



DC INVERTER MULTI VRF SYSTEM II SERVICE MANUAL

R410A(GC201407-П)

GREE ELECTRIC APPLIANCES, INC.OF ZHUHAI

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PRODUCT

PRODUCT 1 PRODUCT LIST

Model	Product Code	Cooling Capacity	Heating Capacity	Power Supply	Refrigerant	Appearance
	0000	kW	kW			
GMV-120WL/A-T	CN850W0180	12.1	14			0
GMV-140WL/A-T	CN850W0170	14	16.5	220-240V~50Hz 208-230V~60Hz	R410a	
GMV-160WL/A-T	CN850W0160	16	18.5			C.

2 NOMENCLATURE

2.1Nomenclature of outdoor units

GMV		-					W		/			
1	2		3	4	5	6	7	8		9	10	11

No.	Description	Options
1	Product code	GMV-Gree Multi VRF Units
2	Suitable climate	Blank-T1 condition; T2-low temperature climate; T3-high temperature climate
3	Unit type	DC Inverter (omit)
4	Function code	Q—Heat Recovery; S—Water Heater; W—Water-cooled Unit; X—Fresh Air Unit Leave blank if above functions are unavailable.
5	Code of cooling capacity	Nominal capacity/100(W)
6	Code of outdoor unit	
7	Unit structure	M—Modular (top discharge); L—Non-modular (side discharge); blank—Non-modular (top discharge)
8	Refrigerant	R410a (omit)
9	Design No.	Named in order of A, B, C, or combined with 1, 2, 3
10	Power supply	7000~18000W, 1 phase—omit; 3 phase—S

3 PRODUCT FEATURES

3.1 General introduction

Gree DC Inverter Multi VRF System II is the latest generation of DC inverter units. One set of air-cooled outdoor unit can be connected with multiple direct evaporation indoor units that are of the same or different forms and capacity. This refrigerating system can directly provide air conditioning for one or more areas, and is applicable for residential and light commercial uses. It features high energy efficiency, strong anti-interference capability, long connectable pipe, wide operation range, good sound quality, intelligent capacity regulation, complete protection, etc.

3.2 Features

(1) Super high energy efficiency

The 2nd generation of DC Inverter Multi VRF System adopts DC motor to realize complete direct current and upgrade the energy efficiency. EER is up to 3.97 and COP can reach 4.28.

(2) New generation CAN bus communication

Due to the latest communication method—CAN Bus Communication, system's anti-interference capability is stronger and the control on indoor units is more accurate, with higher reliability. Specialized shield wire is no more needed and ordinary communication wire can be applied in the construction, which has increased the installation flexibility.

(3) Long connection pipe

The maximum length of connection pipe is 300m (in total) and the farthest connection pipe between indoor and outdoor units can be 120m's long, which has extended the installation condition and reduced the limit of installation distance.

(4) Wide operation range

Units can operate reliably in a wide temperature range (cooling: -5~48°C, heating: -20~27°C).

(5) Fine sound quality

Through a series of optimized measures, system has reduced the throttle noise and oil return noise of indoor units, gas bypass noise, etc. so that units are more comfortable regarding sound quality.

(6) Intelligent PID capacity regulation

With the independently developed PID capacity regulation technology, units are able to control the indoor ambient temperature more quickly and reduce the fluctuation of room temperature.

(7) Complete protection

Units are equipped with a series of protection to accurately identify errors and protect the units, which has ensured reliable and safe operation.

4 SPECIFICATIONS

4.1 Specifications

•							
Model			GMV-120WL/A-T	GMV-140WL/A-T	GMV-160WL/A-T		
Product code		CN850W0180 CN850W0170		CN850W0160			
Cooling ca	apacity	kW	12.1	14	16		
Heating ca	apacity	kW	14	16.5	18.5		
Circulating a	ir volume	m³/h	6000	6300	6600		
Nois	e	dB(A)	55	56	58		
Refrigerant volun	-	kg	5	5	5		
Energy efficie	ency level	Level	1	1	1		
Pov	Power supply		220-240V~50Hz 208-230V~60Hz	220-240V~50Hz 208-230V~60Hz	220-240V~50Hz 208-230V~60Hz		
Rated power	Cooling	kW	3.05	3.98	4.85		
input	Heating	kW	3.27 3.99		4.67		
Unit Dimens	ions (mm)(N	/xDxH)	900×340×1345				
Package Dime	nsions (mm)	(WxDxH)	998×458×1515				
Co	mpressor		QXAS-F428zX050A				
Wate	er-proof level		IPX4	IPX4	IPX4		
Suit	able climite		T1 T1		T1		
	Gas	mm	Ф15.9	Φ15.9	Ф19.05		
Connection pipe	Liquid	mm	Ф9.52	Ф9.52	Ф9.52		
hihe	Connectio	n Method	Bell mouth connection	Bell mouth connection	Bell mouth connection		
Net we	ight	kg	110	110	110		

Note:

1 . Units conform to design standard: GB/T 18837-2002.

②. Specifications may be changed due to product improvement. Please refer to nameplates of the units.

③. Noise data are collected from a semi-anechoic room. Decibels may be slightly higher in actual operation due to environmental change.

④. Refrigerant charge volume listed in the table is based on the condition where indoor and outdoor units are at a same level and with no connection pipe. Supplementary refrigerant needs to be charged according to actual circumstance.

⑤. The sectional area of conducting wire is only applicable when the length is within 15m. If it's over 15m's long, sectional area must be increased accordingly, otherwise, over-current may burn the wires.

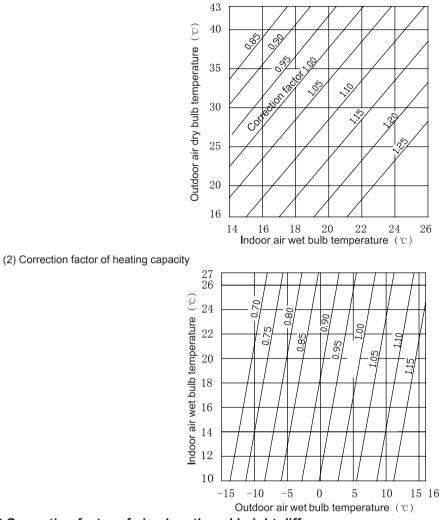
4.2 Operation range

Cooling	Outdoor temperature: -5~48°C
Heating	Outdoor temperature: -20~27°C

5 PRODUCT CAPACITY CORRECTION

5.1 Correction factor of indoor and outdoor temperature

(1) Correction factor of cooling capacity



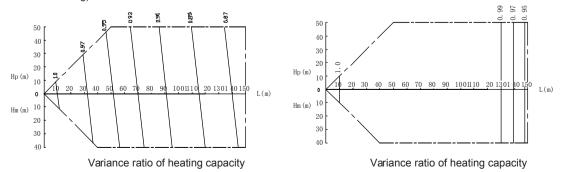
5.2 Correction factor of pipe length and height difference

(1) Symbol description:

Hp: Height difference in case indoor unit is below outdoor unit (m);

Hm: Height difference in case indoor unit is above outdoor unit (m);

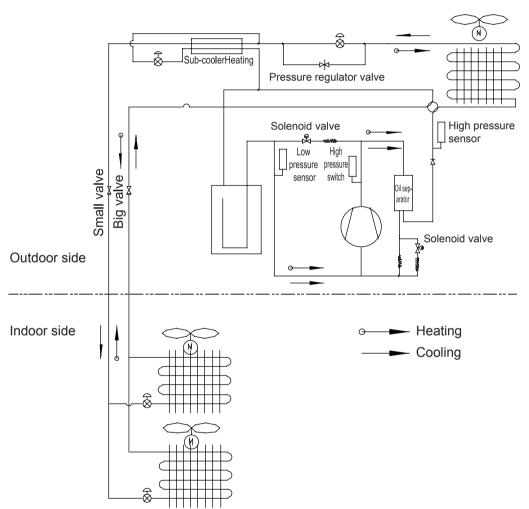
- L: Length of one-way equivalent pipe.
- (2) Below table shows the capacity variance ratio for 100% full load in standard working condition (thermostat setting is 16 for cooling and 30°C for heating).



6 PRINCIPAL OF OPERATION

Components in flowcharts are presented according to the following table:

Name	Compressor	4-way valve	Cut-off valve	One-way valve	Capillary tube
Symbol	\bigcirc	\bigcirc		-4-	
Name	Gas-liquid separator	Pressure switch	Pressure sensor	Axial-flow finned heat exchanger	Electronic expansion valve
Symbol		Ģ			-&



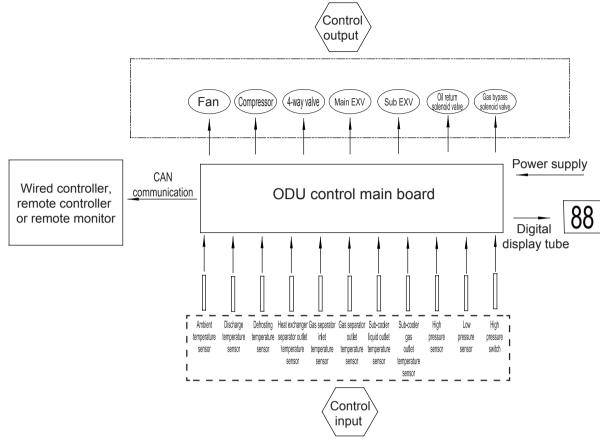
In cooling, the low-temperature and low-pressure refrigerant gas from each indoor heat exchanger will be merged and inhaled by the compressor and then become high-temperature and high-pressure gas, which will later be discharged into outdoor heat exchangers. By exchanging heat with outdoor air, refrigerant will turn to liquid and flow to each indoor unit via Y-type branch or manifold. Pressure and temperature of the refrigerant will then be lowered by throttle elements before it flows into indoor heat exchangers. After exchanging heat with indoor air, refrigerant will be one-temperature and low-pressure gas again and repeat the circulation so as to realize the cooling effect. In heating, 4-way valve will be energized to make refrigerant circulate in a reverse direction of cooling. Refrigerant will release heat in indoor heat exchangers (electric heating elements will also work under certain circumstance and release heat) and absorb heat in outdoor heat exchangers circularly so as to realize the heating effect.

CONTROL

CONTROL

1 Units' Control

(1) Schematic diagram of units' control



(2) Interpretation on the schematic diagram

- High pressure switch is used to identify system's high and low pressure. When pressure is too high, the switch will break off and send a signal to main board. Main board will pass this signal to controller, where the error will be displayed, and stop unit from working.
- High/low pressure sensor is used to test unit's high/low pressure and send real-time data to controller, which will control each unit's output according to the control logic.
- Temperature sensors are used to test the tube temperature of the unit and send data to the controller, which will control each unit's output according to the control logic.

2 Wired Controller

2.1 Control panel



LCD Display Instruction

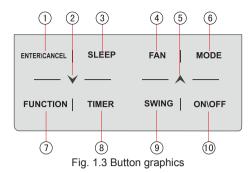
Table 1.1 LCD display instruction

No.	Symbols	Instructions
1	ŝ∎	Up and down swing function
2		Left and right swing function
3	MAX	It's valid under Save mode and displays during setting process. Temperature lower limit for Cooling: Limit the minimum temperature value under Cooling or Dry mode. Temperature upper limit for Heating: Limit the maximum temperature value under Heating, Space Heating or 3D Heating mode.
4	\bigcirc	Auto mode (Under Auto mode, the indoor units will automatically select their operating mode as per the temperature change so as to make the ambient comfortable.)
5	888°F	It shows the setting temperature value(In case the wired controller is controlling a Fresh Air Indoor Unit, then the temperature zone will display FAP)
6	*	Cooling mode
7	6 6	Dry mode

8	SS SS	Fan mode
9	な	Heating mode
10	NO.	When inquiring or setting project number of indoor unit, it displays "NO." icon
11	555	Floor Heating mode (When Heating and Floor Heating simultaneously shows up, it indicates 3D Heating is activated.)
12	SET	Display "SET" icon under parameter setting interface
13	()	Space Heating mode
14	CHECK	Display "CHECK" icon under parameter view interface
15	SAVE	Outdoor unit operates under Save mode/upper limit of system capacitor less 100%/remote Save status
16	€ *≡	Sleep status
17		Current set fan speed (including auto, low speed, medium-low speed, medium speed, medium-high speed, high speed and turbo seven status)
18	₹Ţ	Air status
19	CLEAN	Remind to clean the filter
20		Quiet status (including Quiet and Auto Quiet two status)
21	E-HEATER	Allow auxiliary electric heating On icon
22	<u>-\$</u>	Light On/Off function
23	X-FAN	X-fan function
24	*	Health function
25	FRESH AIR	Fresh air status
26		Out function
27	DEFROST	Outdoor unit defrosting status
28	ß	Gate-control function
29	SHIELD	Shielding status
30		Child Lock status
31	GROUP	One wired controller controls multiple indoor units
32	\$	Save status of indoor unit
33		It indicates the current wired controller is the slave wired controller (address of wired controller is 02)
34	MEMORY	Memory status (The indoor unit resumes the original setting state after power failure and then power recovery)
35	\oslash	Invalid operation
36	MASTER	Current wired controller connects master indoor unit
37	© 88.88 2000 day hour	Timer zone:Display system clock and timer status
	١	Note: When wired controller is connected with different indoor units, some functions will be different

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Button Graphics



2.2 Installation and removal

2.2.1 Installation dimensions

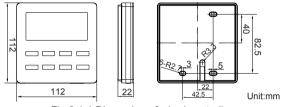


Fig.2.1.1 Dimension of wired controller

2.2.2 Installation method

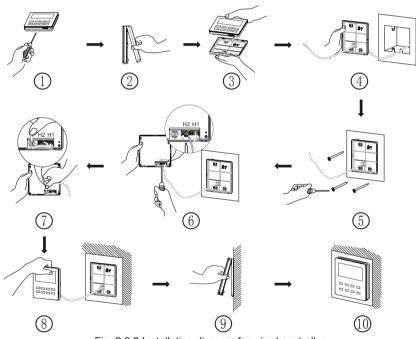


Fig. 2.2.2 Installation diagram for wired controller

Above is a simple installation method of wired controller. Please pay attention to the following:

1) Before installation, disconnect power of the indoor unit. Do not operate when power is connected.

2) 2-core twisted pair cable from the installation hole on the wall and lead it through the hole on the back plate of wired controller.
3) Place the wired controller on wall and secure its back plate on wall with screw M4X25.

4) Connect the 2-core twisted pair cable to terminal H1 and terminal H2. Tighten up the screws.

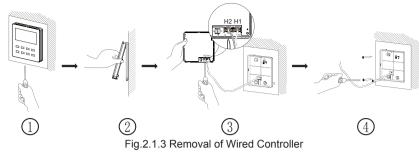
5) Stick the cable in the slot that is left of the terminals and buckle the wired controller's panel with its back plate.

A Note:

If caliber of the communication cord is too large, which causes difficulty in leading or sticking the cord according to above point 2 and point 5, strip some of the sheath of the communication cable to meet the installation requirement.

