

Ruud Achiever Plus® Series Side Discharge Heat Pumps

RP17**H Series

Efficiency: 19 SEER/12 EER/10.7 HSPF

Nominal Sizes 2, 2.5, 3 & 4 Ton

[7.03, 8.8, 10.6 & 14.06 kW]

Cooling Capacities 24 to 45.6 kBTU

[7.03 to 13.36 kW]



- Variable speed inverter-driven compressor for maximum comfort and energy savings. Provides heating down to -5°F
- Outdoor sound levels as low as 53 dBA - quiet operation for areas with noise constraints
- Space saving single fan outdoor unit

- High efficiency DC motor
- Communicating heat pump with multi-position air handler
- Compact size - ideal for areas with tight space constraints

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<u>R</u>	<u>P</u>	<u>17</u>	<u>24</u>	<u>H</u>	<u>J</u>	<u>V</u>	<u>X</u>	<u>A</u>	<u>*</u>
Brand	Product Category	SEER	Capacity BTU/HR	Horizontal Discharge	Voltage	Type	Controls	Minor Series**	Option Code
Ruud	P - Heat Pump	17 SEER	24 - 24,000 [7.03 kW] 30 - 30,000 [8.79 kW] 36 - 36,000 [10.55 kW] 48 - 48,000 [14.07 kW] 60 - 60,000 [17.58 kW]		J - 1ph, 208-230/60	V - Inverter	X - Data Exchange	A - 1st Design	N/A

[] Designates Metric Conversions

Available SKUs

Available Models
RP1724HJVXA
RP1730HJVXA
RP1736HJVXA
RP1748HJVXA

Physical Data				Inverter Heat Pump				
Type				RP1724HJVXA RP1730HJVXA RP1736HJVXA RP1748HJVXA				
Model Name				RP1724HJVXA RP1730HJVXA RP1736HJVXA RP1748HJVXA				
Power supply				208/230 V ~ 60 Hz				
Power supply intake				Outdoor unit				
Available voltage range				187—253 V				
Starting current			A	9.6	11.5	20.1		
Fan	Airflow rate	Cooling	CFM (m ³ /h)	2,119 (3,600)		2,590 (4,400)		
		Heating		2,119 (3,600)		2,590 (4,400)		
	Type x Quantity			Propeller x 1		Propeller x 1		
	Motor output		W	100		111		
Sound pressure level *		Cooling	dB (A)	53		53	54	
		Heating		55		54	55	
Heat exchanger type		Dimensions(H x W x D)	in	31-7/16 x 35-7/16 x 1-7/16		38-1/16 x 36-5/16 x 2-3/16		
			mm	798 x 900 x 36.4		966 x 922 x 55		
		Fin pitch	FPI	20		18		
		Rows x Stages			2 x 38		3 x 46	
		Pipe type			Copper		Copper	
		Fin	Type (Material)		Aluminum		Aluminum	
Surface treatment			PC Fin		Blue Fin			
Compressor	Type x Quantity			DC twin rotary x 1				
	Motor output		W	2,100				
Refrigerant		Type		R410A				
		Charge	lb oz	4 lb 10 oz		9 lb 8 oz		
	g		2,100		4,300			
Refrigerant oil		Type		POE (RB68)				
		Amount	in ³ (cm ³)	48.8 (800)		70.2 (1,150)		
Enclosure		Material		Steel				
		Color		Beige Approximate color of Munsell 10YR 7.5/1.0				
Dimensions (H x W x D)	Net		in (mm)	32-11/16 x 35-7/16 x 13 (830 x 900 x 330)		39-5/16 x 38-3/16 x 14-9/16 (998 x 970 x 370)		
	Gross		in (mm)	39-3/8 x 41-5/16 x 17-1/2 (1,000 x 1,050 x 445)		45-12/16 x 41-14/16 x 18-13/16 (1,162 x 1,064 x 478)		
Weight	Net		lb (kg)	134 (61)		198 (90)		
	Gross			152 (69)		220 (100)		
Connection pipe		Size	Liquid	3/8 (9.52)				
			Gas	5/8 (15.88)				
		Method			Flare			
		Pre-charge length		ft (m)	66 (20)		98 (30)	
		Max. length			164 (50)		230 (70)	
		Max. height difference			98 (30)		98 (30)	
Operation range		Cooling	°F (°C)	-4 to 115 (-20 to 46)		14 to 115 (-10 to 46)		
		Heating		-4 to 75 (-20 to 24)		-4 to 75 (-20 to 24)		
Drain hose		Material		LDPE		LDPE		
		Size		in (mm)	1/2 (13.0) [I.D.] 5/8 to 11/16 (16.0 to 16.7) [O.D.]		1/2 (13.0) [I.D.] 5/8 to 11/16 (16.0 to 16.7) [O.D.]	

NOTES:

- Specifications are based on the following conditions:
 - Cooling: Indoor temperature of 80° FDB (26.67° CDB) / 67° FWB (19.44° CWB), and outdoor temperature of 95° FDB (35° CDB) / 75° FWB (23.9° CWB).
 - Heating: Indoor temperature of 70° FDB (21.11° CDB) / 59° FWB (15° CWB), and outdoor temperature of 47° FDB (8.33° CDB) / 43° FWB (6.11° CWB).
 - Pipe length: 24 ft 6 in (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level
 - Measured values in manufacturer's anechoic chamber.
 - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

Electrical Characteristics

Item		Model Name			
		Unit	RP1724HJVXA	RP1730HJVXA	RP1736HJVXA
Power supply	Voltage	V	208/230 V~		
	Frequency	Hz	60		
MCA *1		A	20.8		39.9
Starting current		A	9.6	11.5	20.1
Wiring spec. *2	Max. Ckt. Bkr. *3		30		40
	Power cable		AWG 16—14		8
	Connection cable *4	Size	AWG 20—16		14
		Limited wiring length	ft (m)	167 (51)	

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

*2. Selected sample based on Japan Electrotechnical Standards and Codes Committee E0005. As the regulations of wire size and circuit breaker differ in each country or region, select appropriate devices complied to the regional standard.

*3. Maximum Circuit Breaker

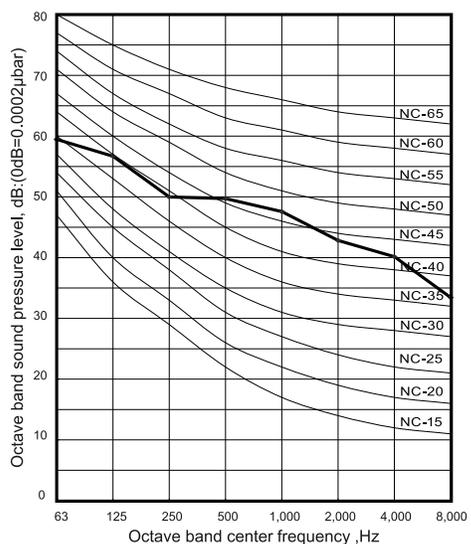
*4. Limit voltage drop to less than 2%. If voltage drop is 2% or more, increase cable conductor size.

Accessories

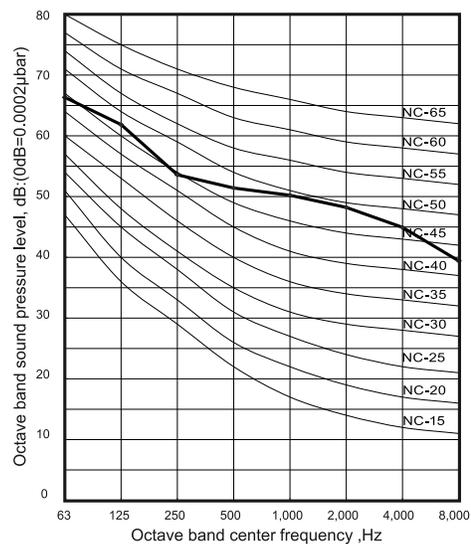
RP1724HJVXA AND RP1730HJVXA			RP1736HJVXA AND RP1748HJVXA		
PART NAME	EXTERIOR	QUANTITY	PART NAME	EXTERIOR	QUANTITY
Installation manual		1	Installation manual		1
Drain pipe		1	Drain pipe		1
Drain cap		5	Drain cap		7

Noise Level Curve

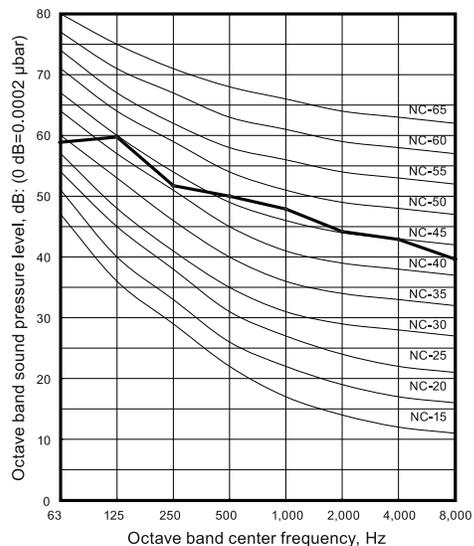
MODEL RP1724HJVXA COOLING



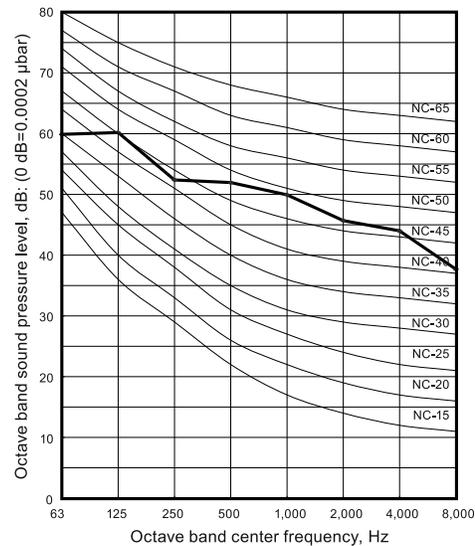
MODEL RP1724HJVXA HEATING



MODEL RP1730HJVXA COOLING

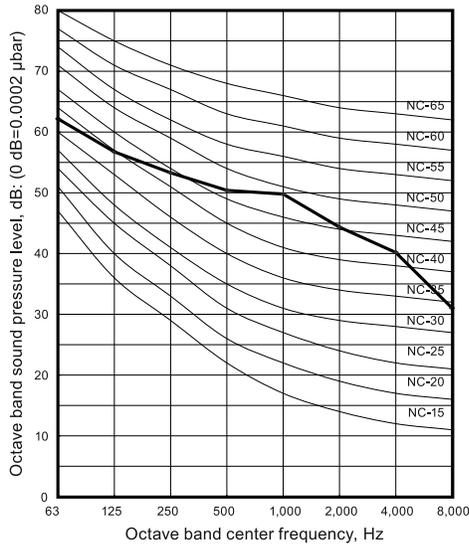


MODEL RP1730HJVXA HEATING

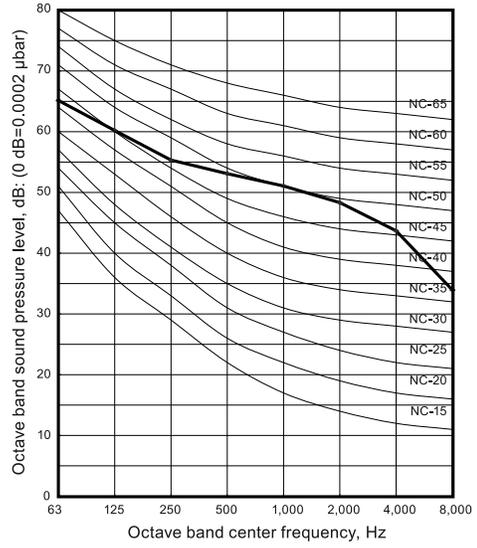


Noise Level Curve (con't)

