4.3 Modbus BMS gateway: CCM-18A

CCM-18A support the Modbus protocol network, bridge the Midea central A/C system to the BMS, and support RTU or TCP/IP mode.

✧ Support the Modbus protocol network

✧ Built-in WEB server function

✧ Each gateway can be connected up to 64/16 indoor units and 4 outdoor units

✧ Transfer the information via the RTU mode

✧ Can directly connect with indoor/outdoor units without centralized controller CCM30/CCM03 and monitor controller CCM02

4.3.1 Main features

◆ Can check and control all indoor units through built-in Web server functions.

◆ Can directly connect with indoor/outdoor units without centralized controller CCM30/CCM03 and monitor controller CCM02.

◆ Can control indoor units, configure gateway through Web function in the LAN.

◆ Can connect to the BMS system through TCP/IP or RTU.

◆ BMS system can control and get the running real-time data of the air conditioner through CCM-18A.

◆ Two types for your choice:

For CCM-18A/N-U can be connected up to 16 indoor units and 4 outdoor units.

For CCM-18A/N, if there are the V4 Plus and D4 plus series indoor unit , it can be connected up to 64 indoor units and 4 outdoor units, and then if there are the V4 and D3 series indoor units, it can be connected up to 60 indoor units and 4 outdoor units.

1) When the baud rate of the outdoor unit is 600, can be connected up to 64 indoor units and 4 outdoor units.

2) When the baud rate of the outdoor unit is 4800, can be connected up to 60 indoor units (indoor address must be from 4 to 63) and 4 outdoor units.

3) 4 outdoor units must be in the same system.

4.3.2 Ports instruction

WAN port： Connect to the router by 5 Ethernet cables to ensure that PC can access to the web page.

A1B1E port：Connect to the XYE ports of the indoor unit and the K1K2E ports of the outdoor unit

A2B2E port：Connect to the terminal serial port.

POWER port: Offer DC 5V

Reset button: Can reset to the original setting.

4.3.3 Network structure

◆ Can control the unit and configuration the gateway through WEB function in the LAN

◆ Can be connected to the BMS system through TCP/IP or RTU mode
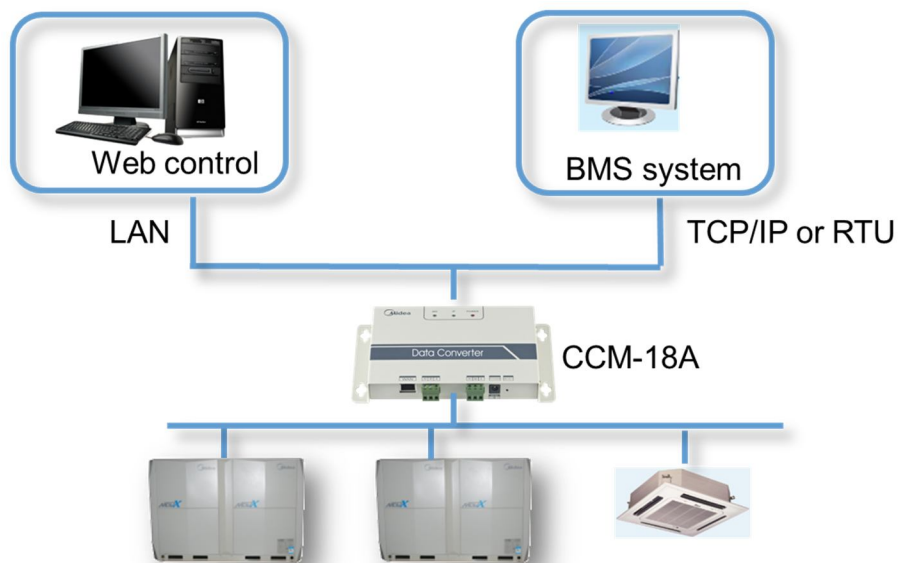
4.3.4 Network example

1. One Modbus gateway can bridge one refrigerant system with a PC or the Modbus master

2. The PC system with the Modbus protocol port can communicate with CCM-18A through RTU or TCP/IP method to control and monitor units. There are two methods for your reference.

1) TCP/IP connection method:
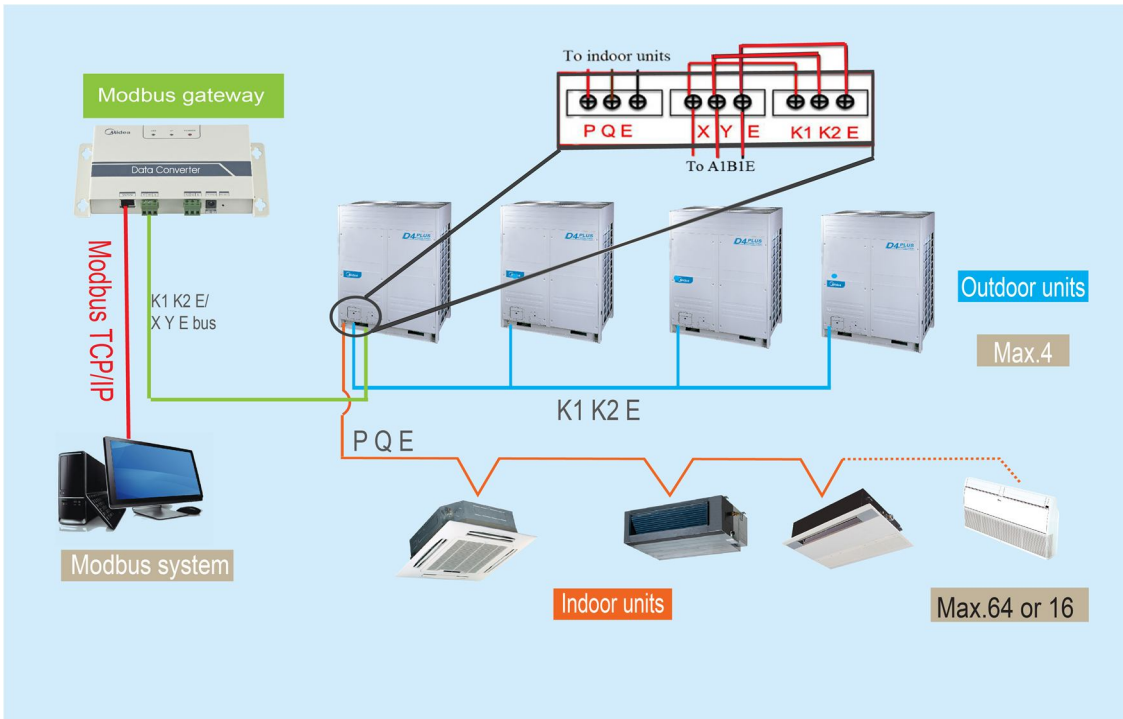
2) RTU connection method:
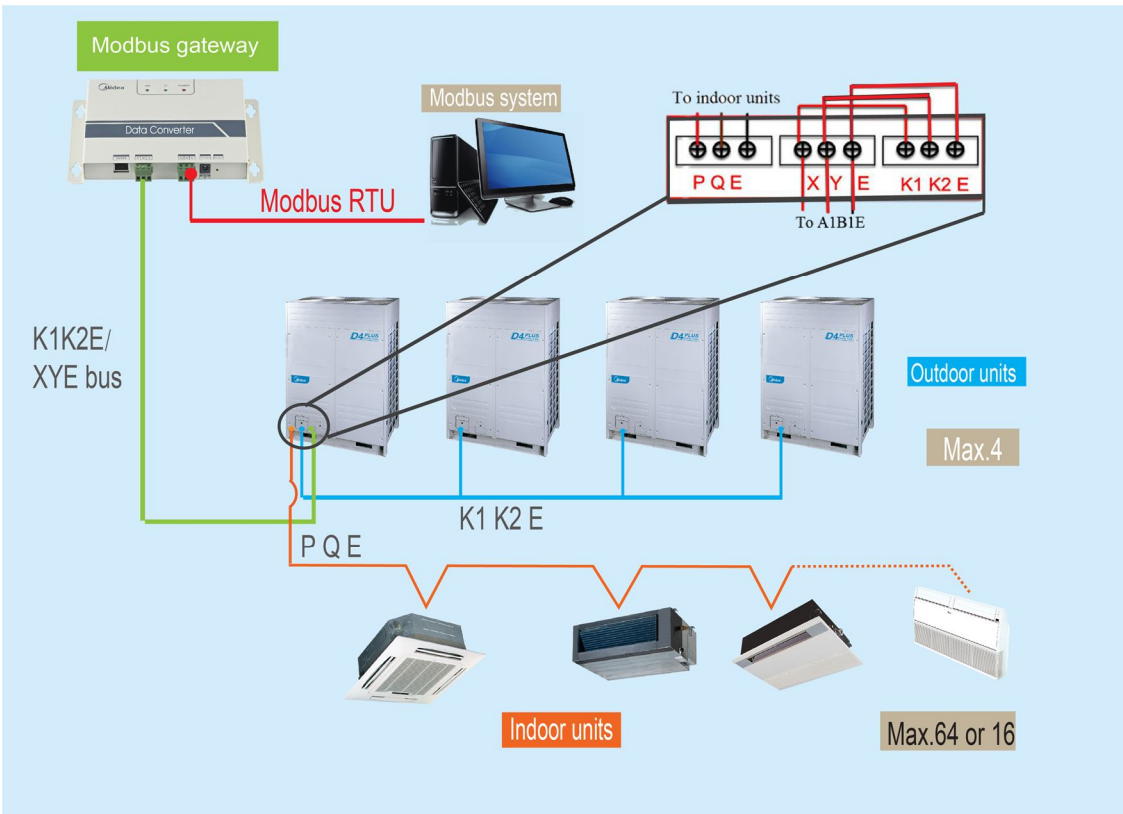
Notes：

◆ If it doesn't monitor the ODU's states, it can directly connect to the XYE ports of the indoor/outdoor units in both ways above.

