



Modbus Long-distance Monitoring Protocol (V1.2)
For Gree Multi VRF System

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Thanks for your purchase of the long-distance monitoring communication module of GREE Center air conditioners. In order to seamlessly interface it to the Building Management System (BMS), please read this manual carefully before installation and use and keep it in a handy place for future reference.

Contents

Preface	1
1. Terms and Definitions	2
2. Brief Introduction to the BMS System	4
3. Network Topology	4
3.1. General	4
3.2. Topological Structure	4
3.2.1. Topological Structure Consisting of Max.255 Communication Modules	4
3.2.2. Topological Structure Consisting of Min.255 Communication Modules.....	5
3.2.3. Network Integrated with the Communication Module in the Monitoring System.....	6
4. MODBUS Protocol Format	6
4.1. General	6
4.2. Protocol Interface	6
4.3. Hardware Interface.....	6
4.4. Universal Communication Frame Format of Modbus under RTU Mode	7
4.5. MODBUS Standard Protocol Format	7
4.5.1. Coil (Bit)	7
4.5.2. Register (Word, 16 Bits)	8
4.5.3. Read Multiple Coils	8
4.5.4. Write Multiple Coils.....	9
4.5.5. Read Multiple Registers.....	9
4.5.6. Write Multiple Registers	10
4.5.7. Alarm Response	10
5. Communication Protocol for GMV Multi VRF System	11
5.1. General	11
5.2. Precautions before the Software Development to the BMS Interface for the GMV Multi VRF System	11
5.3. Definition of Effective Data.....	11
6. Precautions before the Use of the Communication Module	66
7. Common Failures of BMS System	67
Annex A	68
A.1 CRC Calculation Method	68
A.2 How to Calculate the CRC	68
A.3 CRC Example.....	68
References	68

Preface

This protocol specifies the communication format and also the data format for the communication of the multi VRF system.

This protocol is applicable to the multi VRF system.

Please pay particular attention to the following three points before the development of the BMS software.

- 1) Make sure you have read the section 6 *“Precautions before the Use of the Communication Module”*.
- 2) Make sure you have read all parts which are about the precautions before the development to the BMS interface of each unit, like 5.1.2 *“Precautions before the Development to the BMS Interface of the Multi VRF System”*
- 3) Please contact GREE technicians to confirm the compatibility of the BMS system.

Note:

This Modbus communication protocol is based on the products produced before November, 2011 and they are subject to some changes without notice.

1. Terms and Definitions

1.1 Modbus Communication

Modbus protocol is such a protocol as is used for industrial communication and distributed control system. Modbus network is a master-slave network, allowable for the communication between one master unit and multiple slave units through data interchange. The Modbus communication is realized in the request-response way, that is, each request sent by the master unit is corresponding to a response replied by the slave unit.

1.2 ASCII Mode

Under this mode, as for the communication via the Modbus, eight bits in one piece of information can be transmitted as two ASCII characters.

1.3 RTU Mode

Under this mode, eight bits can be divided into two four-bit hexadecimal characters. The advantage of the RTU mode is that with the same baud rate the transmitted character density is higher than that in the ASCII mode. Each piece of information should be transmitted continuously.

1.4 Master Unit

It indicates the device which sends out the request to Modbus, like a PC.

1.5 Slave Unit

It indicates such a device as is capable of responding to the request sent by the master unit, like a communication module which is taken as an example in this protocol.

1.6 Coil

It is expressed by one bit, like the switch bit, failure bit etc. The coil is a universal express way of the Modbus protocol and actually it is a one-bit data value, namely Boolean, switching value.

1.7 Register

It is expressed by two bytes (16 bits), like temperature, mode etc. The register is a universal express way of the Modbus protocol and actually it is a word (16 bits), or an analog value.

1.8 Device Address

It indicates the address of the Modbus communication module, through which the master unit can identify each communication module in the network. Address range: 1~255. "0" is the address of the broadcast (it can be received by all communication modules).

1.9 Broadcast

When the master unit sends out a control frame, then all slave units in the network can receive it and then all perform this control action (but no reply is given). The device address for the broadcast frame is 0

1.10 Function Code

It is used to identify the function of the communication frame. See the following table for the function codes covered in this protocol.

Table 1 Function Code

Description	Function Code
Read Multiple Coils	0x01
Read Multiple Registers	0x03
Write Multiple Coils	0x0f
Write Multiple Registers	0x10

1.11 Starting Address

It indicates the starting address of the register (coil: bit address; register: word address). The data translation starts from the high-order eight bits to the low-order eight bits.

1.12 Data Size

It indicates the operated data count starting from the starting address (coil: bit count, register: word count). The data translation starts from the high-order eight bits to the low-order eight bits.

1.13 Byte Count

It indicates the count of the effective bytes during the data transmission.

1.14 Effective Data

It indicates the control data, status data etc.

1.15 Alarm Code

It indicates the error type which is detected by the communication module when the master unit is sending the request frame.

1.16 CRC

It indicates the cyclic redundancy code consisting of two bytes. The data translation starts from the low eight bits to the high-order eight bits. See Annex A for more details of its calculation.

1.17 Request Frame

It is the request sent by the master unit to the communication module.

1.18 Response Frame

It is the response replied by the communication module to the request frame sent by the master unit.

1.19 Communication Frame

It is the collection of continuously transmitted bytes during the communication.

1.20 BMS

Its full name is building management system

2. Brief Introduction to the BMS System

- 1) The Modbus monitoring system is capable of controlling up to 255 sets of units at the same time.
- 2) The interface RS485 of Modbus communication protocol, provided by the long-distance monitoring system, can be directly connected with the BMS system or Gree long-distance monitoring system, that is, control up to 255 units and display their running status at the same time. The control function of the BMS system is equal to that of the long-distance monitoring system. However, the command sent later takes the priority.

3. Network Topology

3.1. General

- 1) As shown in Fig. 1, it can be seen that the whole network consists of two parts: units network and Modbus network, which are connected through the communication module by which the communication data can be interchanged.
- 2) There are at most 255 communication modules in one monitoring network, that is, only 255 units can be connected.
- 3) When the quantity of the units is larger than 255, a new network can be established through another port which is also capable of connecting 255 communication modules.