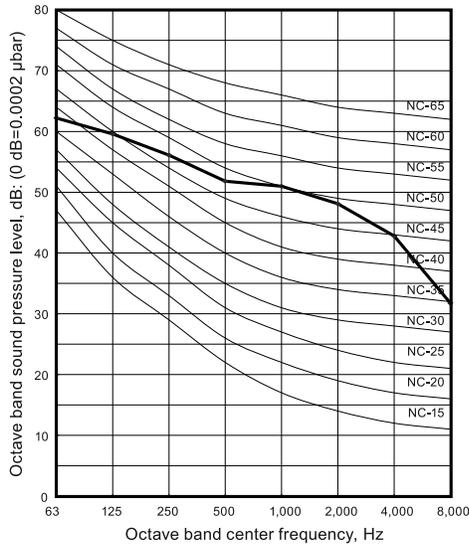
MODEL RP1736HJVXA COOLING



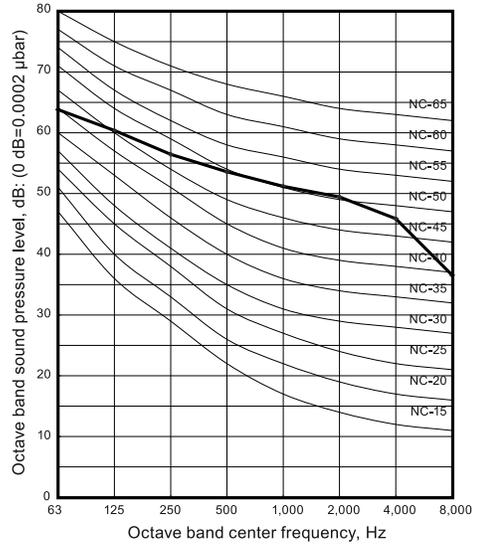
MODEL RP1736HJVXA HEATING



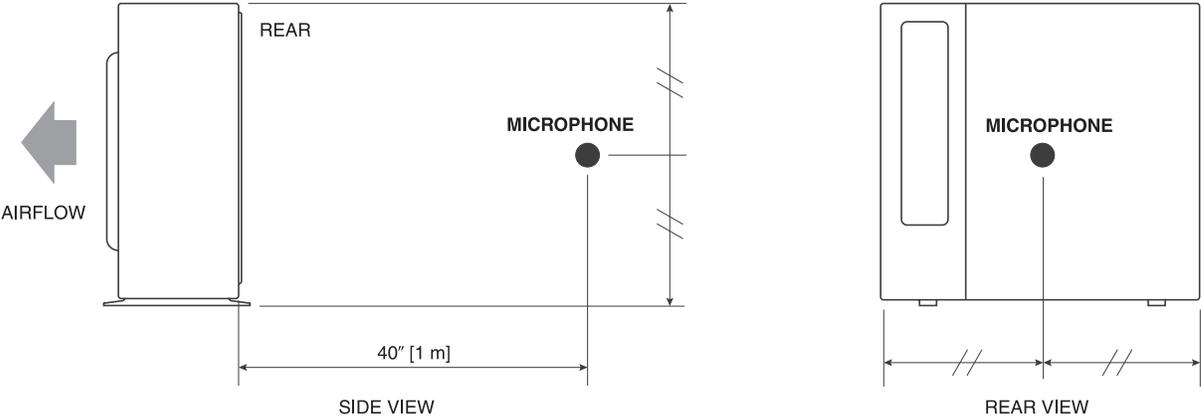
MODEL RP1748HJVXA COOLING



MODEL RP1748HJVXA HEATING



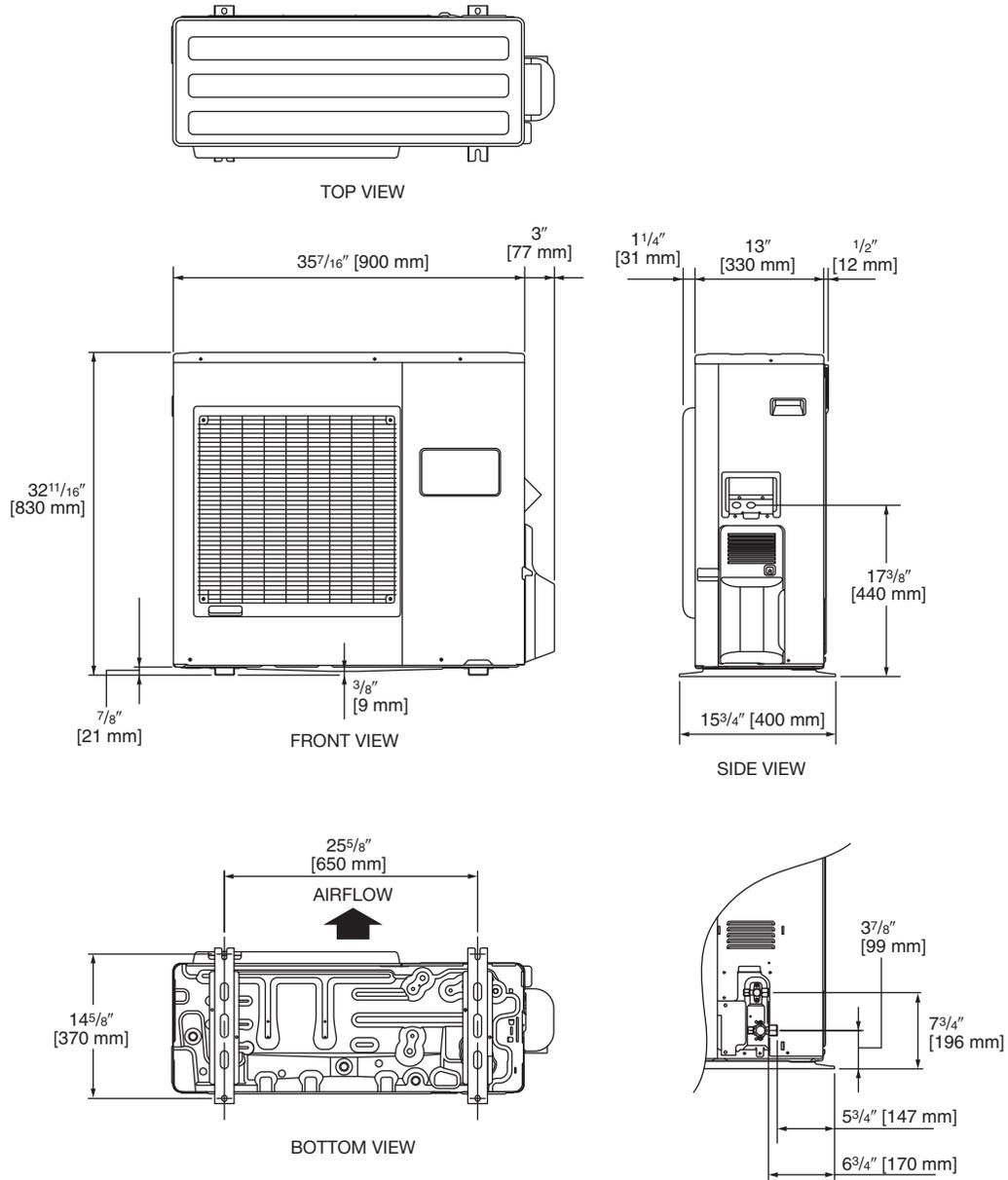
Noise Level Check Point



NOTE: Detailed shape of the actual outdoor unit might be slightly different from the one illustrated above.

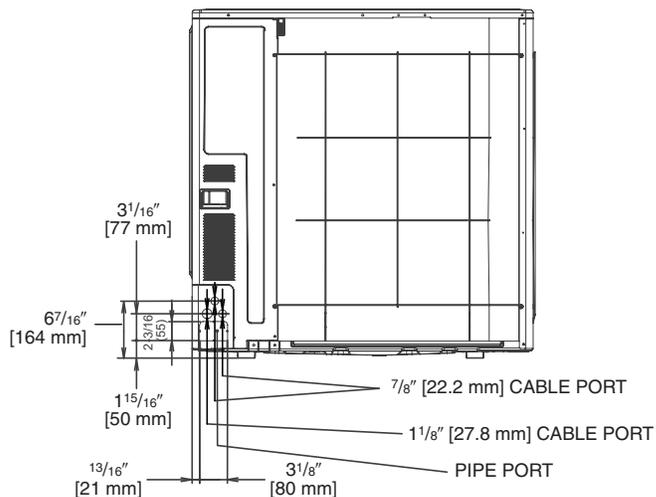
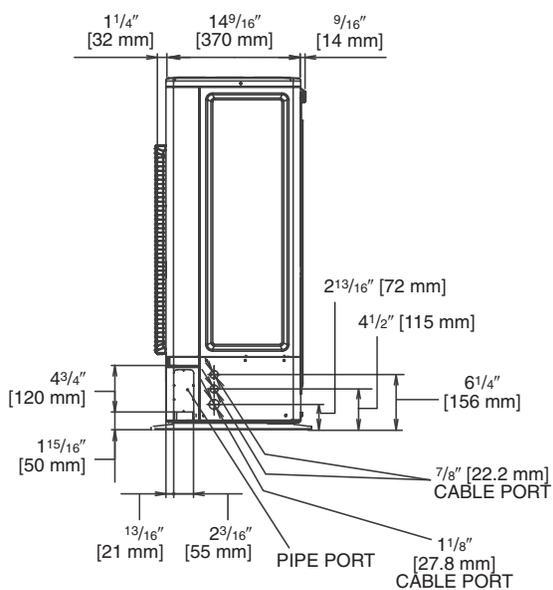
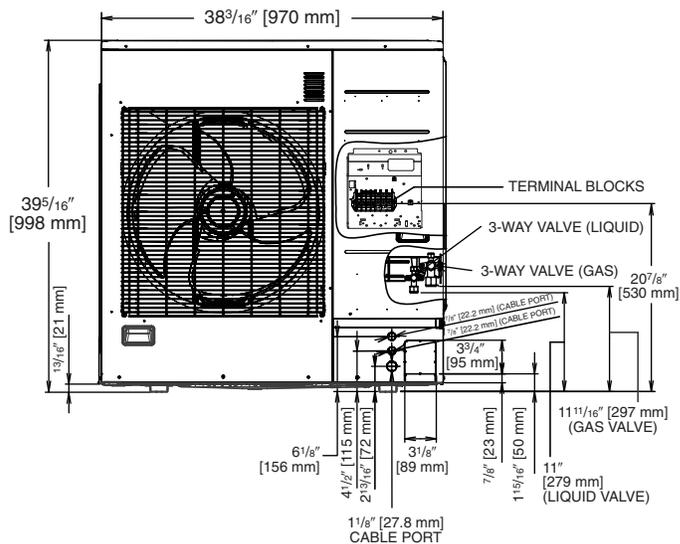
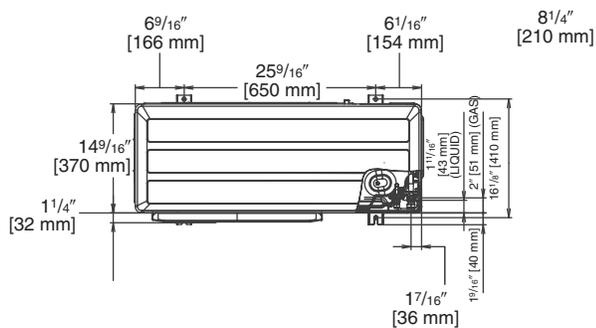
[] Designates Metric Conversions

