

Part 2

Outdoor Unit

Engineering Data

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MDV-V235WN1(AU)-A VRF 50Hz



1 Specifications

Table 2-1.1: Model specifications

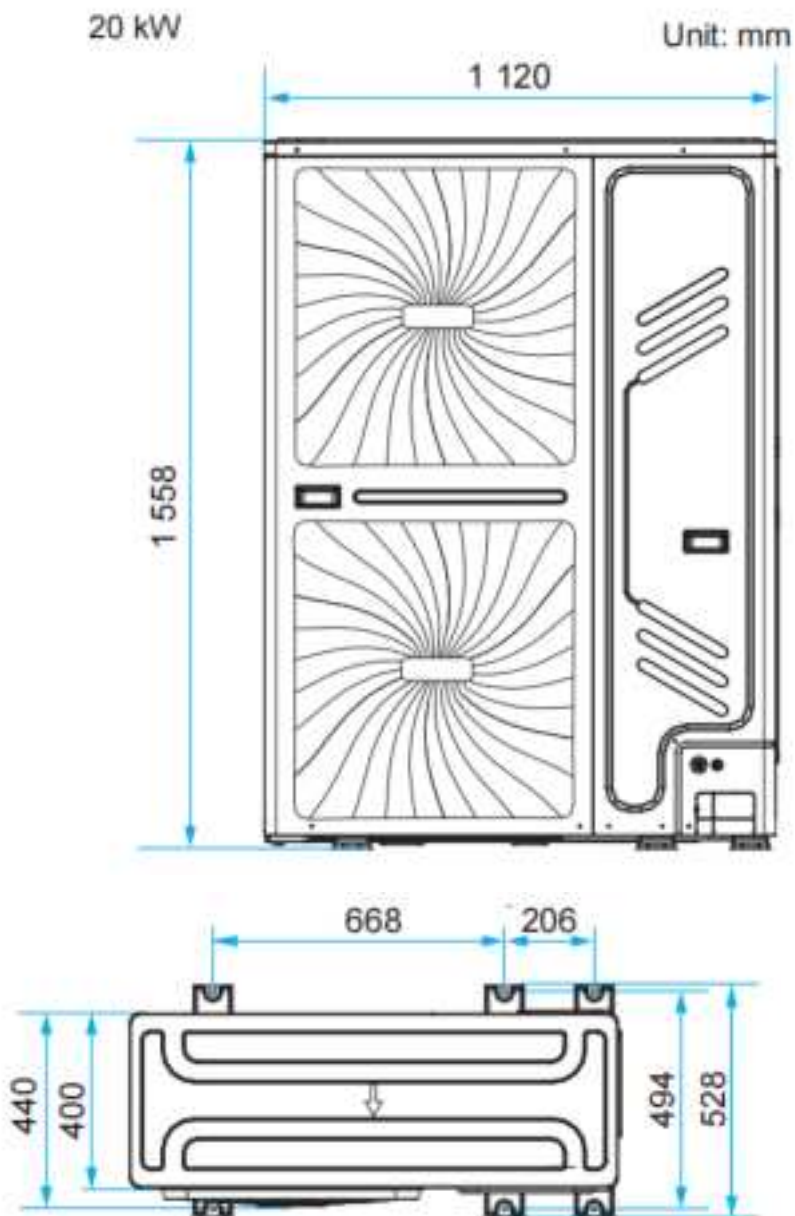
Sale Model			MDV-V235WN1(AU)-A
Power supply			220-240V~ 50Hz
Cooling ¹	Capacity	kW	20 (10-20)
	Input	kW	4.95
	EER		4.04
Heating ²	Capacity	kW	23.5 (12-23.5)
	Input	kW	5.3
	COP		4.43
Connected indoor unit	Maximum quantity		6
Compressor	Type		DC inverter
	Quantity		1
	Oil type		VG74
	Start-up method		Soft start
Fan	Type		Propeller
	Motor type		DC
	Quantity		1
	Drive type		Direct
Refrigerant	Type		R410A
	Factory charge	kg	4.8
Pipe connections	Gas pipe	mm	19.1
	Liquid pipe	mm	9.52
Sound pressure level(cooling/heating) ³		dB(A)	59/59
Outdoor Unit	Dimension(W x H x D)	mm	1120×1558×528
	Packing (W x H x D)	mm	1270×1720×565
	Net/Gross weight	kg	124/140
Ambient temp. operation range	Cooling (DB)	°C	-5~55
	Heating (WB)	°C	-15~27

Notes:

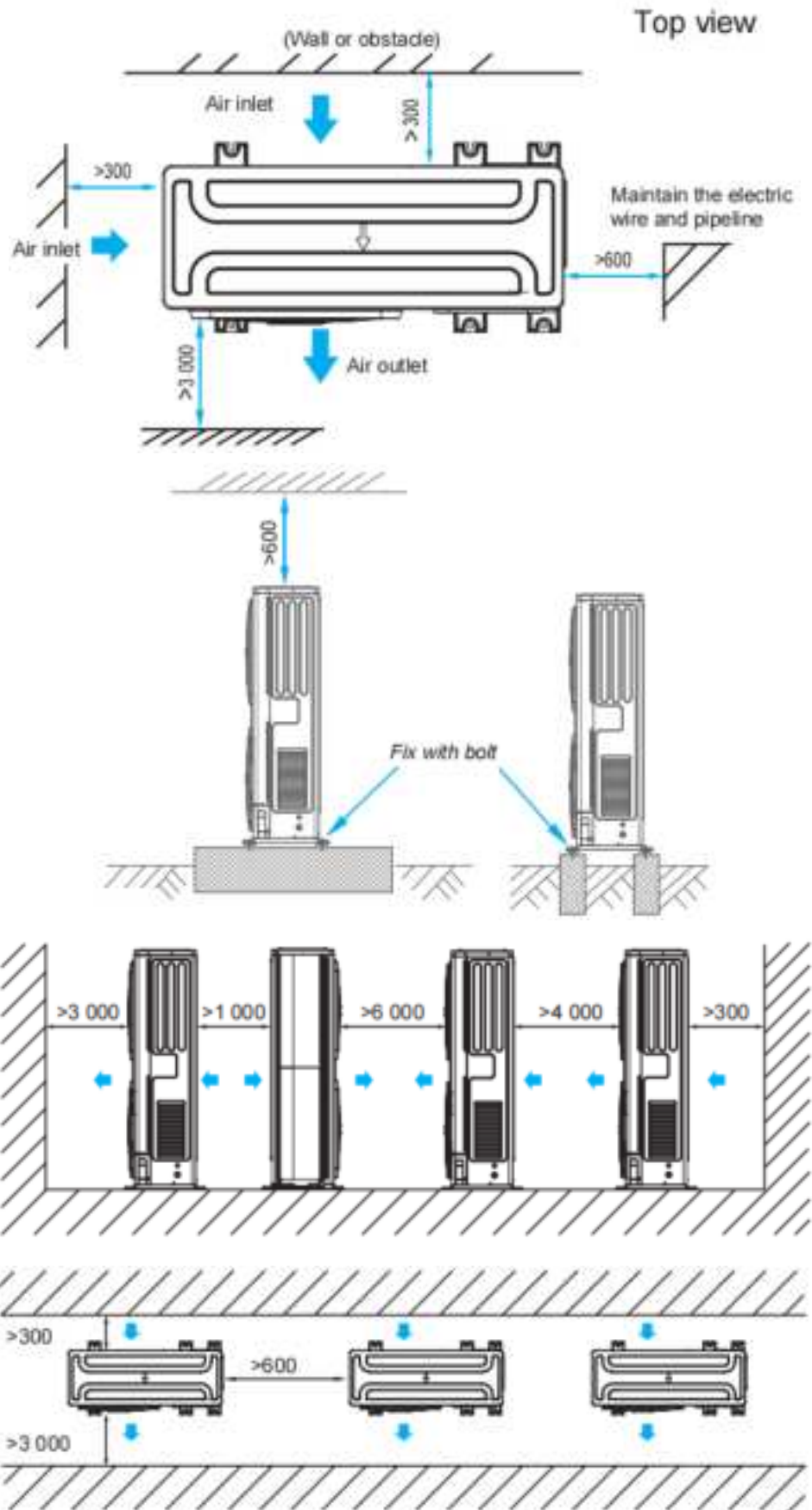
- Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
- Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
- Sound level: Anechoic chamber conversion value, measured at a point 1 m in front of the unit at a height of 1m.

During actual operation, these values are normally somewhat higher as a result of ambient conditions.

