

# Wireless Modem

## User Manual



## Serial Port Ethernet Serial Server NA111/NA111-A

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## 1. Product Introduction

NA111/NA111-A is a serial port server that converts serial port data to Ethernet data; It has multiple Modbus gateway modes and MQTTC/HTTPC Internet of Things gateway modes, which can meet the networking functions

of various serial port devices/PLCs; Adopt industrial design standards to ensure equipment reliability; The product is equipped with RJ45 interface and RS485 port is 3 × 3.81mm Phoenix terminal, the product can be installed with guide rail.

## Features

- RJ45 supports 10M Ethernet interface;
- Support multiple working modes (TCP Server, TCP Client, UDP Server, UDP Client, HTTPC, MQTTC);
- Support configuration tools, web pages and AT commands;
- The server mode supports multiple socket connections;
- Support multiple baud rates;
- Support DHCP function;
- DNS (domain name resolution) is supported, and the domain name resolution server can be customized;
- Support multiple Modbus gateways (simple protocol conversion, multi-host mode, storage gateway, configurable gateway);
- Support fast access to Alibaba Cloud, Baidu Cloud, OneNET, Huawei Cloud, and version
- 3.1 standard MQTT servers;
- Support HTTP protocol (GET/POST request);
- Support virtual serial port;
- Support timeout restart function and customize the restart time;
- Support the short connection function and customize the short connection interval;
- Support heartbeat package and registration package functions;
- Support serial port cache cleaning function;
- Support access to the Internet and LAN;
- Support hardware restoration to factory settings;
- Support online upgrade function.

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## 2. Quick Start

If there is a problem in the use process, click the official website link:<u>https://www.ebyte.com/product-class.aspx\_</u>

### 2.1. Preparation for use

Before using the serial server (hereinafter referred to as the "device"), it is necessary to prepare the network cable, computer, USB to serial converter and other relevant auxiliary materials. The details are as follows:



[Note] This case uses NA111 equipment, and NA111-A only has different power input.

## 2.2. Equipment wiring

NA111 power wiring (DC 8~28V,+(positive, red), - (negative, black)):



NA111-A power wiring (AC 85~265V, L (live line, red), N (zero line, blue)):



Serial port and network port and wiring:

1、 The standard 10M RJ45 network port is adopted, and the M1 indicator light of the equipment is always on after the correct connection;

2、 RS485 interface (3 × 3.81mm Phoenix terminal), device A is connected to A of USB to RS485 converter, device B is connected to B of USB to RS485 converter (please use standard RS485 twisted pair shielded cable for a long distance), and the GND of the converter is connected to G of the device (optional).



#### 2.3. Software settings

#### 2.3.1.Network test environment

To avoid server search failure and inability to open web pages and other related problems in the actual application process, it is recommended to check the relevant settings of the computer first.

- (1) Turn off the firewall and antivirus software of the computer;
- (2) Configure the network card connected to the device;
- (3) This case is for the test of direct connection of the equipment to the computer. The computer needs to be configured as static IP (the computer is directly connected to the serial port server, there is no router to assign, and the computer cannot obtain the IP address). The use of a switch or router needs to ensure that the equipment and the computer are on the same network end (for example, 192.168.3. xxx);

(4) The static IP of the computer is 192.168.3.4 (the same network segment as the serial port server), the subnet mask is 255.255.255.0, and the default gateway is 192.168.3.1.

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#### 2.3.2. Default parameters

project	Default parameters
IP address	192.168.3.7
Default local port	8887
Subnet mask	255.255.255.0
Default gateway	192.168.3.1
Default working mode	TCP Server
Serial baud rate	115200
Serial port parameters	8 / None / 1

## 2.3.3.Data transmission test

After the above operation steps, follow the factory default parameters of the equipment and perform the following operations to realize the transparent data transmission test.

The operation steps are as follows:

(1) Open the test TCP/IP debugging assistant software;

(2) In the "Network Settings" area, select the TCP Client mode. The remote host address corresponds to the device's default local IP: 192.168.3.7. The remote host port corresponds to the device's factory local port 8887. Click Connect;

(3) Wait for the computer to connect to the serial port server. After the connection is completed, M0 of the serial port server is always on;

	网络调试助手	4 - O ×
网络设置         (1) 协议类型         TCP Client         (2) 远程主机地址         192.168.3.7         (3) 远程主机端口         8887         ⑤ 断开         接收设置         ⓒ 断开         接收设置         ⓒ 本SCII ⓒ HEX         接收保存到文件         自动盗屈 直除接收         发送设置         ⓒ 本SCII ⓒ HEX         「 接收保存到文件         自动盗屈 直除接收         发送设置         ⓒ 本SCII ⓒ HEX         「 转义符指令解析 ⑥	数据日志 [2021-10-21 10:19:41.138]# The server is connected.	NetAssist V5.0.2 🗇 🗘
<ul> <li>目动友医附加位</li> <li>打开文件数据源</li> <li>循环周期</li> <li>加s</li> <li>快捷指令</li> <li>历史发送</li> </ul>	数据发送   11111	「清除 1」 清除     「     「     「     「     「     「     」     「     」     「     」     「     」     」     」     」     」     「     」     」     」     」     」     「     」     」     」     」     」     」     」     」     」     」     」     」     」     」     」     」     」     」     」     』     」     』     」     』      』     』     』      』     』      』      』      』      』      』      』      』      』      』      』      』      』      』      』     』      』
☞ 就绪!	0/0 RX:0	

(4) Open the serial port assistant, set the serial port baud rate to 115200, set the serial port parameter to 1/8/None, and click to open the serial port;

KCOM V2.6				1 <u>975</u> 4		×
				串口选择		
				COM8:USB-	SERIAL CH	ł34C 🗸
				波特率	115200	~
				停止位	1	~
				数据位	8	~
				校验位	None	~
				串口操作	<b>)</b> 关	那串口
				保存窗口	清除	接收
				🗌 16进制	显示 DTI	R
				☐ RTS		动保存
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🔅 🗸 www.openedv.com S:0 R	::0	CTS=0 DSR=	=0 DCD=0	前时间 10:24	:45	.:

(5) For data transmission test, the serial port assistant (serial port end) sends the test data, and the network debugging assistant (network end) receives the test data. The network debugging assistant (network side) sends the test data, and the serial port assistant (serial port side) receives the test data. Realize duplex communication (i.e. local to network two-way data receiving and sending).

<u>* · / (</u>	网络调试助手	(山) - 日 ×	M XCOM V2.6	- 🗆 X
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一 送送设置         ・ ASCII ・ HEX           「 自动解析转义符         「 自动解析转义符           「 和指令自动回车         「 自动发送附加位           「 打开文件教授策…         「 循环風期」1000 ms	数据完选 TEST TEST TEST TEST TEST	√ 清除 七 清除 发送	单条发送 多条发送 协议传输 帮助 TEST TEST TEST TEST TEST □ 定时发送 周期:[1000] ms打开文件	<ul> <li></li></ul>
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## 3. Product Overview

## 3.1. Product specification

Product model	product type	Socket Number of connections	Working mode	working voltage	Product size (mm)
NS1	Chip module	6-way	TCP Server	3.0~5.5V(DC)	17×19×4
NT1 NT1-B	In-line module	6-way	UDP Server	3.0~5.5V(DC)	35×22×30
NA111 NA111-A	DTU	6-way	UDP Client MQTT Client	8∼28V(DC) 85∼265V(AC)	110×66×30
NB114	DTU	6-way		8~28V(DC)	102×84×25

## 3.2. technical parameter

project	explain	
working voltage	8~28V DC(NA111)/85~265V AC (NA111-A)	
Interface	Serial port (RS485, 3 × 3.81mm Phoenix terminal)	
Intenace	Network interface (RJ45)	
Working mode	TCP Server (default), TCP Client, UDP Server, UDP Client, HTTP Client, MQTT Client	
Socket connection	TCP server supports 6-way client connections	
Network protocol	TCP/UDP、MQTT、HTTP、IPv4、DHCP、DNS	
IP acquisition method	Static IP (default), DHCP	
DNS domain name resolution	support	
Domain name resolution server	114.114.114.114 (customizable)	
collocation method	d Web page, parameter configuration tool, AT command	
IP address	192.168.3.7 (customizable)	
user name	Admin (customizable)	
password	Admin (customizable)	
Local Port	8887 (customizable)	
Subnet mask	255.255.255.0 (customizable)	
gateway	192.168.3.1 (customizable)	
Serial port cache	1024 Byte	
Packaging mechanism	512 Byte	
Serial baud rate	1200~230400 bps (115200 by default)	
Data bits	5. 6, 7, 8 (default)	
Stop bit	1 (default), 2	
Check bit	None (default), Odd, Even	
Flow control	NONE (default), RTS/CTS, DSR/DTR, XON/XOFF	
Product size	one hundred and ten × sixty-six × 30mm (L × W × H)	
Product weight	80g ± 5g (NA111)、90g ± 5g (NA111-A)	
Working temperature and humidity	-40~+85 ℃, 5%~95% RH (no condensation)	
Storage temperature and -40~+105 °C, 5%~95% RH (no condensation)		

humidity

## 3.3. Indicator Description



Seria I num ber	name	function	explain
1	POWER	Power indicator	Power on: the blue light is always on. Power off: the lamp is off.
2	TXD	Serial port transmission indicator	3 seconds before power-on: flash. When waiting for the network cable: always on. Data is sent: the red light flashes. No data transmission: the light is off.
3	RXD	Serial port receiving indicator	3 seconds before power-on: flash. When waiting for the network cable: always on. There is data reception: the green light flashes. No data reception: the light is off.
4	MO	Link indicator	3 seconds before power-on: flash. When waiting for the network cable: always on. Network connection: the green light is always on. Network disconnection: the light is off. UDP mode: the green light is always on.

5	M1	STATE indicator	Network cable connection: the yellow light is always on. The network cable is disconnected: the light is off.
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[Note] When the network cable is not connected, POWER, TXD, RXD and M0 are all on, M1 is off, and the device is in standby state.

## 3.4. Mechanical dimensions



## 3.5. Pin definition



Serial number	name	function	explain
1	POWER	Power indicator	Power on: the blue light is always on.
			Power off: the lamp is off.
		Serial port	3 seconds before power-on: flash.
2	TXD	transmission	Data is sent: the red light flashes.
		indicator	No data transmission: the light is off.
3		Serial port	3 seconds before power-on: flash.
	RXD	receiving	Data is sent: the green light flashes.
		indicator	No data transmission: the light is off.

4	MO	Link indicator	3 seconds before power-on: flash. Network connection, the green light is always on. The network is disconnected and the light is off. UDP mode: the green light is always on.
5	M1	STATE indicator	The yellow light is always on when the network cable is connected. The network cable is disconnected and the light is off.
6	Restore	Reset button	Press and hold until the POWER, TXD, RXD and M0 indicator lights are always on and then release.
7	RJ45	Network interface	10M network interface.
8	RS485	RS485 interface	A connects to A and B connects to B.
9	Power input	NA111 (DC) NA111-A (AC)	NA111: 8-28V DC input, 2 × 5.08mm Phoenix terminal. NA111-A: 85-265V AC input, 2 × 5.08mm Phoenix terminal.

## 3.6. Installation method

The equipment is installed by guide rail.



## 4. Product Function

#### 4.1. Network parameters

#### 4.1.1.IP address type

The IP address is the identification of the module in the LAN, which is unique in the LAN. Therefore, it cannot be duplicated with other devices in the same LAN. The IP address of the module can be obtained by static IP and DHCP.

(1) Static IP: The static IP needs to be set manually by the user. In the process of setting, pay attention to writing the IP, subnet mask and gateway at the same time. The static IP is suitable for the scenario where the IP and device need to be counted and corresponding one by one.