Unit Dimensions—RP1724HJVXA and RP1730HJVXA



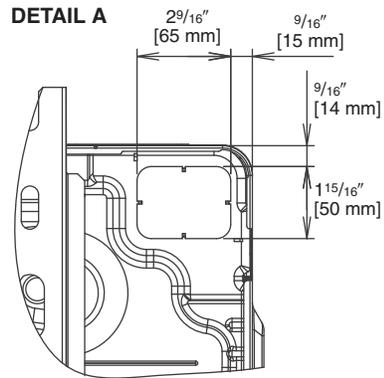
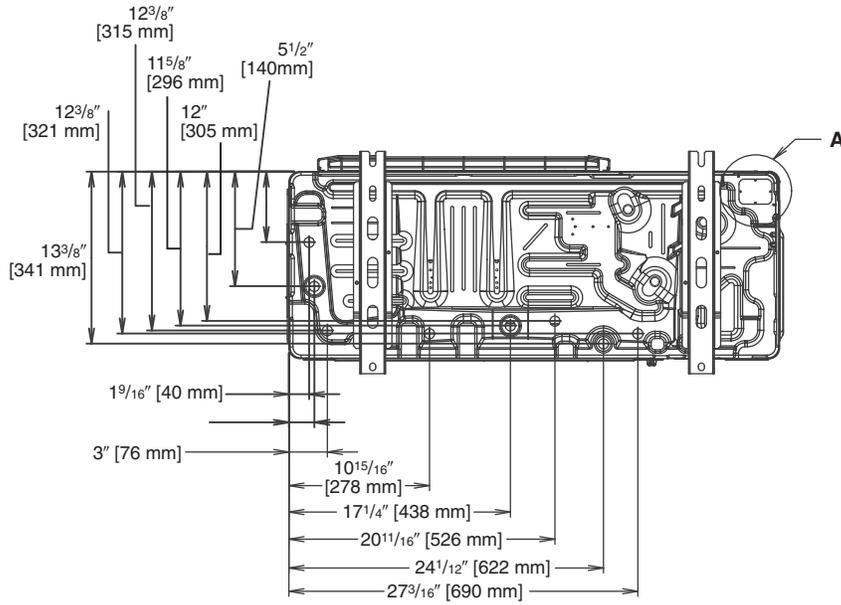
[] Designates Metric Conversions

Unit Dimensions—RP1736HJVXA and RP1748HJVXA



[] Designates Metric Conversions

Unit Dimensions—RP1736HJVXA and RP1748HJVXA (con't)



[] Designates Metric Conversions

Installation Space—RP1724HJVXA and RP1730HJVXA

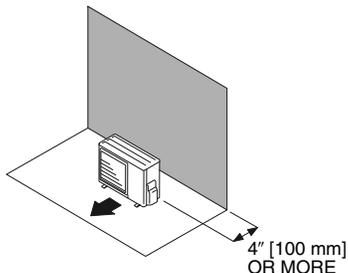
SPACE REQUIREMENT

Provide sufficient installation space for product safety.

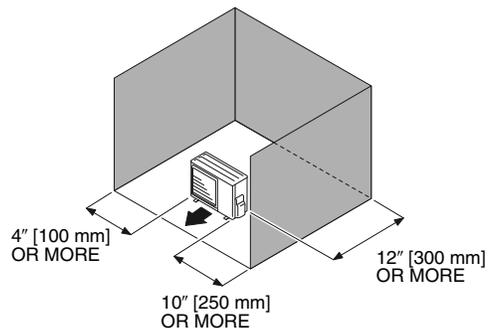
SINGLE OUTDOOR UNIT INSTALLATION

When the upper space is open:

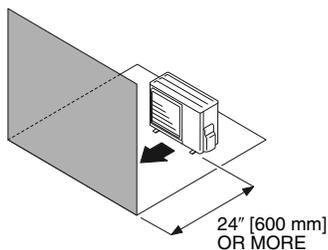
WHEN THERE ARE OBSTACLES AT THE REAR ONLY.



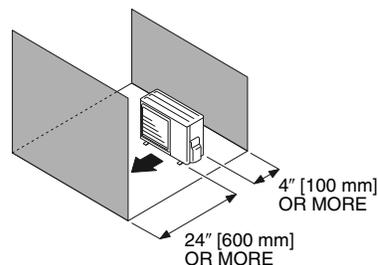
WHEN THERE ARE OBSTACLES AT THE REAR AND SIDES.



WHEN THERE ARE OBSTACLES AT THE FRONT ONLY.

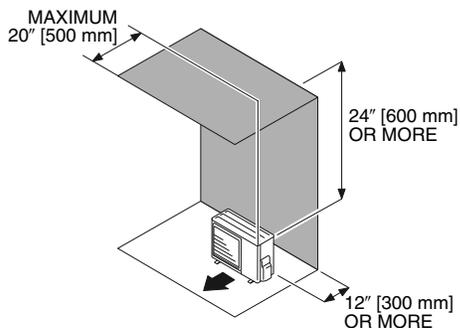


WHEN THERE ARE OBSTACLES AT THE FRONT AND REAR.

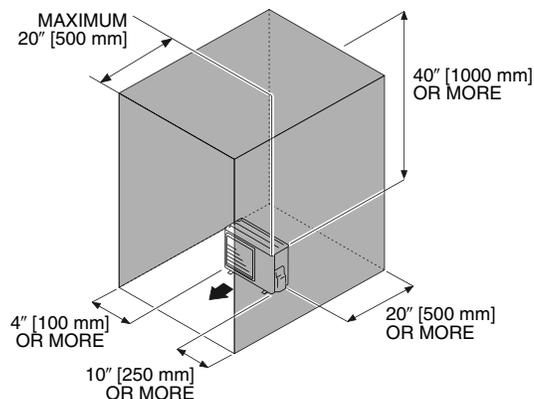


When there is an obstruction in the upper space:

WHEN THERE ARE OBSTACLES AT THE REAR AND ABOVE.



WHEN THERE ARE OBSTACLES AT THE REAR, SIDES AND ABOVE.



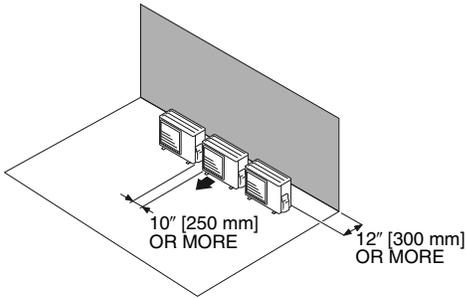
[] Designates Metric Conversions

Installation Space—RP1724HJVXA and RP1730HJVXA (con't)

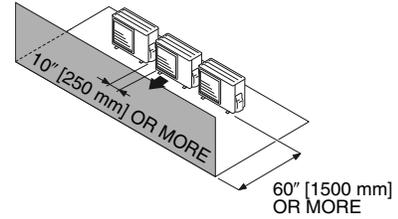
MULTIPLE OUTDOOR UNIT INSTALLATION

When the upper space is open:

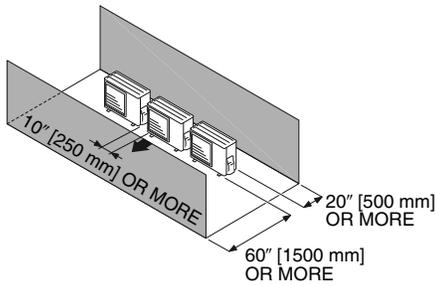
WHEN THERE ARE OBSTACLES AT THE REAR ONLY.



WHEN THERE ARE OBSTACLES AT THE FRONT ONLY.

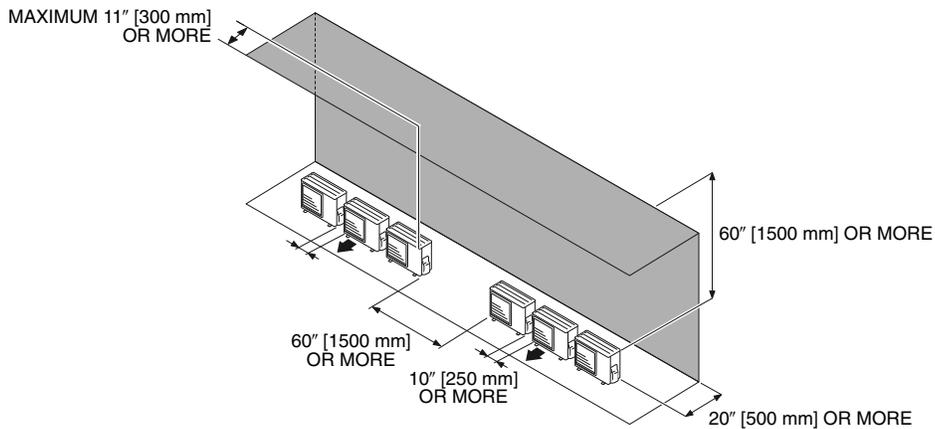


WHEN THERE ARE OBSTACLES AT THE FRONT AND REAR.