◆ If it connects to XYE ports of master ODU, ODU must be set to auto addressing mode.

◆ XYE and K1K2E must be connected hand by hand.

◆ It supports two kinds of baud rates (600 and 4800) of the outdoor unit can be connected. Baud rate is 600: V4 Plus and D4 plus series; and baud rate is 4800: V4 and D3 series.

◆ One Modbus gateway can bridge one refrigerant system with a PC or the BMS system (Modbus master).

◆ When the baud rate of the outdoor unit is 600, can be connected up to 64 indoor units and 4 outdoor units.

◆ When the baud rate of the outdoor unit is 4800, can be connected up to 60 indoor units (indoor address must be from 4 to 63) and 4 outdoor units.

◆ The addresses of accessed indoor/outdoor units can't repeat; 4 outdoor units must be in the same system.

4.3.5 Operation introduction

4.3.5.1 IP Configuration

The default IP address of the Modbus gateway is 192.168.1.200. Modbus gateway and the PC which can be used for visiting the websites must be in the same subnet segment, it should be 192.168.1.xxx (xxx must be from 2 to 254). There are 2 methods to configure IP: configure single IP and configure several IP.

Configure single IP

Open protocol dialog, configure the IP address and subnet mask, for example: the IP address is 192.168.1.211, and the subnet mask is 255.255.255.0.

After setting, please click "OK" button.
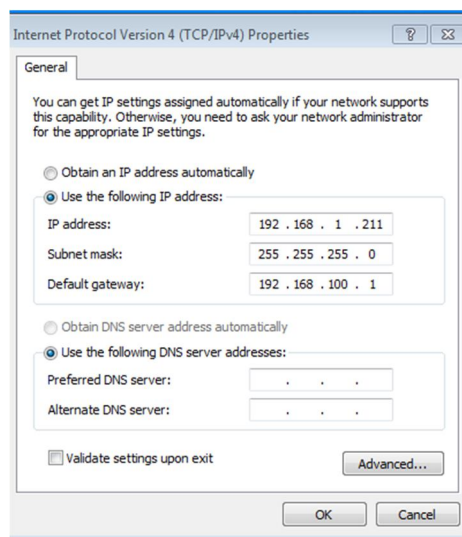
Fig.4.1

Configure several IP

Before configuring several IP, it needs to configure a statistic IP address. Open the property dialog, select the "Advanced", and it will display the TCP/IP setting dialog.

Click "Add" button in the IP address bar can add an IP address which is in the same segment as "192.168.1.200", for example ,the IP address is 192.168.1.209, subnet mask is 255.255.255.0, and click "OK" button will be OK.
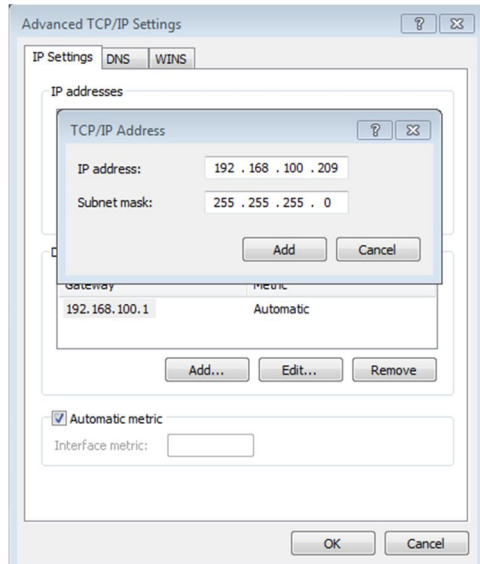

Fig.4.2

4.3.5.2 The gateway configuration

Input "http://192.168.1.200" in the address bar in IE Browser (suggest using IE Browser) and press Enter button will enter the WEB page of Modbus gateway. You can click the "Configuration" button and will display the following dialog.
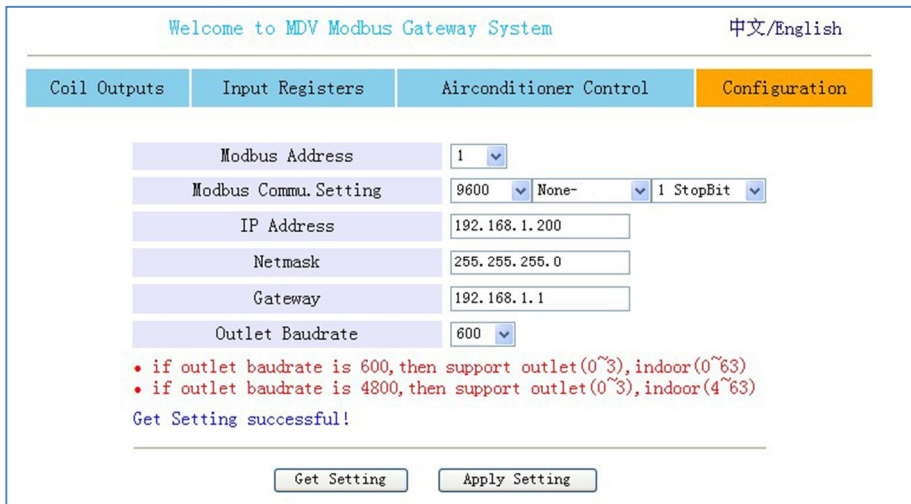

Fig.4.3

Parameters Setting:

Parameter	Description
Modbus address	Modbus ID is used to distinguish multiple gateways which with Modbus protocol in the same subnet segment. The ID must not repeat and can be modified.
Modbus communication setting	Baud rate: suggest 9600； Check bit: no checking by default Stop bit: 1 Stop Bit by default
IP address	IP address of Modbus gateway, multiple IP addresses can't repeat.
Subnet Mask	Default：255.255.255.0
Gateway	Local gateway address
Baud rate of the outdoor unit	Outdoor communication baud rate which is connected to Modbus gateway

Click "Application Settings" after changing the corresponding parameters. If you want the use the updated setting, please click "Get Settings" button.

Modbus gateway will restart automatically after changing settings, and the network will break and reconnect automatically.

4.3.5.3 A/C information query

※ Select "Power winding" or "input register" in the web page to query the information of the air conditioner unit.

When select "power winding", it will display the following dialog.
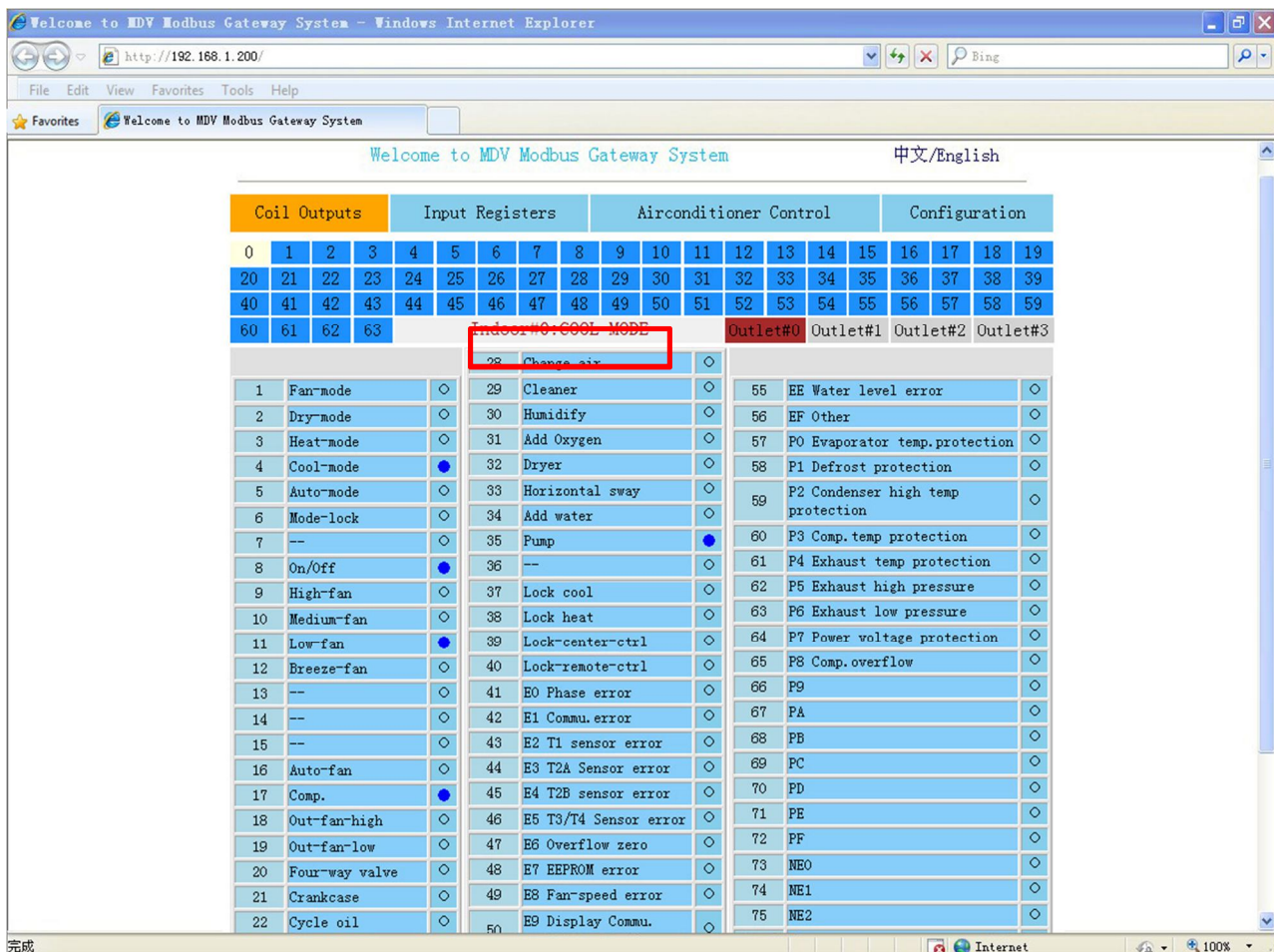
Fig.4.4

