

RAC

Technical Data Book

RAC(Max Heat) for North America (R410A, 60Hz, HP)



Model : AR09/12KSWSPWKNCV
AR09/12KSWSPWKXCV

History

Version	Modification	Date	Remark
Ver.1.0	Release RAC (Max Heat) TDB for North America	'16.06.20	
Ver.1.1	Add heating capacity data of -5°F OD temp. condition in capacity table (p.6)	'16.08.03	

Index

1 Nomenclature

2 Specifications

3 Capacity table

4 Dimensional drawing

5 Electrical wiring diagram

6 Piping diagram

7 Operation limit

8 Capacity correction

Indoor Units

Model Names

AR	09	K	S	W	S	P	WK	N	/	CV
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		Buyer

(1) Classification

AR	RAC
AF	FAC/PAC

(2) Capacity

	x 1000 Btu/h
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(3) Year

F	2013
H	2014
J	2015
K	2016

(4) Product Type

R	On/Off R410A CO
Q	On/Off R410A HP
V	INVERTER R410A CO
S	INVERTER R410A HP

(5) Rating Voltage

F	208~230V, 60Hz, 1Φ, No Virus Doctor
S	208~230V, 60Hz, 1Φ, Virus Doctor
A	115V, 60Hz, 1Φ, No Virus Doctor
Z	115V, 60Hz, 1Φ, Virus Doctor

(6) Design Segment

D	Pearl
S	Max Heat
P	Quantum

(7) Version

	A - Z (1 digit)
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(8) Color

WK	Twilight White
UR	Blue
GM	Gray

(9) Set

N	Indoor Unit
X	Outdoor Unit

2 Specifications

RAC

Type				RAC	RAC		
Model Name	Indoor Unit			AR09KSWSPWKNCV	AR12KSWSPWKNCV		
	Outdoor Unit			AR09KSWSPWKXCV	AR12KSWSPWKXCV		
System	Mode			-	Heat Pump		
	Capacity	Cooling (Min / Std / Max)		kW	0.90/2.60/3.30	0.90/3.50/4.00	
				Btu/h	3,071/9,000/11,260	3,071/12,000/13,648	
				US RT	0.26/0.75/0.94	0.26/1.00/1.14	
		Heating (Min / Std / Max)		kW	0.80/3.50/5.20	0.80/4.10/6.00	
				Btu/h	2,730/12,000/17,740	2,730/14,000/20,470	
				US RT	0.23/1.00/1.48	0.23/1.17/1.71	
	Power	Power Input (Nominal)	Cooling (Min / Std / Max)	kW	0.20/0.64/0.75	0.20/0.96/1.11	
			Heating (Min / Std / Max)		0.17/0.77/1.35	0.17/0.97/1.80	
		Current Input (Nominal)	Cooling (Min / Std / Max)	A	1.4/3.2/3.6	1.4/4.6/5.1	
			Heating (Min / Std / Max)		1.0/3.8/6.5	1.0/4.6/8.5	
		MCA			A	10.5	10.5
		MOP			A	15.0	15.0
	Energy Efficiency	EER (Nominal Cooling)		-	4.12	3.66	
		EER (Nominal Cooling, US)		Btu/Wh	14.06	12.50	
		COP (Nominal Heating)		-	4.57	4.23	
		Energy Grade		SEER	23.5	21.5	
	Piping Connections	Liquid Pipe		HSPF	10.5	10.0	
				Φ, mm	6.35	6.35	
		Gas Pipe		Φ, inch	1/4"	1/4"	
				Φ, mm	9.52	9.52	
		Installation Limitation	Max. Length (Outdoor to indoor)		Φ, inch	3/8"	3/8"
					m	15	15
			Max. Height (Between ID/OD)		ft	49	49
					m	8	8
	Field Wiring	Power Source Wire		mm2	1.5	1.5	
		Transmission Cable		mm2	1	1	
	Refrigerant	Type		-	R410A	R410A	
Control Method		-	-	-			
Factory Charging		kg	1.20	1.20			
		lbs	2.65	2.65			
Indoor Unit	Power Supply			Φ, #, V, Hz	1,2,208-230,60	1,2,208-230,60	
	Fan	Type		-	Cross Flow Fan	Cross Flow Fan	
		Motor	Output		W	27	27
			Number of Unit		EA	1	1
		Air Flow Rate		Turbo / High / Mid / Low	CFM	460/400/330/270	495/430/370/310
		External Static Pressure		Min / Std / Max	Pa	-	-
	in Wg				-	-	
	Drain	Drain Pipe		Φ,mm	18Φ, 550mm	18Φ, 550mm	
	Sound	Sound Pressure		dB(A)	40/20	41/20	
		Sound Power			High / Low	-	-
	External Dimension	Net Weight		kg	11.2	11.2	
				lbs	24.69	24.69	
		Shipping Weight		kg	12.5	12.5	
				lbs	27.56	27.56	
		Net Dimensions (WxHxD)		mm	896*261*261	896*261*261	
				inch	35.28*10.28*10.28	35.28*10.28*10.28	
Shipping Dimensions (WxHxD)		mm	956*317*335	956*317*335			
		inch	37.64*12.48*13.19	37.64*12.48*13.19			
Outdoor Unit	Power Supply			Φ, #, V, Hz	1,2,208-230,60	1,2,208-230,60	
	Compressor	Type		-	BLDC Rotary	BLDC Rotary	
		Model		-	DA128A1FA-20F	DA128A1FA-20F	
		Output		kW	3.83	3.83	
		Oil	Type		-	POE	POE
	Air Flow Rate		CFM	1400	1400		
	Sound	Sound Pressure		dB(A)	45	46	
		Sound Power			Cooling	-	-
	External Dimension	Net Weight		kg	36.0	36.0	
				lbs	79.37	79.37	
		Shipping Weight		kg	38.5	38.5	
				lbs	84.88	84.88	
		Net Dimensions (WxHxD)		mm	790*548*285	790*548*285	
				inch	31.10*21.57*11.22	31.10*21.57*11.22	
	Shipping Dimensions (WxHxD)		mm	926*640*384	926*640*384		
			inch	36.46*25.20*15.12	36.46*25.20*15.12		
Operating Temp.	Cooling		°F	5.0 ~ 114.8	5.0 ~ 114.8		
	Heating		°F	-13.0 ~ 75.2	-13.0 ~ 75.2		