Advantages: access to devices that cannot be assigned IP addresses can be searched through the full-segment broadcast mode, which is convenient for unified management;

Disadvantages: Different intranet segments in different LANs lead to the failure of normal TCP/UDP communication.

(2) Dynamic DHCP: DHCP is mainly used to dynamically obtain IP address, gateway address, DNS server address and other information from the gateway host, thus eliminating the tedious steps of setting IP address. It is applicable to scenarios where there is no requirement for IP and no requirement for one-to-one correspondence between IP and modules.

Advantages: The access router and other devices with DHCP server can communicate directly, reducing the trouble of setting IP address gateway and subnet mask.

Disadvantages: If the module is connected to a network without a DHCP server, for example, if it is directly connected to a computer, the module will not work properly.

The subnet mask is mainly used to determine the network number and host number of the IP address, indicate the number of subnets, and determine whether the module is in the subnet.

The subnet mask must be set. Our commonly used Class C subnet mask is 255.255.255.0, the network number is the first 24 digits, the host number is the last 8 digits,

the number of subnets is 255, and the module IP is within the range of 255, then the module IP is considered to be in the subnet.

Gateway refers to the network number of the network where the module's current IP address is located. If the router and other devices are accessed when connecting to the external network, the gateway is the router.

#### 4.1.2. Domain name resolution (DNS)

Domain name resolution converts the domain name into an IP address recognized by the network through the domain name resolution (DNS) server. The domain name resolution (DNS) server address of the serial port server supports user customization. It can achieve domain name resolution through the customized domain name resolution server in case of domain name server exception. The device will report the resolution request to the customized domain name resolution name resolution, and return the device connection parameters (generally IP address) after the resolution is completed.

In DHCP mode, the domain name resolution (DNS) server address is automatically obtained (synchronous router domain name resolution address) and cannot be modified.

In the static IP mode, the default address of the domain name resolution (DNS) server is 114.114.114.114.

#### 4.1.3.Intranet access port

The default intranet access port is 80.

[Note] If the port number is modified, the port number should be added in the address input column. For example, to modify the web page access port to 8080, you need to enter 192.168.3.7:8080 in the address column to connect to the web page configuration.



#### 4.2. Network operation mode

#### 4.2.1.TCP server mode

TCP Server is a TCP server. In the TCP Server mode, the device listens to the local port, accepts the connection request of the client and establishes a connection for data communication, which is usually used for communication with TCP clients in the LAN.

When the Modbus gateway function is turned off, the device will send the data received by the serial port to all the client devices that have established a connection with the device. At most, it can connect 6 clients. After the Modbus gateway function is enabled, the non-Modbus data will be cleared and will not be forwarded.



#### 4.2.2.TCP client mode

TCP Client is the TCP client. When the device works, it will actively send a connection request to the server and establish a connection to realize the interaction between serial port data and server data.

To use the client, you need to configure the IP address/domain name and target port of the target accurately.



#### 4.2.3.UDP server mode

UDP Server means that the device does not verify the data source IP address when communicating with UDP protocol. After receiving a UDP packet, it saves the source IP address and source port of the packet and sets it as the target IP address and port. Therefore, the data sent by the device only sends the data packet to the source IP address and port of the last time the device received the data.

This mode is usually used in scenarios where multiple network devices communicate with this device, and the frequency is high, and TCP Server cannot meet the conditions.

Using UDP Server requires remote UDP devices to send data first, otherwise data cannot be sent normally.

[Note] In UDP mode, the data sent by the network to the device should be less than 512Bit per packet, otherwise it will cause data loss.

#### 4.2.4.UDP client mode

UDP Client is a connectionless transport protocol that provides simple and unreliable transaction-oriented information transmission services. There is no connection establishment and disconnection. You only need to configure the destination IP and destination port to send data to each other. Usually used in data transmission scenarios where there is no requirement for packet loss rate, the data packet is small and the transmission frequency is fast, and the data is to be transmitted to the specified IP.

In UDP Client mode, the device will only communicate with the configured (target IP and target port) remote UDP device.

In this mode, the target address is set to 255.255.255.255, and the transmitted data will be broadcast in the whole network segment, but the receiving and transmitting equipment

needs to ensure the port consistency, and the equipment can also receive the broadcast data.

#### 4.2.5.HTTP client mode

This mode can realize the HTTP packet grouping function, and provides two modes: GET and POST. The customer can configure parameters such as URL, Header, and send packets by the device (serial port server) to realize the fast communication between the serial port device and the HTTP server. The HTTP client mode is recommended to use the random port and open a short connection to save the HTTP server resources.



#### 1. GET

Use the HTTP mode of OneNET multi-protocol access to test the HTTP-GET request of the device, as shown in the following figure.

(1) Return data configuration with header:



#### Data return test:

# XCOM V2.6			
			_
[2022-01-05 17:17:50.657] TX: datastream_id=char [2022-01-05 17:17:51.783] RX: HTTP/1.1 200 0K Date: Wed, 05 Jan 2022 09:17:50 GMT Cantent=Tume: application (icon	<b>char</b> 2021-12-31 14:28:54		CH34C ~
Content-Type: application/json Content-Length: 134			~
Connection: keep-alive	28		~
Server: Apache-Coyote/1.1	20		
riagma. no-cache		-	;闭串口
{"errno":0, "data":{"count":1, "datastr 31 14:28:54.492", "value":28}], "id":"c	eams":[{"datapoints":[{"at":"202 har"}]},"error":"succ"}	21-12- 保存窗口 16进制显:	清除接收 示□ DTR
		T RTS	□ 自动保存
		☑ 时间戳	1000 ms
单条发送 多条发送 协议传输 帮助			
datastream_id=char		^	发送
		~	清除发送
□ 定时发送 周期: 100 ms	打	开文件 发送文件	停止发送
□ 16进制发送 □ 发送新行	0% 🚺	爆全网】正点原子DS100手	持示波器上市
🔅 🗸 www.openedv.com S:18	R:312 CTS=0 DSR=0 D	CD=0 当前时间 17:17:5	2 .::

#### (2) Return data configuration without header:

瓦	<b>战都亿佰特电子科技有限</b>	公司	网络参数	串口参数 高级参数	Mod	ous参数		
设备信息			基本参数		_			
设备型号 NA111-A	设备SN码 S120074S	Language 中文 🗸	IP地址类型	动态IP	~	SN码	S120074S	
<b>固件版本</b> 9013-2-13	登录账号 admin	發录密码	网页登录账号	admin		网页访问端口	80	•
网络设置 IP模式 印度	→ 工作模式 HTTP客户端	✓ 模块MAC 84-C2-E4-36-05-3A	网关	192.168.3 .1		DNC	114 114 114 114	
设备IP 192.168.3.7	设备端口 0	阿贡访问端口 8080	本地IP地址	192.168.3 .7		本地端口	0	
子间掩弱 255.255.255.0	<b>岡美</b> 192.168.3.1	普通DNS 114.114.114.114	网络工作模式	UTTD 安白禮				
目的IP/域名 192.168.3.3 串口设置		目的端口 6889	列增工作模式 目标IP/域名	192, 168, 3, 3		日标端口	8888	
波特率 作止位 1	✓ 数据位 8 ✓ 流控 NONE	▼ 校验位 NONE ▼	MQTT参数	HTTP参数				-1
HTTP功能设置			TTP请求方式	GET	~	不返回包头数据	开启	~
HTTP请求方式 GET ~ URL路径: /1.php?			ITTP URL路径	/1. php?				<u> </u>
User-Agent: Mozilla/5.0		□ 不返回HTTP包头	HTTP包头 User-Agent	Mozilla/5 0				
MODBUS网关功能		lk.	ober ingente.	A021114, 0. 0				- 1
MODBUS TCPN转RTU 美術	✓ Modbus 指令配置参数	添加 清空						
MODBUS 网关模式	MODBUS 500 轮询间隔时间 范围:0-65535ms	剩余可配置指令 49 01 03 00 00 00 0A ×						_

#### Data return test:

# XCOM V2.6	-	o x
[2022-01-05 17:09:10.892] TX: datastream_id=char [2022-01-05 17:09:11.970] RX: {"errno":0, "data":{"count":1, "datastreams":[{"datapoints":	串口选择 COM4:USB-: 波特率	SERIAL CH34C ~
If at : 2021-12-31         14:28:54.492" , "value":28}], "id": "char"}]}, "error": "succ"}         char         2021-12-31         14:28:54	<ul> <li>停止位</li> <li>数据位</li> <li>校验位</li> <li>串口操作</li> <li>保存窗口</li> </ul>	1 ~ ~ 8 ~ ~ 》 None ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~
28	<ul> <li>□ 16进制组</li> <li>□ RTS</li> <li>☑ 时间戳</li> </ul>	記示□ DTR □ 自动保存 1000 ms
单条发送 多条发送 协议传输 帮助		
datastream_id=char		发送
<ul> <li>□ 定时发送 周期: 100 ms</li> <li>□ 16进制发送 □ 发送新行</li> <li>□ 16进制发送 □ 发送新行</li> <li>□ 16进制发送 □ 发送新行</li> </ul>	发送文件 点原子DS100	停止发送 手持示波器上市
🔅 🗸 www.openedv.com S:18 R:136 CTS=0 DSR=0 DCD=0 当	前时间 17:10	:42 .::

#### 2. POST

Use the HTTP mode of OneNET multi-protocol access to test the HTTP-POST request of the device, as shown in the following figure.

(1) Return data configuration with header:

IP模式 : 动态           设备IP         192           子网拖码         255.           目的IP/域名         api.1           第二设置         滚特率           第二设置         復止位           第二口设置         波特率           第二口设置         波特率           第二口设置         波特率           第二口设置         「日本市           第二日         第二           第二日         第二           第二日         第二           第二日         第二           111         111           第二         1152           第二         第二           111         1152           第二         1152           第二         1152           第二         1152           第二         第二           MODBUS         第二           MODBUS         第二           ModBUS         第二           ModBUS         第二           1000         1000           指令超时时间 范围         100	168.3.7 255.255.0 neclouds.com 200 3T ✓ icces/863876867/datapoint key: • • • • • • • • • • icces/863876867/datapoint key: • • • • • • • • • • • 1 0 0 0	▼ ▼ ▼ ▼	<b>工作模式</b> HTTP看 设备端口 0 网关 192.168 数据位 8 流控 NONE	8.3.1		模块MAC 页访问端口 首选DNS 目的端口 校验位	84-C2-E4-36-05-3A 80 114.114.114.114 80 NONE 不返回HTTP包头	×
设备IP 192.     子树掩码 255     目的IP/域名 api.1     日的IP/域名 api.1     正位 1     TTP功能设置     HTTP请求方式 POS     URL路径: /dev     HTTP请求方式 POS     URL路径: /dev     HTTP有梁方式 POS     URL路径: /dev     MODBUS    联目     MODBUS     网关模式   联目     Modbus 1000     指令超时时间 范围	168.3.7 255.255.0 neclouds.com 200 3T V ices/863876867/datapoint key: • • • • • • • • • • • • • • • • • • •		设备端口 0 网关 192.168       数据位 8       流控 NONE   Modbus 指名 MODBUS 500	8.3.1		页访问端口 首选DNS 目的端口 校验位	80 114.114.114.114 80 NONE 不返回HTTP包头	~
子网摘码 255. 目的IP/域名 api,1 可设置 波特率 1152 停止位 1 ITTP功能设置 ITTP功能动能 ITTP动能动能 ITTP动能动能 ITTP动能动能 ITTP动能动能 ITTP动能动能 ITTP动能动能 ITTP动能动能 ITTP动能	255.255.0 neclouds.com 200 3T Colored States of the second secon	▼ ▼ ▼	网关 192.168 数据位 8 流控 NONE Modbus 指名 MODBUS 500	8.3.1 		首选DNS 目的端口 校验位	114.114.114.114 80 NONE 不返回HTTP包头	~
目的IP/域名 api.i 波特率 1152 停止位 1 TTP功能设置 HTTP请求方式 POS URL路径: /dev HTTP包头: <sup>Bpi-</sup> HTTP包头: <sup>Bpi-</sup> MODBUS (列行) MODBUS (英) MODBUS (英) MODBUS (英) MODBUS (英) MODBUS (英) MODBUS (英) (前令超时时间 范围	neclouds.com	▼ ▼ ▼	数据位 8 流控 NONE Modbus 指名 MODBUS 500			校验位	80 NONE	~
口设置 波特率 115: 停止位 1 TTP功能设置 HTTP请求方式 [POS] URL路径: /dev HTTP请求方式 [POS] URL路径: /dev HTTP包头: <sup>8p1-</sup> HTTP包头: <sup>8p1-</sup> HTTP包头: <sup>8p1-</sup> Host ODBUS() CODBUS() Kodbus() MODBUS	200 3T V ices/863876867/datapoint key: • • • • • • • • • • • • • • • • • • •		数据位 8 流控 NONE Modbus 指名 MODBUS 500	· 二 二 二 二 二 二 二 二 二 二 二 二 二	▼ ▼	校验位	NONE 不返回HTTP包头 添加 演交	~
波特率 115; 停止位 1 ITP功能设置 HTTP请求方式 POS URL路径: /dev HTTP包头: <sup>api-</sup> HTTP包头: <sup>api-</sup> HTTP包头: <sup>spi-</sup> Host ODBUS网关功的 ODBUS 天闭 MODBUS 两关模式 禁用 Modbus 1000 指令超时时间 范围	200		数据位 8 流控 NONE Modbus 指名 MODBUS 500	○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○	▼ ▼	校验位	NONE 不返回HTTP包头	~
停止位 1 TTP功能设置 HTTP请求方式 POS URL路径: /dev HTTP包头: <sup>api-</sup> HTTP包头: <sup>Bost</sup> ODBUS网关功的 MODBUS TCP转RTU 关闭 MODBUS 网关模式 禁用 Modbus 1000 指令超时时间 范围	ST V ices/863876867/datapoint key: api. heclouds. com	> s	流控 NONE Modbus 指名 MODBUS 500	記置参数	<b>_</b>		<ul> <li>不返回HTTP包头</li> <li>添加 演奏</li> </ul>	
TTP功能设置 HTTP请求方式 POS URL路径: /dev HTTP包头: <sup>Bapi</sup> HTTP包头: <sup>Bapi</sup> MODBUS TCP转RTU MODBUS 网关模式 <sup>要用</sup> Modbus 1000 指令超时时间 范围	ST  ices/863876867/datapoint key: api.heclouds.com	s • •	Modbus 指名 MODBUS 500	注置参数			<ul> <li>不返回HTTP包头</li> <li>添加 演交</li> </ul>	
HTTP请求方式 POS URL路径: /dev HTTP包头: <sup>api-</sup> HTTP包头: ODBUS网关功f MODBUS TCP转RTU 天闭 MODBUS 网关模式 禁用 Modbus 1000 指令超时时间 范围	ST  ices/863876867/datapoint key: api.heclouds.com	s V	Modbus 指冬 MODBUS 500	注重参数			<ul> <li>不返回HTTP包头</li> <li>添加 演交</li> </ul>	
URL路径: /dev api- HTTP包头: Host ODBUS网关功f MODBUS TCP转RTU 天闭 MODBUS 网关模式 第用 Modbus 1000 指令超时时间 范围	ices/863876867/datapoint key: api.heclouds.com	s •	Modbus 指名 MODBUS 500	分配置参数			<ul> <li>不返回HTTP包头</li> <li>添加 演交</li> </ul>	
HTTP包头: HTTP包头: Host ODBUS网关功信 MODBUS TCP转RTU 所 MODBUS 网关模式 第用 Modbus 1000 指令超时时间范围	key: <b></b>	× ×	Modbus 指名 MODBUS 500	行配置参数			<ul> <li>不返回HTTP包头</li> <li>添加 演交</li> </ul>	
ODBUS网关功能 MODBUS TCP转RTU MODBUS 网关模式 第用 Modbus 1000 指令超时时间 范围		<ul><li></li><li></li><li></li></ul>	Modbus 指名 MODBUS 500	<b>汴配置参数</b>			添加」清容	
MODBUS TCP转RTU MODBUS 网关模式 第用 Modbus 指令超时时间 范围		• •	Modbus 指名 MODBUS 500	家配置参数			添加清空	
MODBUS 网关模式 Modbus 1000 指令超时时间 范围		•	MODBUS 500					
网关模式 <sup>(禁用</sup> Modbus 1000 指令超时时间 范围		<b>~</b>			剩余可	記罟指令	49	
Modbus 1000 指令超时时间范围	0		轮询间隔时间范围:0-	-65535ms	01 03 0	0 00 00 0	AX	
11 A WEITANAILA 2012			Modbus 10	2554				
☆格式· "XX XX XX XX	XX XX XX" ·		1월 소12 lighting 20년 10-	-2008				
中:"XX":2位16进制数	k,XX与"XX"之间加入-	-个空格						
多可配置50条指令								
级设置								
断网重连时间 关闭	]:0:范围:7-255s	1	断网重连次数 <sup>5</sup> 范围:1-	-60次		超时重启	1800 关闭:0:范围:60-65535s	
		Г	2			网络连接后		
大田田市市美田	]:0;范围:1-65535s		发闭:0;	;范围:2-255s	清	空串口缓存	[唐舟	~
心跳包模式串口	心跳包	~	自定义心跳包 keepali	ve message			Hex	
注册包模式 关闭	注册包模式	~	自定义注册包 register	r message			🖸 Hex	
络参数 串口参数	高级参数 Modbus	参数						
基本参数								
地址类型 动态	ŞIP		$\sim$	SN码	717.0×			
页登录账号 admi	in			网页访问端口	80			
关 192.	.168.3 .1			DNS	114.114.114	. 114		
<b>地IP地址</b> 192.	. 168. 3 . 7			本地端口	0			
络工作模式 HTT	P 客户端		~	子网掩码	255.255.255	.0		
标IP/掝名 <u>api</u> .	. heclouds. com			目标端口	80			
QTT参数 HTTP参数								
TP请求方式 POS	T		~ :	不返回包头数据	关闭			
TTP URL路径 /de	vices/863876867/datap	oints	12					
HTTP包头								

Data return test:

XCOM V2.6				-		×
[2022-01-05 17:24:35.508] TX: {~datastreams~:[{~id~:~char~, [2022-01-05 17:24:36.593]	"datapoints":[{"value"	:50}]}]}		串口选择 COM4:USB-:	SERIAL CH	34C ~
RX: HTTP/1.1 200 0K Date: Wed, 05 Jan 2022 09:24:35 ( Content-Type: application/json Content-Length: 26 Connection: keep-alive	SMT			停止位 数据位	1 8	~
Server: Apache-Coyote/1.1 Pragma: no-cache {"errno":0, "error":"succ"}	<b>char</b> 2022-01-05 17:24:35			校验位 串口操作 保存窗口	None ・ デ ・ 关闭 清除	 ]串口 接收
	50			<ul> <li>□ 16进制型</li> <li>□ RTS</li> <li>☑ 时间戳</li> </ul>	記示 DTR 日 自志 1000	, 力保存 」ms
单条发送 多条发送 协议传输 帮助						
{~datastreams~:[{~id~:~char~,~d	atapoints":[{"value":50	}]}]}			发送	É
<ul> <li>□ 定时发送 周期: 100 ms</li> <li>□ 16进制发送 □ 发送新行</li> </ul>		0%	打开文件 【火爆全网】	发送文件 正点原子DS100	停止为 手持示波器	送 計市
🔅 🔹 www.openedv.com S:59	R:203	CTS=0 DSR=0	DCD=0	当前时间 17:24	:40	

(2) Return data configuration without header:

网络设置					100	
IP模式	动态	~	工作模式 HTTP客户端	~	模块MAC	84-C2-E4-36-05-3A
设备IP	192.168.3.7		设备端口 0		网页访问端口	80
子网掩码	255.255.255.0		网关 192.168.3.1	]	首选DNS	114.114.114.114
目的IP/域名	api.heclouds.com				目的端口	80
串口设置						
波特率	115200	~	数据位[8	~	校验位	NONE 🗸
停止位	1	~	流控NONE	~		
HTTP功能设置						يەلەرىدى.
HTTP请求方式	POST 🗸					
URL路径:	/devices/863876867/datapo	ints				
HTTP包头:	api-key: <b>, pro branismo</b> Host:api.heclouds.com	rt -				☑ 不返回HTTP包头
MODBUS网关	功能					
MODBUS TCP转RTU	关闭	~	Modbus 指令配置参数			添加清空
MODBUS 网关模式	禁用	~	MODBUS 500 轮询间隔时间 范围:0-65535ms		剩余可配置指令 01 03 00 00 00 0	49 A
Modbus 指令超时时间	1000 范围:0-65535ms		Modbus 10 指令存储时间 范围:0-255s			
指令格式: "XX XX 其中:"XX":2位16进 最多可配置50条指	XX XX XX XX"; 制数,XX与"XX"之间加入 令	一个空格				
高级设置						
斯丽垂连时间	7		断网重连次数 5		超时重启	1800
的的主任时间	关闭:0;范围:7-255s		氾围:1-60次			关闭:0;范围:60-65535s
心跳包周期	关闭:0;范围:7-255s 0  关闭:0;范围:1-65535s		泡围:1-60次 <b>短连接</b> 关闭:0;范围:2-255s	1	网络连接后 清空串口缓存	关闭:0;范围:60-65535s
心跳包周期	关闭:0;范围:7-255s 0 关闭:0;范围:1-65535s 軍口心跳包	~	范围:1-60次 2 运连接 关闭:0;范围:2-255s 自定义心跳包 [keepalive message]		网络连接后清空串口缓存	关闭:0;范围:60-65535s [启用] □ Hex

IP地址类型	动态IP		$\sim$	SN码	75.04	
网页登录账号	admin			网页访问端口	80	
网关	192.168.3 .1			DNS	114. 114. 114. 114	
本地IP地址	192.168.3 .7			本地端口	0	
网络工作模式	HTTP 客户端		~	子网掩码	255. 255. 255. 0	
目标IP/域名	api. heclouds. com			目标端口	80	
MQTT参数 HTT	P参数					
HTTP请求方式	POST		~	不返回包头数据	开启	~
HTTP URL路径	/devices/8638768	67/datapoints				
HTTP包头						
api-key: •⊨ • Host∶ani heclor	uds. com					

#### Data return test:

30 XCOM V2.6				-		×
[2022-01-05 17:30:47.416] TX: {~datastreams~:[{~id~:~char~.~datapu	pints":[{"value"	:25}1}1}		串口选择 COM4:USB-	SERIAL CH	34C ~
[2022-01-05 17:30:48.481] RX: { "errno":0, "error": "succ" 引				波特率 停止位	115200	~
				数据位	8	~
char 2022-01-	05 17:30:47			校验位 串口操作	None ④ 关闭	~
				保存窗口	清除:	接收
25				<ul> <li>□ RTS</li> <li>☑ 时间戳</li> </ul>	L 自z 1000	、 动保存 ms
单条发送 多条发送 协议传输 帮助						
{"datastreams":[{"id":"char", "datapoin	ts":[{"value":25	i}]}]}		1	发送	ž
					清除发	送送
□ 定时发送 周期: 100 ms			打开文件	发送文件	停止发	送送
□ 16进制发送 □ 发送新行		0%	【火爆全网】〕	E点原子DS100	手持示波器	8上市
🔅 🔹 www.openedv.com S:59	R:29	CTS=0 DSR=	0 DCD=0   当	前时间 17:30	:49	:

#### 4.2.6.MQTT client mode

The serial server supports the fast access standard MQTT3.1 protocol server (OneNET, Baidu Cloud, Huawei Cloud, user-built and other server types) and Alibaba Cloud server, supports the quality of service level configuration (Qos 0, Qos 1), supports the ultra-long text configuration, and facilitates better access to network service operators (server address, three elements, subscription and publishing address support the configuration of up to 128

#### characters).



【注】根据平台<mark>配置的规则引擎进行数据</mark>转发,此处以回传为例说明

1. Standard MQTT3.1.1

Here, the standard MQTT3.1.1 connection takes Tencent's standard MQTT3.1.1 server as an example. The "three elements" described in the standard can be obtained from Tencent server as shown in the following figure:



Parameter configuration (upper computer and web page) is described as follows:

IP模式 [动态]         工作模式 [MQTT客户端]         模块MAC         84-C2-E4-2	
	36-05-3A
设备IP         192.168.3.7         设备端口         网页访问端口         80	
子网摘码         255.255.255.0         网关         192.168.3.1         首选DNS         114.114.11	.4.114
目的IP/域名         192.168.3.3         目的端口         8888	
串口设置	
波特率 115200 ✓ 数据位 8 ✓ 校验位 NONE	~
MQIIJI的设直 亚会选制: 标准MOTT2.1.1 keen Alive: 120 苏国:20,1200 c	
20 200 3 20	
(Client ID)	
(Device name) 1234/all	
<b>密码:</b> (Device secret) 123456789	
PrductKey 123456	
<b>发布主题</b> all/0000000000094411/sub Qos等级:	. 0 🗸
订阅主题 all/000000000000004411/sub Qos等级:	0 ~
网络参数 串口参数 高级参数 Modbus参数	
基本参数	
IP地址类型         动态IP         SN码         S120074S	
	<b>.</b>
网关 192.168.3 .1 DNS 114.114.114	
本地IP地址 192.168.3 .7 本地端口 <u>0</u>	
网络工作模式 MQTT 客户端 ~ 子网摘码 255.255.255.0	
目标IP/域名 192.168.3.3 目标端口 8888	
MQTT参数 HTTP参数	
平台选择 标准 MQTT 3.1.1 ~ 心跳包周期 120秒	•
ClientID test-iot	
VserName 1234/all	
Password 123456789	
123456	
123456 订阅主题 all/0000000900000094411/sub Qos等	級 0 ~

Configure the corresponding subscription publishing address, and use the platform online debugging to send data for communication test:

Chengdu Ebyte Electronic Technology Co., Ltd.

设备信息	权限列表	在线调试	设备影子	设备模拟器					
()建议	仅在开发调试阶段信	9月此功能,若设备	轻正式投入使用,	下发消息时请评估是否	会影响您的正常	剑业务			
下发消息									
在线状态	在线					实时日志			
Topic *	ELD0ERCUKD	DEV01/SUB		v		类型	时间	内容	
	topic不能为空					云端下发消息	2021-10-21 16:22:26	EBYTE_MQTT_TESE	
QoS *	00 01					🖀 ХСОМ V2.6			- 0 X
消息内容★	EBYTE_MQTT	TESE				[2021-10-21 16:22:26.8 RX: EBYTE_MQTT_TESE	66]		串口选择 COM8:USB-SERIAL CH34C ~ 波特率 115200 ~
						单条发送 多条发送 排	h议传输 帮助		#.L/
	消息内容不能为空	2,长度不大于16K	В						》
发送消	息					□ 定时发送   周期: 1 □ 16进制发送 □ 发送	ms	打开文件 0% 【火爆全网	发送文件 停止发送 】正点原子DS100手持示波器上市
						A www.opened	(com \$10 8:15	CTS=0 DSR=0 DCD=0	当前时间 16:23:06

#### 2. Alibaba Cloud

Support the use of Alibaba Cloud's "three elements" to directly connect to the server and obtain the "three elements" required to connect to Alibaba Cloud, as shown in the figure:

← DEV	704 在线					-		
卒品	EBYTE 查看					De	eviceSecret	******* 查看
ProductKey	a1GlhuTU1y	N 复制						
设备信息	Topic 列表	物模型数据	设备影子	文件管理	日志服务	在线调试	分组	

#### Configure Topic for communication test:

物联网平台 / 该	段备管理 / 产品 /	产品详情	0				
← EBY1							
ProductKey 设备数	a1GlhuTU1yN 3 4 前往管理	夏制		0		ProductSecret	******* 查看
产品信息	Topic 类列表	功能定义	数据解析	服务端订阅	设备开发		
基础通信 Top	pic 物学型通信	Topic	目定义 Topic				
定义 Topic 类							
自定义 Topic					操作权限	描	述
/a1GlhuTU1yN	/\${deviceName}/user,	/1234			发布和订阅		

Select the corresponding product, select "Custom Topic" under the topic class list (see Alibaba Cloud documentation for details), click "Define Topic Class", configure the name as 1234, and grant publish and subscribe permissions (for data retrieval). Configure the device connection parameters, as shown in the following figure: "ProductKey": "a1GlhuTU1yN",

"DeviceName": "DEV04",

"DeviceSecret": "xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

}

Alibaba Cloud server address: **ProductKey** iot-as-mqtt.cn-shanghai.aliyuncs.com:1883 Topic of subscription and publication:/a1GlhuTU1yN/DEV04/user/1234

网络设置					
IP模式 动	ঠ 🗸	工作模式MC	DTT客户端	✓ 模块MAC	84-C2-E4-36-05-3A
设备IP 19	2.168.3.7	设备端口 0		网页访问端口	1 80
子网掩码 25	5.255.255.0	网关 192	2.168.3.1	首选DNS	114.114.114
自的呼吸者	Gihu i U1yN.iot-as-mqtt.cn-shanghai.	allyuncs.com			1883
□ FILI IX目 波特率 11	5200 🗸	数据位 8		✓ 校验化	Ž NONE 🗸
停止位 1	~]	流控NC	NE	<b>v</b> .	9
MQTT功能设置					
平台选则: 阿       设备名: DE	<b>里云 ▼</b>	keepAlive: 120	2011年1月11日11日11日11日11日11日11日11日11日11日11日11日11	) s	
(Client ID) 用户名:					
(Device name)	V04				
(Device secret)	f3b1xxxxxxxxxxxxxxb954f75				
PrductKey a1	GlhuTU1yN				
发布主题 /a1	GlhuTU1yN/DEV04/user/1234				Qos等级: 0 🗸
1月内土地 /4	Ginul O tyn/DE v04/usen/1234			l.	Qos寺级: 0 ▼
网络参数	串口参数 高级参数	) Modbus	参数		
基本参数					
IP地址类型	动态IP	~	SN码	S120074S	
网页登录账号	admin		网页访问端口	80	•
网关	192.168.3 .1		DNS	114.114.114.	114
本地IP地址	192.168.3 .7		本地端口	0	•
网络工作模式	MQTT 客户端	~	子网掩码	255. 255. 255.	0
目标IP/域名	t.cn-shanghai.al	iyuncs.com	目标端口	1883	<b>.</b>
MQTT参数	HTTP参数				
平台选择	阿里云	~	心跳包周期	120秒	
	test-iot				
DeviceName	DEV04				
DeviceSecret	cfdf3b1xxxxxxxx	xxxxxxxxft	954f75		
PrductKey	a1GlhuTU1yN				
订阅主题	/alGIhuTU1yN/DEV	04/user/123	34		Qos等级 0 🗸
发布主题	/a1GIhuTU1yN/DEV	04/user/123	34		Qos等级 0 🗸
-					

Alibaba Cloud MQTT platform communication test:



#### 3. Baidu Cloud

Support the use of Baidu Cloud's "three elements" to directly connect to the server and obtain the "three elements" needed to connect to Baidu Cloud, as shown in the figure:

				0	◎ 全局	
				88	く 返回设备列表	
		⑦ ② 全局		▶	设备信息 设备影子 模	說设备
		田 < EBYTE举例		Ф 	基础信息	
○ 百度智能云	◎ 全局	>         名称: EBYTEW           6回         描述:         ☑	時 2	æ	名称: 描述:	DOME - [2]
88 ea	实例列表	<ul> <li>() 会報管理 ^</li> </ul>	+ somes			
产品服务	十 创建loT Core	<ul> <li>         ·</li></ul>	(Pess	认证方式	▲ 连接信息 <b>④</b> ◆ 连接	听需的"三要素"
13 物联网核心费件 🔺	名称/ID	- 模板	DOME 2 拼入对应的设备	A 应明认证	IoTCoreld:	amklojs 🛅
实例列表 首都包	EBYTE # 10 · 进入对应的实例 amkinjs	· 应用权限 规则引率 ~			DeviceKey: DeviceSecret: 服务拥有证:	20ME () 
< EBYTE举例					-	
名称: EBYTE攀例 [	2		创建时间: 2021-07-20 13:13:02			證入点: amkinjs.iot.gz.baidubce.com 🗋
描述: 🛛						
设备管理 ^	+ #398			昭冬哭世世	端口值田1883	清靖入名称
· 设备列表	设备名称	认证方式 描述		別スフラ百古としたし、 创建时间		接作
- 横板	DOME	密明认证		2021-07-20 13:13:55		微時余

Configure the device connection parameters, as shown in the following figure:

网络设置					_		
IP模式	动态	~	工作模式 MQTT客户端	~	模块MAC	84-C2-E4-36-05-3	A
设备IP	192.168.3.7		设备端口 0		网页访问端口	80	
子网掩码	255.255.255.0		网关 192.168.3.1		首选DNS	114.114.114.114	
目的IP/域名	id.iot.gz.baidubce.com				目的端口	1883	
串口设置							
波特率	115200	~	数据位 8	~	校验位	NONE	~
停止位	1	~	流控NONE	~			
MQTT功能设置							
平台选则:	百度云	~	keepAlive: 120	范围:30-1200 s			
设备名: (Client ID)	DeviceKey						
用户名: (Device name)	loTCoreld/DeviceKey						
密码: (Device secret)	DeviceSecret						
PrductKey	a1GlhuTU1yN						
发布主题	\$iot/{deviceName}/events					Qos等级: 0	~
订阅主题	\$iot/{deviceName}/msg					Qos等级: 0	~

网络参数	串口参数 高级参数 Modbus	:参数		
基本参数				
[P地址类型	动态IP	SN码	S120074S	
网页登录账号	admin	网页访问端口	80	\$
网关	192.168.3 .1	DNS	114. 114. 114. 114	
本地IP地址	192.168.3 .7	本地端口	0	-
网络工作模式	MQTT 客户端	子网掩码	255. 255. 255. 0	
目标IP/域名	id.iot.gz.baidubce.com	目标端口	1883	\$
MQTT参数	HTTP参数			
平台选择	百度云	心跳包周期	120秒	-
ClientID	DeviceKey			
JserName	loTCoreld/DeviceKey			
Password	DeviceSecret			
	123456			
订阅主题	<pre>\$iot/{deviceName}/events</pre>		Qos等级	0 ~
と左主略	tibt/IdonicoNamol/mag		0.00 等级	0.4

Subscription and publishing require the establishment of a rule engine to achieve data retrieval. First, a message template needs to be established, as shown in the following figure:

Û	◎ 全局	ę.
		添加模板 ×
	く EBYTE举例	2 配置模板名称
>	名称: EBYTE举例 🖸	* 模板名称: TEST ?
絕	描述: 🛛	
¢		
٢	设备管理 ^ 十 添加模板 🕛	点击添加模板 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一
風	· 设备列表 模板名称/ID	主题
	● 模板 TEST	\$iot/(deviceName)/events
	• 应用权限 t85m0rw2	\$iot/{deviceName}/msg