When click the address number of the indoor or outdoor unit, it will display corresponding operation information of the air conditioner. The chosen device will display in the red frame.

When click "input register", it will display as following dialog:

Fig.4.5

The first column is the address, the second is the content and the third is displayed value, e.g. 17/0011, 17 is decimal display, 0011 is hexadecimal display.

Explanation of part of the content:

For example, 0~3 outdoor unit online state is 1/0001. When 0# indoor unit is online, its value is 1/0001(decimalism /hexadecimal); when No. 0 and No.1 indoor unit are online, its value is 3/0003 (decimalism /hexadecimal).

4.3.5.4 Air Conditioner Control

※ When click "Air Conditioner Control" on the web page, it will display as following dialog:

Fig.4.6

Single control area:

You can control a single air conditioner, set mode, fan speed, temperature setting and click "Apply" button to carry out a single controlling function.

Group Control area:

Choose the corresponding group control button, all the indoor units under the control of the Modbus gateway will be turn on or turn off.

4.3.5.5 Software installation and debug

※ **PC access mode**

The PC system with Modbus protocol port can communicate with the Modbus gateway through TCP/IP
protocol or Modbus RTU. For detailed information, please refer to 4.3.3 Network example.

※ **Install Modbus Poll software**

Through Modbus Poll software to access debugging.

When finish installing Modbus Poll software, the home page will display as following dialog:
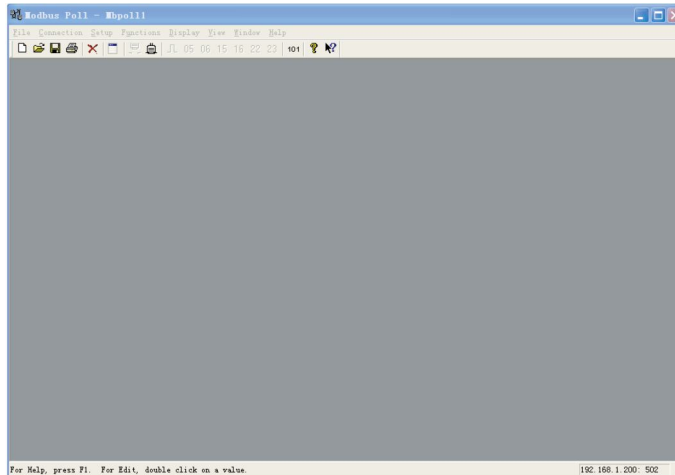
 Fig.4.7

※ **Connect Modbus Gateway**

There're 2 connection methods: TCP/IP and Modbus RTU

1) Connection through TCP/IP

Choose "Connection"->"Connection" in Fig.4.3, it will enter the following dialog, and then you can choose
TCP/IP in the Pop-up window:
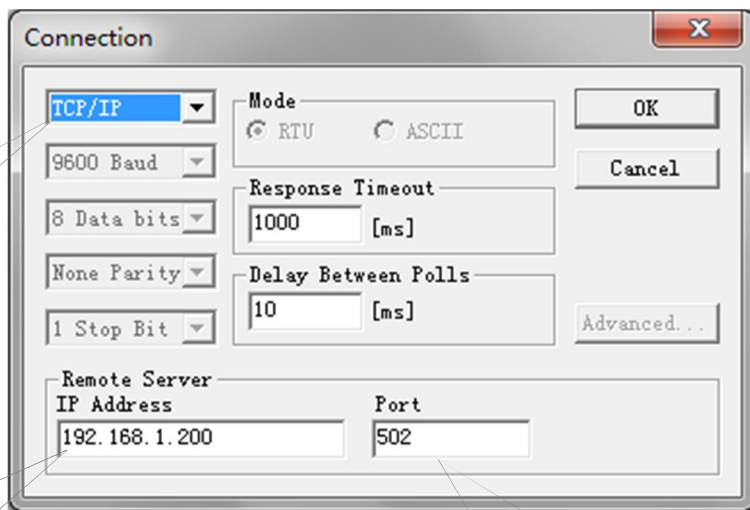
 Fig.4.8

2) Connection through Modbus/RTU

Choose RTU to connect, it will display as following dialog and you can set the corresponding parameters.

To PC port

Parameter setting must be the same as WEB page, detailed refer to Fig.4.3
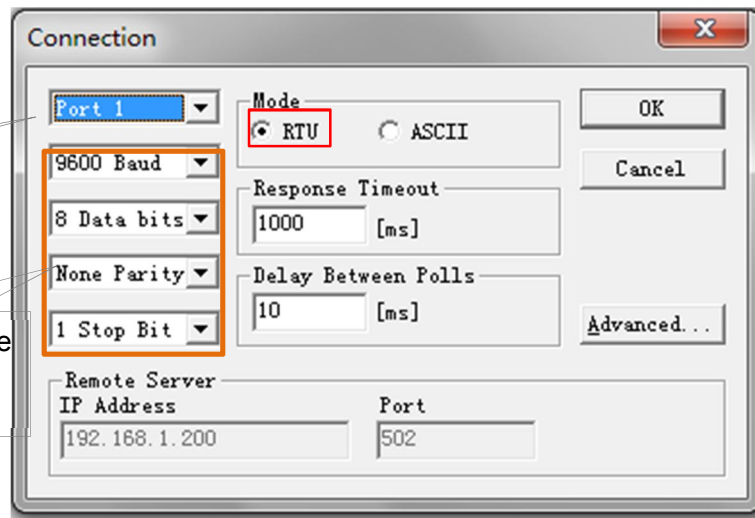
Fig.4.9

※ **Test**

Modbus Poll software can read/write the content of the corresponding address in mapping table. Take reading coil content for an example:

Choose "Poll Definition" under "Setup", it will display the following dialog.

Modbus address

Starting address need to check

Address length
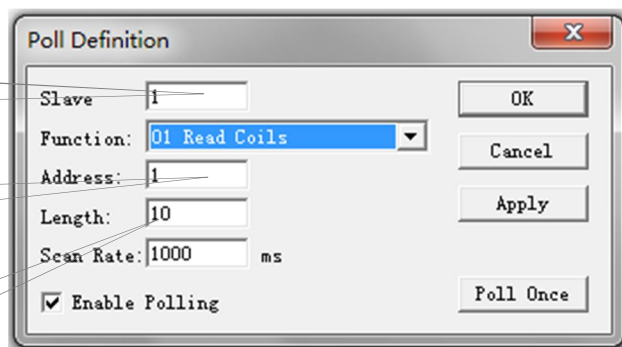
Fig.4.10

Click "OK" button, it will display the content of the reading. If the reading content is the same as the value of the web page which has the same address, it means that the software debugging success.

Take writing holding register for example:

Choose **16** button in Fig.3.7, as shown below:
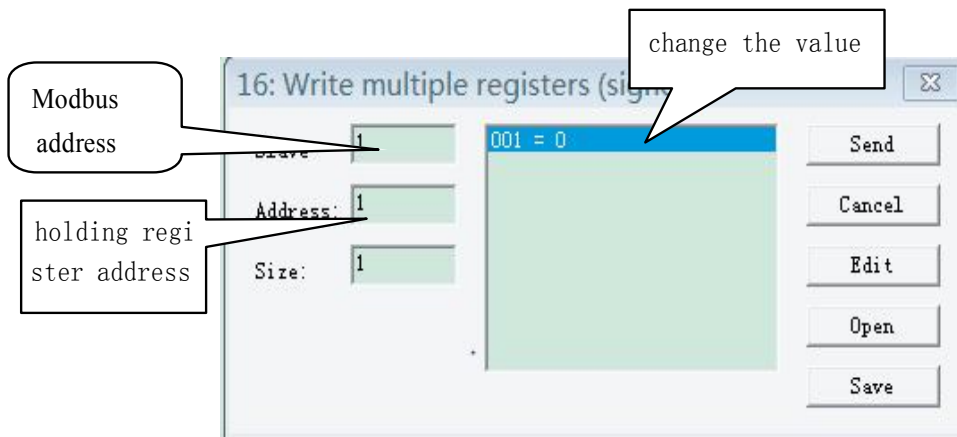
After changed the value, click "send" button to finish the writing operation.

