Chengdu Ebyte Electronic Technology Co.,Ltd

Wireless Modem

User Manual

E821-RTU(0400-ETH) User Manual

Contents

Features

- Support 4 analog inputs, default current acquisition;
- Support Ethernet port, you can use socket to connect to remote server, support TCP/UDP;
- Support Modbus TCP/RTU protocol;
- Support Ebyte Cloud, can be controlled by commands;
- Support 2 working modes, master mode and slave mode, slave can cascade multiple devices by RS485;
- Support Reload touch button, long press for 5s, Modbus device address, RS485 serial port baud rate and check digit will restore factory settings;
- Hardware watchdog with high reliability;
- Multiple indicators to show device working status;
- The power supply has static and surge level 3 protection, and has over-current, over-voltage, anti-reverse and other protections.

Note: Support customization of functions, such as conditional control (how to output based on input state)

1. Quick start

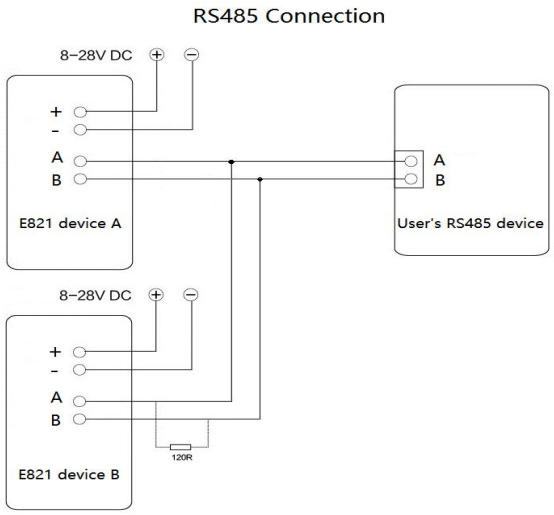
This chapter is a quick introduction to E821-RTU (0400-ETH). It is recommended that users carefully read this chapter and follow the instructions before using the product. It will have a systematic understanding of the product, and users can also choose the one you are interested in according to your needs. For specific details and instructions, please refer to the following sections.

1.1 Port Connection

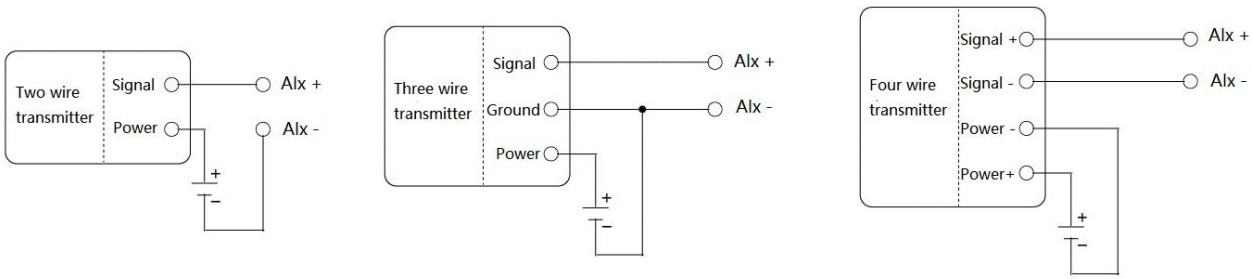
1.1.1 RS485 connection

The E821-RTU device has a master-slave mode and can be cascaded by the RS485 port.

Note: 120R (matching resistor) is added and not added according to the actual line matching (default is not added).



1.1.2 Analog input connection



Analog input connection

1.2 Basic operation

Connection: The computer connects to E821-RTU (0400-ETH) by USB to RS485 cable or the computer connects to E821-RTU (0400-ETH) by Ethernet cable.

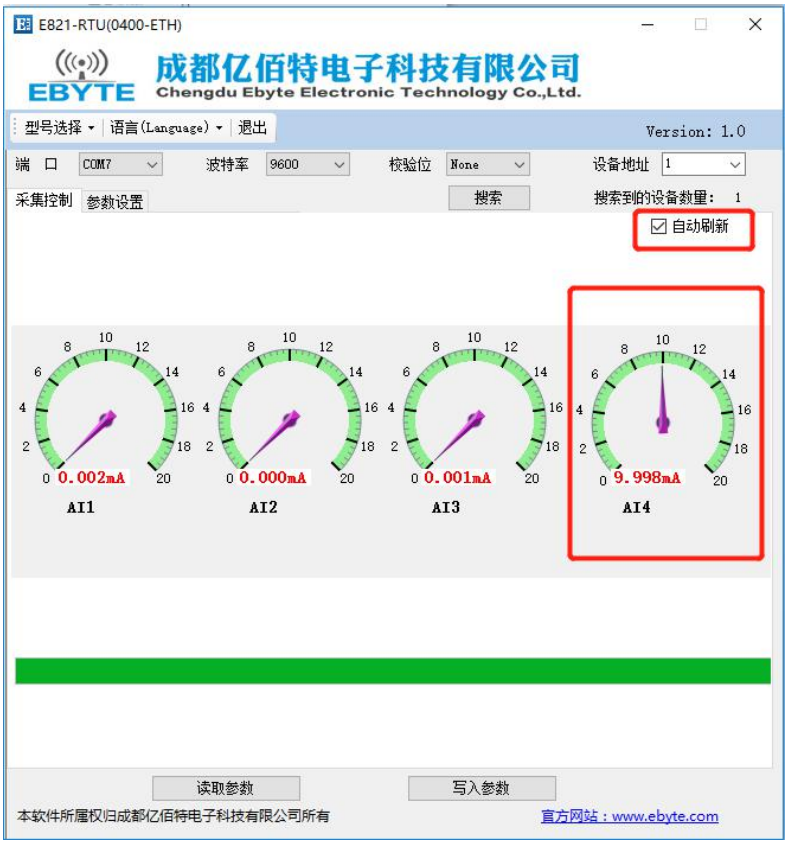
Power supply: E821-RTU (0400-ETH) working voltage is DC 8~28V, and the power supply has at least 0.2A power supply capability.E821-RTU(0400-ETH).