* Specifications may be subject to change without prior notice.

1) Nominal capacity are based on (Refrigerant Piping : 24.6ft(7.5m) , Level Differences : 0ft);

.Cooling : Indoor temperature : 80°F DB, 67°F WB / Outdoor temperature : 95°F DB, 75°F WB

.Heating : Indoor temperature : 70°F DB, 60°F WB / Outdoor temperature : 47°F DB, 43°F WB

2) Sound pressure was acquired in a dead room. Thus actual noise level may be different depending on the installation conditions.

3 Capacity table

RAC

AR09KSWSPWKNCV + AR09KSWSPWKXCV

Cooling

TC(Total Capacity), SHC(Sensible Heat Capacity), PI(Power Input)

Outdoor Air Temp. (°F, DB)	Indoor Temperature (°F)																				
	68 (DB)			72 (DB)			77 (DB)			80 (DB)			82 (DB)			86 (DB)			90 (DB)		
	TC (MBH)	SHC (MBH)	PI (kW)	TC (MBH)	SHC (MBH)	PI (kW)	TC (MBH)	SHC (MBH)	PI (kW)	TC (MBH)	SHC (MBH)	PI (kW)	TC (MBH)	SHC (MBH)	PI (kW)	TC (MBH)	SHC (MBH)	PI (kW)	TC (MBH)	SHC (MBH)	PI (kW)
5	9.55	5.35	0.56	8.26	5.95	0.56	9.55	6.88	0.57	9.55	7.64	0.57	10.85	7.81	0.57	12.15	8.26	0.57	12.15	9.23	0.58
32	10.13	5.67	0.54	8.84	6.36	0.54	10.13	7.30	0.55	10.13	8.11	0.55	11.43	8.23	0.55	12.73	8.65	0.55	12.73	9.67	0.56
50	10.54	5.90	0.54	9.25	6.66	0.54	10.54	7.59	0.55	10.54	8.43	0.52	11.84	8.52	0.55	13.14	8.93	0.55	13.14	9.98	0.56
68	10.92	6.11	0.49	9.62	6.93	0.49	10.92	7.86	0.50	10.92	8.73	0.50	12.21	8.79	0.51	13.51	9.19	0.51	13.51	10.27	0.52
77	10.27	5.75	0.53	8.97	6.46	0.53	10.27	7.39	0.54	10.27	8.22	0.54	11.57	8.33	0.55	12.86	8.75	0.55	12.86	9.78	0.56
90	9.38	5.25	0.60	8.09	5.82	0.60	9.38	6.76	0.61	9.38	7.51	0.61	10.68	7.69	0.62	11.98	8.14	0.62	11.98	9.10	0.63
95	9.00	5.04	0.63	7.70	5.55	0.63	9.00	6.48	0.64	9.00	7.20	0.64	10.30	7.41	0.64	11.59	7.88	0.65	11.59	8.81	0.65
104	9.11	5.10	0.75	7.81	5.63	0.75	9.11	6.56	0.76	9.11	7.29	0.77	10.41	7.49	0.78	11.70	7.96	0.79	11.70	8.89	0.79
110	9.14	5.12	0.82	7.85	5.65	0.82	9.14	6.58	0.84	9.14	7.32	0.85	10.44	7.52	0.86	11.74	7.98	0.87	11.74	8.92	0.88
115	9.21	5.16	0.89	7.92	5.70	0.90	9.21	6.63	0.92	9.21	7.37	0.93	10.51	7.57	0.94	11.81	8.03	0.96	11.81	8.97	0.98

