

**SAMSUNG**

**VRF**

# Technical Data Book

**DVM S Water for America  
(R410A, 60Hz, HP/HR)**



Model : AM\*\*\*KXWD\*\*  
Premium Energy Efficiency Type  
Premium Compact Type

# Nomenclature

## Outdoor units

### Model name

<b>AM</b>	<b>240</b>	<b>K</b>	<b>X</b>	<b>W</b>	<b>A</b>	<b>F</b>	<b>R</b>	/	<b>AA</b>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		(Buyer)

#### (1) Classification

<b>AM</b>	DVM
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#### (5) Feature1

<b>W</b>	DVM WATER
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#### (2) Capacity

BTU/H ( x 1,000) (3digits)
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#### (6) Feature2

<b>A</b>	Standard + General Temp.+ Module
<b>D</b>	STANDARD + GENERAL TEMP. + NON MODULE

#### (3) Version

<b>F</b>	2013
<b>H</b>	2014
<b>J</b>	2015
<b>K</b>	2016

#### (7) Rating Voltage

<b>C</b>	1Ø, 208~230V, 60Hz
<b>F</b>	3Ø, 208~230V, 60Hz
<b>J</b>	3Ø, 460V, 60Hz

#### (4) Product Type

<b>X</b>	Outdoor Unit
<b>N</b>	Indoor Unit

#### (8) Mode

<b>R</b>	Heat Recovery
<b>H</b>	Heat Pump

# 2. Specification

## Premium Compact Type (208~230 V)

Type			DVM S Water	DVM S Water	DVM S Water	DVM S Water
Model Name			AM240KXWAFR**	AM312KXWAFR1	AM336KXWAFR1	AM360KXWAFR1
	Outdoor unit module 1		AM240KXWAFR**	AM072HXWAFR**	AM096HXWAFR**	AM120HXWAFR**
	Outdoor unit module 2			AM240KXWAFR**	AM240KXWAFR**	AM240KXWAFR**
	Outdoor unit module 3					
	Outdoor unit module 4					
Power Supply			ø, #, V, Hz	3, 3, 208~230, 60	3, 3, 208~230, 60	3, 3, 208~230, 60
Mode			-	HP, HR	HP, HR	HP, HR
Performance	Ton		Ton	20	26	28
	Capacity (Nominal) <sup>1)</sup>	Cooling	Btu/h	240,000	312,000	336,000
		Heating	Btu/h	270,000	351,000	378,000
	Capacity (Rated) <sup>2)</sup>	Cooling	Btu/h	229,000	298,000	321,000
Heating		Btu/h	257,000	334,000	360,000	
Maximum number of connectable indoor units			ea	41	54	58
	Total capacity of the connected Indoor Units	Min.	Btu/h	120,000	156,000	168,000
		Max.	Btu/h	312,000	405,600	436,800
Power	Power Input (Nominal) <sup>1)</sup>	Cooling	kW	17.56	20.71	21.83
		Heating	kW	13.30	16.82	18.09
	Current	MCA	A	66	16+66	23+66
		MOP	A	90	25+90	40+90
Casing	Material	Body	-	EGI steel plate	EGI steel plate	EGI steel plate
		Base	-	EGI steel plate	EGI steel plate	EGI steel plate
Compressor	Type		-	Inverter Scroll	Inverter Scroll	Inverter Scroll
	Output		kW × n	6.13 x 2	(4.96) + (6.13 x 2)	(4.96) + (6.13 x 2)
	Model Name		-	DS4GJ5066EVASG x 2	(DS-GB052FBVASG x 1) + (DS4GJ5066EVASG x 2)	(DS-GB052FBVASG x 1) + (DS4GJ5066EVASG x 2)
	Oil	Type	-	PVE	PVE	PVE
Initial Charge		Liter	6.2	3.9 + 6.2	3.9 + 6.2	
Condenser	Type		Type	PHE (Plate Heat Exchanger)	PHE (Plate Heat Exchanger)	PHE (Plate Heat Exchanger)
	Pipe Size		ø, inch	NPT 2	(NPT 1-1/4) + (NPT 2)	(NPT 1-1/4) + (NPT 2)
	Lost Head		kPa (ftAq)	33 (11.0)	22 (7.3) + 33(11.0)	30 (10.0) + 33(11.0)
	Water Flow Rate		LPM (GPM)	228 (60.2)	80 (21.1) + 228 (60.2)	96 (25.4) + 228 (60.2)
	Max. Pressure		Mpa (psi)	1.96 (285)	1.96 (285)	1.96 (285)
Piping Connections	Liquid Pipe	Type	Type	Braze connection	Braze connection	Braze connection
		ø, mm	15.88	19.05	19.05	19.05
		ø, inch	5/8"	3/4"	3/4"	3/4"
	Gas Pipe	Type	Type	Braze connection	Braze connection	Braze connection
		ø, mm	28.58	34.92	34.92	41.28
		ø, inch	1 1/8"	1 3/8"	1 3/8"	1 5/8"
	Discharge Gas Pipe (HR)	ø, mm	28.58	28.58	28.58	34.92
		ø, inch	1 1/8"	1 1/8"	1 1/8"	1 3/8"
	Heat insulation		-	Both liquid and gas pipes	Both liquid and gas pipes	Both liquid and gas pipes
	Piping length (ODU-IDU)	Max.	m (ft)	170 (558)	170 (558)	170 (558)
	Piping length (1st Branch-IDU)	Max.	m (ft)	90 (295)	90 (295)	90 (295)
	Total piping length (System)	Max.	m (ft)	500 (1640)	500 (1640)	500 (1640)
Level difference (ODU in highest position)	Max.	m (ft)	50 (164)	50 (164)	50 (164)	
Level difference (IDU in highest position)	Max.	m (ft)	40 (131)	40 (131)	40 (131)	
Level difference (IDU-IDU)	Max.	m (ft)	50 (164)	50 (164)	50 (164)	
Wiring connections	Communication	Min.	mm <sup>2</sup>	0.75	0.75	0.75
		Remark	-	F1, F2	F1, F2	F1, F2

