



Technical Sales Guide

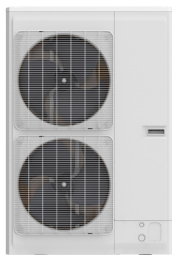
ULTRA HEAT GMV6 MINI DC INVERTER VRF UNITS

(GC202306-II)

TECHNICAL SALES GUIDE-60Hz

CAPACITY RANGE: 36~60kBtu/h

SUPER LOW AMBIENT OPERATION TO -30°C



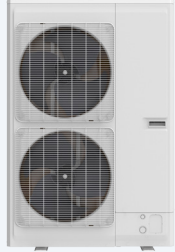


CONTENTS

1 UNIT CHARACTERISTICS	1
2 UNIT PARAMETERS.....	3
3 ELECTRICAL SPECIFICATIONS.....	4
4 PRODUCT CAPACITY CORRECTION	4
5 UNIT NOISE CURVES	6
6 UNIT GRAVITY CENTER DIAGRAMS.....	8
7 UNIT INSTALLATION SPACE REQUIREMENTS	9
8 PIPING DESIGN.....	12
9 COMMUNICATION WIRING SYSTEM	14
10 EXTERNAL ELECTRICAL WIRING DIAGRAM	16
11 CALCULATION OF ADDITIONAL REFRIGERANT CHARGE	18
12 NOTICES.....	18
13 OPTIONAL ACCESSORIES.....	20

1 UNIT CHARACTERISTICS

➔ 1.1 Lineup of Outdoor Unit

Capacity (Ton)	Model	Code	Appearance
3	GMV-V36WL/C-T(U)	CN851W4090	
4	GMV-V48WL/C-T(U)	CN850W1220	
5	GMV-V60WL/C-T(U)	CN850W1210	

➔ 1.2 Product Function and Features

- ◆ Gree new generation self-developed double-cylinder two-stage enhanced vapor injection (EVI) compressor matches with the unit perfectly, with performance improved.

- ◆ 2400-level High Precision Enhanced Vapor Injection (EVI) Control

Dual EEV enhanced vapor injection (EVI) system can achieve 2400-level (5*480) precise enhanced vapor injection (EVI) volume adjustment, for wider adjustment range and more stable system operation.

- ◆ High-efficiency C-shaped Heat Exchanger Design

Adopt brand new C-shaped high-efficiency heat exchanger structure design; windward area increased compared with the last generation one.

Adopt brand new air duct design; air volume increased compared with the last generation one.

- ◆ Low-temperature Multiple Oil Paths Management

Low-temperature multiple oil paths management: Five oil paths can ensure the smooth and reliable oil return path under ultra-low temperature operation.

- ◆ New Generation Smart Defrosting

Through real-time parameters learning and judgment, the defrosting capacity output and defrosting cycle are automatically changed to achieve stable defrosting or fast defrosting.

- ◆ SRL Self-reaction Load Control

Self-reaction load (SRL) control can automatically adapt to indoor cooling and heating load demand to change the refrigerant heat exchange temperature.

- ◆ 13 Quiet Modes

GMV6 Mini has multiple quiet modes and the noise of outdoor unit is low to 40dB(A), providing users with a quiet and comfortable environment all day long.

- ◆ Room Temperature Holding Function

When temperature is low in winter, if you need to go out for a long time, turn on the "Home leave operation mode" to keep indoor temperature at 8°C to avoid freezing and damage to objects in your house.

After activating the SETBACK function, cooling/heating mode will be turned on automatically to ensure that the room temperature is kept within a constant temperature range.

- ◆ Anti-reversing, Startup Technology

During the frequent coastal monsoon period, most air conditioners cannot be turned on in the moderate breeze.

By adopting Gree's unique anti-reversing startup technology, the unit can still started up and turned on

normally in strong headwind.

➔ 1.3 Nomenclature

GMV	□	□	-	□	□	□	W	□	/	□	□	□	(□)
1	2	3		4	5	6	7	8		9	10	11	12

No.	Description	Options
1	Product code	GMV—Gree Multi VRF Units
2	Suitable climate	Omit—T1 condition; T2—low temperature climate; T3—high temperature climate
3	Function type	Omit—Heat pump L—Cooling only
4	RAC or CAC	Omit—CAC H—RAC
5	Function code	Omit—no special function , Q—heat recovery model unit, S—water heater unit, W—water cooled unit, X—air processing unit, Z—reheat dehumidifier unit, Y—PV unit, G—high sensible heat unit, V—low-ambient temperature heat pump unit, XR—thermal storage unit
6	Code of cooling capacity	Nominal capacity/100(W)
7	Code for outdoor unit	W—outdoor unit
8	Unit structure	Omit—Non-modular (top discharge) M—Modular (top discharge); L—Non-modular (side discharge);
9	Refrigerant	Omit—R410A
10	Design No.	Named in order of A, B, C, or combined with 1, 2, 3...
11	Power supply	7000~18000W, Omit—1 phase; S—3 phase
12	Area code	Omit—for general area For special area, area code is in the form of one capital letter: A, P or S...

➔ 1.4 Operation Range

Cooling	Outdoor temperature: -18*~54°C(0*~129°F)
Heating	Outdoor temperature: -30~27°C(-22~81°F)

*Note: Generally, the lowest operating temperature is -5°C, when cooling at -18°C ~-5°C, customized configuration is required.

When the indoor units are all VRF fresh air processor, the unit operating range is as follows:

Cooling	Ambient temperature: 16~45°C(61~113°F)
Heating	Ambient temperature: -7~16°C(19~61°F)

2 UNIT PARAMETERS

Model			GMV-V36WL/C-T(U)	GMV-V48WL/C-T(U)	GMV-V60WL/C-T(U)
Capacity	Cooling	Btu/h	36000	48000	60000
		W	10600	14100	17600
	Heating	Btu/h	36000	48000	60000
		W	10600	14100	17600
Minimum Circuit Ampacity		A	33.8	38.8	38.8
Maximum Overcurrent Protection		A	35	40	40
Power Supply		-	208/230V ~60Hz	208/230V ~60Hz	208/230V ~60Hz
Air Volume	m ³ /h		6000	6600	6600
	CFM		3531	3885	3885
Sound Pressure Level		dB(A)	50	52	55
Compressor Type		-	Inverter Rotary	Inverter Rotary	Inverter Rotary
Compressor Quantity		N	1	1	1
Refrigerant Oil Model		-	FW68L(FW68DA)	FW68L(FW68DA)	FW68L(FW68DA)
Refrigerant Type		-	R410A	R410A	R410A
Refrigerant Charge	kg		4.0	4.0	4.4
	LBS		8.8	8.8	9.7
Max. Number of Connectable IDUs		unit	7	8	10
Gas Pipe	mm		Φ15.9	Φ15.9	Φ19.05
	inch		Φ5/8	Φ5/8	Φ3/4
Liquid Pipe	mm		Φ9.52	Φ9.52	Φ9.52
	inch		Φ3/8	Φ3/8	Φ3/8
Outline Dimensions (W × D × H)	mm		900×340×1345	900×340×1345	900×340×1345
	inch		35-3/8×13-3/8×53	35-3/8×13-3/8×53	35-3/8×13-3/8×53
Packing Dimensions (W × D × H)	mm		993×453×1500	993×453×1500	993×453×1500
	inch		39-1/4×18×59-1/16	39-1/4×18×59-1/16	39-1/4×18×59-1/16
Net Weight/Gross Weight	kg		113/124	113/124	113/124
	LBS		250/270	250/270	250/270

NOTES:

- The total capacity of connected indoor units must be in the range of 50%~135% of the outdoor unit capacity. The relevant parameters can be corrected by referring to the unit capacity correction table.
- The above parameters are tested based on the standard connection pipe length. In the actual project, the parameters should be corrected referring to the capacity correction for the long connection pipe of units.
- Specifications may be changed due to product improvement. Please refer to nameplates of the units.
- Sound Pressure Level: Anechoic chamber conversion value, measured in a semi-anechoic room. During actual operation, the value may be higher due to ambient noise and echoes of the installation conditions.