Heating

TC : Total Capacity, PI: Power Input

Outdoor Air Temp. (°F, DB)	Indoor Temperature (°F, DB)											
	61		64		68		70		72		75	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	8.56	1.14	8.39	1.16	8.22	1.18	8.39	1.17	8.22	1.19	8.22	1.21
-5	10.13	1.20	9.93	1.22	9.73	1.25	9.93	1.24	9.73	1.26	9.73	1.27
0	10.91	1.23	10.70	1.26	10.49	1.28	10.70	1.27	10.49	1.30	10.49	1.31
5	12.48	1.30	12.24	1.32	12.00	1.35	12.00	1.36	12.00	1.36	12.00	1.38
14	13.38	1.21	13.12	1.16	12.86	1.26	12.86	1.27	12.86	1.28	12.86	1.29
17	13.92	1.17	13.65	1.19	13.38	1.21	13.65	1.22	13.38	1.23	13.38	1.24
23	14.28	1.13	14.00	1.16	13.72	1.18	13.72	1.19	13.72	1.19	13.72	1.20
32	15.18	1.05	14.88	1.07	14.59	1.09	14.59	1.10	14.59	1.11	14.59	1.12
36	15.53	1.02	15.23	1.04	14.93	1.06	14.93	1.07	14.93	1.07	14.93	1.08
41	12.39	0.73	12.14	0.75	11.90	0.76	11.79	0.77	11.67	0.77	11.43	0.78
47	12.61	0.74	12.36	0.75	12.12	0.77	12.00	0.77	12.00	0.78	11.88	0.79
50	12.95	0.75	12.69	0.76	12.44	0.78	12.32	0.78	12.32	0.79	12.20	0.80
59	13.51	0.77	13.24	0.78	12.98	0.80	12.85	0.80	12.85	0.81	12.73	0.81
68	14.07	0.78	13.79	0.80	13.52	0.82	13.39	0.82	13.39	0.82	13.25	0.83
75	14.52	0.80	14.23	0.81	13.96	0.83	13.82	0.83	13.82	0.84	13.68	0.85

AR12KSWSPWKNCV + AR12KSWSPWKXCV

Cooling

TC(Total Capacity), SHC(Sensible Heat Capacity), PI(Power Input)