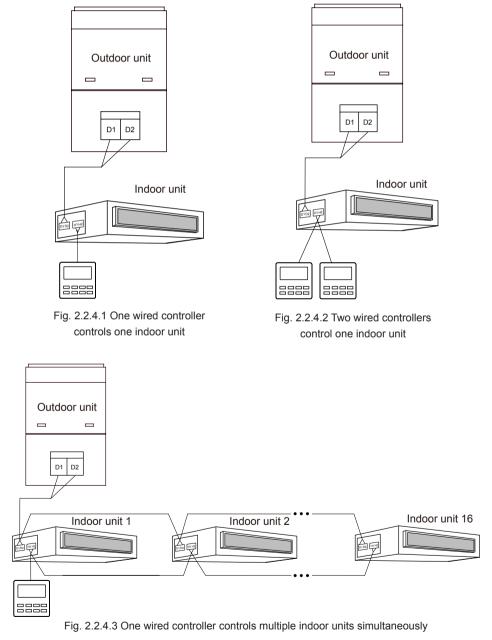
Unit:mm

2.2.3 Removal method



2.2.4 Connection of communication cord

There are 4 ways to connect wired controller with indoor units' network:



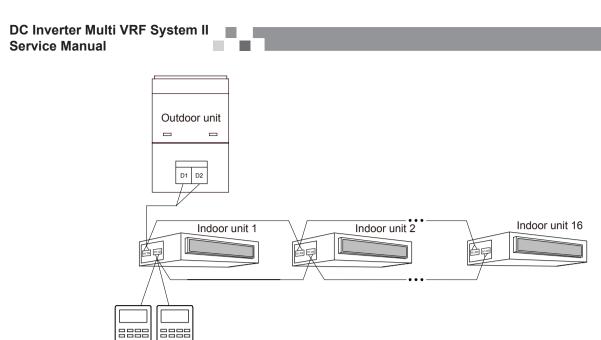
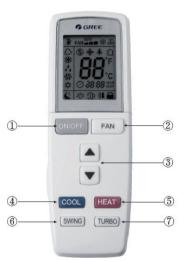


Fig. 3.6 Two wired controllers control multiple indoor units simultaneously

3 Remote Controller

(1) Remote controller YAD1F



1) Button name and function introduction (outside)

No.	Button name	Function
1	ON/OFF	Turn on or turn off the unit
2	FAN	Set fan speed
3	▲/▼	Set temperature and time
4	COOL	Set cooling function
5	HEAT	Set heating function
6	SWING	Set swing status
7	TURBO	Set turbo function
2) Button na	ame and function introduction (inside)	
No.	Button name	Function
1	MODE	Set operation mode
2	TIMER ON	Set timer on function
3	TIMER OFF	Set timer off function
4	LIGHT	Set light function
5	I FEEL	Set I FEEL function
6	X-FAN	Set X-FAN function
7	TEMP	Switch temperature displaying type on the unit's display
8	HEALTH	Set health function
9	CLOCK	Set clock of the system
10	SLEEP	Set sleep function

(2) Remote controller YV1L1



No.Button nameFunction1ON/OFFTurn on or turn off the unit2FANSet fan speed3A/VSet temperature and time4MODESet operation mode5Image: Constraint of the unit of th				
2 FAN Set fan speed 3 ▲/▼ Set temperature and time 4 MODE Set operation mode 5 Generation Set quiet function Set quiet function 6 Generation Set health function and air function 7 Generation Set left&right swing status Set up&down swing status 8 Set up&down swing status Set X-FAN Set timer on function 10 TIMER ON Set timer off function 11 TIMER OFF Set operation function 12 SAVE Set energy-saving function 13 SLEEP Set sleep function 14 LIGHT Set light function 15 CLOCK Set clock of the system 16 I FEEL Set I FEEL function	No.	Button name	Function	
3 A/V Set temperature and time 4 MODE Set operation mode 5 Image: Constraint of the system Set operation mode 6 Image: Constraint of the system Set operation mode 7 Image: Constraint of the system Set operation mode 8 Image: Constraint of the system Set operation and air function 10 TIMER ON Set up&down swing status 9 X-FAN Set X-FAN function 10 TIMER ON Set timer on function 11 TIMER OFF Set timer of function 12 SAVE Set energy-saving function 13 SLEEP Set sleep function 14 LIGHT Set light function 15 CLOCK Set clock of the system 16 I FEEL Set I FEEL function	1	ON/OFF	Turn on or turn off the unit	
4 MODE Set operation mode 5 Set quiet function Set quiet function Set health function and air function 7 Set left&right swing status Set up&down swing status 8 Set up&down swing status Set timer on function 10 TIMER ON Set timer on function 11 TIMER OFF Set energy-saving function 12 SAVE Set seep function 13 SLEEP Set sleep function 14 LIGHT Set light function 15 CLOCK Set clock of the system 16 I FEEL Set I FEEL function	2	FAN	Set fan speed	
5Set quiet function6#17Image: Set health function and air function7Image: Set health function and air function8Image: Set health function swing status9X-FAN10TIMER ON10TIMER OFF11TIMER OFF12SAVE3SLEEP13SLEEP14LIGHT15CLOCK16I FEELSet I FEEL function	3	▲ / ▼	Set temperature and time	
6 Image: Set health function and air function 7 Image: Set health function and air function 8 Image: Set up&down swing status 9 X-FAN 10 TIMER ON 11 TIMER OFF 12 SAVE 13 SLEEP 14 LIGHT 15 CLOCK 16 I FEEL	4	MODE	Set operation mode	
7 Image: Set Network Linkson and Cartering Set Vertices 8 Image: Set Up&down swing status 9 X-FAN 10 TIMER ON 11 TIMER OFF 12 SAVE 13 SLEEP 14 LIGHT 15 CLOCK 16 I FEEL	5	Ģ	Set quiet function	
Normalization Set of Kitalight Guild 8 Image: Set up&down swing status 9 X-FAN 10 TIMER ON 11 TIMER OFF 12 SAVE 13 SLEEP 14 LIGHT 15 CLOCK 16 I FEEL	6	*:1	Set health function and air function	
9 X-FAN Set X-FAN function 10 TIMER ON Set timer on function 11 TIMER OFF Set timer off function 12 SAVE Set energy-saving function 13 SLEEP Set sleep function 14 LIGHT Set light function 15 CLOCK Set clock of the system 16 I FEEL Set I FEEL function	7	ѫ	Set left&right swing status	
10TIMER ONSet timer on function11TIMER OFFSet timer off function12SAVESet energy-saving function13SLEEPSet sleep function14LIGHTSet light function15CLOCKSet clock of the system16I FEELSet I FEEL function	8	1	Set up&down swing status	
11 TIMER OFF Set timer off function 12 SAVE Set energy-saving function 13 SLEEP Set sleep function 14 LIGHT Set light function 15 CLOCK Set clock of the system 16 I FEEL Set I FEEL function	9	X-FAN	Set X-FAN function	
12 SAVE Set energy-saving function 13 SLEEP Set sleep function 14 LIGHT Set light function 15 CLOCK Set clock of the system 16 I FEEL Set I FEEL function	10	TIMER ON	Set timer on function	
13 SLEEP Set sleep function 14 LIGHT Set light function 15 CLOCK Set clock of the system 16 I FEEL Set I FEEL function	11	TIMER OFF	Set timer off function	
14 LIGHT Set light function 15 CLOCK Set clock of the system 16 I FEEL Set I FEEL function	12	SAVE	Set energy-saving function	
15 CLOCK Set clock of the system 16 I FEEL Set I FEEL function	13	SLEEP	Set sleep function	
16 I FEEL Set I FEEL function	14	LIGHT	Set light function	
	15	CLOCK	Set clock of the system	
17 TEMP Switch temperature displaying type on the unit's display	16	IFEEL	Set I FEEL function	
	17	TEMP	Switch temperature displaying type on the unit's display	

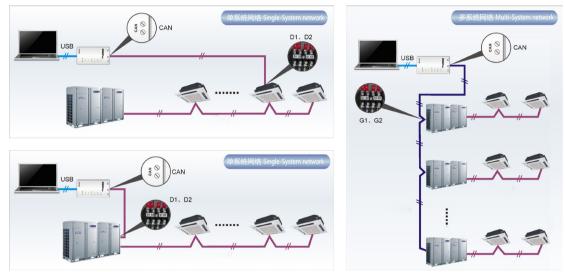
4 Debugging Software

4.1 Function introduction

With the rapid development of building complex, more and more central air conditioners in various models are used in different places, resulting in inconvenience for the management of air conditioners. Integrating with telecommunication technology and computing software, Gree Commissioning Tool Kits can realize the comprehensive monitor, control and commissioning on central air conditioners. It is an efficient solution for the management of central air conditioners that are separated in different parts of a building. Administrator doesn't need to control every unit on site, but rather controls the units by just sitting in front of a computer. This will not only improve the productivity, but also reduce cost on human resources, property and management.

Gree Commissioning Tool Kits can monitor and control the 2nd generation of Gree Multi VRF. User can monitor and control units by monitoring the computer. This software is an efficient tool for the intelligent air conditioning management as well as installation and aftersales service and commissioning. It can debug units and control units' operation status quickly and conveniently. It will not only improve the productivity but also reduce the difficulty and cost of commissioning and maintenance, providing better and faster service to customers.

4.2 Connection of computer and units



It can be connected with single-system network or multi-system network. In the single-system network, indoor units or outdoor units are connectable, while in the multi-system network, only the master outdoor unit can be connected.

Seen from the diagram, Gree commissioing network is made up of 3 parts:

The 1st part is the monitoring computer, including Gree debugger and Gree USB converter driver that are installed in the computer.

The 2nd part is Gree USB converter, which is to convert the air conditioning communication into computing communication. This part is made up of Gree USB data converter and USB data wire.

The 3rd part is air conditioners, including outdoor units, indoor units and the connection wires. If connection wire is not long enough, it's OK to connect via the patching board of the commissioning tool kits. In a single-system network, both indoor units and outdoor units can be connected, while in a multi-system network, only the master outdoor unit can be connected.

4.3 Parts introduction

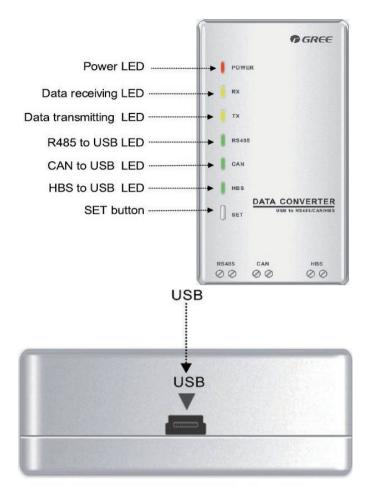
4.3.1 List of parts

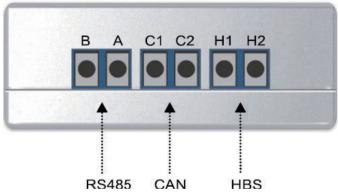
Name	Model	Material no.	Remark
Gree USB data converter	MC40-00/B	30118027	Convert the air conditioning communication into computing communication
Gree Commissioning Tool Kits (CD-ROM)	DG40-33/A(C)	36400000003	Include Gree debugger, monitoring software, USB driver and USB converter configuring software.
USB wire	١	40020082	Wire connecting computer's USB interface and converter
Communicaiton board	١	30118015	This board can be used when units are far from the computer.
Board connection wire (1m)	١	4001023229	4-core wire connecting units and converter
Board connection wire (5.5m)	Ν	4001023214	4-core wire connecting units and converter
Instruction manual	١	64134100023	Instruction manual

4.3.2 Gree USB data converter

4.3.2.1 Functions introduction

Gree USB data converter will convert the RS485, HBS and CAN commucation within the air conditioners into the communication that is recognizable by computer's USB interface.





4.3.2.3 Operation instruction

- Power LED: a red light. If the red light is on, it indicates normal power supply. If the red light is off, it indicates the power supply of converter is not normal.
- Communication LEDs: yellow lights. When converter is working and the computer is transmitting data, the TX data transmitting light will be flickering. When units are uploading data to the computer, the RX data receiving light will be flickering.
- When converter is under RS485 data transferring mode, the function LED of RS485 to USB will be on. When converter is under CAN data transferring mode, the function LED of CAN to USB will be on. When converter is under HBS data transferring mode, the function LED of HBS to USB will be on.
- ♦ USB interface: connect USB data wire.
- CAN interface: When converter is under CAN communication mode, connect air conditioner's CAN data interface. CAN interface exhibits no polarity (A and B are equal).
- HBS interface: When HBS converter is under HBS communication mode, connect air conditioner's HBS data interface. HBS interface exhibits no polarity (This interface is not yet available for Gree debugger and the monitoring software).

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RS485 interface: When RS485 converter is under RS485 communication mode, connect air conditioner's RS485 data interface. RS485 interface exhibits polarity and terminal A and B are different.

4.3.2.4 Installation notice

- ♦ Install indoors. To avoid collision, it is suggested to place it in the monitoring room together with the computer.
- No need of power supply. Power is supplied through computer's USB interface.

4.3.3 Communication board

Communication board is mainly used for transferring data. It functions similar with a patching board. Provided that units are far away from the monitoring computer, communication board can be used for connection.

4.3.4 Communication cord

4.3.4.1 USB wire

Connect USB wire with computer's USB interface at one end and with the USB interface of USB data converter at the other end, as indicated below:



4.3.4.2 Board Connection Wire

There are 2 board connection wires supplied for the commissioning tool kits. One is 1 meter's long and the other is 5.5 meters' long. They are only different in length. One end of the wire shall connect with air conditioner's communication interface and the other end shall connect with CAN interface of Gree USB converter. As shown below, the wire can be connected to the communication interface of outdoor unit or the communication interface of indoor unit:



4.4 Software introduction

(1) One-button commissioning

Personnel responsible for the commissioning of air conditioners can start commissioning by pressing one button according to the commissioning logic of software, which will give the commissioning order to units. Then commissioning will be started up automatically step by step. During the commissioning, the corresponding process will be ticked in green on the software interface. If any commissioning process is not normal, it will be displayed in red.

(2) Comprehensive monitoring

The software can monitor every part of the air conditioning system, including functions, equipment and components operating status. The monitoring results will be displayed in text or curve so that user can acquire the operating status of the entire system conveniently and straightforwardly.

(3) Real-time control

Air conditioner's operating time and requirements may be different based on areas and functions. User can set units' parameters on

computer according to actual needs, such as the on/off, temperature, fan speed, mode, etc. Meanwhile, the software can also set or view the function parameters of outdoor units, gateway and other equipment. In this way, the mangement of central air conditioners is realized.

(4) Replay history

Software can replay and save the historical monitoring information in the data base. The replay speed can be selected and the information will be shown in text or curve. This function has greatly saved the time to track problem cause and resolved the difficulty of problem reproduction.

(5) Applicable to multiple series, models and users

Gree Commissioning Tool Kits is applicable to air conditioning system that comsists of multiple series and models. Later, it will be developed to cover all series of Gree central air conditioners, such as multi VRF, centrifugal chiller, screw type chiller, ground source heat pump units, modular units, fan coiled units, close control units, etc. It can be used by system and controller designers to develop and monitor units, or used for maintenance and commissioning.

(6) Other functions

For the convenience of users, the software has added functions like connection guide, printing screen, opening database folder, rebuilding database, changing database saving path, etc.

4.4.1 Software installation

4.4.1.1 Installation requirements

(1) Computer Configuration

Memory	1 GB at least 2 GB or above is preferred
Hard Disc	10 GB available
CPU	Core 2 or higher 1 GHz at least 2 GHz or above is preferred
Operation System	Windows Server 2003 SP3 or higher Windows XP SP3 or higher Windows Vista Windows 7

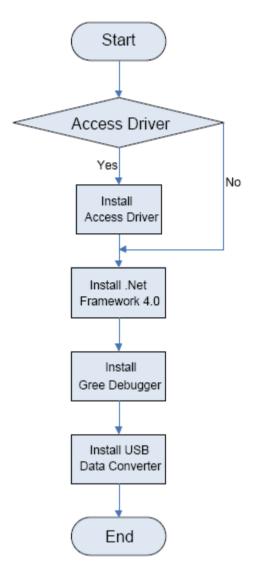
(2) CD Playing

Make sure you have administrator access to the computer and there is a CD-ROM in the computer. Put the CD into the CD-ROM. If it's automically running, then the following display will be shown. Or double-click the file "Launcher.exe".

🔊 Gree Commissioning Tool Kits Setu	ip Launcher 📃 🗖 🔀
Install.Net Framework 4.0	Install Gree USB Data Converter
Install Gree Debugger	Installtion Guide
Install Gree Text Parser	Exit
Install USB Converter Driver	FGREE
Install Access Driver	
	Gree Software Launcher V2.0 Build 78

For the first time to use Gree Commissioning Tool Kits, install these programmes: .Net Framework 4.0, USB Data Converter, Access Driver (necessary for versions below OFFICE 2007), Gree Debugger.

4.4.1.2 Installation flowchart



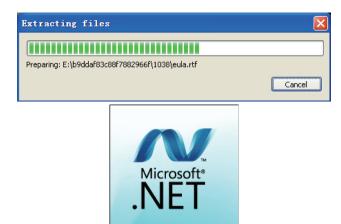
This flowchart describes basically the software installation process. See below for details.

4.4.1.3 Installation process

- (1) Install .Net Framework 4.0
- If your computer has installed .Net Framework 4.0 or versions above, there's no need to install again. Otherwise, click "Install .Net Framework 4.0".



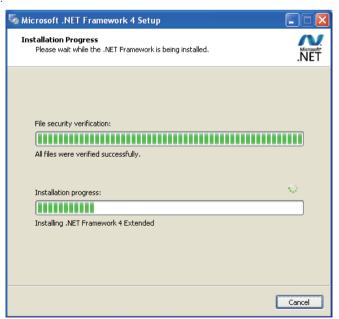
- DC Inverter Multi VRF System II Service Manual
- Extracting files



Click and select "I have read and accept the license terms". Then click "Install".

a Microsoft .NET Framework 4	Setup		
.NET Framework 4 Setup Please accept the license terms	to continue.		Microsoft .NET
MICROSOFT SO	FTWARE		<
☑ I have read and accept the li	cense terms.	4	
Download size estimate:	0 MB		
Download time estimates:	Dial-Up: 0 minutes		
	Broadband: 0 minutes		
Yes, send information about		Microsoft Corporation	
		Install	Cancel

Installation is in progress.



DC Inverter Multi VRF System II Service Manual

• Click "Finish" to complete the installation.



(2) Install Access Driver

Before operating Gree commissioning software, please first install Access Driver (necessary for versions below OFFICE 2007). Click "Install Access Driver".



Click "Next".



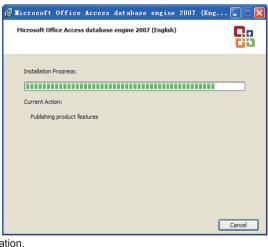
◆. Tick "I accept the terms in the License Agreement" and then click "Next"

П П (crosoft	Office	Access d	latabase	engine	2007	(Eng		
М		fice Access	s database e		-		(me)		
		t the terms o	oft Office Acc of the End-Use w.						
			T SOFT						
			T OFFIC						
	(or based them. Th	l on where ney apply t which you	s are an agu e you live, ou to the softwa u received it	ne of its af are named	filiates) ar above, w	nd you. hich inc	Please re ludes the		
	✓ I accept	the terms in	n the License A	Igreement					
				< 8	ack	<u>N</u> ext >		Cancel	

Click "Browse" to change the default folder to the expected one, or click "Install" to continue the installation.

Licrosoft Office Access database engine 200)7 (Eng 🗐 🗖 🔀
Microsoft Office Access database engine 2007 (English)	C. n
Choose where to install Microsoft Office Access database engine 2007	(English)
Install Microsoft Office Access database engine 2007 (Engish) to:	
C:\Program Files\Microsoft Office\	Browse
< Back Ins	tall Cancel

Installation is in progress.



♦. Click "Ok" to complete the installation.



DC Inverter Multi VRF System II Service Manual

- (3) Install Gree Debugger
- Before installing Gree debugger, make sure that your computer is installed with .Net Framework 4.0 or versions above. Then click "Install Gree Debugger".



