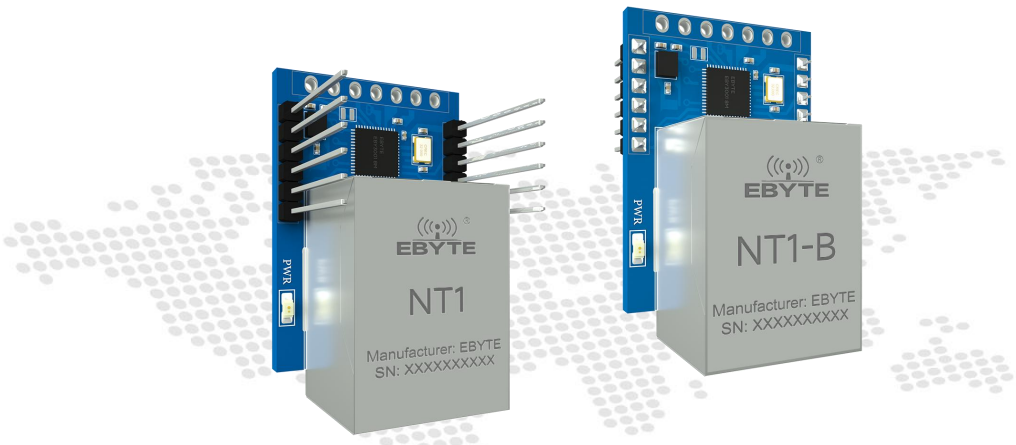
Chengdu Ebyte Electronic Technology Co.,Ltd

Wireless Modem

User Manual



Serial port ⇌ Ethernet pin module

NT1 / NT1-B

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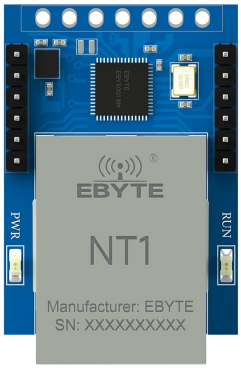
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Chapter 1 Product Introduction



NT1/NT1-B is to realize serial port data ⇌ Ethernet data transmission module (also known as "super network port"). The product comes with an RJ45 interface and pin package. It can meet the networking functions of various TTL level serial port devices and MCUs .

Features

- RJ45 supports 10M Ethernet interface;
- Support multiple working modes (TCP Server, TCP Client, UDP Server, UDP Client, HTTP , MQTTC) ;
- Support three configuration methods: configuration tool, web page, and AT command;
- Server mode supports multiple Socket connections;
- Support multiple baud rates;
- Support multiple checks (None, Odd, Even, Mark, Space) and flow control;
- Support DHCP function;
- Support DNS (domain name resolution), and can customize the domain name resolution server;
- Customize DNS server address;
- Supports a variety of Modbus gateways (simple protocol conversion, multi-host mode, storage gateway, configurable gateway);
- Supports quick access to Alibaba Cloud, Baidu Cloud, OneNET , Huawei Cloud, and 3.1 version standard M QTT server;
- Support HTTP protocol (GET/POST request);
- Support virtual serial port;
- Support timeout restart function, and you can customize the restart time;
- Support short connection function, and you can customize the short connection interval;
- Support heartbeat package and registration package functions;
- Support cache cleaning function;
- Support access to external network and local area network;
- Support hardware restoration to factory settings;
- Support online upgrade function.

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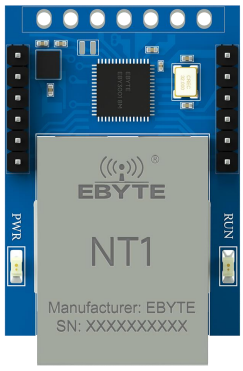
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Chapter 2 Quick Start

If any problems during use, please click the official website link : www.cdebyte.com/

2.1 Preparation

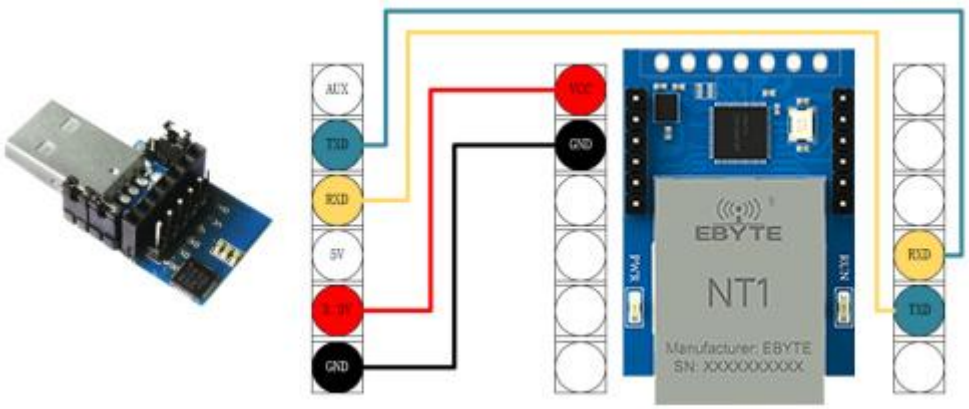
the Super Network Port NT1/NT1-B (hereinafter referred to as the "device"), you need to prepare network cables, computers, USB to serial converters and other related auxiliary materials. The details are as follows:

		
N T1	Network cable	U SB to T TL (E 15-USB-T2)
		
computer	Dupont wires	

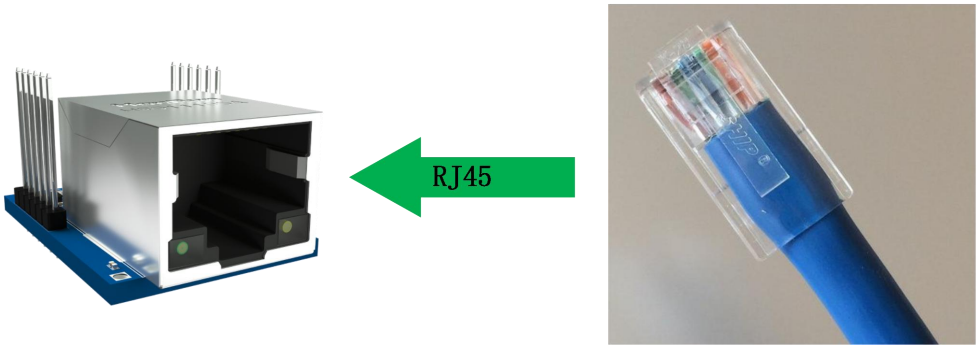
2.2 Equipment wiring

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Step 1: Connect the USB to serial port to provide power and serial port data conversion for the device. Connect the TXD of the conversion tool to the RXD of the device , the RXD of the conversion tool to the TXD of the device , and the GND to the corresponding connection (the GND connection cannot be omitted);
Step 2: Connect R J45 . When the network cable is connected, the device is in the network cable detection mode and does not enter the working state.



2.3 Software Setup

2.3.1 Network test environment

In order to avoid problems such as server search failure and inability to open web pages during actual application, it is recommended to check the relevant settings of the computer first.

（1） Turn off the computer's firewall and anti-virus software;

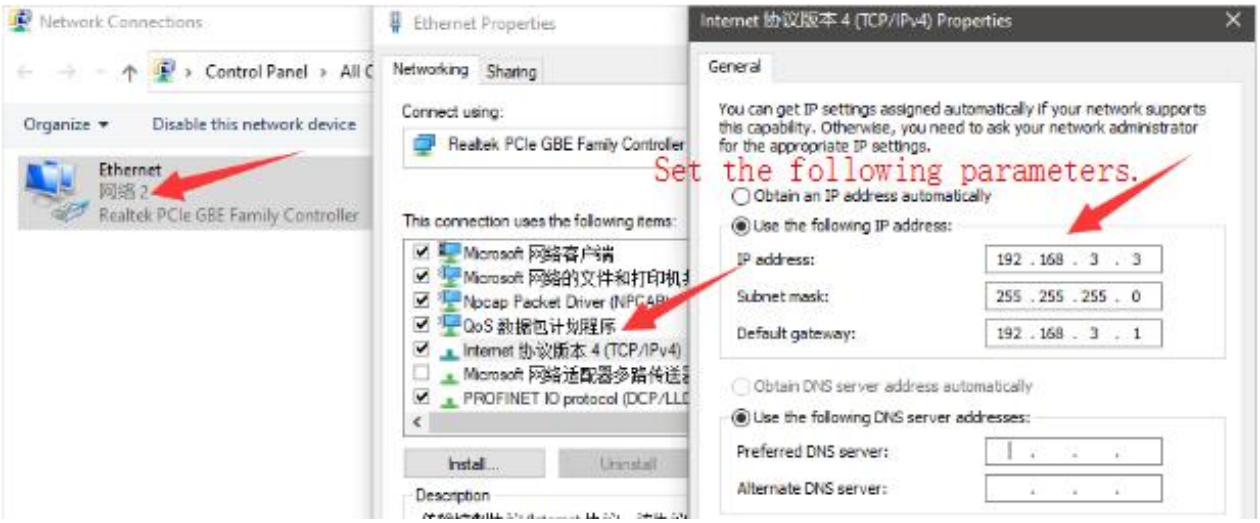
（2） Configure the network card connected to the device;

（3） This case is for testing the device directly connected to the computer. The computer needs to be configured as a static IP (the computer is directly connected to the device, there is no router to assign an IP address, and the computer cannot obtain an IP address). When using a switch or router, it is necessary to ensure that the device and the computer are on the same network (for example: 192.168.3.xxx);

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（4） Here, configure the computer's static IP to 192.168.3.4 (the same network segment as the device), configure the subnet mask to 255.255.255.0 , and configure the default gateway to 192.168.3.1 .



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 port baud rate	115200
Serial port parameters	8 / None / 1

2.3.3 Data transmission test

After completing the above steps, use the factory default parameters of the device and perform the following operations to implement transparent data transmission testing.

The steps are as follows:

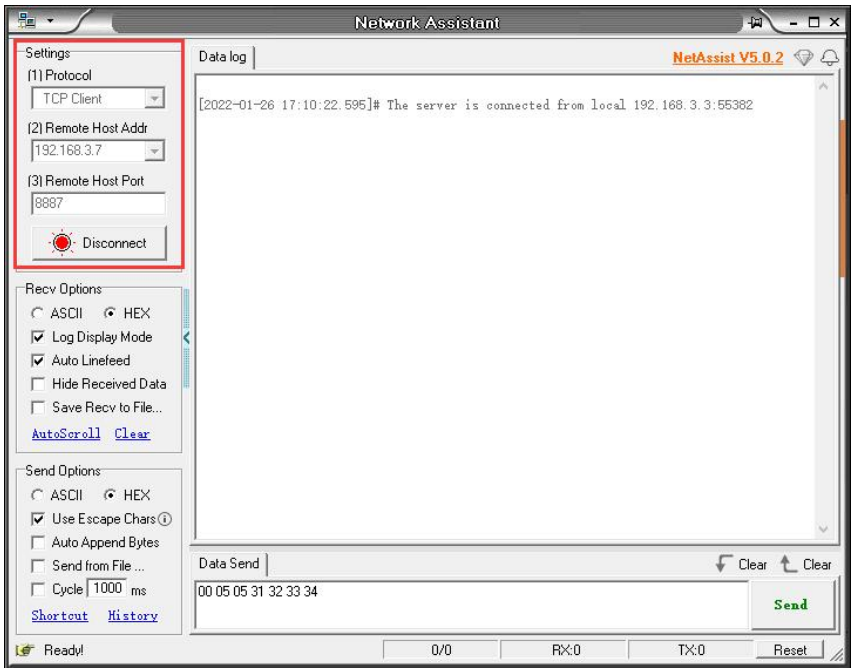
（1） Open the test TCP/IP debugging assistant software;