2 Dimensions

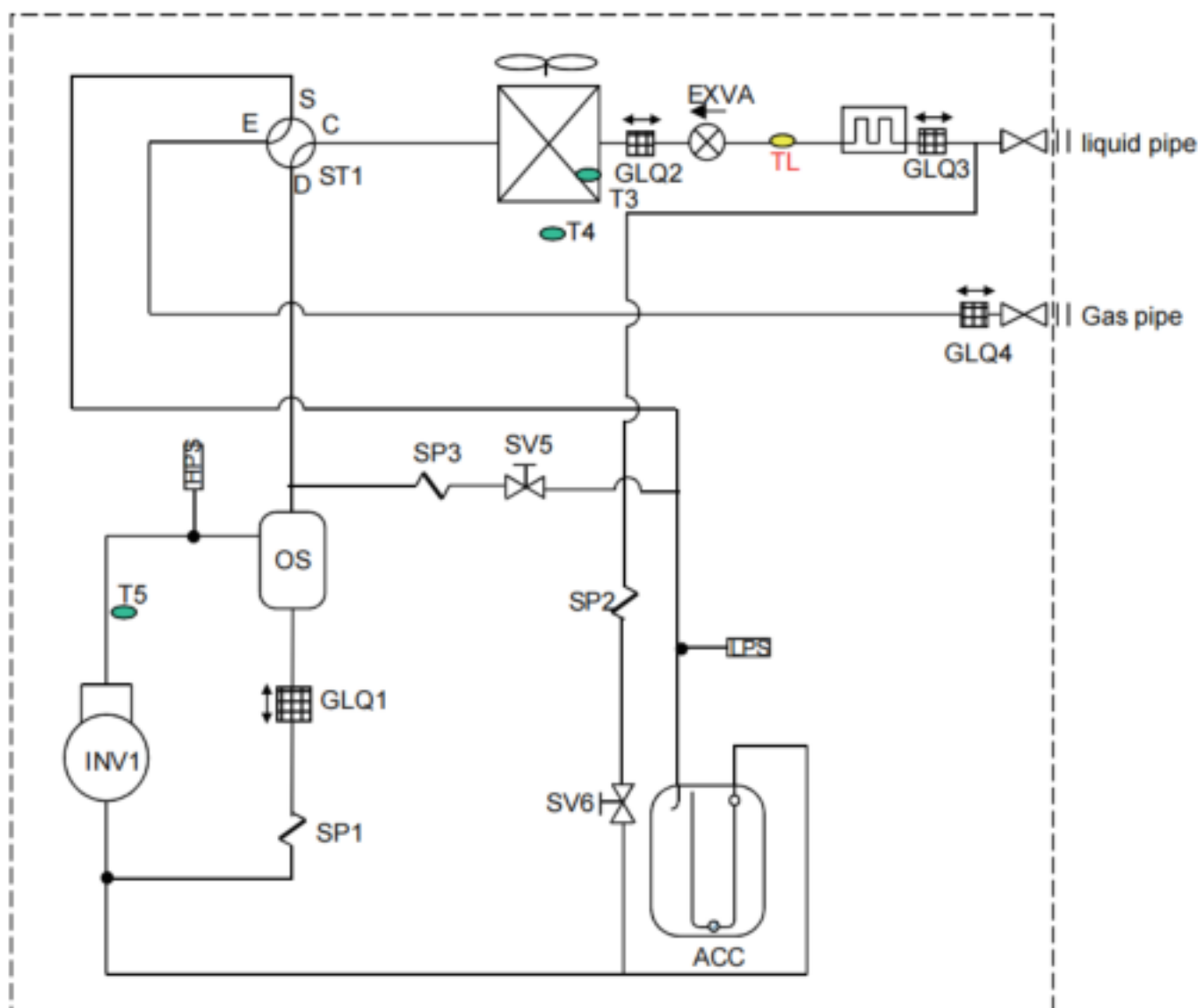


3 Installation Space Requirements



4 Piping Diagrams

Figure 2-4.1: Piping diagram

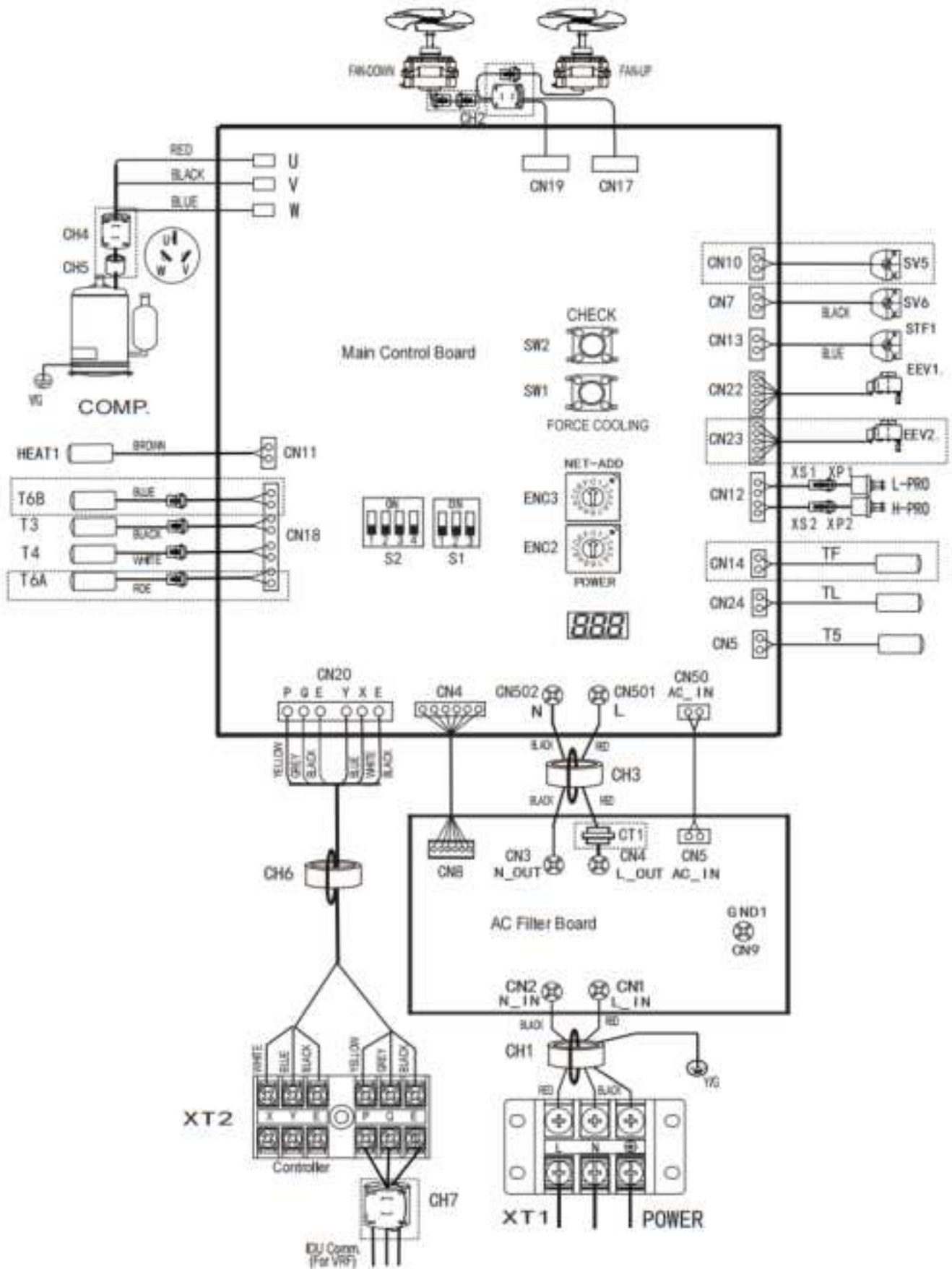


Key components:

1. **Oil separator:**
Separates oil from gas refrigerant pumped out of the compressor and quickly returns it to the compressor. Separation efficiency is up to 99%.
2. **Gas-liquid separator:**
Stores liquid refrigerant and oil to protect compressor from liquid hammering.
3. **Electronic expansion valve (EEV):**
Controls refrigerant flow and reduces refrigerant pressure.
4. **Four-way valve:**
Controls refrigerant flow direction. Closed in cooling mode and open in heating mode. When closed, the heat exchanger functions as a condenser; when open, the heat exchanger functions as an evaporator.
5. **High and low pressure switches:**
Regulate system pressure. When system pressure rises above the upper limit or falls below the lower limit, the high or low pressure switches turn off, stopping the compressor. After 5 minutes, the compressor restarts.