Create a rule engine for data retrieval, as shown in the following figure:

		数据输入 2 配置设备的发布均	也址为数据来源
田 く EBYTE举例 う 名称: EBYTE3	¥\$例 ☑	+数据来源: Siot/DOME/events	topict機板
<ul> <li>20</li> <li< th=""><th><ul> <li>+ MUERNN ● 点击创建规则,输入规则名称 "back"</li> <li>○ 各称D</li> </ul></th><th>┃数据目的地 +数据目的地: + 海加目的地 ⑧ 【配置设备</th><th>订阅地址为数据目的地</th></li<></ul>	<ul> <li>+ MUERNN ● 点击创建规则,输入规则名称 "back"</li> <li>○ 各称D</li> </ul>	┃数据目的地 +数据目的地: + 海加目的地 ⑧ 【配置设备	订阅地址为数据目的地
- 横板 - 应用权限	back Bezj9b16djdwkse30hpgzdqaq2p05bn6	典型 MQTT主题	值 IoT Core: amkinjs 主题: Siot/DOME/msg
* 规则列表			Qos: 1

Enable the rule engine, restart the device (re-subscribe and publish), and the communication test is as follows:

📕 ХСОМ V2.6	
[2021-10-22 09:56:25.191] TX: EBYTE_BAIDU_MQTT [2021-10-22 09:56:25.369] RX: EBYTE_BAIDU_MQTT	RX

#### 4. OneNET

Support the use of OneNET "three elements" to directly connect to the server and obtain the "three elements" required to connect to OneNET, as shown in the figure:

		•					<u> </u>		
$\odot$	COOneNET M	QTT物联网套件			COOneNET	MQTT物联网套件			i i
ŵ	产品和风	产品概况》			G PERR	设备列表 ?			
-	1042204				Ξ 128473★		manufacture and		
		EBVTE举例		产品ID	N RUBBLER	1	0		
14	数据结构数			1.000	🖂 женае				
25	网络代理				(c) HERETHE	12471#	能次列表		
ø	ADAVISION		出前在线设备		COMPLIANCE	在時状态(全部)	~ <u>28</u> 888	• INSARDAN	Q 酸素
õ	NERRAINQ	e e e e e e e e e e e e e e e e e e e	0	20	88 <b>man</b>	设备ID	设备名称		设备状态
88	应用管理	设备接入总数(台)	今日新增设备	数据点总数 (条)		749264669	DOME		
	日志查询	1	0	0		與1項			< 1 >

Configure the device connection parameters, as shown in the following figure:

网络设置					
IP模式	动态 🗸	工作模式MQT	T客户端 、	· 模块MAC	84-C2-E4-36-05-3A
设备IP	192.168.3.7	设备端口 0		网页访问端口	80
子网掩码	255.255.255.0	<b>网关</b> 192.1	68.3.1	首选DNS	114.114.114.114
目的IP/域名	mqtt.heclouds.com				6002
申山议 <u>自</u> 波特率	115200	数据位 8		7 校验位	NONE
停止位	1 ~	流控 NON	E	1	- Hone
MQTT功能设置					
平台选则:	OneNET云 ✔	keepAlive: 120	范围:30-1200	s	
设备名: (Client ID)	Device ID				
用户名: (Device name)	Product ID				
密码:	Device name/user password				
(Device secret) PrductKey	a1GlhuTU1yN				
发布主题	testsub				Qos等级: 0 🗸
订阅主题	testsub				Qos等级: 0 🗸
网络参数	串口参数 高级参	数 Modbus	参数		
基本参数					
IP地址类型	动态IP	~	SN码	S120074S	
网页登录账·	号 admin		网页访问端口	80	•
网关	192.168.3 .1		DNS	114.114.114.	. 114
本地IP地址	192,168.3 .7		本地端口	0	
网络工作模	式 MQTT 客户端	~	子网掩码	255, 255, 255,	. 0
目标IP/域名	<u>a mqtt.heclouds.co</u>	m	目标端口	6002	
MQTT参数	HTTP参数				
平台选择	OneNET	~	心跳包周期	120秒	
ClientID	Device ID				
UserName	Product ID				
Password	Device name/use:	r password			
	123456				
订阅主题	testsub				Qos等级 0 ~
发布主题	testsub				Qos等级 0 🗸

Server address: 183.230.40.39:6002

Device name: fill in the device ID of OneNET;

User name: fill in the product ID of OneNET;

Password: fill in the device name (MQTTS) and the user-defined key (MQTT for multi-protocol access);

OneNET supports automatic generation of topics with subscription and publication attributes. Only the same address of subscription and publication is needed to realize data transmission. Communication test:

$\odot$	<b>c`つ</b> OneNET   M	QTT物联网套件			XCOM V2.6
ŵ	产品概况	设备列表 - 设备	羊情 [DOME] ?)		[2021-09-13 13:37:46.651]
≡	设备列表	设备详情	数据流展示	在线记录	TX: EBYTE-OneNET-TEST [2021-09-13 13:37:47.081]
N	数据流模板				RX: EBYTE-OneNET-TEST 发送
<u>N</u>	消息代理	DOME	在线	编辑	收到服务器返回

#### 4.3. Serial port parameters

Serial port parameters include baud rate, data bit, check bit and stop bit.

Baud rate: serial communication rate, 1200, 2400, 4800, 9600, 14400, 19200, 38400,

57600, 115200, 230400bps can be configured.

Data bit: length of data bit, range 5, 6, 7, 8.

Check bit: the check bit of data communication. It supports three verification methods: None, Odd and Even. By setting the serial port parameters, keeping the serial port parameters consistent with the serial port parameters of the serial port connecting device can ensure the normal operation of the communication.

Stop bit: range 1 and 2 can be set.

网络参数	串口参数	高级参数	Modbus	参数		
串口设置						
波特率	115200		$\sim$	数据位	8	~
校验位	NONE		~	停止位	1	~
流控	NONE		$\sim$			

#### 4.4. Advanced parameters

4.4.1.Disconnection and reconnection function

In the client mode, after the device is disconnected from the network, it tries to actively connect to the server at the specified time. If the request times out and the set number of reconnections has not been successfully reconnected, the device will restart to prevent the network from being unable to recover after the device is disconnected.

Disconnection and reconnection time: the time interval between each attempt of the

device to reestablish the network.

Reconnect times: the number of times the device attempts to reestablish the network. The cumulative number of requests reaches the preset value. If the connection is not successful, the device will automatically restart.

The actual time to restart is the period of disconnection and reconnection times. It is recommended to use the factory default parameters if there is no special requirement.

#### 4.4.2. Timeout restart function

The timeout restart function (default: 300 seconds) is supported. This function is mainly used to ensure the long-term stable operation of the equipment. If data transmission and reception are not performed within the set timeout restart time, the equipment will restart to avoid the impact of abnormal conditions on communication.

When the timeout restart function is turned on, the timeout restart time setting parameter range is (60-65535) seconds.

#### 4.4.3.Short connection function

In the client mode, the network short connection is supported (the function is turned off by default). TCP short connection is mainly used to save server resource costs, and is generally used in multi-point (multi-client) to one-point (server) scenarios.

The TCP short connection function is applied in the TCP Client mode. After the short connection function is enabled, the device will only request to connect with the server when sending information. After the connection is successful, the serial port does not receive data or the network port does not receive data within the set time, and the device will automatically disconnect.

When the short connection function is turned on, the short connection time setting parameter range is (2-255) seconds.

#### 4.4.4.Connection emptying cache function

The device is in the client mode. When the TCP connection is not established, the data received by the serial port will be placed in the cache area. The serial port receive cache is 1024 bytes, and the data received earlier will be overwritten by more than 1024 bytes. After the network connection is successful, you can choose to clear the serial port cache or send

the cache through the network through configuration.

Enable: The device does not save the data received by the serial port before the connection is established.

Disable: After the connection is established, the network will receive the data cached by the serial port.

#### 4.4.5.Heartbeat packet function

In the client mode, users can choose to send heartbeat packets and customize the heartbeat packet time. The heartbeat packet can be selected from two modes: network heartbeat packet and serial heartbeat packet. It supports sending in hexadecimal and ASCII code. This heartbeat packet is not MQTT heartbeat. It needs to be turned off in MQTT client mode. MQTT heartbeat only needs to be configured in "MQTT mode". It is recommended not to configure the heartbeat packet cycle time less than 60s. For example, 120s is recommended in Alibaba Cloud manual.

Heartbeat packet sending mode:

(1) The default is to turn off heartbeat packet mode.

(2) Serial heartbeat packet ->The device sends heartbeat content to the serial bus according to the set heartbeat interval.

(3) Network interface heartbeat packet ->The device sends heartbeat content to the network interface bus according to the set heartbeat time interval.

Custom heartbeat packet content (up to 40 bytes (ASCII) data, 20 bytes (HEX) data).

Customize the heartbeat packet sending interval. If the setting value is greater than zero, the heartbeat packet function will be turned on. When it is turned on, the range can be set: (1-65536) seconds, and when it is turned off, it is 0.

#### 4.4.6.Registration package function

In the client mode, users can choose to send the registration package, customize the time of the registration package, and customize the content of the registration package (up to 40 bytes (ASCII) data, 20 bytes (HEX) data).

The registration package supports the following modes:

- (1) Send MAC address when the network establishes a connection with the device
- (2) Send the data of the custom registration package when the network establishes a connection with the device

- (3) After the connection between the network and the device is established, each packet of data sent by the device to the network is preceded by a MAC address
- (4) After the connection between the network and the device is established, each packet of data sent by the device to the network is preceded by the user-defined registration packet data
- 4.5. Modbus gateway
- 4.5.1. Simple protocol conversion mode

网络参数 串 -Modbus 参数-	日口参数 高级参数 Modbus参数		
MODBUS网关	简单协议转化	TCP转RTU 开启	~
指令超时时间	1000毫秒 :	指令存储时间 10秒	\$
轮询间隔时间	500毫秒 :		
预配置指令列表	ŧ		
, , , ,	,		添加 删除
1 01, 03, 00, 00	D, 00, 0A		

On: the Modbus RTU protocol and Modbus TCP protocol are converted to each other, and non-Modbus data (RTU/TCP) is discarded without conversion.

Off: Modbus data is verified without protocol conversion, and non-Modbus data (RTU/TCP) is discarded.

Simple protocol conversion can work in any mode (TCP client, TCP server, UDP client, UDP server, MQTT client, HTTP client). No matter what mode it works in, there can only be one Modbus master station.