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

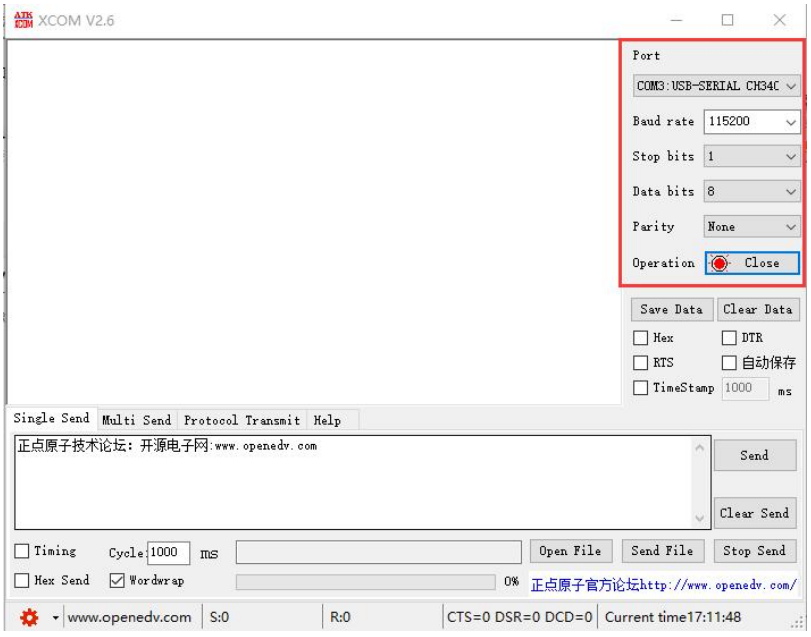
（3） the LED2 pin of the module outputs a low level ;

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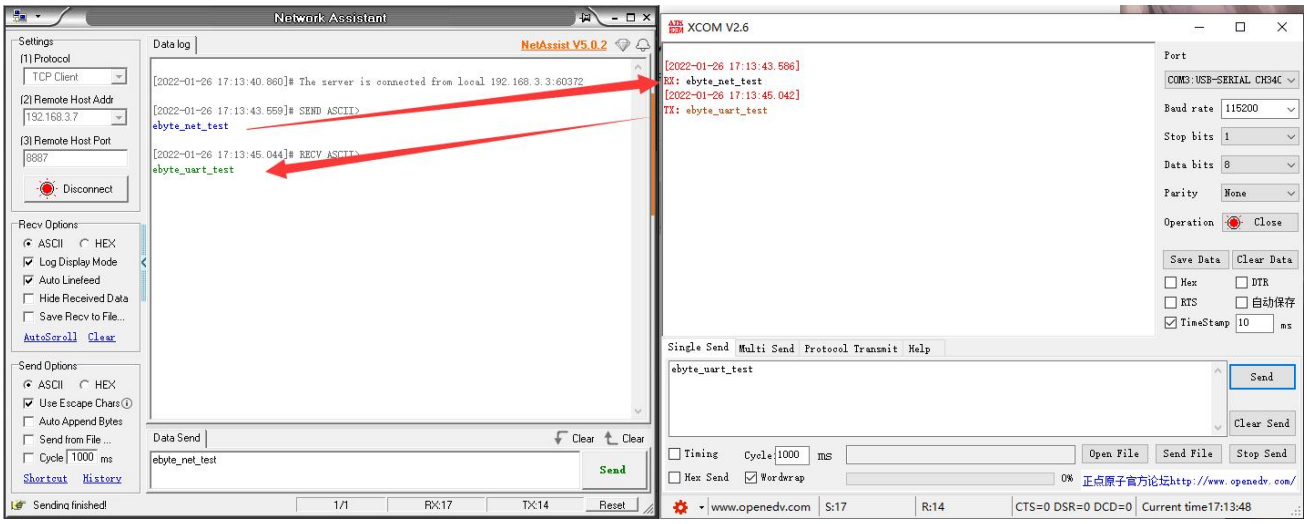
（4） Open the serial port assistant, set the serial port baud rate to 115200, set the serial port parameters to 1/8/None , and click to open the serial port ;



（5） Data transmission test: the serial port assistant (serial port end) sends test data, and the network debugging assistant (network end) receives the test data. The network debugging assistant (network end) sends test data, and the serial port assistant (serial port end) receives the test data. Duplex communication is achieved (i.e., bidirectional data transmission and reception from local to network).

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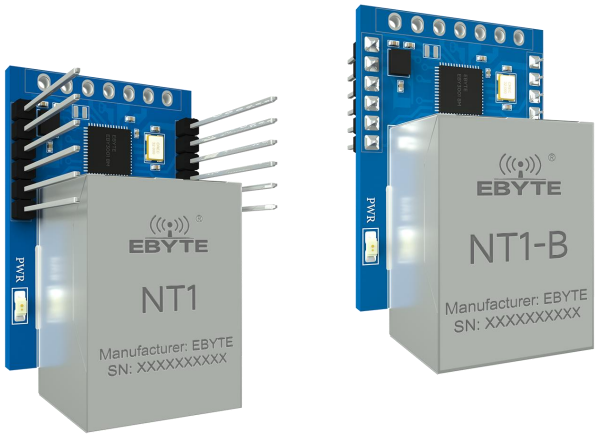
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Chapter 3 Product Overview

3.1 Product Specifications

Product Model	Product Type	Socket Number of connections	Working Mode	Operating voltage	Product size (mm)
NS1	SMD Module	6-way	TCP Server TCP Client UDP Server UDP Client M QTT Client H TTP C lient	DC 3.0～5V	17×19×4
NT1	Direct Plug-in Module	6-way		DC 3.0～5V	35×22×30
NT1-B					
NA111	DTU	6-way		DC 8～28V	110×66×30
NA111-A				AC 85～265V	
N B114	D T	6-way		DC 8～28V	1 02 × 84 × 25



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3.2 Technical Parameters

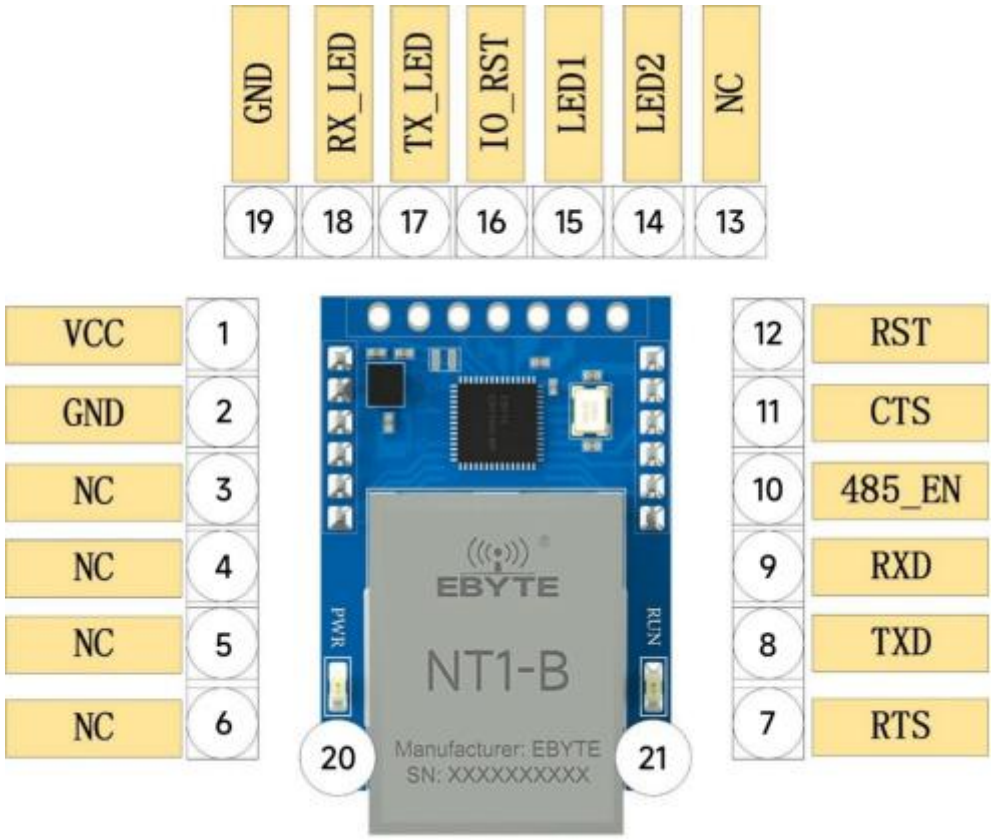
Item	Description
Operating voltage	DC 3.0～5.0V
Working current	Standby: 40mA @ 3.3V Peak: 300mA@3.3V Standby: 30mA @ 5V Peak: 250mA@5V
interface	Serial port (TTL), network port (RJ45)
Serial port level	3.3VT TL level, if 5V is needed, an external conversion circuit is required
Working Mode	TCP Server (default), TCP Client , UDP Server , UDP Client , HTTP Client , MQTT Client
Socket connection	TCP server supports 6 client connections
Network Protocol	TCP/UDP, M QTT , HTTP , IPv4, DHCP, DNS
How to obtain IP	Static IP (default), DHCP
DNS domain name resolution	support
DNS Server	1 14.114.114.114 (customizable)
Configuration	Web page, parameter configuration tool, AT command
IP address	192.168.3.7 (customizable)
username	admin (customizable)
password	admin (customizable)
Local Port	8887 (customizable)
Subnet Mask	255.255.255.0 (customizable)
Gateway	192.168.3.1 (customizable)
Serial port buffer	1024 Byte
Packaging mechanism	512 Byte
Serial port baud rate	1200 to 230400 bps (default 115200)
Data bits	5, 6, 7, 8 (default)
Stop bits	1 (default), 2
Check digit	None (default), Odd, Even, Mark, Space
Flow Control	NONE (default), RTS/CTS, DSR/DTR, XON/XOFF
Product size	3 5 × 22 × 19mm (NT1 , L × W × H) 35 × 22 × 24mm (NT1 -B , L × W × H)
Product Weight	9.0 g ± 1 g (NT1) , 8.8 g ± 1 g (NT1 -B)
Working temperature and humidity	-40 ～ +85℃, 5% ～ 95%RH (no condensation)

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Storage temperature and humidity	-40 ～ +105℃, 5% ～ 95%RH (no condensation)

3.3 Indicator and Interface Description



Serial number	Pinout	Function
1	VCC	Power positive input, supports 3 ~ 5.5V input;
2	GND	Common ground terminal, negative input of power supply;
3 - 6	NC	The default setting is left unconnected.
7	RTS	MODEM output signal of serial data , request to send;
8	TXD	sending data via the serial port, the TTL level communication voltage only supports 3.3V . If connected to 5V, level conversion is required.
9	RxD	The serial port receives data, and the TTL level communication voltage only supports 3.3V . If it is connected to 5V, level conversion is required;
10	485_EN	RS485 enable control pin, set high when the

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		serial port sends data, normally low;
11	CTS	MODEM input signal for serial data , clear to send;
12	RST	External reset input, low level is valid for more than 100ns, internal weak pull-up ;
13	NC	The default setting is left unconnected.
14	LED2	Network port link indicator output, Hz square wave within 3 seconds after power on The default output is high level. The TCP protocol outputs low level after the connection is successful . The UDP protocol outputs low level by default .
15	LED1	Output of the network port link indicator. 1. Within 3 seconds of power-on, output 4Hz square wave; 2. After the network cable is connected and powered on for 3 seconds, the default output is high After the TCP connection is successful, the output level is low The default output is low under UDP; 3. After the network cable is not connected and powered on for 3 seconds, the default output is low; 4. During operation, the network cable is disconnected, and the output is high.
16	IO_RST	Restore to factory default pin, internal weak pull-up , can be connected to external reset button, low level lasts for about 5s;
17	TX_LED	Serial port sending indicator light; Output 4Hz square wave within 3S after power on After 3 seconds, if no network cable is detected, a low level is output , and if a network cable is detected, a high level is output. After the network cable detection is completed, it outputs a low level when there is data output, and outputs a square wave signal with a period of 80ms and a low level of 20ms when there is continuous data;
18	RX_LED	Output 4Hz square wave within 3S after power on After 3 seconds, if no network cable is detected, a low level is output , and if a network cable is