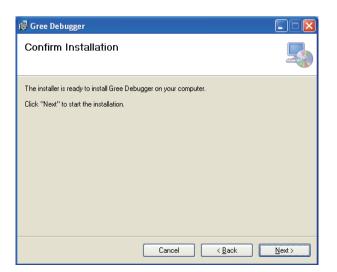
Click "Next".



Click "Browse" to select installation folder. If no change is needed for the folder, click "Next" to continue the installation.

Gree Debugger	
Select Installation Folder	
The installer will install Gree Debugger to the following folder. To install in this folder, click "Next". To install to a different folder, enter it be	low or click "Browse".
Eolder: C:\Program Files\Gree\Gree Debugger\	Browse Disk Cost
Install Gree Debugger for yourself, or for anyone who uses this computer:	
Cancel < Back	Next >

Click "Next".



Installation is in progress.

🗑 Gree Debugger			
Installing Gree Debugge	ər		
Gree Debugger is being installed.			
Please wait			
	Cancel	< <u>B</u> ack	Next >

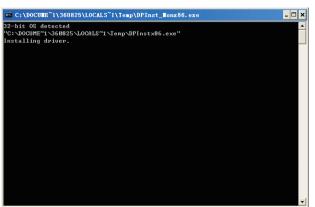
• Click "Close" to complete the installation.

👹 Gree Debugger	
Installation Complete	
Gree Debugger has been successfully installed. Click "Close" to exit.	
Please use Windows Update to check for any critical updates to the .NET Framework.	
Cancel < <u>B</u> ack	Close

- (4) Install USB Converter Driver
- If USB converter driver is already installed in your computer, this part can be skipped. Otherwise, click "Install USB Converter Driver".



• Then the following installation window will be shown.



This window will exit after installation is finished.

-bit OS detected :NOCUME~1/360825/LOCALS~1/Temp/DPInstx86.exe" stalling driver DI CDM Driver Installation process completed.	•
DI CDM Driver Installation process completed.	

- (5) Install Gree USB Data Converter
- If converter baud rate is needed to be set, then converter configuring software must be installed. Click "Install Gree USB Data Converter".



Then select the setup language. You can choose Chinese "simplified", Chinese "traditional" or English. Then click "OK".

Select Se	etup Language 🛛 🔀
3	Select the language to use during the installation:
	English 🗸

Click "Next".



Tick "I accept the agreement". Then click "Next" to continue installation.

-	cense Agreement Please read the following important information before continuing.	Ę
	Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.	
	End-User License Agreement Please read the rights and limits in End-User License Agreement of this software (Agreement) carefully. Before installation, you need to read this Agreement carefully and decide whether accept the articles in it or not. Unless/Not until you accept all the atcles in this Agreement, you can not install this software on your computer. For your reference, you can print out the Agreement from this page on or read the DUPLICATE of Agreement in "Help" menu of this Software. This software includes computer software and MAY includes relevant printed materials. Once you have installed the software, it means that you agree to be	~
	● <u>I accept the agreement</u> ○ I <u>do</u> not accept the agreement	
	Ca	nce

• Click "Browse" to select your expected installation folder. Click "Next" to continue.

🔊 Setup - Gree Data Converter Setup	
Select Destination Location Where should Gree Data Converter Setup be installed?	R
Setup will install Gree Data Converter Setup into the following folder	
To continue, click Next. If you would like to select a different folder, click Bro <u> CAProgram Files</u> (Gree)Gree Data Converter Setue	ivose
At least 8.2 MB of free disk space is required.	
< Back Next >	Cancel

Click "Browse" to change folder. Click "Next" to continue.

🖥 Setup - Gree Data Converter Setup
Select Start Menu Holder Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder. To continue, click Next. If you would like to select a different folder, click Browse.
Browse
< Back Next > Cancel

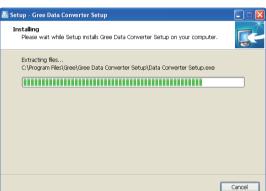
♦ If you want to create s desktop shortcut, tick "Creat a desktop icon". Then click "Next" to continue.

🚡 Setup - Gree Data Converter Setup
Select Additional Tasks Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing Gree Data Converter Setup, then click Next. Additional icons: If Create a gesktop icon
< Back Next > Cancel

Destiniation location, folder and additional task will be shown in the next step. If you need to change any of it, please click "Back". If not, click "Install" to start installation.



Installaiton is in progress.

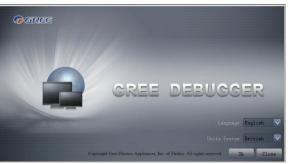


• Click "Finish" to complete the installation.

🔊 Setup - Gree Data Converte	r Setup
	Completing the Gree Data Converter Setup Setup Wizard
	Setup has finished installing Gree Data Converter Setup on your computer. The application may be launched by selecting the installed icons.
<u>S</u>	Click Finish to exit Setup.
	Einish

4.4.3 Data monitoring

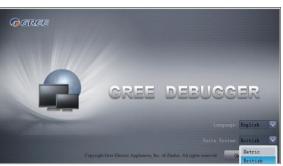
- Start up Gree Debugger.
- On the original interface, user can select language and units system. Click "OK" to confirm the defaulted language and units system and start up the software.



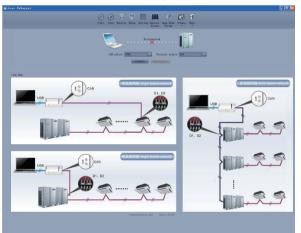
Select language.



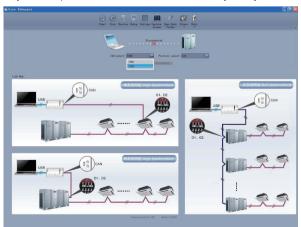
Select system of units.



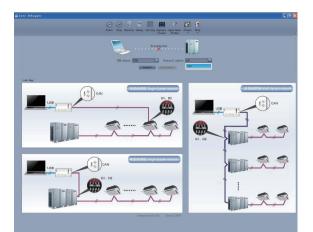
If units you want to monitor are already connected, and able to communicate normally, with correct COM and protocal, then you may click "Connect" to enter the interface of numbers. Otherwise, connect in accordance with the connection diagram shown below.



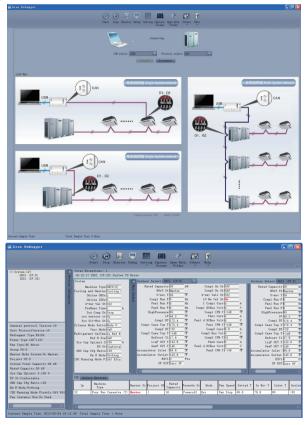
◆ COM selection: the serial port in your computer can be detected automatically. You just need to select your desired serial port.



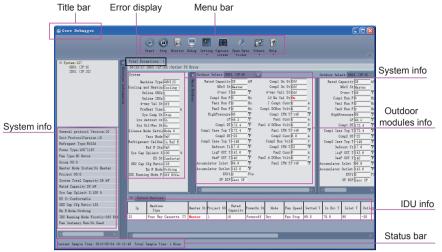
Protocal selection: This is to select the communication method of your units. Currently, CAN is applicable to the units.



After the selection, click "Connect". If units can communicate normally with computer, then the interface of numbers will be shown soon. Otherwise, "Connecting" will be shown.



There are several display zones on this interface. You can hide devices information and system information by clicking devices information icon not system information icon not system icon



• On the display zone of devices information, you may click to select and view units that need monitoring.

i Gree Debugger														니브 🔼
		Sta		Debug		Setting Cap			ars Help					
🕀 System:0		Total Exce	ptions: 0											
🖲 System:1	Į.													
System:2 System:3	2	System		18		Outdoor Sele	++- 00001 (3	((o.g.				Outdoor Sel		(10.0)
* System:5	100	1 °			4ľ					and the				
+ System:5			nime Type GMV5(T)		81		spacity 0	ka		EXV1 0	r	Rated	Capacity	
System:6	nfo	Cooling an					Word St NaN			SP DIP Na			MOrS St	
TDU1 (IP:8)	1		line ODUs 0				Drenv T 32	Ŧ		p1 On St Of			0-env T	
1001 (1F:32) # System:7	tic		line IDUs 0	2			l Run F O	Hz		p2 On St Of			p1 Run F	
# System:8	p		ay Val St Off				2 Run F 🖸	Hz		Vall St Of			p2 Run F	
🗷 System:9			Seat Time 0	h			I Run F O	Hz		e Val St Of			nl Run F	
System:10 System:11			s Comp St Stop				2 Run F O	Hz		spl Curr 0	A		n2 Run F	
General protocol Version:10			efrost St No	_		HighP:	ressure 32	7		Bus Volt	V	High	Pressure	
Unit ProtocolVersion:2580			il-Rec St No				LP 32	T		p1 IPM T 32			LP	
			de Setti:NaN	_			omp1 DT 32	7		anl Curr 0	A		Comp1 DT	
Refregant Type:NaN			/acc Mode NaN			Compl Cas		7		Bus Volt 0	V		se Top T	
Power Type:NaN		Refrigeran					mp2 DT 32			n1 IPM T 32			Comp2 DT	
Fan Type:NaN			Ref R Sta NaN	_		Comp2 Cas				sp2 Curr 0	Â		se Top T	
Group NO:0		Sys Cap 1	JpLimit S 0	5. I.			cost T1 32			Bus Vol 0	v		frost T1	
Master Mode System.NaN			ES St 0				OUT T 32	7		p2 IPM T 32			qP OUT T	
Project NO:0		Defrostion		Min			0UT T 32			an2 Curr 0 Bus Volt 0	A		sP OUT T	
System Total Capacity:0 kW			fg Ratio 0	_		Accumulator				n2 IFM T 32		Accumulator Accumulator		
Rated Capacity:0 kW			En R Mode 0		ľ	secumulator	outlet p2	r	rai	ne 198 1 [32	- 1	Accumulator	: Outlet p	52
Sva Cap UpLimit S:0 %		100 Kunnin	g Mode F:NaN		H.		_	_	_	_	_		-	
ES St:0						<u> </u>	_	_	_	_				
Defrostion Cycle Setting:0 Min		IDU Selec	t Devices											
			Machine				Rated							
ODU Cap Cfg Ratio:0		Ip	Type	Master	r 51	Project NG	Capacity	PowerOn St	Mode	Fan Speed	Setted T	In Env T	Inlet T	Outlet
Em R Mode:0		32	Duct Type Unit(P)	Slave	_	0	0	Poweroff	NaN	NaN	79.88	0	0	0
IDU Running Mode Firstly:NaN														
Fan Instancy Run:NaN														
		<												
Current Sample Time: 2013-02-04 16	3:29:	20 Total S	ample Time: 18 Min											

5.4.4 Project debugging

Click icon of "Debug" on the menu bar and the interface will be switched to project debugging, where auto debugging will be started from up to down and from left to right. Note: Debugging function is only applicable to a single-system network.

📓 Gree Debugger	
Start Stop Monitor Debug Setting Captur	re Open Data Others Help na Poldar
1 Marter Unit Setting Check 2 Unit Address Assignment 3 Confers 000 Basis Workle 90. 4 Confirm 100 90. 5 Ease Mohles Inter Components Check 8 Base Wohles Inter Components Check 7 200 Components Check 8 Comp. Freihart Confirmation	10 000 Valves Check Before Startup Back Skip
2 Unit Address Assignment	11 Reserved
3 Confirm ODU Basic Module NO. OK	12 Confirm Startup Debugging OK
4 Confirm IDU NO.	13 Reserved
5 Base Modules Inner Communication Check	14 Reserved
6 Base Modules Inner Components Check	15 Manual Charging In Cooling
7 IDU Components Check	16 Manual Charging In Heating
8 Compr. Frehest Confirmation	Project Debug Completion
9 Refrigerant Check Before Startup	
Start	Break
Current Sampling Time: 2013-04-22 21:02:31 Total Sampling Time: 0 Mins	

Click "Start" to the debugging function. Then debugging will be started up automatically. indicates that debugging is in progress while indicates debugging is completed.

ij Greo Debuggor De De Debuggor Start Stop Manitor Start Stop	c Ogen Data Others Balg
1 Noter Data Terting Clock 2 Data Address Antigement	10 000 Valves Check Before Startup Back Skip
2 Unit Address Assignment	11 Reserved
3 Confirm ODU Basic Module NO.	12 Confirm Startup Debugging CX
4 Confirm IDU NO.	13 Reserved
6 Base Modules Inner Components Check	15 Manual Charging In Cooling
7 IDU Componento Check	16 Manual Charging In Heating
8 Compr. Probest Confirmation	Froject Debug Completion
9 Refrigerant Check Before Startup	
Start	Break
August Sampling Time: 2013-04-22 21:02:48 Total Sampling Time: 0 Wing	

If "OK" button is displayed, it means user needs to judge whether to continue debugging or not. Click icon and relevant information will be shown for your reference. Click "Close" to close the pop-up (For No.3 Confirm ODU Basic Module NO. and No.4 Confirm IDU NO., the current number of units under debugging will be displayed. See the following marked with circle. For No.8 Compr. Preheat Confirmation, the preheat time will be displayed. See the following marked with circle).

i Gr	e Debugger .
This Information	1 Marter Dist Setting Case 10 000 Talme Casek Before Startup Sast Sast 20 Dist Address Assignment 11 Reserved 12 Confirm Startup Dologning confirm Startup Dologning
	Confirm 107 100 Confirm Share Rodules (Inser Committee) Rode Share Rodules (Inser Committee) Rode Share Rodules (Inser Committee) Rode Share Rodules
	E Bana Hofsler Inner Corporate Gack Si Menal Charging In Cooling Sild Computer Cack Sild Computer In New York Sild Computer In New York
	Comp. Probast Confirmation Project Doing Completion Project Doing Completion
urren	Seeling Test

Icon indicates that there is problem found during debugging. Debugging will not be completed unless problem is solved (after problem is solved, step without "OK" button will switch to the next step automatically, otherwise user needs to click "OK"

to continue). Click icon **u** and relevant information detected in this step will be displayed for your reference in order to solve problems. Click "Close" to close the pop-up.

Gree	Debugger	
		Capture Open Data Others Help Screen Polder
		10 007 Valves Check Before Startop Back Shap 11 Bearved 12 Confire Startop Delogging COL 13 Reserved 14 Reserved 14 Reserved 15 Reserved 15 Reserved International Startop 16 Reserved International Startop
	o Compr. rreneat Confirmation	il inlet temperature sensor error froil temperature sensor error!N 1 outlet temperature sensor erro
	9 Refrigerent Check Before Startup	espectante encore error: Normal Close Break

- During debugging, a click on "Break" can stop debugging. Click "Start" to resume debugging and then debugging will be finished step by step. For No.10 ODU Valves Check Before Startup, there are "Back" and "Skip" buttons. If there is error in this step, you can back to step No.9 and click "OK" to restart debugging on step No.10. If the error in step No.10 is U6 error (valve error alarm), you can click "Skip". In other cases, "Skip" button is null.
- Step 11, 13 and 14 are reserved steps. And step 13, 14, 15 and 16 are steps in parallel (only one of the four will be selected according to actual needs).

4.4.5 Control units

Click icon of "Setting" on menu bar and select parameter settings, which include "Gateway Settings", "IDU Settings", "System Settings", "Project Number Conflict (In case there is project number conflict in indoor units, other functions will be shielded. Then this parameter needs to be set in order to eliminate the conflict)" and "System Historical Info". Click the corresponding set and adjust the parameters.

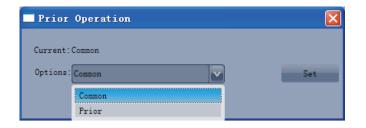


Take indoor unit as an example. Click "IDU Settings" and a dialog box will pop up.

■ IDUSettingsDlg 🛛 🗙
System Selection:
IDU Selection:
Select All Select Inverted Settings:
Filter Dirty Alarm: Set Current: h Prior Operation: Set Current: Status Setting After IDU Power On: Set

Tick the indoor units that need setting in the IDU selection zone or you may click "Select All" to select all of them or "Select Inverted" to select none of them. After selection, the current values of the corresponding parameters will be displayed in the zone of settings. Click "Set" and then click in the pop-up dialog box to select values. Click "Set" and then the corresponding order will be sent to units. If setting is successful, it will be displayed at the current values.

■ IDUSettingsDlg	
System Selection:	
System:1	
IDU Selection:	
Select All Select Inverted	
Settings:	
Filter Dirty Alarm: Set Current: h Prior Operation: Set Current: Status Setting After IDU Power On: Set	
	Close



4.4.6 Other functions

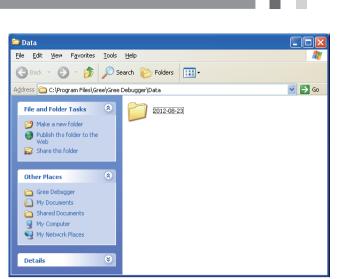
- (1) Capture screen
- Click icon of "Capture Screen" to print the interface. If you want to open the interface, click "Open".