Outdoor Air Temp. (°F, DB)	Indoor Temperature (°F)																				
	68 (DB)			72 (DB)			77 (DB)			80 (DB)			82 (DB)			86 (DB)			90 (DB)		
	TC (MBH)	SHC (MBH)	PI (kW)	TC (MBH)	SHC (MBH)	PI (kW)	TC (MBH)	SHC (MBH)	PI (kW)	TC (MBH)	SHC (MBH)	PI (kW)	TC (MBH)	SHC (MBH)	PI (kW)	TC (MBH)	SHC (MBH)	PI (kW)	TC (MBH)	SHC (MBH)	PI (kW)
5	13.00	6.50	0.74	11.70	7.72	0.75	13.00	8.58	0.76	13.00	9.62	0.76	14.30	9.44	0.76	15.59	9.67	0.76	15.59	10.91	0.77
32	13.31	6.65	0.74	12.01	7.93	0.75	13.31	8.78	0.76	13.31	9.85	0.76	14.60	9.64	0.76	15.90	9.86	0.76	15.90	11.13	0.77
50	13.51	6.76	0.74	12.21	8.06	0.75	13.51	8.92	0.76	13.51	10.00	0.76	14.81	9.77	0.76	16.10	9.98	0.76	16.10	11.27	0.77
68	13.72	6.86	0.74	12.42	8.20	0.74	13.72	9.05	0.75	13.72	10.15	0.76	15.01	9.91	0.76	16.31	10.11	0.77	16.31	11.42	0.78
77	13.14	6.57	0.80	11.84	7.81	0.81	13.14	8.67	0.82	13.14	9.72	0.82	14.43	9.53	0.83	15.73	9.75	0.84	15.73	11.01	0.84
90	12.35	6.18	0.89	11.05	7.30	0.90	12.35	8.15	0.91	12.35	9.14	0.91	13.65	9.01	0.92	14.94	9.27	0.93	14.94	10.46	0.94
95	12.00	6.00	0.94	10.70	7.06	0.95	12.00	7.92	0.96	12.00	8.88	0.96	13.30	8.78	0.96	14.59	9.05	0.97	14.59	10.22	0.97
104	11.23	5.61	1.02	9.93	6.55	1.03	11.23	7.41	1.04	11.23	8.31	1.05	12.52	8.26	1.06	13.82	8.57	1.07	13.82	9.67	1.08
110	10.75	5.37	1.06	9.45	6.24	1.07	10.75	7.09	1.09	10.75	7.95	1.10	12.04	7.95	1.12	13.34	8.27	1.13	13.34	9.34	1.14
115	10.27	5.14	1.11	8.97	5.92	1.12	10.27	6.78	1.14	10.27	7.60	1.16	11.57	7.63	1.17	12.86	7.98	1.19	12.86	9.00	1.21

Heating

TC : Total Capacity PI: Power Input

Outdoor Air Temp. (°F, DB)	Indoor Temperature (°F, DB)											
	61		64		68		70		72		75	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	9.93	1.41	9.73	1.44	9.54	1.47	9.73	1.45	9.54	1.48	9.54	1.50
-5	11.78	1.54	11.55	1.57	11.33	1.60	11.55	1.58	11.33	1.62	11.33	1.63
0	12.71	1.60	12.46	1.63	12.22	1.67	12.46	1.65	12.22	1.68	12.22	1.70
5	14.57	1.73	14.28	1.76	14.00	1.80	14.00	1.81	14.00	1.82	14.00	1.84
14	15.58	1.61	15.27	1.64	14.97	1.68	14.97	1.69	14.97	1.69	14.97	1.71
17	16.18	1.54	15.87	1.57	15.56	1.60	15.87	1.61	15.56	1.62	15.56	1.64
23	16.59	1.49	16.26	1.52	15.94	1.56	15.94	1.56	15.94	1.57	15.94	1.59
32	17.60	1.38	17.26	1.41	16.92	1.43	16.92	1.44	16.92	1.45	16.92	1.46
36	18.01	1.33	17.65	1.36	17.31	1.39	17.31	1.39	17.31	1.40	17.31	1.41
41	14.37	0.90	14.09	0.91	13.82	0.93	13.68	0.94	13.54	0.94	13.27	0.95
47	14.71	0.93	14.42	0.95	14.14	0.97	14.00	0.97	14.00	0.98	13.86	0.99
50	15.22	0.97	14.92	0.99	14.63	1.02	14.48	1.03	14.48	1.03	14.33	1.05
59	16.06	1.07	15.74	1.09	15.43	1.12	15.28	1.12	15.28	1.13	15.13	1.14
68	16.90	1.16	16.57	1.18	16.24	1.21	16.08	1.21	16.08	1.22	15.92	1.23
75	17.57	1.23	17.23	1.25	16.89	1.28	16.72	1.29	16.72	1.29	16.55	1.31

- Capacities are based on following conditions:

. Cooling mode indoor air temperature (°F, DB/WB) : 68/57, 72/61, 77/64, 80/67, 82/70, 86/72, 90/75

. Heating mode outdoor air : 85%RH. However, the condition rated capacity is 47°F DB / 43°F WB.

. Refrigerant piping length : 7.5m (24.6ft) . Level difference : 0m.

