



1st Gen. Controllers VRF Midea

MODBUS GATEWAY
OPERATION MANUAL & MAPPING TABLE
CCM-18A/N

Modbus Gateway Operation Manual

Applicable models: CCM-18A/N

Thank you very much for purchasing our product.
Before using your unit, please read this manual carefully and keep it for
future reference.

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1. Safety precautions



The following contents are stated on the product and the operation manual, including usage, precautions against personal harm and property loss, and the methods of using the product correctly and safely.

After fully understanding the following contents (identifiers and icons), read the text body and observe the following rules.



■ Identifier description

Identifier	Meaning
 Warning	Means improper handling may lead to personal death or severe injury.
 Caution	Means improper handling may lead to personal injury or property loss.
[Note]: 1. “Harm” means injury, burn and electric shock which need long-term treatment but need no hospitalization 2. “Property loss” means loss of properties and materials.	

■ Icon description

Icon	Meaning
	It indicates forbidding. The forbidden subject-matter is indicated in the icon or by images or characters aside.
	It indicates compulsory implementation. The compulsory subject-matter is indicated in the icon or by images or characters aside.

Warning

 Warning	Delegate installation	Please entrust the distributor or professionals to install the unit. The installers must have the relevant know-how. Improper installation performed by the user without permission may cause fire, electric, shock, personal injury or water leakage.
 Usage Warning	Forbid	Do not spray flammable aerosol to it directly. Otherwise, fire may occur.
	Forbid	Do not operate with wet hands or let water enter it. Otherwise, electric shock may occur.

2. Overview

2.1. Instruction

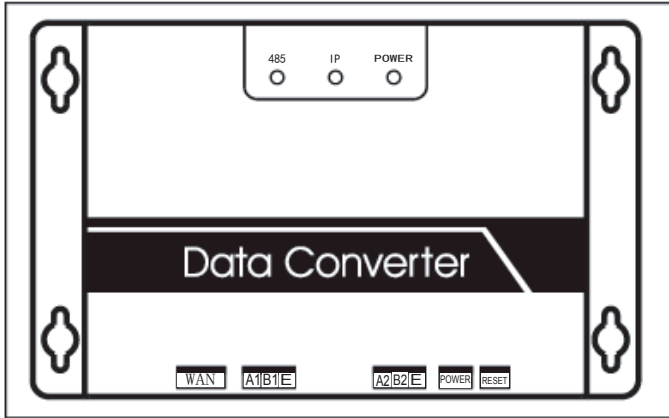


Fig.2.1

- WAN terminal: Connect to the switch by 5 kinds of network cables to ensure that PC can access to the web page of it.
- A1B1E terminal: Connect to the indoor/outdoor unit
- A2B2E terminal: Connect to the terminal serial port.

2.2. System Architecture Description

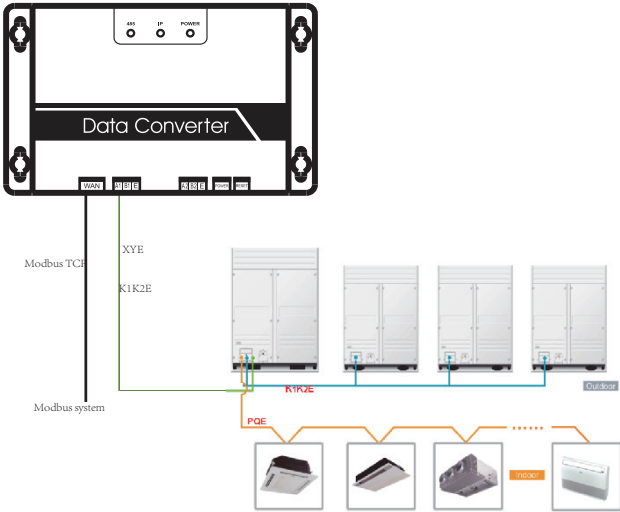
It supports two kinds of outdoor unit with baud rates of 600 and 4800. (For detailed information, please contact our technical support). The addresses of accessed indoor/outdoor units can't repeat.

1. When the baud rate of the outdoor unit is 600, 64 indoor units and 4 outdoor units can connect to it at most.
2. When the baud rate of the outdoor unit is 4800, 60 indoor (with the address from 4—63) units and 4 outdoor units can connect to it at most.

The upper computer system with Modbus protocol access to terminal A2B2E by RTU or by TCP to connect to modbus gateway. See the connection figure between modbus gateway and air-conditioner system below:

Connection through Modbus TCP:

Note: XYE port and K1K2E port connect hand in hand, and then access to A1B1E port.



Connection through Modbus RTU:

Fig.2.2

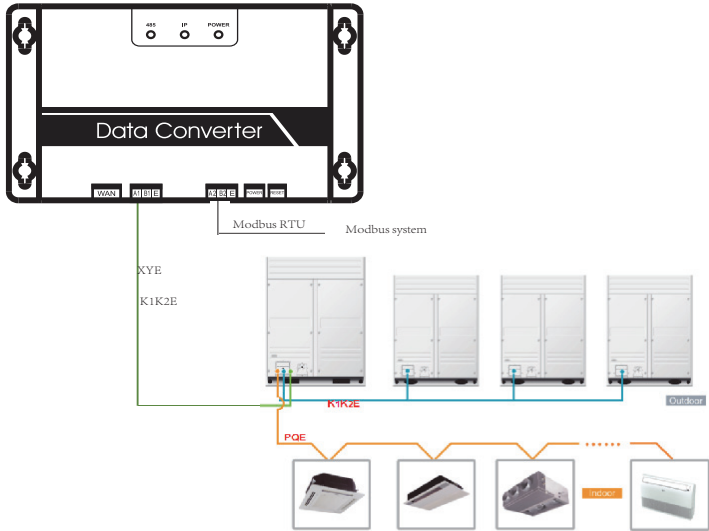


Fig.2.3

2.3. Function Code

Function code	Function name	Function
0x02	Discrete input	Read
0x03	Read Holding Register	Read
0x04	Read Input Register	Write
0x10	Write Holding Register	Read

2.4. Abnormal Reply

The master unit sends requests and waits for reply from the slave. When there's no error occurs, the slave will reply normally, but when there's data checking error, the slave won't answer. When the master unit sends wrong data (except for checking error), the slave will answer abnormally.

Code	Name	Meaning
0x01	Illegal function code	Function code received by the slave can't be executed.
0x02	Illegal data address	The received data address is not allowed.
0x03	Illegal data	Value in query data field is not allowed by the slave
0x06	Slave busy	The slave is busy with a long-time program command. Ask the master to send messages when the slave is free.

3. Usage Introduction

3.1. IP Configuration

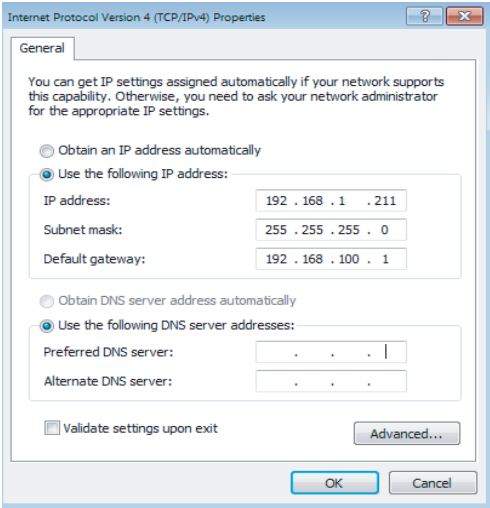
The default IP address is 192.168.1.200 when modbus gateway leaves the factory.

