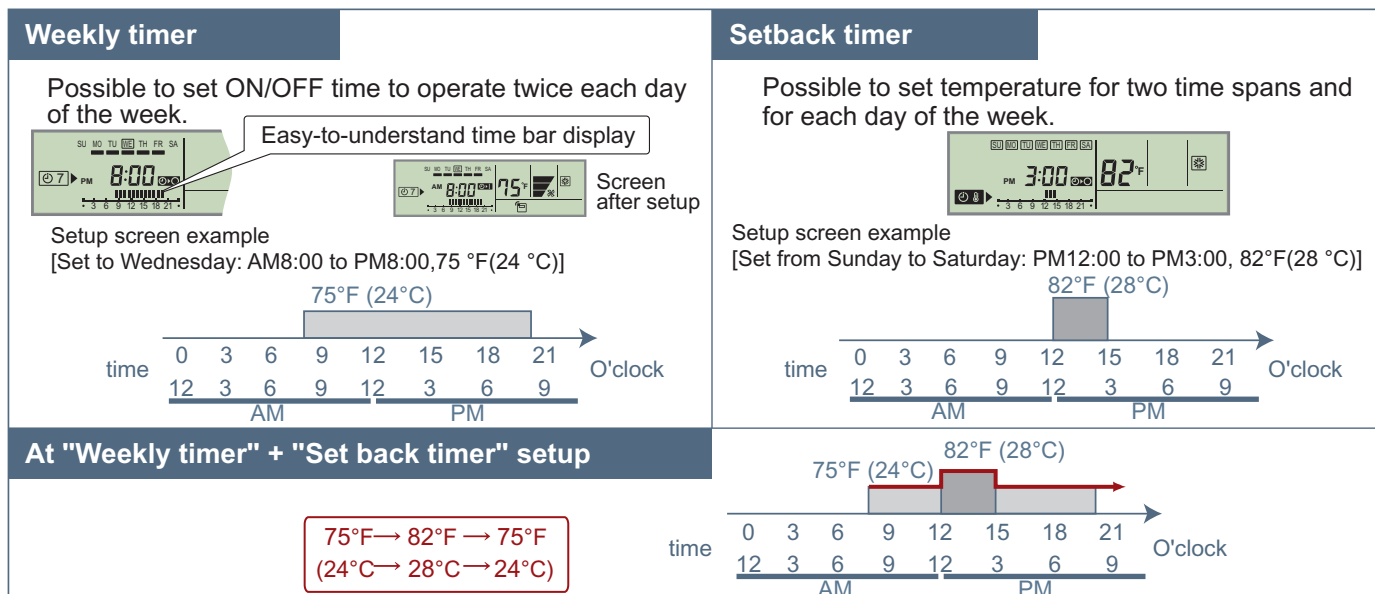
- * Various timer setup (ON / OFF / WEEKLY) are possible.
- * Equipped with weekly timer as standard function.
(2 times Start / Stop per day for a week)
- * When setting up a timer, operation mode and a temperature setup can be changed.
- * When a failure occurs, the error code is displayed. (Maximum of 16)
- * Error indication. (A maximum of 16 error histories are memorizable.)
- * Easy installation with a slim shape with no boldge in the back.
- * Built in room temperature sensor.

● High performance and compact size

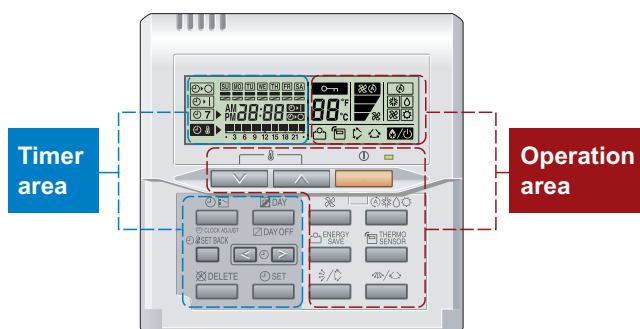
Three functions are combined in one unit.



● Built-in timers



● Easy-to-understand operation

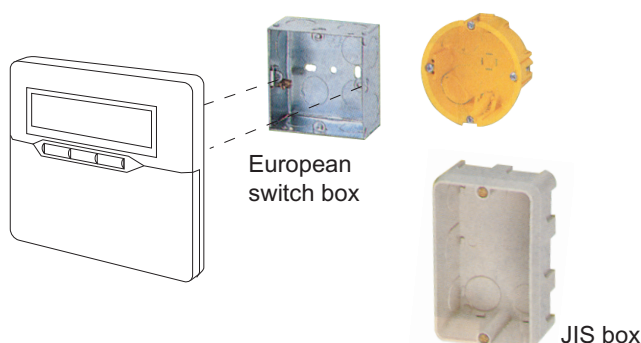


[Variable timer control]

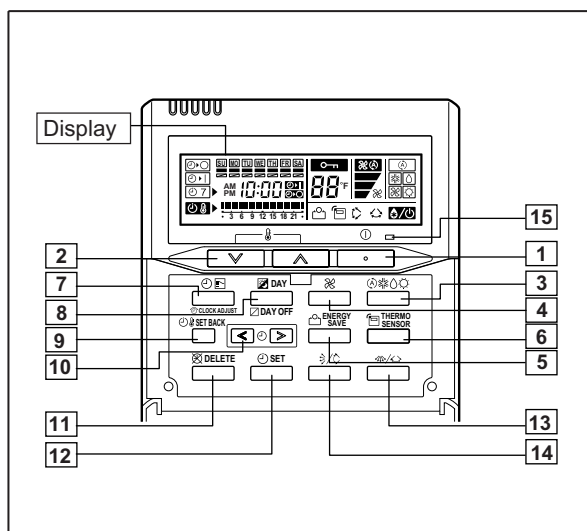
The operation/display sections are zoned according to time and operation, enabling variable programming to match application.