3.2. Topological Structure

3.2.1. Topological Structure Consisting of Max.255 Communication Modules

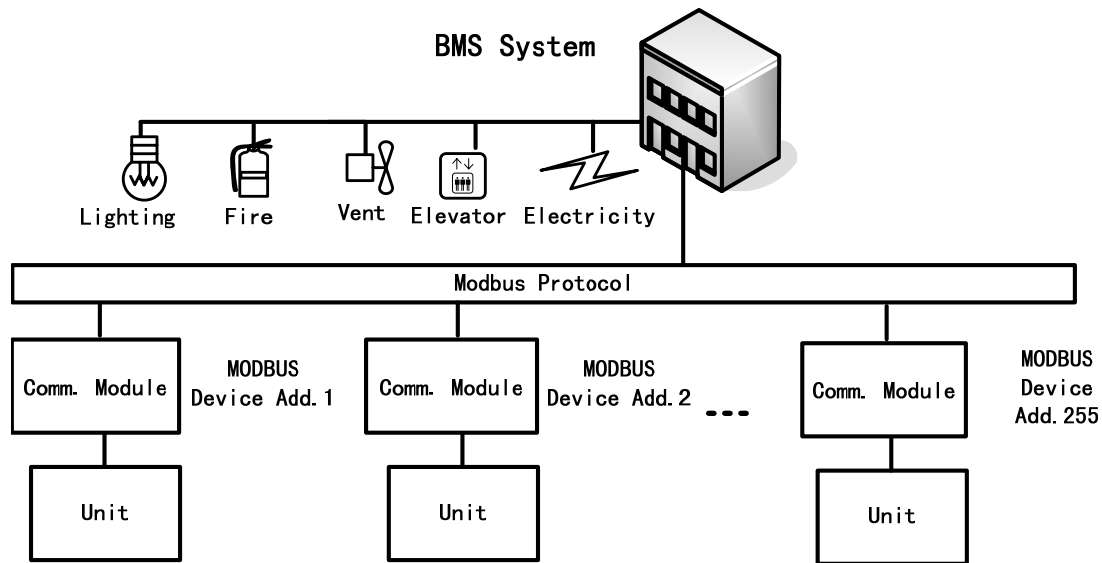


Fig.1: Topological Structure Consisting of Max.255 Communication Modules

3.2.2. Topological Structure Consisting of Min.255 Communication Modules

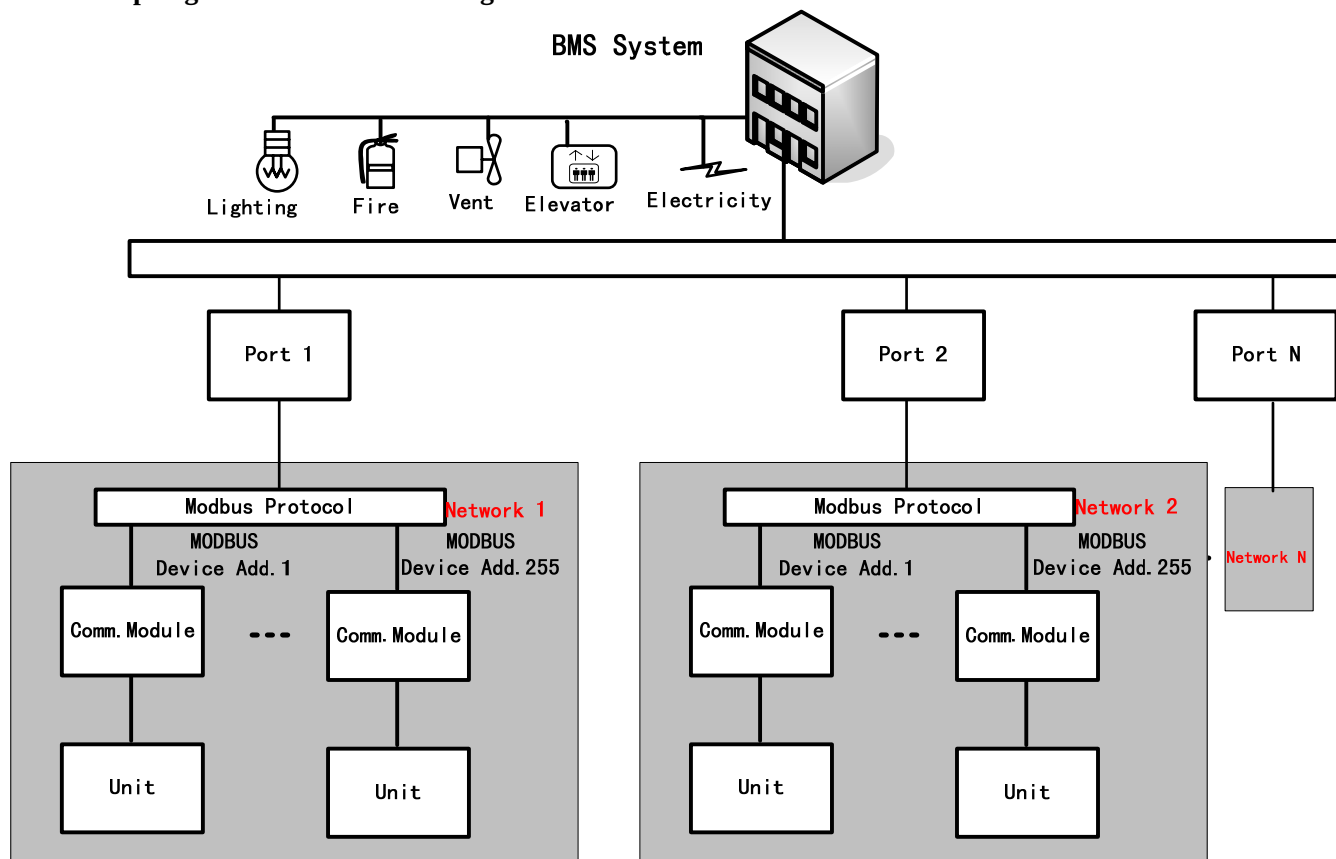


Fig.2 Topological Structure Consisting of Min.255 Communication Modules

3.2.3. Network Integrated with the Communication Module in the Monitoring System

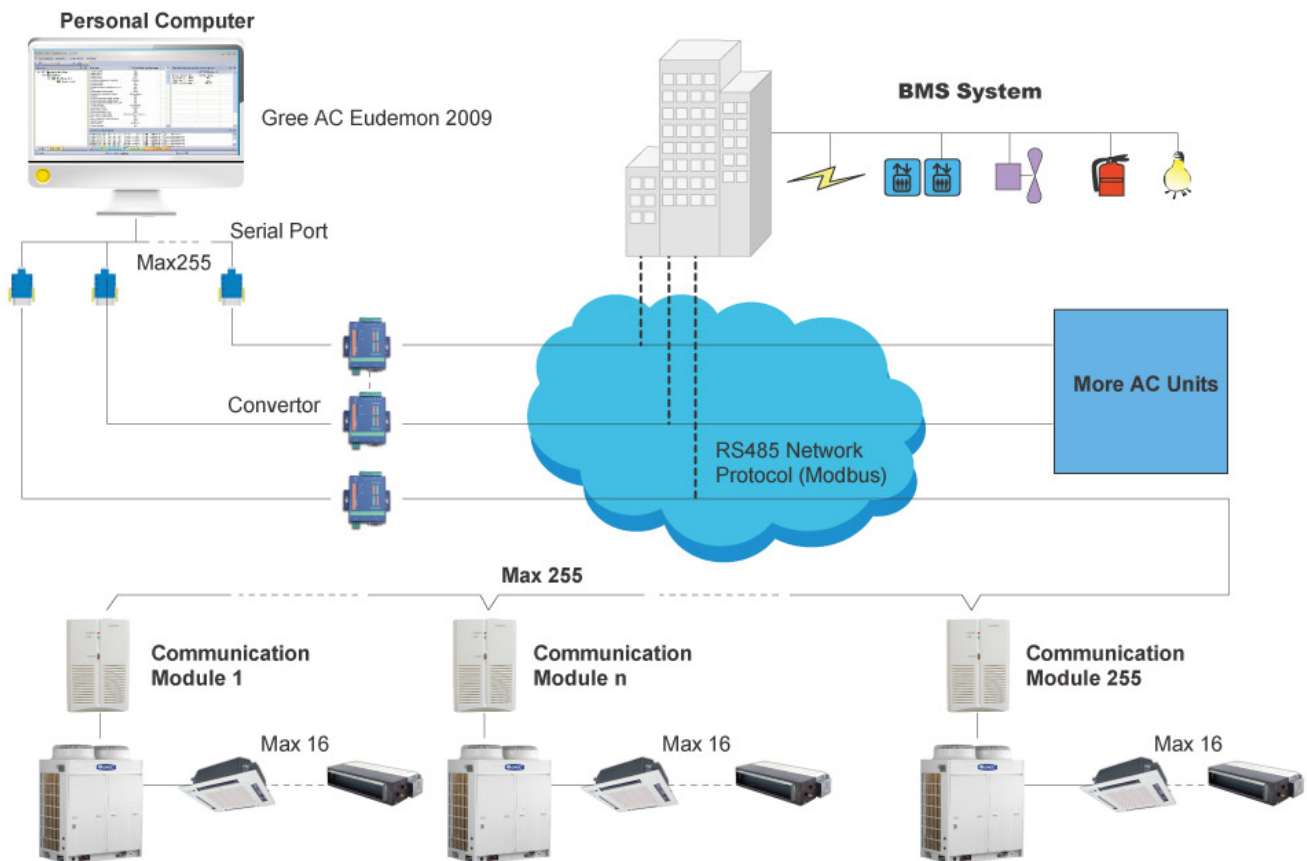


Fig.3: Gree AC Eudemon 2009/BMS System

Notes:

- 3) In a RS485 network, the system of different types can not be connected at the same time.
- 4) Either Gree AC Eudemon 2009 or the BMS system can be selected as the AC long-distance monitoring system.

4. MODBUS Protocol Format

4.1. General

Modbus actually has become the industrial communication standard because it is not only fully opened and used widely but also simple and can be debugged flexibly. Besides, as for the communication of multiple units, it can be developed fast and also can be conveniently connected with the devices which support this protocol. There are two communication modes, RTU and ASCII. The former one is adopted for the BMS interface.

4.2. Protocol Interface

The protocol interface is the Modbus RTU protocol.

4.3. Hardware Interface

- 1) Communication Interface: RS485
- 2) Communication Mode: Baud Rate: 9600 bit/s

(In some special event, other baud rate also can be selected but the communication mode should be compatible with this protocol)

- Start Bit: 1
- Data Bit: 8
- Check Bit: None
- Stop Bit: 1

4.4. Universal Communication Frame Format of Modbus under RTU Mode

Start Time Interval	Add. Code	Function Code	Data Area	CRC	Stop Time Interval
T1-T2-T3-T4	1 Byte	1 Byte	n Bytes	2 Bytes	T1-T2-T3-T4

Under the RTU mode, there is at least 3.5minutes dead time before the data transmission, which can be figured out through the adopted baud rate (like T1-T2-T3-T4 listed in the table above) and there is another 3.5 minutes dead time after the transmission of the last character. After that, another set of data can be transmitted. The whole set of data should be transmitted continuously, if there is a pause more than 1.5 minutes, the receiver will jump to the transmission of next set of data.

If the dead time is less than 3.5 minutes, the transmission would fail as the CRC for the information combination is ineffective.

4.5. MODBUS Standard Protocol Format

4.5.1. Coil (Bit)

Table 2: Coils Data

Add.	Corresponding Byte	Values
Bit 0	Byte0.0	1
Bit 1	Byte0.1	0
Bit 2	Byte0.2	1
Bit 3	Byte0.3	0
Bit 4	Byte0.4	1
Bit 5	Byte0.5	0
Bit 6	Byte0.6	1
Bit 7	Byte0.7	0
Bit 8	Byte1.0	1
Bit 9	Byte1.1	0
Bit 10	Byte1.2	1
Bit 11	Byte1.3	0
Bit 12	Byte1.4	1
Bit 13	Byte1.5	0
Bit 14	Byte1.6	1
Bit 15	Byte1.7	0
.....		

- 1) “Coil” indicates the data of some flag bit or failure bit etc.
- 2) The unit of date is bit and each bit has a corresponding address.
- 3) The data bit exists in the byte of the communication frame and each byte is composed of eight bits. The high-order byte is corresponding to the high-order bit, so is the low-order byte and bit. See Table 2 for more details.
- 4) The master unit can operate one bit among the communication data or multiple continuous bits at the same time.
- 5) The bit count which the master unit can read or transmit is less than Byte×8. The ineffective data bit of the last byte should be cleared when transmit or read the effective data of the communication frame. For instance, when nine “1” bits are read or transmitted, then two bytes are need, “1111 1111” and “0000 0001”. For the later byte, the ineffective bits “0” should be cleared.

4.5.2. Register (Word, 16 Bits)

Table 3: Registers Data

Add.	Corresponding Byte	Values
Word 0	Byte 0	AA 55
	Byte 1	
Word 1	Byte 2	AA 55
	Byte 3	
Word 2	Byte 4	55 AA
	Byte 5	
.....		
		

- 1) The unit of the register is “word “ which has a corresponding address starting from 0
- 2) When the master unit reads a word, it needs to read two bytes from the high-order eight bits to the low-order eight bits.
- 3) When the master unit transmits or read the request frame, it can transmit or read one or multiple continuous words in the data list.

4.5.3. Read Multiple Coils

Note: It can read the coil data but not support the broadcast.

◆ Function Code: 0x01

Table 4: Request Frame

Device Add.	Function Code	Starting Add.	Data Size	CRC
1 Byte	1 Byte	2 Bytes	2 Bytes	2 Bytes

Table 5: Response Frame

Device Add.	Function Code	Byte Count	Effective Data	CRC
1 Byte	1 Byte	1 Byte	n Bytes	2 Bytes

- ◆ **Starting Address:** it is the starting place where to read a series of bits.
- ◆ **Data size:** It indicates the bit count.
- ◆ **Case:** Read ten bits from the coil 5 of the device 10(see Table 2 for the coil data), as follows:
- ◆ **Request Frame:** 0A(device address)01(function code)00 05(starting address)00 0A(data size)AD 77(CRC)
- ◆ **Response Frame:** 0A(device address)01(function code)02(byte count)AA 02(effective data)E3 5C(CRC) .
- ◆ The last byte is “0000 0010”, among which the ineffective bits “0” should be cleared.

4.5.4. Write Multiple Coils

Note: The master writes coil data to the communication module and also supports the broadcast.

◆ **Function Code:** 0x0F

Table 6: Request Frame

Device Add.	Function Code	Starting Add.	Data Size	Byte Count	Effective Data	CRC
1 Byte	1 Byte	2 Bytes	2 Bytes	1 Byte	n Bytes	2 Bytes

Table 7: Response Frame

Device Add.	Function Code	Starting Add.	Effective Data	CRC
1 Byte	1 Byte	2 Bytes	2 Bytes	2 Bytes

Note: The response frame has the same device address, function code, starting address and data size as the request frame.

◆ **Case:** set eleven consecutive bits to “1” from the device 10 and starting at the address 6, as follows:

◆ **Request Frame:** 0A(device address)0F(function code)00 06 (starting address)00 0B(data size)02(byte count) FF 07 (effective data)97 A0(CRC);

◆ **Response Frame:** 0A (device address) 0F (function code) 00 06(starting address) 00 0B (data size) F5 76(CRC);

◆ **The last byte is “0000 0010”, among which the ineffective bits “0” should be cleared.**

4.5.5. Read Multiple Registers

Note: Read the register data but do not support the broadcast.

◆ **Function Code:** 0x03

Table 8: Request Frame

Device Add.	Function Code	Starting Add.	Data Size	CRC
1 Byte	1 Byte	2 Bytes	2 Bytes	2 Bytes

Table 9: Response Frame

Device Add.	Function Code	Byte Count	Effective Data	CRC
1 Byte	1 Byte	1 Byte	n Bytes	2 Bytes

◆ **Starting Add.:** It indicates the starting address to read the block data.

◆ **Data Size:** It indicates the word count with the maximum of 127 each time.

◆ **Case:** read two continuous words (see Table 3) from the device 10 starting at the address 1, as follows:

◆ **Request Frame:** 0A (device address) 03 (function code) 00 01(starting address) 00 02(data size)94 B0 (CRC);

◆ **Response Frame:** 0A (device address) 03 (function code) 04(byte count) AA 55 55 AA (effective data) CE 14(CRC).

4.5.6. Write Multiple Registers

Note: Write control data from the master unit to the register and support the broadcast

◆ **Function Code:** 0x10

Table 10: Request Frame

Device Add.	Function Code	Starting Add.	Data Size	Byte Count	Effective Date	CRC
1 Byte	1 Byte	2 Bytes	2 Bytes	1 Byte	n Bytes	2 Bytes

Table 11: Response Frame

Device Add.	Function Code	Starting Add.	Effective Data	CRC
1 Byte	1 Byte	2 Bytes	2 Bytes	2 Bytes
Note: The response frame has the same device address, function code, starting address and data size as the request frame.				

◆ **Case:** Write three words (0x12, 0x23, 0x34) from the device 10 starting at the address 2, as follows:

◆ **Request Frame:** 0A (device address) 10 (function code) 00 02(starting address) 00 03(data size) 06 (byte count) 00 12 00 23 00 34(effective data) 15 DF (CRC)

◆ **Response Frame:** 0A (device address) 10 (function code) 00 02 (starting address) 00 03 (data size) 20 B3 (CRC)

4.5.7. Alarm Response

Note: The master unit sends out a request frame, but the communication module detects that there is some default, so an alarm response alarm is replied.

◆ **Function Code:** Set the highest-order bit to “1”, which is value figured out through the OR operation of the request frame’s function code and 0x80.

Communication Format of the Response Frame:

Table12: Alarm Response Frame

Device Add.	Function Code	Alarm Code	CRC
1 Byte	1 Byte	1 Bytes	2 Bytes

Description to the Alarm Codes:

Table13: Alarm Codes

Alarm Code	Name	Description
0x03	Illegal data	The transmitted data is incorrect or beyond the data area.
0x04	Slave device failure	There is communicating failure between the communication module and the unit.