※   **Software Reset**

Press "RESET" button on the gateway for 3 seconds and power on again, the software configuration will be back to the original setting.

4.3.6 Function Code

Function code	Function name	Function
0x01	Read Coils	Read
0x04	Read Input Register	Read
0x10	Write Holding Register	Write

4.3.7 Abnormal Reply

The master unit sends requests and waits for a reply from the slave unit. When there's no error, the slave unit will reply normally, but if the data checking error, the slave unit does not respond. When the master unit sends a wrong data (except checking error), the slave will respond abnormally.

Code	Name	Description
0x01	Illegal function code	The slave units receive a function code that can't comply.
0x02	Illegal function code	The address of received data isn't permitted by the slave units.
0x03	Illegal data	The value of query area data isn't permitted by the slave units
0x06	Slave busy	The slave unit is busy processing a long program command, and don't receive information from the main unit.

4.3.8 Mapping table

4.3.8.1 Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Coils(R)	0	1	Fan mode	1 Octet	1	1: Yes; 0:No
		2	Dry mode			1: Yes; 0:No
		3	Heat mode			1: Yes; 0:No
		4	Cool mode			1: Yes; 0:No
		5	Auto mode			1: Yes; 0:No
		6	Mode locking			1: Yes; 0:No
		7	Reserve			Reserve, stay 0
		8	On/Off			1= on; 0=off
		9-16	High fan speed	1 Octet	2	1= on; 0=off
			Mid fan speed			1= on; 0=off
			Low fan speed			1= on; 0=off
			Low fan speed			1= on; 0=off
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Auto(fixed)fan			1= on; 0=off
		17-24	Compressor	1 Octet	3	1= on; 0=off
			ODU high fan speed			1= on; 0=off
			ODU low fan speed			1= on; 0=off
			4-way valve			1= on; 0=off
			Crankcase			1= on; 0=off
			Oil return			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Coils(R)	0	25-32	ECO operation	1 Octet	4	1= on; 0=off
			Electric auxiliary heating			1= on; 0=off
			Swing			1= on; 0=off
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
		33-40	Horizontal swing	1 Octet	5	1= on ;0=off
			Add water			1= on ;0=off
			Water drain pump			1= on ;0=off
			Reserve			Reserve, stay 0
			Locking cool mode			1: Yes; 0:No
			Locking heat mode			1: Yes; 0:No
			Centralized controller lock			1: Yes; 0:No
			Remote controller lock			1: Yes; 0:No
		41-48	E0 Phase sequence error or no phase	1 Octet	6	1:Error; 0:Normal
			E1 communication error			1:Error; 0:Normal
			E2 T1 sensor error			1:Error; 0:Normal
			E3 T2A sensor error			1:Error; 0:Normal
			E4 T2B sensor error			1:Error; 0:Normal
			E5 T3/T4/Digital compressor discharge temp. sensor error			1:Error; 0:Normal
			E6 Zero crossing detection error			1:Error; 0:Normal
			E7 EEPROM error			1:Error; 0:Normal
		49-56	E8 Fan speed detection error	1 Octet	7	1:Error; 0:Normal
			E9 Mainboard and display board communication error			1:Error; 0:Normal
			EA Compressor over current (4 times)			1:Error; 0:Normal
			EB Inverter module protection			1:Error; 0:Normal
			EC Flesh error			1:Error; 0:Normal
			ED Outdoor unit error protection			1:Error; 0:Normal
			EE Water level detection error			1:Error; 0:Normal
			EF Other errors			1:Error; 0:Normal
		57-64	P0 Evaporator temp. protection	1 Octet	8	1:Protection; 0:Normal
			P1 anti-cold or defrost protection			1:Protection; 0:Normal
			P2 Condenser high temp. protection			1:Protection; 0:Normal
			P3 Compressor temp. protection			1:Protection; 0:Normal
			P4 Discharge pipe temp. protection			1:Protection; 0:Normal
			P5 Discharge high pressure protection			1:Protection; 0:Normal
			P6 Discharge low pressure protection			1:Protection; 0:Normal
			P7 Over voltage or under voltage protection			1:Protection; 0:Normal

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Coils(R)	0	65-72	P8 Compressor over current protection	1 Octet	9	1:Protection; 0:Normal
			P9			Reserve, stay 0
			PA			Reserve, stay 0
			PB			Reserve, stay 0
			PC			Reserve, stay 0
			PD			Reserve, stay 0
			PE			Reserve, stay 0
			PF Other protections			1:Protection; 0:Normal
		73-80	0# Network connection module and mainboard communication error	1 Octet	10	1:Error; 0:Normal
			1# Centralized controller and network module error			1:Error; 0:Normal
			2# Centralized controller and function module communication error			1:Error; 0:Normal
			3# Centralized controller and computer (gateway) communication error			1:Error; 0:Normal
			4# Order limit execution			1:Error; 0:Normal
			5# Order timeout, not execution			1:Error; 0:Normal
			6# Destination address not exist			1:Error; 0:Normal
			7# Error (unsupported) order			1:Error; 0:Normal
		81-128	Reserve	6 Octet	11~16	Reserve, stay 0
	1	129	Fan mode	1 Octet	17	1: Yes; 0:No
		130	Dry mode			1: Yes; 0:No
		131	Heat mode			1: Yes; 0:No
		132	Cool mode			1: Yes; 0:No
		133	Auto mode			1: Yes; 0:No
		134	Mode locking state			1: Yes; 0:No
		135	Reserve			Reserve, stay 0
		136	On/Off state			1: on; 0:off
		137-144	High fan speed	1 Octet	18	1: Yes; 0:No
			Mid fan speed			1: Yes; 0:No
			Low fan speed			1: Yes; 0:No
			Low fan speed			1: Yes; 0:No
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Auto(fixed)fan			1: Yes; 0:No
		145-152	Compressor	1 Octet	19	1= on; 0=off
			ODU high fan speed			1= on; 0=off
			ODU low fan speed			1= on; 0=off
			4-way valve			1= on; 0=off
			Crankcase			1= on; 0=off
			Oil return			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Coils(R)	1	153-160	Eco operation	1 Octet	20	1= on; 0=off
			Electric auxiliary heating			1= on; 0=off
			Swing			1= on; 0=off
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
		161-168	Horizontal swing	1 Octet	21	1= on; 0=off
			Add water			1= on; 0=off
			Water drain pump			1= on; 0=off
			Reserve			Reserve, stay 0
			Locking cool mode			1: Yes; 0:No
			Locking heat mode			1: Yes; 0:No
			Centralized controller lock			1: Yes; 0:No
			Remote controller lock			1: Yes; 0:No
		169-176	E0 Phase sequence error or no phase	1 Octet	22	1:Error; 0:Normal
			E1 communication error			1:Error; 0:Normal
			E2 T1 sensor error			1:Error; 0:Normal
			E3 T2A sensor error			1:Error; 0:Normal
			E4 T2B sensor error			1:Error;0: Normal
			E5 T3/T4/Digital compressor discharge temp. sensor error			1:Error; 0:Normal
			E6 Zero crossing detection error			1:Error;0: Normal
			E7 EEPROM error			1:Error; 0:Normal
		177-184	E8 Fan speed detection error	1 Octet	23	1:Error; 0:Normal
			E9 Mainboard and display board communication error			1:Error; 0:Normal
			EA Compressor over current (4 times)			1:Error; 0:Normal
			EB Inverter module protection			1:Error; 0:Normal
			EC Flesh error			1:Error; 0:Normal
			ED Outdoor unit error protection			1:Error; 0:Normal
			EE Water level detection error			1:Error; 0:Normal
			EF Other errors			1:Error; 0:Normal
		185-192	P0 Evaporator temp. protection	1 Octet	24	1:Protection; 0:Normal
			P1 anti-cold or defrost protection			1:Protection; 0:Normal
			P2 Condenser high temp. protection			1:Protection; 0:Normal
			P3 Compressor temp. protection			1:Protection; 0:Normal
			P4 Discharge pipe temp. protection			1:Protection; 0:Normal
			P5 Discharge high pressure protection			1:Protection; 0:Normal
			P6 Discharge low pressure protection			1:Protection; 0:Normal
			P7 Power supply over or under voltage protection			1:Protection; 0:Normal