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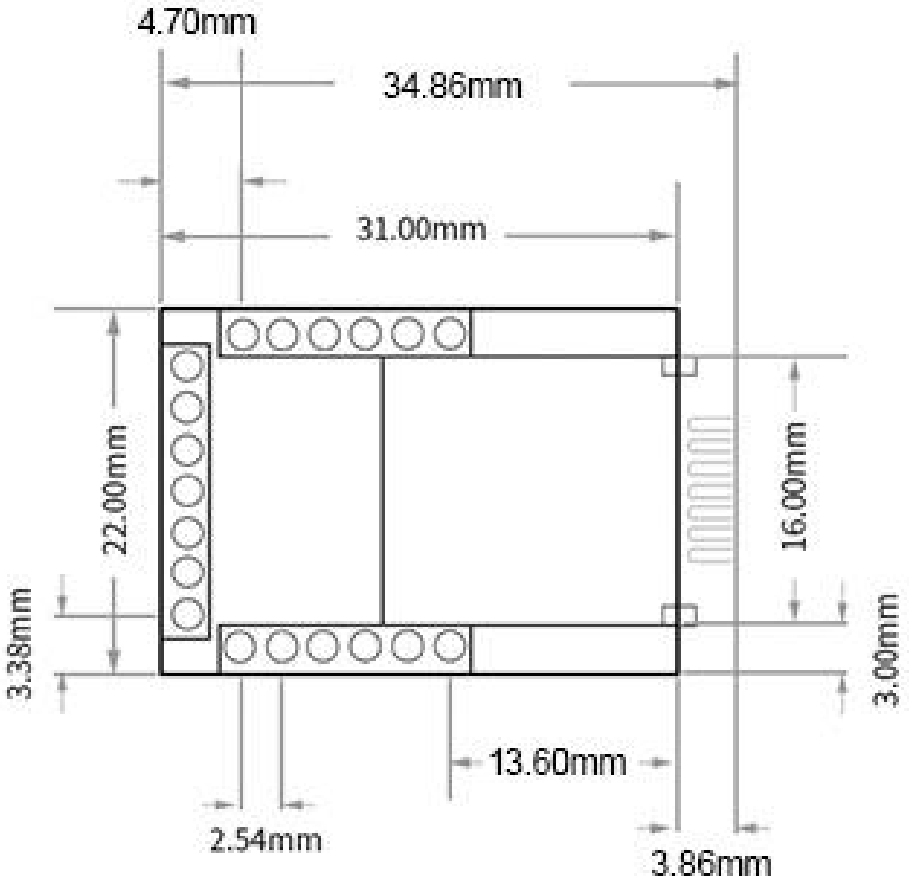
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		detected, a high level is output. After the network cable detection is completed, it outputs a low level when there is data input, and outputs a square wave signal with a period of 80ms and a low level of 20ms when there is continuous data;
19	GND	Common ground terminal, negative input of power supply;
2 0	PWR	Power access indicator light;
twenty one	RUN	4 Hz square wave within 3 seconds after power on Network cable not connected: output 5 Hz square wave Network cable connected: but not connected to the network: output 1hz square wave Network connection successful: output 0.33 Hz square wave When the serial port has data to send or receive, it outputs a 60 ms pulse low level

3.4 Dimensions

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Chapter 4 Product Features

4.1Network parameters

4.1.1 IP address type

The IP address is the module's identification in the LAN and is unique in the LAN. Therefore, it cannot be repeated with other devices in the same LAN. There are two ways to obtain the module 's IP address: static IP and DHCP.

（1） Static IP : Static IP needs to be set manually by the user. During the setting process, be sure to write the IP, subnet mask and gateway at the same time. Static IP is suitable for scenarios where IP and device statistics need to be kept and they must correspond one to one.

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

Disadvantages: Different LANs have different network segments , which results in the inability to conduct normal TCP/UDP communication.

（2） Dynamic DHCP : The main function of DHCP is to dynamically obtain the IP address, gateway address, DNS server address and other information from the gateway host, thereby eliminating the tedious steps of setting the IP address. It is suitable for scenarios where there is no requirement for IP and there is no requirement for a one-to-one correspondence between IP and module.

Advantages: Devices with DHCP servers such as access routers can communicate directly, reducing the trouble of setting IP address gateway and subnet mask.

Disadvantages: When connected to a network without DHCP Server , such as 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 within the subnet.

The subnet mask must be set. The commonly used Class C subnet mask is: 255.255.255.0. The network number is the first 24 bits, the host number is the last 8 bits, the number of subnets is 255 , and if the module IP is within the range of 255 , it is considered that the module IP is in this subnet.

The gateway refers to the network number of the network where the module's current IP address

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is located. If you connect to a device such as a router when connecting to the external network, the gateway is the router .

4.1.2 Domain Name Resolution (DNS)

Domain name resolution converts domain names into IP addresses recognized by the network through a domain name resolution (DNS) server. The domain name resolution (DNS) server address of the serial port server supports user customization. In the case of abnormal domain name server, domain name resolution can be achieved through a customized domain name resolution server. When resolving domain names, the device will report a resolution request to the customized domain name resolution (DNS) server , and return the device connection parameters (usually IP addresses) after the resolution is completed .

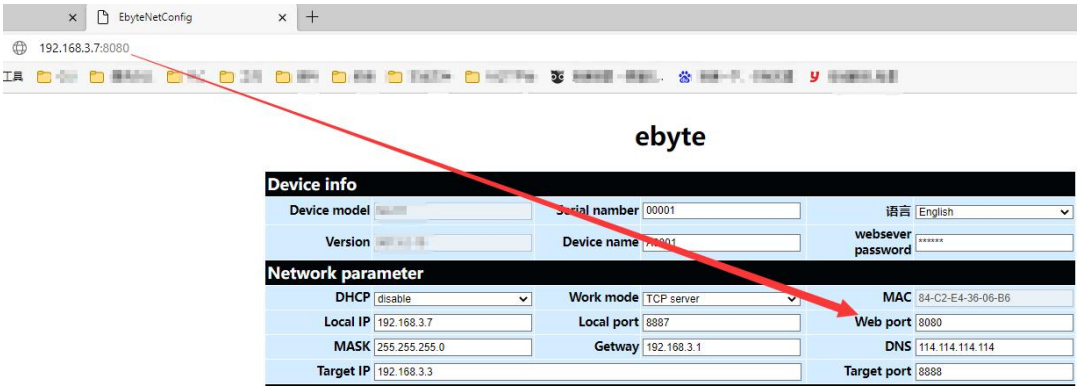
In DHCP mode, the domain name resolution (DNS) server address is automatically obtained (synchronized with the router's domain name resolution address) and cannot be modified.

In 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 must be added to the address input bar. For example, if the web access port is changed to 8080 , you need to enter 192.168.3.7:8080 in the address bar to connect to the web configuration .



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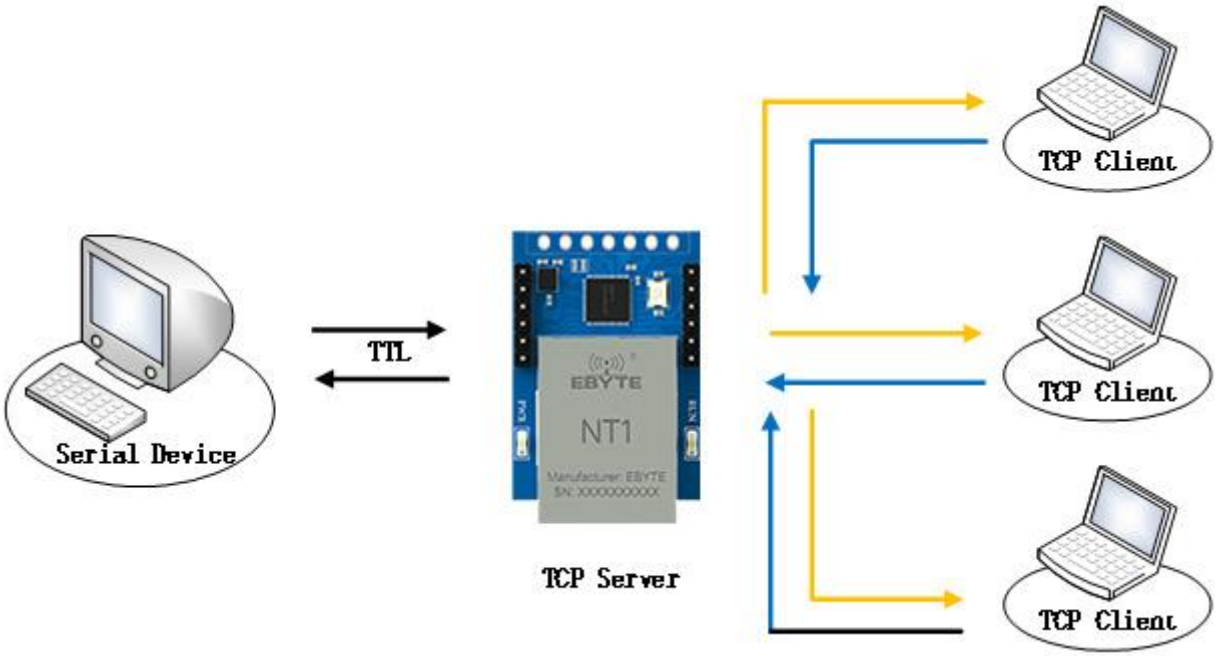
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4.2 Network working mode

4.2.1 TCP Server Mode

TCP Server is TCP server. In TCP Server mode, the device monitors the local port, accepts the client's connection request and establishes a connection for data communication. It is usually used for communication with TCP clients in a local area network.

Modbus gateway function is turned off , the device sends the data received by the serial port to all client devices connected to the device, supporting up to 6 client devices. When the Modbus gateway function is enabled, non -Modbus data will be cleared and not forwarded.



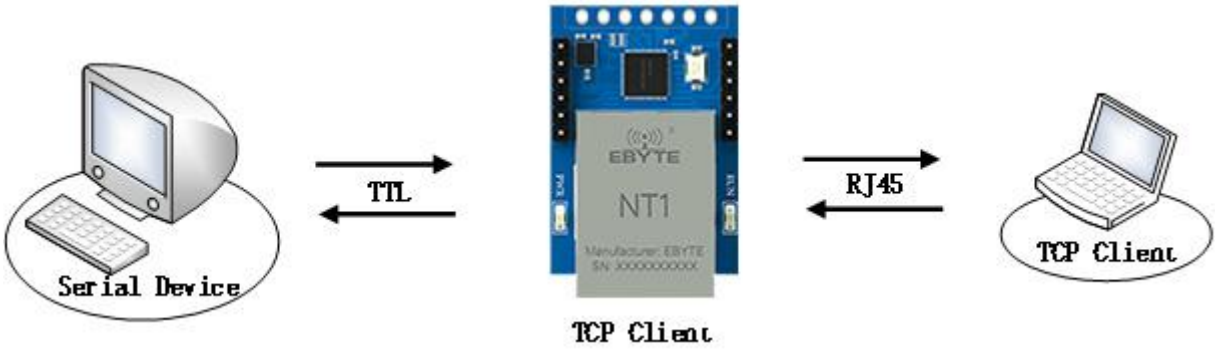
4.2.2 TCP Client Mode

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

The client needs to accurately configure the target IP address /domain name and target port .

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4.2.3 UDP Server Mode

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

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

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

[Note] In U DP mode, the data sent from the network to the device should be less than 5 12B per packet, otherwise data loss will occur .

4.2.4 UDP Client Mode

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

communicate with the configured (destination IP and destination port) remote UDP device .

In this mode, the destination address is set to 255.255.255.255, and the sent data will be broadcast in the entire network segment, but the sending and receiving devices need to ensure that the ports are consistent. At the same time, the devices can also receive broadcast data .