◆ **Case:** Read two words from the device 10 starting at the address 1, but the address 2 does not exist in the communication address, so the replay of the alarm response frame is as follows:

◆ **Request Frame:** 0A (device address) 03(function code) 00 01(starting address) 00 02(data size) 94 B0 (CRC);

◆ **Reponses Frame:** 0A (device address) 83(function code) 03(alarm code) 70 F3 (CRC).

5. Communication Protocol for GMV Multi VRF System

5.1. General

1) The BMS is available to provide the Modbus protocol interface. The long-distance monitoring system can be used to monitor the multi VRF system or be incorporated into the BMS system. Through the long-distance monitoring PC or the BMS system, the user can take a centralized management and control to up to 255 sets of multi GMV systems consisting of up to 4080 indoor units. It without doubt is the high-efficiency tool for the management of the intelligent air conditioners system in the modern buildings.

2) This BMS system is applicable to the digital GMV multi VRF system (R22), digital GMV multi VRF system (R410A), extra low temperature heat pump digital GMV multi VRF system, modular digital GMV multi VRF system (R22), modular digital GMV multi VRF system (R410A), DC inverter GMV multi VRF system, modular DC inverter GMV multi VRF system, DC inverter GMV VRF water heater, modular DC inverter heat recovery GMV multi VRF system, heat recovery digital GMV multi VRF system.

3) Through this interface, it can not only realize the long-distance monitoring to the unit, including the running temperature of the unit, the status of the compressor, and the failure status but also set the unit long distantly, like temperature, running mode, on/off, mode shield, on/off shield etc.

4) In the protocol, “R” indicates “only read” and “W/R” indicates “write and read”.

5.2. Precautions before the Software Development to the BMS Interface for the GMV Multi VRF System

Before the software development to the provided BMB interface, please make sure the setting of the DIP switch and the wiring are correct.

◆ Precautions to the Software Design:

★ (1): Cooling Only Unit: the heating instruction is invalid and it is recommended that the software can tell this operation is invalid.

★(2): When the format of the alarm response frame received by the BMS system is 0x04, it indicates that there is communication failure between the units and the communication module.

★ (3): The activation of energy saving under both heating and cooling mode is premised on the lower temperature limit for cooling and upper temperature limit for heating.

Energy Saving Solution:

Temperature for Energy Saving under Cooling: When the setting for energy saving under cooling is active, the temperature for energy saving must be lower than the set temperature for long-distance monitoring, otherwise it is suggested that the BMS is capable of telling the setting fails.

Temperature for Energy Saving under Heating: When the setting for energy saving under heating is active, the temperature for energy saving must be larger than the set temperature for long-distance monitoring, otherwise it is suggested that the BMS is capable of telling the setting fails.

★ (4): These two flag bits for energy saving under cooling and heating can only be canceled or set at the same time.

★ (5): All data sent by the BMS system to the communication module should be verified if it is effective.

★ (6): After the communication module is powered on again and before no effective data is received, the alarm code 04 will be replied.

5.3. Definition of Effective Data

The data for the Modbus communication protocol can be divided into two types: register and switching value. The former one indicates the values of temperature, valves and other continuous, multi-mode values, while the later one indicates the value which only has two status, like the temperature sensor failure (with only two options: “Yes” or “No”).

1. Data and Address Distribution of the Analog Values: (Word 0 ~ Word 234)

Add.	Access Type R: only read W/R: write/read	Data Meaning	Range	Accuracy	Unit	Data Type (Actual Value)	Pay special attention to the data marked with ★(see section 5.2)	Remarks
Word 0	R	Reserved	/	/	/	Unsigned Integer type		
Word 1	W/R	Setting Temp	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type		Indoor unit 1
Word 2	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★ (1)	
Word 3	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		
Word 4	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 5	W/R	Upper limit of energy-saving temp of heating	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 6	W/R	Setting Temp	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type		Indoor unit 2
Word 7	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★ (1)	

			Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";					
Word 8	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		
Word 9	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 10	W/R	Upper limit of energy-saving temp of heating	Transmission value=actual value×10, Actual value range :16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 11	W/R	Setting Temp	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type		Indoor unit 3
Word 12	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★ (1)	
Word 13	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		
Word 14	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 15	W/R	Upper limit of energy-saving temp of heating	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 16	W/R	Setting Temp	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type		
Word 17	W/R	Indoor unit	Transmission value=Actual value, Actual value: 1- OFF	/	/	Unsigned	★ (1)	Indoor unit 4

		mode	and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";			Integer type		
Word 18	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		
Word 19	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 20	W/R	Upper limit of energy-saving temp of heating	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 21	W/R	Setting Temp	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type		
Word 22	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★ (1)	
Word 23	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		Indoor unit 5
Word 24	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 25	W/R	Upper limit of energy-saving temp of heating	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 26	W/R	Setting Temp	Transmission value=actual value×10,	1	℃	Unsigned		Indoor unit 6

			Actual value range :16.0~30.0;					
Word 27	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★ (1)	
Word 28	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		
Word 29	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 30	W/R	Upper limit of energy-saving temp of heating	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 31	W/R	Setting Temp	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type		Indoor unit 7
Word 32	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★ (1)	
Word 33	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		
Word 34	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 35	W/R	Upper limit of energy-saving temp of heating	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	

Word 36	W/R	Setting Temp	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type		Indoor unit 8
Word 37	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★ (1)	
Word 38	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		
Word 39	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 40	W/R	Upper limit of energy-saving temp of heating	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 41	W/R	Setting Temp	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type		Indoor unit 9
Word 42	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★ (1)	
Word 43	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		
Word 44	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 45	W/R	Upper limit of	Transmission value=actual value×10,	1	℃	Unsigned	★ (3) ★ (4)	

		energy-saving temp of heating	Actual value range:16.0~30.0;			Integer type		
Word 46	W/R	Setting Temp	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type		Indoor unit 10
Word 47	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★ (1)	
Word 48	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		
Word 49	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 50	W/R	Upper limit of energy-saving temp of heating	Transmission value=Actual value×10 Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 51	W/R	Setting Temp	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type		Indoor unit 11
Word 52	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★ (1)	
Word 53	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		
Word 54	W/R	Lower limit of energy-saving	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	

		temp of cooling						
Word 55	W/R	Upper limit of energy-saving temp of heating	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 56	W/R	Setting Temp	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type		
Word 57	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★ (1)	
Word 58	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		Indoor unit 12
Word 59	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 60	W/R	Upper limit of energy-saving temp of heating	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 61	W/R	Setting Temp	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type		Indoor unit 13
Word 62	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★ (1)	
Word 63	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		

Word 64	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 65	W/R	Upper limit of energy-saving temp of heating	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 66	W/R	Setting Temp	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type		Indoor unit 14
Word 67	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★ (1)	
Word 68	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		
Word 69	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 70	W/R	Upper limit of energy-saving temp of heating	Transmission value=actual value×10, Actual value range :16.0~30.0;	1	℃	Unsigned Integer type	★ (3) ★ (4)	
Word 71	W/R	Setting Temp	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type		Indoor unit 15
Word 72	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★ (1)	
Word 73	W/R	Setting Fan	Transmission value=Actual value, Actual value: 0-	1	℃	Unsigned		

		Speed	Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;			Integer type		
Word 74	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★(3) ★(4)	
Word 75	W/R	Upper limit of energy-saving temp of heating	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★(3) ★(4)	
Word 76	W/R	Setting Temp	Transmission value=actual value×10, Actual value range :16.0~30.0;	1	℃	Unsigned Integer type		
Word 77	W/R	Indoor unit mode	Transmission value=Actual value, Actual value: 1- OFF and Cool,2- OFF and Dehumidify,3- OFF and Fan,4- OFF and Heat,9- On and Cool,10- On and Dehumidify,11- On and Fan,12- On and Heat; Others: 0 means nothing, used insignificance symbol to express, like "--";	/	/	Unsigned Integer type	★(1)	
Word 78	W/R	Setting Fan Speed	Transmission value=Actual value, Actual value: 0- Auto fan speed,1- Low fan speed,2- Middle fan speed,3- High fan speed;	1	℃	Unsigned Integer type		Indoor unit 16
Word 79	W/R	Lower limit of energy-saving temp of cooling	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★(3) ★(4)	
Word 80	W/R	Upper limit of energy-saving temp of heating	Transmission value=actual value×10, Actual value range:16.0~30.0;	1	℃	Unsigned Integer type	★(3) ★(4)	
Word 81	R	Indoor unit ambient temp	Transmission value=actual value×10, Actual value range: (-20~100);	0.1	℃	Floating-point type		
Word 82	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		Indoor unit 1
Word 83	R	Indoor unit ambient temp	Transmission value=actual value×10, Actual value range: (-20~100);	0.1	℃	Floating-point type		Indoor unit 2

Word 84	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		
Word 85	R	Indoor unit ambient temp	Transmission value=actual value×10,Actual value: (-20~100);	0.1	℃	Floating-point type		Indoor unit 3
Word 86	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		
Word 87	R	Indoor unit ambient temp	Transmission value=actual value×10, Actual value: (-20~100);	0.1	℃	Floating-point type		Indoor unit 4
Word 88	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		
Word 89	R	Indoor unit ambient temp	Transmission value=actual value×10,Actual value: (-20~100);	0.1	℃	Floating-point type		Indoor unit 5
Word 90	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		
Word 91	R	Indoor unit ambient temp	Transmission value=actual value×10,Actual value: (-20~100);	0.1	℃	Floating-point type		Indoor unit 6
Word 92	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		
Word 93	R	Indoor unit ambient temp	Transmission value=actual value×10,Actual value: (-20~100);	0.1	℃	Floating-point type		Indoor unit 7
Word 94	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		
Word 95	R	Indoor unit ambient temp	Transmission value=actual value×10,Actual value: (-20~100);	0.1	℃	Floating-point type		Indoor unit 8
Word 96	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in	/	/	Unsigned Integer type		

			status,2-Card out status;					
Word 97	R	Indoor unit ambient temp	Transmission value=actual value×10,Actual value: (-20~100);	0.1	℃	Floating-point type		Indoor unit 9
Word 98	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		
Word 99	R	Indoor unit ambient temp	Transmission value=actual value×10,Actual value: (-20~100);	0.1	℃	Floating-point type		Indoor unit 10
Word 100	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		
Word 101	R	Indoor unit ambient temp	Transmission value=actual value×10,Actual value: (-20~100);	0.1	℃	Floating-point type		Indoor unit 11
Word 102	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		
Word 103	R	Indoor unit ambient temp	Transmission value=actual value×10,Actual value: (-20~100);	0.1	℃	Floating-point type		Indoor unit 12
Word 104	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		
Word 105	R	Indoor unit ambient temp	Transmission value=actual value×10,Actual value: (-20~100);	0.1	℃	Floating-point type		Indoor unit 13
Word 106	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		
Word 107	R	Indoor unit ambient temp	Transmission value=actual value×10,Actual value: (-20~100);	0.1	℃	Floating-point type		Indoor unit 14
Word 108	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		

Word 109	R	Indoor unit ambient temp	Transmission value=actual value×10, Actual value range : (-20~100);	0.1	℃	Floating-point type		Indoor unit 15
Word 110	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		
Word 111	R	Indoor unit ambient temp	Transmission value=actual value×10, Actual value range : (-20~100);	0.1	℃	Floating-point type		Indoor unit 16
Word 112	R	Entrance guard system status	Transmission value=Actual value, Actual value: 0-without entrance guard system ,1-Card in status,2-Card out status;	/	/	Unsigned Integer type		
Word 113	R	Outdoor ambient temp	Transmission value=actual value×10,Actual value: (-127~127);	0.1	℃	Floating-point type		Outdoor unit
.....(Reserved)								
Word 210	W/R	Setting Water tank temp	Transmission value=actual value×10, ① Hot Water, Night, Reserve modes:35℃~58℃ (the upper limit can be adjusted to 65℃); ② Energy saving mode:35℃~50℃; ③ High temp sterilization mode:65℃~70℃;	1	℃	Unsigned Integer type		Multi VRF Water Heater
Word 211	W/R	Water tank controller sends out the outdoor unit status	Transmission value=actual value 0-off, 8-heat preservation and standby 9-heating water	/	/	Unsigned Integer type		
Word 212	W/R	User sets the water tank mode	Transmission value=actual value 0-hot water mode, 1-energy saving mode, 2-reservation mode, 3-night mode	/	/	Unsigned Integer type		
Word 213	W/R	Floor	Transmission value=actual value×10,	1	℃	Unsigned		