When there is an obstruction in the upper space:

WHEN THERE ARE OBSTACLES AT THE REAR AND ABOVE.

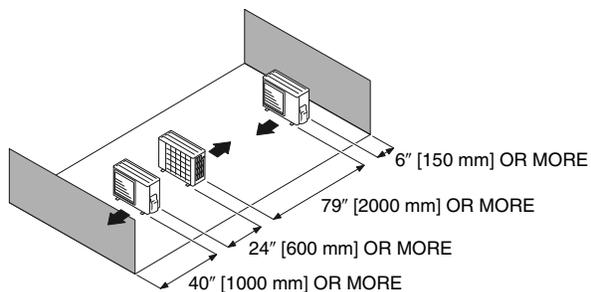


[] Designates Metric Conversions

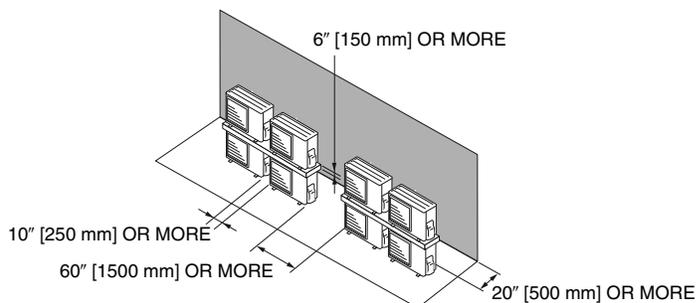
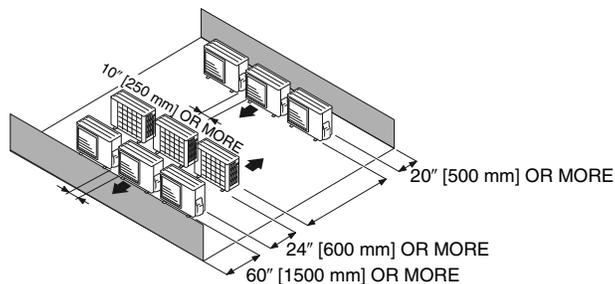
Installation Space—RP1724HJVXA and RP1730HJVXA (con't)

OUTDOOR UNIT INSTALLATION IN MULTI-ROW

SINGLE PARALLEL UNIT ARRANGEMENT



MULTIPLE PARALLEL UNIT ARRANGEMENT

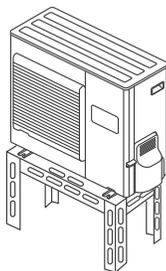


NOTES:

1. If the space is larger than stated above, the condition will be the same as when there is no obstacle.
2. Height above the floor level should be 2 in. [50 mm] or more.
3. When installing the outdoor unit, be sure to open the front and left side to obtain better operation efficiency.

CAUTION:

1. Do not install the outdoor unit in two-stage where the drain water could freeze. Otherwise the drainage from the upper unit may form ice and cause a malfunction of the lower unit.
2. When the outdoor temperature is 32° F [0° C] or less, do not use the accessory drain pipe and drain cap. If the drain pipe and drain cap are used, the drain water in the pipe may freeze in extremely cold climate. (For reverse cycle model only.)
3. In area with heavy snowfall, if the inlet and outlet of the outdoor unit is blocked with snow, it might become difficult to get warm, and it is likely to cause product malfunction. Construct a canopy and a pedestal, or place the unit on a high stand that is locally installed.



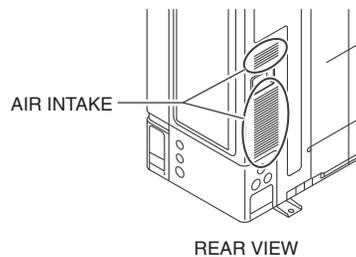
[] Designates Metric Conversions

Installation Space—RP1736HJVXA and RP1748HJVXA

CAUTION:

4. The installation space shown in the following examples is based on an ambient temperature under cooling operation of 95°FDB [35°CDB] at the air intake of the outdoor unit. Provide more space around the air intake than shown in the examples if the ambient temperature exceeds 95°FDB [35°CDB] or if the thermal load of all of the outdoor units exceeds the capacity.
5. Consider the transportation route, installation space, maintenance space, and access, and install the unit in a location with sufficient space for the refrigerant piping.
6. Observe the installation space specifications that are shown in the figures. Provide the same space for the air intake at the rear of the outdoor unit.

If the installation is not performed according to the specifications, it could cause a short circuit and result in a lack of operating performance. As a result, the outdoor unit might easily be stopped by high-pressure protection.



7. Installation methods not shown in the following examples are not recommended. Performance may drop significantly.

Installation Space—RP1736HJVXA and RP1748HJVXA (con't)

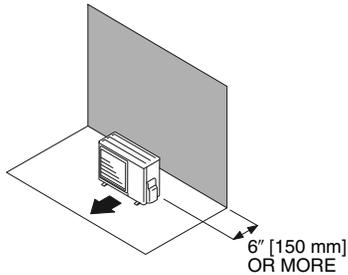
SPACE REQUIREMENT

Provide sufficient installation space for product safety.

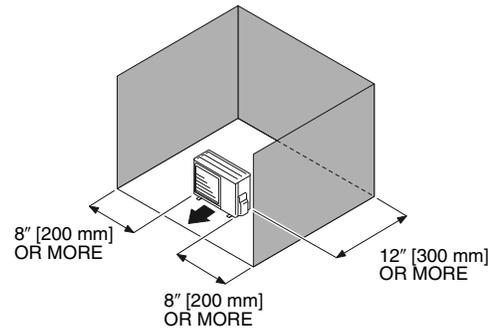
SINGLE OUTDOOR UNIT INSTALLATION

When the upper space is open:

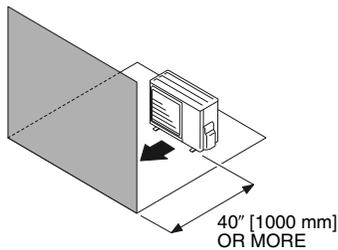
WHEN THERE ARE OBSTACLES AT THE REAR ONLY.



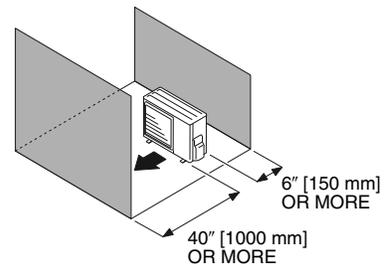
WHEN THERE ARE OBSTACLES AT THE REAR AND SIDES.



WHEN THERE ARE OBSTACLES AT THE FRONT ONLY.

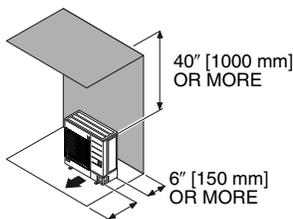


WHEN THERE ARE OBSTACLES AT THE FRONT AND REAR.

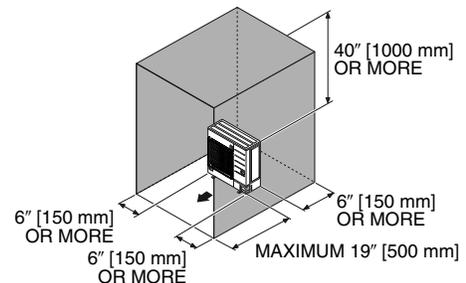


When there is an obstruction in the upper space:

WHEN THERE ARE OBSTACLES AT THE REAR AND ABOVE.



WHEN THERE ARE OBSTACLES AT THE REAR, SIDES AND ABOVE.



[] Designates Metric Conversions

Installation Space—RP1736HJVXA and RP1748HJVXA (con't)

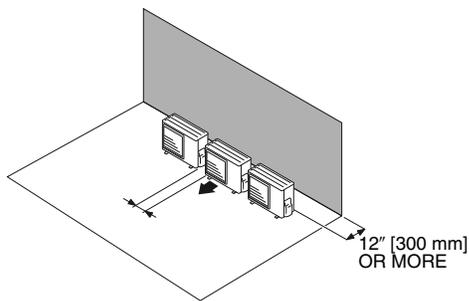
MULTIPLE OUTDOOR UNIT INSTALLATION

NOTES:

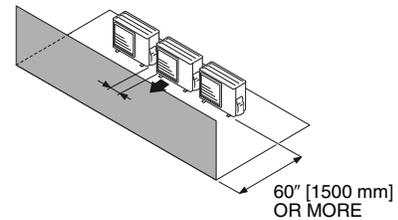
1. Provide at least of space between the outdoor units if multiple units are installed.
2. When routing the piping from the side of an outdoor unit, provide space for the piping.
3. No more than 3 units must be installed side by side. When 3 units or more are arranged in a line, provide the space as shown in the following example when an obstruction is present also in the upward area.

When the upper space is open:

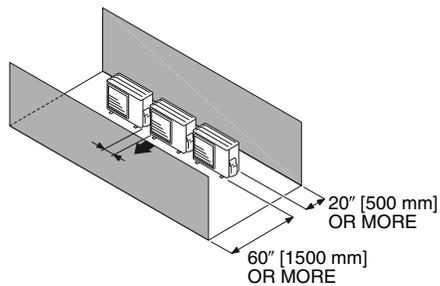
WHEN THERE ARE OBSTACLES AT THE REAR ONLY.



WHEN THERE ARE OBSTACLES AT THE FRONT ONLY.



WHEN THERE ARE OBSTACLES AT THE FRONT AND REAR.

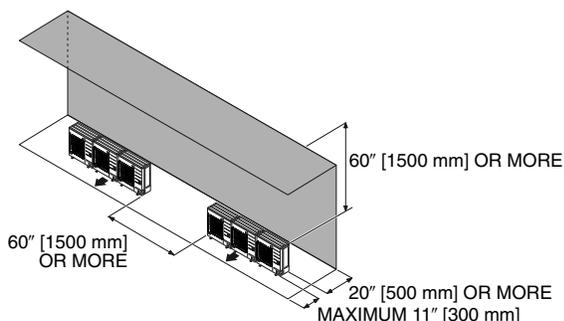


[] Designates Metric Conversions

Installation Space—RP1736HJVXA and RP1748HJVXA (con't)

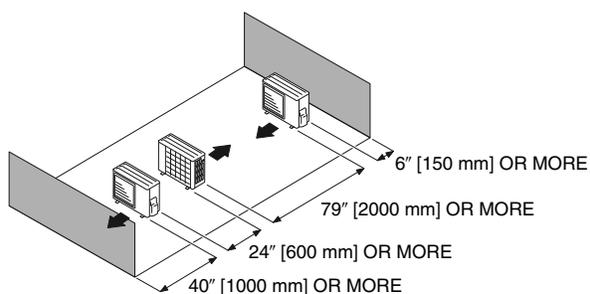
When there is an obstruction in the upper space:

WHEN THERE ARE OBSTACLES AT THE REAR AND ABOVE.

