



SAPPHIRE

ULTRA HEAT

ULTRA COOL



Superior Performance in Extreme Temperatures

Submittal Data: SAP24HP230V1A 24,000 BTU/H Wall Mounted Heat- Pump System

Job Name	Location	Date
Purchaser	Engineer	
Submitted To	For	<input type="checkbox"/> Reference <input type="checkbox"/> Approval <input type="checkbox"/> Construction
Unit Designation	Schedule No.	

- GENERAL FEATURES**
- Variable Speed (Inverter) Two-Stage Compressor
 - Low Ambient Heating (down to -22° F)
 - High Ambient Cooling (up to -129° F)
 - WIFI Included
 - Wireless Remote with LCD Display (included)
 - Wired Controller (Sold Separately) XE71
 - 7 Indoor Fan Speeds /4 Way Airflow Operation
 - Copper Tube/Aluminum Fins w/Acrylic Resin Anti-Corrosion both inside and out
 - I-FEEL Function
 - Limited Warranty: 5 Years, 7 Years Compressor - Residential & Commercial



System Ratings

Cooling	
Rated Capacity	22,000 BTU/H
Capacity Range	6,800 -30,700 BTU/H
Power Input	1700 W
Power Input (Min/Max)	450/3700 W
SEER	21.5
EER	13.0

Heating at 47° F	
Rated Capacity	24,000 BTU/H
Capacity Range	6,800 -32,000 BTU/H
Power Input	2000 W
Power Input (Min/Max)	380/3700 W
HSPF	12.0
COP	3.5

Heating at 17° F	
Rated Capacity	15,500 BTU/H

Operating Range	
Cooling	(Max) 129°F(54°C)
	(Min) 0°F(-18°C)
Heating	(Max) 75°F (24°C)
	(Min) -22°F(-30°C)

Power Supply	
Normal Operational Voltage	208/230 V, 1 Phase, 60 Hz
Voltage Range	187 - 253 V
Main Power Wire Size	8-2 AWG
Interconnecting Cable Wire Size	14-4 AWG
MCA	22 A
MOCP/Breaker Size	35 A

Indoor Unit Data

Fan Motor	Type	Cross-flow
	Output Power	70 W
	FLA	0.38 A
Airflow	(Low/High)	383/824CFM
Air Throw	(Max)	29.5 ft
Sound Pressure Levels for All Settings		
	Cooling & Heating	54/49/46/43/40/37/34 dB(A)
Dehumidification		4.23 pt/hr

Outdoor Unit Data

Compressor	Type	DC Inverter Driven 2-Stage Rotary
	RLA	16 A
Fan Motor	Output Power	90 W
	RLA	0.65 A
Sound Pressure Level		59 dB(A)

Refrigerant Piping Data

Gas Pipe Size (OD)	5/8-in
Liquid Pipe Size (OD)	1/4-in
Connection Method	Flared
Factory Charge	R410A/81.1 oz
Additional Charge	0.50 oz/ft
Pre-Charge Length	25-ft
MAX Refrigerant Pipe Length	164-ft
MIN Refrigerant Pipe Length	10-ft
MAX Refrigerant Pipe Elevation	98.4-ft



Features & Function Summary**SAP24HP230V1A**

SYSTEM FEATURES	
Inverter Type	G10
Ultra Low Frequency Torque Control	Yes
Power Factor Correction	Yes
Compressor Type	High Eff. Two Stage Rotary
Refrigerant Type	R410A
Basepan With Electric Heater	YES
Compressor With Electric Heater	YES
Indoor & Outdoor Fin Coating	Acrylic Resin/Anti-Corrosion
Intelligent Defrosting	YES
Intelligent Preheating	YES
Low Voltage Startup	YES
Memory/Power Failure Recovery	YES
Self Diagnosis	YES
Wired Controller Interface	NO
WIFI Included	YES
Indoor Fan Type	Crossflow
Multi Fan Speeds	7 Speeds
Indoor Unit Display	YES
Auxiliary Electrical Heater	NO
Ventilation (Outdoor Air)	NO