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4.2.5 HTTP Client Mode

This mode can realize the HTTP packet grouping function and provides two modes: GET and POST. Customers can configure URL, Header and other parameters by themselves, and the device (serial port server) will group and send the packets to realize fast communication between the serial port device and the HTTP server. When using the HTTP client mode, it is recommended to use a random port and enable a short connection to save HTTP server resources.

1. GET

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

2. POST

Use One NET multi-protocol access HTTP mode to test the device HTTP -POST request, as shown in the figure below.

4.2.6 MQTT Client Mode

The serial port server supports fast access to standard MQTT3.1 protocol servers (One NET , Baidu Cloud, Huawei Cloud, user-built servers, etc.) and Alibaba Cloud servers, supports service quality level configuration (Qos 0 , Qos 1) , supports ultra-long text configuration, and facilitates better access to network service operators (server address, three elements, subscription and publishing addresses support up to 128 characters) .

1. Standard M QTT3.1.1

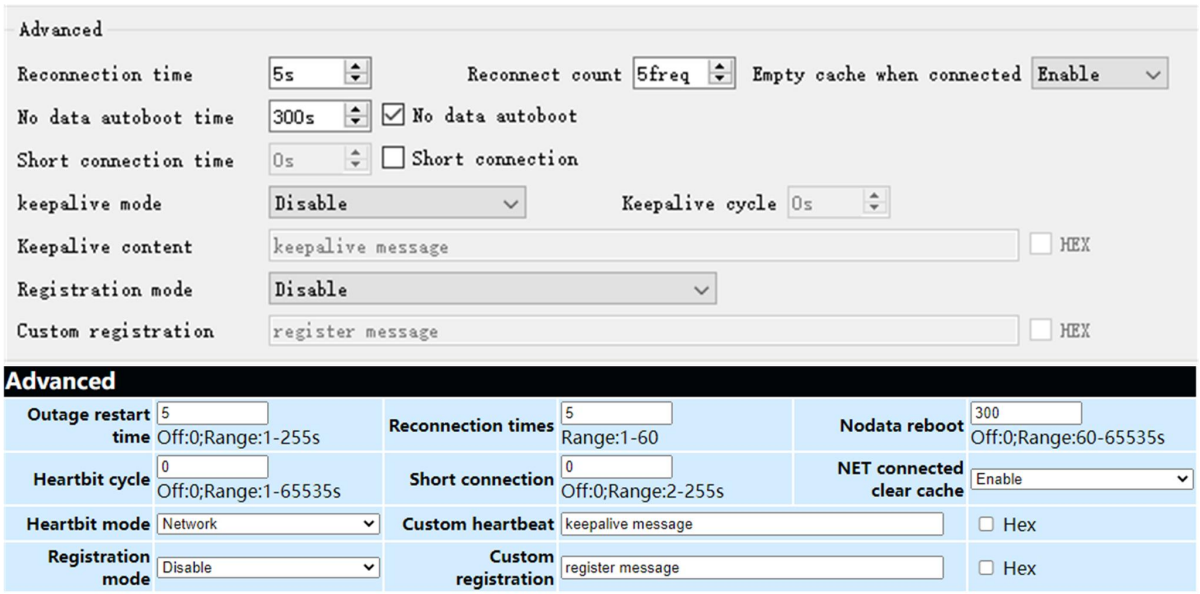
Here, the standard M QTT3.1.1 connection takes Tencent 's standard M QTT 3 .1.1 server as an example. The "three elements" of the standard description can be obtained from the Tencent server as shown in the following figure:



The parameter configuration (configuration software and web page) is shown in the figure below:

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

4.3 Serial port parameters

Serial port parameters include: baud rate, data bits, parity bits, and stop bits.

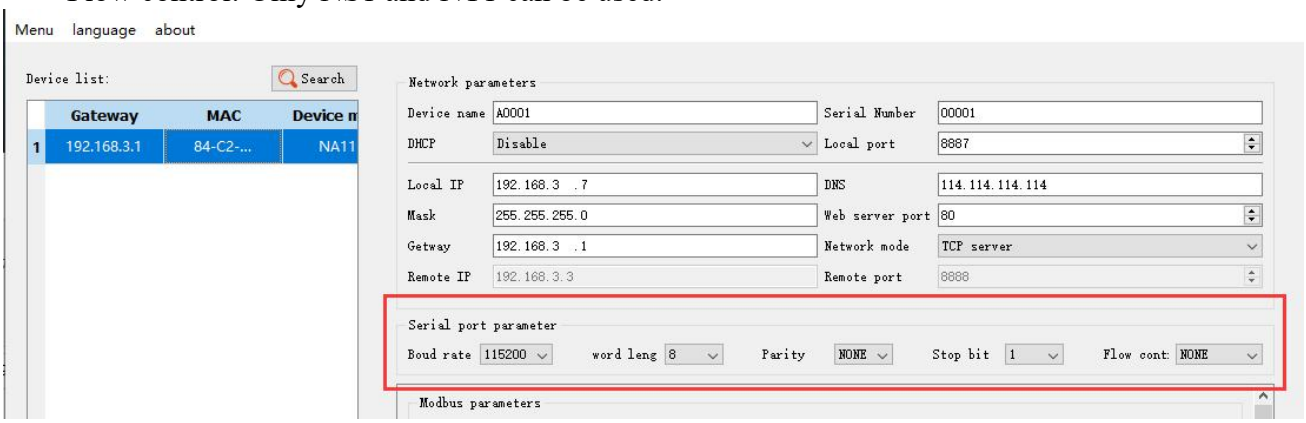
Baud rate: serial port communication rate, configurable 1 200 , 2 400 , 4 800 , 9 600 , 1 4 400 , 1 9 200 , 3 8 400 , 5 7 600 , 1 15 200 , 2 30 400 bps.

Data bits: The length of the data bits, range is 5 , 6, 7, 8.

Check bit: Check bit for data communication, supports five check modes: None, Odd, Even, Mark, and Space. By setting the serial port parameters and keeping them consistent with the serial port parameters of the serial port connected device, normal communication can be ensured.

Stop bit: The setting range is 1 or 2.

Flow control: Only NS1 and NT1 can be used.



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4.4 Advanced Parameters

4.4.1 Reconnect after network disconnection

In client mode, after the device is disconnected from the network, it will try to actively connect to the server at a specified time. If the request times out and fails to reconnect after the set number of retries, the device will restart to prevent the network from being unable to restore the connection after the device is disconnected.

Network reconnection time: The time interval between each attempt of the device to reestablish the network.

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

The actual restart time is the network disconnection and reconnection period multiplied by the number of reconnection times. If there is no special requirement, it is recommended to use the factory default parameters.

4.4.2 Timeout restart function

Supports timeout restart function (default: 300 seconds). This function is mainly used to ensure the long-term stable operation of the device . If no data is sent or received within the set timeout restart time , the device will restart to avoid abnormal situations affecting 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 client mode, network short connections are supported (this function is disabled by default). TCP short connections are mainly used to save server resource overhead and are generally used in multi-point (multi-client) to one-point (server) scenarios.

The TCP short connection function is applied in TCP Client mode. After the short connection function is turned on, the device will automatically disconnect if the serial port does not receive data or the network port does not send or receive data within the set time after the connection is successfully established.

When the short connection function is turned on, the short connection time setting parameter

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range is (2-255) seconds.

4.4.4 Connection clear cache function

The device is in client mode. When the TCP connection is not established, the data received by the serial port will be placed in the buffer. The serial port receiving buffer is 1 024 bytes. If it is larger than 1 024 bytes, the earliest received data will be overwritten. After the network connection is successful, you can choose to clear the serial port buffer or send the buffer through the network through configuration.

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

Disable: The network will receive data from the serial port buffer after the connection is established.

4.4.5 Heartbeat packet function

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

Heartbeat packet sending mode:

（1） The heartbeat packet mode is disabled by default.

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

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

Customize the heartbeat packet content (supports a maximum of 40 bytes (ASCII) data and 20 bytes (HEX) data).

Customize the heartbeat packet sending time interval. If the setting value is greater than zero, the heartbeat packet function is enabled. The setting range when enabled is: (1-65536) seconds, and 0 when disabled.

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4.4.6 Registration package function

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

registration package supports the following modes:

（1） Send MAC address when establishing connection with the device

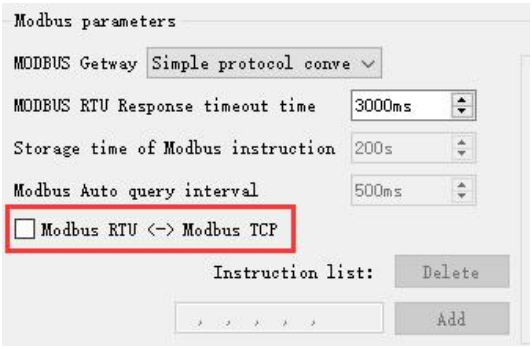
（2） Send custom registration package data when the network establishes a connection with the device

（3） After the network and the device are connected, each packet of data sent by the device to the network is prefixed with the MAC address.

After the network and the device are connected, each packet of data sent by the device to the network is preceded by the custom registration packet data.

4.5 Modbus Gateway

4.5.1 Simple protocol conversion mode



Enable: Convert Modbus RTU protocol to Modbus TCP protocol, and discard non-Modbus data (RTU /TCP) without conversion.

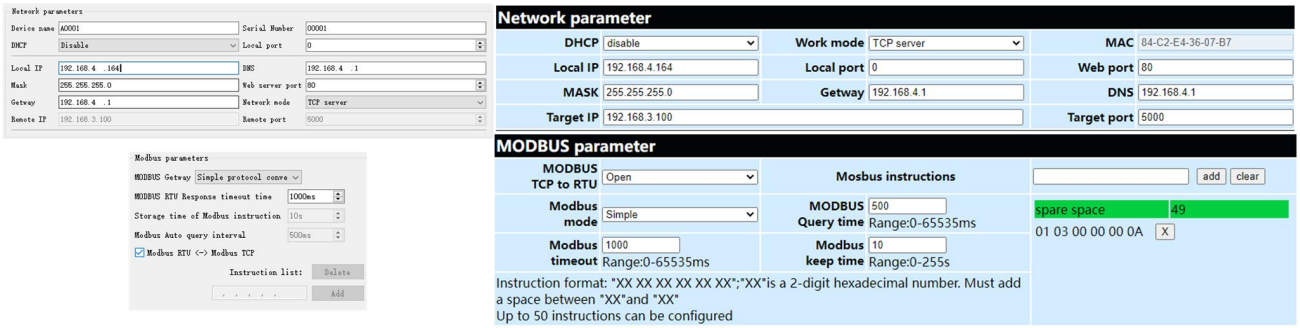
Close: No protocol conversion is performed but the Modbus data is verified and non-Modbus data (RTU /TCP) is discarded.