1.2.1 RS485 Bus control

Select the device model, port number, set the baud rate check, and click “Search” to search for the device.

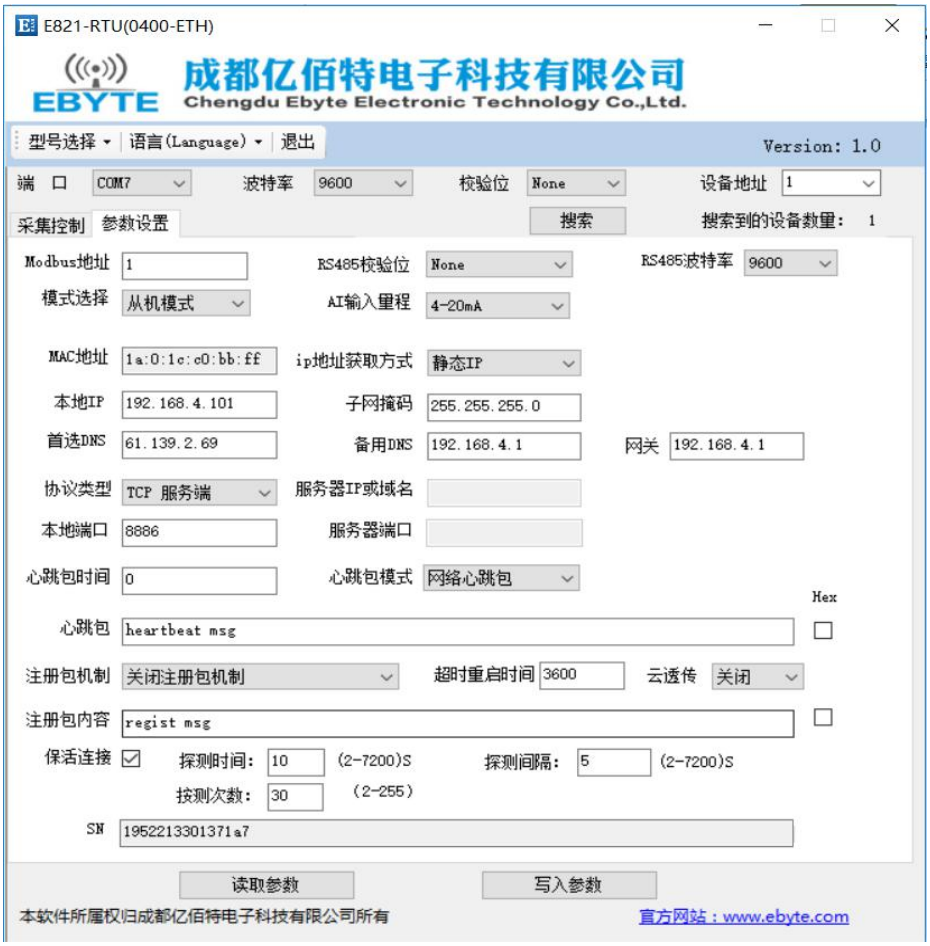
After searching for the actual connected device, click “Stop”; the number of connected devices in the example is 1.

At this time, you can see the address of the current device, check "Auto Refresh" to perform analog input reading. The example shows that channel 4 has 10mA current input.

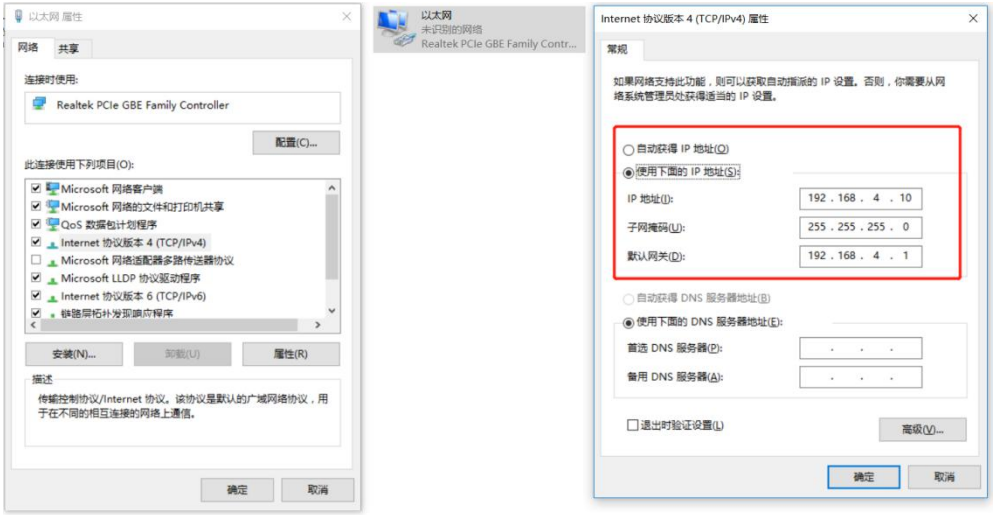


1.2.2 Ethernet control

Click the parameter setting and parameter reading, we can see that the device address is "1", in "slave mode", the local IP is "192.168.4.101", the subnet mask is "255.255.255.0", the role is "TCP server", and the port number is 8666.