3 ELECTRICAL SPECIFICATIONS

Model	Power supply	Fuse capacity (A)	Maximum over-current protection (A)	Minimum circuit ampacity (A)
GMV-V36WL/C-T(U)	208/230V-1Ph-60Hz	35	35	33.8
GMV-V48WL/C-T(U)	208/230V-1Ph-60Hz	40	40	38.8
GMV-V60WL/C-T(U)	208/230V-1Ph-60Hz	40	40	38.8

4 PRODUCT CAPACITY CORRECTION

4.1 Capacity correction method for IDU and ODU

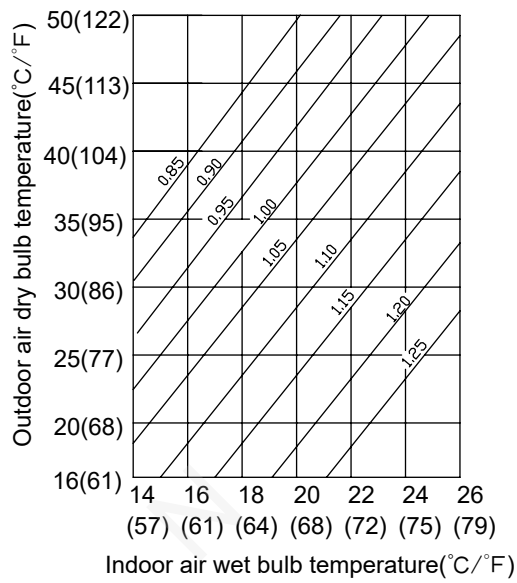
(1) Capacity calculation method

Cooling or heating capacity calculation method:

R410A outdoor unit capacity = outdoor unit capacity in rated condition × correction factor of indoor and outdoor temperature condition × connection pipe distance, correction factor of height difference between indoor unit and outdoor unit.

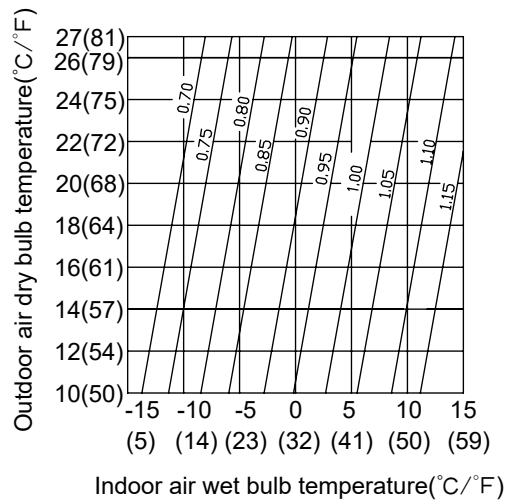
- ◆ If the total capacity code of indoor units is smaller than the capacity code of outdoor unit, the capacity of outdoor unit in rated condition equals to the total capacity code of indoor units;
- ◆ If the total capacity code of indoor units is bigger than the capacity code of outdoor unit, the capacity of outdoor unit in rated condition equals to its rated cooling capacity;
- ◆ Correction factor of indoor and outdoor temperature condition.

1) Correction factor of cooling capacity



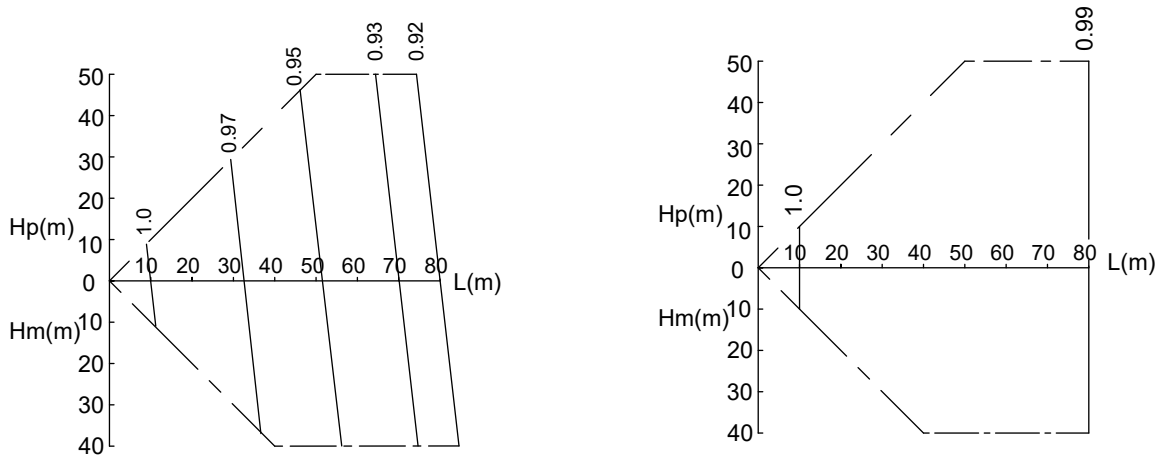
ULTRA HEAT GMV6 MINI DC INVERTER VRF UNITS

2) Correction factor of heating capacity



4.2 Capacity correction according to piping length and height difference

The following chart is the capacity change rate in 100% load under standard condition (thermostat is set in 16°C (61 °F) in cooling and set in 30°C (61 °F) in heating).



Cooling

Heating

m	0	10	20	30	40	50	60	70	80
ft.	0	33	66	98	131	164	197	230	262

NOTES:

- H_p : Level difference when outdoor unit at upper
- H_m : Level difference when outdoor unit at lower
- L: The length between ODU and the farthest IDU

4.3 Capacity correction factor according to defrosting

When outdoor environment meet certain condition (temperature and humidity), frosting and defrosting might occur, under this situation, heating capacity of the unit will be attenuated. Therefore, please considering the frosting and defrosting correction factor when calculating the heating load model.

