Ethernet to TTL

E810-TTL-01

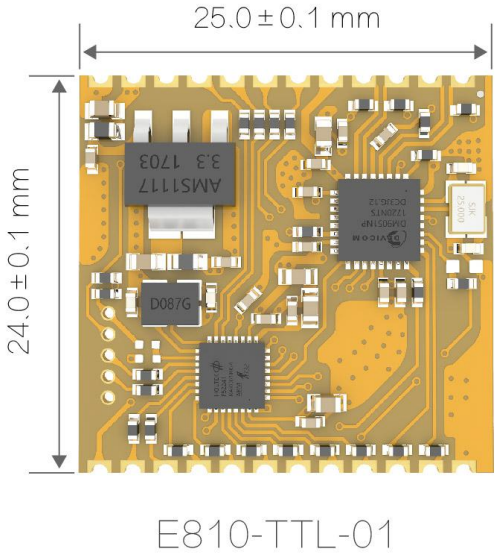
User Manual

This manual may change with the continuous improvement of the product. Please refer to the latest version of the instruction.

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Version	Date	Description	Issued by
1.00	2017/12/06	Initial version	huaa

Introduction



E810-TTL-01

E810-TTL-01 is a small, powerful serial port to Ethernet module. Realize data transparent transmission between RJ45 network port and TTL serial port.

The module is equipped with a M0+ series of 32-bit processors, fast and efficient. It has an adaptive network speed (up to 100M full duplex), and has four communication mechanisms: TCP Server, TCP Client, UDP Server, and UDP Client.

The E810-TTL-01 is easy to operate. The user can directly configure the parameters of the module through the host computer to easily implement data transmission.

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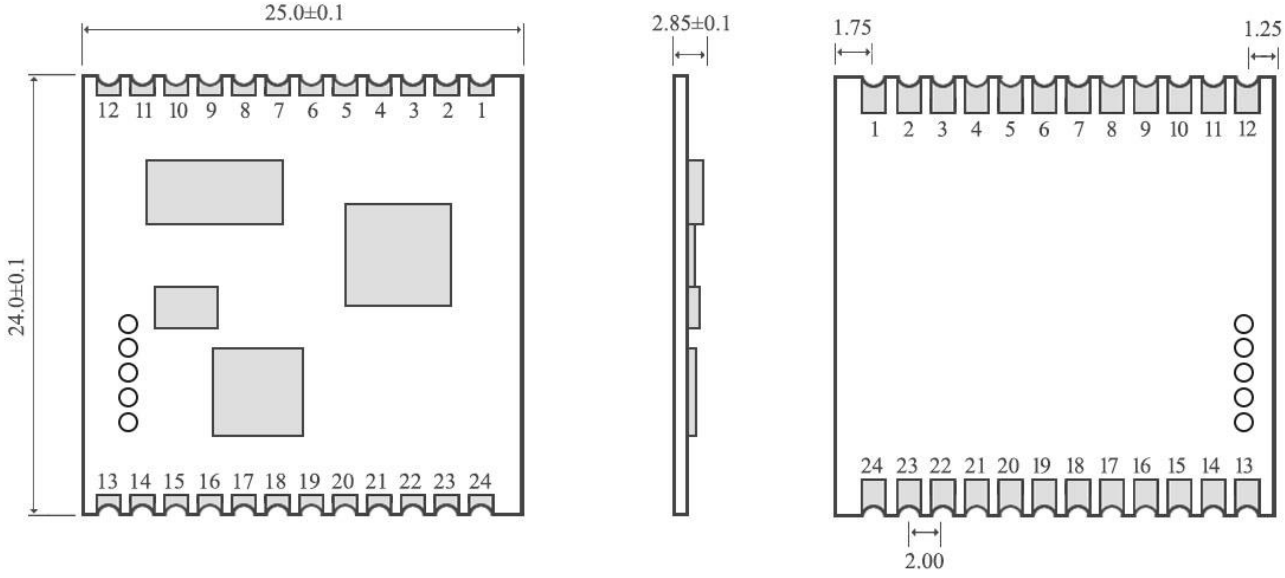
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1. Product specifications and features

No.	Item	Description
1	Size	24*25mm
2	Weight	2.0±0.1g
3	PCB process	2 layer，SMT, lead-free
4	Connector	2.0mm spacing，SMD
5	Supply voltage	4.5-5.5V DC（recommended 5V@200mA）
6	UART standard	1200~921600 bps
7	UART communication level	3.3V，communication level need to switch for 5V
8	Ethernet specification	RJ45，10/100Mbps
9	Network protocol	IP、 TCP/UDP、 ARP、 ICMP、 IPV4
10	IP Acquisition	Static IP、 DHCP
11	DNS	Available
12	User configuration	PC software , AT command configuration
13	Simple transparent transmission	TCP Server 、TCP Client 、 UDP Server 、 UDP Client
14	TCP Server connection	Max. 6 channel TCP connection
15	Software	RF Setting
16	Package mode	200 bytes per package
17	Operating current	139mA
18	Operating temperature	-40 ~ +85℃，Industrial class
19	Operating humidity	10% ~ 90%，relative humidity, no condensation
20	Storage temperature	-40 ~ +125℃，Industrial class

2. Introduction of hardware parameters and design

2.1. Dimension



2.2. Pin Definition

No.	Pin item	Pin direction	Pin description
1	RX+	Input	Receiving signal+, as short as possible when routing, and RX- take the differential line
2	RX-	Input	Receiving signal-, as short as possible when routing, and RX+ take the differential line
3	TX+	Output	Transmitting signal+, as short as possible when routing, and TX- take the differential line
4	TX-	Output	Transmitting signal-, as short as possible when routing, and TX+ take the differential line
5	AVDD		The PHY chip controls the voltage output and connects to the center tap of the network transformer
6	LED2	Output	Transmitting and Receiving indicator, low active, requiring in series with limiting resistor to 3.3V power supply
7	NC		No Connection
8	LED1	Output	Remote connection indicator, low active, requiring in series with limiting resistor to 3.3V power supply
9	NC		No Connection
10	nRST	Input	Whole module reset, low active
11	VCC		Power supply, 4.5-5.5V DC
12	GND		Ground electrode, connect to reference ground of power
13	VOUT		3.3V output (about 150mA output capability), mainly used for LED power supply
14	IO_RST	Input	All configuration parameters are restored to factory settings. Active low
15	NC		No Connection
16	TXD	Output	UART transmitting data, TTL communication voltage only supports 3.3V, If connected to 5V, need level conversion
17	RXD	Input	UART receiving data, TTL communication voltage only supports 3.3V, If connected to 5V, need level conversion
18	NC		No Connection
19	NC		No Connection
20	NC		No Connection
21	NC		No Connection
22	LINKLED	Output	Connection status indicator (RJ45), low active, requiring in series with limiting resistor to 3.3V power supply
23	SPDLED	Output	Data indicator (RJ45), low active, requiring in series with limiting resistor to 3.3V power supply
24	GND		Ground electrode, connect to reference ground of power