Heating

Actual value range: 30~52

Integer type

		supply Water Setting Temp						
Word 214	R	Reserved	/	/	/	/		
Word 215	R	Reserved	/	/	/	/		
Word 216	R	Reserved	/	/	/	/		
Word 217	R	Reserved	/	/	/	/		
Word 218	R	Reserved	/	/	/	/		
Word 219	R	Reserved	/	/	/	/		
Word 220	R	Reserved	/	/	/	/		
Word 221	R	Reserved	/	/	/	/		
Word 222	R	Reserved	/	/	/	/		
Word 223	R	Reserved	/	/	/	/		
Word 224	R	Reserved	/	/	/	/		
Word 225	R	Reserved	/	/	/	/		
Word 226	R	Reserved	/	/	/	/		
Word 227	R	Reserved	/	/	/	/		
Word 228	R	Reserved	/	/	/	/		
Word 229	R	Reserved	/	/	/	/		
Word 230	R	Reserved	/	/	/	/		
Word 231	R	Reserved	/	/	/	/		
Word 232	R	Reserved	/	/	/	/		
Word 233	R	Reserved	/	/	/	/		
Word 234	R	Reserved	/	/	/	/		
Word 235	R	Reserved	/	/	/	/		
Word 236	R	Reserved	/	/	/	/		
Word 237	R	Reserved	/	/	/	/		
Word 238	R	Reserved	/	/	/	/		
Word 239	R	Reserved	/	/	/	/		
Word 240	R	Reserved	/	/	/	/		

Word 241	R	Reserved	/	/	/	/	
Word 242	R	Water tank temp	Transmission value=actual value×10, Actual value: (-127~255);	0.1	℃	Floating-point type	
Word 243	R	Reserved	/	/	/	/	
Word 244	R	Double-Tube supply Water Temp	Transmission value=actual value×10, Actual value: (-127~255);	0.1	℃	Floating-point type	

2. Data and Address Distribution of Switching Value: (Bit 0 ~ Bit2169)

Add.	Access Type R: read only W/R: read/write	Add. Bit	Meaning of Data Bit	Range	Parameter Type	Pay special attention to the data marked with ★(see section 5.2)	Remarks
Byte 0	R	Bit 0	Reserved	/	/		
	R	Bit 1	Reserved	/	/		
	R	Bit 2	Reserved	/	/		
	R	Bit 3	Reserved	/	/		
	R	Bit 4	Reserved	/	/		
	R	Bit 5	Reserved	/	/		
	R	Bit 6	Reserved	/	/		
	R	Bit 7	Reserved	/	/		
Byte 1	R	Bit 8	Indoor unit 1 with/without	0:without, 1:with	Status parameter		Indoor unit with/without mark bit
	R	Bit 9	Indoor unit 2 with/without	0:without, 1:with	Status parameter		
	R	Bit 10	Indoor unit 3 with/without	0:without, 1:with	Status parameter		
	R	Bit 11	Indoor unit 4 with/without	0:without, 1:with	Status parameter		
	R	Bit 12	Indoor unit 5 with/without	0:without, 1:with	Status parameter		
	R	Bit 13	Indoor unit 6 with/without	0:without, 1:with	Status parameter		
	R	Bit 14	Indoor unit 7 with/without	0:without, 1:with	Status parameter		

	R	Bit 15	Indoor unit 8 with/without	0:without, 1:with	Status parameter		
Byte 2	R	Bit 16	Indoor unit 9 with/without	0:without, 1:with	Status parameter		
	R	Bit 17	Indoor unit 10 with/without	0:without, 1:with	Status parameter		
	R	Bit 18	Indoor unit 11 with/without	0:without, 1:with	Status parameter		
	R	Bit 19	Indoor unit 12 with/without	0:without, 1:with	Status parameter		
	R	Bit 20	Indoor unit 13 with/without	0:without, 1:with	Status parameter		
	R	Bit 21	Indoor unit 14 with/without	0:without, 1:with	Status parameter		
	R	Bit 22	Indoor unit 15 with/without	0:without, 1:with	Status parameter		
	R	Bit 23	Indoor unit 16 with/without	0:without, 1:with	Status parameter		
Byte 3	W/R	Bit 24	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 1
	W/R	Bit 25	Energy saving on mark for cooling	0:Off,1:On	Status parameter		
	W/R	Bit 26	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 27	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 28	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 29	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 30	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 31	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 4	W/R	Bit 32	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 2
	W/R	Bit 33	Energy saving on mark for cooling	0:Off,1:On	Status parameter		
	W/R	Bit 34	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 35	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 36	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 37	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 38	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 39	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 5	W/R	Bit 40	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 3
	W/R	Bit 41	Energy saving on mark for cooling	0:Off,1:On	Status parameter		

	W/R	Bit 42	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 43	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 44	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 45	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 46	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 47	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 6	W/R	Bit 48	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 4
	W/R	Bit 49	Energy saving on mark for cooling	0:Off,1:On	Status parameter		
	W/R	Bit 50	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 51	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 52	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 53	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 54	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 55	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 7	W/R	Bit 56	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 5
	W/R	Bit 57	Energy saving on mark for cooling	0:Off,1:On	Status parameter		
	W/R	Bit 58	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 59	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 60	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 61	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 62	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 63	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 8	W/R	Bit 64	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 6
	W/R	Bit 65	Energy saving on mark for cooling	0:Off,1:On	Status parameter		
	W/R	Bit 66	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 67	Remote energy saving shield mark	0:Off,1:On	Status parameter		

	W/R	Bit 68	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 69	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 70	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 71	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 9	W/R	Bit 72	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 7
	W/R	Bit 73	Energy saving on mark for cooling	0:Off,1:On	Status parameter		
	W/R	Bit 74	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 75	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 76	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 77	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 78	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 79	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 10	W/R	Bit 80	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 8
	W/R	Bit 81	Energy saving on mark for cooling	0:Off,1:On	Status parameter		
	W/R	Bit 82	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 83	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 84	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 85	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 86	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 87	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 11	W/R	Bit 88	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 9
	W/R	Bit 89	Energy saving on mark for cooling	0:Off,1:On	Status parameter		
	W/R	Bit 90	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 91	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 92	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 93	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		

	W/R	Bit 94	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 95	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 12	W/R	Bit 96	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 10
	W/R	Bit 97	Energy saving on mark for cooling	0:Off,1:On	Status parameter		
	W/R	Bit 98	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 99	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 100	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 101	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 102	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 103	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 13	W/R	Bit 104	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 11
	W/R	Bit 105	Energy saving on mark for cooling	0:Off,1:On	Status parameter		
	W/R	Bit 106	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 107	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 108	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 109	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 110	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 111	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 14	W/R	Bit 112	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 12
	W/R	Bit 113	Energy saving on mark for cooling	0:Off,1:On	Status parameter		
	W/R	Bit 114	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 115	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 116	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 117	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 118	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 119	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		

Byte 15	W/R	Bit 120	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 13
	W/R	Bit 121	Energy saving on mark for cooling	0:Off,1:On	Status parameter		
	W/R	Bit 122	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 123	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 124	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 125	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 126	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 127	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 16	W/R	Bit 128	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 14
	W/R	Bit 129	Energy saving on mark for cooling	0:Off,1:On	Status parameter		
	W/R	Bit 130	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 131	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 132	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 133	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 134	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 135	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 17	W/R	Bit 136	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 15
	W/R	Bit 137	Energy saving on mark for cooling	0:Off,1:On	Status parameter		
	W/R	Bit 138	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 139	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 140	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 141	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 142	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 143	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 18	W/R	Bit 144	Swing on mark	0:Off,1:On	Status parameter		Indoor unit 16
	W/R	Bit 145	Energy saving on mark for cooling	0:Off,1:On	Status parameter		

	W/R	Bit 146	Energy saving on mark for heating	0:Off,1:On	Status parameter		
	W/R	Bit 147	Remote energy saving shield mark	0:Off,1:On	Status parameter		
	W/R	Bit 148	Remote temp shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 149	Remote mode shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 150	Remote On/Off shield mark	0:Without shield ,1:Shield	Status parameter		
	W/R	Bit 151	Remote lock mark(all shield)	0:Without shield ,1:Shield	Status parameter		
Byte 19	R	Bit 152	Reserved	/	/		Indoor unit 1
	R	Bit 153	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 154	Reserved	/	/		
	R	Bit 155	Reserved	/	/		
	R	Bit 156	Reserved	/	/		
	R	Bit 157	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 158	Reserved	/	/		
	R	Bit 159	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter		
Byte 20	R	Bit 160	Reserved	/	/		
	R	Bit 161	Reserved	/	/		
	R	Bit 162	Reserved	/	/		
	R	Bit 163	Reserved	/	/		
	R	Bit 164	Reserved	/	/		
	R	Bit 165	Reserved	/	/		
	R	Bit 166	Reserved	/	/		
	R	Bit 167	Reserved	/	/		
Byte 21	R	Bit 168	Reserved	/	/		
	R	Bit 169	Full Water Protection	0:without, 1:with	Failure parameter		
	R	Bit 170	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 171	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 172	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		

	R	Bit 173	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 174	Auxiliary Heater Protection Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 175	Freeze Protection	0:without, 1:with	Failure parameter		
Byte 22	R	Bit 176	Reserved	/	/		
	R	Bit 177	Reserved	/	/		
	R	Bit 178	Reserved	/	/		
	R	Bit 179	Auxiliary Heater On/Off	0:off,1:on	Status parameter		
	R	Bit 180	Reserved	/	/		
	R	Bit 181	Reserved	/	/		
	R	Bit 182	Reserved	/	/		
	R	Bit 183	Communication Malfunction (no data transmission between the communication module and the indoor unit)	0:normal, 1:abnormal	Failure parameter		
Byte 23	R	Bit 184	Reserved	/	/		
	R	Bit 185	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter		
	R	Bit 186	Reserved	/	/		
	R	Bit 187	Reserved	/	/		
	R	Bit 188	Reserved	/	/		
	R	Bit 189	Reserved	/	/		
	R	Bit 190	Reserved	/	/		
	R	Bit 191	Reserved	/	/		
Byte 24	R	Bit 192	Reserved	/	/		Indoor unit 2
	R	Bit 193	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 194	Reserved	/	/		
	R	Bit 195	Reserved	/	/		
	R	Bit 196	Reserved	/	/		
	R	Bit 197	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 198	Reserved	/	/		

	R	Bit 199	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter		
Byte 25	R	Bit 200	Reserved	/	/		
	R	Bit 201	Reserved	/	/		
	R	Bit 202	Reserved	/	/		
	R	Bit 203	Reserved	/	/		
	R	Bit 204	Reserved	/	/		
	R	Bit 205	Reserved	/	/		
	R	Bit 206	Reserved	/	/		
	R	Bit 207	Reserved	/	/		
Byte 26	R	Bit 208	Reserved	/	/		
	R	Bit 209	Full Water Protection	0:without, 1:with	Failure parameter		
	R	Bit 210	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 211	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 212	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 213	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 214	Auxiliary Heater Protection Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 215	Freeze Protection	0:without, 1:with	Failure parameter		
Byte 27	R	Bit 216	Reserved	/	/		
	R	Bit 217	Reserved	/	/		
	R	Bit 218	Reserved	/	/		
	R	Bit 219	Auxiliary Heater On/Off	0:off,1:on	Status parameter		
	R	Bit 220	Reserved	/	/		
	R	Bit 221	Reserved	/	/		
	R	Bit 222	Reserved	/	/		
	R	Bit 223	Communication Malfunction (no data transmission between the communication module and the indoor unit)	0:normal, 1:abnormal	Failure parameter		

Byte 28	R	Bit 224	Reserved	/	/		Indoor unit 3
	R	Bit 225	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter		
	R	Bit 226	Reserved	/	/		
	R	Bit 227	Reserved	/	/		
	R	Bit 228	Reserved	/	/		
	R	Bit 229	Reserved	/	/		
	R	Bit 230	Reserved	/	/		
	R	Bit 231	Reserved	/	/		
Byte 29	R	Bit 232	Reserved	/	/		
	R	Bit 233	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 234	Reserved	/	/		
	R	Bit 235	Reserved	/	/		
	R	Bit 236	Reserved	/	/		
	R	Bit 237	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 238	Reserved	/	/		
	R	Bit 239	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter		
Byte 30	R	Bit 240	Reserved	/	/		
	R	Bit 241	Reserved	/	/		
	R	Bit 242	Reserved	/	/		
	R	Bit 243	Reserved	/	/		
	R	Bit 244	Reserved	/	/		
	R	Bit 245	Reserved	/	/		
	R	Bit 246	Reserved	/	/		
	R	Bit 247	Reserved	/	/		
Byte 31	R	Bit 248	Reserved	/	/		
	R	Bit 249	Full Water Protection	0:without, 1:with	Failure parameter		
	R	Bit 250	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 251	Outlet pipe Temp. Sensor	0:without, 1:with	Failure parameter		