Gree Debugger												٦×
					. /		1 🔞					
		U				-						
		Stop Monitor		• Ser	en Fold	er •						
Total Exceptions: 1 16:12:17 IDU1 (IP:32):Outlet TS	Freeze											
System	Outdoor Sele	ct: ODU1 (IP:8							Outdoor Sel	ect (0001	(TP-8)	
Machine Type GMV5(S)	F Rated Ca	spacity 28	k₩	Comp2 Or		_			Rated C	apacity 28	k#	
Cooling and Heatin Cooling (NorS Stillaster D-env T 59		4-way Val LO Me Val	St Off	_		_		MOrS St Ma		
Online ODUs 1 Online IDUs 1		Run F 0	Hz	I Comp1 (- A		_		0-env T 59 51 Run F 0	, r Hz	
4-way Val St Off		Run F 0	Ha Co	esp1 DCBus		V F		_	Far	1 Run F O	Hz	
PreHeat Time 1.5 h Sys Comp St Stop		2 Run F 0 ressure 95	-F	Compi II Fani (A		_		12 Run F 0 Pressure 95	T T	Com
Sys Defroat St No LP 48.2 T Fan1 d DCBus Volt 0 V							_		LP 48	.2 F		
Sys Oil-Rec St No Silence Mode Setti:Mode O		mp1 DT 172.4	F		00 1 -148 Jurr 8.8	F A		_		Comp1 DT 17 Ne Top T 17		Fan1
Vacc Mode NaN		mp2 DT -22	F	Comp2 Bus		V TP		_	0	Comp2 DT -2	2 F	
Refrigerant Callba In Ref R Ref R Sta NaN		Top T-148 rost T1 17.6	F	Comp2 II Fan2 (- ^P		_		se Top T-1 frost T1 17		
Sys Cap UpLinit S 100 %	LigF	OUT T 143.6	T Far	n2 d DCBus 1	olt 0	v		_	Liq	P OUT T 14	13.6 P	
ES St Comfortal ODU Cap Cfg Ratio 135	GasF Accumulator	OUT T 140	F	Fan2 II	M T-148	F		_	Gas Accumulator	POUT T 14		Fan2
En R Mode Nothing	Accumulator	Outlet 143.6	F						Accumulator	Outlet 14	3.6 T	
IDU Running Mode F: Off Effe		EXV1 0 SP DIP Zero SF	Pls					_		EXV1 0	Pls	
	Comp?	I On St Off	-					_	<			D
IDU Select Devices												
Ip Machine	Master St Projec	· NO Rated	PowerOn S	t Mode	Fan Speed	Sattad T	In Env T	Inlet T	Outlet T	Freeze	Aid Beater	
32 Four Way Cassette (I)		t NO Capacity	Poweroff		Fan Stop		78.8	90	-20	Prot	ElectricHe	
32 Four way Cassette (1)	Master 1	10	Fowerors	bry	ran stop	69.8	10.0	30	-20	Normal	Electriche	itero
								_				
			_	_	_	_	_	_				
FC rrent Sample Time: 2013-02-04 18:19	23 Total Sampl	e Time: 8 Mins	1					_				Þ
	123 Total Sampl	e Time: 8 Mins	1	_								
rrent Sample Time: 2013-02-04 18:19 Gree Debugger	~						×					1
	۲	• 2	Ē		8							1
	۲		Ē									
Gree Debugger Jotal Exceptions: 1	() Start	• 2	Ē									
Gree Debugger Total Exceptions: 1 16:12:17 IDU (17:32):Outlet TS	Start Error	Car Car Stop Monitor	Debug Se									
Gree Debugger Total Exceptions: 1 10:12:17 IDD1 (IP:32):Outlet 75 System	Start Error	COD Nomitor	Debug Se	etting Capt Ser	are Open D sen Fold				Outdoor S*10		(IP:8)	
Gree Debugger Jotal Exceptions : 1 16:12:17 IOC1 (17:32):Outlet TS System Machine Tree (00/21(5))	Error Outdoor Sele Rated Cr	Stop Monitor	Debug Se	Comp2 O	are Open E sen Fold				Rated C	apacity 28	(IP:8) kл	
Gree Debugger Total Enceptions: 1 18:12:17 JUDI (17:32):Outlet 75 System Machine Type 2003 (5) Cooling and Maning Cooling (Online 005 [5]	Error 0utdoor Sele F Rated Co 9 0 0 0 0 0 0 0 0 0 0 0 0 0	Stop Monitor Stop Monitor et:(ODU1 (IP:8 apacity 28 MorS St Master D-env T [59	Debug Se	Comp2 Or 4-way Val: LO Ne Val	a St Off St Off St Off				Rated C	apacity 28 MOrS St Ma O-env T 59	(IP:8) kT ster T)
Gree Debugger Total Enceptions: 1 18:12:17 1001 (19:32):Outlet 75 System Reaching Type 2007(5) Coning and Reatin Conling (Ouling 0006) Ouling 1006(6)	Error Outdoor Sele Rated Co Se Copp	Stop Womitor Not: (ODU1 (IP:8 apacity 28 OUrS St Master D-env T [S9 1 Am F[0) Debug Se b k T Hz	Comp2 Or 4-way Val: LO Me Val I Comp1 (a St Off St Off I St Off I St Off I St On Curr 0				Rated C Comp	apacity 28 MOrS St Ma 0-anv T 59 1 Run F 0	(IP:8) ster Hz	
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(2) Search for database folder

• Click icon of "Open Data Folder" on the menu bar to open database folder.

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DC Inverter Multi VRF System II

Service Manual

(3) Conversion of pressure value

Click icon of "Others" on the menu bar and then click "Display Settings" to select "High Low Pressure Value" and "Refrigerant Type". Select "Temperature" and the pressure parameter displayed on the interface will be temperature. Select "Pressure" and the pressure parameter displayed on the pressure. Refrigerant type will affect the pressure parameter displayed on the interface.

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(4) Database saving of multiple systems

Click icon of "Others" on the menu bar and click "Database Save Settings" to select which system that needs to save database. Because there is a large quantity of data in a network that contains multiple systems, data of only one system can be saved.

ii Gree Debugger																	
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				Start Sto	p Monitor	Debug Se	tting Capt	ure Open I een Fold	Data Oth		Belp					~	
	Total Exce	etions: 1					. 507	een 7010	.41	Dist	olav Set	ting					
16:12:17 IDU1 (IF:32):Outlet TS Error								Database Save Settings									
1971	System		Dutdo	Outdoor Select: 0001 (IP:8)						Change Database Saving Path (ect: ODU1 (IP:8)							
2	Maci	nime Type GMV5(S)	F B	ated Capac	ty 28	k¥.	Comp2 Or	1 St Off	_	Rebr	uild Dat	abase		Capacity 28	k¥		
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- (5) Change database saving path and rebuild database
- Change of database saving path and rebuilding of database should be set before the software starts monitoring (see below interface). Click "Change database saving path" and click "Browse" to change the saving path. Click "Rebuild Database" to rebuild the database folder. You can also stop monitoring and turn back to the connection interface to change saving path or rebuild database during monitoring.

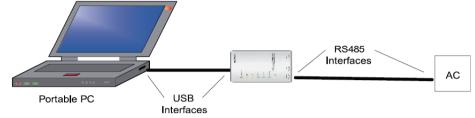
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		Compting	Display Settings Database Save Settings Change Database Saving Path Rebuild Database	
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Link Map:			_	
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Current Sample Time:	2013-02-04 16:22:25 Tatal Sample Time: 12 Mana	Communication:CAF Saud:110000		
🗖 Char	ge Database Saving	Path		×
Change T	o: C:\Program Files\Gre	e\Gree Debugger\Data\		Browse
Warni	ng:change database savin	g path, must restart t	he software.	Ok Cancel
	Rebuild databas	e		×
		Rebuild database succ	essi	
				Ok

5.4.7 Usage of USB Converter

Gree commissioning software should be connected with CAN interface when converter is used. For air conditioners with a single system, connect D1 and D2 interfaces of the wiring board. For air conditioners with multiple systems, connect G1 and G2 interfaces of the wiring board.

DC Inverter Multi VRF System II

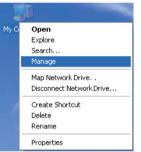
Gree monitoring software should be connected with RS485 interface when converter is used. Connect outdoor or indoor units or the mainboard of wired controller according to actual needs.



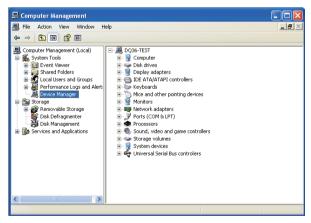
HBS, CAN and RS485 of the converter can be switched by buttons. Press the button "SET" on the converter to realize the conversion among HBS, CAN and RS485 interfaces. You can check the setting through the function LEDs.

If it's the first time your PC uses Gree USB data converter, in order to prevent Gree USB data converter from being mistaken by your computer as other devices and make sure your mouse can work well, it is necessary to turn off the Serail Enumerator of computer after Gree USB data converter is connected. Below are the steps:

Step 1: Right-click "My Computer" on the desktop and click "Manage".



Step 2: In the pop-up window, select "Device Manager" in the left column and then find "Port (COM and LPT)" in the right column. Click its .



Step 3: Right-click "USB Serial Port (COM6) and then click "Properties". The dialog box of properties will then pop up.

💂 Computer Management	
🗐 File Action View Window Help	_8>
Conclusion B Conclusion B Conclusion Conclusion	
Opens property sheet for the current selection.	

Step 4: Then click "Port Settings" in the dialog box.

USB Serial Port (COM3) Properties
General Port Settings Driver Details
USB Serial Port (CDM3)
Device type: Ports (COM & LPT)
Manufacturer: FTDI
Location: Location 0
Device status
This device is working properly.
Troubleshoot
Device usage:
Use this device (enable)
OK Cancel
USB Serial Port (COM3) Properties
USB Serial Port (COM3) Properties
General Port Settings Driver Details
General Port Settings Driver Details Bits per second: 9600
General Port Settings Driver Details Bits per second: 9500 Data bits: 8
General Port Settings Driver Details Bits per second: 9500 Data bits: 8 Parity: None
General Port Settings Driver Details Bits per second: 9500 Data bits: 8 Parity: None Stop bits: 1
General Pott Settings Driver Details Bits per second: 9600 • Data bits: 8 • Parity: None • Stop bits: 1 • Flow control: None •

Step5: Click "Advanced" and then a new dialog box will pop up. Find the "Serial Enumerator" in the miscellaneous options and cancel the tick. Click "OK" to exit.

Usage of converter configuring software:

When the converter is working, hold the button "SET" for 5 sec. Function LED will be flickering, indicating that the converter has enter the baud rate setting mode. Then you can use the converter configuring software to set the baud rate of converter. Baud rate supported by the converter (baud rate of air conditioner's communication interface matches with the baud rate of USB interface automatically):

÷ ,									
						Ex-fa	actory defa	aulted ba	ud rate: (unit: bps)
AC is connected with	Baud ra	Baud rate of air conditioner interface				Baud rate	of USB in	terface	
CAN	20000/50000 self-adaptive				1	115200			
HBS	57600				:	38400			
RS485	9600				9600				
						Baud rate look-up	table for	RS485 ir	nterface (unit: bps)
RS485 interface	480	0	9600		19200	38400	576	600	115200
USB interface	4800	0	9600		19200	38400	576	600	115200
Baud rate look-up table for HBS interface (unit: bps)									
HBS interface	9600 19200 38400 57600					57600			
USB interface		4800	960		600	19200			38400
						Baud rate look	-up table	of CAN ir	nterface (unit: bps)
CAN interface	20000	50000	100000)		12	25000		
USB interface	115200	115200) 256000)		25	6000		

Double-click the desktop shortcut.



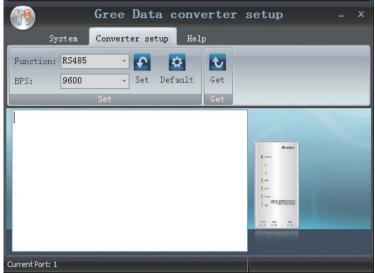
Select the needed communication serial port and language in the "System Settings".

System Converter setup Help COM ID: 1 COM ID: 1 Com ID: 1 Language: English	
Serial port Language	

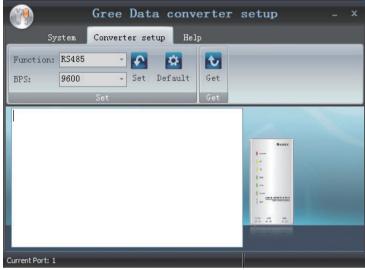
Select the function that is to be set and the corresponding baud rate (refer to the look-up table) in the "Converter Setup". Then click "Set".



♦ If you want to restore ex-factory settings, click "Default" to restore the default settings.



• Click "Get" to get the current setting details of converter.



• Switchover of Software Languages

	Gree Data converter setup	- x
System	Converter setup Help	
COM ID: 1 Serial port	▼ Language: English English 简体中文 t La 繁體中文	
	• • • • • • • • • • • • • • • • • • •	
Current Port: 1		

INSTALLATION

INSTALLATION 1.Engineering Installation Preparation and Notice

1.1 Installation notice

Personnel and property safety are highly concerned during the entire installation process. Installation implementation must abide by relevant national safety regulations to ensure personnel and property safety.

All personnel involved in the installation must attend safety education courses and pass corresponding safety examinations before installation. Only qualified personnel can attend the installation. Relevant personnel must be held responsible for any violation of the regulation.

1.2 Installation key points and importance

VRF air conditioning systems use refrigerant, instead of other agent, to directly evaporate to carry out the system heat. High level of pipe cleanness and dryness is required in the system. Since various pipes need to be prepared and laid out onsite, carelessness or maloperation during installation may leave impurities, water, or dust inside refrigerant pipes. If the design fails to meet the requirement, various problems may occur in the system or even lead to system breakdown.

Problems that usually occur during installation are as follows:

No.	Installation Problem	Possible Consequence
1	Dust or impurities enter into the refrigeration system.	Pipes are more likely to be blocked; air conditioning performance is reduced; compressor wear is increased or even hinder the normal operation of the system and burn the compressor.
2	Nitrogen is not filled into the refrigerant pipe or insufficient Nitrogen is filled before welding.	Pipes are more likely to be blocked; air conditioning performance is reduced; compressor wear is increased or even hinder the normal operation of the system and burn the compressor.
3	The vacuum degree in the refrigerant pipe is insufficient.	The refrigeration performance is reduced. The system fails to keep normal operation due to frequent protection measures. When the problem getting serious, compressor and other major components can be damaged.
4	Water enters into the refrigeration system.	Copper plating may appear on the compressor and reduce the compressor efficiency with abnormal noise generated; failures may occur in the system due to ice plug.
5	The refrigerant pipe specifications do not meet the configuration requirements.	Smaller configuration specifications can increase the system pipe resistance and affect the cooling performance; larger configuration specifications are waste of materials and can also reduce the cooling performance.
6	Refrigerant pipe is blocked.	The cooling performance is reduced; in certain cases, it may cause long-term compressor operating under overheat conditions; the lubricating effect can be affected and the compressor may be burnt if impurities were mixed with the lubricating oil.
7	Refrigerant pipe exceeds the limit.	The loss in pipe is considerable and the unit energy efficiency decreases, which are harmful for long-term running of the system.
8	Incorrect amount of refrigerant is filled.	The system cannot correctly control the flow allocation; the compressor may be operating under over-heating environment or running when the refrigerant flows back to the compressor.
9	The refrigerant pipe leaks.	Insufficient refrigerant circulating in the system decreases the cooling performance of the air conditioner. Long-term operation under such circumstance may cause an overheating compressor or even damage the compressor.
10	Water drainage from the condensate water pipe is not smooth.	Residual water in IDUs can affect the normal operation of the system. The possible water leakage can damage the IDU's decoration.
11	The ratio of slop for condensate water pipe is insufficient or the condensate water pipe is incorrectly connected.	Reverse slop or inconsistent connection of condensate water pipe can hinder the smooth drainage and cause leakage of the IDU.
12	The air channel is improperly fixed.	The air channel will deform; vibration and noise occur during unit operating.
13	The guide vane of air channel is not reasonably manufactured.	Uneven air quantity allocation reduces the overall performance of the air conditioner.

14	The refrigerant pipe or condensate water pipe does not meet the insulation requirement.	Water can easily condensate and drip to damage the indoor decoration, or even trigger the protection mode of system due to overheating operation.
15	The installation space for IDU is insufficient.	Since there is a lack of space for maintenance and checking, indoor decoration might need to be damaged during such operation.
16	The IDU or the location of the air outlet or return air inlet is not designed reasonably.	The air outlet or return air inlet may be short-circuited, thus affecting the air conditioning performance.
17	The ODU is improperly installed.	The ODU is difficult to be maintained; unit exhaust is not smooth, which reduces the heat exchanging performance or even prevent the system from normal operation; in addition, the cold and hot air for heat exchange and the noise may annoy people in surrounding areas.
18	Power cables are incorrectly provided.	Unit components may be damaged and potential safety hazard may occur.
19	Control communication cables are incorrectly provided or improperly connected.	The normal communication in the system fails or the control over IDUs and ODUs turn in a mess.
20	Control communication cables are not properly protected.	The communication cables are short-circuited or disconnected, and the unit cannot be started up due to communication failure.

3 Installation Materials Selection

The materials, equipment and instruments used during air conditioning engineering construction must have certifications and test reports. Products with fireproof requirements must be provided with fireproof inspection certificates and must meet national and relevant compulsory standards. If environmentally-friendly materials are to be used as required by customers, all such materials must meet national environmental protection requirement and be provided with relevant certificates.

3.1 Refrigerant piping

- (1) Material requirement: Dephosphorization drawing copper pipe for air conditioners;
- (2) Appearance requirement: The inner and outer surface of pipe should be smooth without pinhole, crack, peeling, blister, inclusion, copper powder, carbon deposition, rust, dirt or severe oxide film, and without obvious scratch, pit, spot and other defects.
- (3) Test report: Certifications and quality test reports must be provided.
- (4) The tensile strength must be at least 240 kgf/mm².
- (5) Specifications requirement.