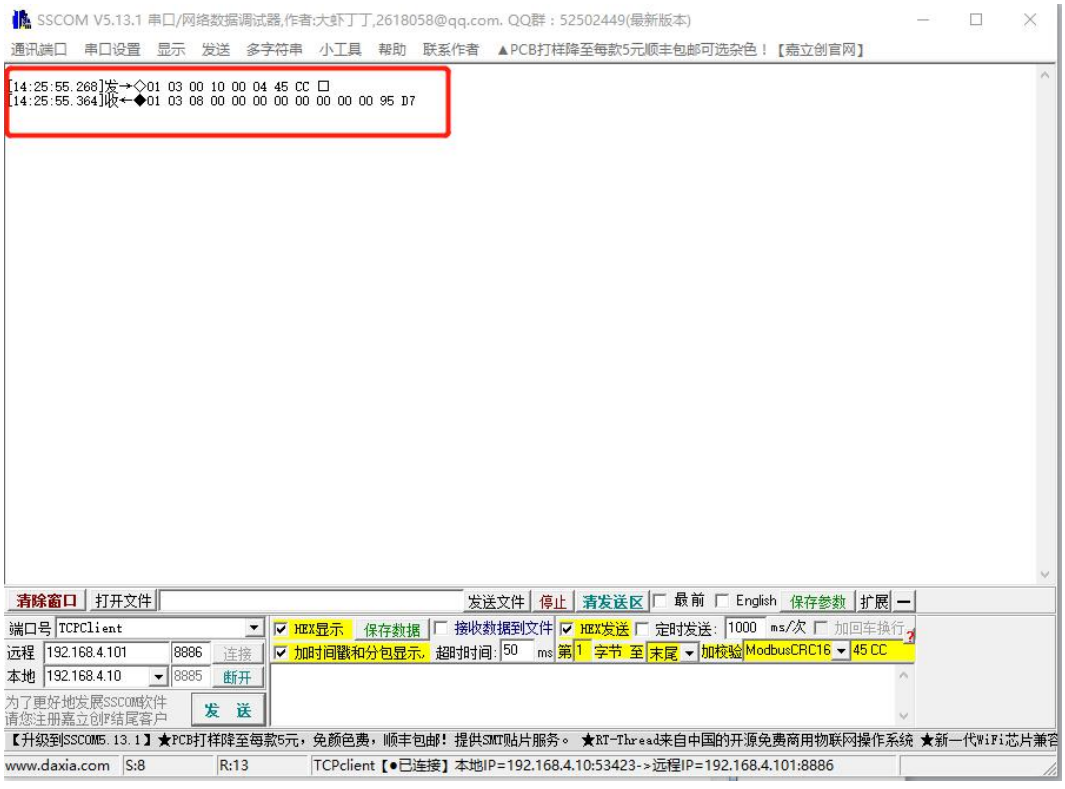


Click Local connection, set the computer IP: "192.168.4.10", subnet mask: "255.255.255.0", gateway: 192.168.4.1.



Open the network debugging assistant, set the port number and other parameters, click the connection, you can find that the device LINK light is on to indicate the connection is successful.

Send Modbus command: 01 03 00 10 00 04 45 CC, to read the current value collected by 4 analog channels.