			Malfunction				
	R	Bit 252	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 253	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 254	Auxiliary Heater Protection Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 255	Freeze Protection	0:without, 1:with	Failure parameter		
Byte 32	R	Bit 256	Reserved	/	/		
	R	Bit 257	Reserved	/	/		
	R	Bit 258	Reserved	/	/		
	R	Bit 259	Auxiliary Heater On/Off	0:off,1:on	Status parameter		
	R	Bit 260	Reserved	/	/		
	R	Bit 261	Reserved	/	/		
	R	Bit 262	Reserved	/	/		
	R	Bit 263	Communication Malfunction (no data transmission between the communication module and the indoor unit)	0:normal, 1:abnormal	Failure parameter		
Byte 33	R	Bit 264	Reserved	/	/		
	R	Bit 265	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter		
	R	Bit 266	Reserved	/	/		
	R	Bit 267	Reserved	/	/		
	R	Bit 268	Reserved	/	/		
	R	Bit 269	Reserved	/	/		
	R	Bit 270	Reserved	/	/		
	R	Bit 271	Reserved	/	/		
Byte 34	R	Bit 272	Reserved	/	/		Indoor unit 4
	R	Bit 273	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 274	Reserved	/	/		
	R	Bit 275	Reserved	/	/		
	R	Bit 276	Reserved	/	/		

	R	Bit 277	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 278	Reserved	/	/	
	R	Bit 279	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter	
Byte 35	R	Bit 280	Reserved	/	/	
	R	Bit 281	Reserved	/	/	
	R	Bit 282	Reserved	/	/	
	R	Bit 283	Reserved	/	/	
	R	Bit 284	Reserved	/	/	
	R	Bit 285	Reserved	/	/	
	R	Bit 286	Reserved	/	/	
	R	Bit 287	Reserved	/	/	
Byte 36	R	Bit 288	Reserved	/	/	
	R	Bit 289	Full Water Protection	0:without, 1:with	Failure parameter	
	R	Bit 290	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 291	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 292	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 293	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 294	Auxiliary Heater Protection Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 295	Freeze Protection	0:without, 1:with	Failure parameter	
Byte 37	R	Bit 296	Reserved	/	/	
	R	Bit 297	Reserved	/	/	
	R	Bit 298	Reserved	/	/	
	R	Bit 299	Auxiliary Heater On/Off	0:off,1:on	Status parameter	
	R	Bit 300	Reserved	/	/	
	R	Bit 301	Reserved	/	/	
	R	Bit 302	Reserved	/	/	
	R	Bit 303	Communication Malfunction (no data transmission between the	0:normal, 1:abnormal	Failure parameter	

			communication module and the indoor unit)				
Byte 38	R	Bit 304	Reserved	/	/		
	R	Bit 305	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter		
	R	Bit 306	Reserved	/	/		
	R	Bit 307	Reserved	/	/		
	R	Bit 308	Reserved	/	/		
	R	Bit 309	Reserved	/	/		
	R	Bit 310	Reserved	/	/		
	R	Bit 311	Reserved	/	/		
Byte 39	R	Bit 312	Reserved	/	/		Indoor unit 5
	R	Bit 313	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 314	Reserved	/	/		
	R	Bit 315	Reserved	/	/		
	R	Bit 316	Reserved	/	/		
	R	Bit 317	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 318	Reserved	/	/		
	R	Bit 319	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter		
Byte 40	R	Bit 320	Reserved	/	/		
	R	Bit 321	Reserved	/	/		
	R	Bit 322	Reserved	/	/		
	R	Bit 323	Reserved	/	/		
	R	Bit 324	Reserved	/	/		
	R	Bit 325	Reserved	/	/		
	R	Bit 326	Reserved	/	/		
	R	Bit 327	Reserved	/	/		
Byte 41	R	Bit 328	Reserved	/	/		
	R	Bit 329	Full Water Protection	0:without, 1:with	Failure parameter		
	R	Bit 330	Mid Pipe Temp. Sensor	0:without, 1:with	Failure parameter		

			Malfunction				
	R	Bit 331	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 332	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 333	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 334	Auxiliary Heater Protection Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 335	Freeze Protection	0:without, 1:with	Failure parameter		
Byte 42	R	Bit 336	Reserved	/	/		
	R	Bit 337	Reserved	/	/		
	R	Bit 338	Reserved	/	/		
	R	Bit 339	Auxiliary Heater On/Off	0:off,1:on	Status parameter		
	R	Bit 340	Reserved	/	/		
	R	Bit 341	Reserved	/	/		
	R	Bit 342	Reserved	/	/		
	R	Bit 343	Communication Malfunction (no data transmission between the communication module and the indoor unit)	0:normal, 1:abnormal	Failure parameter		
Byte 43	R	Bit 344	Reserved	/	/		
	R	Bit 345	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter		
	R	Bit 346	Reserved	/	/		
	R	Bit 347	Reserved	/	/		
	R	Bit 348	Reserved	/	/		
	R	Bit 349	Reserved	/	/		
	R	Bit 350	Reserved	/	/		
	R	Bit 351	Reserved	/	/		
Byte 44	R	Bit 352	Reserved	/	/		Indoor unit 6
	R	Bit 353	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 354	Reserved	/	/		

	R	Bit 355	Reserved	/	/	
	R	Bit 356	Reserved	/	/	
	R	Bit 357	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 358	Reserved	/	/	
	R	Bit 359	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter	
Byte 45	R	Bit 360	Reserved	/	/	
	R	Bit 361	Reserved	/	/	
	R	Bit 362	Reserved	/	/	
	R	Bit 363	Reserved	/	/	
	R	Bit 364	Reserved	/	/	
	R	Bit 365	Reserved	/	/	
	R	Bit 366	Reserved	/	/	
	R	Bit 367	Reserved	/	/	
Byte 46	R	Bit 368	Reserved	/	/	
	R	Bit 369	Full Water Protection	0:without, 1:with	Failure parameter	
	R	Bit 370	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 371	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 372	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 373	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 374	Auxiliary Heater Protection Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 375	Freeze Protection	0:without, 1:with	Failure parameter	
Byte 47	R	Bit 376	Reserved	/	/	
	R	Bit 377	Reserved	/	/	
	R	Bit 378	Reserved	/	/	
	R	Bit 379	Auxiliary Heater On/Off	0:off,1:on	Status parameter	
	R	Bit 380	Reserved	/	/	
	R	Bit 381	Reserved	/	/	

	R	Bit 382	Reserved	/	/		
	R	Bit 383	Communication Malfunction (no data transmission between the communication module and the indoor unit)	0:normal, 1:abnormal	Failure parameter		
Byte 48	R	Bit 384	Reserved	/	/		
	R	Bit 385	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter		
	R	Bit 386	Reserved	/	/		
	R	Bit 387	Reserved	/	/		
	R	Bit 388	Reserved	/	/		
	R	Bit 389	Reserved	/	/		
	R	Bit 390	Reserved	/	/		
	R	Bit 391	Reserved	/	/		
Byte 49	R	Bit 392	Reserved	/	/		
	R	Bit 393	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 394	Reserved	/	/		
	R	Bit 395	Reserved	/	/		
	R	Bit 396	Reserved	/	/		
	R	Bit 397	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 398	Reserved	/	/		
	R	Bit 399	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter		
Byte 50	R	Bit 400	Reserved	/	/		
	R	Bit 401	Reserved	/	/		
	R	Bit 402	Reserved	/	/		
	R	Bit 403	Reserved	/	/		
	R	Bit 404	Reserved	/	/		
	R	Bit 405	Reserved	/	/		
	R	Bit 406	Reserved	/	/		
	R	Bit 407	Reserved	/	/		

Byte 51	R	Bit 408	Reserved	/	/		
	R	Bit 409	Full Water Protection	0:without, 1:with	Failure parameter		
	R	Bit 410	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 411	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 412	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 413	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 414	Freeze Protection	0:without, 1:with	Failure parameter		
	R	Bit 415	Reserved	/	/		
Byte 52	R	Bit 416	Reserved	/	/		
	R	Bit 417	Reserved	/	/		
	R	Bit 418	Indoor Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 419	Auxiliary Heater On/Off	0:off,1:on	Status parameter		
	R	Bit 420	Reserved	/	/		
	R	Bit 421	Reserved	/	/		
	R	Bit 422	Reserved	/	/		
	R	Bit 423	Communication Malfunction (no data transmission between the communication module and the indoor unit)	0:normal, 1:abnormal	Failure parameter		
Byte 53	R	Bit 424	Reserved	/	/		
	R	Bit 425	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter		
	R	Bit 426	Reserved	/	/		
	R	Bit 427	Reserved	/	/		
	R	Bit 428	Reserved	/	/		
	R	Bit 429	Reserved	/	/		
	R	Bit 430	Reserved	/	/		
	R	Bit 431	Reserved	/	/		
Byte 54	R	Bit 432	Reserved	/	/		Indoor unit 8

	R	Bit 433	Reserved	0: slave,1: master	Status parameter	
	R	Bit 434	Master Wired Controller	/	/	
	R	Bit 435	Reserved	/	/	
	R	Bit 436	Reserved	/	/	
	R	Bit 437	Reserved	0:without, 1:with	Failure parameter	
	R	Bit 438	Unit Temp. Sensor Malfunction	/	/	
	R	Bit 439	Reserved	0:without, 1: with	Failure parameter	
Byte 55	R	Bit 440	Indoor Unit Mode Conflict	/	/	
	R	Bit 441	Reserved	/	/	
	R	Bit 442	Reserved	/	/	
	R	Bit 443	Reserved	/	/	
	R	Bit 444	Reserved	/	/	
	R	Bit 445	Reserved	/	/	
	R	Bit 446	Reserved	/	/	
	R	Bit 447	Reserved	/	/	
Byte 56	R	Bit 448	Reserved	/	/	
	R	Bit 449	Reserved	0:without, 1:with	Failure parameter	
	R	Bit 450	Full Water Protection	0:without, 1:with	Failure parameter	
	R	Bit 451	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 452	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 453	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 454	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 455	Auxiliary Heater Protection Malfunction	/	/	
Byte 57	R	Bit 456	Freeze Protection	0:without, 1:with	Failure parameter	
	R	Bit 457	Reserved	/	/	
	R	Bit 458	Reserved	/	/	
	R	Bit 459	Reserved	/	/	

	R	Bit 460	Auxiliary Heater On/Off	/	/		
	R	Bit 461	Reserved	/	/		
	R	Bit 462	Reserved	/	/		
	R	Bit 463	Reserved	0:normal, 1:abnormal	Failure parameter		
Byte 58	R	Bit 464	Communication Malfunction (no data transmission between the communication module and the indoor unit)	/	/		
	R	Bit 465	Reserved	0:normal, 1:abnormal	Failure parameter		
	R	Bit 466	Communication Malfunction of Indoor Unit/Wired Controller	/	/		
	R	Bit 467	Reserved	/	/		
	R	Bit 468	Reserved	/	/		
	R	Bit 469	Reserved	/	/		
	R	Bit 470	Reserved	/	/		
	R	Bit 471	Reserved	/	/		
Byte 59	R	Bit 472	Reserved	/	/		Indoor unit 9
	R	Bit 473	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 474	Reserved	/	/		
	R	Bit 475	Reserved	/	/		
	R	Bit 476	Reserved	/	/		
	R	Bit 477	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 478	Reserved	/	/		
	R	Bit 479	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter		
Byte 60	R	Bit 480	Reserved	/	/		
	R	Bit 481	Reserved	/	/		
	R	Bit 482	Reserved	/	/		
	R	Bit 483	Reserved	/	/		
	R	Bit 484	Reserved	/	/		
	R	Bit 485	Reserved	/	/		