. In case of Inverter models, the cooling capacity on the capacity table can be higher than nominal capacity as inverter compressors operate with different Hz depending on outdoor and indoor temperatures.

- The specifications, designs and information in this Databook is subject to change without notice.

4

Dimensional drawing

Outdoor

AR09KSWSPWKXCV, AR12KSWSPWKXCV

Units : mm / inches

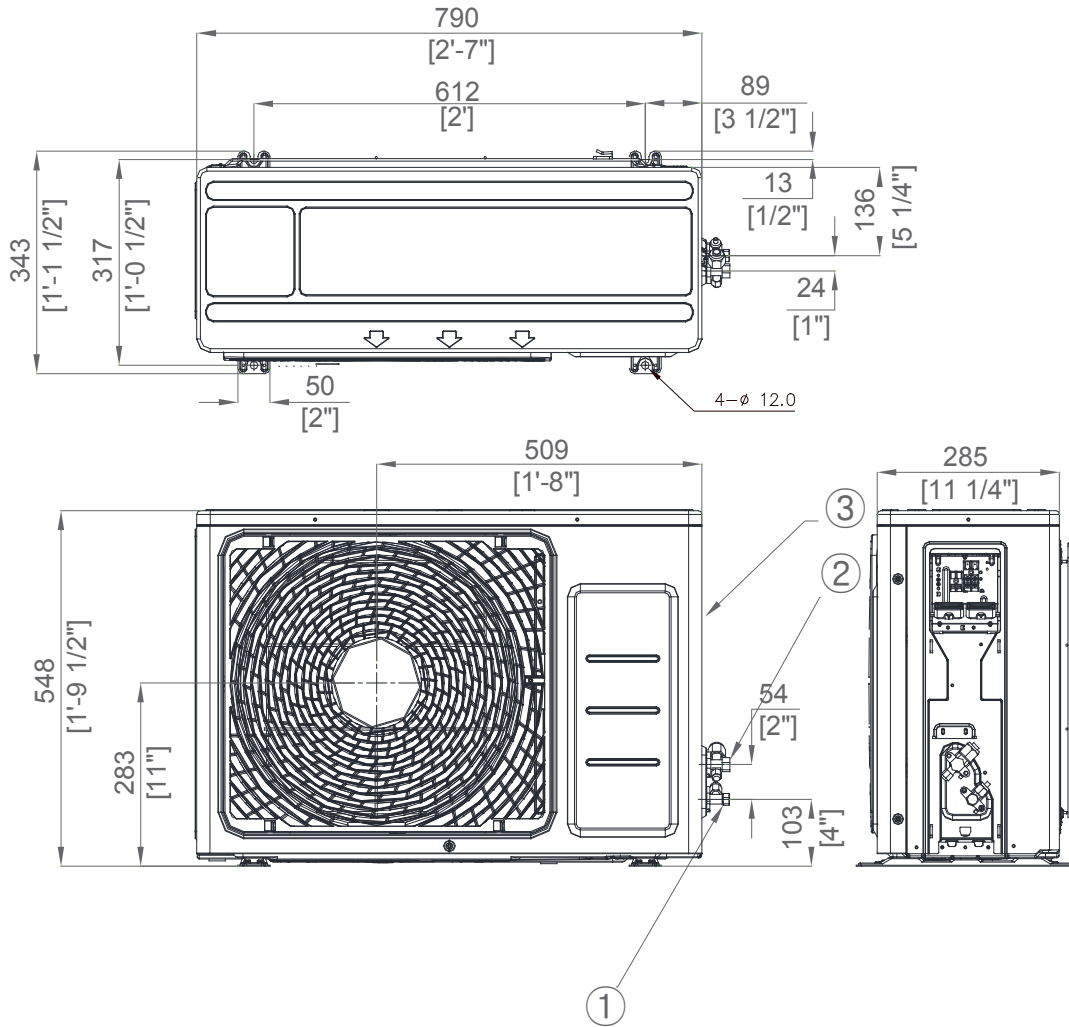


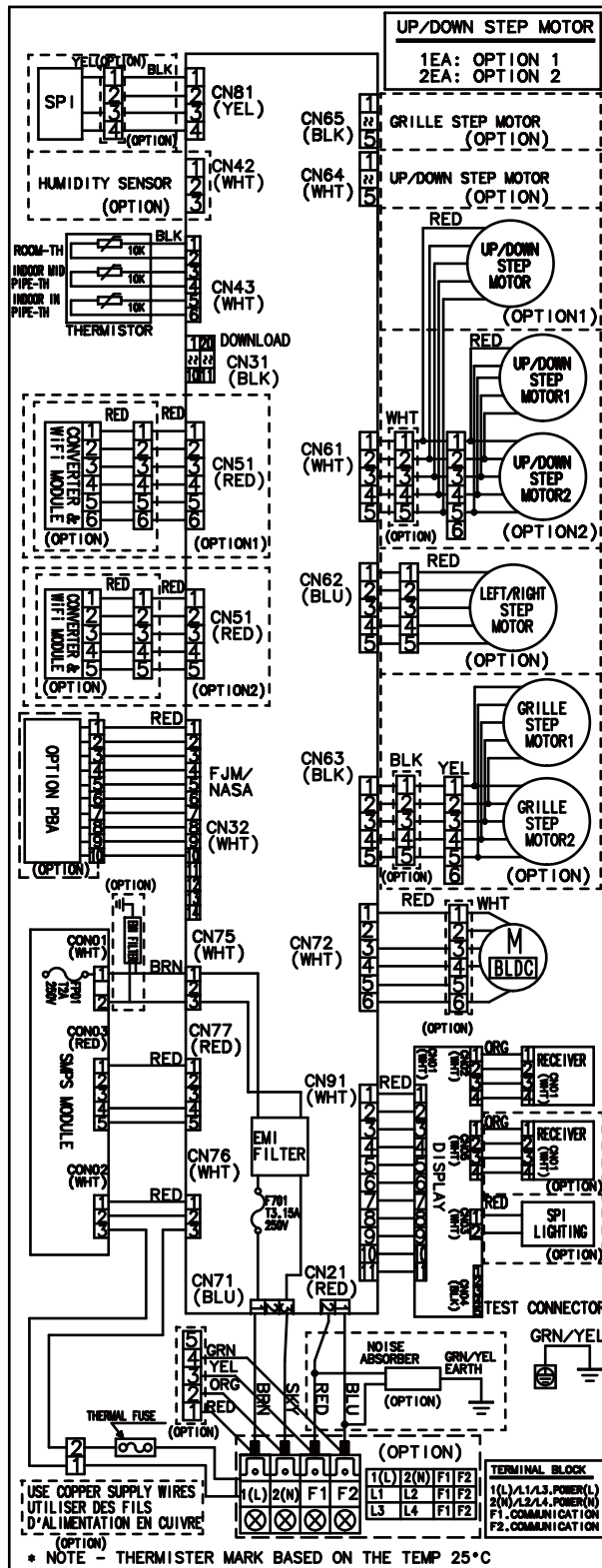
Table of descriptions

1	Refrigerant liquid pipe	Ø6.35 Flare
2	Refrigerant gas pipe	Ø9.52 Flare
3	Power & Comm. wiring conduits	
4		
5		
6		