5 Wiring Diagrams

Figure 2-5.1: Wiring diagram



Code	Name
XT1	Terminal block
XT2	Terminal block
CH1-CH7	Magnetic ring
COMP.	Compressor
CT1	Current transformer
EEV1/EEV2	Electronic expansion valve
FAN1	DC fan
FAN2	DC fan
HEAT1	Crankcase heater
H-PRO	High pressure switch
L-PRO	Low pressure switch
STF1	Four-way valve
SV5/SV6	Solenoid valve
T3	Heat exchanger temperature sensor
T4	Outdoor ambient temperature sensor
T5	Discharge temperature sensor
TF	Radiator temperature sensor
TL	Refrigerant cooling pipe temperature sensor

EMC2		POWER-Outdoor unit capacity
EMC3		NET-ADO-Outdoor unit Network Address (Valid at 0-7, default is 0)
SW1		Press SW1 to enter the forced cooling function. Press it again to exit the forced cooling function.
SW2		Spot check button
S1		S1-1 is ON, Forced implementation of old indoor unit protocol S1-1 is OFF, Automatically adapting to indoor unit protocol(default)
		S1-2 is ON, Changing of indoor unit address S1-2 is OFF, Automatic addressing(default)
		S1-3 is OFF, Automatically judging EXV control mode of COU(default) S1-3 is ON, COU EXV of forced discharge temperature control
		F first on priority (default)
		Cooling only priority
S2		Automatic selection of priority mode
		Heating only
		Cooling only
		Heating priority
		First priority+ not detecting hydraulic module
		S2-4 is OFF, not quiet mode(default) S2-4 is ON, quiet mode
		
		
		
		

6 Electrical Characteristics

Table 2-6.1: Outdoor unit electrical characteristics

Model	Power Supply ¹							Compressor		OFM	
	Hz	Volts	Min.	Max.	MCA ²	TOCA ³	MFA ⁴	MSC ⁵	RLA ⁶	kW	FLA
			volts	volts							
MDV-V235WN1(AU)-A	50Hz	220-240	198	264	33	33	40	-	30.5	0.1+0.1	0.71+0.71

Abbreviations:

MCA: Minimum Circuit Amps; TOCA: Total Over-current Amps; MFA: Maximum Fuse Amps; MSC: Maximum Starting Current (A); RLA: Rated Load Amps; FLA: Full Load Amps

Notes:

1. Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits. Maximum allowable voltage variation between phases is 2%.
2. Select wire size based on the value of MCA.
3. TOCA indicates the total overcurrent amps value of each OC set.
4. MFA is used to select overcurrent circuit breakers and residual-current circuit breakers.
5. MSC indicates the maximum current on compressor start-up in amps.
6. RLA is based on the following conditions: indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB.

MDV-V235WN1(AU)-A VRF 50Hz



7 Operating Limits

Table 2-8.1: Operating limits

Mode	Outdoor temperature	Room temperature
Cooling operation	-5°C ~ 55°C	17°C ~ 32°C
Heating operating	-20°C ~ 27°C	15°C ~ 27°C
Indoor humidity	≤80%	
	Condensate might form on the unit's surface if the humidity is above 80%	

Notes:

1. If the unit is running outside the above condition, protective device will start, and even then the units take place abnormality running.
2. These figures base on the operation conditions between indoor units and outdoor units: Equivalent pipe length is 5m, and height difference is 0m.

Precaution:

1. The indoor relative humidity should be lower than 80%. If the air conditioner works in an environment with a relative humidity higher than mentioned above, the surface of the air conditioner may condensate. In this case, it is recommended to set the air speed of the indoor unit to high.

8 Sound Levels

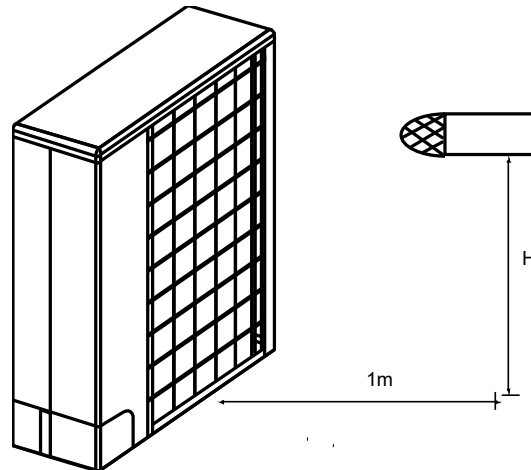
Table 2-9.1: Sound pressure level

Model	dB(A)	Height (m)
MDV-V235WN1(AU)-A	59	1

Notes:

1. Sound pressure level is measured at a position 1m in front of the unit and 1m above the floor in a semi-anechoic chamber. During in-situ operation, sound pressure levels may be higher as a result of ambient noise.

Figure 2-9.1: Sound pressure level measurement (unit: m)



9 Accessories

Table 2-10.1: Standard accessories

Name	Qty.	Outline	Function
Owner's and installation manual	1		—
Water outlet pipe	1		To drainage
Matching resistor	2		To improve communication stability
Magnet ring	1		/
Drain pipe	1		/
L-shaped pipe connection	1		/