The PC used for visiting websites must be in the same subnet segment with modbus gateway, which means it should be 192.168.1.xx (xx is from 2 to 254).

There are 2 ways to configure IP: static configuration and multi-IP addition.

3.1.1. Single IP Configuration

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



After setting, click "OK" button.

Fig.3.1

3.1.2. Multi-IP Addition

Configure a static IP address before adding multiple IP.

Open protocol dialog and choose Advanced tab. TCP/IP setting dialog will display like below:

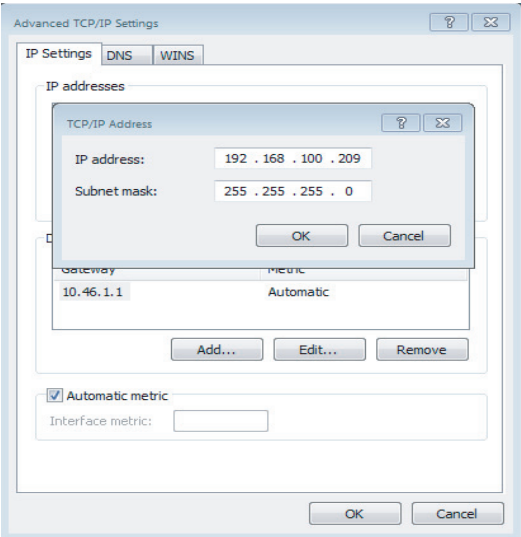


Fig.3.2

Click “Add” in IP address bar to add an IP address which is in the same segment as “192.168.1.200”, e.g., IP: 192.168.1.209, subnet mask 255.255.255.0, and click “OK”.

3.2. Configuration

Input http://192.168.1.200 in the address bar in IE (suggest to use IE). Choose “Configuration” when web page of modbus gateway displays, as shown below:

Modbus Address

1

Modbus Commu. Setting

9600

None-无校验

IP Address

192.168.1.200

Netmask

255.255.255.0

Gateway

192.168.1.1

Outlet Baudrate

600

if outlet baudrate is 600, then support outlet(0~3),in

if outlet baudrate is 4800, then support outlet(0~3),i

Get Setting successful!

Get Setting

Apply Setting

Fig.3.3

Parameters Setting:

Parameter	Description
Modbus address	Modbus ID, to distinguish modbus gateway with multiple Modbus protocols in the same subnet. Don't repeat the address.
Modbus commu- nication setting	Baud rate: suggest 9600; Check bit: no checking by default Stop bit: 1StopBit by default
IP address	IP address of modbus gateway, multiple IPs can't be the same.
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. Click “Get Settings” when apply the new settings. Modbus gateway will restart automatically after changing settings, the network will break and reconnect.

3.3. Air Conditioner Information Query

Choose “discrete input” or “input register” in the web page to read information of the air conditioner unit.

When choose “discrete input” it will be like the picture below.

Discrete input					Input Registers					Airconditioner C				
0	1	2	3	4	5	6	7	8	9	10	11	12	13	
20	21	22	23	24	25	26	27	28	29	30	31	32	33	
40	41	42	43	44	45	46	47	48	49	50	51	52	53	
60	61	62	63		Indoor#4:COOL-MODE							Outlet#0		
10513	<input type="radio"/>									10540	<input type="radio"/>			
10514	<input type="radio"/>									10541	<input type="radio"/>			
10515	<input type="radio"/>									10542	<input type="radio"/>			
10516	<input checked="" type="radio"/>									10543	<input type="radio"/>			
10517	<input type="radio"/>									10544	<input type="radio"/>			
10518	<input type="radio"/>									10545	<input type="radio"/>			
10519	<input type="radio"/>									10546	<input type="radio"/>			
10520	<input checked="" type="radio"/>									10547	<input type="radio"/>			
10521	<input type="radio"/>									10548	<input type="radio"/>			
10522	<input type="radio"/>									10549	<input type="radio"/>			
10523	<input checked="" type="radio"/>									10550	<input type="radio"/>			
10524	<input type="radio"/>									10551	<input type="radio"/>			
10525	<input type="radio"/>									10552	<input type="radio"/>			

Fig.3.4

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

When click “input register”, the interface will be like this:

Discrete input					Input Registers					Aircond	
0	1	2	3	4	5	6	7	8	9	10	11
20	21	22	23	24	25	26	27	28	29	30	31
40	41	42	43	44	45	46	47	48	49	50	51
60	61	62	63	Indoor#4:COOL-MODE							
30129	0/0000										30145
30130	224/00E0										30146
30131	20/0014										30147
30132	17/0011										30148
30133	90/005A										30149
30134	90/005A										30150
30135	90/005A										30151
30136	255/00FF										30152
30137	0/0000										30153
30138	0/0000										30154
30139	0/0000										30155
30140	0/0000										30156
30141	8/0008										30157
30142	0/0000										30158
30143	0/0000										30159
30144	0/0000										30160

Fig.3.5

The first column is the address, 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:

E.g., outdoor unit on-line state: 1/0001. When No. 0 outdoor unit is on-line, its value is 1/0001(decimalism / hexadecimal), when No.0 outdoor and No. 1 outdoor unit are on-line, its value is 3/0003.

Air Conditioner Control

When click “Air Conditioner Control” on the web page, it will display like this:

Airconditioner Control: 0#

RUN MODE	COOL	HEAT	FAN
FAN SPEED	HIGH	MEDIUM	LOW
SET TEMP.	17℃	18℃	19℃
	21℃	22℃	23℃
	25℃	26℃	27℃
	29℃	30℃	

Single Air Conditioner Control Area

Group control of cooling system

System Control

MODE	COOL, 17℃, LOW FAN	COOL, 24℃, MEDIUM FAN
MODE	HEAT, 30℃, HIGH FAN	HEAT, 26℃, MEDIUM FAN

Fig.3.6

Single air conditioner control area: control the single air conditioner. Choose a single air conditioner and set mode, wind speed and temperature.

Single control area: to choose a single air conditioner, set mode, wind speed, temperature and click “Apply” to carry out a single controlling function.

Group control area: to choose the corresponding group control button and carry out group controlling. All the indoor units under the control of modbus gateway carry out this operation.

3.4. Upper Computer Access

3.4.1 Upper Computer Access Mode

Upper computer system with Modbus protocol port can communicate with modbus gateway through Modbus TCP or Modbus RTU. For detailed information, please refer to Fig .2.2 and Fig. 2.3.

3.4.2 Access to Debug

Via Modbus Poll software to access debugging. Here is the debug procedure:

3.4.2.1 Install Modbus Poll software

When finish installing Modbus Poll software, the home page will display like this:

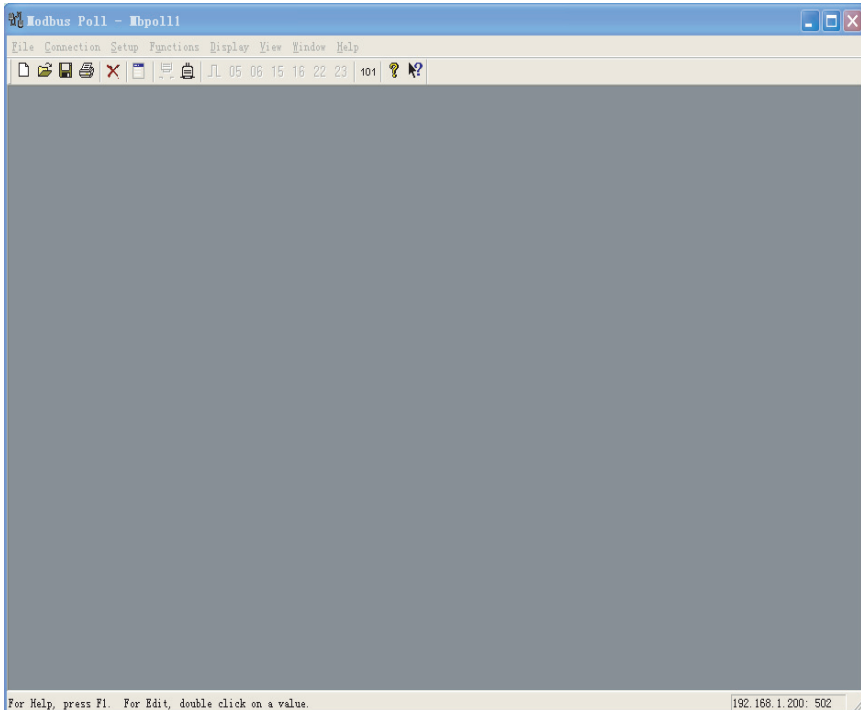


Fig.3.7

3.4.2.2 Connect Modbus Gateway

There're 2 connection ways: Modbus TCP and Modbus RTU

1. Choose "Connection"->"Connection" in figure 3.7, and then chose TCP/IP in the pop-up window:

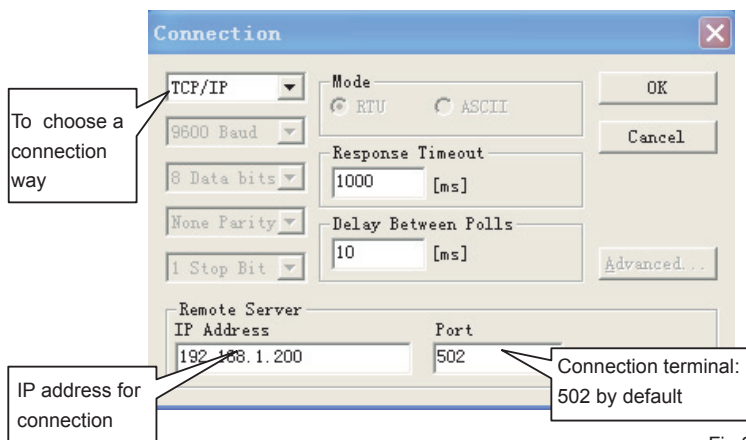


Fig.3.8

Click "OK" when finish setting.

2. Connection through Modbus/RTU

Choose RTU to connect, as shown below:

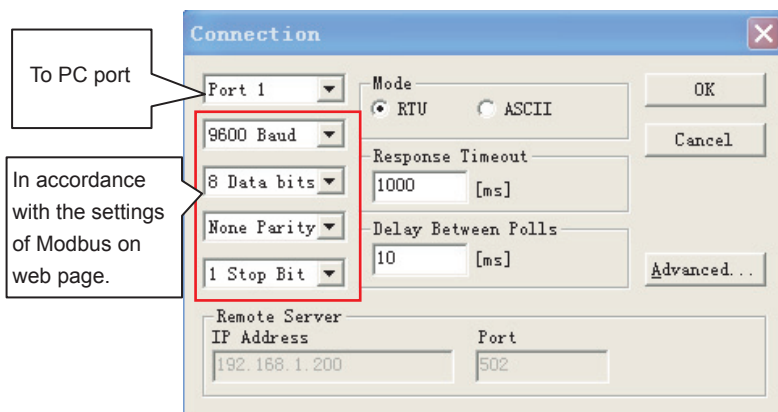


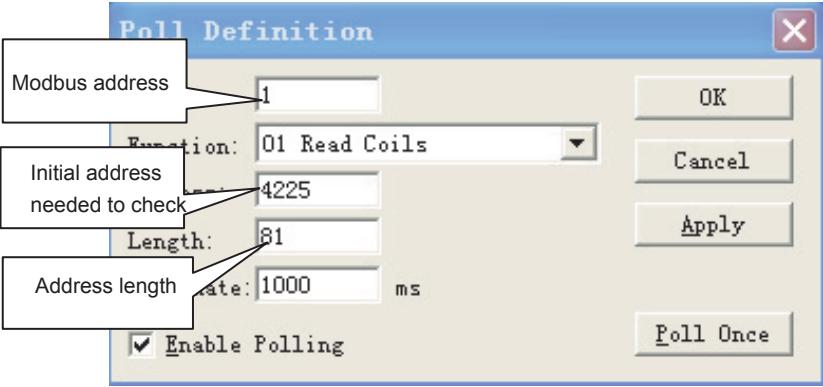
Fig.3.9

3.4.2.3 Test

Modbus Poll software can read/write the content of corresponding address in mapping table.

Take reading coil content for an example:

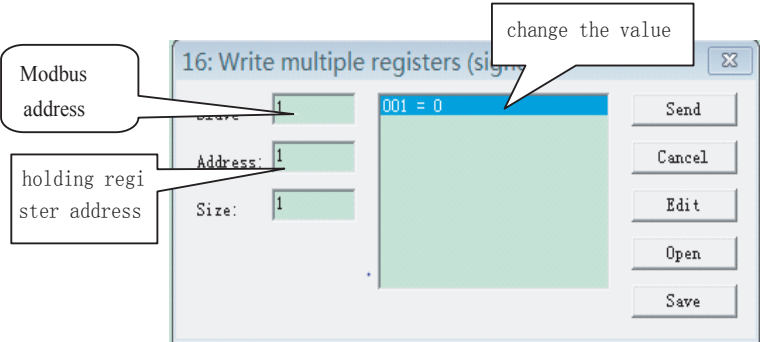
Choose “Poll Definition” under “Setup”



Click the “OK” button and it will display the content. If the 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 button in Fig.3.7,as shown below:



After changed the value,click “send” button to finish the writing operation.

4. 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.

5. Appendix (Mapping Table)

Explain:

- For Discrete input
Address = (Value of Modbus-address for registers) - 10001
- For Input register
Address = (Value of Modbus-address for registers) - 30001
- For Holding register
Address = (Value of Modbus-address for registers) - 40001

5.1. Indoor Unit Variable Mapping Table

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Octet Order	Explanation
Discrete input(R)	0	10001	Fan mode	1 Octet	1	1: Yes, 0: No
		10002	Dry mode			1: Yes, 0: No
		10003	Heat mode			1: Yes, 0: No
		10004	Cool mode			1: Yes, 0: No
		10005	Auto mode			1: Yes, 0: No
		10006	Mode locking			
		10007	Reserve			Reserve, stay 0
		10008	On/Off			1=On,0=Off
	10009-10016		High Fan speed	1 Octet	2	1: Yes, 0: No
			Midium 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

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Octet Order	Explanation
Discrete input(R)	0	10017-1002	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
			Return oil			1: On, 0: Off
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
		10025-10032	Economic operation	1 Octet	4	1: On, 0: Off
			Electric auxiliary heating			1: On, 0: Off
			Swing			1: On, 0: Off
			Reserve			Reserve
			Reserve			Reserve
			Reserve			Reserve
			Reserve			Reserve
			Reserve			Reserve
		10033-10040	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

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Octet Order	Explanation
Discrete input(R)	0	10033-10040	Locking cool mode	1 Octet	5	1 : Yes 0 : No
			Locking heat mode			1: Yes 0: No
			Locking centralized controller			1: Yes, 0: No
			Locking remote controller			1: Yes, 0: No
		10041-10048	E0 Phase sequency 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
		10049-10056	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