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2.3. Connection method

2.3.1. Typical application hardware connection

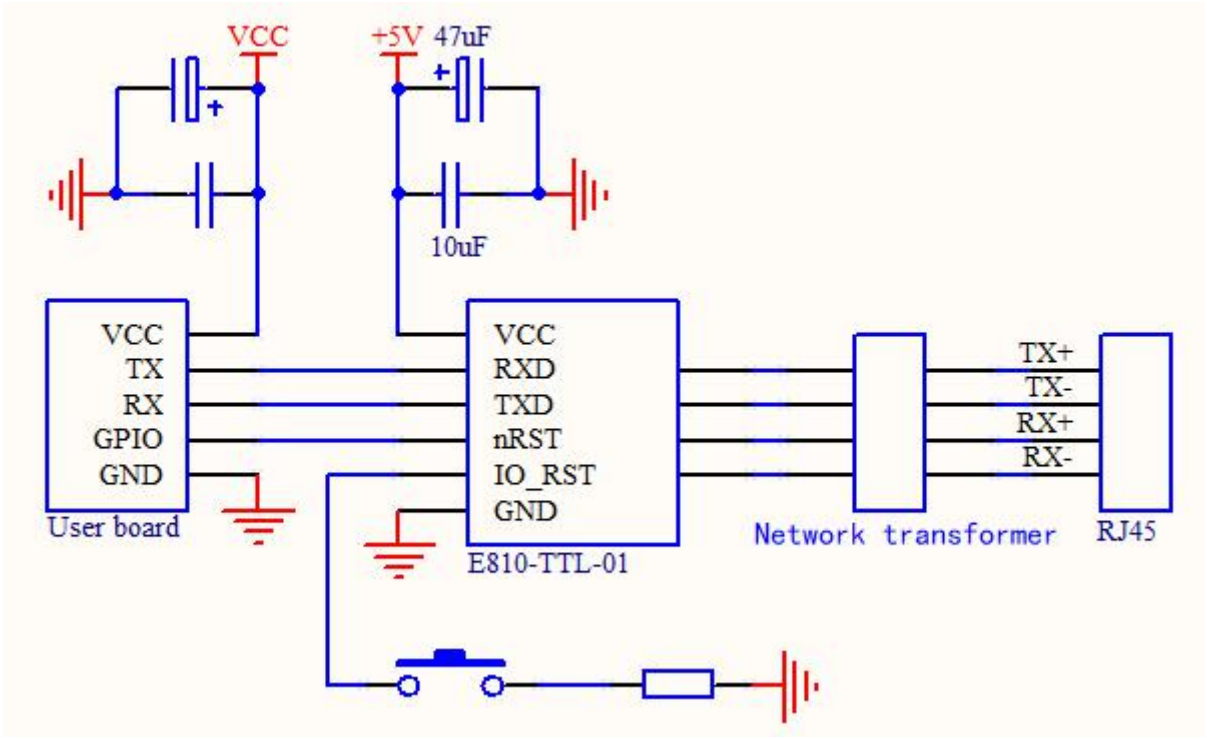


Figure 2-1 Typical application hardware connection

2.3.2. UART level conversion

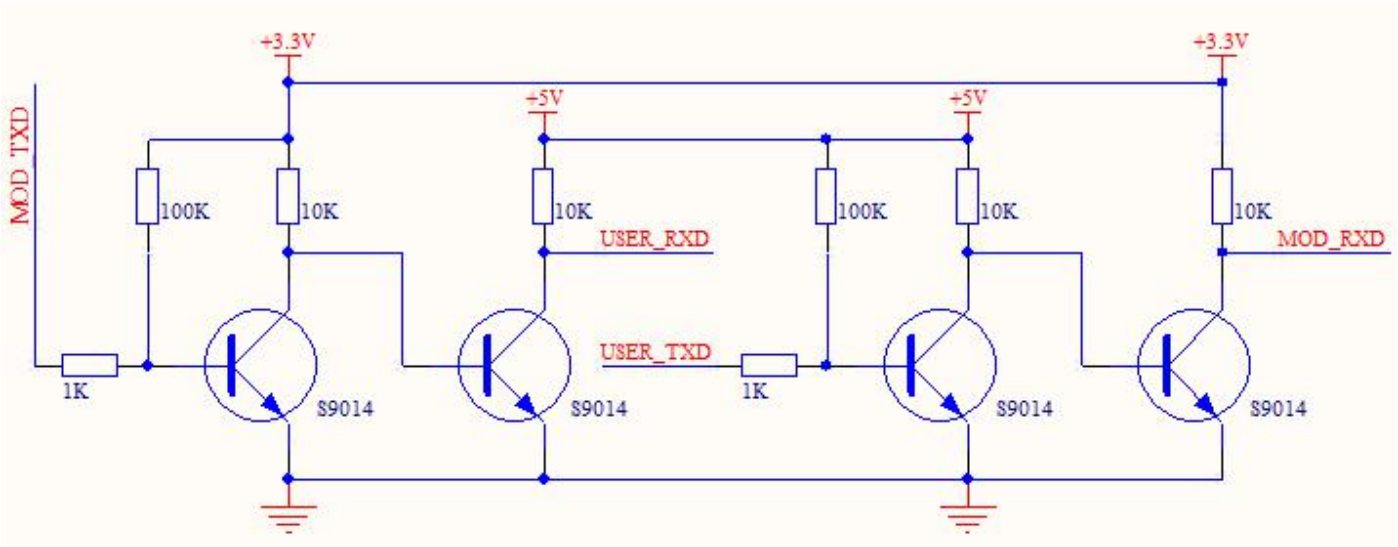


Figure 2-2 UART level conversion

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2.3.3 Ethernet interface external transformer application

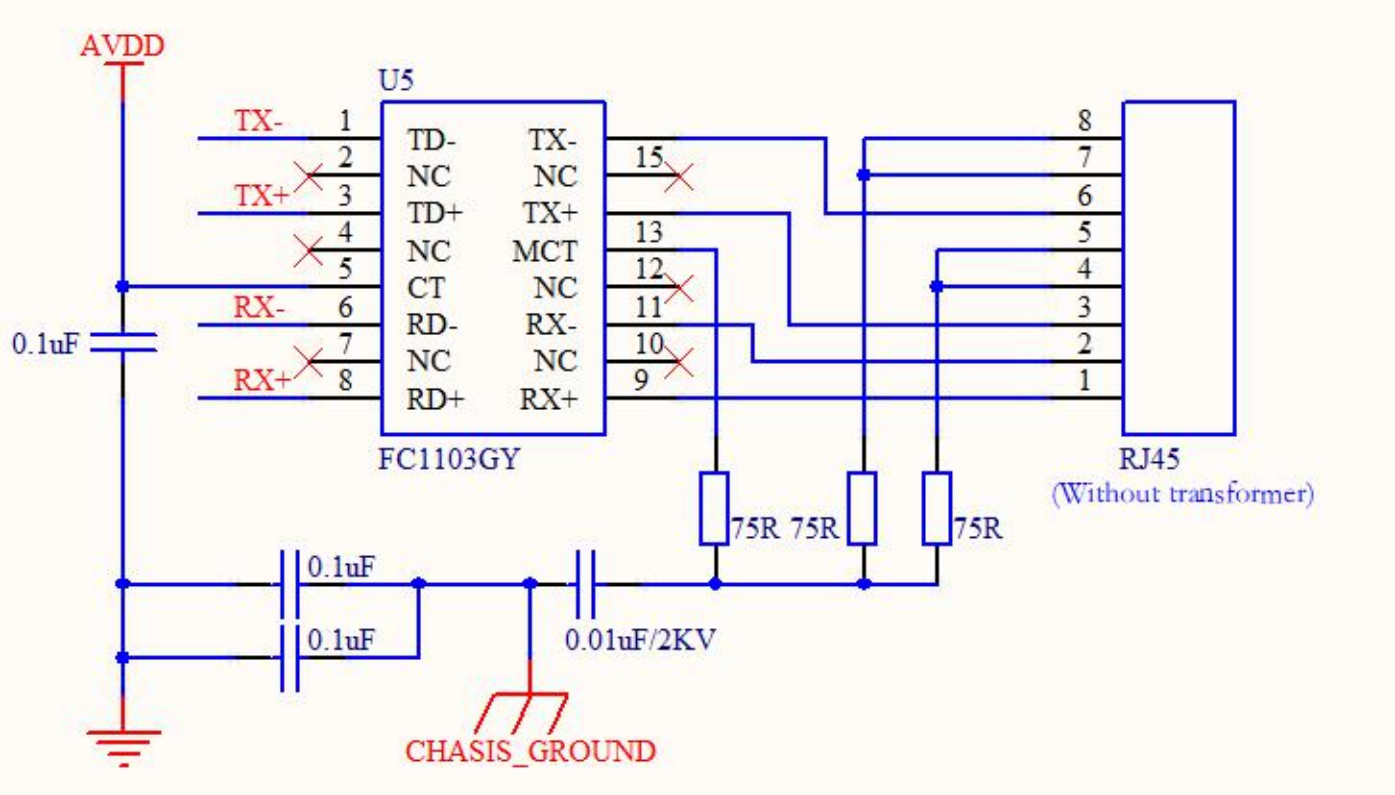


Figure 2-3 Ethernet interface external transformer application

2.3.4 Ethernet interface internal transformer application

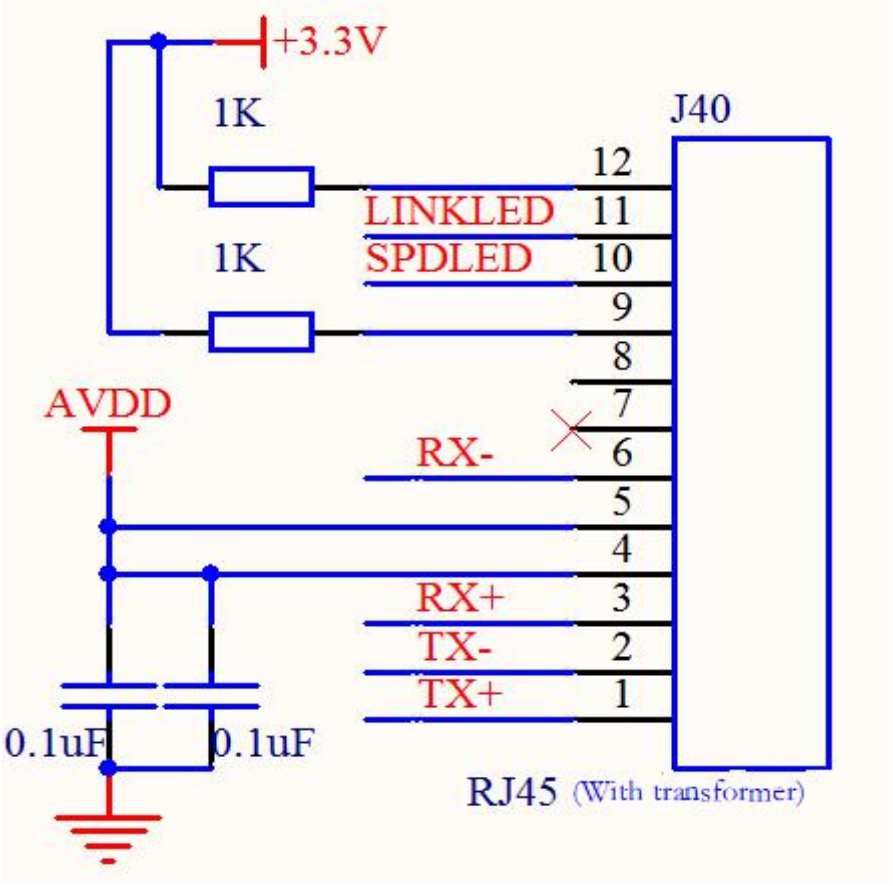


Figure 2-4 Ethernet interface external transformer application

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3. Network basic function introduction

3.1 IP address/Subnet mask/Gateway

1. The IP address is the identity of the module in the LAN. It is unique in the LAN and cannot be duplicated with other devices on the LAN.

E810-TTL-01's IP address of E810-TTL-01 is static IP and DHCP.

(1) Static IP

Static IP requires the user to set manually，please note that the IP, subnet mask, and gateway should be written at the same time. Static IP is suitable for scenarios that require IP and device statistics and have a one-to-one correspondence.

Advantage: Devices which cannot automatically assign IP addresses can be searched through the entire LAN.

Disadvantages: Different IP segments in different LANs cannot carry out normal TCP/UDP communication.

(2) DHCP

The main role of DHCP is to dynamically obtain IP address, Gateway address, DNS server address and other information from the gateway host, eliminating the cumbersome steps of setting the IP address. It is suitable for scenarios where there is no requirement for IP and no need for correspondence one by one of IP and modules.

Advantages: When connected routers and other devices with DHCP Server can communicate directly, and reduce the hassles of setting up IP address gateways and subnet masks.

Disadvantages: When connected LANs without DHCP Server，such as computers, E810-TTL-01 cannot work.

2. The subnet mask is mainly used to determine the LAN number and host number of the IP address, and indicate the number of subnets, and judge whether the module is within the subnet。The subnet mask have to be set, what we normally use is C type subnet mask: 255.255.255.0, LAN number is the first 24 numbers, host number is the last 8 numbers, and there are 255 subnets, If the module IP is within the 255 subnets, it is considered to be in this subnet.

3. The gateway refers to the LAN number of the LAN where the current IP address of the module is located. If a device such as a router is connected to an external network, the gateway is the router IP address，If the setting is incorrect, the external network cannot be accessed properly，If you do not connect a device such as a router, you do not need to set it, by default.