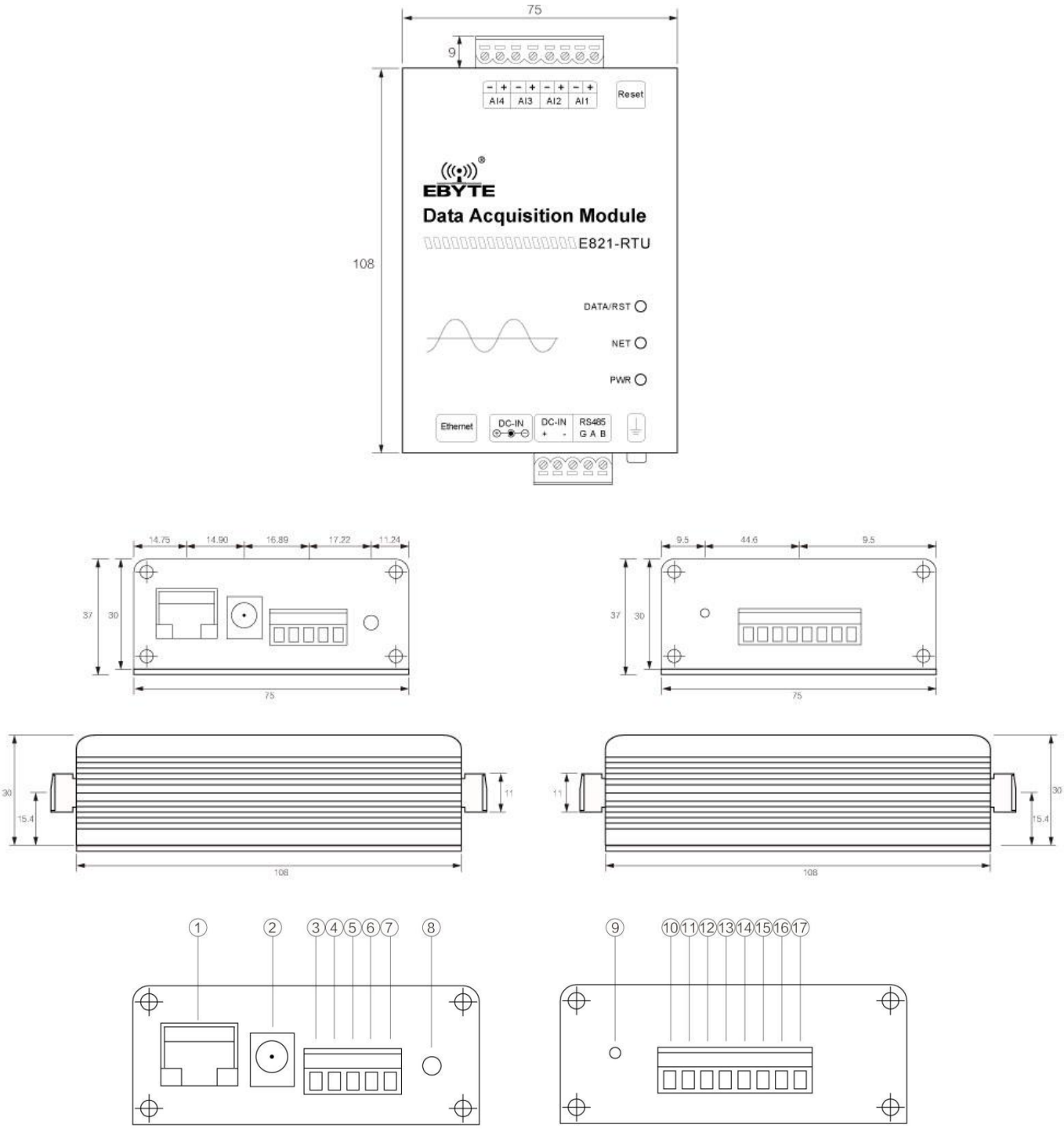
2. Product description

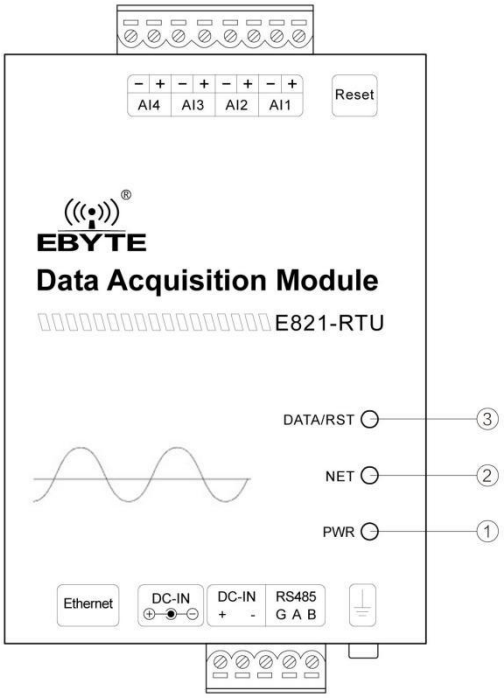
E821-RTU (0400-ETH) is a data acquisition product which supports four analog (current) inputs and supports Modbus TCP/RTU protocol. The product is highly easy to use and can be easily and quickly integrated into your system for remote network-based data acquisition.

2.1 Basic parameters

	Item	Description
Network parameters	Ethernet Specification	RJ45, 10/100Mbps
	Network Protocol	IP, TCP/UDP, ARP, ICMP, IPV4
	IP acquisition method	Static IP, DHCP
	DNS	Available
Hardware parameters	Size (H*W*D)	108*75*37mm
	Weight	230.8±5g
	Working temperature	-20℃~+70℃
	Storage temperature	-40℃~+85℃
	Working humidity	5%~95%
	Storage humidity	1%~95%
	Working voltage	8V~28V, 8V/143mA, 12V/98mA, 24V/52mA, 28V/45mA
	Current acquisition range	0mA~20mA or 4mA-20mA
	Accuracy	0.2%
	Data interface	RS485: 1200~115200bps, RJ45: 100M
Software parameters	Network type	Ethernet
	Configuration command	Modbus TCP/RTU
	Network Protocol	Modbus TCP/RTU
	Working mode	Master mode, Slave mode
	Data transmission mode	TCP/UDP

2.2 Size and Interface description





No	Item	Function	Description
1	RJ45	Ethernet	tandard RJ45 interface, connected to device or PC
2	DC-IN	DC JACK 5.5*2.1mm	Power input, DC 8V~28V, 12V/24V recommended
3	DC-IN +	Crimping terminal power input positive	Power input, DC 8V~28V, 12V/24V recommended
4	DC-IN -	Crimping terminal power input negative	Power Ground
5	RS485 G	RS485 ground	Signal ground, can not be connected
6	RS485 A	RS485 A	RS485 B is connected to device A
7	RS485 B	RS485 B	RS485 B is connected to device B
8	Grounding screw	Connecting to ground	Connecting to ground
9	Reset	Reset button	Long Press for 5S effective
10	AI1+	Analog signal input channel 1 positive	Analog signal input channel, used in combination with the negative to collect analog data
11	AI1-	Analog signal input channel 1 negative	Analog signal input channel, used in combination with the positive to collect analog data
12	AI2+	Analog signal input channel 2 positive	Analog signal input channel, used in combination with the negative to collect analog data
13	AI2-	Analog signal input channel 2 negative	Analog signal input channel, used in combination with the positive to collect analog data
14	AI3+	Analog signal input channel 3 positive	Analog signal input channel, used in combination with the negative to collect analog data
15	AI3-	Analog signal input channel 3 negative	Analog signal input channel, used in combination with the positive to collect analog data
16	AI4+	Analog signal input channel 4 positive	Analog signal input channel, used in combination with the negative to collect analog data

17	AI4-	Analog signal input channel 4 negative	Analog signal input channel, used in combination with the positive to collect analog data
LED Indicator light			
1	PWR	Power supply indication	Red after power on, long bright
2	NET	Ethernet connection indication	Blue and green two-color LED, the blue LED is long bright after the Ethernet port TCP/UDP connection is successful. After power-on, the green LED is lit, indicating that it is initializing.
3	DATA/RST	Data indication/reset indication	Blue and green two-color LED, blue LED flashes when data is transmitted and received, green LED flashes 3 times after reset

Note: It is recommended to connect the case to the ground..

2.3 Reset button description

Long press for 5S is valid. After the reset is successful, the RST LED flashes 3 times, the Modbus device address, RS485 serial port baud rate and parity bit are restored to the factory settings, other configuration parameters are unchanged.