5 Electrical wiring diagram

RAC : Indoor unit

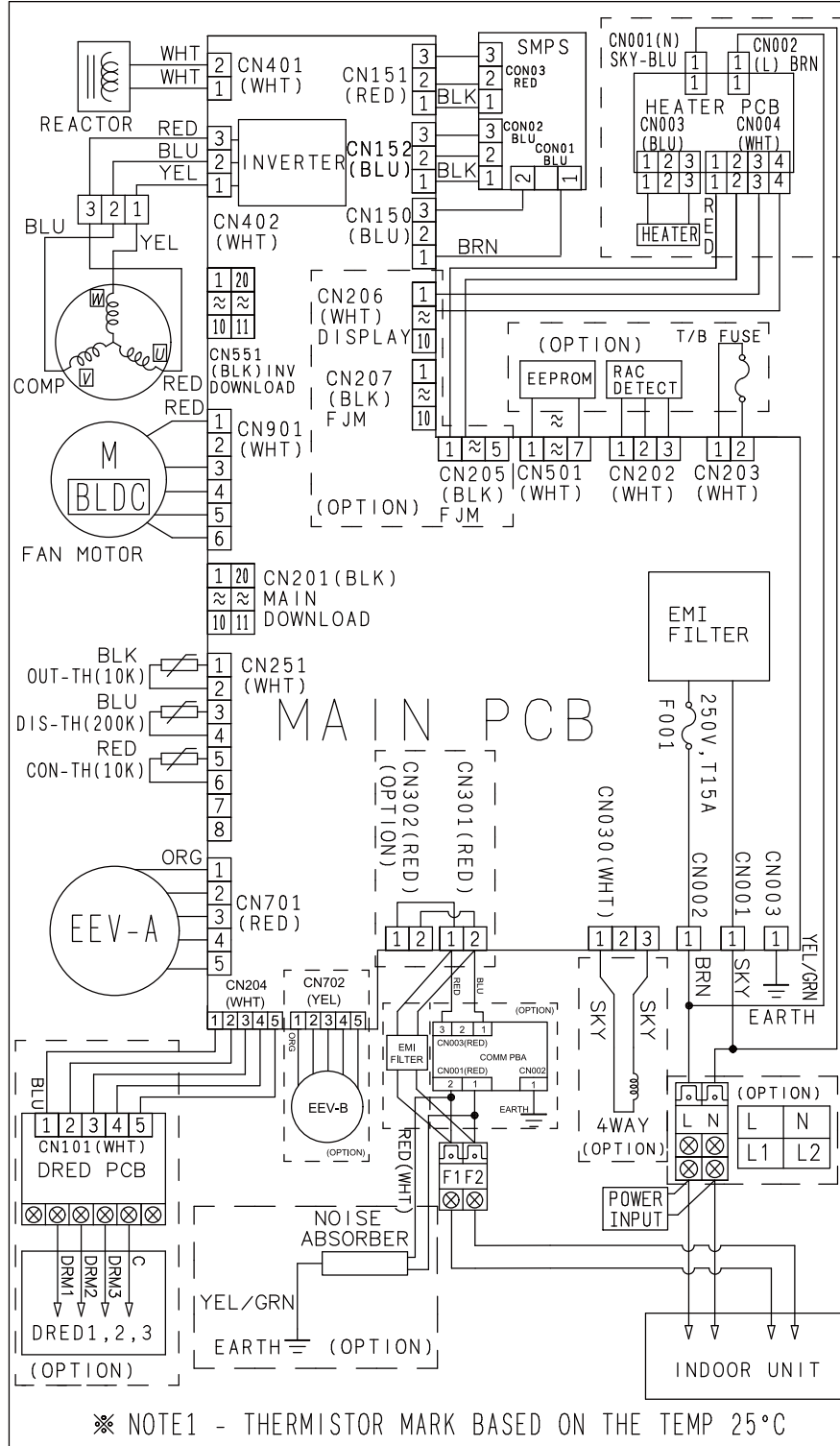
AR09KSWSPWKNCV, AR12KSWSPWKNCV



5 Electrical wiring diagram

RAC : Outdoor unit

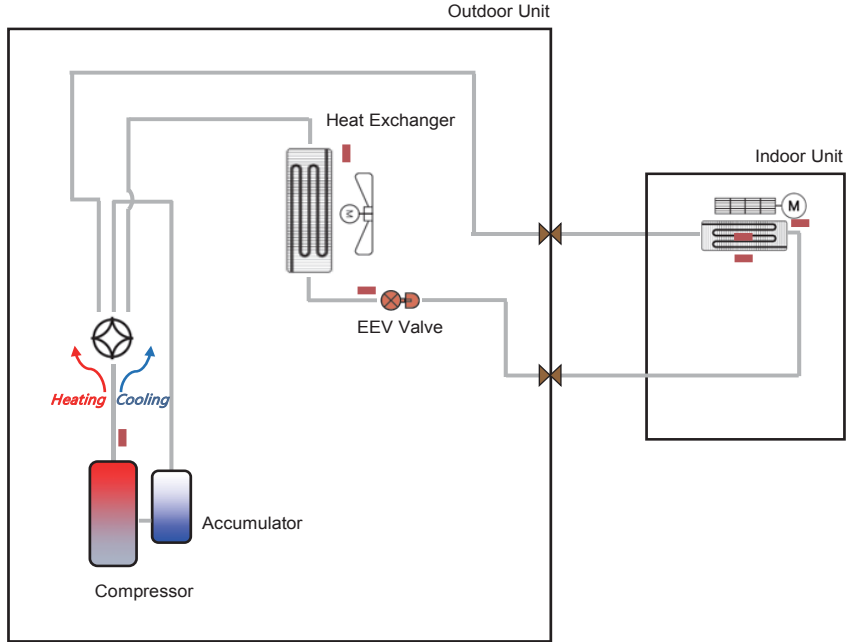
AR09KSWSPWKXCV, AR12KSWSPWKXCV











6 Piping diagram

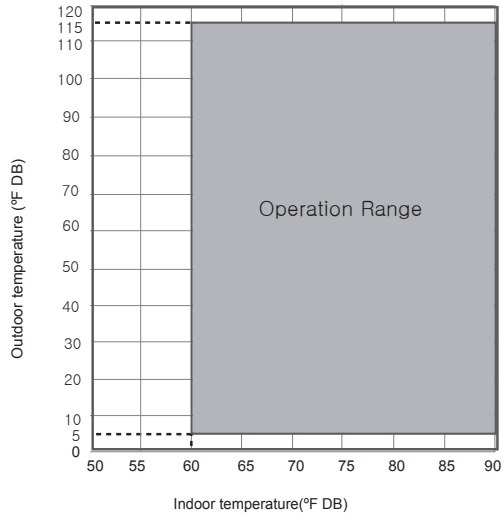
Outdoor

AR09KSWSPWKXCV, AR12KSWSPWKXCV

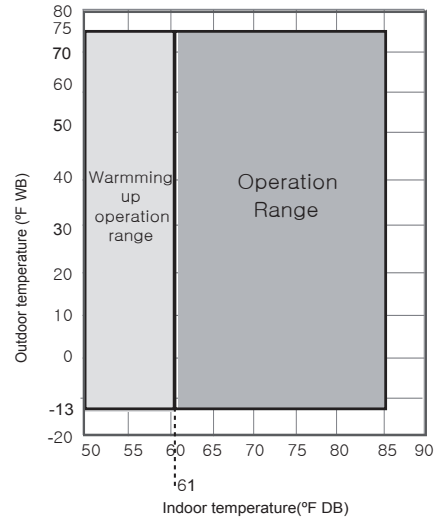


Category	Symbol	Description
Compressor		Rotary Compressor
Accumulator		Accumulator
Heat Exchanger		Condensing/Evaporating unit
Blower		Cross Fan/Propeller Fan
Expansion		EEV Valve
Valve		Service valve
		4-way valve