## 2. Specification

### Premium Compact Type (208~230 V)

Type			DVM S Water	DVM S Water	DVM S Water	DVM S Water
Model Name	Outdoor unit module 1		AM240KXWAFR**	AM312KXWAFR1	AM336KXWAFR1	AM360KXWAFR1
	Outdoor unit module 2		AM240KXWAFR**	AM072HXWAFR**	AM096HXWAFR**	AM120HXWAFR**
	Outdoor unit module 3			AM240KXWAFR**	AM240KXWAFR**	AM240KXWAFR**
	Outdoor unit module 4					
Refrigerant	Type	-	R410A	R410A	R410A	R410A
	Factory Charging	kg (lbs)	11.0 (24.3)	5.5 (12.1) + 11.0 (24.3)	5.8 (12.8) + 11.0 (24.3)	6.0 (13.2) + 11.0 (24.3)
Sound	Sound Pressure	Cooling	55	56	56	57
		Heating	57	58	58	59
	Sound Power		74	76	76	76
External Dimension	Net Weight	kg (lbs)	274 (604)	167(368) + 274 (604)	167(368) + 274 (604)	167(368) + 274 (604)
	Shipping Weight	kg (lbs)	284 (626)	174(384) + 284 (626)	174(384) + 284 (626)	174(384) + 284 (626)
	Net Dimensions (WxHxD)	mm	1,100x1,000x545	(770x1,000x545) + (1,100x1,000x545)	(770x1,000x545) + (1,100x1,000x545)	(770x1,000x545) + (1,100x1,000x545)
		inch	43.3x39.4x21.5	(30.3x39.4x21.5) + (43.3x39.4x21.5)	(30.3x39.4x21.5) + (43.3x39.4x21.5)	(30.3x39.4x21.5) + (43.3x39.4x21.5)
	Shipping Dimensions (WxHxD)	mm	1,170x1,200x620	(840x1,200x620) + (1,170x1,200x620)	(840x1,200x620) + (1,170x1,200x620)	(840x1,200x620) + (1,170x1,200x620)
		inch	46.1x47.2x24.4	(33.1x47.2x24.4) + (46.1x47.2x24.4)	(33.1x47.2x24.4) + (46.1x47.2x24.4)	(33.1x47.2x24.4) + (46.1x47.2x24.4)
Operating Temp. Range (Water Temp.)	Cooling	℃ (℉)	10~45 (50~113)	10~45 (50~113)	10~45 (50~113)	10~45 (50~113)
	Heating	℃ (℉)	10~45 (50~113)	10~45 (50~113)	10~45 (50~113)	10~45 (50~113)