Defrosting correction factor is as follow:

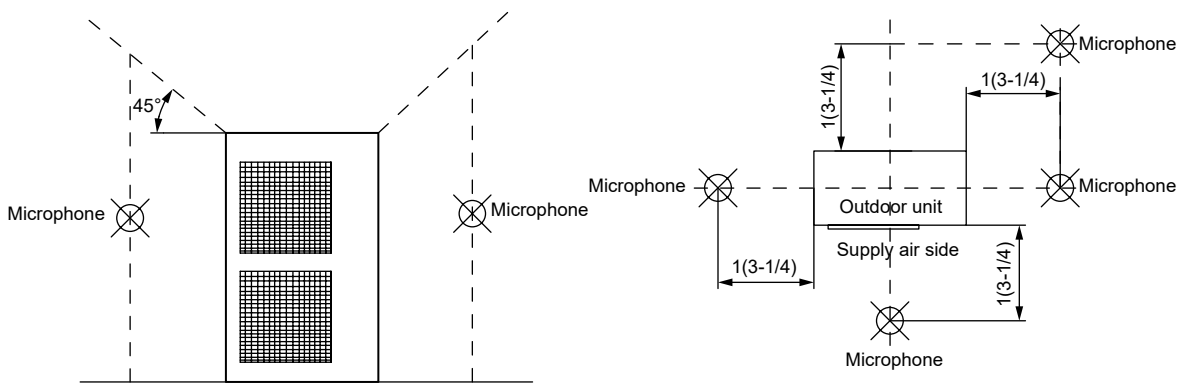
Outdoor heat exchanger air inlet dry bulb temperature (°C /RH85%)	-11	-9	-7	-5	-3	0	3	5	7
Defrosting capacity correction factor	1	0.98	0.96	0.94	0.88	0.8	0.84	0.9	1

5 UNIT NOISE CURVES

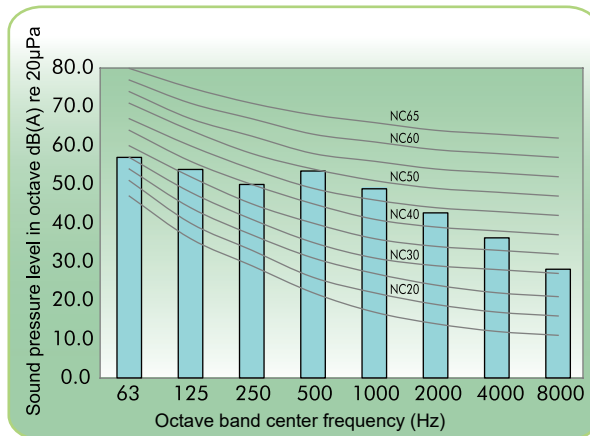
Test method for noise:

Test environment: Semi-anechoic room, the noise will be a little bit higher in actual operation due to environmental change.

Noise curve test point is as follow:

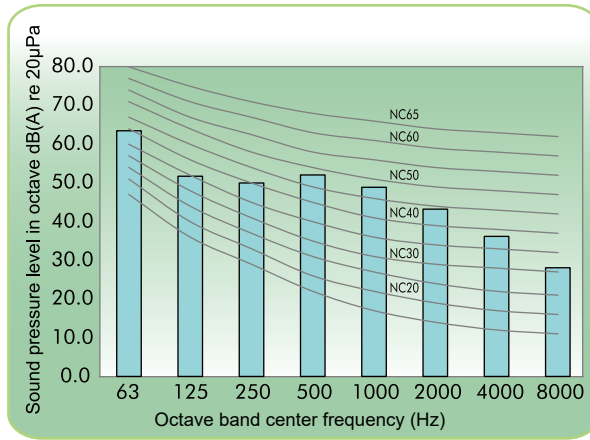


GMV-V36WL/C-T(U):

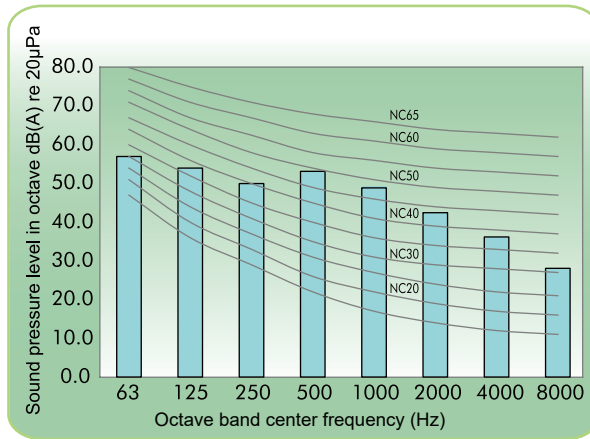


ULTRA HEAT GMV6 MINI DC INVERTER VRF UNITS

GMV-V48WL/C-T(U):



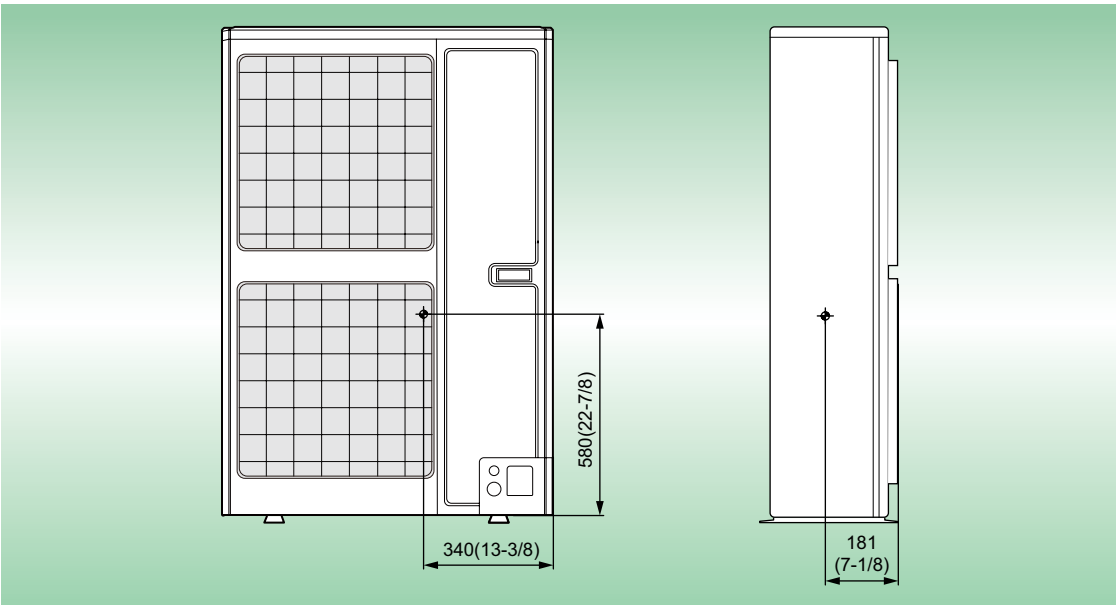
GMV-V60WL/C-T(U):