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

Configuration software/web page configuration:

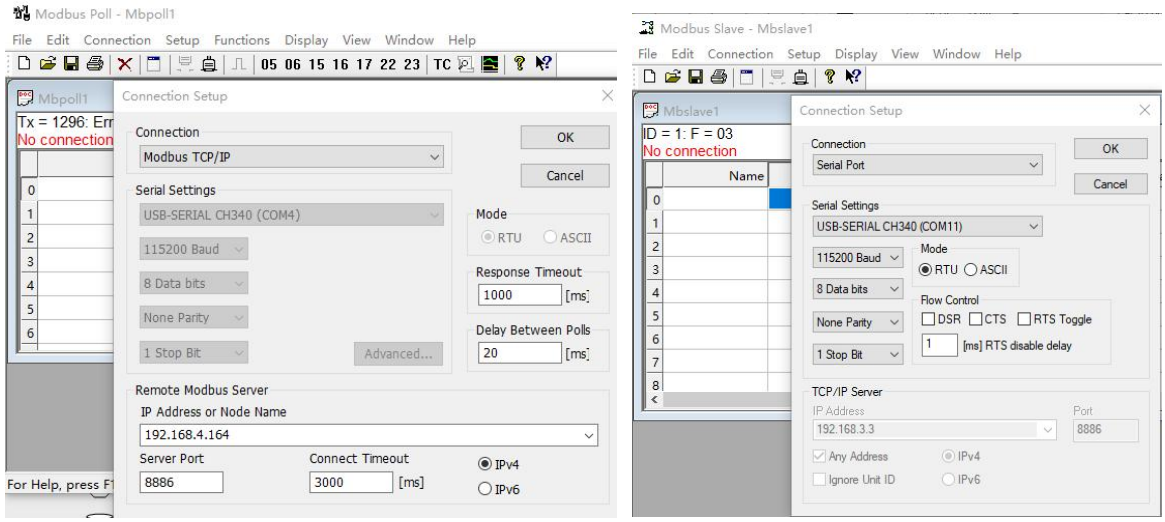
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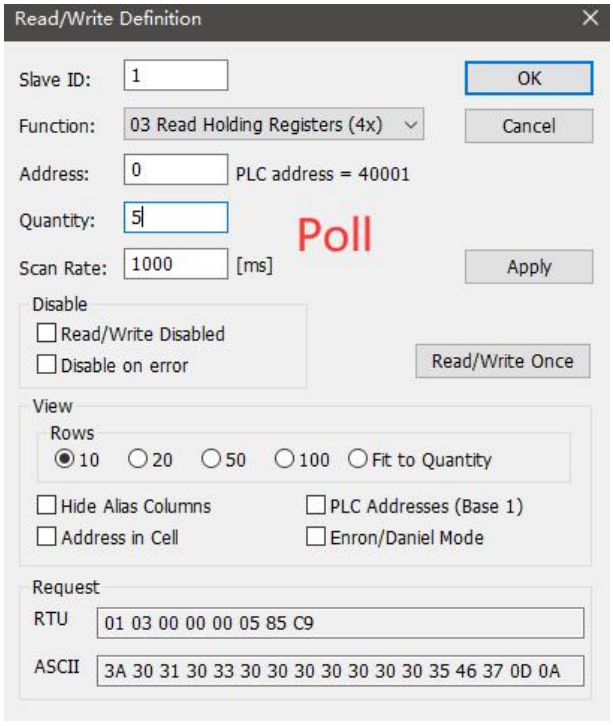
Modbus Poll and Modbus Slave software debugging:

Software connection settings:



Software register reading and simulation configuration:

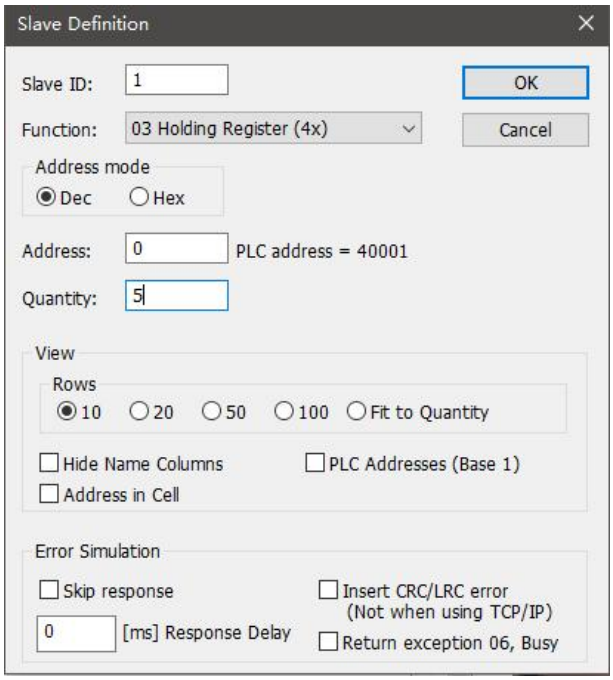
Select Set up →Read/Write Definition from the Poll menu



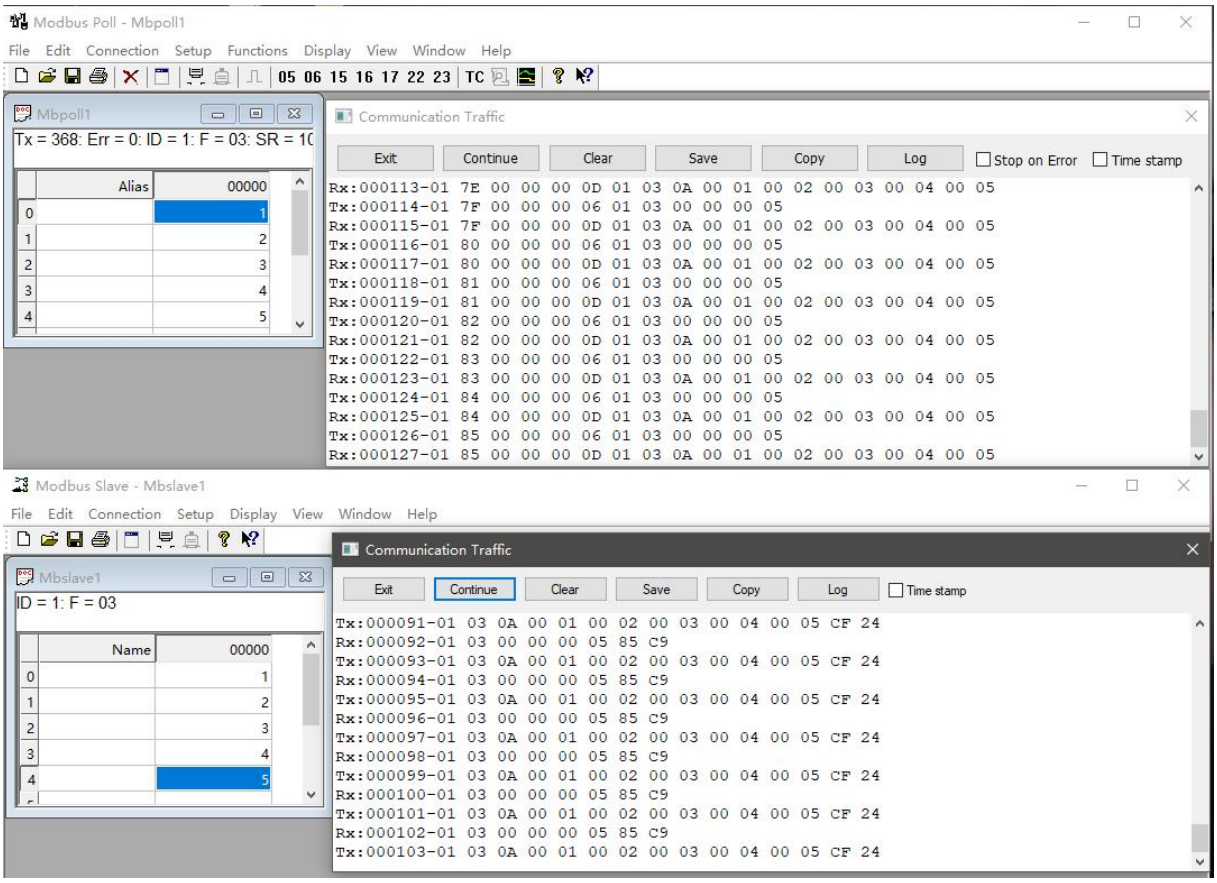
Select Set up →Slave Definition from the Slave menu.

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Communication Demo:



4.5.2 Multi-host mode

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

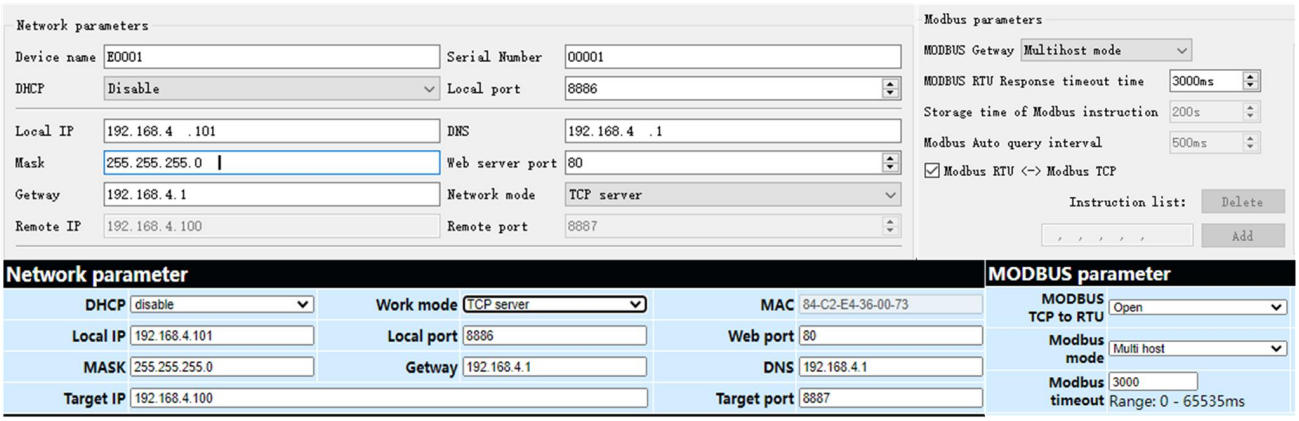
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access at the same time, the Modbus gateway will schedule the bus occupancy (TTL can only process one request at a time, while the multi-host mode will sort and process them according to the T CP request, and other links will wait), thereby solving the bus conflict problem (currently only 6 hosts are supported). It only supports working in T CP server mode, and the slave can only work on the serial port, otherwise it will not work normally.

It is recommended to configure it as "Simple Protocol Conversion" when there is no multi-path host.

Configuration software/web page configuration:

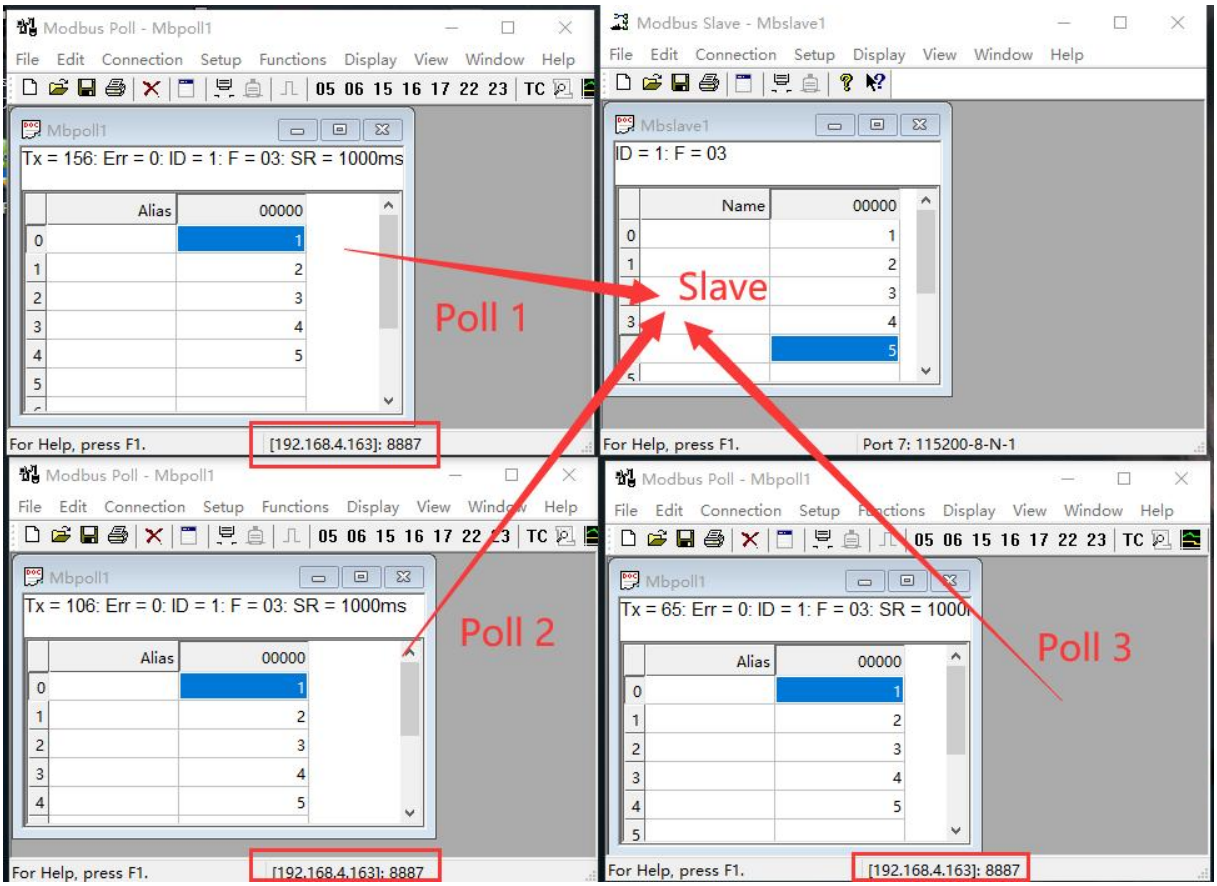


Modbus Poll and Modbus Slave software debugging:

For software configuration and register configuration, refer to "Simple Protocol Conversion" and enable multiple Modbus Poll software at the same time (taking 3 channels as an example, up to 6 channels can be supported).