REMOTE CONTROLLER FUNCTIONS	
Auto Mode	YES
Auto Fan	YES
Auto Swing (Horizontal Auto Swing)	YES
Auto Swing (Vertical Auto Swing)	YES
Clock on Remote Controller	YES
Dry Mode	YES
Dry Anti-Mildew (X-Fan) Mode	YES
Energy Saving Mode	NO
Dirty Filter Alert	NO
I Feel Function	YES
Lock on Remote Controller	YES
Quiet Mode	YES
Room Temperature Display	NO
Sleep Mode	YES
4 Sleep Modes Options	YES
Timer Mode	YES
Turbo Mode	YES
Display On/Off Control	YES
Freeze Guard Mode	NO
Display On/Off Control	YES

ULTRA COOL

ULTRA HEAT

COOLING PERFORMANCE

HEATING PERFORMANCE

Outdoor Ambient Temperature (DB)	Return Air Temperature				
	80°F (DB)				
	TC (Btu/h)	SHR	EER	Power Input (W)	SHR %
0°F	8903.0	6454.0	1.47	1775.0	72.49%
5°F	11666.0	8516.0	1.54	2227.0	73.00%
10°F	12622.0	9203.0	1.55	2386.0	72.91%
15°F	12886.0	9702.0	1.56	2421.0	75.29%
20°F	13425.0	9882.0	1.61	2443.0	73.61%
25°F	13815.0	10223.0	1.64	2461.0	74.00%
30°F	14429.0	10749.0	1.71	2472.0	74.50%
35°F	15128.0	11250.0	1.73	2563.0	74.37%
40°F	16271.0	12203.0	1.75	2718.0	75.00%
45°F	17263.0	13008.0	1.82	2780.0	75.35%
50°F	18113.0	13675.0	1.86	2847.0	75.50%
55°F	18951.0	14235.0	1.91	2908.0	75.11%
60°F	19461.0	15001.0	1.95	2925.0	77.08%
65°F	20262.0	15500.0	2.00	2975.0	76.50%
70°F	22603.0	16658.0	2.08	3158.0	73.70%
75°F	24253.0	18647.0	2.15	3307.0	76.89%
80°F	25554.0	19085.0	2.21	3389.0	74.68%
85°F	26402.0	20461.0	2.26	3425.0	77.50%
90°F	25909.0	20337.0	2.21	3436.0	78.49%
95°F	25788.0	20111.0	2.19	3446.0	77.99%
100°F	20770.0	18220.0	2.13	2858.0	87.72%
105°F	18269.0	12779.8	2.09	2562.0	69.95%
110°F	14573.0	11258.0	2.01	2125.0	77.25%
115°F	12437.0	11018.4	1.98	1841.1	88.59%
120°F	11300.0	10085.0	1.92	1725.0	89.25%
125°F	10891.0	9807.0	1.89	1689.0	90.05%
129°F	9529.0	9620.0	1.78	1569.0	100.95%

Outdoor Ambient Temperature (DB)	Return Air Temperature		
	70°F (DB)		
	TC (Btu/h)	COP	Power Input (W)
-22°F	12854	1.30	2903
-20°F	13391	1.33	2951
-15°F	13749	1.36	2963
-10°F	14379	1.41	2989
-5°F	15360	1.49	3023
0°F	18750	1.78	3085
5°F	19070	1.78	3148
10°F	19200	1.75	3212
15°F	20480	1.83	3278
17°F	20942	1.85	3317
20°F	21440	1.88	3345
25°F	24000	2.06	3413
30°F	24320	2.05	3482
35°F	26504	2.21	3515
40°F	30400	2.51	3553
47°F	30988	2.52	3603
45°F	31360	2.53	3626
50°F	32000	2.53	3700
55°F	26240	3.73	2060
60°F	24480	3.38	2122
65°F	23200	3.11	2185
70°F	21920	2.85	2251
75°F	20640	2.61	2319