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Octet Order	Explanation
Discrete input(R)	0	10049-10056	EB Inverter module protection	1 Octet	7	1: Error, 0: Normal
			EC Clearance error			1: Error, 0: Normal
			ED Outdoor unit error protection			1: Error, 0: Normal
			EE Water level detection protection			1: Error, 0: Normal
			EF Other errors			1: Error, 0: Normal
		10057-10064	P0 Evaporator temp protection	1 Octet	8	1: Protection , 0: Normal
			P1 The cold wind or frost 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

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Octet Order	Explanation
Discrete input(R)	0	10057-10064	P7 Power supply under-voltage protection	1 Octet	8	1: Protection , 0: Normal
		10065-10072	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
		10073-10080	0# Network connection module and mainboard communication error	1 Octet	10	1: Error, 0: Normal
			1# Central controller and network module error			1: Error, 0: Normal

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Octet Order	Explanation
Discrete input(R)	0	10073-10080	2# Central controller and Function module communication error	1 Octet	10	1: Error, 0: Normal
			3# Central controller and computer (gateway) communication error			1: Error, 0: Normal
			4# Order limit excution			1: Error, 0: Normal
			5# Order timeout,no excution			1: Error, 0: Normal
			6# Destination address do't exist			1: Error, 0: Normal
			7# Error (unsupported) order			1: Error, 0: Normal
		10081-10128	reserve	6 Octet	11~16	Reserve, stay 0
	1	10129	Fan mod	1 Octet	17	1: Yes, 0: No
		10130	Dry mode			1: Yes, 0: No
		10131	Heat mode			1: Yes, 0: No
		10132	Cool mode			1: Yes, 0: No
		10133	Auto mode			1: Yes, 0: No
		10134	Lock mode state			
		10135	Reserve			Reserve, stay 0
		10136	On/Off state			1=On,0=Off

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Octet Order	Explanation
Discrete input(R)	1	10137-10144	High fan speed	1 Octet	18	1: Yes, 0: No
			Medium fan speed			1: Yes, 0: No
			Low fan speed			1: Yes, 0: No
			Soft 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
		10145-10152	Compresso	1Octet	19	1: On, 0: Off
			Outside draught fan high fan speed			1: On, 0: Off
			Outside draught fan low fan speed			1: On, 0: Off
			4-way valve			1: On, 0: Off
			Crankcase			1: On, 0: Off
			Return oil			1: On, 0: Off
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
		10153-10160	Economic operation	1 Octet	20	1: Yes, 0: No

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Octet Order	Explanation
Discrete input(R)	1	10153-10160	Electric auxiliary heating	1 Octet	20	1: Yes, 0: No
			Swing			1: Yes, 0: No
			Reserve			Reserve
			Reserve			Reserve
			Reserve			Reserve
			Reserve			Reserve
			Reserve			Reserve
			Reserve			Reserve
		10161-10168	Horizontal swing	1 Octet	21	1: Yes, 0: No
			Add water			1: Yes, 0: No
			Water drain pump			1: Yes, 0: No
			Reserve			Reserve, stay 0
			Lock cool			1 : yes 0:NO
			Lock heat			1 : yes 0:No
			Central controller lock			1: Yes, 0: No
			Remote controller lock			1: Yes, 0: No
		10169-10176	E0 Phase sequency 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

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Octet Order	Explanation
Discrete input(R)	1	10169-10176	E4 T2B sensor error	1 Octet	22	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
		10177-10184	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 Clearance error			1: Error, 0: Normal
			ED Outdoor unit error protection			1: Error, 0: Normal
			EE Water level detection protection			1: Error, 0: Normal
			EF Other errors			1: Error, 0: Normal
		10185-10192	P0 Evaporator temp protection	1 Octet	24	1: Protection, 0: Normal

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Octet Order	Explanation
Discrete input(R)	1	10185-10192	P1 The cold wind or frost protection	1 Octet	24	1: Error, 0: Normal
			P2 Condenser high temp protection			1: Error, 0: Normal
			P3 Compressor temp protection			1: Error, 0: Normal
			P4 Discharge pipe temp protection			1: Protection, 0: Normal
			P5 Discharge high pressure protection			1: Error, 0: Normal
			P6 Discharge low pressure protection			1: Error, 0: Normal
			P7 Power supply under-voltage protection			1: Error, 0: Normal
		10193-10200	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

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Octet Order	Explanation
Discrete input(R)	1	10193-10200	PF Other protections	1 Octet	25	1: Protection, 0: Normal
		10201-10208	0# Network connection module and mainboard communication error	1 Octet	26	1: Error, 0: Normal
			1# Central controller and network module error			1: Error, 0: Normal
			2# Central controller and Function module communication error			1: Error, 0: Normal
			3# Central controller and computer (gateway) communication error			1: Error, 0: Normal
			4# Order limit excution			1: Error, 0: Normal
			5# Order timeout,no excution			1: Error, 0: Normal
			6# Destination address do't exist			1: Error, 0: Normal
			7# Error (unsupport) command			1: Error, 0: Normal
		10209-10256	Reserve	6 Octe	27~32	Reserve, stay 0

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Octet Order	Explanation
Discrete input(R)	n	(128*n+10001) (128*n+10008)	As 1# indoor	1 Octet	n*16+1	As 1# indoor
		(128*n+10009) (128*n+10016)		1 Octet	n*16+2	
		(128*n+10017) (128*n+10024)		1 Octet	n*16+3	
		(128*n+10025) (128*n+10031)		1 Octet	n*16+4	
		(128*n+10032) (128*n+10040)		1 Octet	n*16+5	
		(128*n+10041) (128*n+10048)		1 Octet	n*16+6	
		(128*n+10049) (128*n+10056)		1 Octet	n*16+7	
		(128*n+10057) (128*n+10064)		1 Octet	n*16+8	
		(128*n+10065) (128*n+10072)		1 Octet	n*16+9	
		(128*n+10073) (128*n+10080)		1 Octet	n*16+10	
		(128*n+10081) (128*n+10128)		6 Octet	(n*16+11)~(n*16+16)	
	63	18065-18072	As 1# indoor	1 Octet	1009	As 1# indoor
		18073-18080		1 Octet	1010	
		18081-18088		1 Octet	1011	
		18089-18096		1 Octet	1012	
		18097-18104		1 Octet	1013	
		18105-18111		1 Octet	1014	
		18113-18120		1 Octet	1015	
		18121-18128		1 Octet	1016	
		18129-18136		1 Octet	1017	
		18137-18144		1 Octet	1018	
		18145-18192		6 Octet	1019~1024	

Modbus-description	Indoor-number	Modbus-address for registers	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 16~32℃
		30005	Indoor temp T1	2 Octet	(T*2+40) 0~240 means -20~100℃
		30006	Evaporator pipe temp T2A	2 Octet	(T*2+40) 0~240 means -20~100℃
		30007	Evaporator medium pipe temp T2B	2 Octet	(T*2+40) 0~240 means -20~100℃
		30008	Condenser pipe temp T3	2 Octet	(T*2+40) 0~240 means -20~100℃ 0xFF is invalid
		30009	Reserve		
		30010	Reserve		
		30011	Timer on	2 Octet	0~96 means no timing ~24 hours
		30012	Timer off	2 Octet	0~96 means no timing ~24 hours

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Explanation
Input register (R)	0	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 error, 1: Yes, 0: No bit1: means P1 error, 1: Yes, 0: No bit15: means PF error, 1: Yes, 0: No
		30018	outdoor unit 0~3 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