#### NOTE

- Specification may be subject to change without prior notice.
- 1)\* Nominal capacities are based on (Equivalent refrigerant piping : 25ft(7.5m), Level differences : 0ft(0m)
  - Cooling : Indoor temperature : 80°F(26.7°C) DB, 67°F(19.4°C) WB / Inlet water temperature : 85°F(29.4°C)
  - Heating : Indoor temperature : 70°F(21.1°C) DB, 60°F(15.6°C) WB / Inlet water temperature : 68°F(20°C)
- 2)\* Rated capacities are based on (Equivalent refrigerant piping : 25ft(7.5m), Level differences : 0ft(0m)
  - Cooling : Indoor temperature : 80.6°F(27°C) DB, 66.2°F(19°C) WB / Inlet water temperature : 86°F(30°C)
  - Heating : Indoor temperature : 68°F(20°C) DB, 59°F(15°C) WB / Inlet water temperature : 68°F(20°C)
- Sound pressure level is obtained in an anechoic room.
  - Sound pressure level is a relative value, depending on the distance and acoustic environment.
  - Sound pressure level may differ depending on operation condition.
  - dBA = A-weighted sound pressure level
  - Reference acoustic pressure 0 dB = 20uPa
- Sound power level is an absolute value that a sound source generates.
  - dBA = A-weighted sound power level
  - Reference power : 1pW
  - Measured according to ISO 3741
- Sound values of multi combination are theoretical values based on sound results of individual installed units.
- These products contain R410A which is fluorinated greenhouse gas.
- Total capacity of the connected indoor units can be allowed from 50% to 130% of the total outdoor unit capacity.  
 $0.5 \times \sum(\text{Outdoor unit capacity}) \leq \text{Total capacity of the connected indoor units} \leq 1.3 \times \sum(\text{Outdoor unit capacity})$
- You can connect maximum 64 indoor units to the outdoor unit. Maximum quantity of connectable indoor unit is set to 64 since outdoor unit only support up to 64 communication address. Indoor unit address can be assigned from indoor unit address was assigned from 64~79, E201 error will occur.0~63.  
 If the indoor unit address was assigned from 64~79, E201 error will occur.

### 3. Electric Characteristics

#### Premium Compact Type

Capacity Ton	Model	Power Supply				Voltage Range		Current [A]	
		Ø	#	Voltage	Hz	Min. (-10%)	Max. (+10%)	MCA	MOP
20	AM240KXWAFR	3	3	208~230	60	187.2	253	66.0	90
26	AM321KXWAFR1	3	3	208~230	60	187.2	253	82.0	115
28	AM336KXWAFR1	3	3	208~230	60	187.2	253	89.0	130
30	AM360KXWAFR1	3	3	208~230	60	187.2	253	96.0	140
34	AM408KXWAFR1	3	3	208~230	60	187.2	253	105.0	155
36	AM432KXWAFR1	3	3	208~230	60	187.2	253	112.0	165
38	AM456KXWAFR1	3	3	208~230	60	187.2	253	119.0	180
40	AM480KXWAFR1	3	3	208~230	60	187.2	253	132.0	180
44	AM528KXWAFR1	3	3	208~230	60	187.2	253	128.6	180
46	AM552KXWAFR1	3	3	208~230	60	187.2	253	148.0	205
48	AM576KXWAFR1	3	3	208~230	60	187.2	253	155.0	220
50	AM600KXWAFR1	3	3	208~230	60	187.2	253	162.0	230