	R	Bit 486	Reserved	/	/	
	R	Bit 487	Reserved	/	/	
Byte 61	R	Bit 488	Reserved	/	/	
	R	Bit 489	Full Water Protection	0:without, 1:with	Failure parameter	
	R	Bit 490	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 491	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 492	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 493	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 494	Auxiliary Heater Protection Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 495	Freeze Protection	0:without, 1:with	Failure parameter	
	R	Bit 496	Reserved	/	/	
Byte 62	R	Bit 497	Reserved	/	/	
	R	Bit 498	Reserved	/	/	
	R	Bit 499	Auxiliary Heater On/Off	0:off,1:on	Status parameter	
	R	Bit 500	Reserved	/	/	
	R	Bit 501	Reserved	/	/	
	R	Bit 502	Reserved	/	/	
	R	Bit 503	Communication Malfunction (no data transmission between the communication module and the indoor unit)	0:normal, 1:abnormal	Failure parameter	
	R	Bit 504	Reserved	/	/	
Byte 63	R	Bit 505	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter	
	R	Bit 506	Reserved	/	/	
	R	Bit 507	Reserved	/	/	
	R	Bit 508	Reserved	/	/	
	R	Bit 509	Reserved	/	/	
	R	Bit 510	Reserved	/	/	

	R	Bit 511	Reserved	/	/		Indoor unit 10
Byte 64	R	Bit 512	Reserved	/	/		
	R	Bit 513	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 514	Reserved	/	/		
	R	Bit 515	Reserved	/	/		
	R	Bit 516	Reserved	/	/		
	R	Bit 517	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 518	Reserved	/	/		
	R	Bit 519	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter		
Byte 65	R	Bit 520	Reserved	/	/		
	R	Bit 521	Reserved	/	/		
	R	Bit 522	Reserved	/	/		
	R	Bit 523	Reserved	/	/		
	R	Bit 524	Reserved	/	/		
	R	Bit 525	Reserved	/	/		
	R	Bit 526	Reserved	/	/		
	R	Bit 527	Reserved	/	/		
Byte 66	R	Bit 528	Reserved	/	/		
	R	Bit 529	Full Water Protection	0:without, 1:with	Failure parameter		
	R	Bit 530	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 531	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 532	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 533	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 534	Auxiliary Heater Protection Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 535	Freeze Protection	0:without, 1:with	Failure parameter		

Byte 67	R	Bit 536	Reserved	/	/		Indoor unit 11
	R	Bit 537	Reserved	/	/		
	R	Bit 538	Reserved	/	/		
	R	Bit 539	Auxiliary Heater On/Off	0:off,1:on	Status parameter		
	R	Bit 540	Reserved	/	/		
	R	Bit 541	Reserved	/	/		
	R	Bit 542	Reserved	/	/		
	R	Bit 543	Communication Malfunction (no data transmission between the communication module and the indoor unit)	0:normal, 1:abnormal	Failure parameter		
Byte 68	R	Bit 544	Reserved	/	/		
	R	Bit 545	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter		
	R	Bit 546	Reserved	/	/		
	R	Bit 547	Reserved	/	/		
	R	Bit 548	Reserved	/	/		
	R	Bit 549	Reserved	/	/		
	R	Bit 550	Reserved	/	/		
	R	Bit 551	Reserved	/	/		
Byte 69	R	Bit 552	Reserved	/	/		
	R	Bit 553	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 554	Reserved	/	/		
	R	Bit 555	Reserved	/	/		
	R	Bit 556	Reserved	/	/		
	R	Bit 557	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 558	Reserved	/	/		
	R	Bit 559	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter		
Byte 70	R	Bit 560	Reserved	/	/		
	R	Bit 561	Reserved	/	/		

	R	Bit 562	Reserved	/	/	
	R	Bit 563	Reserved	/	/	
	R	Bit 564	Reserved	/	/	
	R	Bit 565	Reserved	/	/	
	R	Bit 566	Reserved	/	/	
	R	Bit 567	Reserved	/	/	
Byte 71	R	Bit 568	Reserved	/	/	
	R	Bit 569	Full Water Protection	0:without, 1:with	Failure parameter	
	R	Bit 570	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 571	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 572	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 573	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 574	Auxiliary Heater Protection Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 575	Freeze Protection	0:without, 1:with	Failure parameter	
Byte 72	R	Bit 576	Reserved	/	/	
	R	Bit 577	Reserved	/	/	
	R	Bit 578	Reserved	/	/	
	R	Bit 579	Auxiliary Heater On/Off	0:off,1:on	Status parameter	
	R	Bit 580	Reserved	/	/	
	R	Bit 581	Reserved	/	/	
	R	Bit 582	Reserved	/	/	
	R	Bit 583	Communication Malfunction (no data transmission between the communication module and the indoor unit)	0:normal, 1:abnormal	Failure parameter	
Byte 73	R	Bit 584	Reserved	/	/	
	R	Bit 585	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter	
	R	Bit 586	Reserved	/	/	

	R	Bit 587	Reserved	/	/		
	R	Bit 588	Reserved	/	/		
	R	Bit 589	Reserved	/	/		
	R	Bit 590	Reserved	/	/		
	R	Bit 591	Reserved	/	/		
Byte 74	R	Bit 592	Reserved	/	/		Indoor unit 12
	R	Bit 593	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 594	Reserved	/	/		
	R	Bit 595	Reserved	/	/		
	R	Bit 596	Reserved	/	/		
	R	Bit 597	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 598	Reserved	/	/		
	R	Bit 599	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter		
Byte 75	R	Bit 600	Reserved	/	/		
	R	Bit 601	Reserved	/	/		
	R	Bit 602	Reserved	/	/		
	R	Bit 603	Reserved	/	/		
	R	Bit 604	Reserved	/	/		
	R	Bit 605	Reserved	/	/		
	R	Bit 606	Reserved	/	/		
	R	Bit 607	Reserved	/	/		
Byte 76	R	Bit 608	Reserved	/	/		
	R	Bit 609	Full Water Protection	0:without, 1:with	Failure parameter		
	R	Bit 610	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 611	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 612	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 613	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		

	R	Bit 614	Auxiliary Heater Protection Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 615	Freeze Protection	0:without, 1:with	Failure parameter		
Byte 77	R	Bit 616	Reserved	/	/		
	R	Bit 617	Reserved	/	/		
	R	Bit 618	Reserved	/	/		
	R	Bit 619	Auxiliary Heater On/Off	0:off,1:on	Status parameter		
	R	Bit 620	Reserved	/	/		
	R	Bit 621	Reserved	/	/		
	R	Bit 622	Reserved	/	/		
	R	Bit 623	Communication Malfunction (no data transmission between the communication module and the indoor unit)	0:normal, 1:abnormal	Failure parameter		
Byte 78	R	Bit 624	Reserved	/	/		
	R	Bit 625	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter		
	R	Bit 626	Reserved	/	/		
	R	Bit 627	Reserved	/	/		
	R	Bit 628	Reserved	/	/		
	R	Bit 629	Reserved	/	/		
	R	Bit 630	Reserved	/	/		
Byte 79	R	Bit 631	Reserved	/	/		
	R	Bit 632	Reserved	/	/		Indoor unit 13
	R	Bit 633	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 634	Reserved	/	/		
	R	Bit 635	Reserved	/	/		
	R	Bit 636	Reserved	/	/		
	R	Bit 637	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 638	Reserved	/	/		
	R	Bit 639	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter		

Byte 80	R	Bit 640	Reserved	/	/	
	R	Bit 641	Reserved	/	/	
	R	Bit 642	Reserved	/	/	
	R	Bit 643	Reserved	/	/	
	R	Bit 644	Reserved	/	/	
	R	Bit 645	Reserved	/	/	
	R	Bit 646	Reserved	/	/	
	R	Bit 647	Reserved	/	/	
Byte 81	R	Bit 648	Reserved	/	/	
	R	Bit 649	Full Water Protection	0:without, 1:with	Failure parameter	
	R	Bit 650	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 651	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 652	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 653	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 654	Auxiliary Heater Protection Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 655	Freeze Protection	0:without, 1:with	Failure parameter	
Byte 82	R	Bit 656	Reserved	/	/	
	R	Bit 657	Reserved	/	/	
	R	Bit 658	Reserved	/	/	
	R	Bit 659	Auxiliary Heater On/Off	0:off,1:on	Status parameter	
	R	Bit 660	Reserved	/	/	
	R	Bit 661	Reserved	/	/	
	R	Bit 662	Reserved	/	/	
	R	Bit 663	Communication Malfunction (no data transmission between the communication module and the indoor unit)	0:normal, 1:abnormal	Failure parameter	
Byte 83	R	Bit 664	Reserved	/	/	

	R	Bit 665	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter		
	R	Bit 666	Reserved	/	/		
	R	Bit 667	Reserved	/	/		
	R	Bit 668	Reserved	/	/		
	R	Bit 669	Reserved	/	/		
	R	Bit 670	Reserved	/	/		
	R	Bit 671	Reserved	/	/		
Byte 84	R	Bit 672	Reserved	/	/		Indoor unit 14
	R	Bit 673	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 674	Reserved	/	/		
	R	Bit 675	Reserved	/	/		
	R	Bit 676	Reserved	/	/		
	R	Bit 677	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 678	Reserved	/	/		
	R	Bit 679	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter		
Byte 85	R	Bit 680	Reserved	/	/		
	R	Bit 681	Reserved	/	/		
	R	Bit 682	Reserved	/	/		
	R	Bit 683	Reserved	/	/		
	R	Bit 684	Reserved	/	/		
	R	Bit 685	Reserved	/	/		
	R	Bit 686	Reserved	/	/		
	R	Bit 687	Reserved	/	/		
Byte 86	R	Bit 688	Reserved	/	/		
	R	Bit 689	Full Water Protection	0:without, 1:with	Failure parameter		
	R	Bit 690	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 691	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		

	R	Bit 692	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 693	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 694	Auxiliary Heater Protection Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 695	Freeze Protection	0:without, 1:with	Failure parameter		
Byte 87	R	Bit 696	Reserved	/	/		
	R	Bit 697	Reserved	/	/		
	R	Bit 698	Reserved	/	/		
	R	Bit 699	Auxiliary Heater On/Off	0:off,1:on	Status parameter		
	R	Bit 700	Reserved	/	/		
	R	Bit 701	Reserved	/	/		
	R	Bit 702	Reserved	/	/		
	R	Bit 703	Communication Malfunction (no data transmission between the communication module and the indoor unit)	0:normal, 1:abnormal	Failure parameter		
Byte 88	R	Bit 704	Reserved	/	/		
	R	Bit 705	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter		
	R	Bit 706	Reserved	/	/		
	R	Bit 707	Reserved	/	/		
	R	Bit 708	Reserved	/	/		
	R	Bit 709	Reserved	/	/		
	R	Bit 710	Reserved	/	/		
	R	Bit 711	Reserved	/	/		
Byte 89	R	Bit 712	Reserved	/	/		Indoor unit 15
	R	Bit 713	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 714	Reserved	/	/		
	R	Bit 715	Reserved	/	/		
	R	Bit 716	Reserved	/	/		
	R	Bit 717	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		