3. Modbus

3.1 Register Address Table

Register Address Table (Function table: 0x03H, 0x04H, 0x06H, 0x10H)						
Register Address	**Number of registers**	**Register properties**	**Register type**	**Register value range**	**Default value**	**Function Code**
30017 (0x0010)	1	AI4 Input value/uA	Read only	0-20000	-	0x03 0x04
30018 (0x0011)	1	AI3 Input value/uA	Read only		-	
30019 (0x0012)	1	AI2 Input value/uA	Read only		-	
30020 (0x0013)	1	AI1 Input value/uA	Read only		-	
Reserve						
40078 (0x004D)	1	Device address	Read/Write	1 - 247	01	0x03 0x06
40079 (0x004E)	1	Baud rate	Read/Write	0 - 7	03	
40080 (0x004F)	1	Parity bit	Read/Write	0 - 2	00	
40081(0x0050)	1	Master mode or slave mode	Read/Write	0 - 1	01	
Reserve						
40084(0x0053)	1	Set Analog range	Read/Write	0 - 1	01	
Reserve						
40098 (0x0061)	3	Set MAC address	Read	-	-	0x03 0x06 0x10
40104 (0x0067)	1	Ethernet restart	Read/Write	-	-	
40108 (0x006B)	7	WAN port IP info	Read/Write	-	Static 192.168.4.101 255.255.255.0 192.168.4.1	
40122 (0x0079)	4	Set DNS info	Read/Write	-	61.139.2.69 192.168.4.1	
40130 (0x0081)	4	Set Network protocol parameters	Read/Write	-	TCPS,192.168.4.10, 8886	
40146 (0x0091)	1	Set registration package mode	Read/Write	0-4	“0” Close the registration package	
40150 (0x0095)	21	Set registration package content	Read/Write	-	regist msg	
40234 (0x00E9)	21	Set heartbeat package content	Read/Write	-	heartbeat msg	
40318 (0x013D)	1	Set heartbeat package mode	Read/Write	0-1	“0” Network heartbeat package	
40322 (0x0141)	1	Set heartbeat time	Read/Write	0、2-65535	0	
40330 (0x0149)	1	Set clear cache	Read/Write	0-1	Do not clear the cache data of the SOCKET A1 link	
40336 (0x014F)	3	Set keep-alive parameters	Read/Write	-	Detection time: 10s, Detection interval: 5s, Detection times: 30	

40350 (0x015D)	1	Set local port	Read/Write	0-65535	8886	
40354 (0x0161)	1	Set cloud transmission function	Read/Write	0-1	Close	
40356 (0x0163)	1	Set timeout restart time	Read/Write	60-65535	3600	
40358 (0x0165)	4	SN code	Read	-	-	

3.2 Modbus address table

Modbus address table	
1 (default)	1
2	2
3	3
…	…
245	245
246	246
247	247

3.3 RS485 serial port baud rate code value table

Baud rate code value table	
0	1200
1	2400
2	4800
3 (default)	9600
4	19200
5	38400
6	57600
7	115200

3.4 RS485 serial port parity bit value table

Parity bit value table	
0 (default)	No parity
1	Even parity
2	Odd parity

3.5 Configure parameters by setting software

Select the “Parameter Setting” column to read parameters and write parameters. For specific functions, please refer to the product function description below.

4. Product Function

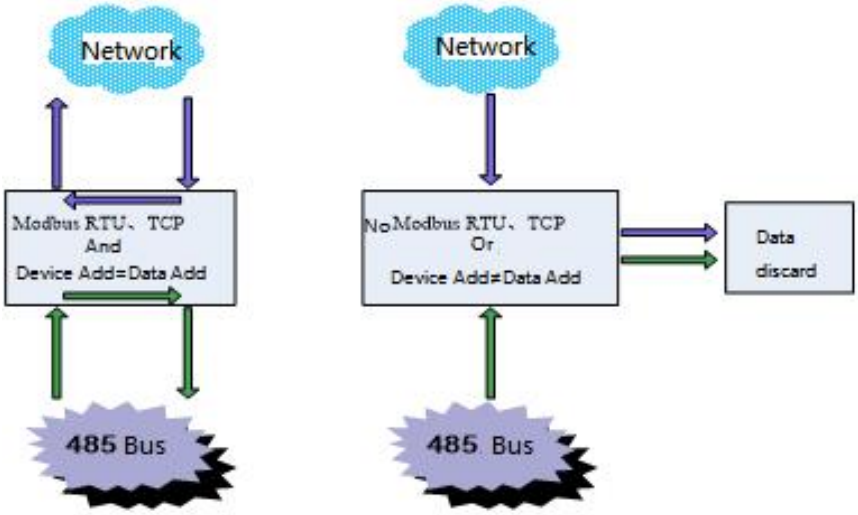
4.1 Working mode

The working mode has master mode and slave mode, which are configured by Modbus register 40081 (0x0050). When the register value is 0, it is the master mode; when the register value is 1, it is the slave mode, and default is the slave mode.

4.1.1 Slave mode

In slave mode (register value is 0x01), the data sent to the device by network or 485 bus (sender) conforms to Modbus RTU or Modbus TCP protocols, and the address in the data is the device address. The device will respond to the sender with the same protocol. If the data sent to the device by the network end or 485 bus end does not conform to the Modbus RTU or Modbus TCP protocol, or meets the Modbus RTU or Modbus TCP protocol, but the data address is different from that of the device, the data will be discarded.