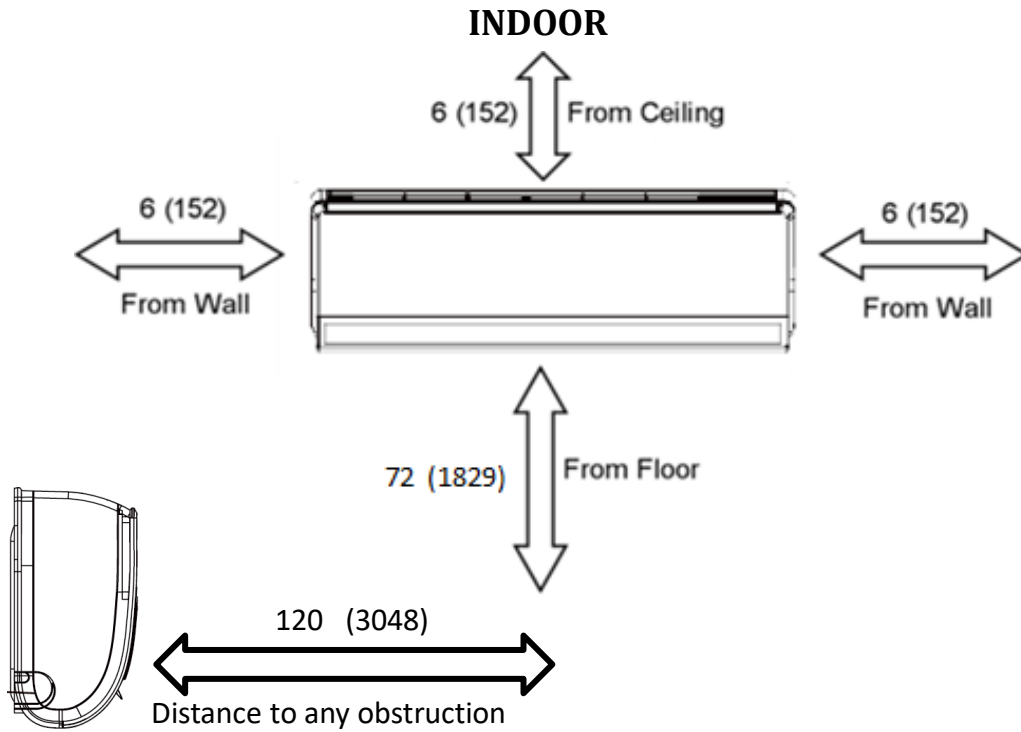
MAX OUTPUT

MAX OUTPUT

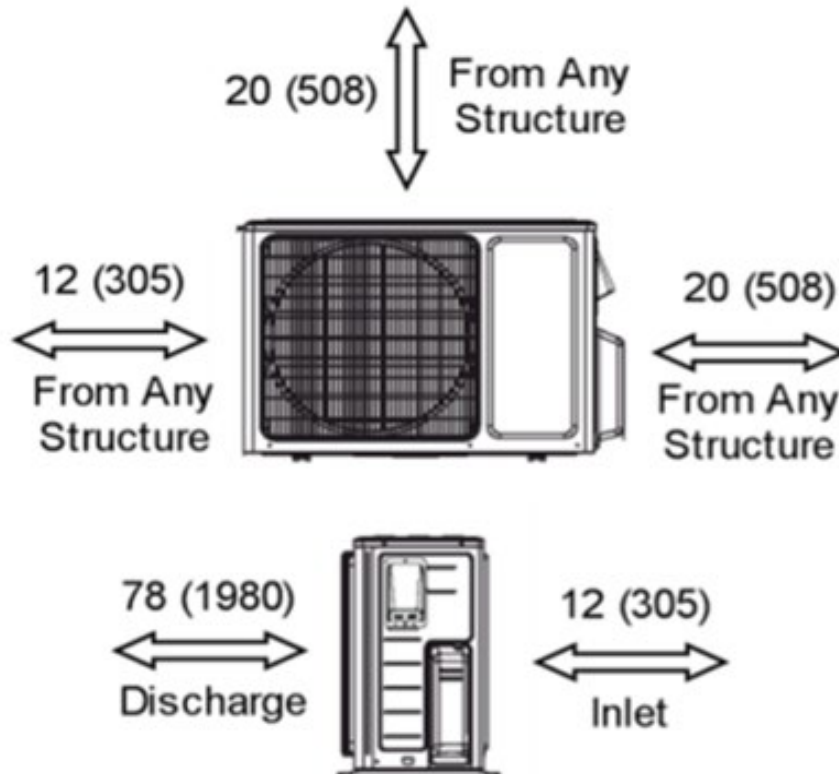
LEGEND: W - Watts
 DB - Dry Bulb
 TC - Total Capacity
 SHR - Sensible Heat Ratio
 COP - Coefficient of Performance

MINIMUM SPACING REQUIREMENTS

Units: inch (mm)