	R	Bit 718	Reserved	/	/	
	R	Bit 719	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter	
Byte 90	R	Bit 720	Reserved	/	/	
	R	Bit 721	Reserved	/	/	
	R	Bit 722	Reserved	/	/	
	R	Bit 723	Reserved	/	/	
	R	Bit 724	Reserved	/	/	
	R	Bit 725	Reserved	/	/	
	R	Bit 726	Reserved	/	/	
	R	Bit 727	Reserved	/	/	
Byte 91	R	Bit 728	Reserved	/	/	
	R	Bit 729	Full Water Protection	0:without, 1:with	Failure parameter	
	R	Bit 730	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 731	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 732	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 733	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 734	Auxiliary Heater Protection Malfunction	0:without, 1:with	Failure parameter	
	R	Bit 735	Freeze Protection	0:without, 1:with	Failure parameter	
Byte 92	R	Bit 736	Reserved	/	/	
	R	Bit 737	Reserved	/	/	
	R	Bit 738	Reserved	/	/	
	R	Bit 739	Auxiliary Heater On/Off	0:off,1:on	Status parameter	
	R	Bit 740	Reserved	/	/	
	R	Bit 741	Reserved	/	/	
	R	Bit 742	Reserved	/	/	
	R	Bit 743	Communication Malfunction (no data transmission between the communication module and the	0:normal, 1:abnormal	Failure parameter	

			indoor unit)				
Byte 93	R	Bit 744	Reserved	/	/		
	R	Bit 745	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter		
	R	Bit 746	Reserved	/	/		
	R	Bit 747	Reserved	/	/		
	R	Bit 748	Reserved	/	/		
	R	Bit 749	Reserved	/	/		
	R	Bit 750	Reserved	/	/		
	R	Bit 751	Reserved	/	/		
Byte 94	R	Bit 752	Reserved	/	/		Indoor unit 16
	R	Bit 753	Master Wired Controller	0: slave,1: master	Status parameter		
	R	Bit 754	Reserved	/	/		
	R	Bit 755	Reserved	/	/		
	R	Bit 756	Reserved	/	/		
	R	Bit 757	Unit Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 758	Reserved	/	/		
	R	Bit 759	Indoor Unit Mode Conflict	0:without, 1: with	Failure parameter		
Byte 95	R	Bit 760	Reserved	/	/		
	R	Bit 761	Reserved	/	/		
	R	Bit 762	Reserved	/	/		
	R	Bit 763	Reserved	/	/		
	R	Bit 764	Reserved	/	/		
	R	Bit 765	Reserved	/	/		
	R	Bit 766	Reserved	/	/		
	R	Bit 767	Reserved	/	/		
Byte 96	R	Bit 768	Reserved	/	/		
	R	Bit 769	Full Water Protection	0:without, 1:with	Failure parameter		
	R	Bit 770	Mid Pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		

	R	Bit 771	Outlet pipe Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 772	Inlet Pipe Duct Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 773	Ambient Temp. Sensor Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 774	Auxiliary Heater Protection Malfunction	0:without, 1:with	Failure parameter		
	R	Bit 775	Freeze Protection	0:without, 1:with	Failure parameter		
Byte 97	R	Bit 776	Reserved	/	/		
	R	Bit 777	Reserved	/	/		
	R	Bit 778	Reserved	/	/		
	R	Bit 779	Auxiliary Heater On/Off	0:off,1:on	Status parameter		
	R	Bit 780	Reserved	/	/		
	R	Bit 781	Reserved	/	/		
	R	Bit 782	Reserved	/	/		
	R	Bit 783	Communication Malfunction (no data transmission between the communication module and the indoor unit)	0:normal, 1:abnormal	Failure parameter		
Byte 98	R	Bit 784	Reserved	/	/		
	R	Bit 785	Communication Malfunction of Indoor Unit/Wired Controller	0:normal, 1:abnormal	Failure parameter		
	R	Bit 786	Reserved	/	/		
	R	Bit 787	Reserved	/	/		
	R	Bit 788	Reserved	/	/		
	R	Bit 789	Reserved	/	/		
	R	Bit 790	Reserved	/	/		
	R	Bit 791	Reserved	/	/		
Byte 99	R	Bit 792	Reserved	/	/		Outdoor Unit
	R	Bit 793	Reserved	/	/		
	R	Bit 794	Reserved	/	/		
	R	Bit 795	Reserved	/	/		

	R	Bit 796	Reserved	/	/		
	R	Bit 797	Compressor On/Off	0:off, 1:on	Status parameter		
	R	Bit 798	Reserved	/	/		
	R	Bit 799	Reserved	/	/		
Byte 100	W/R	Bit 800	Quick Hot Water Generation	0: normal, 1:quick	Status parameter		Multi VRF Water Heater
	W/R	Bit 801	User-Set Cleaning Function User Set Clear Function	0:normal, 1:cleaning	Status parameter		
	W/R	Bit 802	Reserved	/	/		
	W/R	Bit 803	Reserved	/	/		
	W/R	Bit 804	Reserved	/	/		
	W/R	Bit 805	Reserved	/	/		
	W/R	Bit 806	Reserved	/	/		
	W/R	Bit 807	Reserved	/	/		
Byte 101	W/R	Bit 808	Shield State of On/Off	0:unshield, 1:shield	Status parameter		
	W/R	Bit 809	Shield State of User Mode	0:unshield, 1:shield	Status parameter		
	W/R	Bit 810	Shield State of Set Temperature	0:unshield, 1:shield	Status parameter		
	W/R	Bit 811	Shield State of Quick Hot Water Generation	0:unshield, 1:shield	Status parameter		
	W/R	Bit 812	Shield State of Cleaning	0:unshield, 1:shield	Status parameter		
	W/R	Bit 813	Shield State of the Parameter Inquiry	0:unshield, 1:shield	Status parameter		
	W/R	Bit 814	Shield State of Control Priority	0:unshield, 1:shield	Status parameter		
	W/R	Bit 815	Lock Status	0:unshield, 1:shield	Status parameter		
Byte 102	W/R	Bit 816	Reserved	/	/		
	W/R	Bit 817	Reserved	/	/		
	W/R	Bit 818	Reserved	/	/		
	W/R	Bit 819	Reserved	/	/		
	W/R	Bit 820	Reserved	/	/		
	W/R	Bit 821	Reserved	/	/		
	W/R	Bit 822	Reserved	/	/		

	W/R	Bit 823	Reserved	/	/		
Byte 103	R	Bit 824	Reserved	/	/		
	R	Bit 825	Reserved	/	/		
	R	Bit 826	Reserved	/	/		
	R	Bit 827	Reserved	/	/		
	R	Bit 828	Reserved	/	/		
	R	Bit 829	Reserved	/	/		
	R	Bit 830	Reserved	/	/		
	R	Bit 831	Reserved	/	/		
Byte 104	R	Bit 832	Reserved	/	/		
	R	Bit 833	Reserved	/	/		
	R	Bit 834	Reserved	/	/		
	R	Bit 835	Reserved	/	/		
	R	Bit 836	Reserved	/	/		
	R	Bit 837	Reserved	/	/		
	R	Bit 838	Reserved	/	/		
	R	Bit 839	Reserved	/	/		
Byte 105	R	Bit 840	Outdoor Unit Ambient Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter		
	R	Bit 841	Outdoor Unit Inlet Pipe 1 Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter		
	R	Bit 842	Outdoor Unit Middle Pipe 1 Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter		
	R	Bit 843	Outdoor Unit Outlet Pipe 1 Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter		
	R	Bit 844	Fixed Frequency Discharge Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter		
	R	Bit 845	Reserved	/	/		
	R	Bit 846	Digital or Fixed Frequency Discharge Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter		
	R	Bit 847	High Pressure Sensor Malfunction	0:normal, 1:abnormal	Failure parameter		
Byte 106	R	Bit 848	Reserved	/	/		

	R	Bit 849	Water Tank Outlet Pipe Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter	
	R	Bit 850	Water Tank Auxiliary Heater Status	0:off,1:on	Status parameter	
	R	Bit 851	Fixed Frequency Oil Temp. Or Shell Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter	
	R	Bit 852	Low Pressure Sensor Malfunction	0:normal, 1:abnormal	Failure parameter	
	R	Bit 853	Digital Oil Temp or Fixed Frequency Shell Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter	
	R	Bit 854	Reserved	/	/	
	R	Bit 855	Reserved	/	/	
Byte 107	R	Bit 856	High Pressure	0:normal, 1:abnormal	Failure parameter	
	R	Bit 857	Defrosting (Reserved)	0:normal, 1:defrosting	Failure parameter	
	R	Bit 858	Low Pressure	0:normal, 1:abnormal	Failure parameter	
	R	Bit 859	Discharge High Temp. Protection	0:normal, 1:abnormal	Failure parameter	
	R	Bit 860	Over Flow Pressure	0:normal, 1:abnormal	Failure parameter	
	R	Bit 861	Communicate Malfunction between Outdoor Unit and the Water Tank	0:normal, 1:abnormal	Failure parameter	
	R	Bit 862	Reserved	/	/	
	R	Bit 863	Reserved	/	/	
Byte 108	R	Bit 864	Outdoor Unit Inlet Pipe 2 Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter	
	R	Bit 865	Outdoor Unit Middle Pipe 2 Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter	
	R	Bit 866	Reserved	/	/	
	R	Bit 867	Reserved	/	/	
	R	Bit 868	Valve D Start Command	0:off,1:on	Status parameter	
	R	Bit 869	Start Command of Auxiliary Heater for Floor Heating	0:off,1:on	Status parameter	
	R	Bit 870	Reserved	/	/	
	R	Bit 871	Reserved	/	/	
Byte 109	R	Bit 872	Reserved	/	/	
	R	Bit 873	Reserved	/	/	

	R	Bit 874	Reserved	/	/	
	R	Bit 875	Reserved	/	/	
	R	Bit 876	Reserved	/	/	
	R	Bit 877	Reserved	/	/	
	R	Bit 878	Reserved	/	/	
	R	Bit 879	Disinfecting	0:off, 1:on	Status parameter	
Byte 110	R	Bit 880	Reserved	/	/	
	R	Bit 881	Reserved	/	/	
	R	Bit 882	Reserved	/	/	
	R	Bit 883	Reserved	/	/	
	R	Bit 884	Reserved	/	/	
	R	Bit 885	Reserved	/	/	
	R	Bit 886	Reserved	/	/	
	R	Bit 887	Reserved	/	/	
Byte 111	R	Bit 888	Reserved	/	/	
	R	Bit 889	Reserved	/	/	
	R	Bit 890	Reserved	/	/	
	R	Bit 891	Reserved	/	/	
	R	Bit 892	Water Tank Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter	
	R	Bit 893	Electricity Heater Burn	0:normal, 1:abnormal	Failure parameter	
	R	Bit 894	Creepage	0:normal, 1:abnormal	Failure parameter	
	R	Bit 895	Conglutination Malfunction	0:normal, 1:abnormal	Failure parameter	
Byte 112	R	Bit 896	Anti-Freeze Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter	
	R	Bit 897	Water Switch Protection	0:normal, 1:abnormal	Failure parameter	
	R	Bit 898	Anti-Freeze Protection	0:normal, 1:abnormal	Failure parameter	
	R	Bit 899	Water Tank Outlet Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter	
	R	Bit 900	Outdoor Unit Inlet Pipe Temp.	0:normal, 1:abnormal	Failure parameter	

			Sensor Malfunction				
	R	Bit 901	Water Pump Status	0:off,1:on	Status parameter		
	R	Bit 902	Water tank is in heating or heat preservation status	0: heating, 1: heat preservation	Status parameter		
	R	Bit 903	Reserved	/	/		
Byte 113	R	Bit 904	Reserved	/	/		
	R	Bit 905	Reserved	/	/		
	R	Bit 906	Reserved	/	/		
	R	Bit 907	If there is water tank or not	0: no, 1:yes	Status parameter		
	R	Bit 908	If there is floor heating or not	0: no, 1:yes	Status parameter		
	R	Bit 909	Reserved	/	/		
	R	Bit 910	Reserved	/	/		
	R	Bit 911	Reserved	/	/		
Byte 114	R	Bit 912	Jumper Cap Error	0:normal, 1:abnormal	Failure parameter		
	R	Bit 913	Reserved	/	/		
	R	Bit 914	Reserved	/	/		
	R	Bit 915	Reserved	/	/		
	R	Bit 916	Reserved	/	/		
	R	Bit 917	Reserved	/	/		
	R	Bit 918	Reserved	/	/		
	R	Bit 919	Reserved	/	/		
· · · ·	R		Reserved	/	/		
	R		Reserved	/	/		
Byte 126	R		Reserved	/	/		
Byte 127	Reserved						Indoor Unit 1
· · · ·						· · · ·	
Byte 134							