4. Software setting

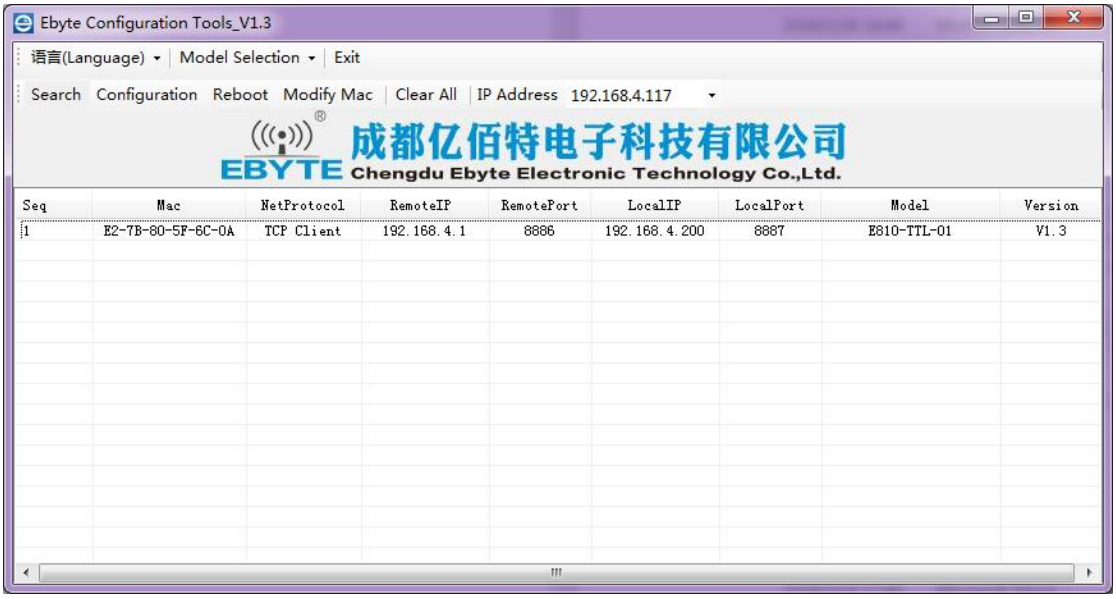


Figure 1 Parameter setting software

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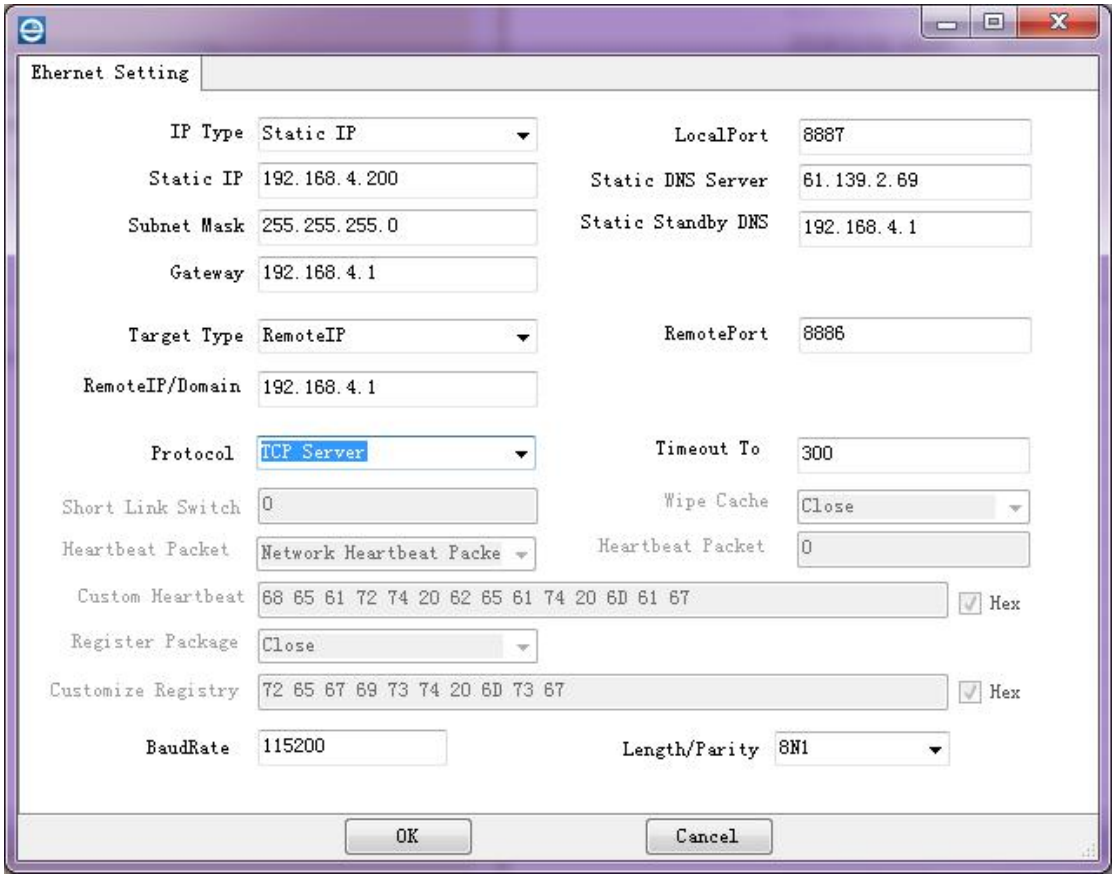


Figure 2 Parameter setting interface

3.1. DNS server address

The DNS server is mainly used to convert the domain name into a network-recognizable IP address. DNS server address can be set, it can implement domain name resolution when the local domain name server is not complete. Users can also set specific DNS server addresses as required, E810-TTL-01 will submit a resolution request to the configured DNS server when domain name resolution is required, more flexible and reliable.

In static IP mode, the default address of the DNS master server is 61.139.2.69, and the backup DNS server address is 192.168.4.1. In DHCP mode, the DNS server address is automatically obtained. Domain name server address supported by the module can be set.

4. Socket characteristics

The Socket operating mode of E810-TTL-0 is divided into TCP Client, TCP Server, UDP Client, and UDP Server., it can be set with the host computer software, the setting interface is as follows:

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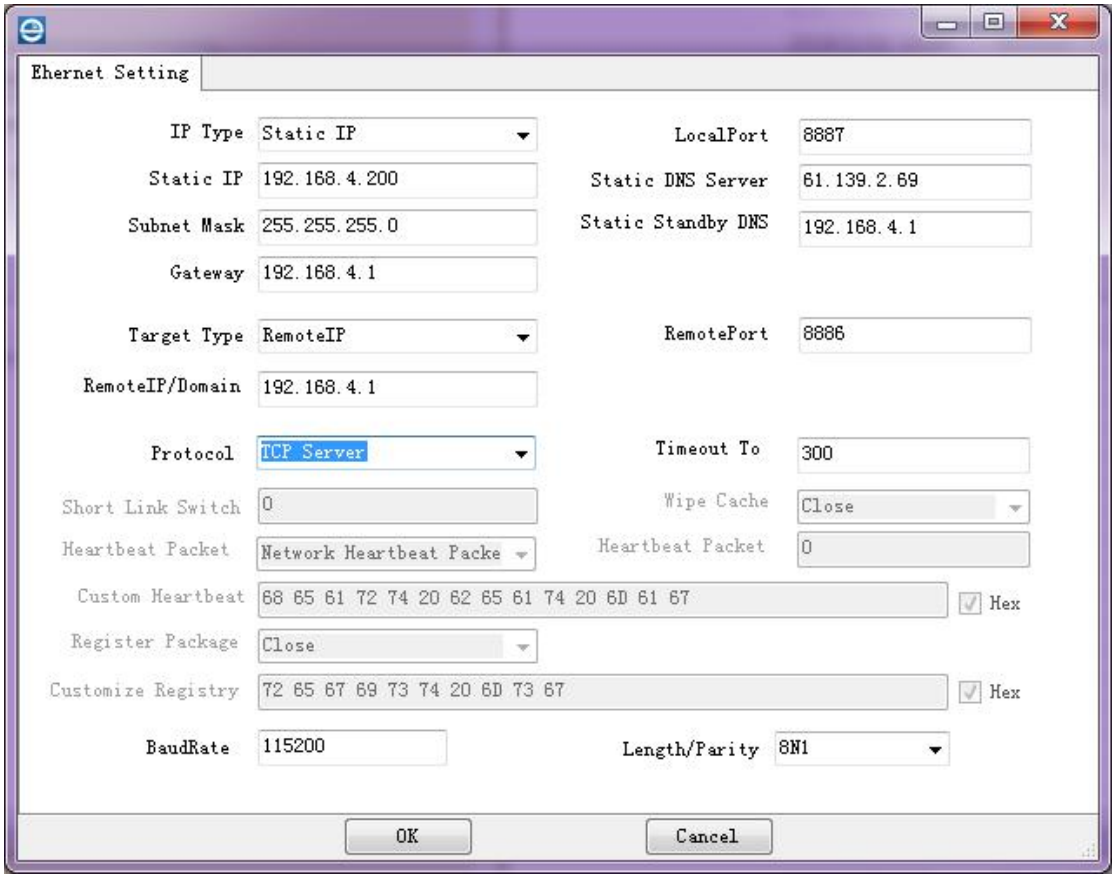


Figure 3 Setting interface

4.1. TCP Server characteristics

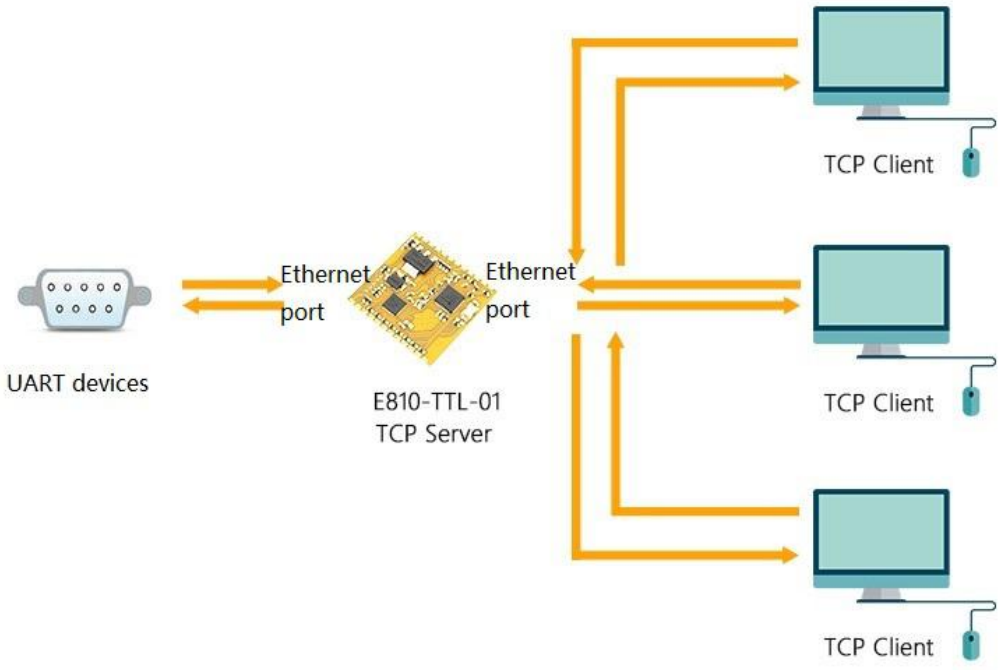


Figure 5 TCP Server

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(1) In TCP Server mode, E810-TTL-01 monitors the local port, receiving and establishing a connection for data communication when a connection request is sent. When the E810-TTL-01 serial port receives data, it will transmit data to all client devices which established a connection with the E810-TTL-01.