	R410A Refrigerant System	
OD (mm/inch)	Wall Thickness (mm)	Model
Ф6.35(1/4)	≥0.8	0
Ф9.52(3/8)	≥0.8	0
Φ12.70(1/2)	≥0.8	0
Φ15.9(5/8)	≥1.0	0
Ф19.05(3/4)	≥1.0	0

(6) After the inner part of the copper pipe is cleaned and dried, the inlet and outlet must be sealed tightly by using pipe caps, plugs or adhesive tapes.

3.2 Condensate water pipe

- (1) Pipes that can be used for air conditioner drainage include: water supplying UPVC pipe, PP-R pipe, PP-C pipe, and HDG steel pipe;
- (2) All relevant certificates and quality test reports are provided.
- (3) Requirements for specifications and wall thickness

Water supplying UPVC pipe: \$\$2mm 2mm, \$\$40mm 2mm, \$\$50mm 2.5mm;

HDG steel pipe: $\Phi 25mm \times 3.25mm$, $\Phi 32mm \times 3.25mm$, $\Phi 40mm \times 3.5mm$, $\Phi 50mm \times 3.5mm$.

3.3 Insulation material

- (1) Rubber foam insulation material;
- (2) Flame retardancy level: B1 or higher;
- (3) Refractoriness: at least 120oC;
- (4) The insulation thickness of condensate water pipe: at least 10 mm;
- (5) When the diameter of copper pipe is equal to or greater than Φ15.9 mm, the thickness of insulation material should be at least 20 mm; when the diameter of copper pipe is less than 15.9 mm, the thickness of insulation material should be at least 15 mm.

3.4 Communication cable and control cable

Note: For air conditioning units installed in places with strong electromagnetic interference, shielded wire must be used as the

communication cables of the IDU and wired controller, and shielded twisted pairs must be used as the communication cables between

cannot exceed 250 m.

IDUs and between the IDU and ODU.

Communication cable selection for ODU and IDUs.

Wire Type	Communication Cables Between IDU and Indoor (Outdoor) Unit L(m)	Number of Wire Pieces x Wire Diameter (mm2)	Wire Standard	Remark
Common sheath twisted pair copper core (RVV)	L≤1000	≥2×0.75	GB/T 5023.3-2008	If the wire diameter is enlarged to 2×1mm2, the overall communication length can reach 1500 m.
Communication cable s	election for IDU and wired co	ontroller		
Wire Type	Total Length of Communication Cables of the IDU and Wired Controller L(m)	Number of Wire Pieces x Wire Diameter (mm2)	Wire Standard	Remark
Common sheath twisted	L≤250	≥2×0.75	GB/T 5023.3-2008	communication length

3.5 Power cable

pair copper core (RVV)

Only copper conductors can be used as power cables. The copper conductors must meet relevant national standard and satisfy the carrying capacity of unit.

3.6 Hanger rod and support

- (1) Hanger rod: M8 or M10;
- (2) U-steel: 14# or above;
- (3) Angle steel: 30mm×30mm×3mm or above;
- (4) Round steel: Φ10mm or above.

4 Installation of outdoor unit

4.1 Check before installation

- (1) Before installation, please check the power cord if it complies with the power supply requirement on the nameplate. Make sure the power supply is safe.
- (2) This air conditioner must be properly grounded through the receptacle to avoid electric shock. The ground wire shouldn't be connected with gas pipe, water pipe, lightning arrester or telephone line.
- (3) Maintain good air circulation to avoid lacking oxygen.
- (4) Read this manual carefully before installation.

4.2 Selection of installation site

- (1) Select a location which is strong enough to hold unit's weight so that unit can stand still and erect.
- (2) Make sure the unit is not exposed to sun and rain. And the location can resist dust, typhoon and earthquake.
- (3) Please keep the unit away from inflammable, explosive and corrosive gas or waste gas.
- (4) Make sure the location has space for heat exchange and maintenance so that unit can operate reliably with good ventilation.
- (5) ODU and IDU should stay as close as possible to shorten the length of refrigerant pipe and reduce bend angles.
- (6) Select a location which is out of children's reach. Keep the unit away from children.

4.3 Carrying and installing outdoor unit

When carrying the outdoor unit, hang the unit in four directions with two sufficient ropes. In order to avoid excursion from the center, the angel of ropes must be smaller than 40° during hanging and moving.

4.4 Installation notices

- In order to ensure proper operation, the selection of installation site must conform to the following principle:
- The discharged air of outdoor unit will not flow back and there is sufficient space around the unit for maintenance;
- The installation site must be well ventilated to ensure sufficient air intake and discharge. Make sure there is no obstacle at the air inlet and air outlet. If there is any obstacle, please remove it;
- The installation site shall be able to withstand the weight of outdoor unit and capable for soundproof and vibration. The air outlet and noise of unit will not affect neighbors;
- The hanging of outdoor unit must use appointed hanging hole. Pay attention to protect the unit during hanging and installation. Prohibit hitting the sheet metal to avoid rust in the future.
- Avoid direct sunlight;
- The rain and condensation water can be drained out smoothly;
- The outdoor unit will not be embedded by the snow and not affected by garbage and oil smog;
- The installation of outdoor unit shall adopt rubber damping pad or spring damper to reduce noise and vibration;
- The installation dimension shall accord with the installation requirement of this manual and the outdoor unit must be fixed at the

installation site;

♦ The installation shall be done by professional technicians.

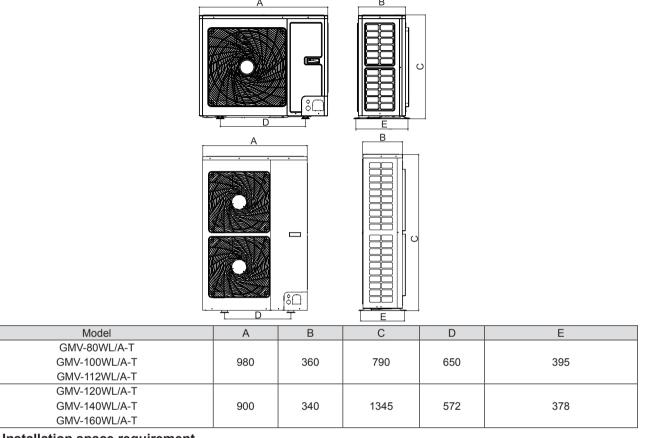
4.5 Fixing and damping of unit

The outdoor unit shall be fixed with 4 M12 bolts and closely contacted with the foundation. Otherwise, big vibration and noise will be caused.

The outdoor unit shall be fixed firmly. The rubber board with thickness over 20mm or corrugated rubber damping pad shall be applied between the unit and foundation.

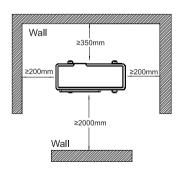
4.6 Outline dimension and position of installation hole

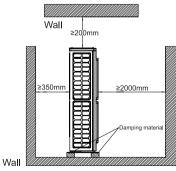
When carrying the outdoor unit, hang the unit in four directions with two sufficient ropes. In order to avoid excursion from the center, the angel of ropes must be smaller than 40° during hanging and moving.



4.7 Installation space requirement

If all sides of the ODU (including the top) are surrounded by walls, process according to the following requirements for installation space:

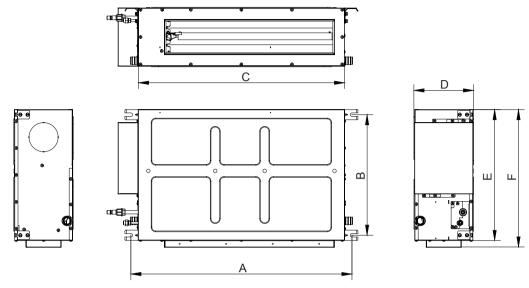




5 Installation of Outdoor Unit

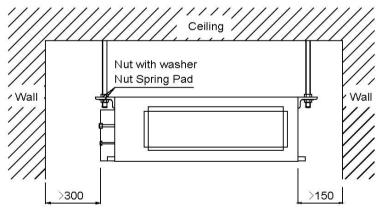
5.1 Installation of quiet design duct type indoor unit

5.1.1 Outline and installation dimension



Item	А	В	С	D	E	F
GMV-ND22~36PL/B-T	760	415	710	200	450	475
GMV-ND40~63PL/B-T	1060	415	1010	200	450	475
GMV-ND72PL/B-T	1360	415	1310	200	450	475

5.1.2 Installation space



5.1.3 Installation notice

(1) Installation dimension (refer to the outline dimension in the figure).

(2) Make sure the top hanging rod, ceiling and building structure have sufficient strength to withstand the weight of unit.

(3) Keep the unit from fire, flammable objects, corrosive gap or exhaust gas;

Please reserve ventilation space;

Please reserve sufficient space for maintenance;

Please take proper measures to reduce noise and vibration.

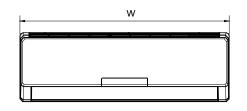
(4) Electrical installation of unit.

All electrical installation must be done by professionals according to national and local laws and regulations.

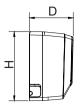
The unit must be grounded reliably. Please connect wire according to the wiring diagram on the unit.

5.2 Installation of wall-mounted indoor unit

5.2.1 Outline and installation dimension



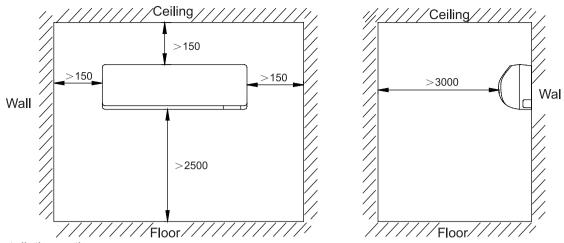
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			- 10 St 1944	
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			102307	

			-
Model	W	Н	D
GMV-N22G/A3A-K;GMV-N28G/A3A-K GMV-N22G/A2A-K;GMV-N28G/A2A-K GMV-N22G/A4A-K;GMV-N28G/A4A-K GMV-N22G/A8A-K;GMV-N28G/A8A-K GMV-N22G/C9A-K;GMV-N28G/C9A-K GMV-N22G/A3A-D;GMV-N28G/A3A-D GMV-N22G/A2A-D;GMV-N28G/A2A-D GMV-N22G/A4A-D;GMV-N28G/A4A-D GMV-N22G/A8A-D;GMV-N28G/A8A-D GMV-N22G/C9A-D;GMV-N28G/C9A-D	843	275	180
GMV-N36G/A3A-K;GMV-N45G/A3A-K GMV-N36G/A2A-K;GMV-N45G/A2A-K GMV-N36G/A2A-K;GMV-N45G/A2A-K GMV-N36G/A4A-K;GMV-N45G/A4A-K GMV-N36G/A4A-K; GMV-N36G/A8A-K;GMV-N45G/A8A-K GMV-N36G/C9A-K;GMV-N45G/C9A-K GMV-N36G/C9A-K; GMV-N36G/A3A-D;GMV-N45G/A3A-D GMV-N36G/A2A-D;GMV-N45G/A2A-D GMV-N36G/A2A-D;GMV-N45G/A2A-D GMV-N50G/A2A-D;GMV-N45G/A4A-D GMV-N50G/A4A-D; GMV-N36G/A8A-D;GMV-N45G/A8A-D GMV-N36G/A8A-D;GMV-N45G/A8A-D GMV-N36G/A8A-D; GMV-N36G/A8A-D; GMV-N36G/C9A-D; GMV-N36G/C9A-D; GMV-N36G/C9A-D; GMV-N36G/C9A-D;	940	298	200
GMV-N56G/A3A-K;GMV-N63G/A3A-K GMV-N71G/A3A-K; GMV-N56G/A2A-K;GMV-N63G/A2A-K GMV-N56G/A2A-K;GMV-N63G/A2A-K GMV-N56G/A4A-K;GMV-N63G/A4A-K GMV-N56G/A8A-K;GMV-N63G/A8A-K GMV-N56G/A8A-K;GMV-N63G/A8A-K GMV-N56G/C9A-K;GMV-N63G/C9A-K GMV-N56G/A3A-D;GMV-N63G/A3A-D GMV-N56G/A2A-D;GMV-N63G/A2A-D GMV-N56G/A2A-D;GMV-N63G/A2A-D GMV-N56G/A4A-D;GMV-N63G/A4A-D GMV-N56G/A4A-D;GMV-N63G/A4A-D GMV-N56G/A8A-D;GMV-N63G/A8A-D GMV-N56G/A8A-D;GMV-N63G/A8A-D GMV-N71G/A8A-D; GMV-N56G/C9A-D;GMV-N63G/C9A-D GMV-N71G/A8A-D; GMV-N56G/C9A-D;GMV-N63G/C9A-D GMV-N71G/C9A-D;	1008	221	319

5.2.2 Installation space



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5.2.3 Installation notice

(1) Installation dimension (refer to the outline dimension in the figure shown above)

(2) Installation foundation

Make sure the top hanger has sufficient strength to withstand the weight of unit.

(3) Installation site and environment

Keep the unit from insolation and rain;

Water can be drained from drainage pipe conveniently;

Keep the unit from fire, flammable objects, corrosive gap or exhaust gas;

There can't be any obstacle at air inlet and air outlet to in order to keep good ventilation;

Please reserve sufficient space for maintenance;

Please take proper measures to reduce noise and vibration.

5.2.4 Electrical installation of unit

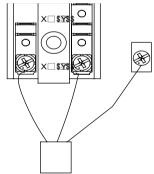
(1) All electrical installation must be done by professionals according to national and local laws and regulations.

The unit must be grounded reliably according to related requirements in GB 50169.

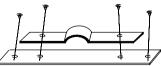
Please connect wire according to the wiring diagram on the unit.

(2) External wiring diagram of unit

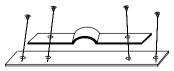
1) Description of power(including grounding) connection way



2) Description of power cord clamping device structure



3) Description of clamping device structure between function and connection cord



5.2.5 Selection of air switch and power cord

Model	Power specification	Capacity of air switch	Minimum sectional area of grounding wire	Minimum sectional area of power cord
GMV-N22G/A3A-K GMV-N22G/A2A-K GMV-N22G/A4A-K GMV-N22G/A8A-K GMV-N22G/C9A-K	220-240V ~ 50Hz	6	1	1
GMV-N28G/A3A-K GMV-N28G/A2A-K GMV-N28G/A4A-K GMV-N28G/A8A-K GMV-N28G/C9A-K	220-240V ~ 50Hz	6	1	1
GMV-N36G/A3A-K GMV-N36G/A2A-K GMV-N36G/A4A-K GMV-N36G/A8A-K GMV-N36G/C9A-K	220-240V ~ 50Hz	6	1	1
GMV-N45G/A3A-K GMV-N45G/A2A-K GMV-N45G/A4A-K GMV-N45G/A8A-K GMV-N45G/C9A-K	220-240V ~ 50Hz	6	1	1
GMV-N50G/A3A-K GMV-N50G/A2A-K GMV-N50G/A4A-K GMV-N50G/A8A-K GMV-N50G/C9A-K	220-240V ~ 50Hz	6	1	1
GMV-N56G/A3A-K GMV-N56G/A2A-K GMV-N56G/A4A-K GMV-N56G/A8A-K GMV-N56G/C9A-K	220-240V ~50Hz	6	1	1
GMV-N63G/A3A-K GMV-N63G/A2A-K GMV-N63G/A4A-K GMV-N63G/A8A-K GMV-N63G/C9A-K	220-240V ~ 50Hz	6	1	1
GMV-N71G/A3A-K GMV-N71G/A2A-K GMV-N71G/A4A-K GMV-N71G/A8A-K GMV-N71G/C9A-K	220-240V ~ 50Hz	6	1	1

Model	Power specification	Capacity of air switch	Minimum sectional area of grounding wire	Minimum sectional area of power cord
GMV-N22G/A3A-D GMV-N22G/A2A-D GMV-N22G/A4A-D GMV-N22G/A8A-D GMV-N22G/C9A-D	208~230V ~ 60Hz	6	1	1
GMV-N28G/A3A-D GMV-N28G/A2A-D GMV-N28G/A4A-D GMV-N28G/A8A-D GMV-N28G/C9A-D	208~230V ~ 60Hz	6	1	1

GMV-N36G/A3A-D GMV-N36G/A2A-D GMV-N36G/A4A-D GMV-N36G/A8A-D GMV-N36G/C9A-D	208~230V ~ 60Hz	6	1	1
GMV-N45G/A3A-D GMV-N45G/A2A-D GMV-N45G/A4A-D GMV-N45G/A8A-D GMV-N45G/C9A-D	208~230V ~ 60Hz	6	1	1
GMV-N50G/A3A-D GMV-N50G/A2A-D GMV-N50G/A4A-D GMV-N50G/A8A-D GMV-N50G/C9A-D	208~230V ~ 60Hz	6	1	1
GMV-N56G/A3A-D GMV-N56G/A2A-D GMV-N56G/A4A-D GMV-N56G/A8A-D GMV-N56G/C9A-D	208~230V ~ 60Hz	6	1	1
GMV-N63G/A3A-D GMV-N63G/A2A-D GMV-N63G/A4A-D GMV-N63G/A8A-D GMV-N63G/C9A-D	208~230V ~ 60Hz	6	1	1
GMV-N71G/A3A-D GMV-N71G/A2A-D GMV-N71G/A4A-D GMV-N71G/A8A-D GMV-N71G/C9A-D	208~230V ~ 60Hz	6	1	1

MAINTENANCE

DEBUGGING & MAINTENANCE

1 Debugging of Unit

ACaution:

- ①. After the initial installation is finished and the main board of outdoor unit is replaced, it must perform debugging. Otherwise, the unit can't operate.
- ②. The debugging must be performed by professional person or under the the guide of professional person.