6 UNIT GRAVITY CENTER DIAGRAMS

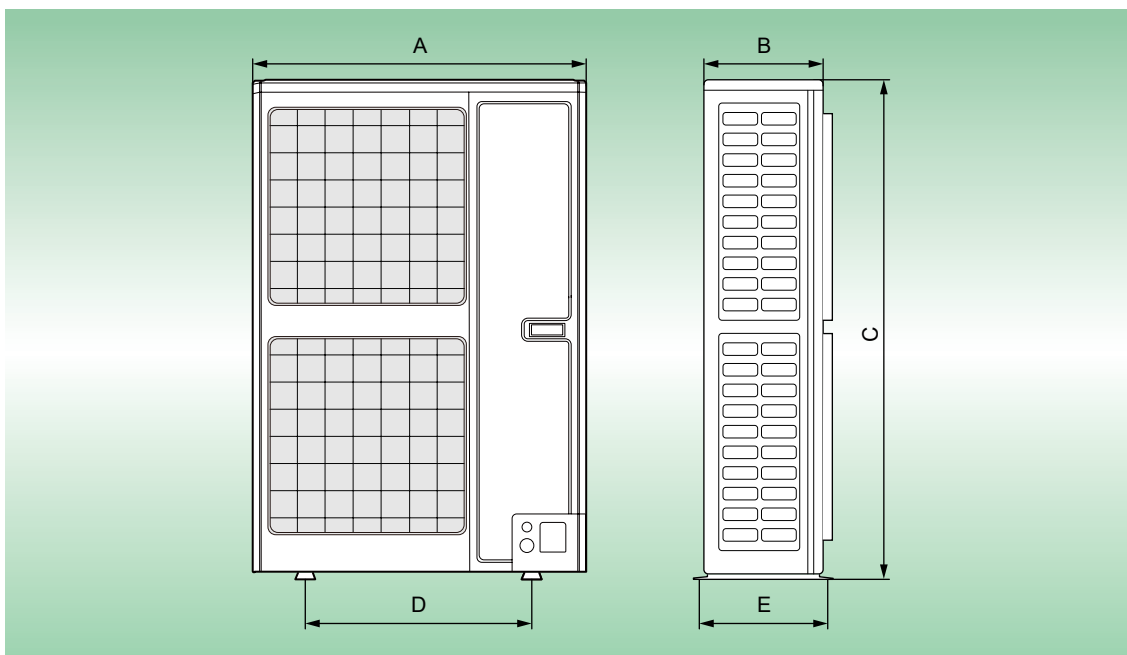
GMV-V36WL/C-T(U),GMV-V48WL/C-T(U),GMV-V60WL/C-T(U)

Unit : mm(inch)



7 UNIT INSTALLATION SPACE REQUIREMENTS

7.1 Outline dimension and installation hole



Unit : mm(inch)

Model	A	B	C	D	E
GMV-V36WL/C-T(U)	900 (35-3/8)	340 (13-3/8)	1345 (53)	572 (22-1/2)	378 (14-7/8)
GMV-V48WL/C-T(U)					
GMV-V60WL/C-T(U)					

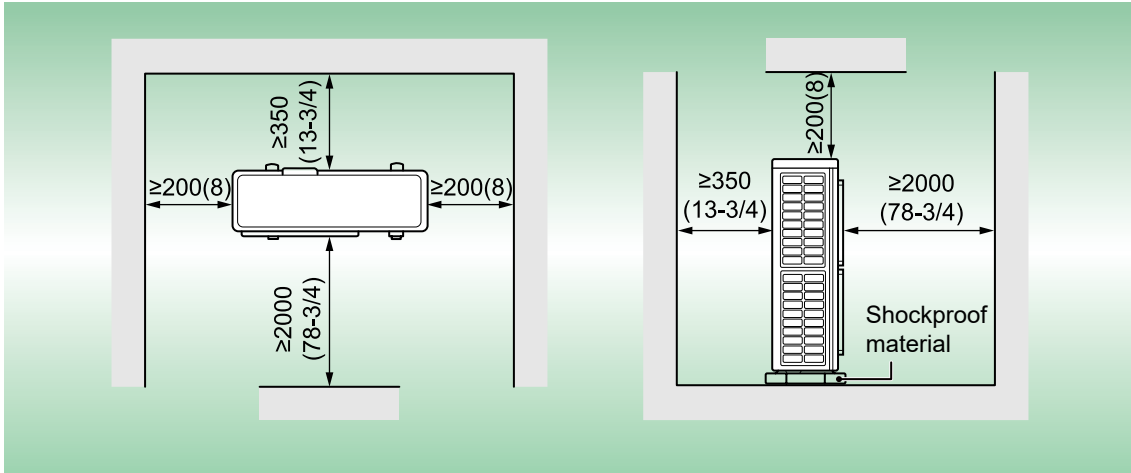
7.2 Location selection precautions for ODU

- (1) Install the unit at a place where can withstand the weight of the unit and make sure the unit would not shake or fall off.
- (2) Fully consider the influence of strong winds, typhoons, earthquakes and other natural disasters when selecting the installation site, and strengthen the installation.
- (3) Avoid the influence from flammable, explosive, corrosive gases and exhaust gases.
- (4) Ensure that there is a certain space for heat exchanging and maintenance operation.
- (5) Outdoor units and indoor units should be as close as possible to minimize the length and angle of the cooling pipes.
- (6) Do not allow children to approach the unit. Preventive measures should be taken to prevent children from accessing the unit.
- (7) The unit should not be installed at places with high environmental pH or high voltage fluctuations, such as on vehicles or ships.
- (8) Do not install the unit at the place where is close to the equipment that generates electromagnetic waves which can influence the control system and cause operation error.
- (9) If it vibrates and causes noise, please add rubber cushion between the outdoor unit and the installation base.
- (10) When the outdoor unit is in heating or defrosting, it needs to drain water. When installing the drain pipe, plug the accompanied drainage connector to the drainage hole on the chassis of the outdoor unit. Then connect a drain hose to the drainage connector (If drainage connector is used, the outdoor unit should be elevated at least 10cm above the installation ground.
- (11) For areas with frequent snowfall, please clean up the snow in time to avoid its covering the unit.
- (12) The unit installed in areas expecting snow are suggested to be raised with support frames.
- (13) If it's possible, please try to avoid the places where the snow will be accumulated easily. If not, please install a protective device to prevent snow accumulated on the top or around of the unit.

7.3 Installation space requirements for ODU

Maintenance space and unit ventilation should be considered when installing the unit. Installation method should be based on the actual situation.

Unit : mm(inch)