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4.5.3 Storage Gateway

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

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

Features:

（1） The gateway has a 5K cache for storing instructions and return results (taking reading 10 holding registers as an example, 189 instructions and return results can be stored) ;

（2） The RTU response timeout automatically clears the cache to ensure the real-time and authenticity of the data;

（3） The polling interval can be customized, 0 -65535 ms;

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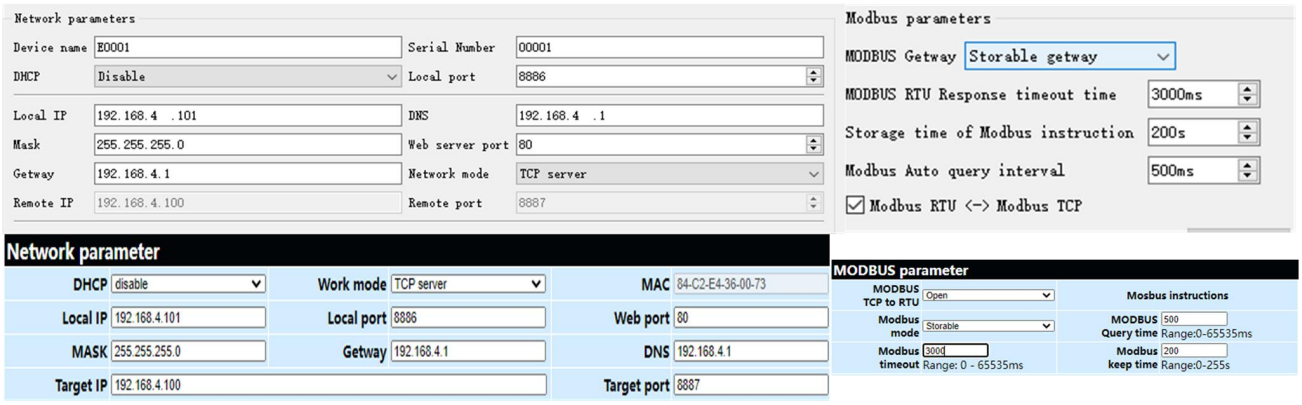
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（4） TU device according to the storage time of the command used for configuration . If the MODBUS host does not query the command again within the storage time, the gateway will automatically delete the stored command to release the cache.

（5） The first instruction and control instruction (05 , 06 , 0F , 10 function code) will directly access the RTU device ;

（6） Only supports 01 , 02 , 03 , 04 Mode bus function code query result storage ;

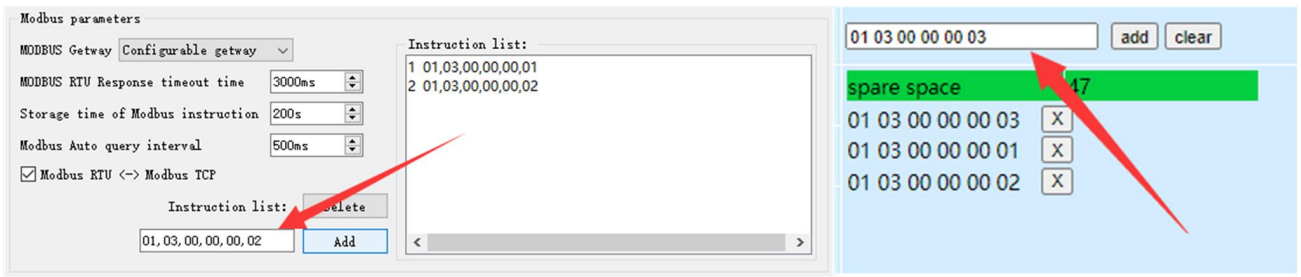
Storage gateway configuration software and web page configuration:



4.5.4 Configurable Gateway

automatically polls the RTU device registers according to the pre-configured MODBUS instructions (only supports the configuration of MODBUS read instructions), and the instructions not in the storage table will directly operate the RTU device. Frequently read instructions can be stored in the gateway in advance, which can shorten the response time (query configuration instructions). Due to the above characteristics, the serial port side of the configurable gateway can only connect to the Modbus slave station.

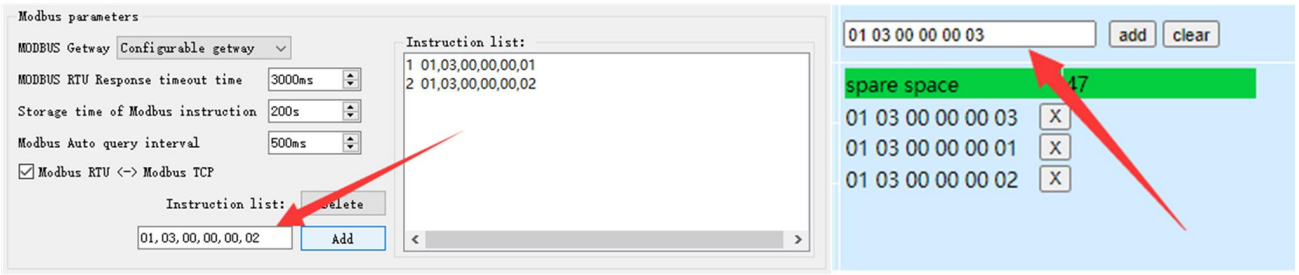
Instruction storage description (add, instruction error and format error cannot be added):



Instruction storage description (deleted):

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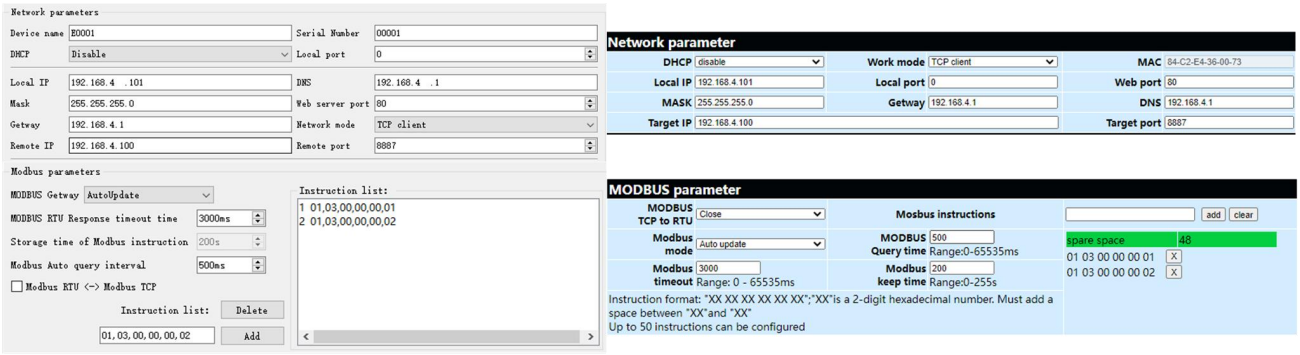
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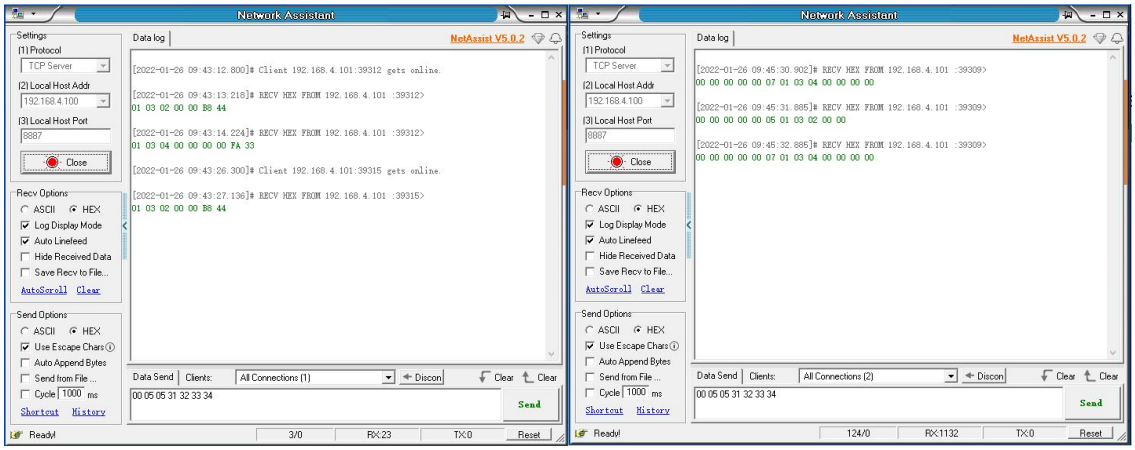
4.5.5 Automatic upload

In client mode (TCP client, U DP client, MQTT client, HTTP client), the gateway will automatically poll the instructions in the stored instruction table and upload them to the server. You can select the feedback format (Modbus RTU format or Modbus TCP format) and the instruction polling interval (0 -65535 ms) according to your needs.

For pre-storage of instructions, refer to "Configurable Gateway - Instruction Storage Instructions" and automatically upload the configuration to the configuration software/web page:



TCP Client Demo (Modebus RTU format) :



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4.6 Basic Function Introduction

4.6.1 Web page configuration

The device has a built-in web server, which allows users to set and query parameters via web pages.

The web server port is customizable (2-65535) , default: 80 .

Operation method (take Microsoft Edge version 94.0.992.50 as an example, it is recommended to use Google Core Browser, IE Core Browser is not supported):

- Open the browser and enter the device's IP address in the address bar. The default is 192.168.3.7 (the IP address and the computer must be in the same network segment). If you forget the local IP, you can query it through the AT command and configuration software;
- Click to log in, the default account is admin, and the default password is admin (already entered, you can directly click to log in);
- 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 indicates the configuration progress. Do not refresh the web page again after the configuration is completed (refresh the web page to enter the configuration mode again, and enter the communication mode by restarting the device or submitting again).

4.6.2 Restore factory settings

The device's I O_RST pin can be restored to factory settings by pulling it low for 5 s and then releasing it.

4.6.3 AT command configuration

The relevant parameters of the device can be queried and modified through AT command configuration. For specific AT commands, please refer to "NA11x&NB114&NS1&NT1-AT Command Set".

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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. You can modify the relevant parameters according to your needs , then save the configuration, restart the device, and complete the parameter modification.

【Note】:

Do not use multiple configuration softwares in the same LAN environment. Multi-network card industrial computers need to temporarily disable the network cards, otherwise the configuration software will be abnormal (the same device is displayed multiple times, the device cannot be searched, etc.)