(2) It is usually used for communication with TCP clients in the LAN. Suitable for scenarios where there is no server in the LAN and there are many computers or cellphones requesting data from the server. There is difference between connection and disconnection like TCP Client to ensure the reliable exchange of data.

(3) When the E810-TTL-01 is a TCP Server, it can connect at most six clients, the local port number is a fixed value and cannot be set to 0

4.2. TCP Client characteristics

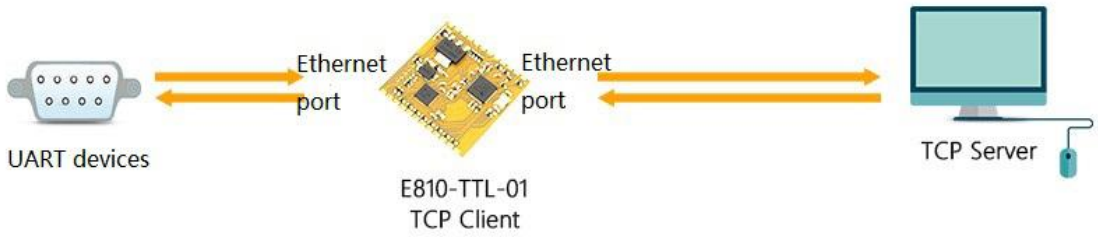


Figure 6 TCP Client

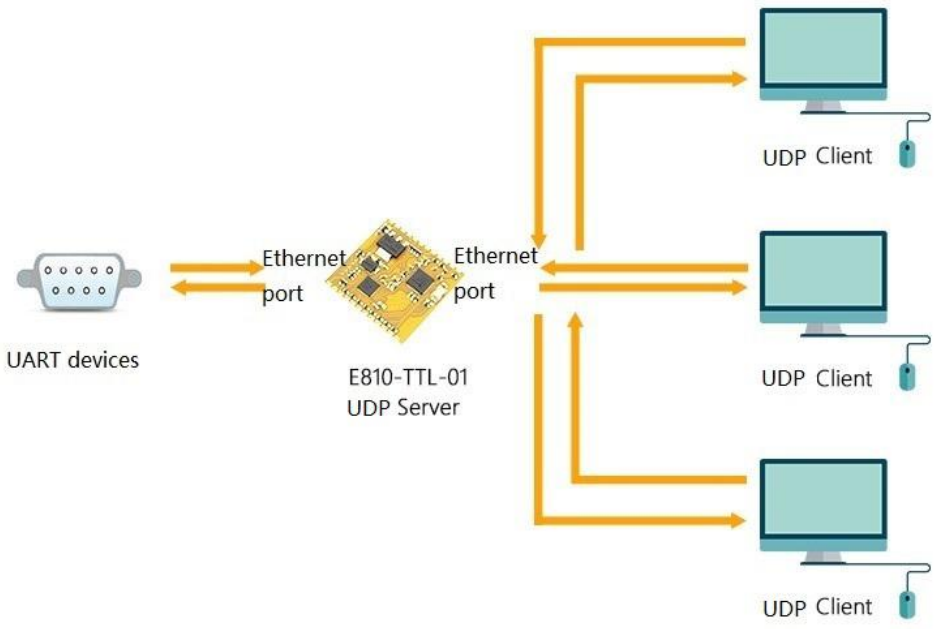
(1) TCP Client provides Client connectivity for TCP network services. Proactively initiates connection requests to the server and establishes connections for the interaction of serial data and server data. According to the relevant TCP protocol, there is difference between connection and disconnection to ensure the reliable exchange of data. It is normally used for data exchange between devices and servers and it is the most commonly used networking communication method.

(2) In TCP Client mode, when the E810-TTL-01 attempts to connect to the server and the local port is 0, it initiates a connection with a random port each time.

(3) This mode supports short connection function。

(4) In the same LAN, if the E810-TTL-01 is set to static IP, please keep the E810-TTL-01 IP and gateway in the same network segment and set the gateway IP correctly, otherwise it cannot communicate normally.

4.3. UDP Server characteristics



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Figure 7 UDP Server

(1) UDP Server means that the source IP address is not verified on the basis of normal UDP. After each UDP packet is received, the target IP is changed to the data source IP and port number, when the data is transmitted, it will be sent to the IP and port number which was the nearest communication one.

(2) This mode is normally used for multiple network devices which need to communicate with the module, and do not want to use TCP's data transmission due to fast speed and frequency.

4.4. UDP Client characteristics

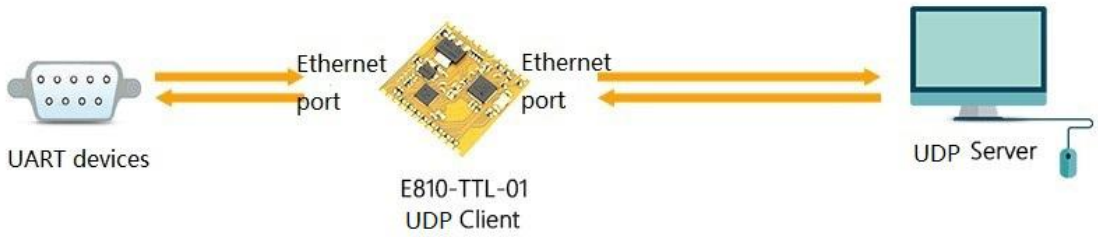


Figure 8 UDP Client

(1) UDP Client is a connectionless transmission protocol that provides a simple, unreliable information transfer service, without connection establishment and disconnection, only IP and port are needed to send data. Generally used for data transmission scenarios where packet loss rate is not required, data packets are small and the frequency is fast, and data is transmitted to a specified IP.

(2) In UDP Client mode, the E810-TTL-01 will only communicate with the target IP's target port, if the data is not from this channel, it will not be received by the E810-TTL-01.

(3) In UDP Client mode, if the target address is set to 255.255.255.255, it will broadcast within the whole UDP network segment, and it can also receive broadcast data，E810-TTL-01 supports broadcast within the supporting network segment, such as the mode of xxx.xxx.xxx.255.

5. Special function

5.1. Short connection

The use of short connections is mainly to save server resources, and is generally applied to multipoint-to-point scenarios. Short connections is to ensure that existing connections are useful connections and do not require additional controls for filtering.

The short connection function is applied in the TCP Client mode. After the short connection function is enabled, when sending data. If no data is received from the serial port or network port within the setting time, the connection will be automatically disconnected. The short connection function is turned off by default, and the disconnection time can be set after the function is turned on, the range is 2~255S.

5.2. Registration packet mechanism

In the network transparent transmission mode, users can make the module send registration packets to the server. The registration packet is for the server to identify the data source device, or as a password to obtain server authorization.

E810-TTL-01 has 4 registration packet mechanisms:

Sending MAC when connecting: The module will send the its own MAC address to the device when the connection is established.

Sending user-defined data when connecting: The module sends a user-defined data to the device when the connection is established

Each packet of data sending MAC: The module will add its MAC address in front of each frame of data sent.

Each packet of data sending user-defined data: The module will add its user-defined data in front of each frame of data sent.

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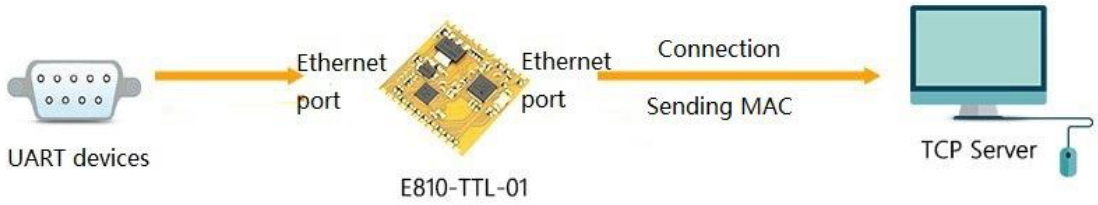


Figure 8 Sending MAC when connecting

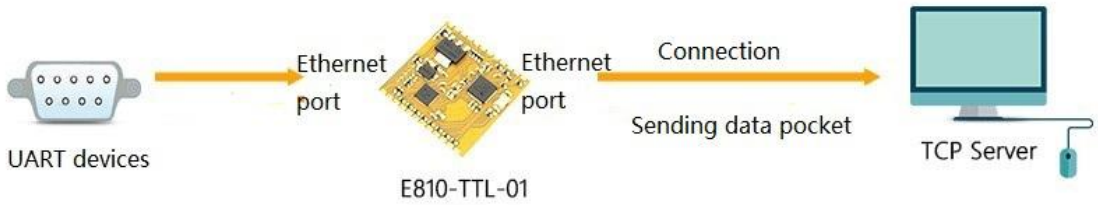


Figure 9 Sending user-defined data when connecting

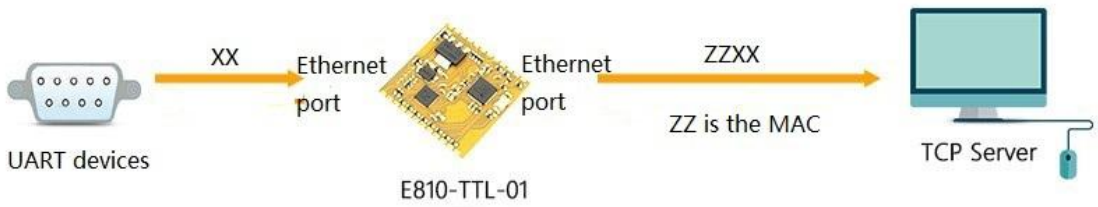


Figure 10 Each packet of data sending MAC

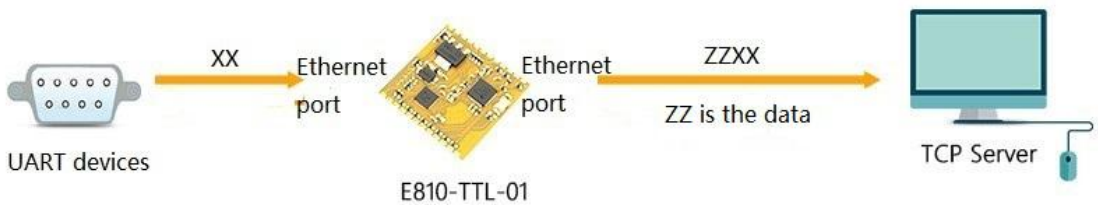


Figure 11 Each packet of data sending user-defined data

Sending a registration packet when establishing a connection are mainly used to connect to a server that requires registration. Data-carrying registration packets refers to accessing registration packets at the head of data in sending data, which is mainly used for protocol transmission. The user-defined data packet defaults to hexadecimal data (ASCII code optional) and the maximum packet length is 40 bytes.