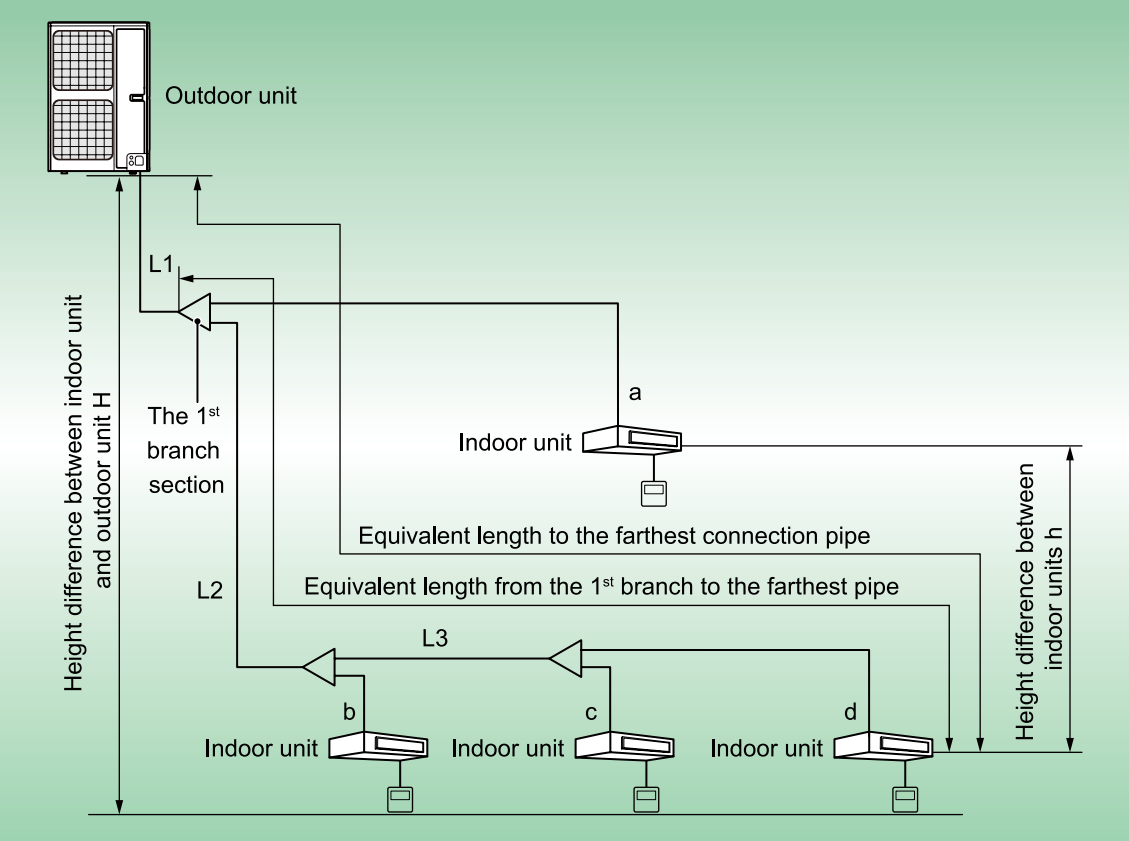


8 PIPING DESIGN

8.1 Allowable pipe length and height difference among indoor and outdoor units

“Y” type branch is adopted to connect the indoor and outdoor units. Connecting method is shown below.

Unit : m



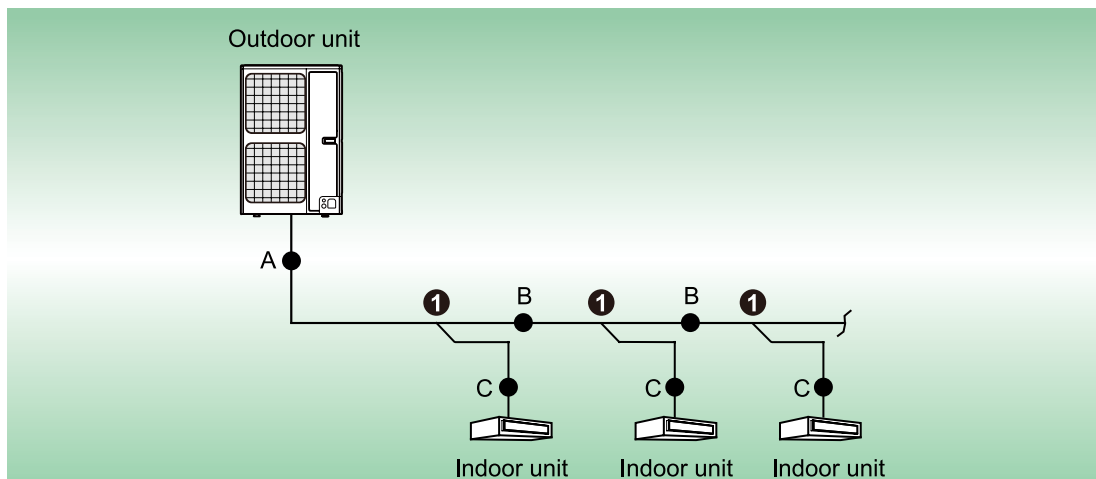
Equivalent length of one Y-type branch is 0.5m(1-5/8feet).

	Allowable value		Fitting pipe
	m	feet	
Total length (actual length) of fitting pipe	150	492	$L1+L2+L3+a+b+c+d$
Length of farthest fitting pipe	Actual length	65	$L1+L2+L3+d$
	Equivalent length	80	
From the 1st branch to the farthest indoor pipe	40	131	$L2+L3+d$
Height difference between ODU and IDU	ODU at upper side	50	—
	ODU at lower side	40	—
Height difference between IDUs	15	49	—

NOTICE!

If the distance between IDU and its nearest branch is over 10m(33feet), then the liquid pipe of IDU (rated capacity $\leq 17000\text{Btu/h}$) shall be enlarged.

8.2 Piping selection



- (1) Pipe “A” between the outdoor unit and the manifold of indoor unit.
The pipe size is based on the dimension of outdoor connection pipe.

Basic module	Pipe dimension	
	Gas pipe (mm/inch)	Liquid pipe (mm/inch)
GMV-V36WL/C-T(U)	Φ15.9 (Φ5/8)	Φ9.52 (Φ3/8)
GMV-V48WL/C-T(U)	Φ15.9 (Φ5/8)	Φ9.52 (Φ3/8)
GMV-V60WL/C-T(U)	Φ19.05 (Φ3/4)	Φ9.52 (Φ3/8)

- (2) Select the manifold “①” at indoor side.
Manifold at indoor unit side can be selected as per total capacity of downstream indoor unit(s). Refer to the following table.

Refrigerant system	Total capacity of downstream indoor units X (Btu/h)	Model
Y type branch	$X < 68200$	FQ01A/A
	$68200 \leq X \leq 102400$	FQ01B/A
	$102400 < X \leq 238800$	FQ02/A
	$238800 < X \leq 460600$	FQ03/A
	$460600 < X$	FQ04/A

- (3) Fitting pipe “B” between indoor side manifolds.
Pipe size (between two manifolds at indoor unit side) is based on the total capacity of downstream indoor unit(s).

Total capacity of downstream indoor units X (Btu/h)	Pipe (mm/inch)	Liquid pipe (mm/inch)
$X \leq 19000$	Φ12.7 (Φ1/2)	Φ6.35 (Φ1/4)
$19000 < X \leq 48500$	Φ15.9 (Φ5/8)	Φ9.52 (Φ3/8)
$48500 < X \leq 76400$	Φ19.05 (Φ3/4)	Φ9.52 (Φ3/8)

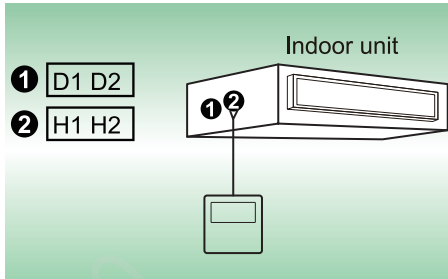
- (4) Fitting pipe “C” between indoor unit and manifold.
Manifold should be matched with fitting pipe of indoor unit.

Rated capacity of IDU X (Btu/h)	Gas pipe (mm/inch)	Liquid pipe (mm/inch)
$X \leq 9600$	Φ9.52 (Φ3/8)	Φ6.35 (Φ1/4)
$9600 < X \leq 17000$	Φ12.7 (Φ1/2)	Φ6.35 (Φ1/4)
$17000 < X \leq 48000$	Φ15.9 (Φ5/8)	Φ9.52 (Φ3/8)
$48000 < X \leq 55000$	Φ19.05 (Φ3/4)	Φ9.52 (Φ3/8)
$55000 < X \leq 96000$	Φ22.2 (Φ7/8)	Φ9.52 (Φ3/8)