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Explanation
Input register (R)	0	30019	indoor unit 0~15 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
		30020	indoor unit 16~31 online state	2 Octet	bit0: means 16# indoor unit is online, 1: Yes, 0: No bit1: means 17# indoor unit is online, 1: Yes, 0: No bit15: means 31# indoor unit is online, 1: Yes, 0: No
		30021	indoor unit 32~47 online state	2 Octet	bit0: means 32# indoor unit is online, 1: Yes, 0: No bit1: means 33# indoor unit is online, 1: Yes, 0: No bit15: means 47# indoor unit is online, 1: Yes, 0: No

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Explanation
Input register (R)	0	30022	indoor unit 48~63 online state	2 Octet	bit0: means 48# indoor unit is online, 1: Yes, 0: No bit1: means 49# indoor unit is online, 1: Yes, 0: No bit15: means 63# indoor unit is online, 1: Yes, 0: No
		30023	outdoor unit 0~3 error state	2 Octet	bit0: means 0# outdoor unit is error, 1: Yes, 0: No bit1: means 1# outdoor unit is error, 1: Yes, 0: No bit2: means 2# outdoor unit is error, 1: Yes, 0: No bit3: means 3# outdoor unit is error, 1: Yes, 0: No
		30024	outdoor unit 0~3 running state	2 Octet	bit0: means 0# outdoor unit running state, 1: On, 0: Off bit1: means 1# outdoor unit running state, 1: On, 0: Off bit2: means 2# outdoor unit running state, 1: On, 0: Off bit3: means 3# outdoor unit running state, 1: On, 0: Off

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Explanation
Input register (R)	0	30025	indoor unit 00~15 error state	2 Octet	bit0: means 0# indoor unit is error, 1: Yes, 0: No bit1: means 1# indoor unit is error, 1: Yes, 0: No bit15: means 15# indoor unit is error, 1: Yes, 0: No
		30026	indoor unit 16~31 error state	2 Octet	bit0: means 16# indoor unit is error, 1: Yes, 0: No bit1: means 17# indoor unit is error, 1: Yes, 0: No bit15: means 31# indoor unit is error, 1: Yes, 0: No
		30027	indoor unit 32~47 error state	2 Octet	bit0: means 32# indoor unit is error, 1: Yes, 0: No bit1: means 33# indoor unit is error, 1: Yes, 0: No bit15: means 47# indoor unit is error, 1: Yes, 0: No

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Explanation
Input register (R)	0	30028	indoor unit 48~63 error state	2 Octet	bit0: means 48# indoor unit is error, 1: Yes, 0: No bit1: means 49# indoor unit is error, 1: Yes, 0: No bit15: means 63# indoor unit is error, 1: Yes, 0: No
		30029	indoor unit 00~15 running state	2 Octet	bit0: means 0#indoor unit running state, 1: On, 0: Off bit1: means 1# indoor unit running state, 1: On, 0: Off bit15: means 15# indoor unit running state, 1: On, 0: Off
		30030	indoor unit 16~31 running state	2 Octet	bit0: means 16# indoor unit running state, 1: On, 0: Off bit1: means 17# indoor unit running state, 1: On, 0: Off bit15: means 31# indoor unit running state, 1: On, 0: Off

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Explanation
Input register (R)	0	30031	indoor unit 32~47 running state	2 Octet	bit0: means 32# indoor unit running state, 1: On, 0: Off bit1: means 33# indoor unit running state, 1: On, 0: Off bit15: means 47# indoor unit running state, 1: On, 0: Off
		30032	indoor unit 48~63 running state	2 Octet	bit0: means 48# indoor unit running state, 1: On, 0: Off bit1: means 49# indoor unit running state, 1: On, 0: Off bit15: means 63# indoor unit running state, 1: On, 0: Off
	1	30033	Reserve	2 Octet	Reserve,stay 0
		30034	Model message 1	2 Octet	
		30035	Model message 2	2 Octet	
		30036	Setting temp Ts	2 Octet	16~32 means 16~32℃ (T*2+40)
		30037	Indoor temp T1	2 Octet	0~240 means -20~100℃(T*2+40)
		30038	Evaporator pipe temp T2A	2 Octet	0~240 means -20~100℃ (T*2+40)
		30039	Evaporator medium pipe temp T2B	2 Octet	0~240 means -20~100℃(T*2+40)

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Explanation
Input register (R)	1	30040	Condenser pipe temp T3	2 Octet	0~240 means -20~100℃(T*2+40) 0xFF is invalid
		30041	Reserve	2 Octet	
		30042	Reserve	2 Octet	
		30043	Timing on hour	2 Octet	0~96 means no timing ~24 hours
		30044	Timing off hour	2 Octet	0~96 means no timing ~24 hours
		30045	Electric consumption power	2 Octet	Unit 0.1HP
		30046~30047	Reserve	4 Octet	Reserve, stay 0
		30048	Error state	2 Octet	As 0# indoor unit
		30049	Protection state	2 Octet	
		30050	outdoor unit 0~3 online state	2 Octet	
		30051	indoor unit 0~15 online state	2 Octet	
		30052	indoor unit 16~31 online state	2 Octet	
		30053	indoor unit 32~47 online state	2 Octet	
		30054	indoor unit 48~63 online state	2 Octet	
		30055	outdoor unit 0~3 error state	2 Octet	
		30056	outdoor unit 0~3 running state	2 Octet	
		30057	indoor unit 00~15 error state	2 Octet	
		30058	indoor unit 16~31 error state	2 Octet	

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Explanation
Input register (R)		30059	indoor unit 32~47 error state	2 Octet	As 0# indoor unit
		30060	indoor unit 48~63 error state	2 Octet	
		30061	indoor unit 00~15 running state	2 Octet	
		30062	indoor unit 16~31 running state	2 Octet	
		30063	indoor unit 32~47 running state	2 Octet	
		30064	indoor unit 48~63 running state	2 Octet	
	n	30000+n*32+1	Reserve	2 Octet	As 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	2 Octet	
		30000+n*32+10	Reserve	2 Octet	
		30000+n*32+11	Timing on hour	2 Octet	
		30000+n*32+12	Timing off hour	2 Octet	
		30000+n*32+13	Electric consumption power	2 Octet	

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Explanation
Input register (R)	n	30000+n*32+13	Electric consumption power	2 Octet	As 1# indoor unit
		(30000+n*32+14) ~ (30000+n*32+32)	As 1# indoor unit	38 Octet	
	63	32017	Reserve	2 Octet	
		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	2 Octet	
		32026	Reserve	2 Octet	
		32027	Timing on hour	2 Octet	
		32028	Timing off hour	2 Octet	
		32029	Electric consumption power	2 Octet	
		32030~32048	As 1# indoor unit	38 Octet	

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Explanation
Holding register (W)	0	40001	Refrigerant system on/off	2 Octet	<p>0:Close the whole system</p> <p>1:Open the whole system - The summer mode ,cool mode , 17⁰ C , Low fan speed , no timing , no auxiliary</p> <p>2: Open the whole system - The summer mod,cool mode , 24⁰ C , medium fan speed , no timing , no auxiliary</p> <p>3: Open the whole system - The summer mod,cool mode , 26⁰ C , high fan speed , no timing , no auxiliary</p> <p>4: Open the whole system - The winter mode ,heat mode , 30⁰ C , high fan speed , no timing , no auxiliary</p> <p>5: Open the whole system - The winter mode ,heat mode , 26⁰ C , medium fan speed , no timing , no auxiliary</p> <p>6: Open the whole system - The winter mode ,heat mode , 24⁰ C , low fan speed, no timing, no auxiliary</p>

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Explanation
Holding register (W)	0	40002	Setting mode	2 Octet	bit15~bit8: reserve, stay 0 bit7: On/Off, 1: On, 0: Off bit6: reserve, stay 0 bit5: stay 0 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 bit4~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 16~32℃,
		40005	Timing on hour	2 Octet	0~96 means no timing ~24 hours timing