Capacity Ton	Model	Power Supply				Voltage Range		Current [A]	
		Ø	#	Voltage	Hz	Min. (-10%)	Max. (+10%)	MCA	MOP
20	AM240KXWAJR	3	3	460	60	414	506	33.0	45
26	AM321KXWAJR1	3	3	460	60	414	506	43.0	60
28	AM336KXWAJR1	3	3	460	60	414	506	44.0	60
30	AM360KXWAJR1	3	3	460	60	414	506	48.6	70
34	AM408KXWAJR1	3	3	460	60	414	506	54.0	75
36	AM432KXWAJR1	3	3	460	60	414	506	58.6	85
38	AM456KXWAJR1	3	3	460	60	414	506	59.6	85
40	AM480KXWAJR1	3	3	460	60	414	506	66.0	90
44	AM528KXWAJR1	3	3	460	60	414	506	70.2	95
46	AM552KXWAJR1	3	3	460	60	414	506	76.0	105
48	AM576KXWAJR1	3	3	460	60	414	506	77.0	105
50	AM600KXWAJR1	3	3	460	60	414	506	81.6	115

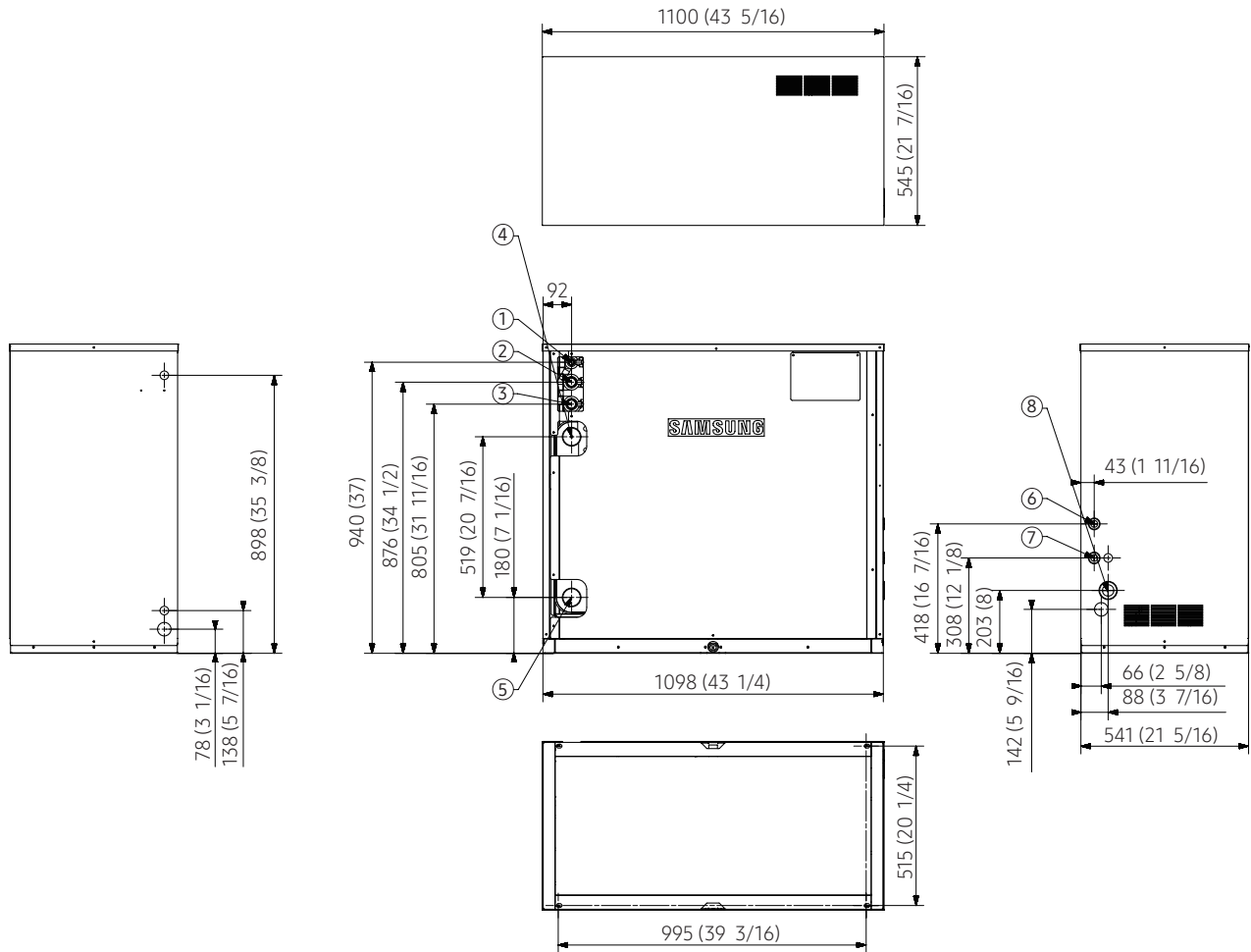
**NOTE**

- MCA : Minimum Circuit Ampere (A)
- MOP : Maxium Overcurrent Protective Device (A)
- Select wire based on the value of MCA