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Coils(R)	1	193-200	P8 Compressor over current protection	1 Octet	25	1:Protection; 0:Normal
			P9			Reserve, stay 0
			PA			Reserve, stay 0
			PB			Reserve, stay 0
			PC			Reserve, stay 0
			PD			Reserve, stay 0
			PE			Reserve, stay 0
			PF Other protections			1:Protection; 0:Normal
		201-208	0# Network connection module and mainboard communication error	1 Octet	26	1:Error; 0:Normal
			1# Centralized controller and network module error			1:Error;0: Normal
			2# Centralized controller and function module communication error			1:Error;0: Normal
			3# Centralized controller and computer or gateway communication error			1:Error;0: Normal
			4# Order limit execution			1:Error;0:Normal
			5# Order timeout, not execution			1:Error;0: Normal
			6# Destination address not exist			1:Error;0:Normal
			7# Error (unsupported) order			1:Error;0:Normal
		209-256	Reserve	6 Octet	27~32	Reserve, stay 0

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Coils(R)	n	(128*n+1)-(128*n+8)	The same as the 1# indoor unit	1 Octet	n*16+1	The same as the 1# indoor unit.
		(128*n+9)-(128*n+16）		1 Octet	n*16+2	
		(128*n+17)-(128*n+24)		1 Octet	n*16+3	
		(128*n+25)-(128*n+31)		1 Octet	n*16+4	
		(128*n+32)-(128*n+40)		1 Octet	n*16+5	
		(128*n+41)-(128*n+48)		1 Octet	n*16+6	
		(128*n+49)-(128*n+56)		1 Octet	n*16+7	
		(128*n+57)-(128*n+64)		1 Octet	n*16+8	
		(128*n+65)-(128*n+72)		1 Octet	n*16+9	
		(128*n+73)-(128*n+80)		1 Octet	n*16+10	
		(128*n+81)-(128*n+128）		6 Octet	(n*16+11)~(n*16+16)	
	63	8065-8072	The same as the 1# indoor unit.	1 Octet	1009	The same as the 1# indoor unit.
		8073-8080		1 Octet	1010	
		8081-8088		1 Octet	1011	
		8089-8096		1 Octet	1012	
		8097-8104		1 Octet	1013	
		8105-8112		1 Octet	1014	
		8113-8120		1 Octet	1015	
		8121-8128		1 Octet	1016	
		8129-8136		1 Octet	1017	
		8137-8144		1 Octet	1018	
		8145-8192		6 Octet	1019~1024	

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	0	30001	System state	2 Octet	bit0: the running state of the system 1:running, 0:stop; bit1: the error state of the system, 1:error,0:normal; bit2: local/remote, 1:remote, 0:local
		30002	Model message 1	2 Octet	
		30003	Model message 2	2 Octet	
		30004	Setting temp Ts	2 Octet	16~32 means the temperature range is16 to 32℃
		30005	Indoor temp T1	2 Octet	0~240 means the temperature range is from - 20 to 100℃
		30006	Evaporator pipe temp T2A	2 Octet	0~240 means the temperature range is from - 20 to 100℃
		30007	Evaporator medium pipe temp. T2B	2 Octet	0~240 means the temperature range is from - 20 to 100℃
		30008	Condenser pipe temp T3	2 Octet	0~240 means the temperature range is from - 20 to 100℃
		30009	Reserve		
		30010	Reserve		
		30011	Timer on	2 Octet	0~96 means no timer ~ 24 hours timer
		30012	Timer off	2 Octet	0~96 means no timer ~ 24 hours timer
		30013	Electric consumption power	2 Octet	Unit :0.1HP
		30014~ 30015	Reserve	4 Octet	Reserve, stay 0
		30016	Error state	2 Octet	bit0: means E0 error, 1:Yes, 0:No bit1: means E1 error, 1:Yes, 0:No ...... bit15: means EF error,1:Yes, 0:No
		30017	Protection state	2 Octet	bit0: means P0 protection, 1: Yes, 0: No bit1: means P1 protection, 1: Yes, 0: No ...... bit15: means PF protection , 1: Yes, 0: No
		30018	0~3 outdoor unit online state	2 Octet	bit0: means 0# outdoor unit online, 1: Yes, 0: No bit1: means 1# outdoor unit online, 1: Yes, 0: No bit2: means 2# outdoor unit online, 1: Yes, 0: No bit3: means 3# outdoor unit online, 1: Yes, 0: No
		30019	0~15 indoor unit online state	2 Octet	bit0: means 0# indoor unit online, 1: Yes, 0: No bit1: means 1# indoor unit online, 1: Yes, 0: No ...... bit15: means 15# indoor unit online, 1: Yes, 0: No

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	0	30020	16~31# indoor unit online state	2 Octet	bit0: means 16# indoor unit online, 1: Yes, 0: No bit1: means 17# indoor unit online, 1: Yes, 0: No …… bit15: means 31# indoor unit online, 1: Yes, 0: No
		30021	32~47# indoor unit online state	2 Octet	bit0: means 32# indoor unit online, 1: Yes, 0: No bit1: means 33# indoor unit online, 1: Yes, 0: No …… bit15: means 47# indoor unit online, 1: Yes, 0: No
		30022	48~63# indoor unit online state	2 Octet	bit0: means 48# indoor unit online, 1: Yes, 0: No bit1: means 49# indoor unit online, 1: Yes, 0: No …… bit1: means 63# indoor unit online, 1: Yes, 0: No
		30023	0~3 #outdoor unit error state	2 Octet	bit0: means 0# outdoor unit error, 1: Yes, 0: No bit1: means 1# outdoor unit error, 1: Yes, 0: No bit2: means 2# outdoor unit error, 1: Yes, 0: No bit3: means 3# outdoor unit error, 1: Yes, 0: No
		30024	0~3# outdoor unit running state	2 Octet	bit0: means 0# outdoor unit running state, 1: Yes, 0: No bit1: means 1# outdoor unit running state, 1: Yes, 0: No bit2: means 2# outdoor unit running state, 1: Yes, 0: No bit3: means 3# outdoor unit running state , 1: Yes, 0: No
		30025	0~15# indoor unit error state	2 Octet	bit0:means 0# indoor unit error state, 1: Yes, 0: No bit1:means1# indoor unit error state, 1: Yes, 0: No …… bit15:means15# indoor unit error state, 1: Yes, 0: No

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	0	30026	16~31# indoor unit error state	2 Octet	bit0: means 16# indoor unit error state, 1: Yes, 0: No bit1: means 17# indoor unit error state, 1: Yes, 0: No …… bit15:means 31# indoor unit error state,1: Yes, 0: No
		30027	32~47# indoor unit error state	2 Octet	bit0: means 32# indoor unit error state, 1: Yes, 0: No bit1: means 33# indoor unit error state, 1: Yes, 0: No …… bit15: means 47# indoor unit error state, 1: Yes, 0: No
		30028	48~63# indoor unit error state	2 Octet	bit0: means 48# indoor unit error state, 1: Yes, 0: No bit1: means 49# indoor unit error state, 1: Yes, 0: No …… bit15: means 63# indoor unit error state, 1: Yes, 0: No
		30029	0~15# indoor unit running state	2 Octet	bit0:means 0# indoor unit running state, 1: Yes, 0: No bit1:means1# indoor unit running state, 1: Yes, 0: No …… bit15:means15# indoor unit running state, 1: Yes, 0: No
		30030	16~31# indoor unit running state	2 Octet	bit0: means 16# indoor unit running state, 1: Yes, 0: No bit1: means 17# indoor unit running state, 1: Yes, 0: No …… bit15:means 31# indoor unit running state,1: Yes, 0: No
		30031	32~47# indoor unit running state	2 Octet	bit0: means 32# indoor unit running state, 1: Yes, 0: No bit1: means 33# indoor unit running state, 1: Yes, 0: No …… bit15: means 47# indoor unit running state, 1: Yes, 0: No
		30032	48~63# indoor unit running state	2 Octet	bit0: means 48# indoor unit error state, 1: Yes, 0: No bit1: means 49# indoor unit error state, 1: Yes, 0: No …… bit15: means 63# indoor unit error state, 1: Yes, 0: No

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	1	30033	Reserve		Reserve, stay 0
		30034	Model message 1	2 Octet	
		30035	Model message 2	2 Octet	
		30036	Setting temp. Ts	2 Octet	16~32 means the temperature range is16 to 32℃
		30037	Indoor temp T1	2 Octet	0~240 means the temperature range is from - 20 to 100℃
		30038	Evaporator pipe temp. T2A	2 Octet	0~240 means the temperature range is from - 20 to 100℃
		30039	Evaporator medium pipe temp. T2B	2 Octet	0~240 means the temperature range is from - 20 to 100℃
		30040	Condenser pipe temp. T3	2 Octet	0~240 means the temperature range is from - 20 to 100℃
		30041	Reserve		
		30042	Reserve		
		30043	Timer on	2 Octet	0~96 means no timer ~ 24 hours timer
		30044	Timer off	2 Octet	0~96 means no timer~ 24 hours timer
		30045	Electric consumption power	2 Octet	Unit :0.1HP
		30046~30047	Reserve	4 Octet	Reserve, stay 0
		30048	Error state	2 Octet	The same as the 0# indoor unit.
		30049	Protection state	2 Octet	
		30050	0~3 outdoor unit online state	2 Octet	
		30051	0~15 indoor unit online state	2 Octet	
		30052	16~31 indoor unit online state	2 Octet	
		30053	32~47 indoor unit online state	2 Octet	
		30054	48~63 indoor unit online state	2 Octet	
		30055	0~3 outdoor unit error state	2 Octet	
		30056	0~3 outdoor unit running state	2 Octet	
		30057	0~15 indoor unit error state	2 Octet	
		30058	16~31 indoor unit error state	2 Octet	
		30059	32~47 indoor unit error state	2 Octet	
		30060	48~63 indoor unit error state	2 Octet	
		30061	0~15 indoor unit running state	2 Octet	
		30062	16~31 indoor unit running state	2 Octet	
		30063	32~47indoor unit running state	2 Octet	
		30064	48~63 indoor unit running state	2 Octet	