MINIMUM OUTDOOR CLEARANCES

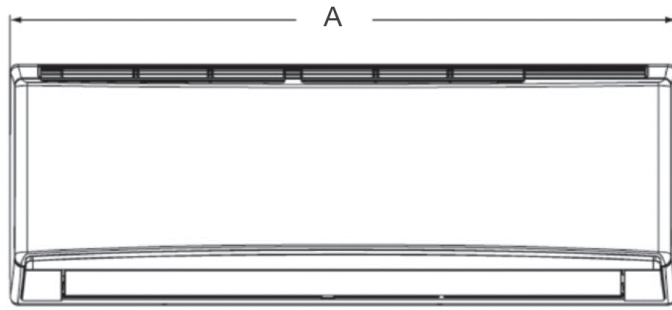


DIMENSIONAL SPECIFICATIONS

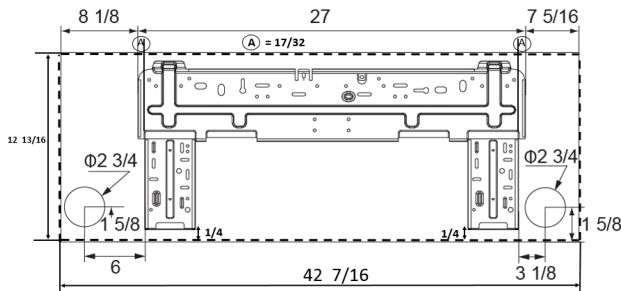
INDOOR UNIT DIMENSIONS

Units: inch

Model No: SAP24HP230V1AH



Dimensions	
A	44 1/2
B	13
C	9 3/4



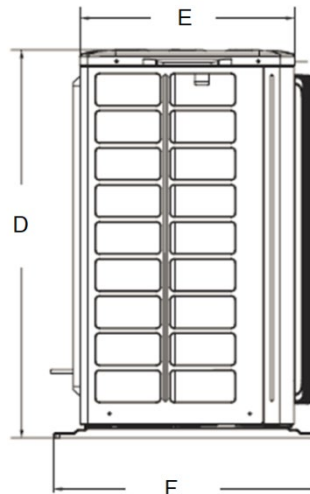
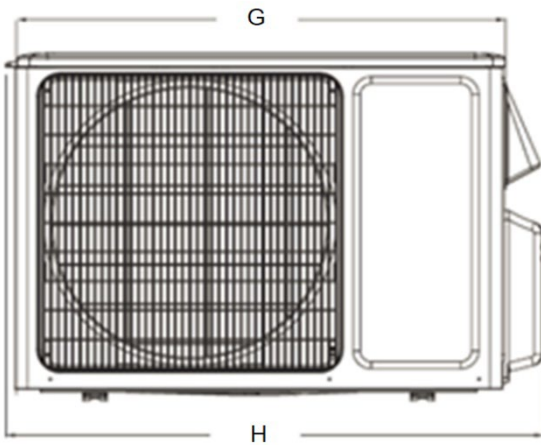
Weight (Net/Shipping) 36 / 43 LBS

Liquid Line Valve	1/4-in OD Flared
Gas Line Valve	5/8-in OD Flared
Drain Connector	5/8-in OD

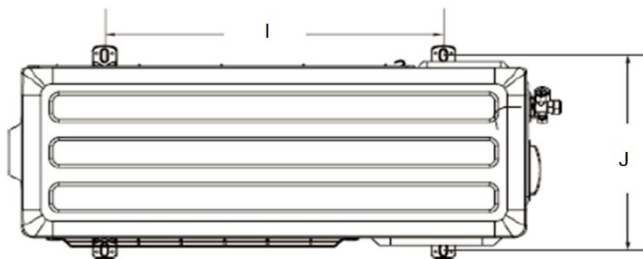
OUTDOOR UNIT DIMENSIONS

Units: inch

Model No: SAP24HP230V1AO



Dimensions	
D	31 3/8
E	14 5/8
F	17
G	36 1/4
H	39 3/8
I	24
J	15 3/8



Liquid Line Valve	1/4-in OD Flared
Gas Line Valve	5/8-in OD Flared

Weight (Net/Shipping) 148 /158 LBS

Notes:

1. Recommended Interconnecting Cable Type 14 AWG 4 Stranded Copper Conductors THHN 600V Wire
2. Power wiring cable size must comply with applicable national and local codes.
3. Test conditions are based on AHRI 210/240.

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