.								
Byte 247	Reserved							Indoor unit 16
.								
Byte 254								
Byte 255	R	Bit 2040	Outdoor Unit Ambient Temp. Sensor Malfunction	1: abnormal, 0; normal	Failure parameter		Malfunction 1	
	R	Bit 2041	Outdoor Unit Inlet Pipe Temp. Sensor Malfunction or EVI Inlet Pipe Temp. Sensor Malfunction	1:abnormal; 0; normal	Failure parameter			
	R	Bit 2042	Outdoor Unit Mid Pipe Temp. Sensor Malfunction	1:abnormal; 0; normal	Failure parameter			
	R	Bit 2043	Outdoor Unit Outlet Pipe Temp. Sensor Malfunction or EVI Outlet Pipe Temp. Sensor Malfunction	1:abnormal; 0; normal	Failure parameter			
	R	Bit 2044	Outdoor Unit Fixed Frequency Discharge Temp. Sensor Malfunction	1:abnormal; 0; normal	Failure parameter			
	R	Bit 2045	Reserved	/	/			
	R	Bit 2046	Outdoor Unit Digital/Inverter Discharge Temp. Sensor Malfunction	1:abnormal; 0; normal	Failure parameter			
	R	Bit 2047	Outdoor Unit High Pressure Sensor Malfunction	1:abnormal; 0; normal	Failure parameter			
Byte 256	R	Bit 2048	Reserved	/	/		Malfunction 2	
	R	Bit 2049	Reserved	/	/			
	R	Bit 2050	Reserved	/	/			
	R	Bit 2051	Outdoor Unit Fixed Frequency Oil Temp. Sensor Malfunction	1:abnormal; 0; normal	Failure parameter			
	R	Bit 2052	Outdoor Unit Low Pressure Sensor Malfunction	1:abnormal; 0; normal	Failure parameter			
	R	Bit 2053	Outdoor Unit Digital/Inverter Oil Temp. Sensor Malfunction	1:abnormal; 0; normal	Failure parameter			
	R	Bit 2054	Reserved	/	/			
	R	Bit 2055	Reserved	/	/			

Byte 257	R	Bit 2056	High Pressure Protection	1:abnormal; 0: normal	Failure parameter		Malfunction 3
	R	Bit 2057	Reserved	/	/		
	R	Bit 2058	Low pressure protection	1:abnormal; 0: normal	Failure parameter		
	R	Bit 2059	Discharge protection	1:abnormal; 0: normal	Failure parameter		
	R	Bit 2060	Over	1:abnormal; 0: normal	Failure parameter		
	R	Bit 2061	Reserved	/	/		
	R	Bit 2062	Reserved	/	/		
	R	Bit 2063	Reserved	/	/		
Byte 258	R	Bit 2064	Defrosting	1:defrosting; 0: normal	Status parameter		Malfunction
	R	Bit 2065	Reserved	/	/		
	R	Bit 2066	Reserved	/	/		
	R	Bit 2067	Reserved	/	/		
	R	Bit 2068	Reserved	/	/		
	R	Bit 2069	Reserved	/	/		
	R	Bit 2070	Reserved	/	/		
	R	Bit 2071	Reserved	/	/		
Byte 259	R	Bit 2072	Reserved	/	/		Outdoor Unit
	R	Bit 2073	Reserved	/	/		
	R	Bit 2074	Reserved	/	/		
	R	Bit 2075	Reserved	/	/		
	R	Bit 2076	Reserved	/	/		
	R	Bit 2077	Reserved	/	/		
	R	Bit 2078	Reserved	/	/		
	R	Bit 2079	Reserved	/	/		
Byte 260	R	Bit 2080	Reserved	/	/		Outdoor Unit Note: it is only applicable to
	R	Bit 2081	Reserved	/	/		
	R	Bit 2082	Reserved	/	/		

	R	Bit 2083	Reserved	/	/		the digital multi VRF system (R22) and digital multi VRF system (R410A) with the capacity of 56 and 60kW.
	R	Bit 2084	Reserved	/	/		
	R	Bit 2085	Reserved	/	/		
	R	Bit 2086	EVI Valve Status	1:opened, 0:closed	Status parameter		Outdoor Unit Note: it is not applicable to the digital multi VRF system (R22) and digital multi VRF system (R410A) with the capacity of 56 and 60kW.
	R	Bit 2087	EVI	0 general data, 1:EVI Data	Status parameter		
Byte 261	R	Bit 2088	Reserved	/	/		Outdoor Unit Note: it is only applicable to the digital multi VRF system (R22) and digital multi VRF system (R410A) with the capacity of 56 and 60kW.
	R	Bit 2089	Reserved	/	/		
	R	Bit 2090	Reserved	/	/		
	R	Bit 2091	Low Pressure Sensor Malfunction	0:normal, 1:abnormal	Failure parameter		
	R	Bit 2092	High Pressure Sensor Malfunction	0:normal, 1:abnormal	Failure parameter		
	R	Bit 2093	Outlet Pipe Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter		
	R	Bit 2094	Mid Pipe Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter		
	R	Bit 2095	Inlet Pipe Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter		
Byte 262	R	Bit 2096	Reserved	/	/		Outdoor Unit Note: it is only applicable to
	R	Bit 2097	Reserved	/	/		
	R	Bit 2098	Reserved	/	/		

	R	Bit 2099	Reserved	/	/		the digital multi VRF system (R22) and digital multi VRF system (R410A) with the capacity of 56 and 60kW.
	R	Bit 2100	Reserved	/	/		
	R	Bit 2101	Reserved	/	/		
	R	Bit 2102	Ambient Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter		
	R	Bit 2103	Fixed Frequency Oil Temp. Sensor Malfunction	0:normal, 1:abnormal	Failure parameter		
Byte 263	R	Bit 2104	With outdoor unit 1 or not	0:without , 1:with	Status parameter		Outdoor Unit Note: it is only applicable to the modular digital multi VRF system (R22), modular digital multi VRF system (R410A), modular DC inverter multi VRF system, and modular DC heat recovery multi VRF system.
	R	Bit 2105	With outdoor unit 2 or not	0:without , 1:with	Status parameter		
	R	Bit 2106	With outdoor unit 3 or not	0:without , 1:with	Status parameter		
	R	Bit 2107	With outdoor unit 4 or not	0:without , 1:with	Status parameter		
	R	Bit 2108	Reserved	/	/		
	R	Bit 2109	Reserved	/	/		
	R	Bit 2110	Reserved	/	/		
	R	Bit 2111	Reserved	/	/		
Byte 264	R	Bit 2112	If the communication of the outdoor unit 1 is normal	0:abnormal,1: normal;	Failure parameter		Outdoor Unit Note: it is only applicable to the modular digital multi VRF system (R22), modular digital multi VRF system (R410A),
	R	Bit 2113	If the communication of the outdoor unit 2 is normal	0:abnormal,1: normal;	Failure parameter		
	R	Bit 2114	If the communication of the outdoor unit 3 is normal	0:abnormal,1: normal;;	Failure parameter		
	R	Bit 2115	If the communication of the outdoor unit 4 is normal	0:abnormal,1: normal;	Failure parameter		
	R	Bit 2116	Reserved	/	/		
	R	Bit 2117	Reserved	/	/		
	R	Bit 2118	Reserved	/	/		

	R	Bit 2119	Reserved	/	/		modular DC inverter multi VRF system, and modular DC heat recovery multi VRF system.
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6. Precautions before the Use of the Communication Module

- 1) Make sure the proper adaptor is used; otherwise the communication module would work abnormally or even be damaged.
- 2) Make sure the DIP switch are toggled in the right place, otherwise it would cause communication failure.
- 3) Make sure the communication cord is plugged into the right port; otherwise it would cause communication failure.
- 4) Reinforce the stability of the communication cord through soldering and insulate it with the insulating tape to prevent oxidation and short circuit.
- 5) Desired working conditions for this communication module: ①temperature: -10-60℃; ②humidity: 95% or less; ③ inside the room (it is recommended to be installed in the electric control box) to avoid direct sunlight,, rain or snow etc.
- 6) Warning: If the conditioner stated above is not good, the communication module would work improperly.
- 7) During the installation, it is strongly recommended to use the twisted pairs provided by GREE, whose length and quantity are dependent on the actual needs and the user also should prepare some type V four-core (or two-core) twisted pairs.
- 8) GREE reserves the right to update the product without notice.

7. Common Failures of BMS System

Failures	Possible Causes	Corrective Actions
Based on the provided protocol BMS shows there is communication error and it fails to display any information for all or some units and fails to control the all or some units.	Some communication cord is not twisted pair.	Replace the cord with the twisted pair.
	The crystal head of the communication cord is not pressed down properly	Press down the crystal head properly
	The communication module is damaged	Replace the communication module.
	The communication cord between the indoor and outdoor units is disconnected.	Solder the disconnected communication cord.
	The communication cord is broken.	Solder the broken communication cord
	The circlip inside the socket of the crystal head does not work or has a bad contact with the crystal head.	Repair or replace the socket of the crystal head.
	It is not the two cords in the middle of the crystal head that are wired.	Wired the two cords in the middle of the crystal head.
	The communication cord is shortcut	Repair the shortcut communication cord
	The twisted pairs are too close with the power cord (less than 15cm), resulting in too much interference which causes the communication failure.	Separate the twisted pairs and the power cord, If impossible, it is recommended to shield them with the steel pipe.
	Some communication interface is connected improperly.	Reconnect the communication interface
The wiring is in good condition, but there is no information displayed for all or some units and the software shows there is communication failure.	After the replacement of the chip of the outdoor unit or resetting of the DIP switch, the unit is not restarted.	Restart the unit
	The serial port of the communication software fails to match with that of the PC.	Replace the serial port or modify the setting of the serial port of the software
	The unit address of the software does not match with the actual unit address	Modify the set unit address of the software
	The unit is not powered on	Power on the unit
	No chip is plugged in the indoor or outdoor unit, or it is plugged reversely.	Replug the chip and power on the unit again.
	The unit address is wrong or repeated.	Modify the improperly set unit address.
The wiring and other devices are in good condition, but there is no information displayed for some device.	A repeater may be is needed or the repeater is connected improperly.	Install the repeater correctly
No information is displayed and there is a alarm indicating the communication failure. Besides the TX lamp on the converter lights all the time	The communication A and B are connected reversely or incorrectly.	Check the wiring and follow the principle of line A-to-line A and line B-to-line B.
Although the communication cord, devices and the installation are in good condition, there is still communication failure to the software.	Incompatible display or controller is used.	Check the model of the wireless remote controller and the wired controller, If not, make a replacement

Annex A

A.1 CRC Calculation Method

Calculation Method of CRC: The CRC is first preloading a 16-bit register to all 1's. Then successively transact each 8-bit bytes of the message. During generation of the CRC, each 8-bit character is exclusive ORed with the register contents. Then the result is shifted in the direction of the least significant bit (LSB), with a zero filled into the most significant bit (MSB) position. The LSB is extracted and examined. If the LSB was a 1, the register is then exclusive ORed with a preset, fixed value. If the LSB was a 0, no exclusive OR takes place. This process is repeated until eight shifts have been performed. After the last (eighth) shift, the next 8-bit character is exclusive ORed with the register's current value, and the process repeats for eight more shifts as described above. The final contents of the register, after all the characters of the message have been applied, is the CRC value. During transmission and reception of data in CRC, low order byte is in the front.

A.2 How to Calculate the CRC

- 1) Preload a 16-bit register with FFFF hex (all 1's). Call this the CRC register.
- 2) Exclusive OR the first 8-bit byte of the message with the low-order byte of the 16-bit CRC register, putting the result in the CRC registers.
- 3) Shift the CRC register one bit to the right (toward the LSB), zero-filling the MSB. Extract and examine the LSB.
- 4) (If the LSB was 0): Repeat Step 3 (another shift). (If the LSB was 1): Exclusive OR the CRC register with the polynomial value A001 (1010 0000 0000 0001).
- 5) Repeat Steps 3 and 4 until 8 shifts have been performed. When this is done, a complete 8-bit byte will have been processed.
- 6) Repeat Steps 2 and 5 to process the next 8-bit data.
- 7) The final obtained CRC register is CRC.

A.3 CRC Example

Parameters: Data (starting address of the block data), Data Size (Byte count of the block data)

Return: CRC Calculating Result

```
uint16 CRC_Calculate(uint8 *data, uint16 dataSize)
{
    uint8 i;
    uint8 temp;
    uint16 j;
    uint16 CRCode;
    CRCode=0xffff;
    for(j=0;j<dataSize;j++){
        CRCode=CRCode^data[j];
        for( i=0; i < 8; i++ ){
            temp=CRCode & 0x0001;
            CRCode=(CRCode >> 1);
            if(temp ==1){
                CRCode=(CRCode^0xA001);// 0xA001 is a preset multinomial, a constant.
            }
        }
    }
    return CRCode;
}
```

References

- 1) MODBUS Protocol.
- 2) Operation Instructions of the Long-Distance Monitoring System to Gree Central AC.
- 3) Gree 2009 BMS Interface Service Manual.