1.1 Preparation for debugging

- (1) Do not disconnect the power before the installation is finished,
- (2) All wires for controller and electric wires must be connected correctly and reliably.
- (3) Check the the fixing ring of the foot of compressor for transportaion is removed.
- (4) Remove all sundries from the unit, such as metal chips, joint, forceps holder, and so on.
- (5) Check whether the appearance and pipeline system are damaged during carry or transportation process.
- (6) Calculate the required added refrigerant-charging volume according to the length of pipe of system and pre-charge the refrigerant. If refrigerant can't be added any more when the required refrigerant-charging volume hasn't been reached, record to refrigerant volume which still needs to be added and continue to add refrigerant during run test operation process. Please refer to below run test for the refrigerant-adding stage during run test process.
- (7) After adding refrigerant, please make sure the valve for outdoor is opened completely.
- (8) For the convenient of troubleshooting, the unit can't be connected to the PC which installed with related debugging software and make sure that the the datas in real time of this unit can be inspected by this computer. Please refer to Service Manual for the installation and connection of the bebugging software.
- (9) Before turn test, please do make sure that the preheat time for compressor is 8h above and touch the compressor to see whether preheat is normal. You can perform run test only after normal preheat. Otherwise, it may damage the compressor.

1.2 Debugging of unit

Debugging procedure for test run, display instruction for indicator on main board of outdoor unit and operation method are as below:

				Stage pro	ocess instruction for debug	gging	
	Debugging code Process code		Status code				
	L	ED1	L	ED2	LED3		Code instruction and operation method
Process	Code	Display status	Code	Display status	Code	Display status	
	db	ON	01	ON	AO	ON	No debugging status for system
01_ Main control unit setting	db	ON	01	ON	ос	ON	Press SW7 button on main board for 5s to start system debugging. The indicator on main board is displayed as shown in the left. 2s later, it will enter into next step determination.
	db	ON	02	ON	Ad	Flash	Address distribution for the system. 10s later, the display is as below:
02_ Address distribution	db	ON	02	ON	L7	Flash	No main indoor unit. Display will be kept for 1min. Within 1min, set the main indoor unit through debugging software. If notset the main indoor unit by hand within 1min, the system will automatically set the minimum IP address as the main indoor unit.
	db	ON	02	ON	OC	ON	The distribution for the system address is finished. 2s later, it will enter into the next step determination automatically.
03_Quantity confirmation of	db	ON	03	ON	01	Flash	Cofirmation process of system. 1s later, it will enter into the next step automatically.
outdoor unit	db	ON	03	ON	OC	ON	Cofirmation process of system. 2s later, it will enter into the next step automatically.

04_Quantity confirmation of indoor unit	db	ON	04	ON	01~80	Flash	LED3 displays quantity of indoor unit. The quanity of indoor unit shall be confirmed by perform. If the actural quantity of indoor unit is different from the displayed quantity, cut off the power for indoor unit and outdoor unit. Check whether the communication wire for indoor unit is normal. After that, put through the power and start debugging from step 01. If the quantity of indoor unit is correct, press SW7 button on main board to confirm it. The display is as below after confirmation:
	db	ON	04	ON	ос	ON	Confiration for the quantity of indoor unit of finished. 2s later, it will enter into the next step automatically.
	db	ON	05	ON	C2	ON	Communication between main board of outdoor unit and drive is abnormal. Please check whether the communication wire connecting main board of outdoor unit and drive board is normal? It will enter into the next operation after troubleshooting. If it needs to cut off the power during troubleshooting process, start the debugging from step 01 after energization.
05_Internal communication and capacity ratio inspection for between indoor unit and outdoor unit	db	ON	05	ON	oc	ON	Normal communication between main board of outdoor unit and drive. It will displays for 2s by the left method. With this 2s, the capacity ratio for indoor unit and outdoor unit will be detected automatically. If it hasn't exceeded the capacity ratio range, it will enter into next step determination after 2s; if it has exceed the capactiry ration, display is as below:
	db	ON	05	ON	СН	ON	The rated capacity ratio for indoor unit is high. Change the combination for indoor unit and outdoor unit to let their capacity ration is within the reasonable range. Perfrom the debugging again from step 01.
	db	ON	05	ON	CL	ON	The rated capacity ratio for indoor unit is low. Change the combination for indoor unit and outdoor unit to let their capacity ration is within the reasonable range. Perfrom the debugging again from step 01.
06_Parts detection for outdoor unit	db	ON	06	ON	Corresponding error code	ON	Malfunction of parts for outdoor unit. LED3 displays corresponding malfunction code. After troubleshooting, it will enter into the next step determination automatically. If it needs to cut off the power for the outdoor unit during troubleshooting process, perform the debugging again from step 01 after energization.
	db	ON	06	ON	ос	ON	When there's no malfunction of parts for outdoor unit, it will enter into the next step determination automatically after 10s.

07_Parts detection for indoor unit	db	ON	07	ON	XXXX/corresponding error code	ON	The system detected that there's malfunction for the parts of indoor unit. XXXX indicates the engineering series code for the indoor unit with malfunction. 3s later, corresponding malfunction code will be displayed. Eg: When there is malfunction d5 and d6 for no. 1 indoor unit, and malfunction d6 and d7 for no. 792 indoor unit, LED3 nixie tube will display 00, 01, d5, d6, 07, 92, d6, d7 cyclely evey 2s. After troubleshooting, it will enter into the next step determination automatically. If it needs to cut off power for outdoor unit during troubleshooting process, perform the debugging again from step 01 after energization.
	db	ON	07	ON	ос	ON	No parts malfunction for indoor unit. 2s later, it will enter into the next determination automatically.
08_Preheat confirmation for compressor	db	ON	08	ON	UO	ON	Preheat time for compressor is not reached to 8h. Indicator will display as shown by the left method until the reheat time for compressor is reached to 8h. or short press SW7 button on main board to confirm that the preheat time is reached to 8h and then enter into the next determination. (Note: If compressor isn't started up when the preheat time is not reached to 8h, the compressor may be damaged. Please be careful.)
	db	ON	08	ON	ос	ON	Preheat time for compressor is reached to 8h. 2s later, it will enter into the next step.
09_ Refrigerant confirmation before startup	db	ON	09	ON	U4	ON	Refrigerant in system is not sufficient. The indicator will display by the left method. Please disconnect the power for indoor unit and outdoor unit, and check whether the pipeline is leaking. After leakage problem is solved, recharge the refrigerant according to requirement. After that, energize the unit and perform the debugging from step 01. (Note: Cut off the power for the unit before recharging the refrigerant to prevent the unit entering into step 10 during refrigerant-charging process)
	db	ON	09	ON	ос	ON	The refrigerant volume for the system is normal. After it displayes as the left method for 2s, it will enter into the next determination automatically.

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	db	ON	10	ON	ON	ON	Dermination status for valve of outdoor unit; After compressor operating for about 2min, it will stop operation. It will judge the ON status of gas valve and liquid valve for outdoor unit. The judement result is displayed as below:
10_ Status determination for outdoor unit's valve before startup	db	ON	10	ON	U6	ON	Valve for outdoor unit hasn't been opened completely. Short press SW6 button on main board and the indicator will display "db 09 OC" and then check whether gas valve and liquid valve for outdoor unit are opened completely. After that, short press SW6 button on main board again. After compressor is started up and operated for about 2min, it will judge the status of valve again.
	db	ON	10	ON	ос	ON	Normal status for valve. After it displays as the left method for 2s, it will enter into the next determination automatically.
	db	ON	11	ON	AP	Flash	Wait for confirming the debugging order for the unit. Short press SW7 button on main bard to confirm the debugging of unit. 2s later, the indicator on main board will display as below:
12_ Debugging confirmation for the unit	db	ON	11	ON	AE	ON	Confirmation of startup of the unit. After displaying for 2s, the system will select "15_cooling ddebugging operation" or "16_heating debugging operation"automatically according ambient temperature to start up operation. If it needs to add refrigerant because of engineering requirement while the refrigerant hasn't been added finished before debugging, refrigerant can be added through low-pressure detection valve during operation process.
15_Debugging operation for cooling	db	ON	15	ON	AC	ON	Debugging under cooling mode. If there's no malfunction after the compressor operates for 30min, it will enter into process 17 to finish debugging; Or short press SW7 button on main board during operation process to confirm the completion of debugginig. After confirmation, it will enter into process 17 to finished debugging compulsively. If there's malfunction during operation process, the display is as below:
cooling	db	ON	15	ON	Correspoding error code	ON	There's malfunction during debugging process under cooling mode. After removing all malfunctions, it will enter into the next step determination. If the outdoor unit is de-energized under troubleshooting process, the unit will enter into process 17 automatically after energization to finishe debugging.

16_Debugging operation for heating	db	ON	16	ON	АН	ON	Debugging under heating mode. If there's no malfunction after the compressor operates for 30min, it will enter into process 17 to finish debugging; Or short press SW7 button on main board during operation process to confirm the completion of debugging. After confirmation, it will enter into process 17 to finished debugging compulsively. If there's malfunction during operation process, the display is as below:
	db	ON	16	ON	Correspoding error code	ON	There's malfunction during debugging operation under heating mode. The unit will enter into the next step determination after elimanted all malfunctions. If the outdoor unit is de-energized during troubleshooting process, it will enter into process 17 to finish debugging automatically after energization.
17_ Finished status of debugging	01	ON	OFF	ON	OFF	ON	Debugging is finished for the complete unit. The system is at standby status.

1.3 Parameters reference value for the normal operation of unit

No.	Debugging	project	Parameters name	Unit	Reference value				
1		Parameters of outdoor unit					Outdoor ambient temperature	Ĉ	
2			Discharge temperature of compressor	°C	 After compressor is started up, normal discharge temperature for cooling is 70~105°C, which is 10°C above more than the high pressure saturation temperature. The normal temperature for heating is 65°C ~90°C, which is 10°C above more than the high pressure saturation temperature. 				
3	Paramers of system		Defrosting temperature	Ĉ	 During cooling operation, defrosting temperature is 4~10°C lower than the high pressure value of system; During heating operation, defrosting temperature is almost equal to the low pressure value of system (the disffrence is withing 2°C). 				
4			High pressure of system	ĉ	 Under cooling mode, the normal high pressure value is 20°C ~ 55°C. According to the change of ambine temperature and operation capacity of system, the high pressure value of system is 10°C ~ 30°C higher than the ambient temperature. The higher the ambient temperature, the temperature difference is small; Under cooling operation at the ambient temperature of 25~35°C, the high pressure value for the system is 44~53°C; The unit will operate at heating mode when the ambient temperature is above -5°C. The high pressure value for the system is 40~52°C. When the ambient temperature is low and the indoor unit is started up frequently, the high pressure value will be a little lower. 				

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5			Low pressure of system	°C	 The unit will operate under cooling mode when the ambient temperature is 25~35°C, the low pressure value for the system is 0~8°C. The unit will operate under heating mode when the ambient temperature is above -5°C, the low pressure value for the system is -15~8°C.
6			Opening angle of electrocnic expansion valve for heating	PLS	 During cooling operation, the electronica expansion valve for heating will always be kept at 480PLS; During heating operation, the opening angle for the adjusted electronic expansion valve is 60~480PLS.
7			Operation frequency for compressor	ΗZ	●Change among 10HZ~80HZ
8			Operation current of compressor	А	•Current should be no more than 18.4A during normal operation for compressor
9			IPM module temperature for compressor	°C	•When ambient temperature is lower than 35 $^\circ\!\mathrm{C}$, temperature for IPM module is lower than 80 $^\circ\!\mathrm{C}$. The maximum temperature won't exceed 95 $^\circ\!\mathrm{C}$.
10			Operation frequenc for fan	HZ	•It will adjust the frequency among 0~49HZ for operation according to the system pressure
11			Ambient temperature for indoor unit	°C	
12		Parameters of	Entry tube temperature for indoor heat exchanger	°C	 According to the difference of ambient temperature, the entry tube temperature is 1°C ~7°C lower than the exit tube temperature for the same indoor unit under cooling mode; 4~9°C higher than low pressure. ~20°C . Under heating mode, entry temperature is 10°C ~20°C lower than exit tube temperature for the sae indoor unit.
13		indoor unit	Entry tube temperature for indoor heat exchange	Ĉ	
14			Opening angle of indoor electrocnic expansion valve	PLS	 Under cooling mode, the opening angle for indoor electronic expansion valve is adjusted among 70~480PLS. Under heating mode, the opening angle for indoor unit is adjusted among 40~480PLS.
15	Communication	Communication paraters		_	•Through debugging software, it detected that the quantity of indoor unit is same with the enginerring actural quantity. There's no communication malfunction.
16	Drainage syste			_	•Water can be drained smoothly for indoor unit; Outdoor unit can drain water fromo drainage pipe completely.
17	Other			_	•Compressor, indoor unit and outdoor fan operate normally, no abnormal sound.
	function List				

2 Malfunction List

2.1 Malfunction list for the wired controller

Display code	Content	Display code	Content	Display code	Content
LO	Malfunction of indoor unit	L9	Wrong number of indoor unit for one-to- more indoor unit	d8	Malfunction of water temperature sensor

L1	Indoor fan protection	LA	Wrong series for one- to-more indoor unit	d9	Malfunction of jumper cap
L2	E-heater protection	LH	Alarming due to bad air quality	dA	Abnormal address for indoor unit
L3	Water overflow protection	LC	The indoor unit model can't match with outdoor unit model	dH	Abnormal PCB for wired controller
L4	Overcurrent protection	d1	Poor indoor PCB	dC	Abnormal code-dialing setting of capacity
L5	Freeze prevention protection	d3	Malfunction of ambient temperature sensor	dL	Malfunction of air exhause temperature sensor
L6	Mode shock	d4	Malfunction of entry tube temperature sensor	dE	Malfunction of indoor C02 sensor
L7	No main indoor unit	d6	Malfunction of exit tube temperature sensor	C0	Communication malfunction
L8	Insufficient power supply	d7	Malfunction of humidity sensor	AJ	Clean alarming for filter
db	Special code: engineering debugging code				

2.2 Status display table for indicators on main board of outdoor unit

Definition:

- 1 . LED1: It displays "00" for hot water mode as for DC Inverter Side Discharge VRF
- ② . LED2: It displays "AC" for AC mode, cooling and cooling OFF mode for indoor unit, and displays "AH" for heating and heating OFF mode for indoor unit
- ③ . LED3: It displays on or off status of compressor and malfunction code. It displays "ON" when the compressor is operating and "OFF" when the compressor stops operation. When there's malfunction for the unit, it will display corresponding malfunction code; when there're multiple malfunctions, the malfunction codes will be displayed in turn.

Display code table of outdoor unit is as below:

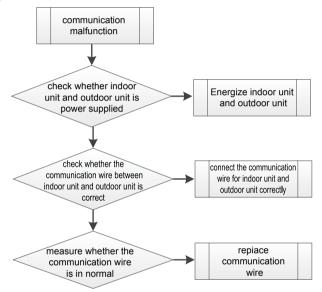
Display code	Content	Display code	Content	Display code	Content
E0	Malfunction of outdoor unit	E1	High pressure protection	E2	Low-temperature protection for dicharge
E3	Low pressure protection	E4	Discharge high temperature protection for compressor	EC	Loose protection for discharge temperature sensor for compressor 1
F0	Poor main board of outdoor unit	F1	Malfunction of high pressure sensor	F3	Malfunction of low pressure sensor
F5	Malfunction of discharge temperature sensor for compressor 1	JO	Other module protection	J1	Overcurrent protection for compressor 1
J7	Air-mixing protection for 4-way valve	J8	High pressure ration protection of system	J9	Low pressure ratio protection of system
JL	High pressure is too low	b1	Malfunction for outdoor ambient temperature sensor	b2	Maflunction of defrosting temperature sensor 1
b3	Maflunction of defrosting temperature sensor 2	b4	Malfunction of liquid temperature sensor for subcooler	b5	Malfunction of gas temperature sensor for subcooler
b6	Malfunction for temperature sensor of inlet tube of gas and liquid separator	b7	Malfunction for temperature sensor of exit tube of gas and liquid separator (exit tube A)	b9	Malfunction of gas exit temperature sensor for heat exchanger

bH	Abnormal clock of system	P0	Malfunction driven board for compressor	P1	Driven board of compressor works abnormally
P2	Power voltage protection for the driven board of compressor	P3	Reset protection for the driven module of compressor	P4	Driven PFC protection of compressor
P5	Overcurent protection for inverter compressor	P6	Driven IPM module protection for compressor	P7	Malfunction of driven temperature sensor for compressor
P8	Overheating protection for driven IPM of compressor	P9	Desynchronizing protection for inverter compressor	PH	High voltage protection for driven DC bus bar of compressor
PC	Circuit malfunction of driven current detection for compressor	PL	Low voltage protection for driven DC bus bar of compressor	PE	Phase-losing of inverter compressor
PF	Malfunction of driven charging loop for compressor	PJ	Failure start up for inverter compressor	PP	AC current protection for inverter compressor
U0	Preheat time is not enough for compressor	U2	Capacity code of outdoor unit/wrong setting of jumper cap	U4	Insufficient refrigerant protection
U5	Wrong address for the driven board of compressor	U6	Alarm due to abnormal valve	U8	Malfunction of pipeline for indoor unit
U9	Malfunction of pipeline for outdoor unit	UC	Setting for indoor unit and oudoor unit is succeeded	UL	Wrong code-dialing during emergency operation
UE	Refrigerant- charging is invalid	C0	Communication malfunction for indoor unit, outdoor unit and wired controller of indoor unit	C2	Driven communication malfunction between main board and inverter compressor
C3	Driven communication malfunction between main board and inverter compressor	C4	Malfunction of indoor unit- lacking	C5	Alarming due to engineering series number shock of indoor unit
C6	Alarming due to wrong quanity of outdoor unit	C8	Emergency status of compressor	C9	Emergency status of fan
CA	Energycy status of module	СН	High rated capacity	СС	No malfunction of main control unit
CL	Low rated capacity	CF	Malfunction of main control unit	CJ	Address shock of syste
CU	Communication malfunction between indoor unit receiving lamp board	Сb	Distribution overflow of Ip address	AO	Debugging for unit
A1	Operational parameter inquiry of compressor	A2	Refrigerant recovery	A3	Defrosting
A4	Oil return	A5	On-line test	A6	Heat pump function setting
A7	Quit mode setting	A8	Vacuum pump mode	A9	IPLV test
AA	EU AA class energy efficiency test mode	AH	Heating	AL	Charge refrigerant automatically