Sensor	Temperature	 Pipe/Air Temperature sensor

Cooling



Heating




8 Capacity correction

Outdoor


AR09KSWSPWKNCV + AR09KSWSPWKXCV

Cooling



Level Difference (ft)		Pipe Length (ft)			
		16.4	32.8	41.0	49.2
26.2	-	0.96	0.94	0.91	
16.4	0.99	0.97	0.95	0.92	
0	1.00	0.98	0.96	0.93	
-16.4	0.99	0.97	0.95	0.92	
-26.4	-	0.96	0.94	0.91	


Heating



Level Difference (ft)		Pipe Length (ft)			
		16.4	32.8	41.0	49.2
26.2	-	0.96	0.94	0.91	
16.4	0.99	0.97	0.95	0.92	
0	1.00	0.98	0.96	0.93	
-16.2	0.99	0.97	0.95	0.92	
-26.4	-	0.96	0.94	0.91	


AR12KSWSPWKNCV + AR12KSWSPWKXCV

Cooling



Level Difference (ft)		Pipe Length (ft)			
		16.4	32.8	41.0	49.2
26.2	-	0.96	0.94	0.91	
16.4	0.99	0.97	0.95	0.92	
0	1.00	0.98	0.96	0.93	
-16.4	0.99	0.97	0.95	0.92	
-26.4	-	0.96	0.94	0.91	

Heating



Level Difference (ft)		Pipe Length (ft)			
		16.4	32.8	41.0	49.2
26.2	-	0.96	0.94	0.91	
16.4	0.99	0.97	0.95	0.92	
0	1.00	0.98	0.96	0.93	
-16.2	0.99	0.97	0.95	0.92	
-26.4	-	0.96	0.94	0.91	

SAMSUNG

2016. 08
Ver. 1.1

Samsung Electronics Co., LTD.
B2B PM / SE

Head Office (Suwon Korea) 129, Samsung-Ro, Yeongtong-Gu, Suwon City, Gyeonggi-Do, Korea 443-742
Website : www.samsung.com Email : airconditioner@samsung.com
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