网络参数	串口参数 高级参数	Modbus参数			
基本参数					
IP地址类型	静态IP	~	SN码	Sxxxxxxx	
网页登录账号	admin		网页访问端口	80	÷
网关	192.168.4 .1		DNS	192.168.4 .1	
本地IP地址	192.168.4 .164		本地端口	8886	
网络工作模式	TCP 服务端	~	子网掩码	255. 255. 255. 0	
网络参数	串口参数 高级参数	Modbus参数			
串口设置					
波特率	115200	~	数据位	8	~
校验位	NONE	~	停止位	1	~
流控	NONE	~			
网络参数	串口参数 高级参数	Modbus参数			
Modbus 参数	Į —				
MODBUS网关	简单协议转化		TCP转RTU	开启	×
指令超时时间	1000毫秒	k	指令存储时间	10秒	\$
轮询间隔时间	500毫秒	3			
预配置指令列	问表				
, , ,	3 3				添加 删除
to rene rene rene	Name wants wants				

1 01,03,00,00,00,0A

网络设置							
IP模式	静态 🗸	工作模式	TCP服务器	~	模块MAC	84-C2-E4-36-05-E7	
设备IP	192.168.4.164	设备端口	8886		网页访问端口	80	
子网掩码	255.255.255.0	网关	192.168.4.1		首选DNS	192.168.4.1	
目的IP/域名	192.168.3.3				目的端口	8888	
串口设置							
波特率	115200 🗸	数据位	8	~	校验位	NONE	~
停止位	1 ~	流控	NONE	~			
MODBUS网关	功能						
MODBUS TCP转RTU	打开 ~	Mode	ous 指令配置参	数		添加清	空
MODBUS 网关模式	简单协议转换	MODBUS 轮询间隔时间	500 范围:0-65535	ms	剩余可配置指令 01 03 00 00 00 00	49	
Modbus 指令超时时间	1000 范围:0-65535ms	Modbus 指令存储时间	10 范围:0-255s				
指令格式:"XX XX 其中:"XX":2位16进 最多可配置50条指	XX XX XX XX"; 制数,XX与"XX"之间加入—⁄ 令	空格					

Modbus Poll and Modbus Slave software debugging: Software connection settings:

D 📽 🖬 🎒 🕽	K   🗇   🖳 盧   几   05 06 15 16 17 22 23   TC   Connection Setup	≥ <b>≥   ? \?</b>   ×	File Edit Connection	Setup Display View Window Help
Tx = 1296: Err No connection 0 1 2 3 4 5 6	Connection Modbus TCP/JP Serial Settings USB-SERIAL CH340 (COM4) 115200 Baud 8 Data bits None Parity 1 Stop Bit Advanced	OK Cancel Mode © RTU O ASCII Response Timeout [1000 [ms] Delay Between Pols [20 [ms]	ID         1: F         = 03           No connection         Name         0           1         2         3         4         5         6         7           6         7	Connection Setap Connection OK Serial Pot USB-SERIAL CH340 (COM11) 115200 Baud Mode © RTU O ASCII 8 Data bits None Party Discrete 1 Stop Bit I fine] RTS disable delay
	Remote Modbus Server IP Address or Node Name 192.168.4.164	~	8	TCP/IP Server           IP Address         Port           192.168.3.3         8886
For Help, press F	Server Port Connect Timeout 8886 3000 [ms]	<ul> <li>IPv4</li> <li>IPv6</li> </ul>		Any Address  IPv4 Ignore Unit ID IPv6

Software register reading and simulation configuration: Poll menu, select  $\rightarrow$ SetupRead/Write Definition

Read/Wr	ite Definition	:		×
Slave ID:	1			ОК
Function:	03 Read	Holding Reg	isters (4x)	Cancel
Address:	0	PLC add	ress = 40001	Ļ
Quantity:	5		Doll	
Scan Rate	e: 1000	[ms]	FUI	Apply
Disable	d/Write Disab ble on error	led		Read/Write Once
View Rows 10	0 0 20	O 50 O	100 O Fitt	o Quantity
Hide	e Alias Column ress in Cell	5	PLC Addr	esses (Base 1) niel Mode
Request	t			
RTU	01 03 00 00	00 05 85 0	9	
ASCII	3A 30 31 30	33 30 30 3	30 30 30 30 3	30 35 46 37 0D 0A

Select SetupSlave Definition from the  $\rightarrow$  Slave menu

Slave Definition		>
Slave ID: 1		ОК
Function: 03 Holding Register (4	4x) ~	Cancel
Address mode Dec O Hex		
Address: 0 PLC addr	ress = 40001	
Quantity: 5		
View Rows 10 0 20 0 50 0 1	.00 O Fit to Quar	ıtity
Hide Name Columns	PLC Addresses (	(Base 1)
Error Simulation		
Skip response	Insert CRC/LRC (Not when us	C error sing TCP/IP)
0 [ms] Response Delay	Return except	tion 06, Busy

#### Communication demonstration:

웹 Modbus Poll - Mbpoll1	- 🗆 X
File Edit Connection Setup Functions Display View Window Help	
🗅 😂 🖬 🎒 🗙 🛅 🗒 🛤 05 06 15 16 17 22 23 TC 🔃 🧱 🤋 🛠	
Mhool1 D & Communication Traffic	×
Tx = 368: Frr = 0: ID = 1: F = 03: SR = 1(	
Exit Continue Clear Save Copy Log Stop on Error	Time stamp
Alias 00000 ^ Rx:000113-01 7E 00 00 00 0D 01 03 0A 00 01 00 02 00 03 00 04 00 05	^
0 Tx:000114-01 7F 00 00 00 06 01 03 00 00 05	
Rx:000115-01 7F 00 00 00 00 01 03 0A 00 01 00 02 00 03 00 04 00 05	
Tx:000118-01 81 00 00 06 01 03 00 00 05	
Rx:000119-01 81 00 00 00 01 03 0A 00 01 00 02 00 03 00 04 00 05	
Tx:00122-01 83 00 00 00 00 01 03 00 00 05	
Rx:000123-01 83 00 00 00 0D 01 03 0A 00 01 00 02 00 03 00 04 00 05	
Tx:000124-01 84 00 00 00 06 01 03 00 00 00 05	
Rx:000125-01 84 00 00 00 01 03 0A 00 01 00 02 00 03 00 04 00 05	
Rx:000127-01 85 00 00 0D 01 03 0A 00 01 00 02 00 03 00 04 00 05	~
Modbus Slave - Mbslave1	- 0 ×
Ele Edit Connection Setun Display View Window Help	1000 (MAN)
Communication Traffic	×
Moslave1 D 3 Fxt Continue Clear Save Copy Log Time stamp	
ID = 1: F = 03	
Tx:000091-01 03 0A 00 01 00 02 00 03 00 04 00 05 CF 24	^
Name 00000 A KX:000092-01 03 00 00 00 03 05 CF 24	
0 1 Rx:000094-01 03 00 00 05 85 C9	
1 2 Tx:000095-01 03 0A 00 01 00 02 00 03 00 04 00 05 CF 24	
2 3 Rx:000096-01 03 00 00 00 05 85 C9	
3 4 Rx:000098-01 03 00 00 00 05 85 C9	
4 5 Tx:000099-01 03 0A 00 01 00 02 00 03 00 04 00 05 CF 24	
Rx:000100-01 03 00 00 00 58 5C9	
R:00102-01 03 00 00 00 05 85 C9	
m. 000102-01 02 07 00 01 00 02 00 03 00 04 00 05 CF 24	

## 4.5.2.Multi-host mode

The multi-host mode can handle up to 6 Modbus TCP hosts. When multiple Modbus

hosts access the Modbus gateway at the same time, the bus occupation scheduling will be carried out (RS-485 bus can only process one request at a time, while the multi-host mode will sort and process according to the TCP request sequence, and other links will wait), so as to solve the bus conflict problem (currently only supports 6-host connection), and only supports working in the TCP server mode, The slave can only be on the serial port, otherwise it cannot work normally.

It is recommended to configure it as "simple protocol conversion" when there is no multi-channel host.



【注】此处以三路主机为例实际使用时最多可以连接6路主机

:192.168.3.12:8887 2送Modbus TCP请求

Upper computer/web page configuration:

网络参数	串口参数 高级参数 Modbus参数				
基本参数					
IP地址类型	静态IP	~	SN码	Sxxxxxxx	
网页登录账号	admin		网页访问端口	80	
网关	192.168.4 .1		DNS	192.168.4 .1	
本地IP地址	192.168.4 .163		本地端口	8887	
网络工作模式	TCP 服务端	~	子网掩码	255. 255. 255. 0	
网络参数	R□参数 宣纪参数 ¥/₅dbus 参数				
串口设置					
波特率	115200	~	数据位	8	~
校验位	NONE	$\sim$	停止位	1	~
流控	NONE	~			

网络参数 串口	口参数 高级参数 Modbus参数	ŧ					
Modbus 参数							
MODBUS网关	多主机模式		✓ TCP转RTU	开启			~
指令超时时间	1000毫秒		指令存储时间	10秒			\$
轮询间隔时间	500毫秒		*				
预配置指令列表							
1 1 1 1	,					添加	删除
1.01,05,00,00,	00, 0A						
网络设置						(	
IP模	式 静态 ~	工作模式	TCP服务器	~	模块MAC	84-C2-E4-36-05-E7	
设备	P 192.168.4.163	设备端口	8887		网页访问端口	80	
子网掩	B 255.255.255.0	网关	192.168.4.1		首选DNS	192.168.4.1	
目的IP/域	名 192.168.3.3				目的端口	8888	
串口设置							
波特	率 115200 ~	数据位	8	~	校验位	NONE	~
停止	ば <u>1 ~</u>	流控	NONE	~			
MODBUS网	关功能						
MODBU TCP转RT	U 切开 ~	Mode	ous 指令配置参数			添加	清空
MODBU	S ◎ 多主机模式 ~	MODBUS	500		剩余可配置指令	49	
网天模:	<b>rl</b>	彩印间隙的间	范围:0-65535ms		01 03 00 00 00 0	A X	
指令超时时	<b>间</b> 范围:0-65535ms	指令存储时间	范围:0-255s				
指令格式:"XX X 其中:"XX":2位16 最多可配置50条	X XX XX XX XX XX"; 进制数,XX与"XX"之间加入一个空 指令	格					

Modbus Poll and Modbus Slave software debugging:

Refer to "Simple Protocol Conversion" for software configuration and register configuration. Start multiple Modbus Poll software at the same time (for example, 3 channels can be supported up to 6 channels).



#### 4.5.3. Storage gateway

The storage gateway not only arbitrates the bus data, but also stores the repeated read instructions. When different hosts request the same data, the gateway does not need to query the register status of RTU device many times, but directly returns the cached data in the storage area, which greatly improves the multi-host request processing capability of the gateway, and also reduces the time consumed by the entire request process. Users can customize the instruction polling interval and instruction storage time of the storage area according to their needs.



【注】此处以二路主机为例实际使用时最多可以连接6路主机

As the optimization of multi-host request performance, the storage gateway can only work in the TCP server mode, which improves the response speed on the network side.

characteristic:

- (1) The gateway has a 5K cache for storing instructions and returned results (taking reading 10 holding registers as an example, 189 instructions and returned results can be stored);
- (2) RTU response timeout automatically clears the cache to ensure the real-time and authenticity of data;
- (3) The polling interval can be customized, 0-65535ms;
- (4) The gateway will poll the RTU device according to the instruction storage time used for configuration. If the MODBUS host does not query the instruction again during the storage time, the gateway will automatically delete the storage instruction and release the cache;
- (5) The first command and control command (05, 06, 0F, 10 function code) will directly access RTU equipment;

(6) Only 01, 02, 03 and 04 Modbus function code query results can be stored; Storage gateway host computer and web page configuration:

网络参数 串口	口参数 高级参数 Modbus	参数						
基本参数								
IP地址类型 青	争态IP		~	SN码	Sxxxxx	XXX		
网页登录账号 a	dmin			网页访问端口	80			•
网关 1	92.168.4 .1			DNS	192.168	3.4 .1		
本地IP地址 1	92.168.4 .163			本地端口	8887			<b>A</b>
网络工作模式 T	CP 服务端		~	子网掩码	255.255	5. 255. 0		
网络参数 串口 串口设置	Ⅰ参数 高级参数 Modbus参	≥数						
波特率 1	15200		$\sim$	数据位	8			~
校验位 N	ONE		$\sim$	停止位	1			~
流控 N	ONE		~					
Modbus 参数           MODBUS网关         4           指令超时时间         1           轮询间隔时间         5           预配置指令列表	子储型网关 000毫秒 00毫秒		✓	TCP转RTU 指令存储时间	开启 10秒		添加	✓
网络设置								
IP模式	静态 ~	工作模式	TCP服	务器	~	模块MAC	84-C2-E4-36-05-E7	7
设备IP	192.168.4.163	设备端口	8887			网页访问端口	80	
子网掩码	255.255.255.0	网关	192.168	8. <mark>4.1</mark>		首选DNS	192.168.4.1	
目的IP/域名	192.168.3.3					目的端口	8888	
串口设置								
波特率	115200	数据位	8		~	校验位	NONE	~
停止位		流控	NONE		~			
	ETháy	77103-1						
MODBUS TCP转RTU	[打开 ~]	Mode	bus 指名	記置参数			添加	清空
MODBUS 网关模式	存储型网关	MODBUS 轮询间隔时间	500 范围:0-	-65535ms		剩余可配置指令 01 03 00 00 00 0	49 A X	
Modbus 指令超时时间	1000 范围:0-65535ms	Modbus 指令存储时间	10 范围:0·	-255s				
指令格式: "XX XX 其中:"XX":2位16进 最多可配置50条指	. XX XX XX XX XX"; 挂制数,XX与"XX"之间加入一个 令	空格						

## 4.5.4. Configurable gateway

The gateway automatically polls the RTU device register according to the preconfigured MODBUS instruction (only supports the configuration of MODBUS read instruction), and the instruction in the non-storage table will directly operate the RTU device. The frequently read instructions can be stored in the gateway in advance to shorten the response time (query the configured instructions). Because of the above characteristics, the serial port side of the configurable gateway can only connect to the Modbus slave station.