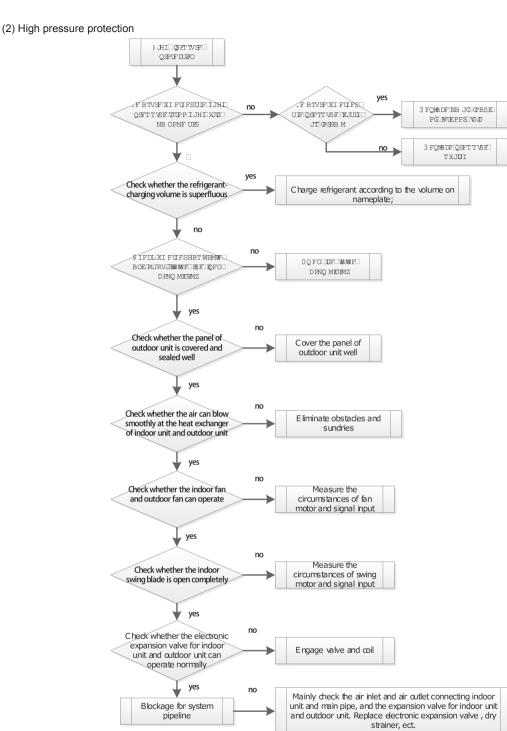
AE	Charge refrigerant by hand	AF	送风 Fan blow	AJ	Cleaning alarm for filter
AP	Startup debugging confirmation of unit	AU	Long-distance emergency stop	Ab	Emergency stop
Ad	Limit opereation	n0	SE setting for the operation	n1	Defrosting period K 1 setting
n2	Upper limit setting for the collocation matching ratio for indoor unit and outdoor unit	n4	Limit setting for the maximum ouput capacity	n6	Engineering series number inqury for indoor unit
n7	Malfunction inquiry	n8	Parameters inquiry	nA	Heat pump unit
nH	Heating only model	nC	Cooling only model	nE	Negative code
nF	Fan model				

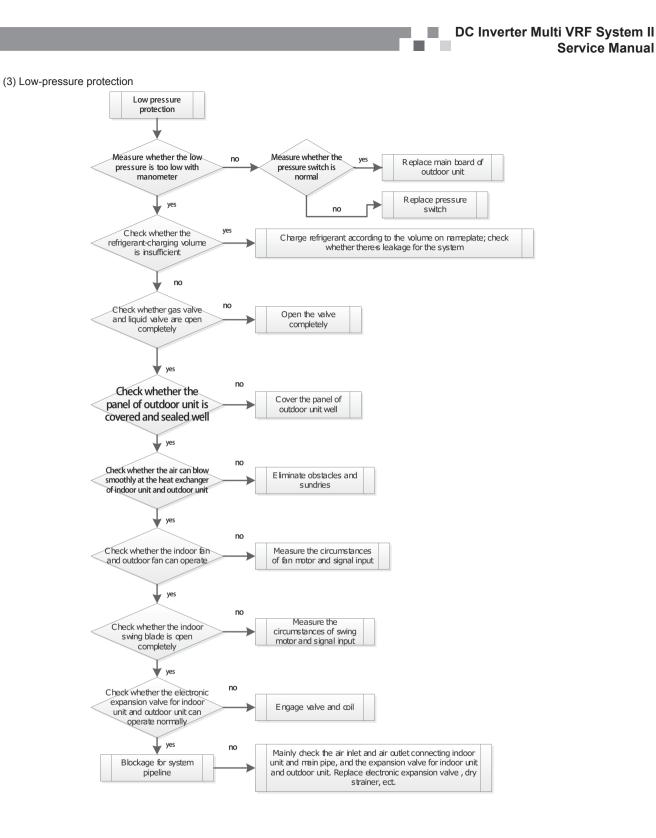
3 Troubleshooting Troubleshooting principle

(1) Communication malfunction

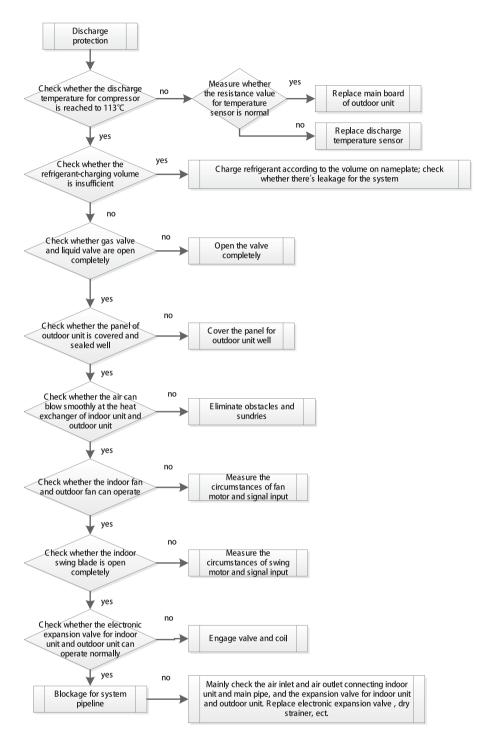




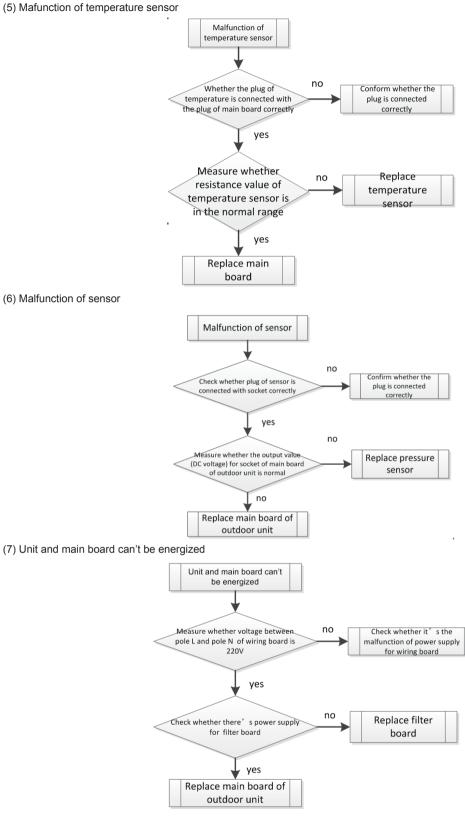


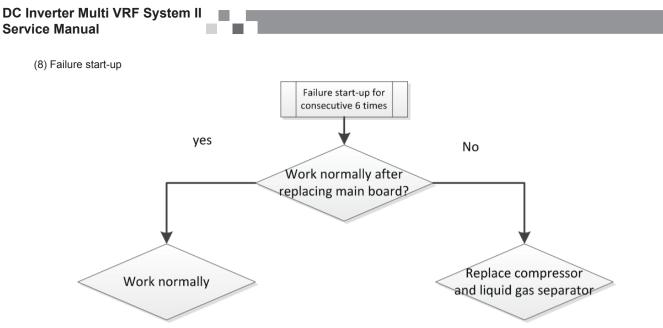


(4) Discharge temperature protection

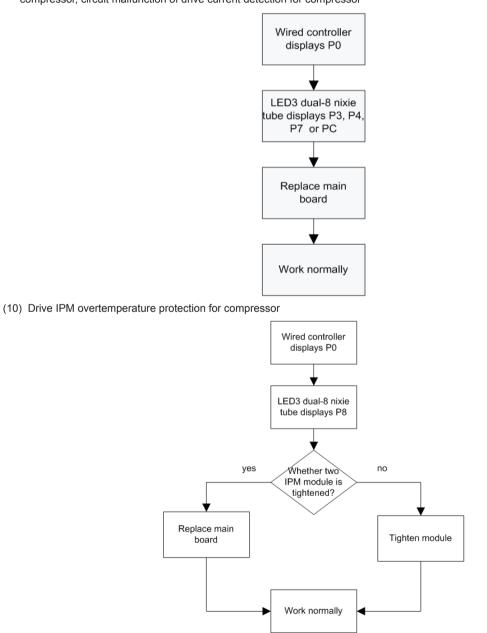




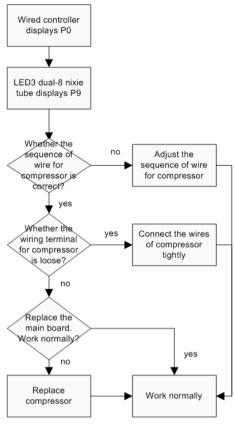




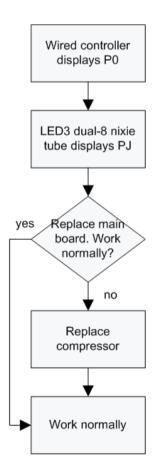
(9) Reset protection for drive module of compressor, drive PFC protection for compressor, malfunction of drive temperature sensor for compressor, circuit malfunction of drive current detection for compressor



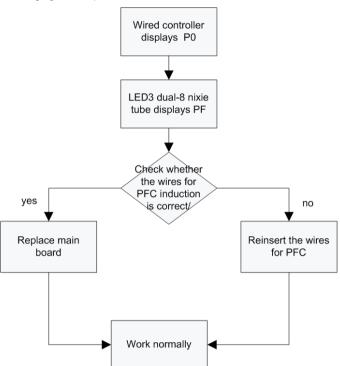
(11) Desynchronizing protection for inverter compressor



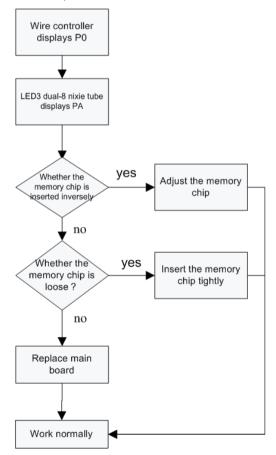
(12) Failure startup for inverter compressor



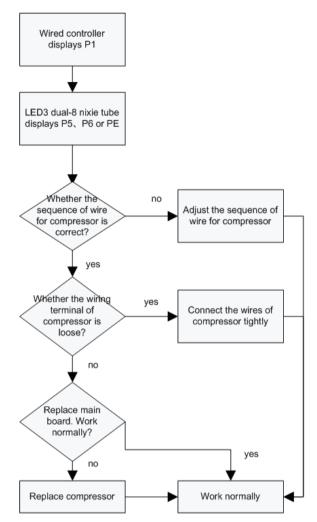
(13) Loop malfunction of driven charging for compressor



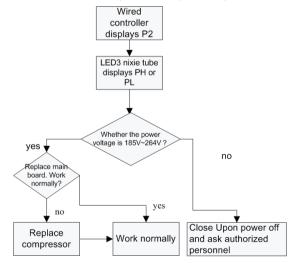
(14) Malfunction of memory chip for inverter compressor



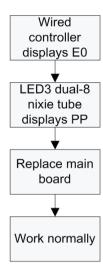
(15) Overcurrent protection for inverter compressor, IPM module protection, phase-lacking of inverter compressor



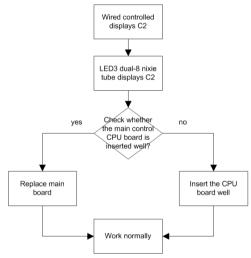
(16) High pressure protection for driven DC bus bar of compressor, low pressure protection for driven DC bus bar of compressor



(17) AC current protection for inverter compressor



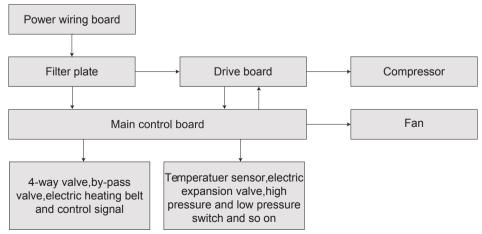
(18) Communication malfunction between main contoller and driver of inverter compressor



4 Power Distribution of Unit

4.1 Power distribution of unit

The control logical relationship among parts inside the electric box of unit is showed by the mongline diagram (CAD source file). The main loop is showed by bold line (line width: 1mm); the control loop is showed by slim line (line width: 0.2mm).



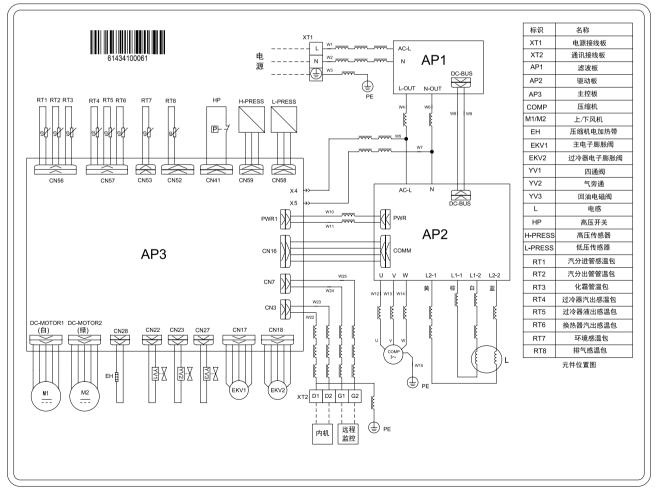
(Bold line is the power line and the slim line is the control line)

4.2 Main electric parts

Name	Photo	Function introduction
Filter plate		It main effect is to eliminate the interference of power for protecting unit's anti-interference capability and prevent the interference to other electric appliances.
IPM Module		There are three complemental IGBT tube inside the IPM module. They are controlled by PWM wave and then bring the pressure of DC bus bar to different stator windings of compressor at different stage, and then generate current on the stator. Meanwhile, magnetic field will be generated on the stator winding, and push the operation of rotor and then drive compressor to operate.
PFC module		Four diodes and two MOS pipe are intergrated inside the PFC module. It will transform AC input power into DC power. Meanwhile, MOS pipe is controlled by PWM wave. Pressure will be increased by induction.

4.3Circuit diagram

Circuit diagram of outdoor unit



5 Removal of Parts

5.1 Key parts

Photo	Name	Function
	compressor	Core part of air conditioning system. It sucks low temperature and low pressure gas, compress it to high temperature and high pressure gas, and then discharge it.
	Electronic expansion valve	Throttling device. It transforms high pressure refrigerant liquid into low pressure steam.
	4-way valve	It changes the flow direction of refrigerant for switching between cooling and heating.
	Oil separator	It stays between discharge outlet of compressor and inlet of condenser. It used for separating the lubricant oil of compressor when the high temperature and high pressure refrigerant gas is discharged from the compressor.
	Vapour liquid separator	It stays between outlet of evaporator and suction ouitlet of compressor. It used for separating low temperature and low pressure refrigerant.
	High pressure liquid storage tank	It used for storing the superfluous high pressure refrigerant liquid during cooling process.
	Solenoid valve	Control to the high-voltage current: open upon power on; close upon power off

Cut-off valve	It used for connecting indoor unit and outdoor unit, and used for maintenance and installation.