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Explanation
Holding register (W)	0	40006	Timing off hour	2 Octet	0~96 means no timing ~24 hours timing
		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, Can not write
	1	40033	Reserve	2 Octet	Reserve, Can not write
		40034	Setting mode	2 Octet	As 0# indoor
		40035	Setting fan speed	2 Octet	
		40036	Setting temperature	2 Octet	
		40037	Timing on hour	2 Octet	
		40038	Timing off hour	2 Octet	
		40039	Auxiliary function state	2 Octet	
		40040~40064	Reserve	50 Octet	Reserve, Can not write
	n	40000+n*32+1	Reserve	2 Octet	As 1# indoor
		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	Timing on hour	2 Octet	
		40000+n*32+6	Timing off hour	2 Octet	
		40000+n*32+7	Auxiliary function state	2 Octet	

Modbus-description	Indoor-number	Modbus-address for registers	Data name	Length	Explanation
Holding register (W)	n	(40000+n*32+8) ~ (40000+n*32+32)	Reserve	50 Octet	
	63	42017	Reserve	2 Octet	As 1# indoor
		42018	Setting mode	2 Octet	
		42019	Setting fan speed	2 Octet	
		42020	Setting temperature	2 Octet	
		42021	Timing on hour	2 Octet	
		42022	Timing off hour	2 Octet	
		42023	Auxiliary function state	2 Octet	
		42024~42048	Reserve	50 Octet	
	64				Group control 0-7# indoor, format as above
	65				Group control 8-15# indoor, format as above
	66				Group control 16-23# indoor, format as above
	67				Group control 24-31# indoor, format as above
	68				Group control 32-39# indoor, format as above
	69				Group control 40-47# indoor, format as above
	70				Group control 48-55# indoor, format as above
	71				Group control 56-63# indoor, format as above
	72				Group control 0-63# indoor, format as above

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Discrete input(R)	0	18192+1	Cool mode	1: Yes, 0: No
		18194	Heat mode	1: Yes, 0: No
		18195	Reserve	Reserve,stay0
		18196	Reserve	Reserve,stay 0
		18197	Reserve	Reserve,stay 0
		18198	Reserve	Reserve,stay 0
		18199	Lock sign	1: Yes, 0: No
		18200	Force locking	1: Yes, 0: No
		18201	Low fan speed	1: Yes, 0: No
		18202	Midium fan speed	1: Yes, 0: No
		18203	High fan speed	1: Yes, 0: No
		18204	Reserve	Reserve,stay 0
		18205	Reserve	Reserve,stay 0
		18206	Reserve	Reserve,stay 0
		18207	Reserve	Reserve,stay 0
		18208	Reserve	Reserve,stay 0

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Discrete input(R)	0	18209	4-way valveST1	1: On, 0: Off
		18210	Auxiliary 4-way valve ST2	1: On, 0: Off
		18211	Solenoid valves SV1	1: On, 0: Off
		18212	Spray liquid cooling solenoid valves SV2	1: On, 0: Off
		18213	Solenoid valves SV3	1: On, 0: Off
		18214	Solenoid valves SV4	1: On, 0: Off
		18215	Solenoid valves SV5	1: On, 0: Off
		18216	Solenoid valves SV6	1: On, 0: Off
		18217	Compressor 1	1: On, 0: Off
		18218	Compressor 2	1: On, 0: Off
		18219	Compressor 3	1: On, 0: Off
		18220	Reserve	Reserve,stay 0
		18221	Reserve	Reserve,stay 0
		18222	Reserve	Reserve,stay 0
		18223	Reserve	Reserve,stay 0
		18224	Rserve	Reserve,stay 0
		18225	E0 Outdoor unit communication error	1: Error, 0: Normal
		18226	E1 Phase sequency error or no phase	1: Error, 0: Normal

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Discrete input(R)	0	18227	E2 Outdoor&indoor unit communication error	1: Error, 0: Normal
		18228	E4 Reserve	Reserve,stay 0
		18229	E3 T3/T4/digital compressor discharge temp sensor error	1: Error, 0: Normal
		18230	E5 Rserve	Reserve,stay 0
		18231	E6 T6 sensor error	1: Error, 0: Normal
		18232	E7 Reserve	Reserve,stay 0
		18233	E8 Reserve	Reserve,stay 0
		18234	E9 Voltage error	1: Error, 0: Normal
		18235	H1 Network communication error	1: Error, 0: Normal
		18236	H0 DSP communication error	1: Error, 0: Normal
		18237	H2 The outdoor reduce error(the host effective)	1: Error, 0: Normal
		18238	H3 The outdoor increase error(the host effective)	1: Error, 0: Normal
		18239	EE Reserve	Reserve,stay 0
		18240	EF Other error	
		18241	P0 Compressor top temp protection	1: Protection, 0: Normal
		18242	P1 Discharge high pressure protection	1: Protection, 0: Normal
		18243	P2 Discharge low pressure protection	1: Protection, 0: Normal
		18244	P3 Compressor current protection 1	1: Protection, 0: Normal
		18245	P4 Discharge pipe temp protection	1: Protection, 0: Normal
		18246	P5 Condenser high temp protection	1: Protection, 0: Normal
		18247	P6 Inverter module	1: Protection, 0:

5.2. Outdoor Unit Variable Mapping Table

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Discrete input(R)	0	18248	P7 Compressor current protection 2	1: Protection, 0: Normal
		18249	P8 Compressor current protection 3	1: Protection, 0: Normal
		18250	P9 Power supply under-voltage protection	1: Protection, 0: Normal
		18251	PA Defrost protection	1: Protection, 0: Normal
		18252	PB Reserve	Reserve,stay 0
		18253	PC Reserve	Reserve,stay 0
		18254	PD Return oil	1: Protection, 0: Normal
		18255	PE Oil equalization	1: Protection, 0: Normal
		18256	PF Other protection	1: Protection, 0: Normal
		18257~18320	Reserve	Reserve,stay 0
	1	18320+1	Cool mode	1: Yes, 0: No
		18322	Heat mode	1: Yes, 0: No
		18323	Reserve	Reserve,stay 0
		18324	Reserve	Reserve,stay 0
		18325	Reserve	Reserve,stay 0
		18326	Reserve	Reserve,stay 0
		18327	Lock sign	1: Yes, 0: No
		18328	Force locking	1: Yes, 0: No
		18329	Low fan speed	1: Yes, 0: No
		18330	Medium fan speed	1: Yes, 0: No
		18331	High fan speed	1: Yes, 0: No
		18332	Reserve	Reserve,stay 0
		18333	Reserve	Reserve,stay 0
		18334	Reserve	Reserve,stay 0
		18335	Reserve	Reserve,stay 0
		18336	Reserve	Reserve,stay 0
		18337	4-way valveST1	1: On, 0: Off
		18338	Auxiliary 4-way valve ST2	1: On, 0: Off
		18339	Solenoid valves SV	1: On, 0: Off