Instruction storage description (add, instruction error and format error cannot be added):



MODBUS网关	可配置网关	×	TCP转RTU	开启	~
指令超时时间	1000毫秒	<b>\</b>	指令存储时间	10秒	
轮询间隔时间	500毫秒	<b></b>			
预配置指令列表	Ę				2
01, 03, 00, 00,	00, 02				添加 删除
1 01,03,00,0	0,00,01				
2 01, 03, 00, 0	0, 00, 02				

MODBUS网关功能			
MODBUS TCP转RTU	~	Modbus 指令配置参数	01 03 00 00 00 01 添加 清空
MODBUS 网关模式 回配置网关	~	MODBUS 500 轮询间隔时间 范围:0-65535ms	剩余可配置指令  49 01 03 00 00 00 01 ×
Modbus 1000 指令超时时间 范围:0-65535ms		Modbus 10 指令存储时间 范围:0-255s	
指令格式:"XX XX XX XX XX XX XX"; 其中:"XX":2位16进制数,XX与"XX"之间加入 最多可配置50条指令	一个空格	8	

Upper computer/web page configuration:

Modbus 参数					
MODBUS网关 可配置网关		~	TCP转RTU	开启	
指令超时时间 1000毫秒		<b>.</b>	指令存储时间	10秒	
轮询间隔时间 500毫秒		<b>\$</b>			
预配置指令列表					
01, 03, 00, 00, 00, 02					添加 删除
1 01, 03, 00, 00, 00, 01					
2 01, 03, 00, 00, 00, 02					
AODBUS网关功能					
AODBUS网关功能 MODBUS TCP转RTU	<b>~</b> ]	Modbus 指	令配置参数		01 03 00 00 00 01 添加 清空
AODBUS网关功能 MODBUS TCP转RTU MODBUS	<b>~</b>	Modbus 指 MODBUS 500	谷配置参数		01 03 00 00 00 01 添加 清空 剩余可配置指令 49
AODBUS网关功能 MODBUS TCP转RTU MODBUS 网关模式	<b>v</b>	Modbus 指 MODBUS 500 轮询间隔时间 范围:	<b>i令配置参数</b> 0-65535ms		01 03 00 00 00 01       添加 清空         剩余可配置指令       49         01 03 00 00 00 01       X
MODBUS网关功能 MODBUS TCP转RTU MODBUS 网关模式 ModBUS 1000 地分類内的地域	• •	Modbus 指 MODBUS 500 轮询间隔时间 范围: Modbus 10	<b>i令配置参数</b> 0-65535ms		01 03 00 00 00 01     添加 清空       剩余可配置指令     49       01 03 00 00 00 01     X
AODBUS网关功能 MODBUS TCP转RTU MODBUS 网关模式 Modbus 指令超时时间 范围:0-65535ms	• •	Modbus 指 MODBUS 500 轮询间隔时间 范围: Modbus 10 指令存储时间 范围:	<b>i令配置参数</b> 0-65535ms 0-255s		01 03 00 00 00 01     添加 清空       剩余可配置指令     49       01 03 00 00 00 01 X
AODBUS网关功能 MODBUS TCP转RTU MODBUS 网关模式 「回配置网关 ModBus 回配置网关 「回配置网关 」 「回配置网关 」 「回取置の 」 「回取置の 」 「回取置の 」 「一 」 」 」 」 」 」 」 」 」 」 」 」 」	マ マ hn λ 人穴H	Modbus 指 MODBUS 500 轮询间隔时间 范围: Modbus 10 指令存储时间 范围:	<b>谷配置参数</b> 0-65535ms 0-255s		01 03 00 00 00 01 剩余可配置指令 49 01 03 00 00 00 01 X

#### 4.5.5.Automatic upload

In the client mode (TCP client, UDP client, MQTT client, HTTP client), the gateway will automatically poll the instructions in the storage instruction table and upload them to the server. The feedback format (Modbus RTU format or Modbus TCP format) and the instruction polling interval (0-65535ms) can be selected according to the demand.

Refer to "Configurable Gateway - Instruction Storage Description" for instruction pre-storage, and automatically upload the upper computer/web page configuration:



网络参数 串	口参数 高级参数	Modbus参数								
基本参数										
IP地址类型	静态IP			~	SN码	Sxxxxxxx	X			
网页登录账号	admin				网页访问端口	80				-
网关 1	192.168.4 .1			_	DNS	192.168.	4.1			
本地IP地址	192.168.4 .163				本地端口	0				<b></b>
网络工作模式	ICP 客户端			~	子网掩码	255. 255.	255.0			
目标IP/域名 1	192.168.4.100				目标端口	8886				-
网络参数 串[ 串口设置	口参数 高级参数	Modbus参数								
波特率	115200			~	数据位	8				~
校验位	NONE			~	停止位	1				~
流控 [	NONE			~						
<ul> <li>轮询间隔时间</li> <li>预配置指令列表</li> <li>, , , ,</li> <li>1 01,03,00,00</li> </ul>	5000毫秒 , , ,00,01							添加		涂
网络设置	¥	×	工作模式	TCP	安白禮	~	档中MAC	84-C2-F4-3	6-05-F7	8 Þ
	0 100 160 1 160	•		0	다/ 개U		マンション	00	0 00 11	
· · · · · · · · · · · · · · · · · · ·	192.108.4.103		<b>汉</b> 宙 师山	0		]	网贝切内地口	00		
子网掩船	255.255.255.0	]	网关	192.1	168.4.1		百选DNS	192.168.4.1		
目的IP/域名	<b>3</b> 192.168.4.100						目的端口	8886		
<b>书</b> 凵设直										
波特率	× 115200	~	数据位	8		~	校验位	NONE		
停止你	2 1	~	流控	NON	IE	~				
NODBUS	そ功能									
MODBU: TCP转RTU	S 关闭	~	Modb	us 揹	旨令配置参数		01 03 00 00 00 01		添加清空	2
MODBU: 网关模式	s 自动上传	~	MODBUS 轮询间隔时间	5000 范围	:0-65535ms		剩余可配置指令 01 03 00 00 00 00	49 1 🗙		
Modbu 指令超时时间	s 1000 了范围:0-65535ms		Modbus 指令存储时间	10 范围	:0-255s			•		
旨令格式: "XX XX 其中:"XX":2位16〕 最多可配置50条排	X XX XX XX XX"; 进制数,XX与"XX"之( 旨令	间加入一个空格								

TCP client presentation (Modbus RTU format):

	网络调试助	F P	- 🗆 🗙 🚠 Ma	odbus Slave - [Mb	oslave1]		- 🗆 🗙
网络设置	数据日志	NetAssist V5.0.2	2 🗇 🖓 🗒 File	e Edit Connect	ion Setup Displ	ay View Windo	w Help _ = =
(1)协议类型		1970	D 🖻	; 🖬 🍪 🗖 📙	i ? №?		
ILF Server	[2022-01-08 13:5	(1:34.628]# RECV HEX FI	ROM   D = 1:	F = 03			
(2)本地主机地址		1319) (9.84					
192.168.4.100 💌	[2022-01-08 13:5	1:39.669]# RECV HEX F	ROM	Name	00000	Name	00010
(3)本地主机端口	192.168.4.163 :6	1319>	0		1		0
8886	01 03 02 00 01	9 84	1		0		0
Ri¥ 🍋			2		0		0
			3		0		0
接收设置	in .		4		0		0
C ASCII 🕫 HEX			5		0		0
▶ 按日志模式显示	<		6		0		0
□ 接收区自动换行			7		0		0
□ 接收数据不显示					0		0
□ 接收保存到文件			0		0		0
自动滚屏 清除接收			9		0		U
发送设置							
☞ 转义符指令解析 ①			~				
□ 自动发送附加位		新井 「 清除	▲ 清除				
□ 打开文件数据源	01234567\r\n						
□ 循环周期 300 ms		2	发送				
快捷指令历史发送							,
(續 就約 9/0	RX:63	TX:0 复	应计数 For Hel	p. press F1.	Port 7:	115200-8-N-1	

TCP client presentation (Modbus TCP format):

1 · /	网络调试助手		Modbus	Slave - [Mbslave1]		- 🗆 🗙
网络设置 (1) 协议类型	数据日志	NetAssist V5.0.2 🗇 🤇	File Ed	lit Connection Setup	Display View W	findow Help _ & ×
TCP Server	[2022-01-08 14:03	59.916]# RECV HEX FROM	ID = 1: F = (	∰  <u>  ≍</u> ⊒  <b>%</b> 03	₹î.	
(2) 本理主机理加 [192.168.4.100 <u>-</u>	00 00 00 00 00 05 [2022-01-08 14:04	01 03 02 00 01 :04.958]# RECV HEX FROM		Name 000	000 Name	00010
(3)本地主机端口 8886	192.168.4.163 :448 00 00 00 00 00 05	508> 01 03 02 00 01	0		1	0
· 美闭		01 03 02 00 01	2		0	0
接收设置			3 4		0	0
C ASCII 📀 HEX			5		0	0
▶ 按日志模式显示	<		6		0	0
接收区目动换行			7		0	0
接収数据不延示			8		0	0
自动资展 清除接收			9		0	0
发送设置						
☑ 转义符指令解析 ①		4				
□ 自动发送附加位	数据发送 ↓ ◆ 断	开│ 『酒除 ↑ 酒除				
□ 打开文件数据源 □ 循环周期 300 ms 快捷指令 <u>历史发送</u>	01234567\r\n	<u>大山</u> (1995) 友送	1			
」 ● 发送 76/0		TX:0 复位计数	For Help, pre	ess F1.	Port 7: 115200-8-N-1	>

## 4.6. Introduction to basic functions

## 4.6.1.Web page configuration

The device has a built-in web server, which is convenient for users to set and query parameters through web pages.

The port of the Web server can be customized (2-65535). The default is 80.