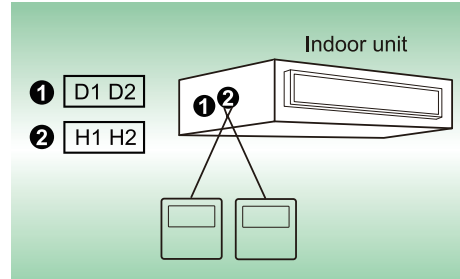
9 COMMUNICATION WIRING SYSTEM

9.1 Communication connection method between IDU and wired controller

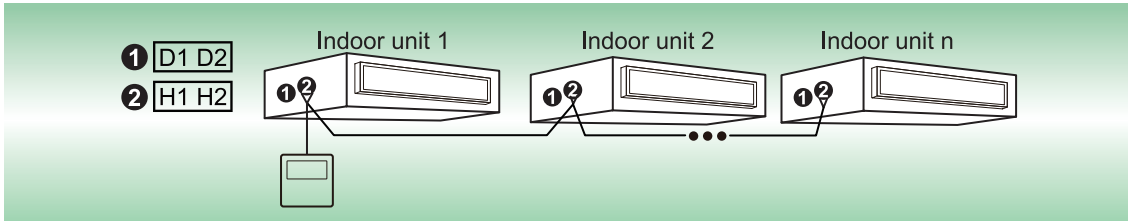
There are 4 connection ways between IDU and wired controller, please refer to the following:



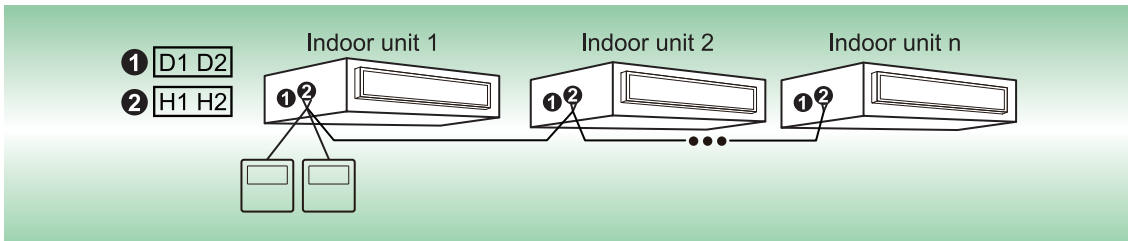
One wired controller controls one IDU



Two wired controllers control one IDU



One wired controller control multiple IDUs



Two wired controllers control multiple IDUs

When two wired controllers control several IDUs at the same time, the wired controller can be connected to any IDU, the connected IDUs shall be the IDU from the same series, meanwhile, set one of the wired controllers as the slave wired controller and shall be only set one. The amount of IDU controlled by wired controller shall not exceed 16 sets, and the connected IDUs shall be in the same IDU's network.

Set slave wired controller under ON/OFF status:

Long press "Function" button for 5s of the wired controller which needs to be set as the slave wired controller, the temperature area will display "C00", then long press "Function" button for 5s to enter parameter setting interface for wired controller, at this time, the temperature area will display "P00" acquiescently.

Press "▲" or "▼" button to select P13 as the parameter code and "Mode" button to switch to parameter value setting. At this time, the parameter value will blink, then press "▲" or "▼" to select "02" code. Press "Confirm/Cancel" button to complete the setting.

Press "Confirm/Cancel" button to return to the previous operation, until existing parameter setting.

Parameter setting list for the user is as follow:

ULTRA HEAT GMV6 MINI DC INVERTER VRF UNITS

Parameter code	Parameter name	Parameter range	Default value	Remark
P13	Address setting for wired controller	01:Master wired controller 02:Slave wired controller	01	When two wired controllers control one (or several) set(s) of IDU at the same time, the address of two wired controllers shall be different. Apart from setting the wired controller address, the slave wired controller can not set unit parameter.

NOTICE!

- All wired controllers are set as master wired controllers at the factory.
- Under parameter setting status: the buttons of fan speed, timer, sleep and swing are invalid, press "ON/OFF" button to return to the main interface immediately, but it will not execute the startup/shutdown operation.
- Under parameter setting status, the signal of remote controller is invalid.

9.2 Connection method between duct type IDU and remote signal receiving LED panel

Connection method between duct type IDU and receiver(remote signal receiving LED panel).

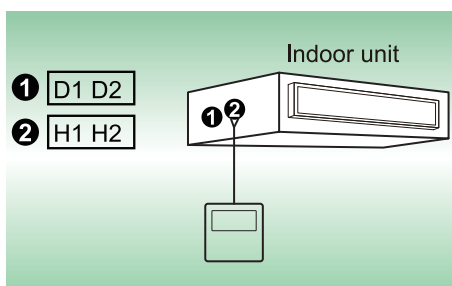


Figure 1 One receiver controls one indoor unit

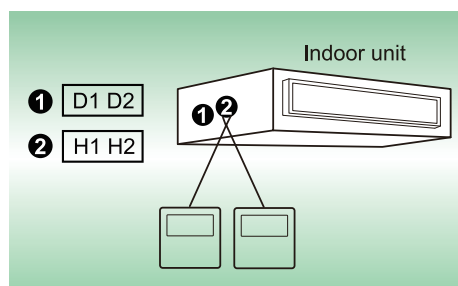


Figure 2 One receiver and one wired controllers control one indoor unit

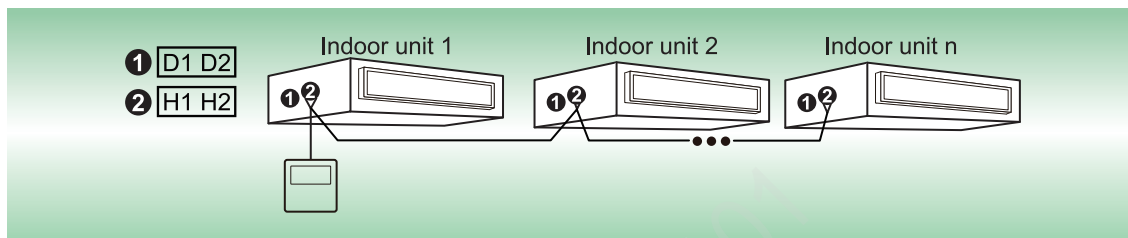


Figure 3 One receiver controls several multi VRF IDUs simultaneously

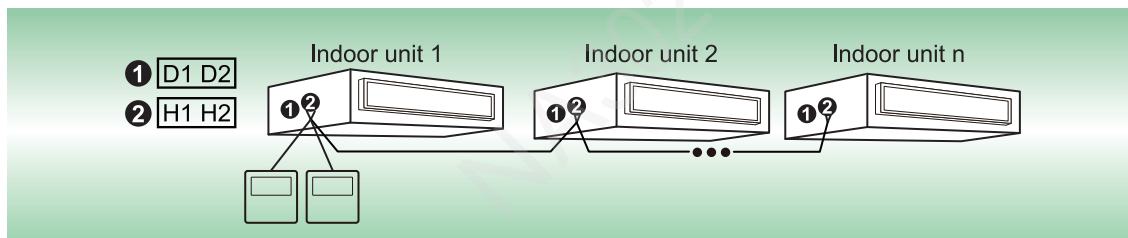


Figure 4 One receiver and one wired controller control several multi VRF IDUs simultaneously

NOTICE!

- When the remote signal receiving LED panel is connected with multi VRF unit, the wiring methods as shown in Figure 1, Figure 2, Figure 3 and Figure 4 can be adopted, but please pay attention to the

follow:

- ① When one remote signal receiving LED panel or one remote signal receiving LED panel and one wired controller control several indoor units simultaneously, the remote signal receiving LED panel can connect any indoor unit, but the connected indoor unit shall be of the same indoor unit series and the connected indoor unit shall be in the same multi VRF system. When it is applied together with the wired controller, please set the indoor unit quantity of group control in the wired controller.
- ② When the remote signal receiving LED panel controls several indoor units simultaneously, the settings for all indoor units are the same.
- b. In the wiring methods as shown in Figure 2, Figure 4, there can't be two remote signal receiving LED panels simultaneously and only one wired controller and one remote signal receiving LED panel are allowable in the same system. The wired controller can be set as master or slave wired controller and the remote signal receiving LED panel address will switch automatically (no need to set remote signal receiving LED panel address manually) according to the wired controller address (master/slave wired controller). The total quantity of remote signal receiving LED panel and wired controller can't exceed two.
- c. The remote signal receiving LED panel interface is non-polar, but it can't be connected with heavy current.
- d. Wired controller and remote signal receiving LED panel can be used at the same time.
- e. When selecting remote signal receiving LED panel, selecting the remote controller at the same time.