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5.3. Heartbeat mechanism

In the network transparent transmission mode, users can make the module send heartbeat packets to the server. Heartbeat packets can be sent to the web server or sent to the serial device, they cannot run at the same time.

Network heartbeat pocket: The heartbeat packet is sent to the network, in the heartbeat transmission cycle, the module sends heartbeat packet data to the network server to maintain the connection with the network server. It only runs in the TCP Client and UDP Client modes。

Serial data packet: In the set heartbeat sending cycle, the module sends heartbeat packet data to the serial port, users can do corresponding processing after the serial port receives the heartbeat data.

In an application in which a server sends a fixed inquiry command to a device, in order to reduce communication traffic, users can choose to send a heartbeat packet (inquiry command) to the serial device side instead of sending a inquiry command from the server.

User-defined data packet defaults to hexadecimal data (ASCII code optional), E810-TTL-01 module supports custom heartbeat packet content up to 40 bytes.

5.4. Overtime restart

Overtime restart (no data restart) function is mainly used to ensure long-term stability of E810-TTL-01. When the network port cannot receive data for a long time, or if the network does not receive data for a long time, the E810-TTL-01 will restart after exceeding the set time, thus avoiding the influence of abnormal conditions on the communication. The normal working time of this function is set to 60~65535S, default 300S. When the setting time is less than 60S, the default setting is zero, that is, the function is turned off.

5.5. TCP multi-connection function

TCP multi-connection function is mainly to solve that in the TCP Sever mode, the user has multiple clients to connect E810-TTL-01 and send and receive data at the same time. When E810-TTL-01 is used as a TCP Server, up to 6 connections can be established at the same time, the TCP Server sends data to multiple (up to 6) TCP clients on the connection at the same time. When the number of established connections exceeds six, the connection established at the beginning will be actively disconnected, that is, the old connection will be kicked off.

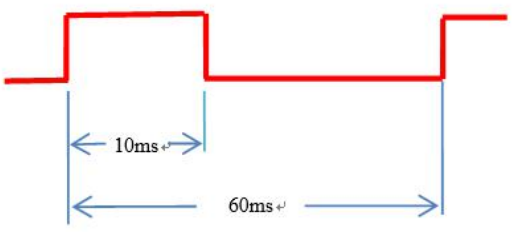
5.6. Clearing cached data

When the TCP Client connection is not established, the data received by the serial port will be placed in the buffer area, the E810-TTL-01 serial port receive buffer is 400 bytes. When the connection is established, the serial port buffer data can be set whether to clear according to customer needs.

5.7. Link and data transfer instructions

Link indicates the network connection status of the module. In TCP mode, when the network is not connected, the link goes out. When the connection is established, the link is always on. Link indicator is on in UDP mode.

The other is the data transmission indication, which shows the data transmission status of the serial port of the module. When there is no data transmission on the serial port, the data transmission indicator is extinguished. When there is data transmission on the serial port, the flashing indicates that the period is 60ms and the indicator lit 10ms.



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6. Quick instructions

6.1. Parameter setting instruction

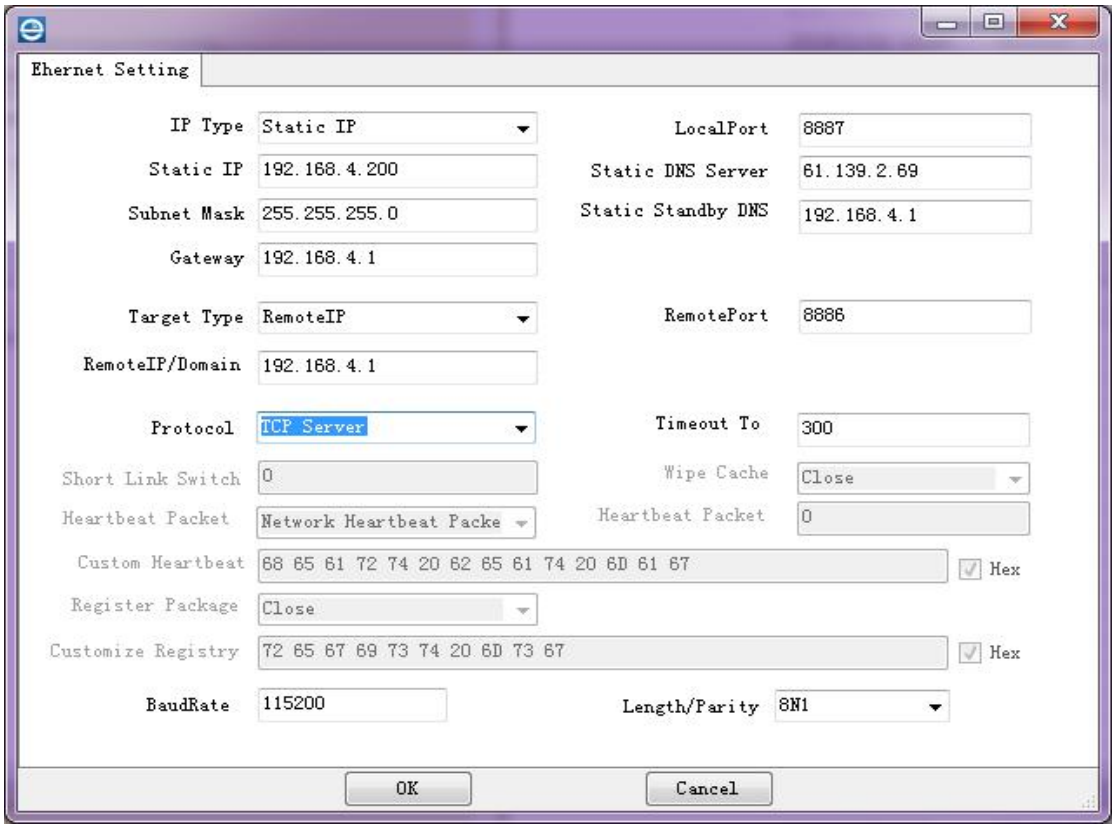


Figure 12 Parameter setting instructions

6.2. Socket instructions

6.2.1. TCP Server instructions

(1) Connect two E810-TTL-01 cable to the PC. Open the network configuration software and search for the device. The searched device will be displayed in the device list. Double-click the device to be configured in the list, enter the setting interface, and set the module to TCP Server mode, Set the module IP address to 192.168.4.101, 192.168.4.102, set the module's local port to 8886, set the RF parameters. After the setting is complete, click the OK button, then restart the device and search again to see if the parameter modification was successful.

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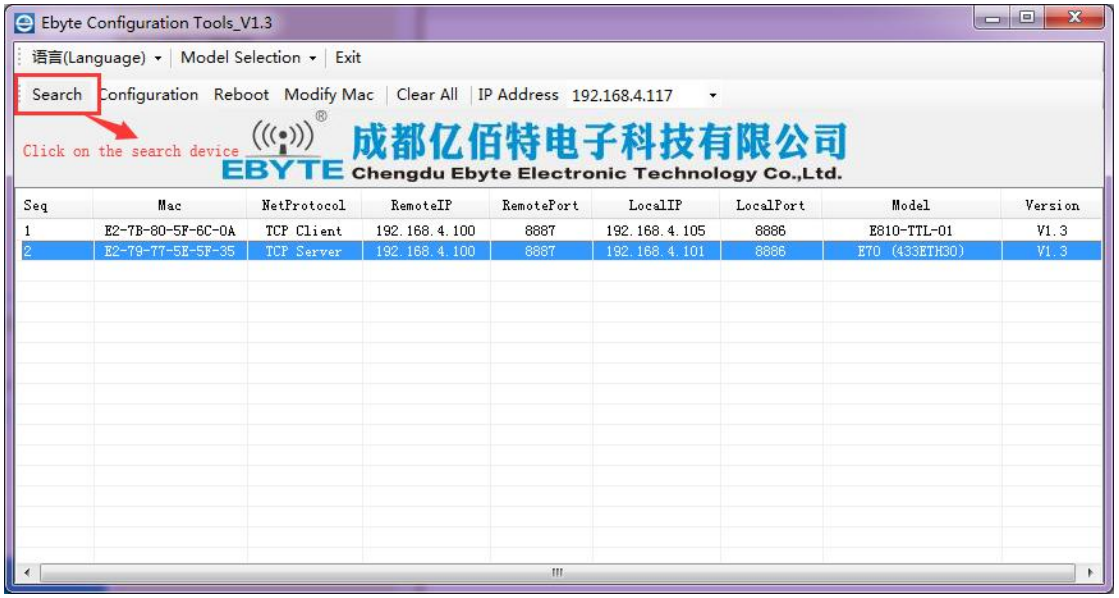