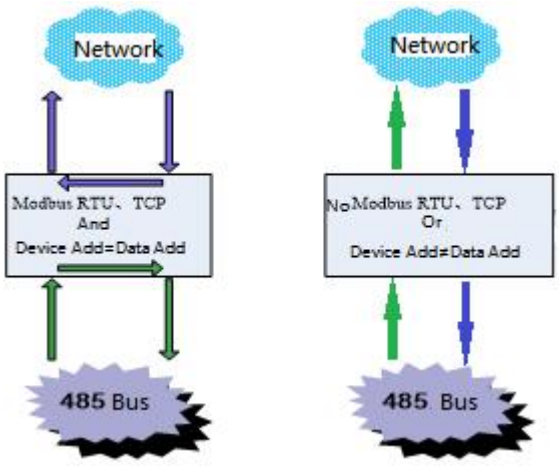
In the slave mode, the device can directly connect to the device in master mode through the 485 bus. When the slave is not connected to the network, the network can also access the data of the slave through the master.



4.1.2 Master mode

In slave mode (register value is 0x00), the data sent to the device by network or 485 bus (sender) conforms to Modbus RTU or Modbus TCP protocols, and the address in the data is the device address. The device will respond to the sender with the same protocol. If the data sent to the device by the network end or 485 bus end does not conform to the Modbus RTU or Modbus TCP protocol, or meets the Modbus RTU or Modbus TCP protocol, but the data address is different from that of the device, the data of 485 bus will be transmitted to the network, and the data on the network will be transmitted to 485 bus.

This function of host mode can realize the cascade function of devices and the data transmission between 485 bus and network.



4.2 RTU basic function

4.2.1 Read analog-data AI input

Function code: 03, Read hold-register; 04, Read input-register

Address range: 30017(0x0010)~30020(0x0013)

Remark: The unit of analog input value is uA

E.g.:

Function code 0x03, read AI1 input, assuming AI1 input is 9946uA, the corresponding value should be 0x26 DA

Modbus RTU protocol read analog-data input:

Send	01	03	00 13	00 01	75 CF
	Device ModBus address	Function code	Analog-data start address	Read the number of addresses	CRC check code

Receive	01	03	02	26 DA	23 BF
	Device ModBus address	Function code	Number of bytes returned	Analog-data input value	CRC check code

Modbus TCP protocol read analog-data input:

Send	00 01	00 00	00 06	01	03	00 13	00 01
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Analog-data start address	Read the number of addresses

Receive	00 01	00 00	00 05	01	03	02	26 DA
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Number of bytes returned	Analog-data input value

Function code 0x04, read AI1 input, assuming AI1 input is 9946uA, the corresponding value should be 0x26 DA

Modbus RTU protocol read analog-data input:

Send	01	04	00 13	00 01	C0 0F
	Device ModBus address	Function code	Analog-data start address	Read the number of addresses	CRC check code

Receive	01	04	02	26 DA	22 CB
	Device ModBus address	Function code	Number of bytes returned	Analog-data input value	CRC check code

Modbus TCP protocol read analog-data input:

Send	00 01	00 00	00 06	01	04	00 13	00 01
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Analog-data start address	Read the number of addresses

Receive	00 01	00 00	00 05	01	04	02	26 DA
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Number of bytes returned	Analog-data input value

4.2.2 Analog AI acquisition range setting

When the value of register 0x40084 (0x0053) is 0, the analog input range is 0 - 20mA;

When the value of register 0x40084 (0x0053) is 1, the analog input range is 4 - 20mA;

Note: When the range is 4-20mA, the input current is <4mA, the register value will be 0.

4.3 Network related functions

4.3.1 Device MAC address reading

Modbus RTU protocol write register:

Send	01	03	00 61	00 03	54 15
	Device ModBus address	Function code	Start address	Read number of registers	CRC check code

Receive	01	03	06	1A 00 1C C0 BB FF	16 53
	Device ModBus address	Function code	Number of bytes	Read value	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 06	01	03	00 61	00 03
	Transmissio	Protocol	Length	Unit	Functio	Address	Write value

	n identifier	identifier		identifier	n code		

Receive	00 01	00 00	00 09	01	03	06	1A 00 1C C0 BB FF
	Transmissio n identifier	Protocol identifier	Length	Unit identifier	Functio n code	Number of bytes	Read value

Note: 1A 00 1C C0 BB FF is the MAC address of the device, the device has a unique MAC address.

4.3.2 Device SN code reading

Modbus RTU protocol read register:

Send	01	03	01 65	00 04	55 EA
	Device ModBus address	Function code	Start address	Read number of registers	CRC check code

Receive	01	03	08	19 05 21 14 00 13 55 50	F9 AA
	Device ModBus address	Function code	Number of bytes	Read value	CRC check code

Modbus TCP protocol read register:

Send	00 01	00 00	00 06	01	03	01 65	00 04
	Transmissio n identifier	Protocol identifier	Length	Unit identifier	Functio n code	Address	Read number

Receive	00 01	00 00	00 0B	01	03	08	19 05 21 14 00 13 55 50
	Transmissio n identifier	Protocol identifier	Length	Unit identifier	Functio n code	Number of bytes	Read value

Note: 19 05 21 14 00 13 55 50 is the device SN code, the devices have different SN codes.

4.3.3 Network function parameter validation command (Ethernet restart command)

Modbus RTU protocol write register:

Send	01	06	00 67	00 01	F9 D5
	Device ModBus address	Function code	Address	Write value	CRC check code

Receive	01	06	00 67	00 01	F9 D5
	Device ModBus address	Function code	Address	Write value	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 06	01	06	00 67	00 01
	Transmission identifier	Protocol identifier	Length	Unit identifier	Functio n code	Address	Write value

Receive	00 01	00 00	00 06	01	06	00 67	00 01
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Transmission identifier

Special note: You can restart the Ethernet component by writing the value 0X00 01 to the address 0X00 67. After the Ethernet parameters have been configured, you have to execute the restart command. Otherwise, the configured parameters will not take effect.