Operation mode (Microsoft Edge version 94.0.992.50 as an example, Google Kernel Browser is recommended, IE Kernel Browser is not supported):

 Open the browser and enter the IP address of the device in the address bar. The default is 192.168.3.7 (the IP address and the computer need to be kept in the same network segment). Forget that the local IP address can be queried through the AT command and configuration software;

~	C	G	▲ 不安全	192.168.3.7					AN SO S	8
							请容录			
							ase login			
						用户名	admin			
						Username				
						Password	admin			
						(	登录 login			
1										

 Click Login, the default account is admin, and the default password is admin (entered, you can click Login directly);

设备信息					
设备型号		设备SN码	S120074S	Language	<b>中文</b> •
固件版本	9013-2-13	登录账号	admin	登录密码	*****
网络设置		_		2	
IP模式	静态 🗸	工作模式	TCP服务器	模块MAC	84-C2-E4-36-05-3A
设备IP	192.168.3.7	设备端口	8887	网页访问端口	80
子网掩码	255.255.255.0	网关	192.168.3.1	首选DNS	114.114.114.114
目的IP/域名	192.168.3.3			目的端口	8888
串口设置					
波特率	115200 🗸	数据位	8 ~	校验位	NONE
停止位	1 v	流控	NONE		
MODBUS网关	功能				
MODBUS TCP转RTU	关闭 🗸	Mode	ous 指令配置参数		添加清空
MODBUS 网关模式	禁用 🗸	MODBUS 轮询间隔时间	500 范围:0-65535ms	剩余可配置指令 01 03 00 00 00 0	49 A X
Modbus 指令超时时间	1000 范围:0-65535ms	Modbus 指令存储时间	10 范围:0-255s		
指令格式:"XX XX 其中:"XX":2位16进 最多可配置50条指:	XX XX XX XX"; 制数,XX与"XX"之间加入一个 令	空格			

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- The main interface pops up on the web page, where you can query and set relevant parameters;
- Click Submit to save the configuration parameters;
- The progress bar prompts the configuration progress. Do not refresh the web page

again after the configuration is completed (refresh the web page and enter the configuration mode again. You can enter the communication mode by restarting the device or submitting again).



#### 4.6.2. Restore factory settings

Press and hold the Restore button of the device until all the LED indicators except M1 are on, and then release the button.

#### 4.6.3.AT instruction configuration

The query and modification of the relevant parameters of the equipment can be completed through the AT command configuration. For specific AT instructions, please refer to "NA11x&NB114&NS1&NT1-AT Instruction Set".

#### 4.6.4. Configuration tool software settings

Open the configuration tool software, search for the device, double-click the identified device, and the parameter query configuration interface will pop up. Relevant parameters can be customized and modified as required, and then the configuration can be saved, and the equipment can be restarted to complete the parameter modification.

[Note]:

Do not use multiple upper computers in the same LAN environment. The industrial control computer with multiple network cards should be temporarily disabled without using network cards, otherwise the upper computer will be abnormal (the same device will display multiple times, and the device cannot be found)

The upper computer shields the wireless network card, so the upper computer must be

connected to the network cable. The wireless network card can be configured through the web page.

#### 4.6.5.Random native port

TCP client, UDP client, HTTP client and MQTT client can configure the local port to 0 (use random local port). The server mode cannot use random port, otherwise the client cannot establish a connection correctly.

Using random port connection can quickly re-establish the connection when the device accidentally disconnects the server, to prevent the server from refusing the connection due to four incomplete waves. It is recommended to use random port in client mode.

The device will automatically enable random ports when configuring TCP client, HTTP client and MQTT client modes.

#### 4.6.6.Remote upgrade

In order to facilitate later maintenance and upgrade functions and replace different

firmware, serial servers (NA11x series, NB114, NS1, NT1, etc.) support online upgrade.

Users can upgrade or replace the current firmware through the upper computer through the upgrade firmware provided by our company.

#### Network upgrade firmware operation steps:

Step 1: download the upper computer and "product firmware" at the corresponding location on the official website;

工具软件				
【参数配置】亿佰特网络配置工具_以太网 💟				
【产品固件】 🚨				
[ХСОМ工具] ХСОМ				
【网络调试助手】 🚨				
【虚拟串口】 2				

Step 2: Open the upper computer, click "Menu", and select "Device Upgrade Assistant";

BI 亿佰特网络配置助手 v5.0			- o x
菜单语言关于			
设备升级助手     3.90 ∨     串□升级助手			🔾 搜索设备
打开文件号	IP	版本	MAC地址
 ⊟≢∙			▲ 法常用主义
L			

Step 3: In the pop-up "Device Network Upgrade Assistant" dialog box, click "Search Device" (the computer and device should be in the same network segment), and click "Stop Search" after finding the device;

设	备网络升级	助手			
			🝃 选择固件	📿 搜索设备	1 日 升级
ì	设备ID		IP	MAC地址	固件类型
已设	备网络升级	助手		-	
ei g	备网络升级	动手	▶ 选择固件	-	□ ×
ei ig	备网络升级	助手	▶ 选择固件	- 〇, 停止搜索	<ul> <li>□ ×</li> <li>□ 升级</li> </ul>
ei ig	省网络升级 设备ID	助手	► 选择固件 IP	一 《 停止搜索 MAC地址	<ul> <li>□ ×</li> <li>□ 升级</li> <li>■ 升级</li> <li>■ 面件类型</li> </ul>
81 设	<mark>各网络升级</mark> 设备ID 0	2助手	▶ 选择固件 IP 192.168.3.7	一 《 停止搜索 MAC地址 84-C2	□ × 〕 〕 升级 固件类型
引 设	各网络升级 设备ID 0	いまた	► 选择固件 IP 192.168.3.7	— 《 停止搜索 MAC地址 84-C2	□ × ● 升级 ■ 件类型
3] 设	者网络开级 设备ID 0	及助手	► 选择固件 IP 192.168.3.7	— 《 停止搜索 MAC地址 84-C2	□ × 日 升级 固件类型 N ••11 ••••
3 设	各网络升级 设备ID 0	发助手	▶ 选择固件 IP 192.168.3.7	— 《 停止搜索 MAC地址 84-C2	□ × 〕 ● 升级 固件类型
1	各网络升级 设备ID 0	<b>人助手</b>	► 选择固件 IP 192.168.3.7	— 《 停止搜索 MAC地址 84-C2	□ × 〕 ● 升级 固件类型

Step 4: Click "Select Firmware", select the corresponding firmware, and then click "Open";

El is	设备网络升级助	∎	_		<b>B</b> 选择固件				×
		🍃 选择固件	🔾 搜索设备	🔒 升级	$\leftarrow \rightarrow \land \uparrow$	늘 « 12.24 > 串口服务器固件更新包	~ C /	○ 在 串口服务器 固	]件更新包 中
	设备ID	IP	MAC地址	固件类型	组织 ▼ 新建文作	挟		≣ •	
1	0	192.168.3.7	84-C2		→ 🖵 此电脑	名称	修改日期	类型	大小
					> 📒 Desktop	9013-2-13.ebin	2022/12/24 15:13	EBIN 文件	110
					> 🛃 视频	1			
					> 🔀 图片				
					> 🔤 文档				_
						文件名(N): 9013-2-13.ebin	~ el	bin.(*.ebin)	~
								打开(O)	取消

Step 5: Select the equipment to be upgraded, click "Upgrade", the progress bar will start to change, and wait for the upgrade to complete.

EI 设	备网络升级助手		area.	<u>о</u>
<u>〔包/9</u>	9013-2-13.ebir	1 左 选择固件	🔾 搜索设备	日升级
	设备ID	IP	MAC地址	固件类型
1	0	192.168.3.7	84-C2	NATH V25
EI 设	备网络升级助手			
ī包/90	013-2-13.ebin	▶ 选择固件	○ 搜索设备	🔒 停止升级
		22%		
	设备ID	IP	MAC地址	固件类型
1	0	192.168.3.7	84-C2	$m_{A,1}(t) = t \theta_{1}$
EI 设备	番网络升级助手		1770	
f包/90	013-2-13.ebin	▶ 选择固件	🔾 搜索设备	📑 开始升级
		下動器件	e shuth	
	设备ID	IP	MAC地址	固件类型
1	0	192.1 <mark>68.3</mark> .7	84-C2	extended be

#### Operating steps for serial port firmware upgrade:

Step 1: download the upper computer and "product firmware" at the corresponding location on the official website;

工具软件
【参数配置】亿佰特网络配置工具_以太网 🚨
【产品固件】
[ХСОМ工具] ХСОМ 3
【网络调试助手】 💽
【虚拟串口】

Step 2: Open the upper computer, click "Menu", and select "Serial port upgrade assistant";

EI 亿佰特网络配置助手 v5.0			– 🗆 X
菜单语言关于			
设备升级助手 ■□升级助手			🔾 搜索设备
打开文件号	IÞ	版本	MAC地址
日志:			

Step 3: First connect the USB port of the computer, select the corresponding port number in the pop-up "Serial Port Upgrade Assistant" dialog box, and click "Open Serial Port";



Step 4: Click "Select Firmware", select the corresponding firmware, and then click "Open";



<b>E</b> 串口升级目	加手			E: 选择固件					×
COM18	~	选择固件	关闭串口	$\leftarrow \rightarrow \sim \uparrow$	📩 « 12.24	4 > 串□服务器固件更新包	~ C	○ 在串口服务器	固件更新包 中
				组织 • 新建文(	件夹			≡.	• 🔟 🕐
				~ 🖵 此电脑	名利	3	修改日期	类型	大小
				> 🔄 Desktop	90	)13-2-13.ebin	2022/12/24 15:13	EBIN 文件	110
				> <mark>&gt;</mark> 视频 > <mark>、</mark> 图片	_				i în
					文件名( <u>N</u> ): 90	013-2-13.ebin	~	ebin.(*.ebin)	~
								打开(Q)	取消

Step 5: Click "Start upgrading", the progress bar will start to change, and wait for the upgrade to complete.

[Note] Power on again to trigger the upgrade.

<b>王</b> 串口升级助手	11 <del>1-1</del> 1		×
COM18		关闭串	
新包/9013-2-13.ebin	选择固件	开始升	级
			_)
<b>E</b> 串口升级助手	8 <del></del>		×
COM18		关闭串	
COM18 新包/9013-2-13.ebin	选择固件	关闭串取消	
COM18 新包/9013-2-13.ebin usart->TX:51	选择固件	关闭串	
COM18 新包/9013-2-13.ebin usart->TX:51 usart->TX:52 usart->TX:53 usart->TX:54	选择固件	关闭串	
COM18 新包/9013-2-13.ebin usart->TX:51 usart->TX:52 usart->TX:53 usart->TX:54 usart->TX:55 usart->TX:56	选择固件	关闭串	
COM18 新包/9013-2-13.ebin usart->TX:51 usart->TX:52 usart->TX:53 usart->TX:54 usart->TX:55 usart->TX:56 usart->TX:57 usart->TX:57	选择固件	关闭串	
COM18 新包/9013-2-13.ebin usart->TX:51 usart->TX:52 usart->TX:53 usart->TX:54 usart->TX:55 usart->TX:56 usart->TX:57 usart->TX:58 usart->TX:59 usart->TX:59	选择固件	关闭串	
COM18 新包/9013-2-13.ebin usart->TX:51 usart->TX:52 usart->TX:53 usart->TX:54 usart->TX:55 usart->TX:56 usart->TX:57 usart->TX:58 usart->TX:59 usart->TX:60 usart->TX:61	选择固件	关闭串	



COM18	~		关闭串	7
新包/9013-2	2–13. ebin	选择固件	取消	
usart->TX:	100			
usart->TX:	101			
usart->TX:	102			
usart->TX:	103			
usart->TX:	104			
usart->TX:	105			
usart->TX:	106			
usart->TX:	107			
usart->TX:	108			1.0
usart->TX:	109			
usart->TX:	110			

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## **Revision History**

edition	Revision date	Revision description	Maintainer
1.0	2021-06-28	Initial version	LC
1.2	2021 10 22	Product upgrade and	
1.5	2021-10-22	content revision	LC
4.4	2022-01-08	Match "9013-2-xx"	
1.4		firmware	LC
1.6	2022 12 26	Match "9013-2-13"	
1.0	2022-12-20	firmware	LL

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