Figure 13 Searching devices

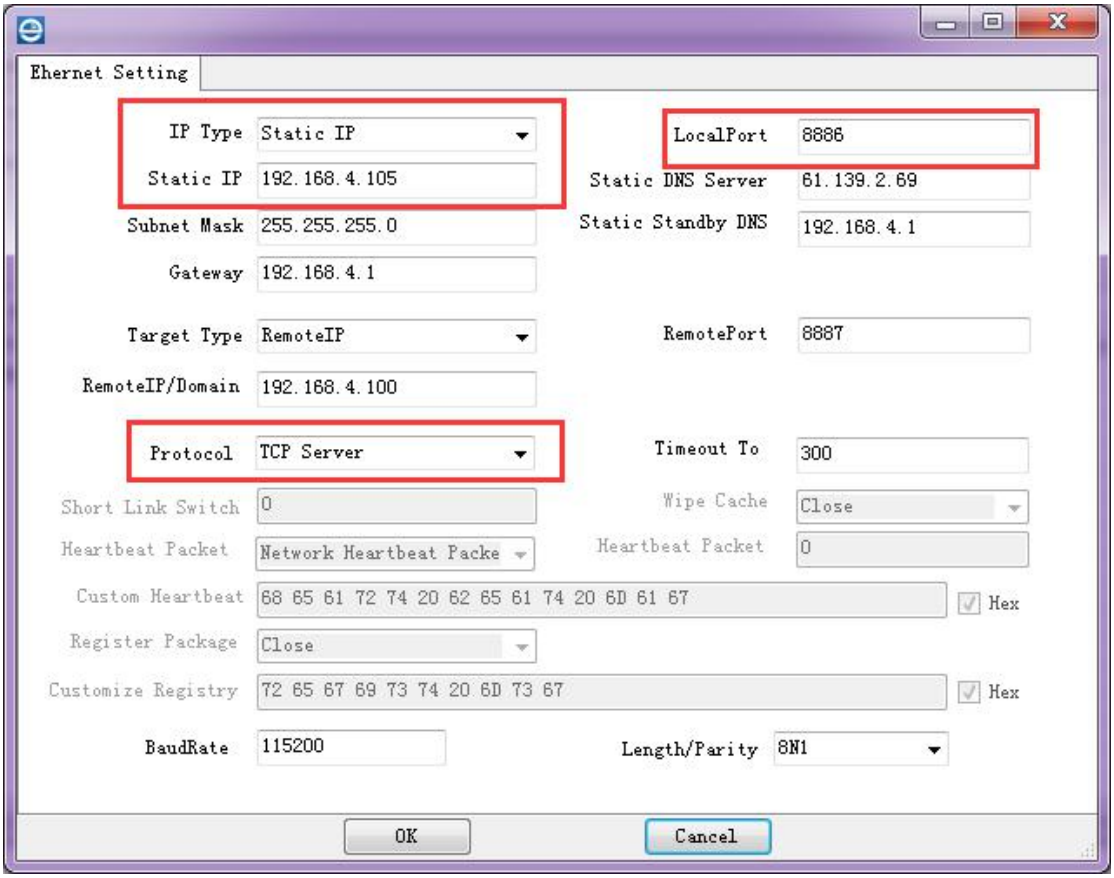


Figure 14 Network port parameter settings

Click Read Parameters on the RF Parameter Settings interface to obtain the module's current RF parameter settings, then you can configure the RF settings.

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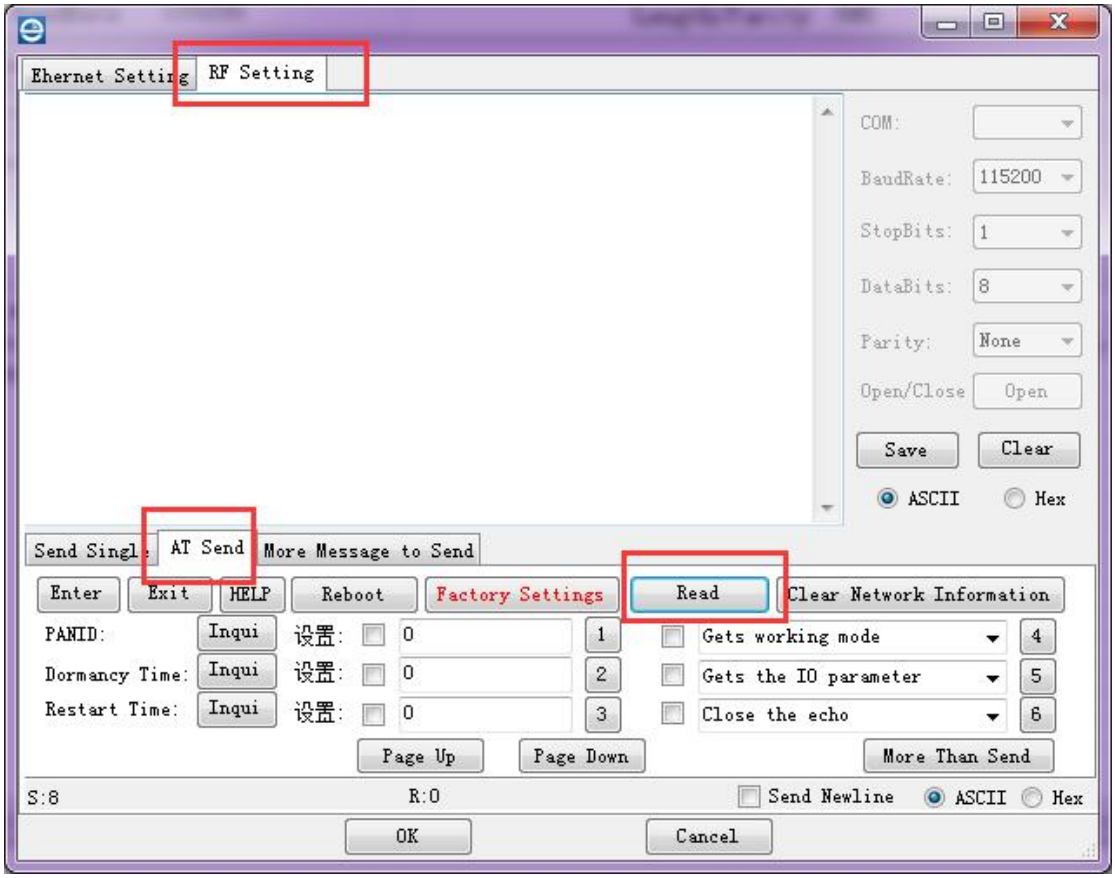


Figure 15 RF Parameter configuration settings

(2) Open two network debugging assistants, set the network debugging assistant protocol type to TCP Client, the network debugging assistant's server IP address is set to the module's IP address, the network debugging assistant's server port is set to the module's local port, click Connect.

(3) Enter a string of data in the sending area of network debugging assistant A, click Send, you will see that network assistant B has received the same data in the sending area of the serial port. Input a string of data in the sending area of network debugging assistant A, network assistant B also received the data. It realizes bidirectional transparent transmission.

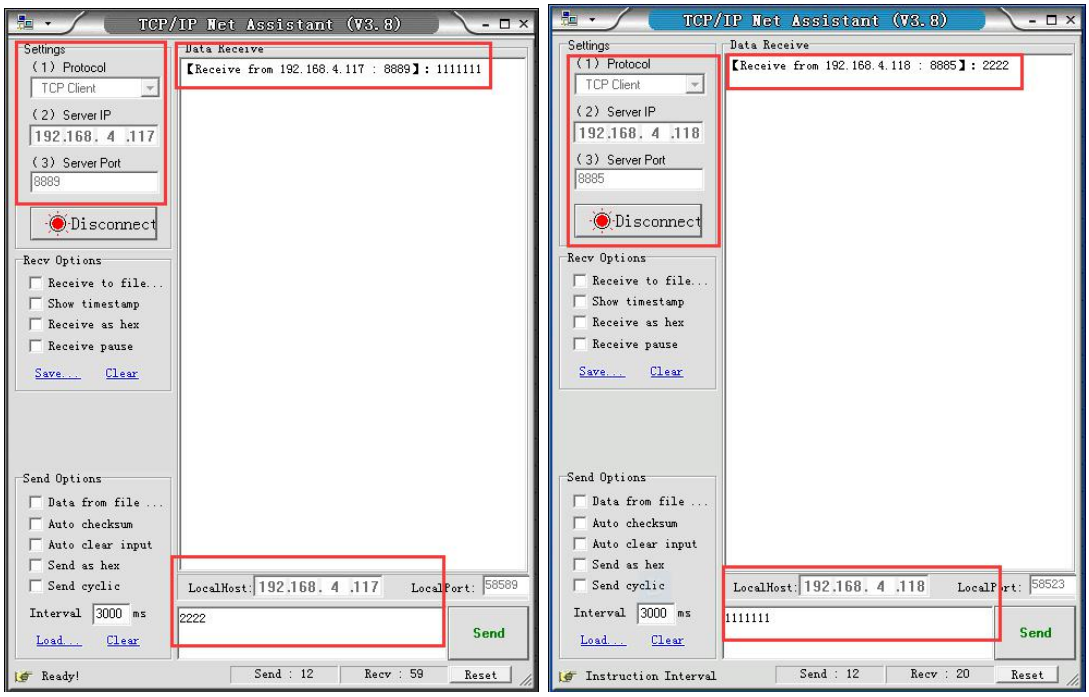


Figure 16 Data transparent transmission

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6.2.2. TCP Client instructions

(1) Connect two E810-TTL-01 serial ports and network cables to PC, open the network configuration software and search for the device. The searched device will display the device list. Double-click the device to be configured in the list and enter the setting interface. Set the module to TCP Client mode, set the target IP address to 192.168.3.100, set the target port of module A to 8887, the target port of module B to 8886, set the RF parameters, click the OK button after the setting is complete, and then restart the device to search Check once to see if the parameter modification was successful.