4.3.4 WAN port IP info configuration

Modbus RTU protocol write WAN port IP register:

Send	01	10	00 6B	00 07	0E	00 00 C0 A8 04 65 FF FF FF 00 C0 A8 04 01	BE 17
	Device ModBus address	Function code	Address	Register Length	Number of bytes	Write value	CRC check code

Receive	01	10	00 6B	00 07	F0 17
	Device ModBus address	Function code	Address	Register Length	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 15	01	10	00 6B	00 07	0E	00 00 C0 A8 04 65 FF FF FF 00 C0 A8 04 01
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Register Length	Number of bytes	Write value

Receive	00 01	00 00	00 15	01	10	00 6B	00 07
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Register length

Note: 00 00 is static mode, 00 01 is dynamic mode, C0 A8 04 65（192.168.4.101） is IP address. FF FF FF 00（255.255.255.0） is subnet mask. C0 A8 04 01（192.168.4.1） is gateway addres. When set to dynamic mode, the IP address, subnet mask, and gateway address are required for the format. The IP address of the device needs to be obtained through the query command.

4.3.5 Set DNS

Modbus RTU protocol write DNS register:

Send	01	10	00 79	00 04	08	3D 8B 02 45 C0 A8 04 02	E0 50

	Device ModBus address	Function code	Address	Register length	Number of bytes	Write value	CRC check code

Receive	01	10	00 79	00 04	10 13
	Device ModBus address	Function code	Address	Register length	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 0F	01	10	00 79	00 04	08	3D 8B 02 45 C0 A8 04 02
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Register length	Number of bytes	Write value

Receive	00 01	00 00	00 0F	01	10	00 79	00 04
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Register length

Note: 3D 8B 02 45 is preferred DNS server address, C0 A8 04 02 is Alternate DNS server address.

4.3.6 Set network protocol parameters

Modbus RTU protocol write DNS register:

Send	01	10	00 81	00 04	08	00 00 C0 A8 04 0A 22 B6	81 3B
	Device ModBus address	Function code	Address	Register length	Number of bytes	Write value	CRC check code

Receive	01	10	00 81	00 04	91 E2
	Device ModBus address	Function code	Address	Register length	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 0F	01	10	00 81	00 04	08	00 00 C0 A8 04 0A 22 B6
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Register length	Number of bytes	Write value

Receive	00 01	00 00	00 0F	01	10	00 81	00 04
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Register length

Note: 00 00 isTCP serve, 00 01 is TCP client, 00 02 is UDP server, 00 03 is UDP client. C0 A8 04 0A is the IP address or domain name of the target server when it is set to "client", 22 B6 is port number, it is local port number when in server mode, it is remote port number when in client mode.

4.3.7 Set the registration package mode

Modbus RTU protocol write register:

Send	01	06	00 91	00 00	D8 27
	Device ModBus address	Function code	Address	Write value	CRC check code

Receive	01	06	00 91	00 00	D8 27
	Device ModBus address	Function code	Address	Write value	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 06	01	06	00 91	00 00
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Write value

Receive	00 01	00 00	00 06	01	06	00 91	00 00
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Write value

Note: 00 00 means disable the registration package mechanism, 00 01 means that only one user-defined registration package is sent when the first link to the server, 00 02 means that only a registration packet of 6-byte MAC is sent when the first link to the server, 00 03 means adding custom packet data before each packet sent to the server. 00 04 means adding 6 bytes of MAC as registration packet data before each packet sent to the server.

4.3.8 Set the registration package contents

Modbus RTU protocol write register:

Send	01	10	00 95	00 15	2A	00 28 41 42 43 68 23 67 AA 00 2A 00 30 00 00 00 00 00 00 00 00 00 00 00 11 00 22 00 33 00 44 00 12 33 23 11 10 1D 1C BB AA	1C 91
	Device ModBus address	Function code	Address	Register length	Number of bytes	Write value	CRC check code

Receive	01	10	00 95	00 15	11 EA
	Device ModBus address	Function code	Address	Register length	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 31	01	10	00 95	00 15	2A	00 28 41 42 43 68 23 67 AA 00 2A 00 30 00 00 00 00 00 00 00 00 00 00 00 00 11 00 22 00 33 00 44 00 12 33 23 11 10 1D 1C BB AA
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Register length	Number of bytes	Write value

Receive	00 01	00 00	00 31	01	10	00 95	00 15
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Register length

Note: 00 indicatess HEX, 01 indicates ASCII. 28 indicates the content length of the registration package. 41 42 43 68 23 67 AA 00 2A 00 30 00 00 00 00 00 00 00 00 00 00 00 00 11 00 22 00 33 00 44 00 12 33 23 11 10 1D 1C BB AA indicates the contents of the registration package. For example: send the registration package content: ebyte, the write value is 01 05 65 62 79 74 65 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00.

4.3.9 Set heartbeat package mode

Modbus RTU protocol write register:

Send	01	06	01 3D	00 00	19 FA
	Device ModBus address	Function code	Address	Write value	CRC check code

Receive	01	06	01 3D	00 00	19 FA
	Device ModBus address	Function code	Address	Write value	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 06	01	06	01 3D	00 00
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Write value

Receive	00 01	00 00	00 06	01	06	01 3D	00 00
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Write value

Note: 00 00 is network heartbeat package, 00 01 is serial port heartbeat package.