# 4. Dimensional Drawing

AM240KXWAFR\*\* (20Ton)

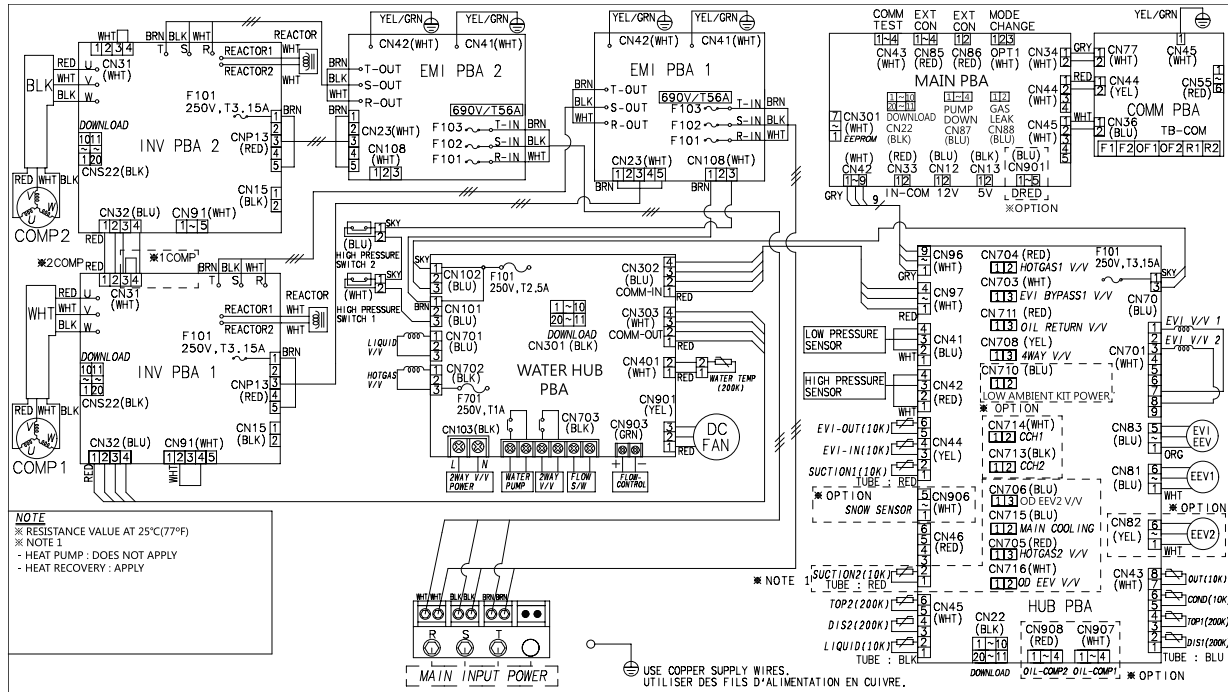
Unit : mm (inches)



No.	Name	Description	No.	Name	Description
①	Liquid ref. pipe	15.88 (5/8")	⑤	Water inlet pipe	NPT 2"
②	Gas ref. pipe	28.58 (1 1/8")	⑥	Communication wiring	-
③	High pressure gas ref. pipe	25.58 (1 1/8")	⑦	External contact wiring	-
④	Water outlet pipe	NPT 2"	⑧	Power wiring	-