The configuration software shields the wireless network card, so you must connect the network cable to use the configuration software. The wireless network card can be configured through the web page.

4.6.5 Random local port

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

Using a random port connection can quickly reestablish the connection when the device accidentally disconnects from the server, preventing the server from rejecting the connection due to incomplete four waves. It is recommended to use a random port in client mode.

The device will automatically enable a random port when configuring TCP client , HTTP client, or MQTT client mode.

4.6.6 Remote upgrade

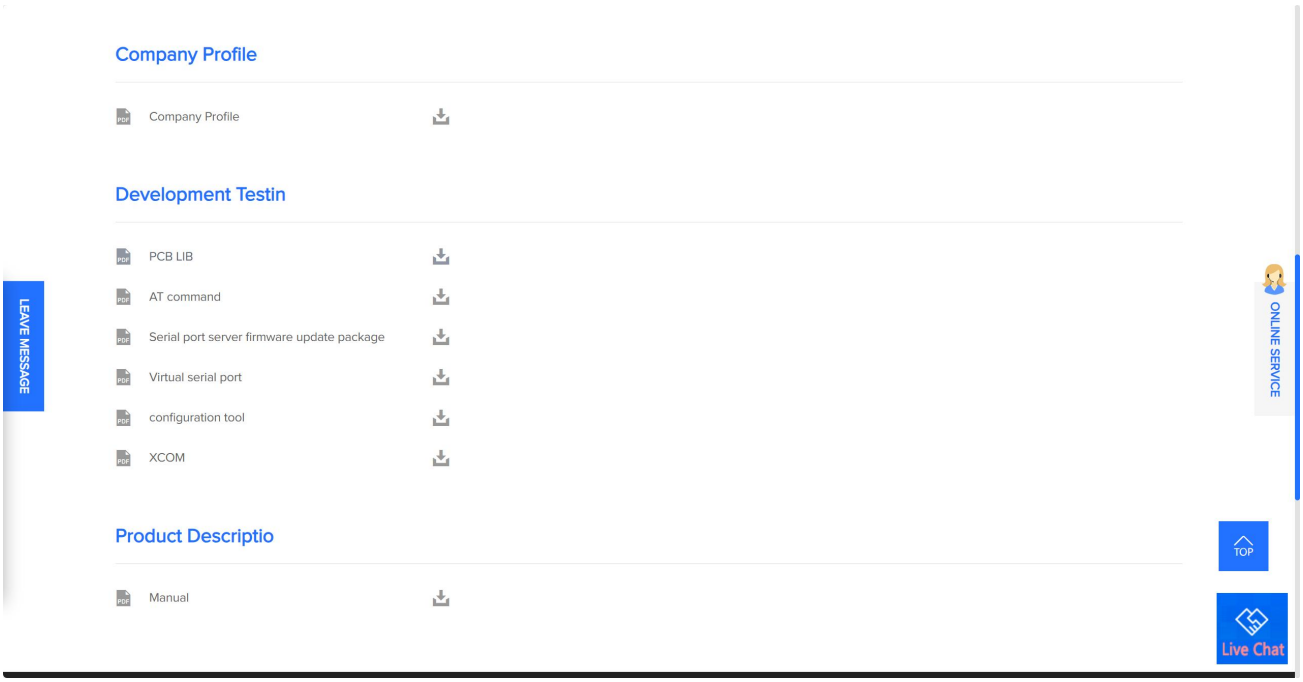
In order to facilitate the later maintenance and upgrade functions as well as the replacement of different firmware, the serial device server (NA11x series , NB114 , NS1 , NT1, etc.) supports online upgrade. Through the upgrade firmware provided by our company, users can upgrade or replace the current firmware through the configuration software.

Network firmware upgrade steps:

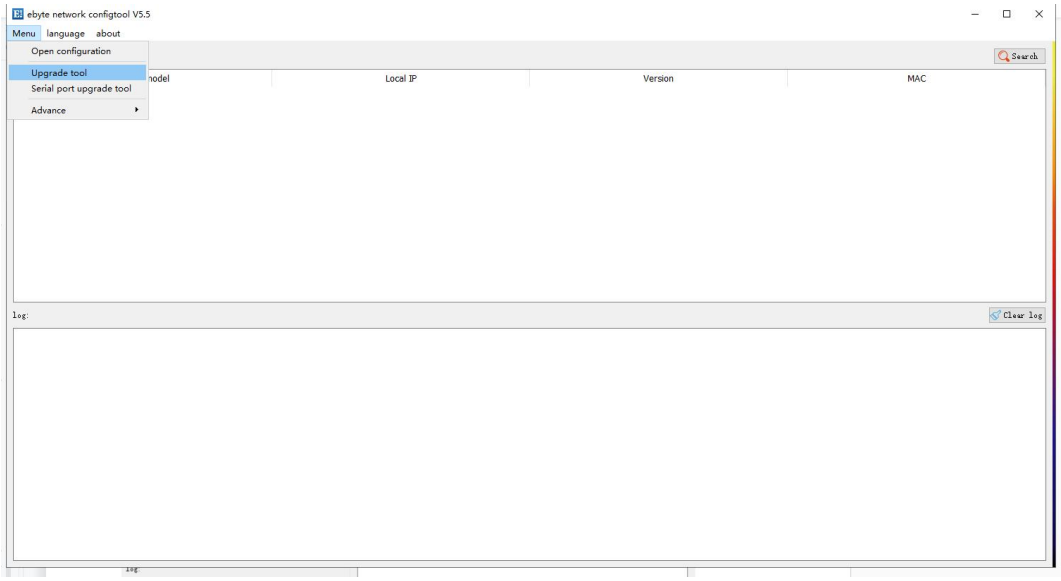
Step 1: Go to the corresponding location of the official website to download the configuration software and "product firmware";

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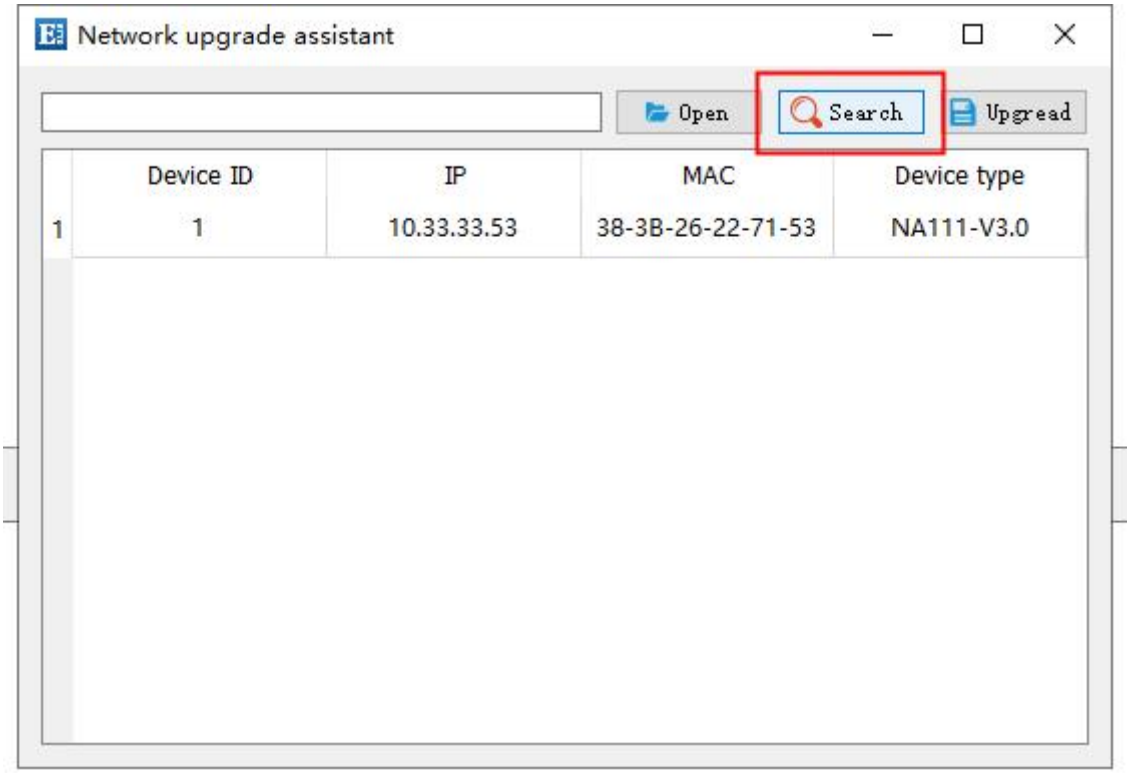
Step 2: Open the configuration software, click "Menu", and select "Device Upgrade Assistant";



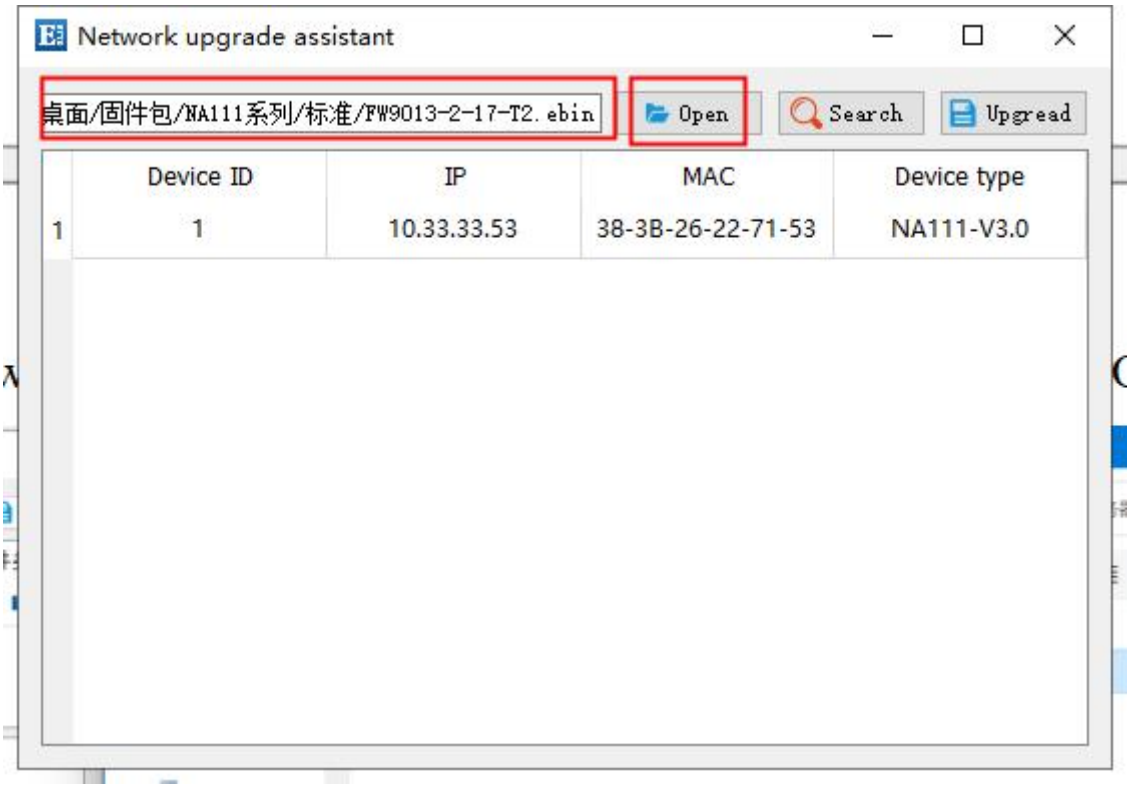
Step 3: In the pop-up "Device Network Upgrade Assistant" dialog box, click "Search for Devices" (the computer and device should be in the same network segment), and click "Stop Searching" after the device is found;