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Discrete input(R)	1	18340	Spray liquid cooling solenoid valves SV2	1: On, 0: Off
		18341	Solenoid valves SV3	1: On, 0: Off
		18342	Solenoid valves SV4	1: On, 0: Off
		18343	Solenoid valves SV5	1: On, 0: Off
		18344	Solenoid valves SV6	1: On, 0: Off
		18345	Compressor 1	1: On, 0: Off
		18346	Compressor 2	1: On, 0: Off
		18347	Compressor 3	1: On, 0: Off
		18348	Reserve	1: On, 0: Off
		18349	Reserve	Reserve,stay 0
		18350	Reserve	Reserve,stay 0
		18351	Reserve	Reserve,stay 0
		18352	Reserve	Reserve,stay 0
		18353	E0 Outdoor unit communication error	1: Error, 0: Normal
		18354	E1 Phase sequence error or no phase	1: Error, 0: Normal
		18355	E2 Outdoor&indoor unit communication error	1: Error, 0: Normal
		18356	E4 Reserve	Reserve,stay 0
		18357	E3 T3/T4/digital compressor discharge temp sensor error	1: Error, 0: Normal
		18358	E5 Reserve	Reserve,stay 0
		18359	E6 DSP communication error	1: Error, 0: Normal
		18360	E7 Reserve	Reserve,stay 0
		18361	E8 Reserve	Reserve,stay 0
		18362	E9 Voltage error	1: Error, 0: Normal
		18363	H1 Network communication error	1: Error, 0: Normal
		18364	H0 DSP communication error	1: Error, 0: Normal
		18365	H2 The outdoor reduce error(the host effective)	1: Error, 0: Normal

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Discrete input(R)	1	18366	H3 The outdoor increase error(the host effective)	1: Error, 0: Normal
		18367	EE Reserve	Reserve,stay 0
		18368	EF Other error	
		18369	P0 Compressor top temp protection	1: Protection, 0: Normal
		18370	P1 Discharge high pressure protection	1: Protection, 0: Normal
		18371	P2 Discharge low pressure protection	1: Protection, 0: Normal
		18372	P3 Compressor current protection 1	1: Protection, 0: Normal
		18373	P4 Discharge pipe temp protection	1: Protection, 0: Normal
		18374	P5 Condenser high temp protection	1: Protection, 0: Normal
		18375	P6 Inverter module protection	1: Protection, 0: Normal
		18376	P7 Compressor current protection 2	1: Protection, 0: Normal
		18377	P8 Compressor current protection 3	1: Protection, 0: Normal
		18378	P9 Power supply under-voltage protection	1: Protection, 0: Normal
		18379	PA Defrost protection	1: Protection, 0: Normal
		18380	PB Reserve	Reserve,stay 0
		18381	PC Reserve	Reserve,stay 0
		18382	PD Return oil	1: Protection, 0: Normal
		18383	PE Oil equalization	1: Protection, 0: Normal
		18384	PF Other protection	1: Protection, 0: Normal
		18385~18448	Reserve	Reserve,stay 0

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Discrete input(R)	1	18192+n*128+1	Cool mode	1: Yes, 0: No
		18192+n*128+2	Heat mode	1: Yes, 0: No
		18192+n*128+3	Reserve	Reserve,stay 0
		18192+n*128+4	Reserve	Reserve,stay 0
		18192+n*128+5	Reserve	Reserve,stay 0
		18192+n*128+6	Reserve	Reserve,stay 0
		18192+n*128+7	Lock sign	1: Yes, 0: No
		18192+n*128+8	Force locking	1: Yes, 0: No
		18192+n*128+9	Low fan speed	1: Yes, 0: No
		18192+n*128+10	Medium fan speed	1: Yes, 0: No
		18192+n*128+11	High fan speed	1: Yes, 0: No
		18192+n*128+12	Reserve	Reserve,stay 0
		18192+n*128+13	Reserve	Reserve,stay 0
		18192+n*128+14	Reserve	Reserve,stay 0
		18192+n*128+15	Reserve	Reserve,stay 0
		18192+n*128+16	Reserve	Reserve,stay 0
		18192+n*128+17	4-way valveST1	1: On, 0: Off
		18192+n*128+18	Auxiliary 4-way valve ST2	1: On, 0: Off
		18192+n*128+19	Solenoid valves SV1	1: On, 0: Off
		18192+n*128+20	Spray liquid cooling solenoid valves SV2	1: On, 0: Off
		18192+n*128+21	Solenoid valves SV3	1: On, 0: Off
		18192+n*128+22	Solenoid valves SV4	1: On, 0: Off
		18192+n*128+23	Solenoid valves SV5	1: On, 0: Off
		18192+n*128+24	Solenoid valves SV6	1: On, 0: Off
		18192+n*128+25	Compressor 1	1: On, 0: Off
		18192+n*128+26	Compressor 2	1: On, 0: Off
		18192+n*128+27	Compressor 3	1: On, 0: Off
		18192+n*128+28	Reserve	Reserve,stay 0
		18192+n*128+29	Reserve	Reserve,stay 0
		18192+n*128+30	Reserve	Reserve,stay 0
		18192+n*128+31	Reserve	Reserve,stay 0
		18192+n*128+32	Reserve	Reserve,stay 0
		18192+n*128+33	E0 Outdoor unit communication error	1: Error, 0: Normal
		18192+n*128+34	E1 Phase sequency error or no phase	1: Error, 0: Normal

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Discrete input(R)	n	18192+n*128+35	E2 Outdoor&indoor unit communication error	1: Error, 0: Normal
		18192+n*128+3	E4 Reserve	Reserve,stay 0
		18192+n*128+37	E3 T3/ T4/digital compressor discharge temp sensor error	1: Error, 0: Normal
		18192+n*128+38	E5 Reserve	Reserve,stay 0
		18192+n*128+39	E6 T6 sensor error	1: Error, 0: Normal
		18192+n*128+40	E7 Reserve	Reserve,stay 0
		18192+n*128+41	E8 Reserve	Reserve,stay 0
		18192+n*128+42	E9 Voltage error	1: Error, 0: Normal
		18192+n*128+43	H1 Network communication error	1: Error, 0: Normal
		18192+n*128+44	H0 DSP communication error	1: Error, 0: Normal
		18192+n*128+45	H2 The outdoor reduce error(the host effective)	1: Error, 0: Normal
		18192+n*128+46	H3 The outdoor increase error(the host effective)	1: Error, 0: Normal
		18192+n*128+47	EE Reserve	Reserve,stay 0
		18192+n*128+48	EF Other error	
		18192+n*128+49	P0 Compressor top temp protection	1: Protection, 0: Normal
		18192+n*128+50	P1 Discharge high pressure protection	1: Protection, 0: Normal
		18192+n*128+51	P2 Discharge low pressure protection	1: Protection, 0: Normal
		18192+n*128+52	P3 Compressor current protection 1	1: Protection, 0: Normal
		18192+n*128+53	P4 Discharge pipe temp protection	1: Protection, 0: Normal
		18192+n*128+54	P5 Condenser high temp protection	1: Protection, 0: Normal
		18192+n*128+55	P6 Inverter module protection	1: Protection, 0: Normal

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Discrete input(R)		18192+n*128+1	P7 Compressor current protection 2	1: Protection, 0: Normal
		18192+n*128+57	P8 Compressor current protection 3	1: Protection, 0: Normal
		18192+n*128+58	P9 Power supply under-voltage protection	1: Protection, 0: Normal
		18192+n*128+59	PA Defrost protection	1: Protection, 0: Normal
		18192+n*128+60	PB Reserve	Reserve,stay 0
		18192+n*128+61	PC Reserve	Reserve,stay 0
		18192+n*128+62	PD Return oil	1: Protection, 0: Normal
		18192+n*128+63	PE Oil equalization	1: Protection, 0: Normal
		18192+n*128+64	PF Other protection	1: Protection, 0: Normal
		(18192+n*128+65)~ (18192+n*128+128)	Reserve	Reserve,stay 0
	3	18577	Cool mode	1: Yes, 0: No
		18578	Heat mode	1: Yes, 0: No
		18579	Reserve	Reserve,stay 0
		18580	Reserve	Reserve,stay 0
		18581	Reserve	Reserve,stay 0
		18582	Reserve	Reserve,stay 0
		18583	Lock sign	1: Yes, 0: No
		18584	Force locking	1: Yes, 0: No
		18585	Low fan speed	1: Yes, 0: No
		18586	Medium fan speed	1: Yes, 0: No
		18587	High fan speed	1: Yes, 0: No
		18588	Reserve	Reserve,stay 0
		18589	Reserve	Reserve,stay 0
		18590	Reserve	Reserve,stay 0
		18591	Reserve	Reserve,stay 0
		18592	Reserve	Reserve,stay 0
		18593	4-way valveST1	1: On, 0: Off