10 EXTERNAL ELECTRICAL WIRING DIAGRAM

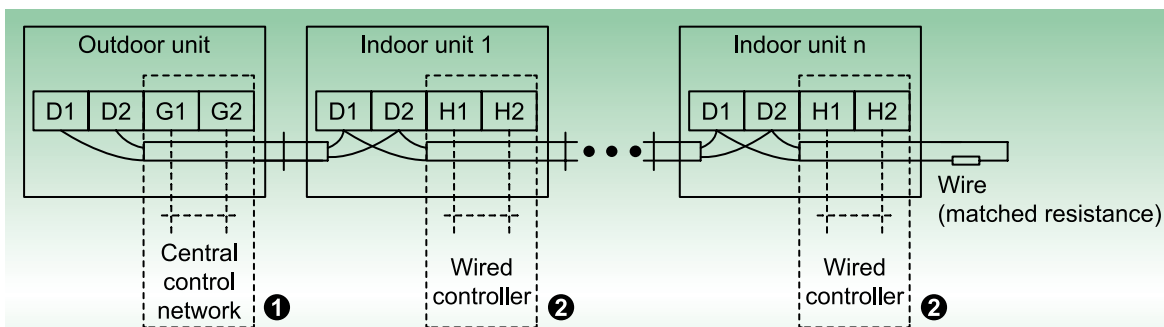
10.1 External wiring interface

External wiring interface	Power supply	Number of the cable cores	3
		Mark	L1 L2 G
	IDU/ODU communication	Number of the cable cores	2
		Mark	D1 D2
	Central control	Number of the cable cores	2
		Mark	G1 G2

10.2 External wiring

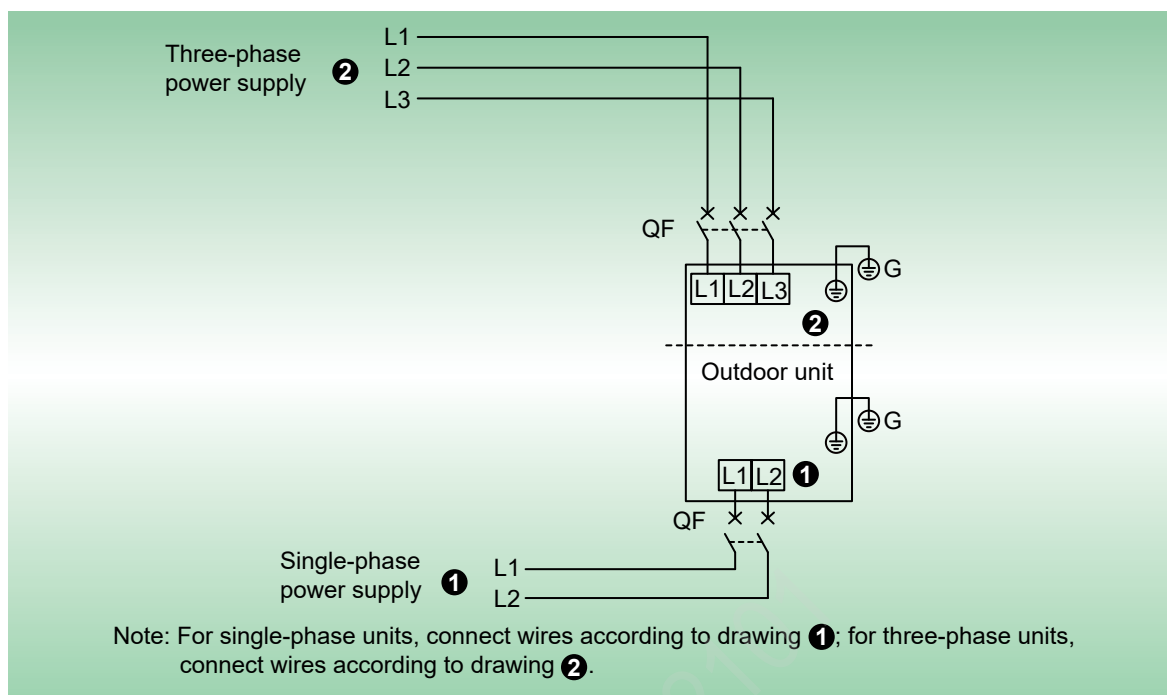
Connection of power cord and communication cord. Supply power for each unit separately. Each unit shall be equipped with a circuit breaker for short circuit and abnormal overload protection.

ULTRA HEAT GMV6 MINI DC INVERTER VRF UNITS



Note: (1) For outdoor units equipped with the function of central control, connect wires according to drawing ①. For indoor units with the function of wired control, connect wires according to drawing ②.
 (2) n represents the maximum number of connectable indoor units, which is determined by the capacity of the outdoor unit. For details, please refer to the capacity configuration instructions of the unit.

NOTE: Keep all the units in the same system energized during using. Otherwise, the system will not operate normally.



Note: For single-phase units, connect wires according to drawing ①; for three-phase units, connect wires according to drawing ②.

NOTE: Connect the power cord to the corresponding terminal and grounding screws. Please refer to the circuit diagram for wiring.

WARNING

Before the unit is ready to start, please check the power supply status, there should not be power supply to indoor or outdoor units during wiring and related installation, to avoid causing electric shock.

Wrong wire connection may burn the electrical components.

Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.

Always connect the ground wire.

11 CALCULATION OF ADDITIONAL REFRIGERANT CHARGE

- ① Additional refrigerant charge R = pipeline additional refrigerant charge A + outdoor unit additional refrigerant charge B
- ② Calculation of pipeline additional refrigerant charge A
 Pipeline additional refrigerant charge A = liquid pipe length (Σ) \times additional refrigerant charge per meter of the liquid pipe.
 X1: The length of liquid pipe $\Phi 6.35\text{mm}$ ($\Phi 1/4$ inch) ;
 X2: The length of liquid pipe $\Phi 9.52\text{mm}$ ($\Phi 3/8$ inch) ;

The length of X1+X2	The length of X2	Quantity additional refrigerant charge per meter of the liquid pipe A
$\leq 20\text{m}$ (65-5/8feet)	$\leq 20\text{m}$ (65-5/8feet)	0
$> 20\text{m}$ (65-5/8feet)	$\geq 20\text{m}$ (65-5/8feet)	$(X2-20)\times 0.054 + X1 \times 0.022$ kg $(X2-20)\times 0.036 + X1 \times 0.015$ LBS
	$< 20\text{m}$ (65-5/8feet)	$(X1+X2-20)\times 0.022$ kg $(X1+X2-65-5/8)\times 0.015$ LBS

- ③ Calculation of outdoor unit additional refrigerant charge B(kg(LBS))

Indoor Unit Quantity	Outdoor Unit Capacity(kBtu/h)		
	36	48	60
≤ 2	0	0	0
3	0.3(0.66)	0.3(0.66)	0.3(0.66)
≥ 4	0.6(1.32)	0.6(1.32)	0.6(1.32)

NOTES:

The maximum refrigerant charging volume for the system can't exceed 16.5LBS (including the refrigerant charged in the factory).
 Record the amount of refrigerant added to facilitate after-sales maintenance. After ensuring that the system does not leak and the compressor is not working, first charge the specified amount of R410A into the unit from the injection port of the outdoor unit liquid pipe valve until the required amount is reached. If the amount of refrigerant that needs to be added cannot be filled quickly due to pressure rise in the pipe, then power on the unit in cooling mode and charge the refrigerant through the gas valve of the outdoor unit.