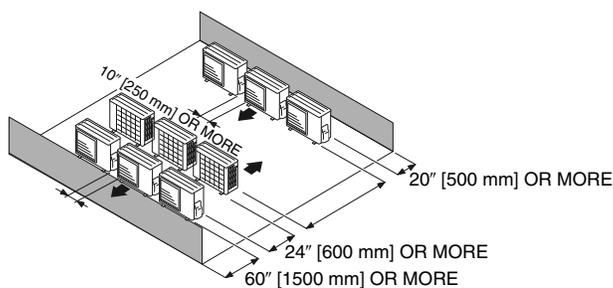


OUTDOOR UNIT INSTALLATION IN MULTI-ROW

SINGLE PARALLEL UNIT ARRANGEMENT



MULTIPLE PARALLEL UNIT ARRANGEMENT

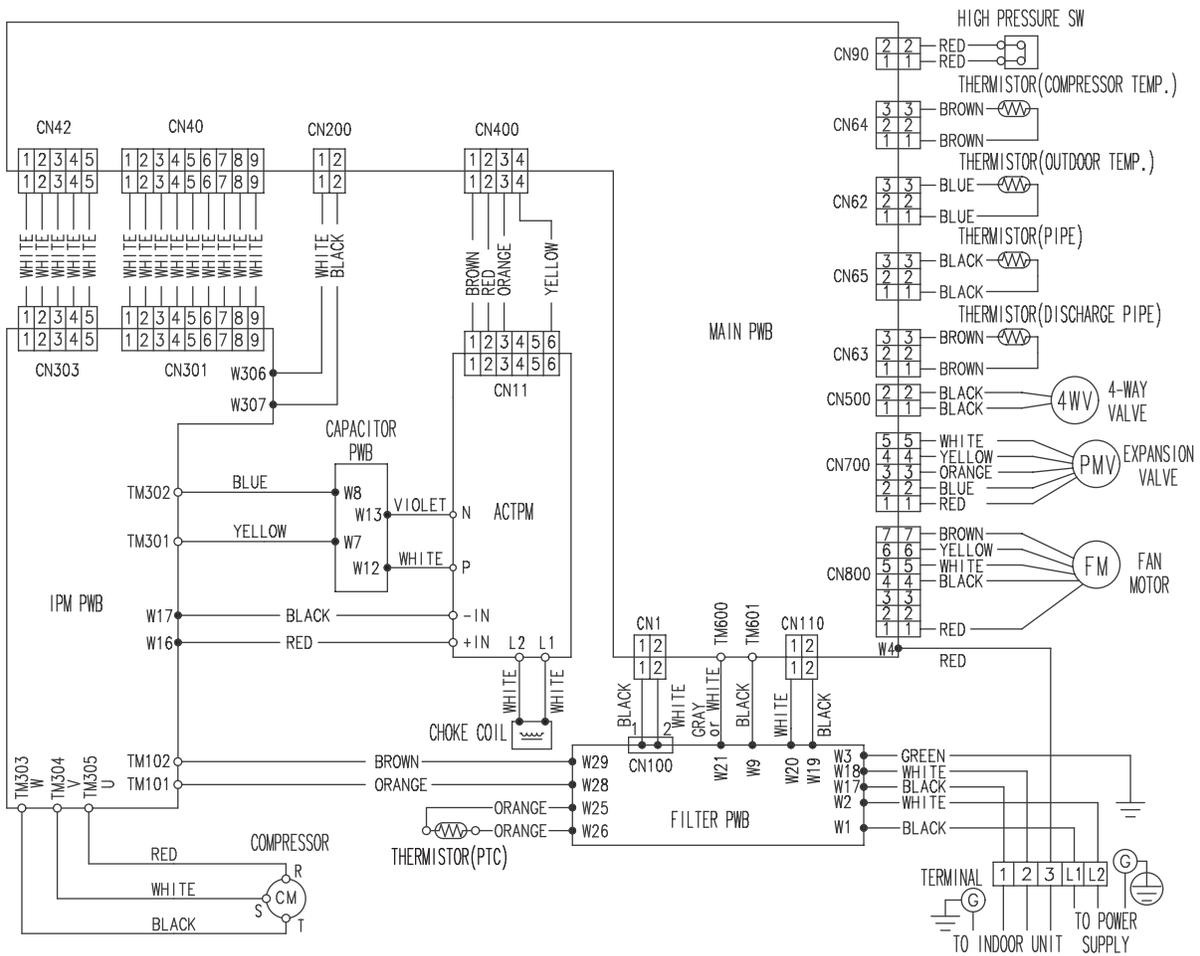


NOTES:

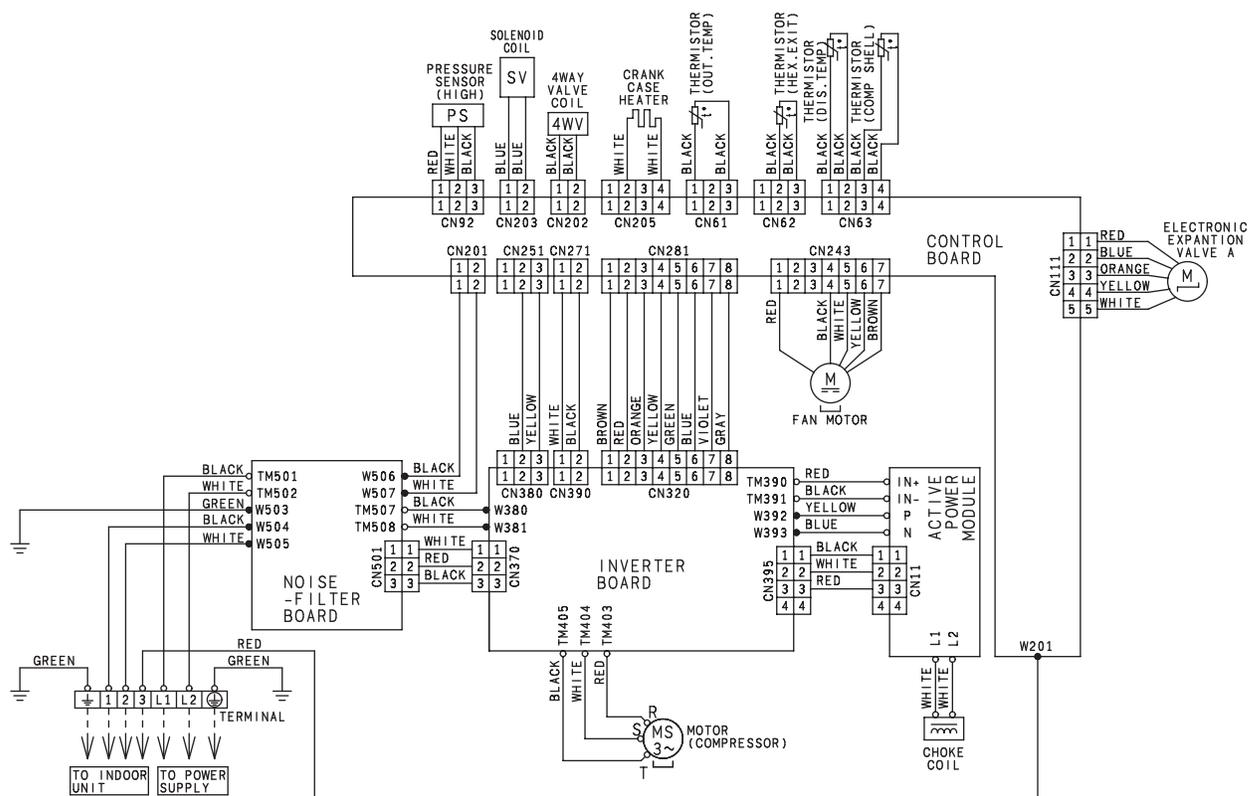
1. If the space is larger than stated above, the condition will be the same as when there is no obstacle.
2. Height above the floor level should be 2 in. [50 mm] or more.
3. When installing the outdoor unit be sure to open the front and left side to obtain better operation efficiency.