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Discrete input(R)	3	18594	Auxiliary 4-way valveST2	1: On, 0: Off
		18595	Solenoid valves SV1	1: On, 0: Off
		18596	Spray liquid cooling solenoid valves SV2	1: On, 0: Off
		18597	Solenoid valvesSV3	1: On, 0: Off
		18598	Solenoid valvesSV4	1: On, 0: Off
		18599	Solenoid valvesSV5	1: On, 0: Off
		18600	Solenoid valvesSV6	1: On, 0: Off
		18601	Compressor 1	1: On, 0: Off
		18602	Compressor 2	1: On, 0: Off
		18603	Compressor 3	1: On, 0: Off
		18604	Reserve	Reserve,stay 0
		18605	Reserve	Reserve,stay 0
		18606	Reserve	Reserve,stay 0
		18607	Reserve	Reserve,stay 0
		18608	Reserve	Reserve,stay 0
		18609	E0 Outdoor unit communication error	1: Error, 0: Normal
		18610	E1 Phase sequency error or no phase	1: Error, 0: Normal
		18611	E2 Outdoor&indoor unit communication error	1: Error, 0: Normal
		18612	E4 Reserve	Reserve,stay 0
		18613	E3 T3/ T4/digital compressor discharge temp sensor error	1: Error, 0: Normal
		18614	E5 Reserve	Reserve,stay 0
		18615	E6 T6 sensor error	1: Error, 0: Normal
		18616	E7 Reserve	Reserve,stay 0
		18617	E8 Reserve	Reserve,stay 0
		18618	E9 Voltage error	1: Error, 0: Normal
		18619	H1 Network communication error	1: Error, 0: Normal
		18620	H0 DSP communication error	1: Error, 0: Normal

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Discrete input(R)	3	18621	H2 The outdoor reduce error(the host effective)	1: Error, 0: Normal
		18622	H3 The outdoor increase error(the host effective)	1: Error, 0: Normal
		18623	EE Reserve	Reserve,stay 0
		18624	EF Other error	
		18625	P0 Compressor top temp protection	1: Protection, 0: Normal
		18626	P1 Discharge high pressure protection	1: Protection, 0: Normal
		18627	P2 Discharge low pressure protection	1: Protection, 0: Normal
		18628	P3 Compressor current protection 1	1: Protection, 0: Normal
		18629	P4 Discharge pipe temp protection	1: Protection, 0: Normal
		18630	P5 Condenser high temp protection	1: Protection, 0: Normal
		18631	P6 Inverter module protection	1: Protection, 0: Normal
		18632	P7 Compressor current protection 2	1: Protection, 0: Normal
		18633	P8 Compressor current protection 3	1: Protection, 0: Normal
		18634	P9 Power supply under-voltage protection	1: Protection, 0: Normal
		18635	PA Defrost protection	1: Protection, 0: Normal
		18636	PB Reserve	Reserve,stay 0
		18637	PC Reserve	Reserve,stay 0
		18638	PD Return oil	1: Protection, 0: Normal
		18639	PE Oil equalization	1: Protection, 0: Normal
		18640	PF Other protection	1: Protection, 0: Normal
		18641~18704	Reserve	Reserve,stay 0

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Input register (R)	0	32048+1	Reserve	Reserve,stay 0
		32050	First byte of model message	
		32051	Second byte of model message	
		32052	Outdoor temp T4	0~240 means -20~100°C (T*2+40) 0xFF is invalid
		32053	Outdoor condenser outlet temp T3	0~240 means -20~100°C (T*2+40) 0xFF is invalid
		32054	Outdoor condenser inlet temp T6	0~240 means -20~100°C (T*2+40) 0xFF is invalid
		32055	Compressor 1 discharge temp	0~240 means -20~180°C (T+20) 0xFF is invalid
		32056	Compressor 2 discharge temp	0~240 means -20~180°C (T+20) 0xFF is invalid
		32057	Compressor 3 discharge temp	0~240 means -20~180°C (T+20) 0xFF is invalid
		32058	Qty.of indoor unit	0~250 means 0~250unit
		32059	Compressor 1 current	0~200 means current 0A~200A
		32060	Compressor 2 current	0~200 means current 0A~200A
		32061	Compressor 3 current	0~200 means current 0A~200A
		32062	Inverter compressor frequency	0~250 means 0~250Hz
		32063	EEV 1 opening	00h~07Dh means 0~1000 step opening, the resolution is step 8, 0FFh means no.

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Input register (R)	0	32064	EEV 2 opening	As above
		32065	Outdoor unit running capacity requirement	Every 1 means 1 HP, so 0~250 means 0~250 0xFF is invalid
		32066~32080	Reserve	Reserve, stay 0
	1	32081	Reserve	As 0# outdoor
		32082	First byte of model message	
		32083	Second byte of model message	
		32084	Outdoor temp T4	
		32085	Outdoor condenser outlet temp T3	
		32086	Outdoor condenser inlet temp T6	
		32087	Compressor 1 discharge temp	
		32088	Compressor 2 discharge temp	
		32089	Compressor 3 discharge temp	
		32090	Qty.of indoor unit	
		32091	Compressor 1 current	
		32092	Compressor 2 current	
		32093	Compressor 3 current	
		32094	Inverter compressor frequency	
		32095	EEV 1 opening	
		32096	EEV 2 opening	
		32097	Outdoor unit running capacity requirement	
		32098~32112	Reserve	
	2	32113	Reserve	As 1# outdoor
		32114	First byte of model message	
		32115	Second byte of model message	

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Input register (R)	2	32116	Outdoor temp T4	
		32117	Outdoor condenser outlet temp T3	
		32118	Outdoor condenser inlet temp T6	
		32119	Compressor 1 discharge temp	
		32120	Compressor 2 discharge temp	
		32121	Compressor 3 discharge temp	
		32122	Qty.of indoor unit	
		32123	Compressor 1 current	
		32124	Compressor 2 current	
		32125	Compressor 3 current	
		32126	Inverter compressor frequency	
		32127	EEV 1 opening	
		32128	EEV 2 opening	
		32129	Outdoor unit running capacity requirement	
		32130~32144	Reserve	
	3	32145	Reserve	As 1# outdoor
		32146	First byte of model message	
		32147	Second byte of model message	
		32148	Outdoor temp T4	
		32149	Outdoor condenser outlet temp T3	
		32150	Outdoor condenser inlet temp T6	

Modbus-description	Outdoor-number	Modbus-address for registers	Data name	Explanation
Input register (R)	3	32151	Compressor 1 discharge temp	As 1# outdoor
		32152	Compressor 2 discharge temp	
		32153	Compressor 3 discharge temp	
		32154	Qty.of indoor unit	
		32155	Compressor 1 current	
		32156	Compressor 2 current	
		32157	Compressor 3 current	
		32158	Inverter compressor frequency	
		32159	EEV 1 opening	
		32160	EEV 2 opening	
		32161	Outdoor unit running capacity requirement	
		32162~32176	Reserve	



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