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5.2 Removal of key parts

5.2.1GMV-120WL/A-T, GMV-140WL/A-T, GMV-160WL/A-T series unit

	Removal operation for panel Remark: Before removing the panel, please make sure that the unit is disconected with the power		
Process	Photo	Operation Instruction	
1. Remove top cover		 Loose the screws fixing the top cover with screwdriver Hold the top cover upwards and then put it on the floor flatly 	
2. Remove front side plate sub- assy		 Loose the screw fixing the front side plate with screwdriver Hold the front side plate upwards and then put it on the floor flatly 	
3. Remove front panel and grille		 Loose the screws fixing the front panel and grille with screwdriver Put the front panel and grille on the floor flatly 	
4. Remove left side plate and rear side plate		 Loose screws fixing left side plate and rear side plate with screwdriver remove the rear side plate 	

Removal operation for blade			
Process	Remark: Before removing the motor, please make sure that the u Photo	nit is disconnected with the power. Operation Instruction	
1. Remove grille		 Loose screws fixing the panel with screwdriver Then remove the grille 	
2. Remove blade		 Loosen nuts fixing the blade with wrench Then remove the blade and put it on the floor flatly 	
3. Remove motor		 Loose screws fixing the motor with screwdriver then remove the power cord of motor Take out the damaged motor 	
4. Install motor		• Replace the motor, tighten screws with screwdriver and then connect teh power cord of motor	

5. Assemble unit		• Assemble the unit in the the converse sequence
	Removal operation of compress	or
Remark: Bef	ore removing the compressor, please make sure that there's no	refrigerant inside the pipeline and the power is
Process	disconnected.	Operation Instruction
1. Remove wiring cover of compressor	When removing the power cord, make marks for different color power cords and corresponding	 Loose screws fiixng the compressor with screwdriver Then pull out the power cord Note: When removing the power cord, make marks for different color power cords and corresponding wiring terminals for wrong terminal.
2. Disconnect compressor and connected pipeline		 Weld suction pipe and discharge pipe of compressor then pull out the connection pipe from the compressor Note: During welding process, do not let the flame burn out other parts.
3. Loose nuts fixing the foot of compressor	Twist off three nuts for compressor with wrench	Twist off the nuts for compressor with wrench
4. Remove the chassis from compressor		• Take out the compressor and replace it Note: When replacing the compressor, do not damage nearby pipelines and other parts

5. Fix the new compressor at the chassis		After replacing the compresor, fix the nuts at the bottom of compressor
 Connect suction pipe and discharge pipe of copressor and pipeline of system again 	Connect suction pipe and discharge pipe of copressor and pipeline of system again	• Weld the connection pipe of compressor, connect the pipeline and compressor Note: During welding process, do not let flame burn out other parts
7. Connect the power cord of compressor well	When connecting the power cord, make marks rords and corresponding wiring terminals.	 Loose screws fixing the power cord with screwdriver conenct the power cord well again Note: When connecting the power cord, make marks for different color power cords and corresponding wiring terminals.
8. Check and open the upper cover plate		 Check whether the pipeline is connected well Check whetehr all parts and connection wires are connected well If there's no problem after checking, install front and rear cover plates.
Remark: Before re	Removal operation for 4-way valve, please make sure that there's no refrige	ve rant inside the pipeline of system and then power is
Process	disconnected. Photo	Operation Instruction
1100035	T HOLD	
1. Disconnect the coil of 4-way valve from the 4-way valve	Remove the coil of 4-way valve at first	• Remove the coil of 4-way valve at first

2. Disconnect the 4-way valve and connection pipeline	Weld those 4 connection spots on 4-way valve	• Weld those 4 connection spots on 4-way valve, and then pull out the connection pipe Note: During welding process, do not let the flae burn out other parts
3. Replace 4-way valve		• Replace 4-way valve Note: During welding process, do not let the flame burn out other parts
4. Replace 4-way valve	Remove the coil of 4-way valve at first	• Weld the connection position between 4-way valve and pipeline Note: During welding process, do not let flame burn out other parts

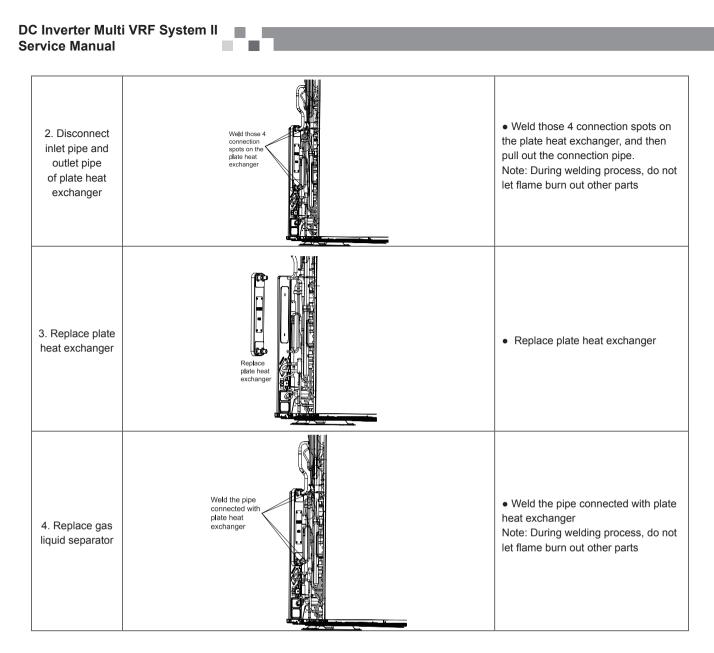
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	Remival operation for eletronic expansion valve	
Remark: Before re	moving the electronic expansion valve, please make sure that there's no refr power is disconnected	igerant in th pipeline of system and the
Process	Photo	Operation Instruction
1. Disconnec the electronic expansion valve from the pipeline	Weld the connection pipe for expansion valve	 Remove the coil of electroc expansion valve at first Weld the connection pipe for expansion valve, and then pull out the connection pipe Note : During welding process, do not let flame burn out other parts
2. Take out the electronic expansion valve and replace it		Take out the electronic expansion valve and replace it
3. Replace electronic expansion valve	Weld the connection pipe of electronic expansion valve	 Weld the connection pipe of electronic expansion valve Inistall the coil of electronic expansion valve Note: During welding process, do not let the flame burn out other parts

Removal operation of gas liquid separator				
Remark: Before removing the gas liquid separator, please make sure that there's no refrigerant inside the pipeline of system and disconnect the power				
Process	Photo	Operation Instruction		
1. Disconnect inlet pipe and exit pipe of gas liquid separator	Weld those two connection spots on the gas liquid separator	• Weld those two connection spots on the gas liquid separator and then pull out the connection pipe Note: During welding process, do not let flame burn out other parts		
2. Replace gas liquid separator	Lose 4 screws wth screwdriver	 Loose 4 screws with screwdriver Replace gas lliquid separator 		
3. Replace gas liquid separator	Weld the pipe connected with gas liquid separator Fix the screws at the base of gas liquid separator well again	 Weld the pipe connected with gas liquid separator Fix the screws at the base of gas liquid separator well again Note: During welding process, do not let flame burn out other parts 		

Removal operation for plate heat exchanger Remark: Before removing the plate heat exchanger, please make sure that there's no refrigerant inside the pipeline of system and			
Drococo	disconnect the power	Operation Instruction	
1. Twist off two nuts fixing the plate heat exchanger with wrench	Twist off two nuts fixing the plate heat exchanger with wrench	•Twist off two nuts fixing the plate heat exchanger with wrench	



6 Common Maintenance

6.1 Vacuum drying for the system

6.1.1 Selection requirement for the vaccum pump

Do not use different vacuum pump for vaccum-pumping for different refrigerant system;

The final vacuum for the vacuum pump should reach -0.1Mpa;

The air discharge volume for the vacuum pump should reach 4L/S above;

The precision of vacuum pup should reach 0.02mmHg above;

The system vacuum pump for R410A must be with check valve.

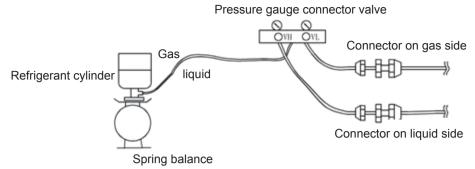
6.1. 2 Operation procedure and notices for Vacuum drying

1) Operation procedure

- a .Before vacuum-pumping, please confirm that the cut-off valve for gas pipe and liquid pipe is at off status;
- b .Use charging conduct pipe to connect the governing value and vacuum heat pump to the detection joint of gas valve and liquid valve;
- c .After vacuum-pumping for 4h, check whether the vacuum degree is reached to -0.1MPa or above; If not, there may be gas leakage. Please perform the leakage inspection again. If there's no gas leakage, please vacuum pump for another 2h.
- d .If the required vaccum degree can't be satisfied after vacuum-pumping for two times, there are water inside the pipeline. Please drain out the water by the method of vaccum damage. The detailed method: charge 0.05MPa nitrogen into the pipeline, vacuum pump for 2h and then keep the cacuum for 1h. If -0.1 MPa vaccum degree still can't be reached, repeat this operation unit! the water is drained out completely.
- e After evacuation, close the regulating valve, and 1 hour later check if its pressure goes up or not.
- 2) After the vacuum pump is finished, turn off the valve of governing valve and stop vacuum pump and keep it for 1h. Please confirm

that the pressure of governing valve hasn't been increased.

a .Vacuum pump for the gas pipe and liquid valve at the same time;



b .When turn off the vacuum pump to stop vacuum-pumping, please turn off the valve at first and then de-energize the vacuum pump; c .Keep the vacuum pump for 2h and confirm that the pressure of vacuum meter hasn't been increased.

6.2 Fill and charge refrigerant

6.2.1 Filling procedure of regrigerant

a . Calculate the additional volume of refrigerant

Side discharge DC inverter and digital VRF (10KW above)

Additional volume of refrigerant R=LA×54 g

LA=L-50 m

L=(12.7 length of liquid pipe) × 2+(9.52 length of liquid pipe) ×1+(6.4 length of liquid pipe) ×0.4

When L is less than 50m, no need to add refrigerant

Other model:

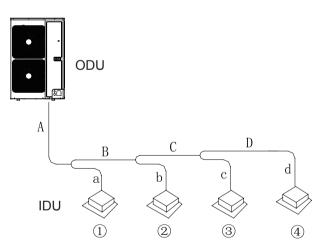
Additional volume of refrigerant R=LA×54 g

LA=L-5m

L=(12.7 length of liquid pipe) × 2+(9.52 length of liquid pipe) ×1+(6.4 length of liquid pipe) ×0.4

When L is less than 50m, no need to add refrigerant

Examples:



Indoor unit :

Model					
Indoor unit		Cassette type GMV-R71T/Na			
Indoor unit			Wall-mounted type GI	MV-R36G/Na	
Indoor unit			Super-slim duct type G	MV-R50P/NaL	
Indoor unit		Duct type GMV-R25P/Na			
Liquid pipe:	Liquid pipe:				
No.		А	В	С	D
Diameter of p	r of pipe φ9.52 φ9.52 φ9.52 φ6.35				φ6.35
Length	Length 20m 10m 5m 5m			5m	
No. a b c		d			
Diameter of p	Diameter of pipe φ9.52 φ6.35 φ6.35 φ6.35			φ6.35	

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Length 10m	10m	10m	10m
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Length of liquid pipe:

φ9.52:A+B+C+a=20+10+5+10=45m

φ6.35:D+b+c+d=5+10+10+10=35m

L= (9.52 length of liquid pipe)×1+(6.4 length of liquid pipe) ×0.4

= 45×1+35×0.4=59m

LA=L-50=59-50=9 m

R=LA×54 =9×54=486 g

Additional volume of refrigerant R=LA×54 =9×54=486 g

b.Operation procedure for adding refrigerant

b1.Put the charging tank on the weightometer, record the reading and then calculate the data after charging refrigerant;

b2.Use charging conduct pipe to connect the double-ended manometer with governing valve and liquid-charging tank to the detection head of gas valve and liquid valve. Before connection, please release some refrigerant and then drain out the air inside the charging conduct pipe;

b3.Confirm that the gas valve and liquid valve for outdoor unit is at off status;

b4. When the unit hasn't been turned on, open the governing valve for the liquid-charging tank and then charge refrigerant from gas pipe and liquid pipe at the same time.

b5.Obeserve the data weightometer, close the valve after it is reached to requirement and then close the valve for liquid-charging tank; b6.If the refrigerant can't be added completely, add it when turning on the unit. Charge refrigerant from the detection joint of cooling gas

pipe or detection joint of gas vavle.

c .Notice for filling refrigerant

c1.Calculate the section and length of cooling liquid pipe preciously for the precision refrigerant-charing volume.

c2Measure the additional refrigerant volume preciously;

c3.R410AInvert to charge the R410A for ensuting the liquid-charging;

c4. When the temperature is low, heat the liquid-storage tank with hot water or hot wind for helping refrigerant-charging. However, prohibit use flame to heat the liquid-storage tank directly. Otherwise, it may cuase personal injury or property damage due to explosion.

6.3 Airtightness test

6.3.1 Importance of airtightness test

The airtightness of VRF system is the leak tightness of the pipeline for refrigerant, which the guarantee for safe and reliable operation. The leakage of refrigerant may affect the operation of air conditioner seriously, or even damage compressor and then lead to breakdown of system. Therefore, it needs to perform the airtightness test. If the there's gas leakage after the system is installed completely, because the indoor ceiling decoration are all finished, it's will be very difficult to find out the leakage point. Thus, the airtightness test of the system must be finished before finishing indoor decoration.

6.3.2 Operation procedure for the airtightness test

Before ex-factory, cut-off valve for gas pipe and liquid pipe of outdoor unit is turned off. Please confirm that before operation.

Before testm please smear a little corresponding lubricant oil at Blanking plug.and pipe terminal, and use two wrenches for fixing Blanking plug.

Do not allow to connect the pipeline of outdoor unit for test during airtightness test.

The system test pressure for R410A is 4.15MPa (3.0MPa for R22 refrigerant system). Nitrogen must be used as the medium for the airtightness test and the nitrogen should be dry. Increase pressure slowly for three steps:

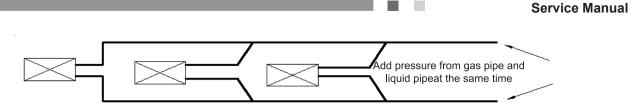
Step 1: Increase pressure slowly to 0.5MPa, stop for 5min and then check the gas leakage. Big leakage may be found out;

Step 2: Increase pressure slowly to 1.5MPa, stop for 5min to check the airtightness. Small leakage may be found out;

Step 3: Increase pressure slowly to 4.15MPa for R410A slowly (3.0MPa for R22 refrigerant system), stop for 5min and perform the strength test. Minor leakage or sand hole may be found. Increase pressure to test pressurem, keep it for 24h and observe whether the pressure is decreasing. If not, the pressure is qualified.

6.3.3 Cautions

- a .The test manometer range for R410A should be 4.5MPa above (3.5MPa above for R22 refrigerant system);
- b .Record the data on manometerk, ambient temperature and test time at the same time;
- c .Pressure modification: when temperature changes 1°C, the temperature will change 0.01MPa correspondingly.
- d Pressure should be kept the same.
- e .If it needs to keep pressure for a long time, decrease the pressire lower than 0.55MPa pr below. Long-time high pressure can lead to leakage at the welding position, which may cause riskl.
- f. Before the airtightness for the pipeline of refrigerant is finished, do not allow to insulate and bundle the welding positions and connection position of bellmouth of indoor unit.



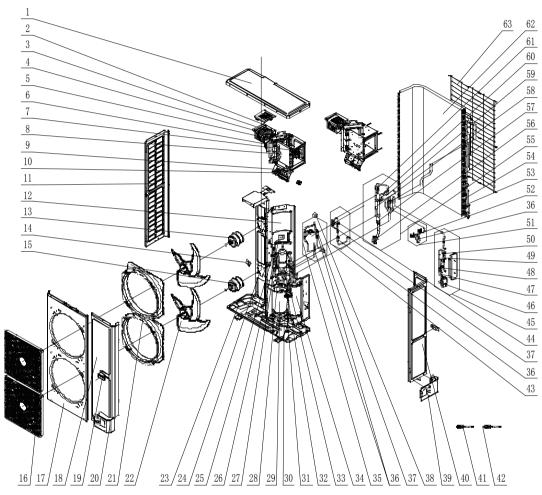
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Note: Before airtightness test, all welding lines can't be insulated and bundled.

7 Exploded View of Unit and Parts' List

7.1 Exploed view for outdoor unit and parts' list

1) Model: GMV-120WL/A-T,GMV-140WL/A-T,GMV-160WL/A-T Exploded view:



Part	s list :			
		GMV-120WL/A-T,GMV-140WL/A-T,GMV-160WL/A-T		
NO.	Name of Part	Product Code	CN850W0180 /CN850W0170/CN850W0160	
		Part Code	Quantity	
1	Coping	01264100008P	1	
2	Inductance Assy	01394100050	1	
3	Inductance	43120122	1	
4	Electric Box Assy	01394100124	1	
5	Main Board	30228000005	1	
6	Radiator	49018000013	1	
7	Filter Board	30228000006	1	
8	Main Board	30226000045	1	
9	Terminal Board	42018000026	1	
10	Terminal Board	42011242	1	

11	Left Side Plate	01314100013P	1
12	Clapboard Sub-Assy	01244100006	1
13	Fan Motor	15704115	1
14	Sensor Sub-Assy	39008000061G	1
15	Fan Motor	1570411501	1
16	Front Grill	26904100026	1
17	Cabinet	01514100002P	1
18	Front Side Plate	01314100012P	1
19	Handle	26235253	1
20	Front Connection Board	01344100002P	1
21	Diversion Circle	10474100001	1
22	Axial Flow Fan	10434100003	1
23	Chassis Sub-Assy	0119410000301P	1
24	Motor Support Assy	01804100293	1
25	Pressure Protect Switch	4602000902	1
26	Discharge Tube Sub-Assy	04534100057	1
27	Silencer	07444105	1
28	Oil Separator	07424105	1
29	Compressor	00204100001	1
30	Electrical Heater(Compressor)	765152128	1
31	Compressor Gasket	76710247	1
32	Cut off Valve	07330000002	1
33	Strainer	07212001	1
34	Gas-liquid Separator	07424100014	1
35	Capillary Sub-Assy	04004100013	1
36	Strainer	07415200002	1
37	Electromagnetic Valve	43000054	1
38	Magnet Coil	4304000417	1
39	Right Connection Board	01344100003P	1
40	Rear Side Plate Sub-Assy	01314100011P	1
41	Sensing Device	322101001	1
42	Sensor (High Pressure)	322101032	2
43	Gas By-pass Sub- Assy	04534100056	2
44	Magnet Coil	4304000406	1
45	Plate-type Heat Exchanger Assy	00904100013	1
46	Discharge Charge Valve	07133771	1
47	Electronic Expansion Valve	07334447	1
48	Electric Expand Valve Fitting	4304413205	1
49	Electronic Expansion Valve	07334390	1
50	Electric Expand Valve Fitting	4304413220	1
51	Low Pressure Survey Valve Sub-Assy	07334100040	1
52	Cut off Valve	07130239	1
53	Strainer	07212121	1
54	Silencer	07245012	1
55	4-Way Valve Assy	04044100022	1
56	Cut off Valve	07330000001	1
57	Strainer	07210037	1
58	One way Valve	07130118	1
59	4-way Valve	43000338	1

60	Magnet Coil	4300040045	1
61	Nozzle for Adding Freon	06120012	1
62	Condenser Assy	01124100108	1
63	Rear Grill	01574100004	1

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