[] Designates Metric Conversions

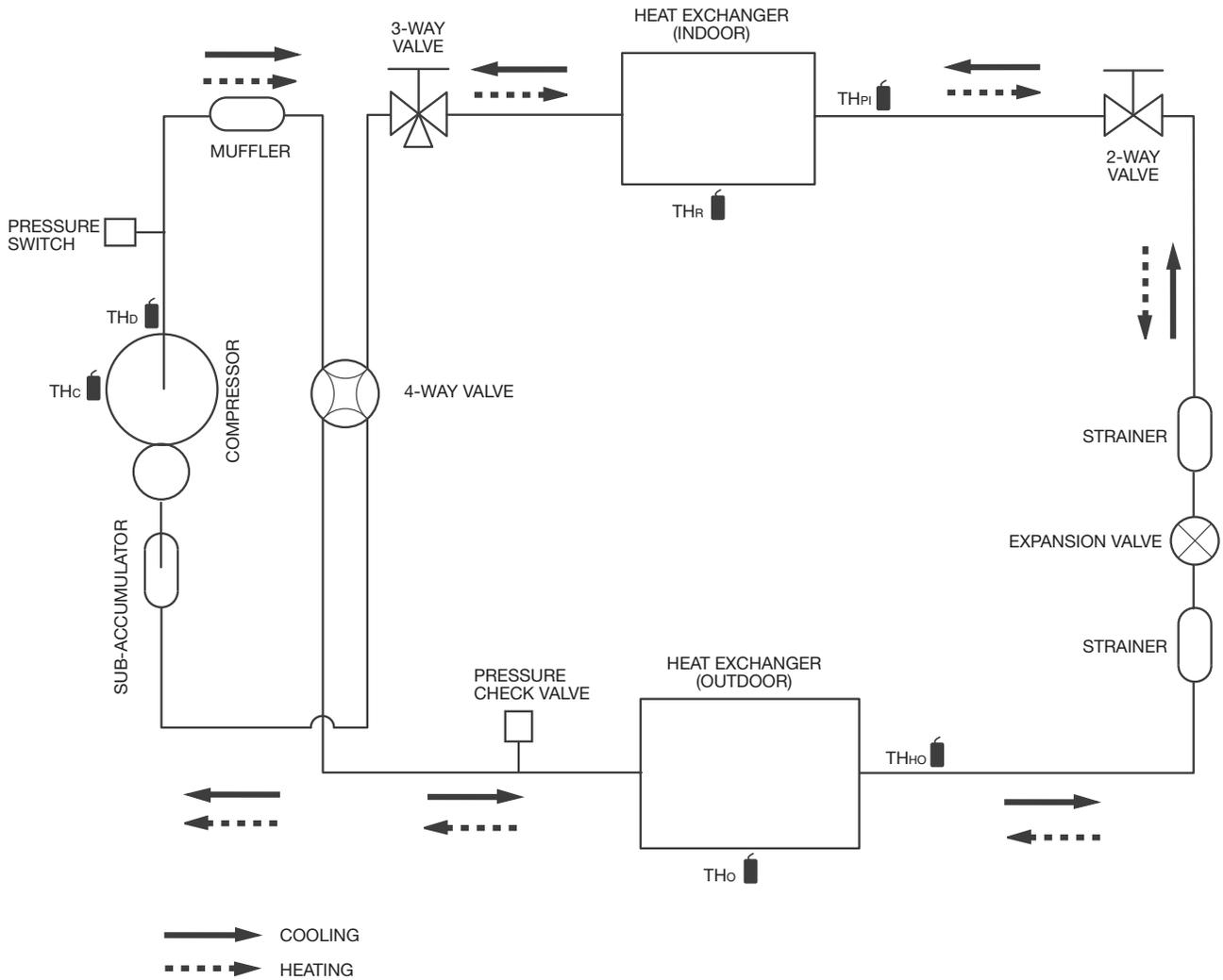
Wiring—RP1724HJVXA and RP1730HJVXA



Wiring—RP1736HJVXA and RP1748HJVXA



Refrigerant Circuit Information—RP1724HJVXA and RP1730HJVXA

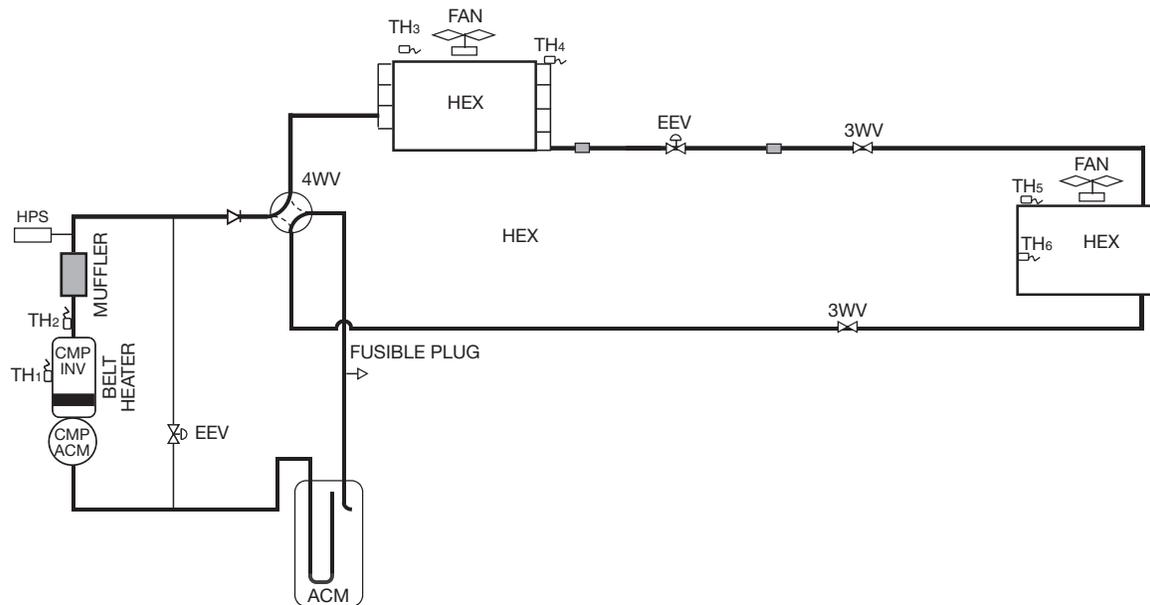


- TH_c THERMISTOR (COMPRESSOR TEMPERATURE)
- TH_d THERMISTOR (DISCHARGE TEMPERATURE)
- TH_o THERMISTOR (OUTDOOR TEMPERATURE)
- TH_{Ho} THERMISTOR (HEAT EXCHANGER OUT TEMPERATURE)
- TH_r THERMISTOR (ROOM TEMPERATURE)
- TH_{Pi} THERMISTOR (PIPE TEMPERATURE)

Refrigerant Circuit Information—RP1736HJVXA and RP1748HJVXA

OUTDOOR UNIT

INDOOR UNIT



- ▷ : CHECK VALVE
- ▣ : STRAINER
- CMP : COMPRESSOR (INVERTER TYPE)
- HEX : HEAT EXCHANGER
- ACM : ACCUMULATOR
- HPS : HIGH PRESSURE SENSOR
- 4WV : 4-WAY VALVE
- 3WV : 3-WAY VALVE
- EEV : ELECTRIC EXPANSION VALVE

- TH₁ : THERMISTOR (SHELL)
- TH₂ : THERMISTOR (DISCHARGE TEMPERTUR THERMISTOR)
- TH₃ : THERMISTOR (OUTDOOR TEMPERATURE)
- TH₄ : THERMISTOR (HEAT EXCHANGER OUT TEMPERATURE)
- TH₅ : THERMISTOR (ROOM TEMPERATURE)
- TH₆ : THERMISTOR (HEAT EXCHANGER MED TEMPERATURE)

Charge Calculation

MODEL NUMBERS	REFRIGERANT TYPE		R410A
RP1724HJVXA RP1730HJVXA	Refrigerant amount	Lb.	4 Lb. 10 Oz.
		g	2,100
RP1736HJVXA RP1748HJVXA	Refrigerant amount	Lb.	9 Lb. 8 Oz.
		g	4,300

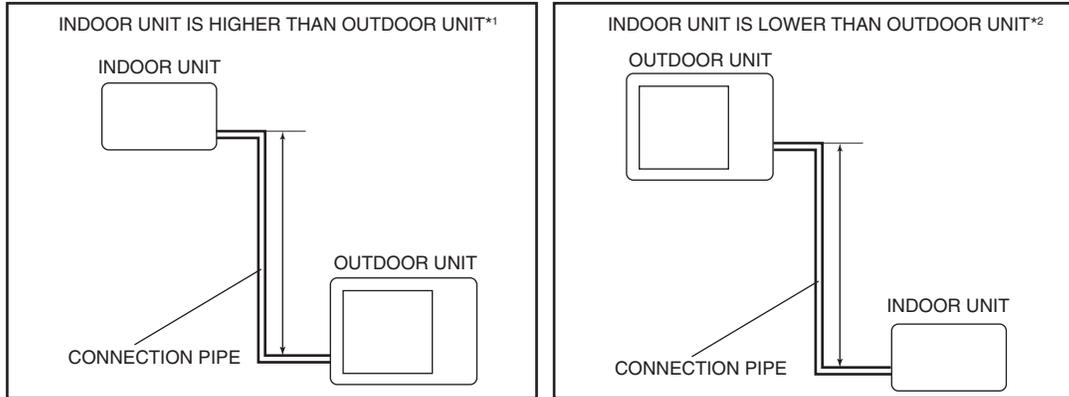
Model No.	Refrigerant Type			R410A				
RP1724HJVXA RP1730HJVXA	Total pipe length	ft	66 or less	98	131	164 (Max.)	—	0.43 oz/ft (40 g/m)
		m	20 or less	30	40	50 (Max.)	—	
	Additional charge	oz	0	14.1	28.2	42.3	—	
		g	0	400	800	1,200	—	
RP1736HJVXA RP1748HJVXA	Total pipe length	ft	98 or less	131	164	196	230 (Max.)	0.43 oz/ft (40 g/m)
		m	30 or less	40	50	60	70 (Max.)	
	Additional charge	oz	0	14.1	28.2	42.3	56.4	
		g	0	400	800	1,200	1,600	

Airflow

Model No.	Cooling		Heating	
RP1724HJVXA RP1730HJVXA	m ³ /h	3600	m ³ /h	3600
	l/s	1000	l/s	1000
	CFM	2119	CFM	2119
RP1736HJVXA RP1748HJVXA	m ³ /h	4400	m ³ /h	4400
	l/s	1222	l/s	1222
	CFM	2590	CFM	2590

Capacity Compensation Rate for Pipe Length and Height Difference

HEIGHT DIFFERENCE H



Model No.	Cooling	Pipe Length										
		m		5	7.5	10	20	30	40	50	60	70
		ft	16	24	32	65	98	131	164	196	229	
RP1724HJVXA RP1730HJVXA	Indoor unit is higher than outdoor unit*1	30	98	—	—	—	—	0.913	0.889	0.881	—	—
		20	65	—	—	—	0.941	0.929	0.914	0.896	—	—
		10	32	—	—	0.974	0.957	0.944	0.930	0.911	—	—
		7.5	24	—	0.9888	0.978	0.960	0.948	0.934	0.914	—	—
		5	16	0.998	0.992	0.982	0.964	0.952	0.938	0.919	—	—
	Indoor unit is lower than outdoor unit*2	0	0	1.000	1.000	0.989	0.972	0.960	0.945	0.926	—	—
		-5	-16	1.000	1.000	0.989	0.972	0.960	0.945	0.926	—	—
		-7.5	-24	—	1.000	0.989	0.972	0.960	0.945	0.926	—	—
		-10	-32	—	—	0.989	0.972	0.960	0.945	0.926	—	—
		-20	-65	—	—	—	0.972	0.960	0.945	0.926	—	—
RP1736HJVXA RP1748HJVXA	Indoor unit is higher than outdoor unit*1	30	98	—	—	—	—	0.885	0.842	0.800	0.754	0.711
		20	65	—	—	—	0.937	0.895	0.852	0.810	0.770	0.728
		10	32	—	—	0.990	0.947	0.905	0.862	0.822	0.780	0.738
		7.5	24	—	0.993	0.993	0.950	0.908	0.865	0.824	0.782	0.740
		5	16	0.995	0.995	0.995	0.952	0.910	0.867	0.825	0.779	0.736
	Indoor unit is lower than outdoor unit*2	0	0	1.000	1.000	1.000	0.957	0.915	0.872	0.830	0.784	0.741
		-5	-16	1.000	1.000	1.000	0.957	0.915	0.872	0.830	0.784	0.741
		-7.5	-24	—	1.000	1.000	0.957	0.915	0.872	0.830	0.784	0.741
		-10	-32	—	—	1.000	0.957	0.915	0.872	0.830	0.784	0.741
		-20	-65	—	—	—	0.957	0.915	0.872	0.830	0.784	0.741
-30	-98	—	—	—	—	0.915	0.872	0.830	0.784	0.741		

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

Capacity Compensation (con't)