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	n	30000+n*32+1	Reserve		The same as the 1# indoor unit.
		30000+n*32+2	Model message 1	2 Octet	
		30000+n*32+3	Model message 2	2 Octet	
		30000+n*32+4	Setting temp. Ts	2 Octet	
		30000+n*32+5	Indoor temp T1	2 Octet	
		30000+n*32+6	Evaporator pipe temp. T2A	2 Octet	
		30000+n*32+7	Evaporator medium pipe temp. T2B	2 Octet	
		30000+n*32+8	Condenser pipe temp. T3	2 Octet	
		30000+n*32+9	Reserve		
		30000+n*32+10	Reserve		
		30000+n*32+11	Timer on	2 Octet	
		30000+n*32+12	Timer off	2 Octet	
		30000+n*32+13	Electric consumption power	2 Octet	
		(30000+n*32+14）~(30000+n*32+32	Reserve	38 Octet	
	63	32017	Reserve		The same as the 1# indoor unit.
		32018	Model message 1	2 Octet	
		32019	Model message 2	2 Octet	
		32020	Setting temp. Ts	2 Octet	
		32021	Indoor temp. T1	2 Octet	
		32022	Evaporator pipe temp. T2A	2 Octet	
		32023	Evaporator medium pipe temp. T2B	2 Octet	
		32024	Condenser pipe temp. T3	2 Octet	
		32025	Reserve		
		32026	Reserve		
		32027	Timer on	2 Octet	
		32028	Timer off	2 Octet	
		32029	Electric consumption power	2 Octet	
		32030~32048	Reserve	38 Octet	

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Holding register (W)	0	40001	Refrigerant system on/off	2 Octet	0:All-off the system 1:All-on the system – The summer mode 1: cooling,17℃,Low speed, no timer and auxiliary; 2 : All-on the system – The summer mode 2: cooling, 24℃, medium speed, no timer and auxiliary; 3: All-on the system – The summer mode 3: cooling, 26℃, high speed, no timer and auxiliary; 4: All-on the system - the winter mode 1: heat mode, 30℃, high speed, no timer and auxiliary; 5: All-on the system - the winter mode 2: heat mode, 26℃, medium speed, no timer and auxiliary; 6: All-on the system - the winter mode 3: heat mode, 24℃, low speed, no timer and auxiliary.
		40002	Setting mode	2 Octet	bit15~bit8: reserve, stay 0 bit7: turn On/Off, 1: On, 0: Off bit6: reserve, stay 0 bit5: mode lock bit4: auto mode 1: Yes, 0: No bit3: cool mode 1: Yes, 0: No bit2: heat mode 1: Yes, 0: No bit1: dry mode 1: Yes, 0: No bit0: Fan mode 1: Yes, 0: No bit6~bit0: every bit mutually exclusive.
		40003	Setting fan speed	2 Octet	bit15~bit8: reserve, stay 0 bit7: Auto fan 1: Yes, 0: No bit6~bit3: reserve, stay 0 bit2: Low fan speed 1: Yes, 0: No bit1: Medium fan speed 1: Yes, 0: No bit0: High fan speed 1: Yes, 0: No bit7~bit0: every bit mutually exclusive.
		40004	Setting temperature	2 Octet	16~32 means the temperature range is16 to 32℃
		40005	Time on	2 Octet	0~96 means no timer ~ 24 hours timer
		40006	Time off	2 Octet	0~96 means no timer ~ 24 hours timer

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Holding register (W)	0	40007	Auxiliary function state	2 Octet	bit15~bit4:Reserve, stay 0 bit3: Change of air 1:On, 0:Off bit2: Swing 1: On, 0: Off bit1: Electric auxiliary heating 1: On, 0: Off bit0: Economic operation 1: On, 0: Off
		40008-40032	Reserve	50 Octet	Reserve , cannot write.
	1	40033	Reserve	2 Octet	The same as the 0# indoor unit.
		40034	Setting mode	2 Octet	
		40035	Setting fan speed	2 Octet	
		40036	Setting temperature	2 Octet	
		40037	Time on	2 Octet	
		40038	Time off	2 Octet	
		40039	Auxiliary function state	2 Octet	
		40040~40064	Reserve	50 Octet	Reserve , cannot write.
	n	40000+n*32+1	Reserve	2 Octet	The same as the 1# indoor unit.
		40000+n*32+2	Setting mode	2 Octet	
		40000+n*32+3	Setting fan speed	2 Octet	
		40000+n*32+4	Setting temperature	2 Octet	
		40000+n*32+5	Time on	2 Octet	
		40000+n*32+6	Time off	2 Octet	
		40000+n*32+7	Auxiliary function state	2 Octet	
		(40000+n*32+8)~(40000+n*32+32）	Reserve	50 Octet	Reserve , cannot write.
	63	42017	Reserve	2 Octet	The same as the 1# indoor unit.
		42018	Setting mode	2 Octet	
		42019	Setting fan speed	2 Octet	
		42020	Setting temperature	2 Octet	
		42021	Time on	2 Octet	
		42022	Time off	2 Octet	
		42023	Auxiliary function state	2 Octet	
		42024~42048	Reserve	50 Octet	Reserve, cannot write.

Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
	64	/	/	/	Can group control the 0-7# indoor units and the format is the same as the above each indoor unit.
	65	/	/	/	Can group control the 8-15# indoor units and the format is the same as the above each indoor unit.
	66	/	/	/	Can group control the 16-23# indoor units and the format is the same as the above each indoor unit.
	67	/	/	/	Can group control the 24-31# indoor units and the format is the same as the above each indoor unit.
	68	/	/	/	Can group control the 32-39# indoor units and the format is the same as the above each indoor unit.
	69	/	/	/	Can group control the 40-47# indoor units and the format is the same as the above each indoor unit.
	70	/	/	/	Can group control the 48-55# indoor units and the format is the same as the above each indoor unit.
	71	/	/	/	Can group control the 56-63# indoor units and the format is the same as the above each indoor unit.
	72	/	/	/	Can group control the 0-63# indoor units and the format is the same as the above each indoor unit.

Explain：

• For Coil

Address = (Value of Modbus address for registers) - 1

• For Input register

Address = (Value of Modbus address for registers) - 30001

• For holding register

Address = (Value of Modbus address for registers) - 40001

4.3.8.2 Outdoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Explanation
		8192+1	Cool mode	1: Yes, 0: No
		8194	Heat mode	1: Yes, 0: No
		8195	Reserve	Reserve, stay 0
		8196	Reserve	Reserve, stay 0
		8197	Reserve	Reserve, stay 0
		8198	Reserve	Reserve, stay 0
		8199	Lock indicator	1: Yes, 0: No
		8200	Force locking	1: Yes, 0: No
		8201	Low speed	1: Yes, 0: No
		8202	Medium speed	1: Yes, 0: No
		8203	High speed	1: Yes, 0: No
		8204	Reserve	Reserve, stay 0
		8205	Reserve	Reserve, stay 0
		8206	Reserve	Reserve, stay 0
		8207	Reserve	Reserve, stay 0
		8208	Reserve	Reserve, stay 0
		8209	4-way valveST1	1: on, 0: off
		8210	Auxiliary 4-way valve ST2	1: on, 0: off
		8211	Solenoid valve SV1	1: on, 0: off
		8212	Solenoid valve SV2	1: on, 0: off
		8213	Solenoid valve SV3	1: on, 0: off
		8214	Solenoid valve SV4	1: on, 0: off
		8215	Solenoid valve SV5	1: on, 0: off
		8216	Solenoid valve SV6	1: on, 0: off
Coils(R)	0	8217	Compressor 1	1: on, 0: off
		8218	Compressor 2	1: on, 0: off
		8219	Compressor 3	1: on, 0: off
		8220	Reserve	Reserve, stay 0
		8221	Reserve	Reserve, stay 0
		8222	Reserve	Reserve, stay 0
		8223	Reserve	Reserve, stay 0
		8224	Reserve	Reserve, stay 0
		8225	E0 Outdoor unit communication error	1:Error, 0: Normal
		8226	E1 Phase sequence error or no phase	1:Error, 0: Normal
		8227	E2 Communication error between outdoor and indoor unit	1:Error, 0: Normal
		8228	E4 Reserve	Reserve, stay 0
		8229	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		8230	E5 Reserve	Reserve, stay 0
		8231	E6 T6 sensor error	1:Error, 0: Normal
		8232	E7 Reserve	Reserve, stay 0
		8233	E8 Reserve	Reserve, stay 0
		8234	E9 Voltage error	1:Error, 0: Normal
		8235	H1 Network communication error	1:Error, 0: Normal
		8236	H0 DSP communication error	1:Error, 0: Normal
		8237	H2 Outdoor unit quantities decreasing error (Only master unit effective)	1:Error, 0: Normal
		8238	H3 Outdoor unit quantities increasing error (Only master unit effective)	Reserve, stay 0

Outdoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Explanation
	0	8239	EE Reserve	Reserve, stay 0
		8240	EF Other error	
		8241	P0 Compressor top temp. protection	1:protection, 0: Normal
		8242	P1 Discharge high pressure protection	1:protection, 0: Normal
		8243	P2 Discharge low pressure protection	1:protection, 0: Normal
		8244	P3 Current protection of compressor 1	1:protection, 0: Normal
		8245	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		8246	P5 Condenser high temp protection	1:protection, 0: Normal
		8247	P6 Inverter module protection	1:protection, 0: Normal
		8248	P7 Current protection of compressor 2	1:protection, 0: Normal
		8249	P8 Current protection of compressor 3	1:protection, 0: Normal
		8250	P9 Over voltage and under voltage protections	1:protection, 0: Normal
		8251	PA Defrost protection	1:protection, 0: Normal
		8252	PB Reserve	Reserve, stay 0
		8253	PC Reserve	Reserve, stay 0
		8254	PD Oil return	1:protection, 0: Normal
		8255	PE Oil Balance	1:protection, 0: Normal
		8256	PF Other error	1:protection, 0: Normal
		8257~8320	Reserve	Reserve, stay 0
Coils(R)	1	8320+1	Cool mode	1: Yes, 0: No
		8322	Heat mode	1: Yes, 0: No
		8323	Reserve	Reserve, stay 0
		8324	Reserve	Reserve, stay 0
		8325	Reserve	Reserve, stay 0
		8326	Reserve	Reserve, stay 0
		8327	Lock indicator	1: Yes, 0: No
		8328	Force locking	1: Yes, 0: No
		8329	Low speed	1: Yes, 0: No
		8330	Medium speed	1: Yes, 0: No
		8331	High speed	1: Yes, 0: No
		8332	Reserve	Reserve, stay 0
		8333	Reserve	Reserve, stay 0
		8334	Reserve	Reserve, stay 0
		8335	Reserve	Reserve, stay 0
		8336	Reserve	Reserve, stay 0
		8337	4-way valveST1	1: on, 0: off
		8338	Auxiliary 4-way valve ST2	1: on, 0: off
		8339	Solenoid valve SV1	1: on, 0: off
		8340	Solenoid valve SV2	1: on, 0: off
		8341	Solenoid valve SV3	1: on, 0: off
		8342	Solenoid valve SV4	1: on, 0: off
		8343	Solenoid valve SV5	1: on, 0: off
		8344	Solenoid valve SV6	1: on, 0: off
		8345	Compressor 1	1: on, 0: off
		8346	Compressor 2	1: on, 0: off
		8347	Compressor 3	1: on, 0: off
		8348	Reserve	Reserve, stay 0
		8349	Reserve	Reserve, stay 0
		8350	Reserve	Reserve, stay 0
		8351	Reserve	Reserve, stay 0
		8352	Reserve	Reserve, stay 0

Outdoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Explanation
		8353	E0 Outdoor unit communication error	1:Error, 0: Normal
		8354	E1 Phase sequence error or no phase	1:Error, 0: Normal
		8355	E2 Communication error between outdoor and indoor unit	1:Error, 0: Normal
		8356	E4 Reserve	Reserve, stay 0
		8357	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		8358	E5 Reserve	Reserve, stay 0
		8359	E6 T6 sensor error	1:Error, 0: Normal
		8360	E7 Reserve	Reserve, stay 0
		8361	E8 Reserve	Reserve, stay 0
		8362	E9 Voltage error	1:Error, 0: Normal
		8363	H1 Network communication error	1:Error, 0: Normal
		8364	H0 DSP communication error	1:Error, 0: Normal
		8365	H2 Outdoor unit quantities decreasing error (Only master unit effective)	1:Error, 0: Normal
		8366	H3 Outdoor unit quantities increasing error (Only master unit effective)	Reserve, stay 0
Coils(R)	1	8367	EE Reserve	Reserve, stay 0
		8368	EF Other error	
		8369	P0 Compressor top temp. protection	1:protection, 0: Normal
		8370	P1 Discharge high pressure protection	1:protection, 0: Normal
		8371	P2 Discharge low pressure protection	1:protection, 0: Normal
		8372	P3 Current protection of compressor 1	1:protection, 0: Normal
		8373	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		8374	P5 Condenser high temp protection	1:protection, 0: Normal
		8375	P6 Inverter module protection	1:protection, 0: Normal
		8376	P7 Current protection of compressor 2	1:protection, 0: Normal
		8377	P8 Current protection of compressor 3	1:protection, 0: Normal
		8378	P9 Over voltage and under voltage protections	1:protection, 0: Normal
		8379	PA Defrost protection	1:protection, 0: Normal
		8380	PB Reserve	Reserve, stay 0
		8381	PC Reserve	Reserve, stay 0
		8382	PD Oil return	1:protection, 0: Normal
		8383	PE Oil Balance	1:protection, 0: Normal
		8384	PF Other error	1:protection, 0: Normal
		8385~8448	Reserve	Reserve, stay 0

Outdoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Explanation
Coils(R)	n	8192+n*128+1	Cool mode	1: Yes, 0: No
		8192+n*128+2	Heat mode	1: Yes, 0: No
		8192+n*128+3	Reserve	Reserve, stay 0
		8192+n*128+4	Reserve	Reserve, stay 0
		8192+n*128+5	Reserve	Reserve, stay 0
		8192+n*128+6	Reserve	Reserve, stay 0
		8192+n*128+7	Lock indicator	1: Yes, 0: No
		8192+n*128+8	Force locking	1: Yes, 0: No
		8192+n*128+9	Low speed	1: Yes, 0: No
		8192+n*128+10	Medium speed	1: Yes, 0: No
		8192+n*128+11	High speed	1: Yes, 0: No
		8192+n*128+12	Reserve	Reserve, stay 0
		8192+n*128+13	Reserve	Reserve, stay 0
		8192+n*128+14	Reserve	Reserve, stay 0
		8192+n*128+15	Reserve	Reserve, stay 0
		8192+n*128+16	Reserve	Reserve, stay 0
		8192+n*128+17	4-way valve ST1	1: on, 0: off
		8192+n*128+18	Auxiliary 4-way valve ST2	1: on, 0: off
		8192+n*128+19	Solenoid valve SV1	1: on, 0: off
		8192+n*128+20	Solenoid valve SV2	1: on, 0: off
		8192+n*128+21	Solenoid valve SV3	1: on, 0: off
		8192+n*128+22	Solenoid valve SV4	1: on, 0: off
		8192+n*128+23	Solenoid valve SV5	1: on, 0: off
		8192+n*128+24	Solenoid valve SV6	1: on, 0: off
		8192+n*128+25	Compressor 1	1: on, 0: off
		8192+n*128+26	Compressor 2	1: on, 0: off
		8192+n*128+27	Compressor 3	1: on, 0: off
		8192+n*128+28	Reserve	Reserve, stay 0
		8192+n*128+29	Reserve	Reserve, stay 0
		8192+n*128+30	Reserve	Reserve, stay 0
		8192+n*128+31	Reserve	Reserve, stay 0
		8192+n*128+32	Reserve	Reserve, stay 0
		8192+n*128+33	E0 Outdoor unit communication error	1:Error, 0: Normal
		8192+n*128+34	E1 Phase sequence error or no phase	1:Error, 0: Normal
		8192+n*128+35	E2 Communication error between outdoor and indoor unit	1:Error, 0: Normal
		8192+n*128+36	E4 Reserve	Reserve, stay 0
		8192+n*128+37	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		8192+n*128+38	E5 Reserve	Reserve, stay 0
		8192+n*128+39	E6 T6 sensor error	1:Error, 0: Normal
		8192+n*128+40	E7 Reserve	Reserve, stay 0
		8192+n*128+41	E8 Reserve	Reserve, stay 0
		8192+n*128+42	E9 Voltage error	1:Error, 0: Normal
		8192+n*128+43	H1 Network communication error	1:Error, 0: Normal
		8192+n*128+44	H0 DSP communication error	1:Error, 0: Normal
		8192+n*128+45	H2 Outdoor unit quantities decreasing error (Only master unit effective)	1:Error, 0: Normal
		8192+n*128+46	H3 Outdoor unit quantities increasing error (Only master unit effective)	Reserve, stay 0
		8192+n*128+47	EE Reserve	Reserve, stay 0
		8192+n*128+48	EF Other error	

Outdoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Explanation
Coils(R)	n	8192+n*128+49	P0 Compressor top temp. protection	1:protection, 0:Normal
		8192+n*128+50	P1 Discharge high pressure protection	1:protection, 0: Normal
		8192+n*128+51	P2 Discharge low pressure protection	1:protection, 0: Normal
		8192+n*128+52	P3 Current protection of compressor 1	1:protection, 0: Normal
		8192+n*128+53	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		8192+n*128+54	P5 Condenser high temp protection	1:protection, 0: Normal
		8192+n*128+55	P6 Inverter module protection	1:protection, 0: Normal
		8192+n*128+56	P7 Current protection of compressor 2	1:protection, 0: Normal
		8192+n*128+57	P8 Current protection of compressor 3	1:protection, 0: Normal
		8192+n*128+58	P9 Over voltage and under voltage protections	1:protection, 0: Normal
		8192+n*128+59	PA Defrost protection	1:protection, 0: Normal
		8192+n*128+60	PB Reserve	Reserve, stay 0
		8192+n*128+61	PC Reserve	Reserve, stay 0
		8192+n*128+62	PD Oil return	1:protection, 0: Normal
		8192+n*128+63	PE Oil Balance	1:protection, 0: Normal
		8192+n*128+64	PF Other error	1:protection, 0: Normal
		(8192+n*128+65)~ (8192+n*128+128)	Reserve	Reserve, stay 0
	3	8577	Cool mode	1: Yes, 0: No
		8578	Heat mode	1: Yes, 0: No
		8579	Reserve	Reserve, stay 0
		8580	Reserve	Reserve, stay 0
		8581	Reserve	Reserve, stay 0
		8582	Reserve	Reserve, stay 0
		8583	Lock indicator	1: Yes, 0: No
		8584	Force locking	1: Yes, 0: No
		8585	Low speed	1: Yes, 0: No
		8586	Medium speed	1: Yes, 0: No
		8587	High speed	1: Yes, 0: No
		8588	Reserve	Reserve, stay 0
		8589	Reserve	Reserve, stay 0
		8590	Reserve	Reserve, stay 0
		8591	Reserve	Reserve, stay 0
		8592	Reserve	Reserve, stay 0
		8593	4-way valveST1	1: on, 0: off
		8594	Auxiliary 4-way valve ST2	1: on, 0: off
		8595	Solenoid valve SV1	1: on, 0: off
		8596	Solenoid valve SV2	1: on, 0: off
		8597	Solenoid valve SV3	1: on, 0: off
		8598	Solenoid valve SV4	1: on, 0: off
		8599	Solenoid valve SV5	1: on, 0: off
		8600	Solenoid valve SV6	1: on, 0: off
		8601	Compressor 1	1: on, 0: off
		8602	Compressor 2	1: on, 0: off
		8603	Compressor 3	1: on, 0: off
		8604	Reserve	Reserve, stay 0
		8605	Reserve	Reserve, stay 0
		8606	Reserve	Reserve, stay 0
		8607	Reserve	Reserve, stay 0
		8608	Reserve	Reserve, stay 0

Outdoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Explanation
Coils(R)	3	8609	E0 Outdoor unit communication error	1:Error, 0: Normal
		8610	E1 Phase sequence error or no phase	1:Error, 0: Normal
		8611	E2 Communication error between outdoor and indoor unit	1:Error, 0: Normal
		8612	E4 Reserve	Reserve, stay 0
		8613	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		8614	E5 Reserve	Reserve, stay 0
		8615	E6 T6 sensor error	1:Error, 0: Normal
		8616	E7 Reserve	Reserve, stay 0
		8617	E8 Reserve	Reserve, stay 0
		8618	E9 Voltage error	1:Error, 0: Normal
		8619	H1 Network communication error	1:Error, 0: Normal
		8620	H0 DSP communication error	1:Error, 0: Normal
		8621	H2 Outdoor unit quantities decreasing error (Only master unit effective)	1:Error, 0: Normal
		8622	H3 Outdoor unit quantities increasing error (Only master unit effective)	Reserve, stay 0
		8623	EE Reserve	Reserve, stay 0
		8624	EF Other error	
		8625	P0 Compressor top temp. protection	1:protection, 0:Normal
		8626	P1 Discharge high pressure protection	1:protection, 0: Normal
		8627	P2 Discharge low pressure protection	1:protection, 0: Normal
		8628	P3 Current protection of compressor 1	1:protection, 0: Normal
		8629	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		8630	P5 Condenser high temp. protection	1:protection, 0: Normal
		8631	P6 Inverter module protection	1:protection, 0: Normal
		8632	P7 Current protection of compressor 2	1:protection, 0: Normal
		8633	P8 Current protection of compressor 3	1:protection, 0: Normal
		8634	P9 Over voltage and under voltage protections	1:protection, 0: Normal
		8635	PA Defrost protection	1:protection, 0: Normal
		8636	PB Reserve	Reserve, stay 0
		8637	PC Reserve	Reserve, stay 0
		8638	PD Oil return	1:protection, 0: Normal
		8639	PE Oil Balance	1:protection, 0: Normal
		8640	PF Other error	1:protection, 0: Normal
		8641~8704	Reserve	Reserve, stay 0

Outdoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Explanation
Input register (R)	0	32048+1	Reserve	Reserve, stay 0
		32050	The first byte of models message	
		32051	The second byte of model message	
		32052	Ambient temperature T4	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32053	Condenser outlet temperature T3	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32054	Condenser inlet temperature T6	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32056	The discharge temperature of compressor 2	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32057	The discharge temperature of compressor 3	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32058	Quantity of indoor units	0~250 means 0~250 indoor units
		32059	Current of compressor 1	0~200 means the current range from 0A to 200A
		32060	Current of compressor 2	0~200 means the current range from 0A to 200A
		32061	Current of compressor 3	0~200 means the current range from 0A to 200A
		32062	Inverter compressor frequency	0~250 means 0~250Hz
		32063	Opening degree of EXV 1	00h~07Dh means 0~1000 step open degree and resolution is 8 step; 0FFh means no the data.
		32064	Opening degree of EXV 2	
		32065	Capacity of outdoor unit	Each 1 means 1HP, and 0~250 means 0~250
		32066~32080	Reserve	Reserve, stay 0
	1	32081	Reserve	Reserve, stay 0
		32082	The first byte of models message	
		32083	The second byte of model message	
		32084	Ambient temperature T4	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32085	Condenser outlet temperature T3	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32086	Condenser inlet temperature T6	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32087	The discharge temperature of compressor 2	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)

Outdoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Explanation
Input register (R)	1	32089	Current of compressor 3	0~200 means the current range from 0A to 200A
		32090	Inverter compressor frequency	0~250 means 0~250Hz
		32091	Opening degree of EXV 1	00h~07Dh means 0~1000 step open degree and resolution is 8 step; 0FFh means no the data.
		32092	Opening degree of EXV 2	
		32093	Capacity of outdoor unit	Each 1 means 1HP, and 0~250 means 0~250
		32094	Reserve	Reserve, stay 0
	2	32113	Reserve	Reserve, stay 0
		32114	The first byte of models message	
		32115	The second byte of model message	
		32116	Ambient temperature T4	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32117	Condenser outlet temperature T3	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32118	Condenser inlet temperature T6	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32119	The discharge temperature of compressor 2	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32120	The discharge temperature of compressor 3	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32121	Quantity of indoor units	0~250 means 0~250 indoor units
		32122	Current of compressor 1	0~200 means the current range from 0A to 200A
		32123	Current of compressor 2	0~200 means the current range from 0A to 200A
		32124	Current of compressor 3	0~200 means the current range from 0A to 200A
		32125	Inverter compressor frequency	0~250 means 0~250Hz
		32126	Opening degree of EXV 1	00h~07Dh means 0~1000 step open degree and resolution is 8 step; 0FFh means no the data.
		32127	Opening degree of EXV 2	
		32128	Capacity of outdoor unit	Each 1 means 1HP, and 0~250 means 0~250
		32129	Reserve	Reserve, stay 0

Outdoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Explanation
Input register (R)	3	32145	Reserve	Reserve, stay 0
		32146	The first byte of models message	
		32147	The second byte of model message	
		32148	Ambient temperature T4	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32149	Condenser outlet temperature T3	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32150	Condenser inlet temperature T6	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32151	The discharge temperature of compressor 2	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32152	The discharge temperature of compressor 3	0~240 means the temperature range is from - 20 to 100℃ (temp*2+20)
		32153	Quantity of indoor units	0~250 means 0~250 indoor units
		32154	Current of compressor 1	0~200 means the current range from 0A to 200A
		32155	Current of compressor 2	0~200 means the current range from 0A to 200A
		32156	Current of compressor 3	0~200 means the current range from 0A to 200A
		32157	Inverter compressor frequency	0~250 means 0~250Hz
		32158	Opening degree of EXV 1	00h~07Dh means 0~1000 step open degree and resolution is 8 step; 0FFh means no the data.
		32159	Opening degree of EXV 2	
		32160	Capacity of outdoor unit	Each 1 means 1HP, and 0~250 means 0~250
		32161	Reserve	Reserve, stay 0

Explain：

Address = (Value of Modbus address for registers) - 1

· For Input register

Address = (Value of Modbus address for registers) - 30001

· For Holding register

Address = (Value of Modbus address for registers) - 40001