● Simple installation

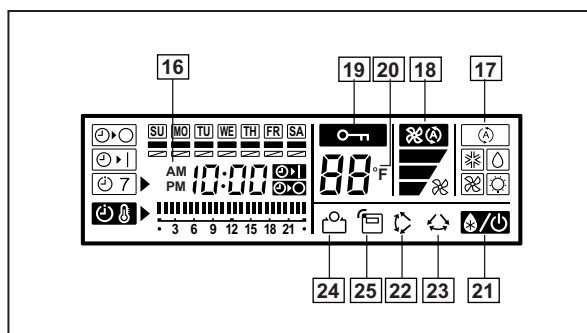
Components are compatible with standard switch boxes. Flat back construction allows equipment to be installed wherever it is needed.



FUNCTIONS



Display panel



- 1** START/STOP button
Pressed to start and stop operation.
- 2** Set Temperature button
Selects the setting temperature.
- 3** Master control button
Selects the operating mode(AUTO, HEAT, FAN, COOL, DRY).
- 4** Fan control button
Selects the fan speed (AUTO, LOW, MED, HIGH).
- 5** Energy save button
Turns the energy efficient mode on and off.
- 6** Thermo sensor button
Selects whether the room temperature is detected at the indoor unit (remote sensor) or the remote controller.
- 7** Timer mode (CLOCK ADJUST) button
Selects the timer mode (OFF TIMER, ON TIMER, WEEKLY TIMER)
Set the current time.
- 8** Day (DAY OFF) button
Temporarily cancels of one day timer.
- 9** Set back button
pressed select the set back timer.
- 10** Set time button
Pessed to select the set back timer.
- 11** Delete button
The schedule of a weekly timer is deleted.
- 12** Set button
Sets the date, hour, minute and on-off time.
- 13** Horizontal air flow direction and swing button
Push for two seconds to change the swing mode.
- 14** Vertical air flow direction and swing button
Push for two seconds to change the swing mode
- 15** Operation lamp
Lights during operation and when the timer is on.
- 16** Timer and clock display
- 17** Operation mode display
- 18** Fan speed display
- 19** Central control display
- 20** Temperature display
- 21** Stand by display
Indicates during defrosting operation.
- 22** Vertical swing display
- 23** Horizontal swing display
- 24** Energy save display
- 25** Thermo sensor display

SPECIFICATION

SIZE [(H x W x D in.) mm]	4-23/32 x 4-23/32 x 43/64 (120 x 120 x 17)
WEIGHT oz.(g)	5-21/32 (160)
CABLE LENGTH ft.(m)	33 (10)
POWER (V)	12

2-16-2. WIRED REMOTE CONTROLLER CIRCUIT BOARD

FLOOR / CEILING TYPE
ABU18-24R

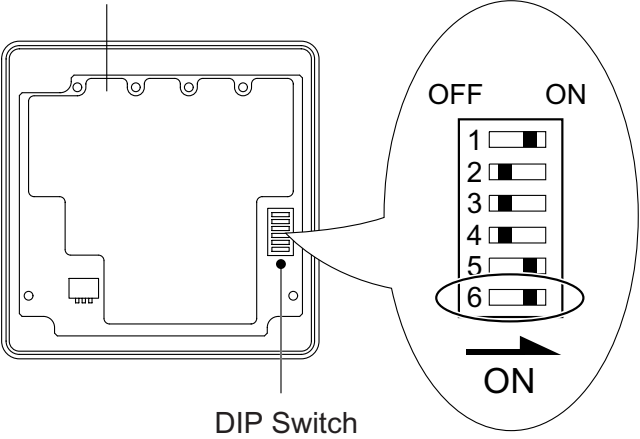
Wired remote controller		
DIP SW	1	Dual remote controller setting
	2	
	3	Group control setting
	4	Model setting
	5	Auto changeover setting
	6	Memory backup setting

FLOOR / CEILING TYPE
ABU18-24R

SWITCH POSITION

Wired remote controller

Front case (back side)



2-16-3. WIRED REMOTE CONTROLLER

■ DIP SWITCH SETTING

● 1. SW setting

1-1 Dual remote controller setting

Set the remote controller DIP switch No.1 and 2 according to the following table.

(◆ . . . Factory setting)

Number of remote controller	Master unit		Slave unit	
	DIP-SW No.1	DIP-SW No.2	DIP-SW No.1	DIP-SW No.2
◆ 1 (Normal)	ON	OFF	—	—
2 (Dual)	OFF	OFF	ON	ON

1-2 Group control setting

Number of indoor unit connection (One/Multiple)

This is switched according to the number of connected indoor units.

(◆ . . . Factory setting)

DIP-SW No.3	Number of indoor unit
◆ OFF	One unit connection
ON	Multiple unit connection

1-3 Model setting

The system type of the outdoor unit can be selected by setting up DIP switch No.4 as follows.

(◆ . . . Factory setting)

DIP-SW No.4	Model
◆ OFF	Heat Pump model
ON	Cooling only model

1-4 Auto changeover setting

Selecting auto changeover validity / invalidity.

(◆ . . . Factory setting)

DIP-SW No.5	Auto changeover
OFF	Invalidity
◆ ON	Validity

1-5 Memory backup setting

Set to ON to use batteries for the memory backup. If batteries are not used, all of the settings stored in memory will be deleted if there is a power failure.

※ This function is wired remote control only.

(◆ . . . Factory setting)

DIP-SW No.6	Memory backup
OFF	Invalidity
◆ ON	Validity