Model No.	Heating	Pipe Length											
		m		5	7.5	10	20	30	40	50	60	70	
		ft	16	24	32	65	98	131	164	196	229		
RP1724HJVXA RP1730HJVXA	Indoor unit is higher than outdoor unit*1	Height Difference H	30	98	—	—	—	—	0.939	0.922	0.907	—	—
			20	65	—	—	—	0.963	0.939	0.922	0.907	—	—
			10	32	—	—	0.999	0.963	0.939	0.922	0.907	—	—
			7.5	24	—	1.000	0.999	0.963	0.939	0.922	0.907	—	—
			5	16	1.000	1.000	0.999	0.963	0.939	0.922	0.907	—	—
	Indoor unit is lower than outdoor unit*2	Height Difference H	0	0	1.000	1.000	0.999	0.963	0.939	0.922	0.907	—	—
			-5	-16	1.000	0.995	0.995	0.958	0.934	0.917	0.903	—	—
			-7.5	-24	—	0.983	0.992	0.955	0.932	0.915	0.900	—	—
			-10	-32	—	—	0.990	0.953	0.929	0.912	0.898	—	—
			-20	-65	—	—	—	0.943	0.920	0.903	0.889	—	—
RP1736HJVXA RP1748HJVXA	Indoor unit is higher than outdoor unit*1	Height Difference H	-30	-98	—	—	—	—	0.911	0.894	0.880	—	—
			30	98	—	—	—	—	0.995	0.993	0.990	0.853	0.828
			20	65	—	—	—	0.998	0.995	0.993	0.990	0.853	0.828
			10	32	—	—	1.000	0.998	0.995	0.993	0.990	0.853	0.828
			7.5	24	—	1.000	1.000	0.998	0.995	0.993	0.990	0.853	0.828
	Indoor unit is lower than outdoor unit*2	Height Difference H	5	16	1.000	1.000	1.000	0.998	0.995	0.993	0.990	0.853	0.828
			0	0	1.000	1.000	1.000	0.998	0.995	0.993	0.990	0.853	0.828
			-5	-16	1.000	1.000	0.995	0.993	0.990	0.988	0.985	0.848	0.823
			-7.5	-24	—	1.000	0.992	0.990	0.987	0.985	0.982	0.845	0.820
			-10	-32	—	—	0.990	0.988	0.985	0.983	0.980	0.843	0.818
-20	-65	—	—	—	0.978	0.975	0.973	0.970	0.833	0.808			
-30	-98	—	—	—	—	0.965	0.963	0.960	0.823	0.798			

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

Safety Devices

Type of Protection	Protection From		Model	
			RP1724HJVXA	RP1730HJVXA
Circuit protection	Current fuse (filter PCB)		250 V, 5 A x 2	
	Current fuse (main PCB)		250 V, 3.15 A x 2	
Fan motor protection	Thermal protection	Activate	302 ⁺²⁷ -18 °F (150 ⁺¹⁵ -10 °C) Fan motor stop	
		Reset	248 ⁺²⁷ -18 °F (120 ⁺¹⁵ -10 °C) Fan motor restart	
Compressor protection	Thermal protection program (Compressor temp.)	Activate	226°F (108°C) Compressor stop	
		Reset	176°F (80°C) Compressor restart	
	Thermal protection program (Discharge temp.) (Cool or Dry mode)	Activate	230°F (110°C) Compressor stop	
		Reset	After 7 minutes Compressor restart	
	Thermal protection program (Outdoor temp.)	Activate	—	
		Reset	—	
High pressure protection	Pressure switch	Activate	4.2±0.1 MPa Compressor stop	
		Reset	3.2±0.15 MPa Compressor restart	

Type of Protection	Protection From		Model	
			RP1736HJVXA	RP1748HJVXA
Fuse (Filter PCB)			AC 250 V, 5 A AC 250 V, 10 A x 2	
Protector (Filter PCB)			AC 500 V, 45 A	
Fuse (MAIN PCB)			AC 250 V, 3.15 A x 2	
Fuse (INV PCB)			AC/DC 400 V, 5 A	
Fan motor protection	Thermal protection	Activate	239±27°F (115±15°C) Fan motor stop	
		Reset	158°F (70°C) Fan motor restart	
Compressor protector	Over current protection		—	
	Temperature protection	Activate	226.4°F (108°C) Compressor stop	
		Reset	176°F (80°C) Compressor restart	
	Thermal protection program (Discharge temp.)	Activate	230°F (110°C) Compressor stop	
Reset		After 3 minutes and 230°F (110°C) less than Compressor restart		
High pressure protection		Activate	580 psi (4.0 MPa)	
		Reset	471 psi (3.25 MPa)	

Function Settings

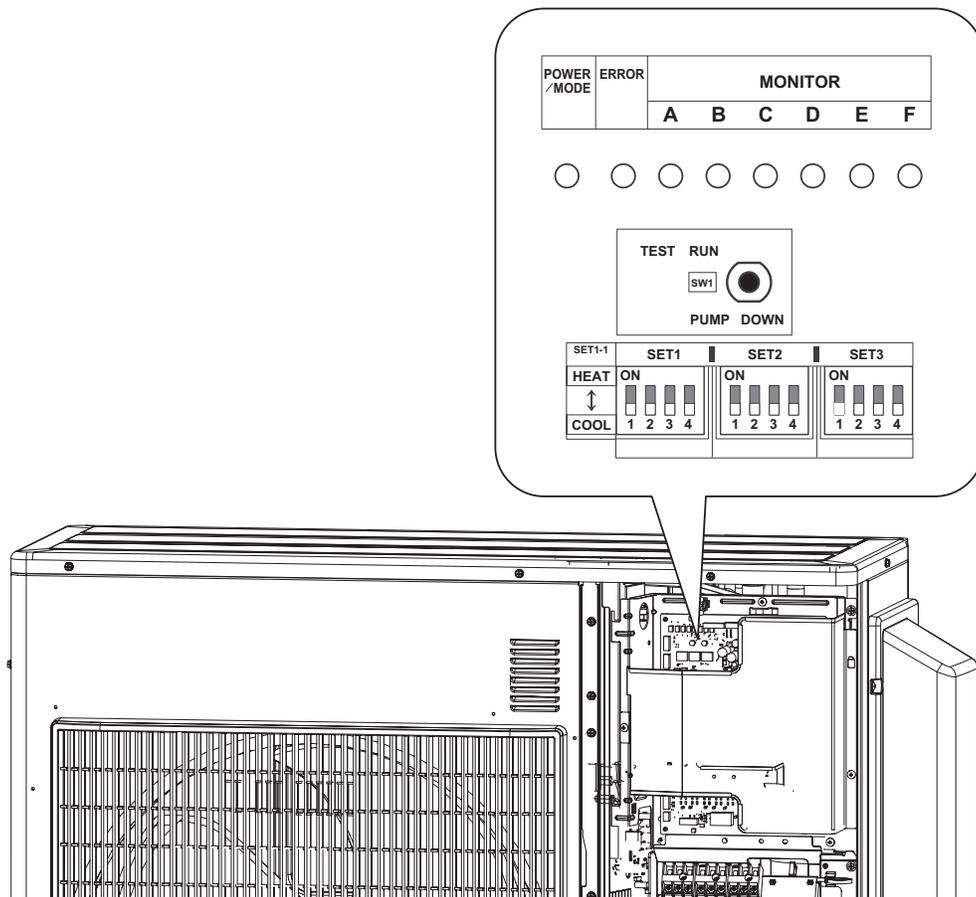
SETTING METHODS

WARNING: Never touch electrical components such as the terminal blocks or reactor except the switch on the display board. It may cause a serious accident such as electric shock.

CAUTION

- Once refrigerant charging is completed, be sure to open the valve prior to performing the location settings. Otherwise, the compressor may fail.
- Discharge any static electricity from your body before touching the push switches. Never touch any terminal or pattern of any parts on the control board.

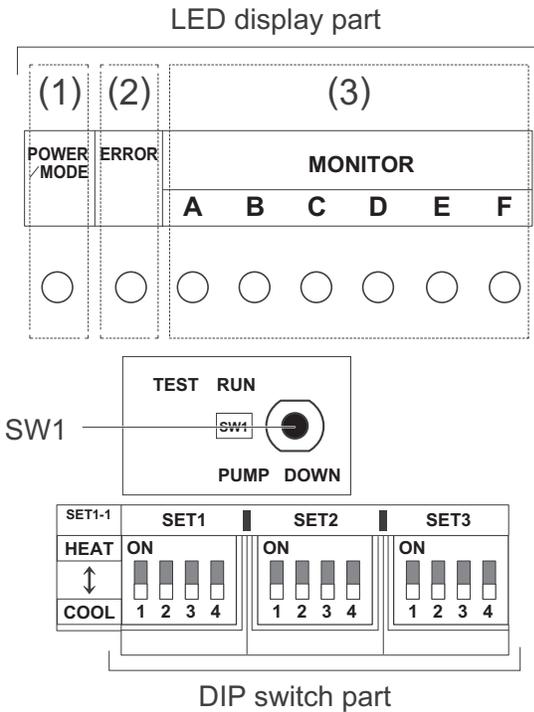
The positions of the switches on the outdoor unit control board are shown in the figure below.



Function Settings (con't)

SETTING METHOD

1. Be sure to disconnect the power supply or turn off the breaker.
2. Change the DIP switch setting according to the required setting.
 - Various settings can be adjusted by changing DIP switches and push switches on the board of the outdoor unit.
 - The printed characters for the LED display are shown below.



Description of Display

LED Display Lamp			Function Or Operation Method
(1)	Power/Mode	Green	<ul style="list-style-type: none"> Turns on when the power supply is ON (including when error occurs) Indicate the MODE by the number of flashes when the installation function is active.
(2)	Error	Red	Flashes at high-speed when there is an error.
(3)	Monitor	A	<ul style="list-style-type: none"> Displays the location and contents of errors when there is an error. (Refer to Chapter 13-2. "Error code" on page 97 for details.)
		B	
		C	
		D	
		E	
		F	

Switch		Function or Operation Method	Factory Setting
SW1	Push	<ul style="list-style-type: none"> For the test run start and stop. For the pump down start and stop. 	—
SET1-1	DIP	For selecting cooling or heating during test operation.	OFF
SET1-2	DIP	For switching SW1 operation	OFF
SET1-3	DIP	(Prohibited)	OFF (Do not change)
SET1-4	DIP	(Prohibited)	OFF (Do not change)
SET2-1	DIP	<ul style="list-style-type: none"> For selecting outdoor unit low noise operation function. To use this function, the Central remote controller (optin) is necessary. 	OFF
SET2-2	DIP	(Prohibited)	OFF (Do not change)
SET2-3	DIP	(Prohibited)	OFF (Do not change)
SET2-4	DIP	(Prohibited)	OFF (Do not change)
SET3-1	DIP	(Prohibited)	OFF (Do not change)
SET3-2	DIP	(Prohibited)	OFF (Do not change)
SET3-3	DIP	(Prohibited)	OFF (Do not change)
SET3-4	DIP	(Prohibited)	OFF (Do not change)

Be sure to disconnect the power supply or turn off the breaker before changing the DIP switch setting.