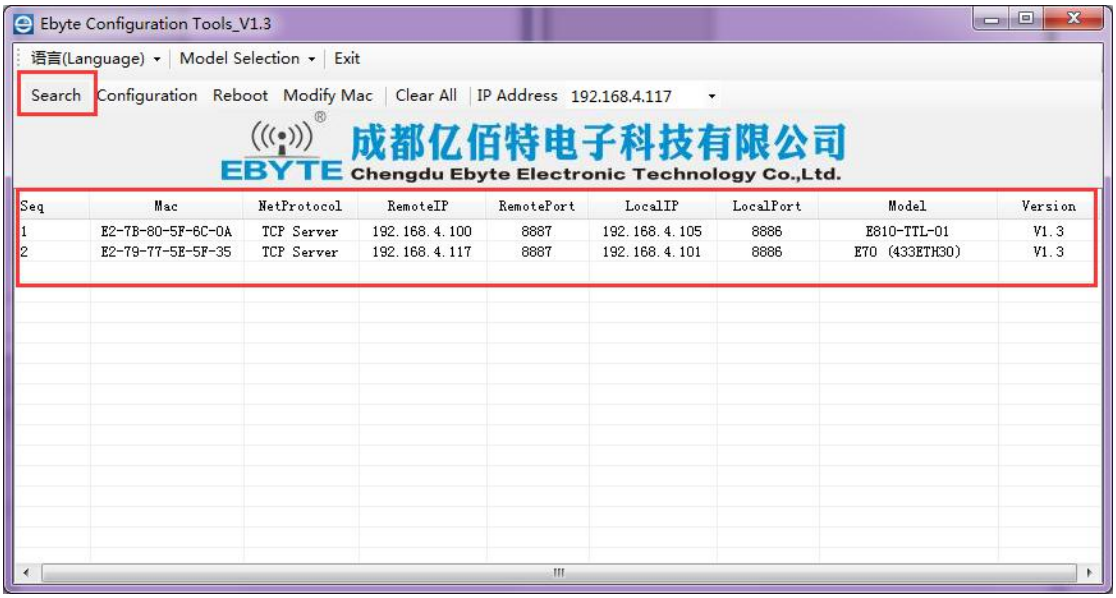


Figure 17 Searching devices

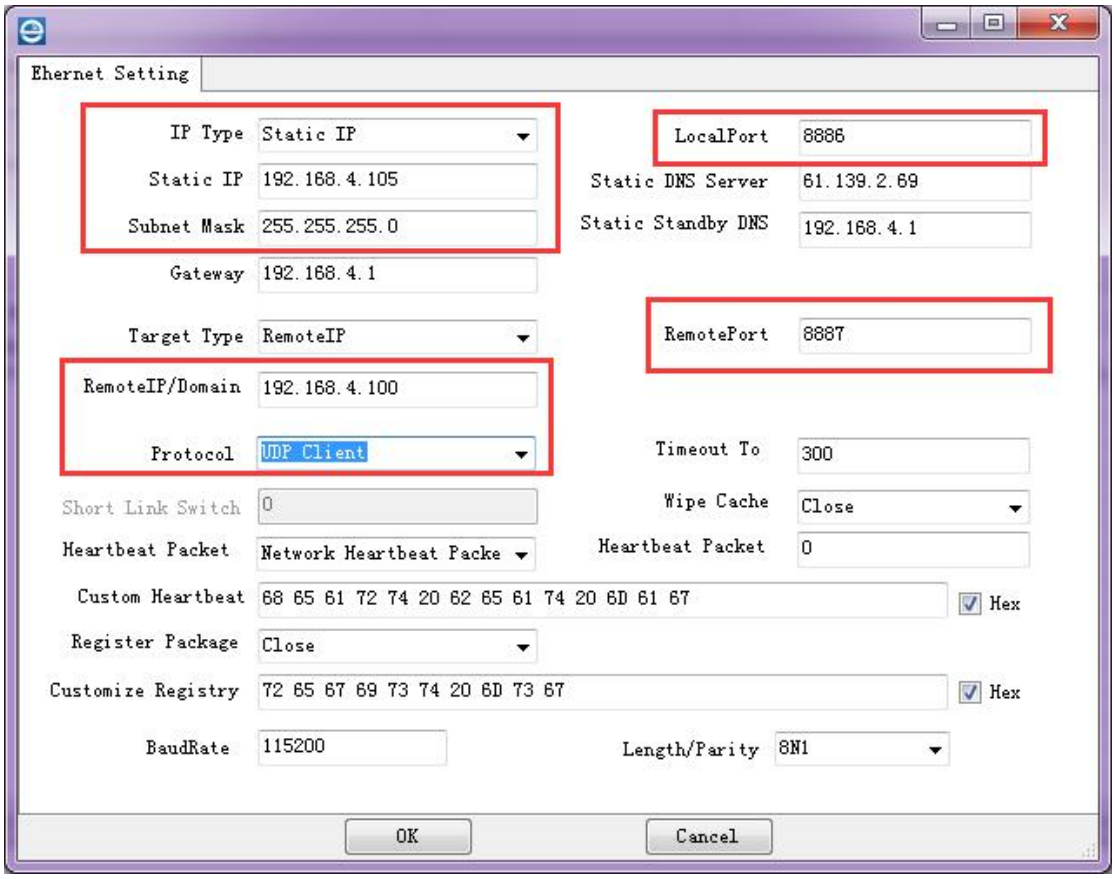


Figure 18 Parameter settings

Click Read Parameters on the RF Parameter Settings interface to obtain the module's current RF parameter settings. Then you can configure the RF settings.

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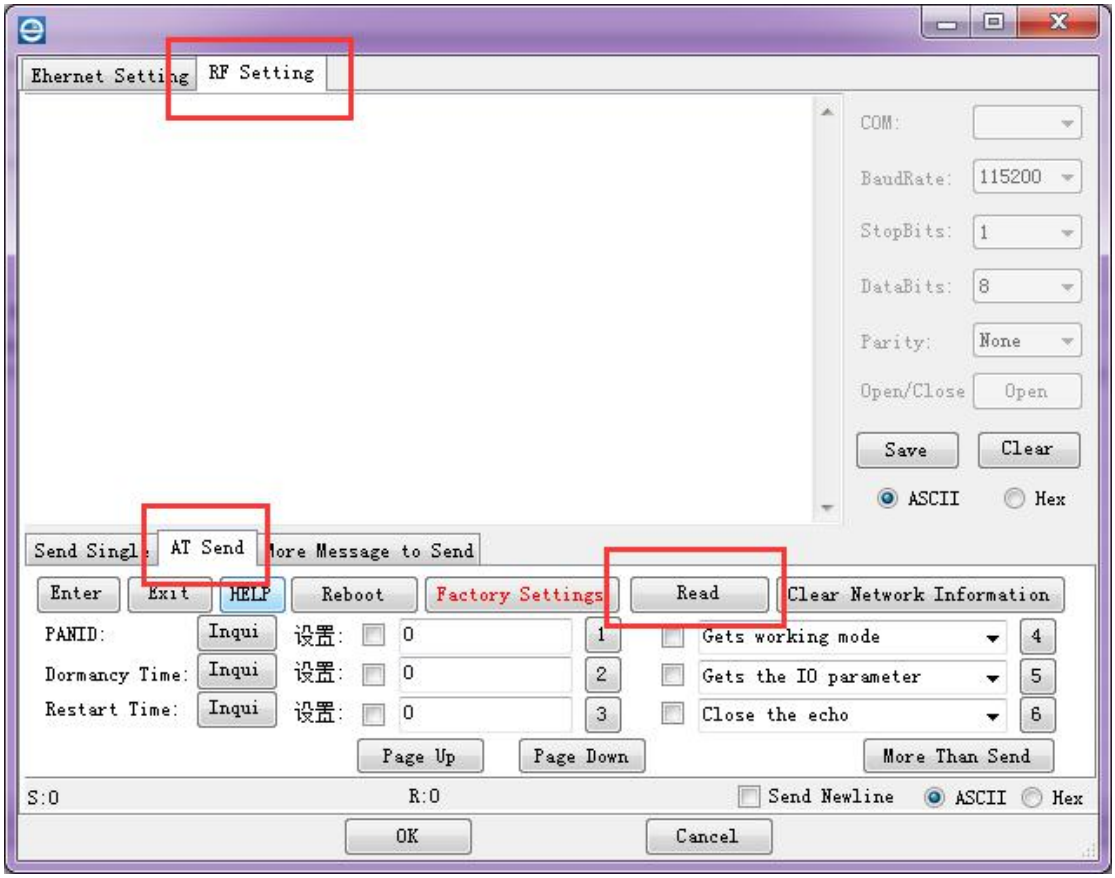


Figure 19 RF Parameter configuration settings

(2) Open two network debugging assistants, set the network debugging assistant protocol type to TCP Client, the network debugging assistant's server IP address is set to the module's IP address, the network debugging assistant's server port is set to the module's local port, click Connect.

(3) Enter a string of data in the sending area of network debugging assistant A, click Send, you will see that network assistant B has received the same data in the sending area of the serial port. Input a string of data in the sending area of network debugging assistant A, network assistant B also received the data. It realizes bidirectional transparent transmission.

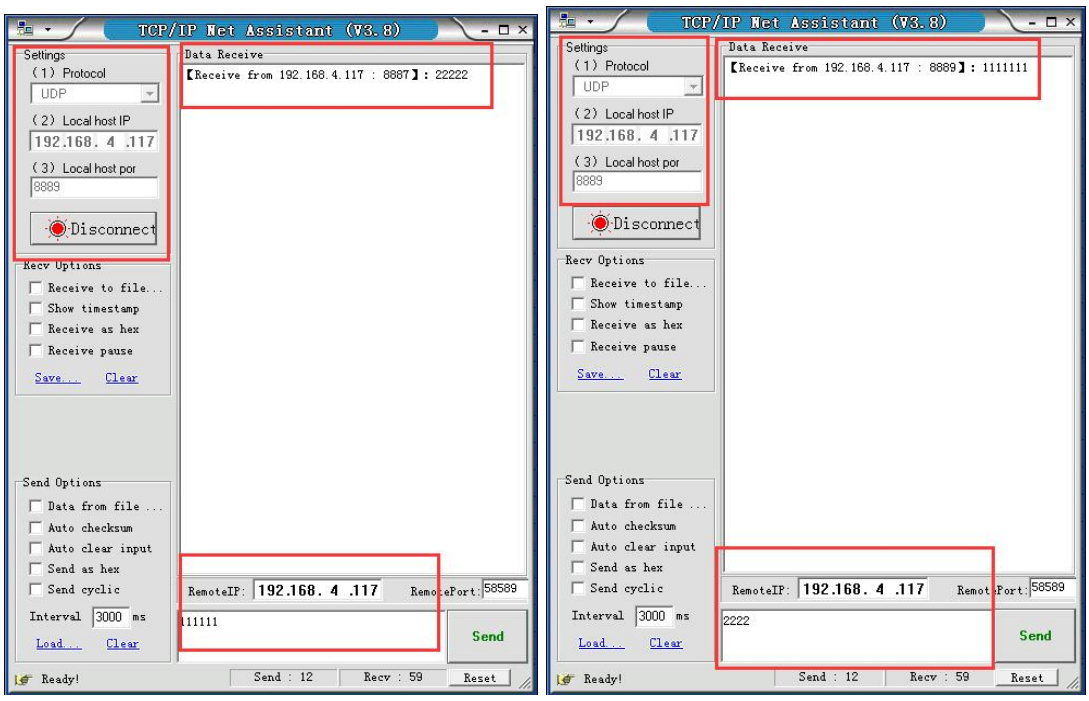


Figure 20 Data transparent transmission

6.2.3. UDP Server instructions

(1) Connect two E810-TTL-01 serial ports and network cables to PC, open the network configuration software and search for the device. The searched device will display the device list. Double-click the device to be configured in the list and enter the setting interface. Set the module to UDP Server mode, set the target IP address to 192.168.3.100, set the target port of module A to 8887, the target port of module B to 8886, set the RF parameters, click the OK button after the setting is complete, and then restart the device to search Check once to see if the parameter modification was successful.