For example:

The ODU is composed of the module: 60 kBtu/h.
 The IDUs are made up of 4 sets of 15 kBtu/h.
 $X1=30\text{m}(98\text{feet})$, $X2=15\text{m}(49\text{feet})$
 The pipeline additional refrigerant charge A $= (30+15-20)\times 0.022=0.55\text{kg}$
 $(98+49-65-5/8)\times 0.015=1.22\text{LBS}$
 outdoor unit additional refrigerant charge B=0.6kg(1.32LBS)
 Total Additional refrigerant charge R $= 0.55+0.6=1.15\text{kg}$ ($1.22+1.32=2.54\text{LBS}$).

12 NOTICES

12.1 Safety notices

- (1) The unit should not be installed in places with high pH, high voltage fluctuations, such as on vehicles or ships.
- (2) Do not touch the fins of the heat exchanger. Improper touch can cause damage.
- (3) Do not mix other substances apart from refrigerant in the refrigerant circuit during installing or moving the unit, and do not leave any air in the pipe. If air or other substances are mixed within the pipe, the

- system pressure will rise, the compressor may burst and damage.
- (4) Don't charge the non-specified refrigerant when installing or moving the unit, otherwise, it might cause poor operation, malfunction, mechanical breakdown, etc, or even cause major safety accident.
 - (5) When moving the unit or repairing the recycled refrigerant, be sure to use the pressure gauge. Conduct the cooling operation first, then completely shut down the valve (liquid valve) at high pressure side. When the pressure gauge displays 0 ~ 0.05MPa, and completely shut down the valve (gas valve) at low pressure side and immediately stop running the unit and cut off the power.
 - (6) When recovering the refrigerant, please make sure to completely shut down the liquid valve and gas valve, and cut off the power before dismantling the connection pipe; otherwise, there will be air intrusion, and resulting in pressure rise within the system, the compressor may burst and damage.
 - (7) When installing the unit, make sure that the connection pipe is securely attached before starting the compressor. If the compressor is started before the connection pipe is well attached and the cut off the valve is open, the air will be sucked in, resulting in system pressure rise, the compressor may burst and cause injury.
 - (8) Wiring between indoor and outdoor units must be correctly connected with the specified wires, and the wiring terminal shall not be affected by external forces. Poor connection or poor fixing might cause fire accident.
 - (9) No connection is allowed in the middle of the wire. When the length of the connecting wire is not enough, please contact the designated service store to re-equip a specific wire of sufficient length.

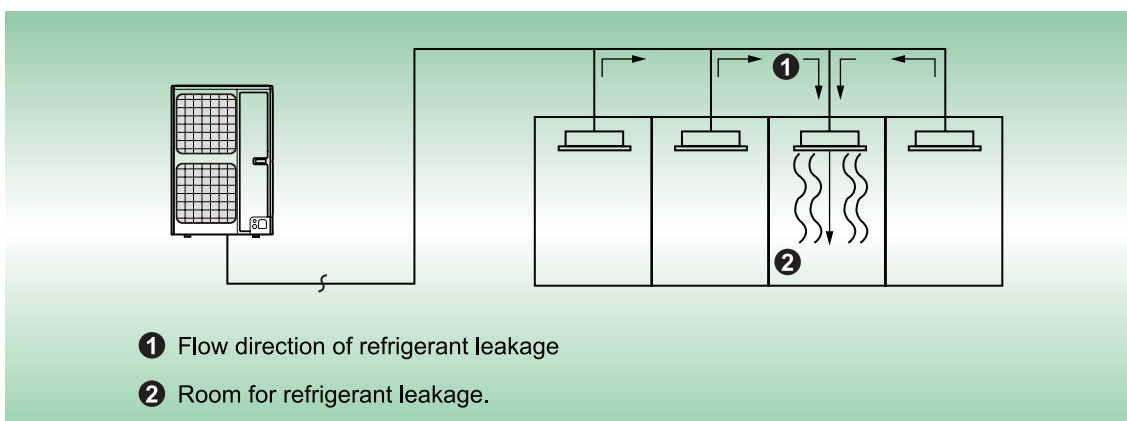
➔ 12.2 Notices for the usage of refrigerant

- (1) AC project designers and installers shall obey the local laws and regulations on the safety requirements toward the usage and leakage of refrigerant.
- (2) The multi VRF unit adopts R410A refrigerant. When installing the unit in the space where people included, the refrigerant's amount shall not exceed the maximum allowable concentration. Otherwise, suffocation will occur to the people nearby. For example, the maximum refrigerant's allowable concentration for European safety standard and regulation is 0.44kg/m³.

$$\text{Maximum refrigerant's charging amount(kg)} = \text{Room volume(m}^3\text{)} \times \text{maximum allowable concentration(kg/m}^3\text{)}$$

$$\text{Refrigerant charge(kg)} = \text{Additional quantity of refrigerant(kg)} + \sum \text{factory charge for ODU(kg)}$$

$$\text{Refrigerant charge} \leq \text{Maximum refrigerant charge}$$
- (3) When refrigerant's charging amount exceeds the maximum allowable amount, re-design the refrigeration system and divide the refrigeration system to several refrigeration systems with small volume, or adopt corresponding ventilation measures and alarms.



Since the concentration of refrigerant is greater than that of air, pay attention to the spaces where the refrigerant may residue, for example, the basement.

13 OPTIONAL ACCESSORIES

—		Model	Remarks
Branch		FQ01A/A,FQ01B/A,FQ02/A,FQ03/A,FQ04/A	—
Wireless remote controller		YAP1F	Optional: Duct type indoor units Standard: Wall-mounted, cassette and floor-ceiling indoor units
Classic wired controller		Wired controller XK46	—
Wired controller		XE7A-24/H	—
Wired controller		XE7A-24/HC	With WiFi function
Wired controller		XE70-33/H	—
Linkage Controller		LE60-24/H1	With access control and dry contact signals detection function
Centralized controller		CE52-24/F(C)	—
E-Smart Zone controller		CE54-24/F(C)	—
Debugger		CE42-24/F(C)	—
Debugging software		DE40-33/A(C)	—
Remote monitoring system	Software	FE30-24/DF(B)	—
	Controller	ME20-24/D1(T)	
Remote signal receiving LED panel		JS13	—
VRF Protocol Gateway		ME30-24/D1(BM)	Gateway capacity: 255 indoor units; it can output two kinds of BMS data: ModBus/BACnet
Modbus Gateway(Mini)		ME30-24/E6(M)	Gateway capacity: 128 indoor units (within 16 systems)
H2M Gateway		ME31-33/EH1(M)	Gateway capacity: a indoor unit (similar with the wired controller; it can control multiple units), it can output ModBus data