Outdoor Unit Low Noise Operation Function (Option)

Change the outdoor unit low noise operation by using this setting. Optional Central remote controller is necessary to use this function.

SET2-1	Setting	Factory Setting
ON	Lower	
OFF	Low	*

CAUTION: When the low noise operation function is working, cooling and heating capacity will decrease. When changing the settings, explain to the customer beforehand that the capacity decreases.

Test

TEST RUN

CAUTION: Always connect the power supply 12 hours prior to the start of the operation in order to protect the compressor.

1. Indoor unit
 - a. Is the drain normal?
 - b. Is there any abnormal noise and vibration during operation?
2. Outdoor unit
 - a. Is there any abnormal noise and vibration during operation?
 - b. Will noise, wind, or drain water from the unit disturb the neighbors?
 - c. Is there any gas leakage?

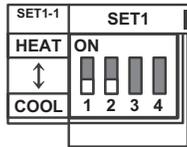
Do not operate the air condition in the test running state for a long time.

For the operation method of the test run for indoor unit and central remote controller, refer to the operating manual and perform operation check.

TEST RUN METHOD

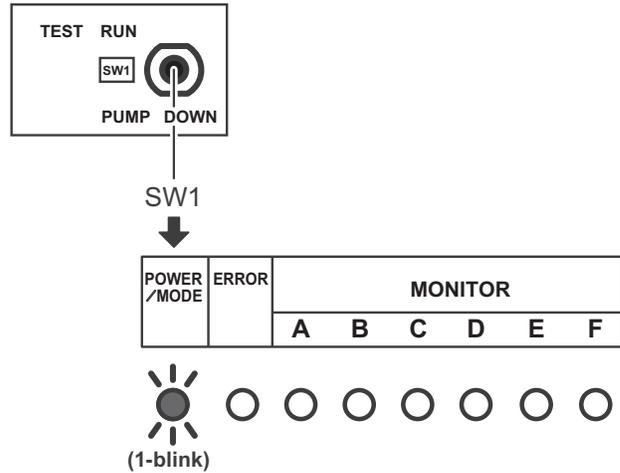
Be sure to temporarily disconnect the power supply or turn off the breaker before changing the DIP switch settings.

1. Check the 3-way valves (both at the liquid side and gas side) are opened. Confirm that the DIP switch SET1-2 is switched off.
2. Set the operation mode to "COOL" or "HEAT". When switching the DIP switch SET1-1 between HEAT and COOL, disconnect the power supply or turn off the circuit breaker beforehand.

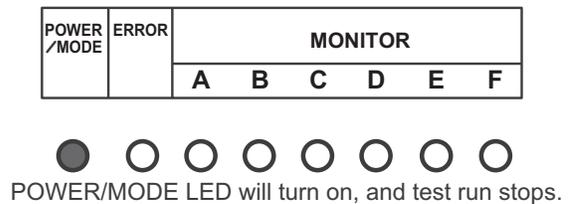


- In the first test run, be sure to set the operation model to "COOL".
- The operation mode cannot be switched between "COOL" and "HEAT" during the test run. To switch the operation model between "COOL" and "HEAT", stop the test run, switch the operation mode, and then start the test run again.

3. Press "TEST RUN" switch for more than 3 seconds. The POWER/MODE LED flashes once.
4. Confirm operating status.



5. Press "TEST RUN" switch for more than 3 seconds.

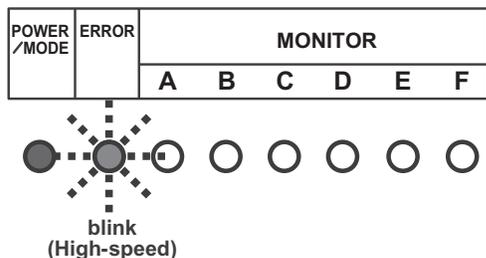


Error Code

If an error occurs, the LED will light up to display the error location and the error code.

IN THE EVENT OF AN ERROR

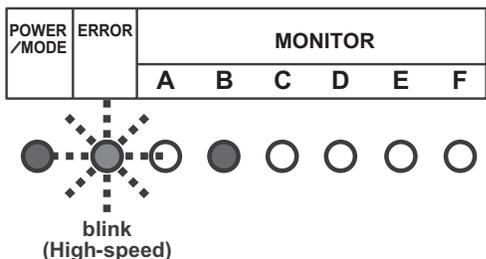
The error LED blink quickly.



ERROR LOCATION DISPLAY

LEDs A to F of MONITOR light up and display the error location. In the case of an overall error, LEDs A to F of MONITOR do not light up.

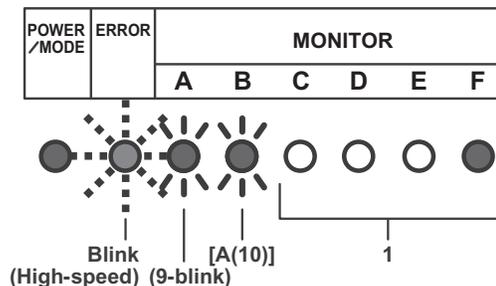
EXAMPLE: Coil error in indoor unit B



ERROR CODE DISPLAY

While the error is occurring, briefly press SW1. The error code is displayed.

EXAMPLE: Coil error (Error code = 9A.1)



Display mode

LED on: ●

LED off: ○

Blink: 
(0.5s Light on / 0.5s Light off)

Number of blinking: ()

For MONITOR (A and B)

- A: 10-Blink
- C: 11-Blink
- F: 12-Blink
- J: 13-Blink
- P: 14-Blink
- U: 15-Blink

C	D	E	F	
○	○	○	●	→ 1
○	○	●	○	→ 2
○	○	●	●	→ 3
○	●	○	○	→ 4
○	●	○	●	→ 5
○	●	●	○	→ 6
○	●	●	●	→ 7
●	○	○	○	→ 8
●	○	○	●	→ 9
●	○	●	○	→ A
●	○	●	○	→ C
●	●	○	○	→ F
●	●	○	●	→ J
●	●	●	○	→ P
●	●	●	●	→ U

Error Code (con't)

Error Code	Error Type
11.3	Serial communication error
11.4	Serial communication error during operation
16.5	Communication error between controller and outdoor unit
22.1	Indoor unit capacity error
5U.1	Indoor unit error
62.1	Outdoor unit PCB Model Information error
62.3	EEPROM access error
62.8	EEPROM data corruption error
63.1	Inverter error
65.3	IPM error (Trip terminal L error)
71.1	Discharge temperature sensor error
72.1	Compressor temperature sensor error
73.2	Heat exchanger middle temperature sensor error
73.3	Heat exchanger liquid temperature sensor error
74.1	Outdoor temperature sensor error
75.1	Suction gas temperature sensor error
76.1	Valve sensor error
76.2	
77.1	Heat sink temperature sensor error
84.1	Current sensor 1 error (stoppage permanently)
86.1	Discharge pressure sensor error
86.4	Outdoor unit high pressure switch1 error
94.1	Trip detection
95.1	Compressor motor control error (stoppage permanently)
97.3	Fan motor 1 error (Duty error)
98.3	Fan motor 2 error (Duty error)
99.1	4-way valve error
9A.1	Coil 1 (expansion valve 1) error
A1.1	Discharge temperature 1 error (stoppage permanently)
A3.1	Compressor 1 temperature error

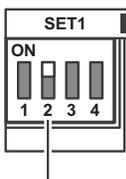
Pump Down

WARNING: During the pump down operation, make sure that compressor is off before you remove the refrigerant piping. Do not remove the connection pipe while the compressor is in operation with valve open. This may cause abnormal pressure in the refrigeration cycle that leads to breakage and even injury.

PUMP DOWN OPERATION

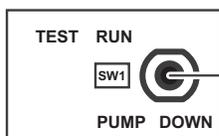
When moving or discarding the air conditioner, in order to consider the environment and avoid the discharge of refrigerant to the atmosphere, pump down according to the following procedure.

1. Connect the pressure gauge to the charging port.
2. Change the DIP switch on the board (SET1-2) to On*1
*Be sure the power supply is disconnected on the breaker is turned off when changing the DIP switch.



*1: DIP switch (SET1-2)

3. To start operation, press the [PUMP DOWN] switch *2 for 3 seconds or press after the power has been on for 3 min.



*2: Push switch (SW1)

During pump down, the LED (POWER/MODE) will flash 3 times consecutively.

POWER /MODE	ERROR	MONITOR					
		A	B	C	D	E	F



(3-blink)

NOTE: If the [PUMP DOWN] switch is pressed during compressor operation, the compressor will stop, and the operation will start after about 3 min.

4. Close the liquid pipe valve.
5. When the value between 7.3 psi and 0 psi (0.05 Mpa to 0 Mpa) is shown, close the gas pipe valve.
6. Stop pump down by pressing the [PUMP DOWN] switch for 3 seconds. The LED will light as follows:

POWER /MODE	ERROR	MONITOR					
		A	B	C	D	E	F

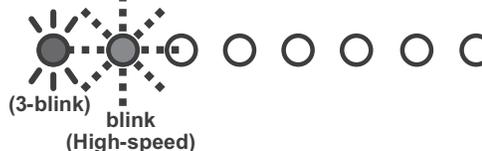


(3-blink)

7. Disconnect the power supply or turn off the breaker.

NOTE: If the pump down is not stopped by pressing the switch as in step 6, it will stop automatically after 15 minutes and the LED will light as follows. If the pump down is complete, disconnect the power supply or turn off the breaker. If not completed open the liquid pipe valve, and then start again from step 3.

POWER /MODE	ERROR	MONITOR					
		A	B	C	D	E	F



(3-blink) blink (High-speed)

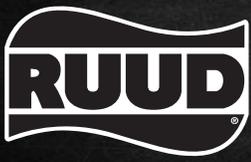
- In order to interrupt the pump down operation, press the [PUMP DOWN] switch again. The LED will return to the original display before starting pump down. (POWER/MODE LED: On).
- The pump down may stop before completion due to error. To complete the pump down, correct the error, open the liquid pipe valve and then start from step 1 again. Otherwise, the refrigerant can be recovered from the service port.

GENERAL TERMS OF LIMITED WARRANTY*

Ruud will furnish a replacement for any part of this product which fails in normal use and service within the applicable period stated, in accordance with the terms of the limited warranty.

*For complete details of the Limited and Conditional Warranties, including applicable terms and conditions, contact your local contractor or the Manufacturer for a copy of the product warranty certificate.

Parts.....Ten (10) Years



In keeping with its policy of continuous progress and product improvement, Ruud reserves the right to make changes without notice.

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