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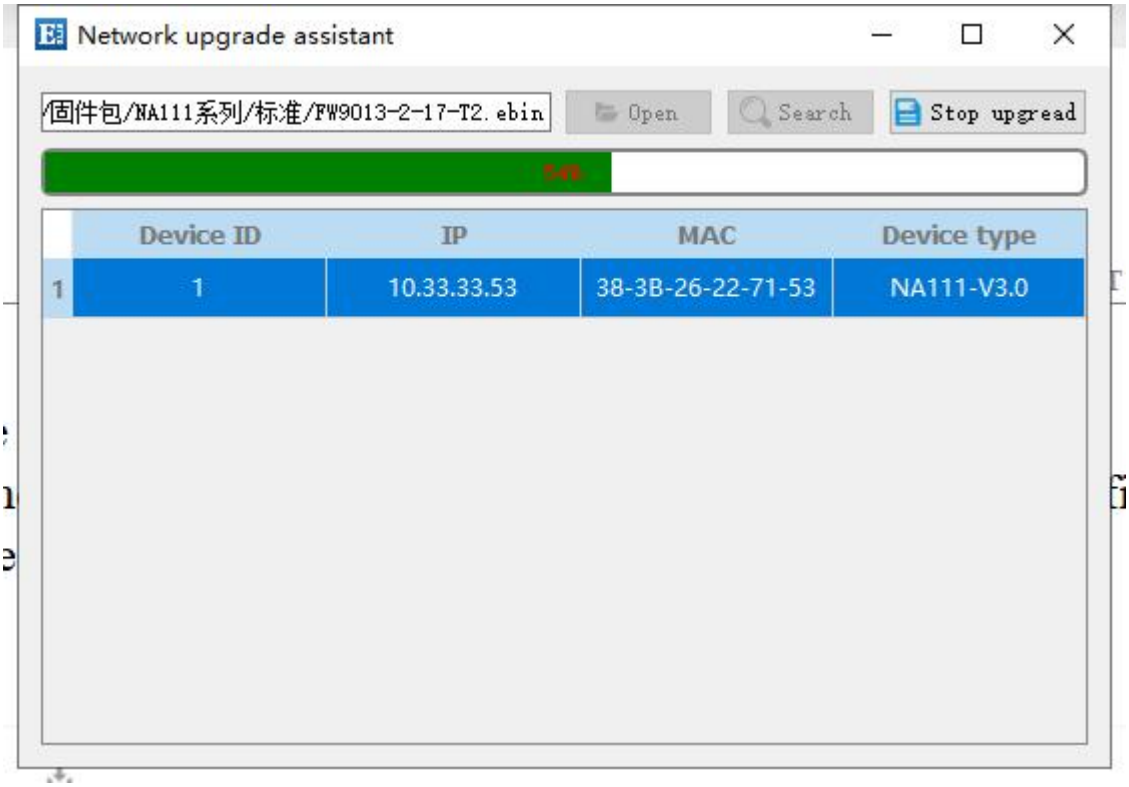
Step 4: Click "Select Firmware", select the corresponding firmware, and then click "Open";



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

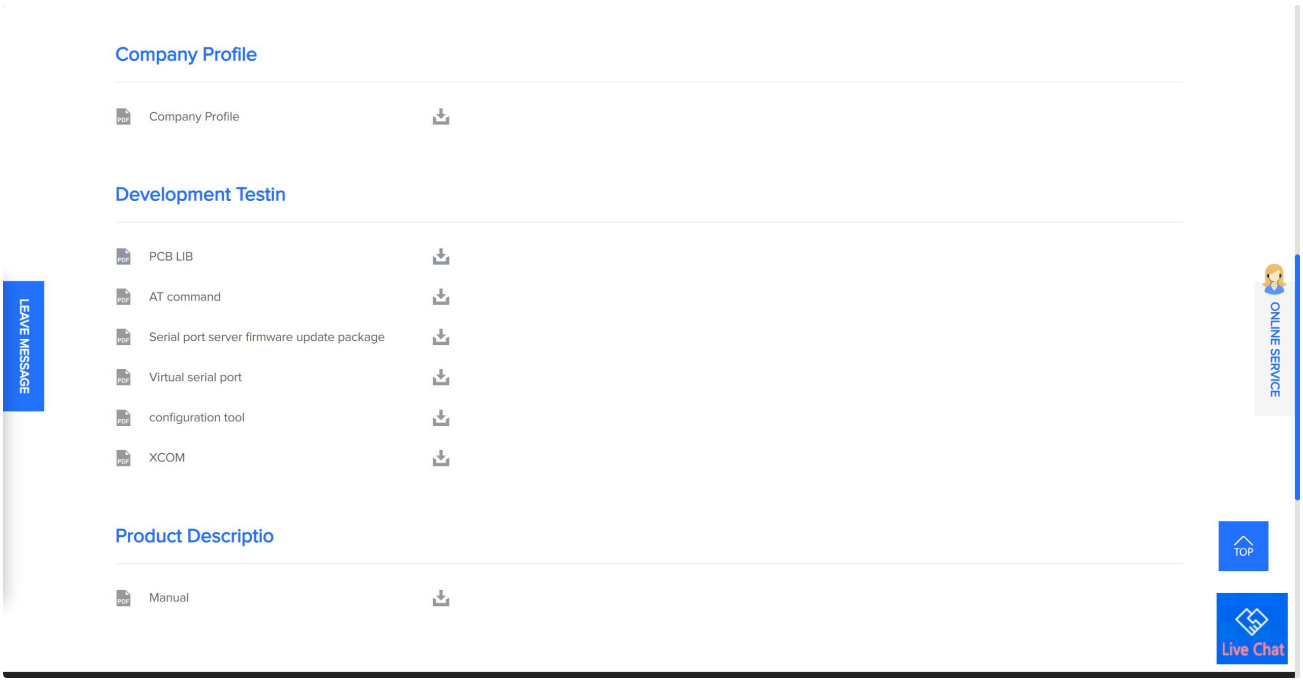
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Serial port firmware upgrade operation steps:

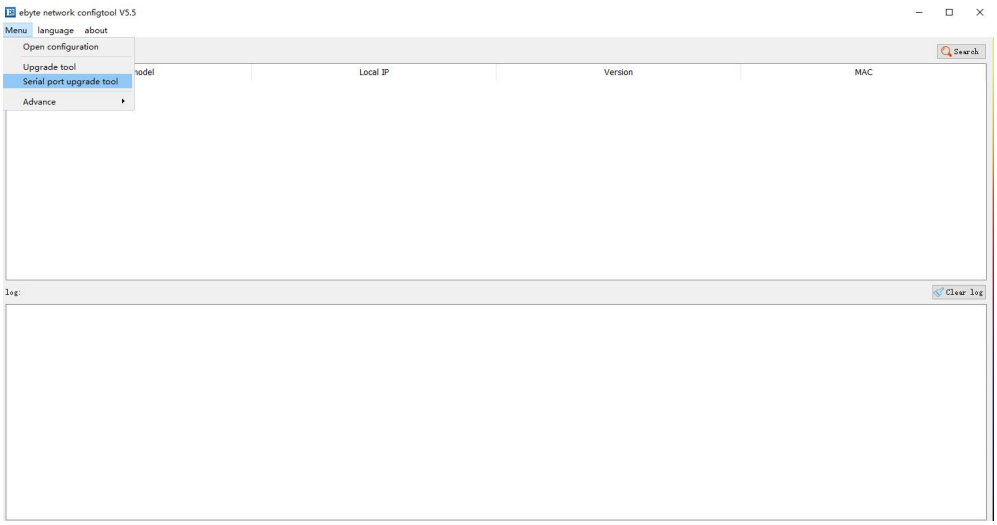
Step 1: Go to the corresponding location of the official website to download the configuration software and "product firmware";



Step 2: Open the configuration software, click "Menu", and select "Serial Port Upgrade Assistant";

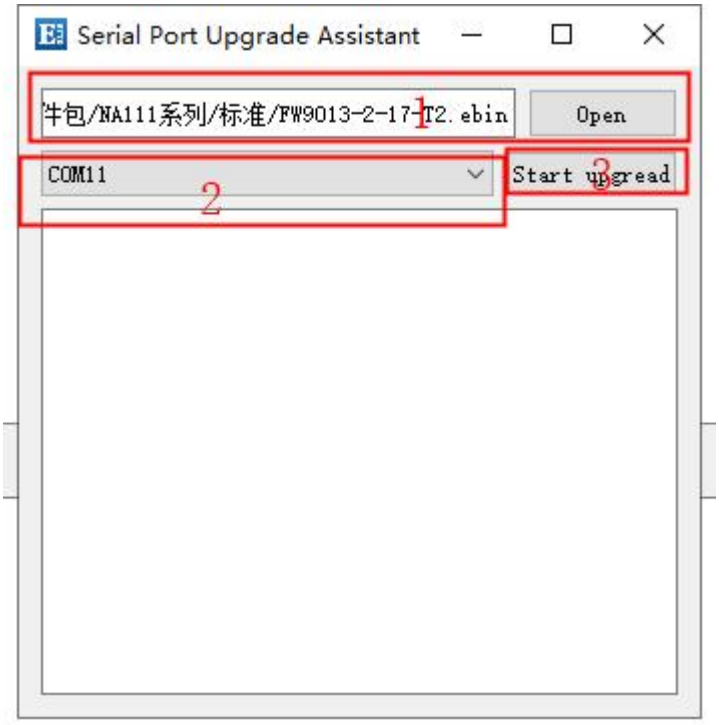
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Step 3: First connect the USB port of the computer, in the pop-up "Serial Port Upgrade Assistant" dialog box, select the corresponding port number and click "Open Serial Port".

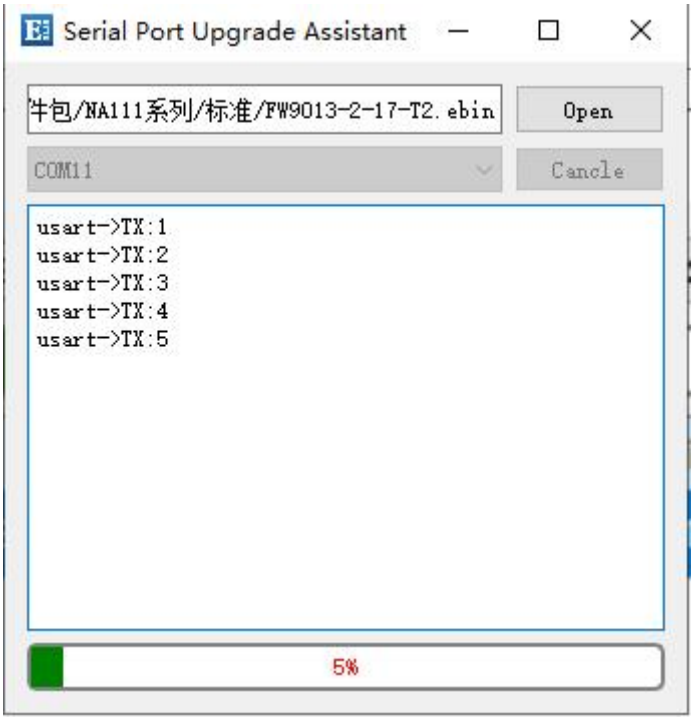
Click "Select Firmware", select the corresponding firmware, and then click "Open"



Step 4: Click "Start Upgrade", the progress bar starts to change, and wait for the upgrade to complete.

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【Note】Re-power on to trigger the upgrade.

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Revision History

Version	Revision Date	Revision Notes	Maintainer
1.0	2021-06-28	Initial release	LC
1.3	2021- 10-22	Product upgrades and content revisions	L C
1.4	2021- 10-22	Adapt to "9 013-2-10 " firmware	L C
1.5	2022-07-29	Change the manual illustration	L C
1.6	2 022 - 12 - 2 8	Matches "9 013-2-13 " firmware	LL
1.7	2023-10-18	Added IO interface description	LY
1.8	2023-12-11	Added power consumption description	LYL
1.9	2024-9-27	Information synchronization	LYL

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