# 6. Electrical Wiring Diagram

AM240KXWAFR✕✕



INV PBA1	Printed circuit board(inverter1)	EEV1	electronic expansion valve 1	LIQUID(10K)	Thermistor LIQUID(10K)
INV PBA2	Printed circuit board(inverter2)	EEV2	electronic expansion valve 2	HOTGAS1 V/V	Solenoid valve(HOTGAS1)
EMI PBA1	Printed circuit board(emi1)	EVI-OUT(10K)	Thermistor (Enhanced Vapor Injection_out)	EVI BYPASS V/V	Solenoid valve(EVI BYPASS)
EMI PBA2	Printed circuit board(emi1)	EVI-IN(10K)	Thermistor (Enhanced Vapor Injection_in)	RETURN V/V	Solenoid valve(RETURN)
FAN PBA	Printed circuit board(fan motor)	SUCTION1(10K)	Thermistor (SUCTION1)	4WAY V/V	Solenoid valve(4WAY)
MAIN PBA	Printed circuit board(main)	SUCTION2(10K)	Thermistor (SUCTION2)	CCH1	Crank Case Heater (Compressor1)
HUB PBA	Printed circuit board(hub)	SNOW SENSOR	SNOW SENSOR	CCH2	Crank Case Heater (Compressor1)
COMM PBA	Printed circuit board(communication)	OIL-COMP1	Oil-Sensor(Compressor1)	MAIN COOLING	Solenoid valve(Main cooling)
COMP1	Motor (compressor1)	OIL-COMP2	Oil-Sensor(Compressor2)	HOTGAS2 V/V	Solenoid valve(HOTGAS2)
COMP2	Motor (compressor2)	OUT(10K)	Thermistor (Air)	OD EEV V/V	Solenoid valve(OD EEV)
FAN1	Motor (fan1)	COND(10K)	Thermistor (COND)	F101	FUSE(inverterPBA)
FAN2	Motor (fan2)	TOP2(200K)	Thermistor (Copressor2 TOP)	690V/T56A	FUSE(EMI PBA)
EVI V/V 1	Solenoid valve(Enhanced Vapor Injection_1)	DIS1(200K)	Thermistor DIS1(200K)	MODE CHANGE	Connector (remote switching cool/heat selector)
EVI V/V 2	Solenoid valve(Enhanced Vapor Injection_2)	DIS2(200K)	Thermistor DIS2(200K)	EXT CON	Connector (Output EXT CON)
EVI EEV	electronic expansion valve(EVI)	LIQUID(10K)	Thermistor LIQUID(10K)	ERROR/COMP EXT	Connector (Output ERROR/COMP EXT CON)

## NOTE

- This wiring diagram applies only to the water-cooled DVM S Water.
- Colors BLK: black, RED: red, BLU: blue, WHT: white, YEL: yellow, BRN: brown, SKY: skyblue , ORG: orange, GRN: green
- When operating, don't short circuit the protection device (High Pressure switch)
- For connection wiring indoor-outdoor transmission F1-F2, outdoor-outdoor transmission OF1-OF2, refer to the installation manual.
- Protective earth(screw) , connector,  $\frac{N}{\times}$  : The wire quantity

# 7. Sound Data

## Summary

### Premium Compact Type

Capacity Ton	Model	Sound Pressure (dBA)		Sound Power (dBA)
		Cooling	Heating	
20	AM240KXWA×R	55	57	74
26	AM321KXWA×R1	56	58	76
28	AM336KXWA×R1	56	58	76
30	AM360KXWA×R1	57	59	76
34	AM408KXWA×R1	57	59	77
36	AM432KXWA×R1	57	59	77
38	AM456KXWA×R1	57	59	77
40	AM480KXWA×R1	59	61	78
44	AM528KXWA×R1	58	59	78
46	AM552KXWA×R1	59	61	78
48	AM576KXWA×R1	59	61	78
50	AM600KXWA×R1	59	61	78

### NOTE

- Sound Pressure Level
  - Sound Pressure level is obtained in an anechoic room.
  - Sound Pressure level is a relative value, depending on the distance and acoustic environment.
  - Sound Pressure level may differ depending on operation condition.
  - dBA = A-weighted sound power level.
  - Reference acoustic pressure 0 dB = 20μPa
- Sound Power Level
  - Sound power level is an absolute value that a sound source generates.
  - dBA = A-weighted sound power level.
  - Reference power: 1pW.
  - Measured according to ISO 3741.





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