4.3.10 Set heartbeat package content

Send	01	10	00 E9	00 15	2A	00 28 41 42 43 68 23 67 AA 00 2A 00 30 00 00 00 00 00 00 00 00 00 00 00 00 11 00 22 00 33 00 44 00 12 33 23 11 10 1D 1C 1B 1A	9D 8C
	Device ModBus address	Function code	Address	Register length	Number of bytes	Write value	CRC check code

Modbus RTU protocol write register:

Receive	01	10	00 E9	00 15	D0 32
	Device ModBus address	Function code	Address	Register length	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 31	01	10	00 E9	00 15	2A	00 28 41 42 43 68 23 67 AA 00 2A 00 30 00 00 00 00 00 00 00 00 00 00 00 00 11 00 22 00 33 00 44 00 12 33 23 11 10 1D 1C 1B 1A
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Register length	Number of bytes	Write value

Receive	00 01	00 00	00 31	01	10	00 E9	00 15
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Register length

Note: 00 is HEX, 01 is ASCII. 28 is the content length of the heartbeat packet. 41 42 43 68 23 67 AA 00 2A 00 30 00 00 00 00 00 00 00 00 00 00 00 00 11 00 22 00 33 00 44 00 12 33 23 11 10 1D 1C 1B 1A is heartbeat package content. For example: send the heartbeat package content: ebyte, the write value is 01 05 65 62 79 74 65 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

4.3.11 Set heartbeat package time

Modbus RTU protocol write register:

Send	01	06	01 41	01 AA	59 CD
	Device ModBus	Function	Address	Write value	CRC check code

	address	code			

Receive	01	06	01 41	01 AA	59 CD
	Device ModBus address	Function code	Address	Write value	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 06	01	06	01 41	01 AA
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Write value

Receive	00 01	00 00	00 06	01	06	01 41	01 AA
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Write value

Note: 00 00 is the heartbeat packet time. 00 00 means to turn off the heartbeat packet, the value cannot be 1, and the range is 2-65535.

4.3.12 Clear the cache

Modbus RTU protocol write register:

Send	01	06	01 49	00 00	59 E0
	Device ModBus address	Function code	Address	Write value	CRC check code

Receive	01	06	01 49	00 00	59 E0
	Device ModBus address	Function code	Address	Write value	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 06	01	06	01 49	00 00
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Write value

Receive	00 01	00 00	00 06	01	06	01 49	00 00
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Write value

Note: 00 00 indicates that the cached data of the SOCKET A1 link is not cleared. 00 01 indicates that the cached data of the SOCKET A1 link is cleared, but the serial cache data is not cleared.

4.3.13 Set keep-alive parameters

Modbus RTU protocol write register:

Send	01	10	01 4F	00 03	06	02 D1 02 D1 00 31	BD 3D

	Device ModBus address	Function code	Address	Register length	Number of bytes	Write value	CRC check code

Receive	01	10	01 4F	00 03	B0 23
	Device ModBus address	Function code	Address	Register length	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 0D	01	10	01 4F	00 03	06	02 D1 02 D1 00 31
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Register length	Number of bytes	Write value

Receive	00 01	00 00	00 0D	01	10	01 4F	00 03
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Register length

Note: 02 D1 indicates that if there is no data message transmission after the TCP link, the detection message will be started. 00 00 indicates that the keep-alive function is turned off, with a value of 2-7200 seconds. 02 D1 time interval between the previous detection message and the next detection message is a value of 2-7200 seconds. 00 31 is the maximum number of detection failures. When the number of sniffing failures reaches this number, the TCP connection will be disconnected, with a value of 2-255 times.

4.3.14 Set local port number

Modbus RTU protocol write register:

Send	01	06	01 5D	11 A1	D4 0C
	Device ModBus address	Function code	Address	Write value	CRC check code

Receive	01	06	01 5D	11 A1	D4 0C
	Device ModBus address	Function code	Address	Write value	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 06	01	06	01 5D	11 A1
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Write value

Receive	00 01	00 00	00 06	01	06	01 5D	11 A1
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Write value

Note: 11 A1 indicates the A1 local port, 00 00 indicates a random port with a value of 1-65535.

4.3.15 Set cloud transparent transmission function

Modbus RTU protocol write register:

Send	01	06	01 61	00 01	18 28
	Device ModBus address	Function code	Address	Write value	CRC check code

Receive	01	06	01 61	00 01	18 28
	Device ModBus address	Function code	Address	Write value	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 06	01	06	01 61	00 01
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Write value

Receive	00 01	00 00	00 06	01	06	01 61	00 01
	Transmission identifier	Protocol identifier	Length	Unit identifier	Function code	Address	Write value

Note: 00 00 mens cloud transmission function is off, 00 01 means on.

4.3.16 Set timeout restart time

Modbus RTU protocol write register:

Send	01	06	01 63	FF A0	39 A0
	Device ModBus address	Function code	Address	Write value	CRC check code

Receive	01	06	01 63	FF A0	39 A0
	Device ModBus address	Function code	Address	Write value	CRC check code

Modbus TCP protocol write register:

Send	00 01	00 00	00 06	01	06	01 63	FF A0
	Transmissio n identifier	Protocol identifier	Length	Unit identifier	Functio n code	Address	Write value

Receive	00 01	00 00	00 06	01	06	01 63	FF A0
	Transmissi on	Protocol identifier	Length	Unit identifier	Functio n code	Address	Write value

	identifier						

Note: FF A0 indicates the restart time, the value is 60-65535. This feature is used to reset the Ethernet if the Ethernet has not received any data for a long time.

Important Statement

- All rights to interpret and modify this manual belong to Ebyte.
- This manual will be updated based on the upgrade of firmware and hardware, please refer to the latest version.
- Please refer to our website for new product information.

Reversion History

Version	Edit date	Description	Issued by
1.0	-	Initial version	-
1.1	2019/8/15	Format revision	lyl

About Us

Technical support: support@cdebyte.com;

Documents and RF Setting download link: www.ebyte.com

Tel：+86-28-61399028 Ext. 812

Fax：028-64146160

Web：www.ebyte.com

Address:Innovation Center B333-D347, 4# XI-XIN Road,Chengdu, Sichuan, China

Chengdu Ebyte Electronic Technology Co.,Ltd.