Figure 21 Searching devices

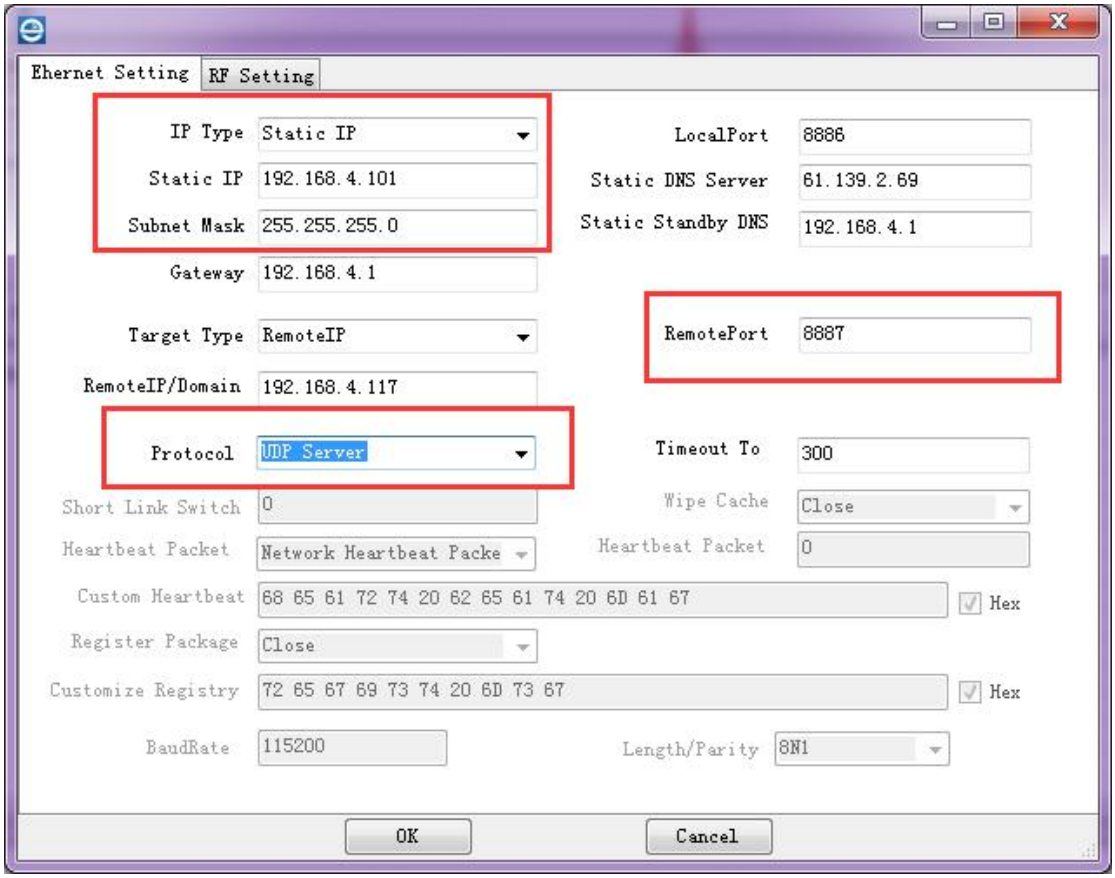


Figure 22 Parameter settings

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Click Read Parameters on the RF Parameter Settings interface to obtain the module's current RF parameter settings. Then you can configure the RF settings.

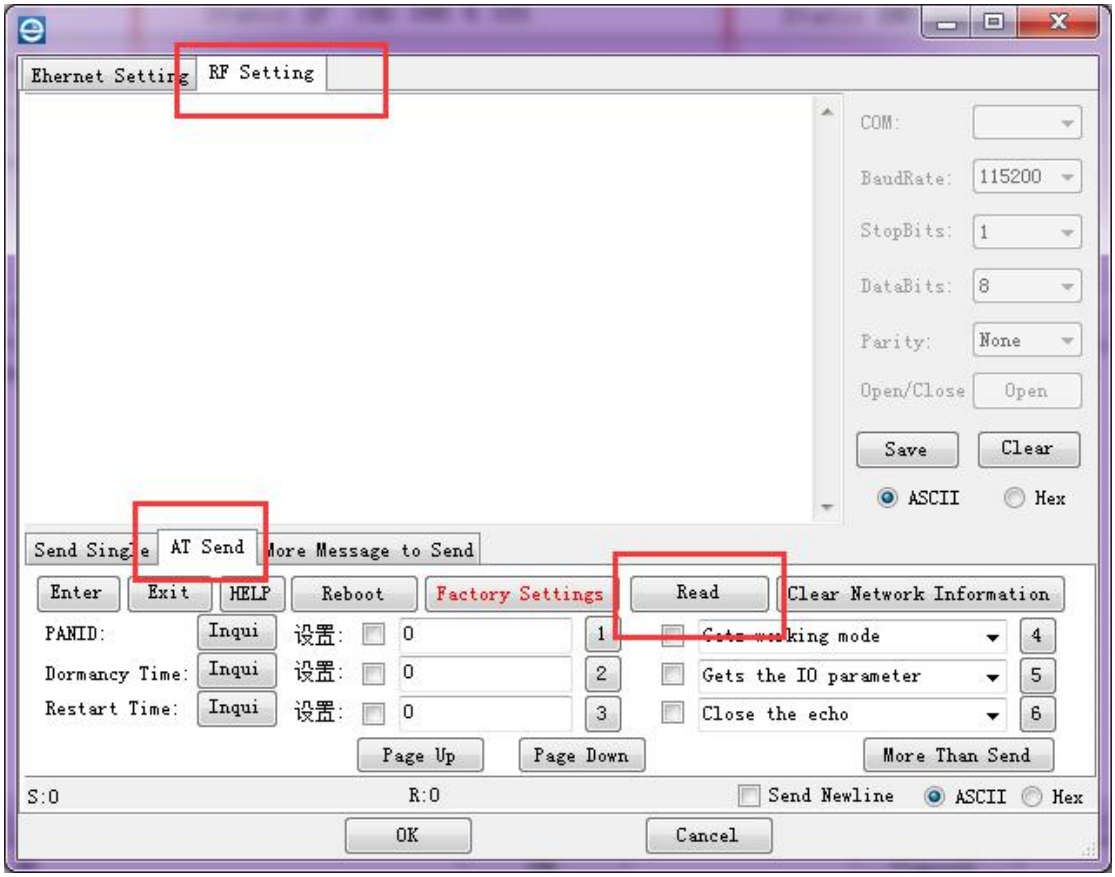


Figure 23 RF Parameter configuration settings

(2) Open two network debugging assistants, set the network debugging assistant protocol type to UDP Server, the network debugging assistant's server IP address is set to the module's IP address, the network debugging assistant's server port is set to the module's local port, click Connect.

(3) Enter a string of data in the sending area of network debugging assistant A, click Send, you will see that network assistant B has received the same data in the sending area of the serial port. Input a string of data in the sending area of network debugging assistant A, network assistant B also received the data. It realizes bidirectional transparent transmission.

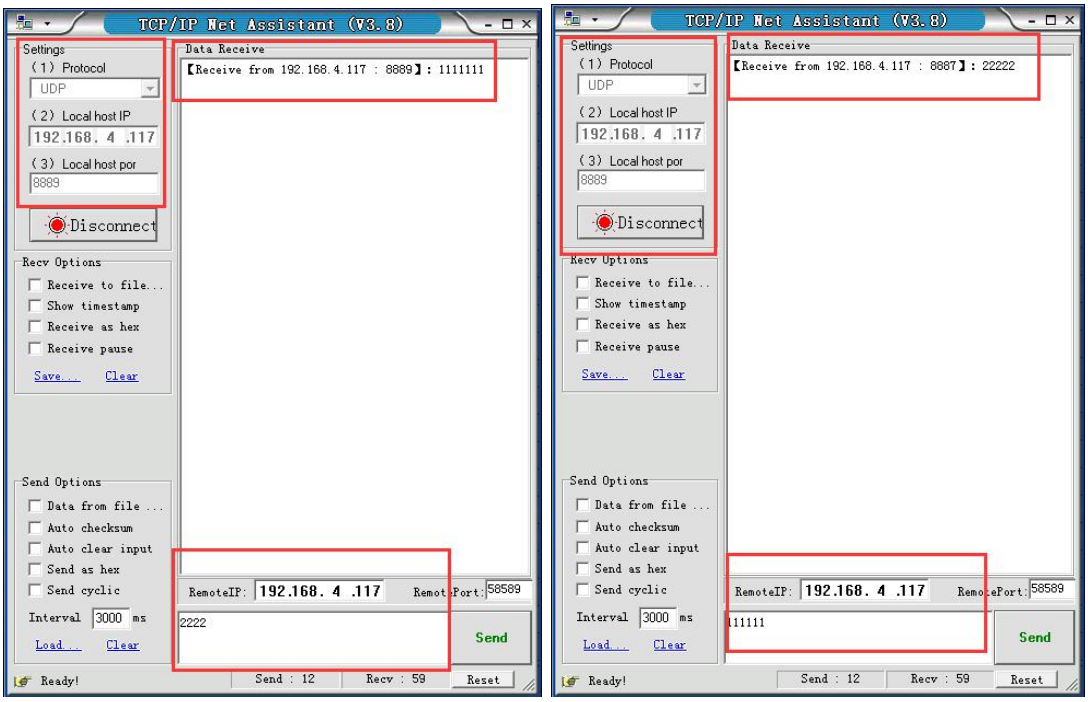


Figure 24 Data transparent transmission

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6.2.4. UDP Client 使用说明

(1) Connect two E810-TTL-01 serial ports and network cables to PC, open the network configuration software and search for the device. The searched device will display the device list. Double-click the device to be configured in the list and enter the setting interface. Set the module to UDP Client mode, set the target IP address to 192.168.3.100, set the target port of module A to 8887, the target port of module B to 8886, set the RF parameters, click the OK button after the setting is complete, and then restart the device to search Check once to see if the parameter modification was successful.

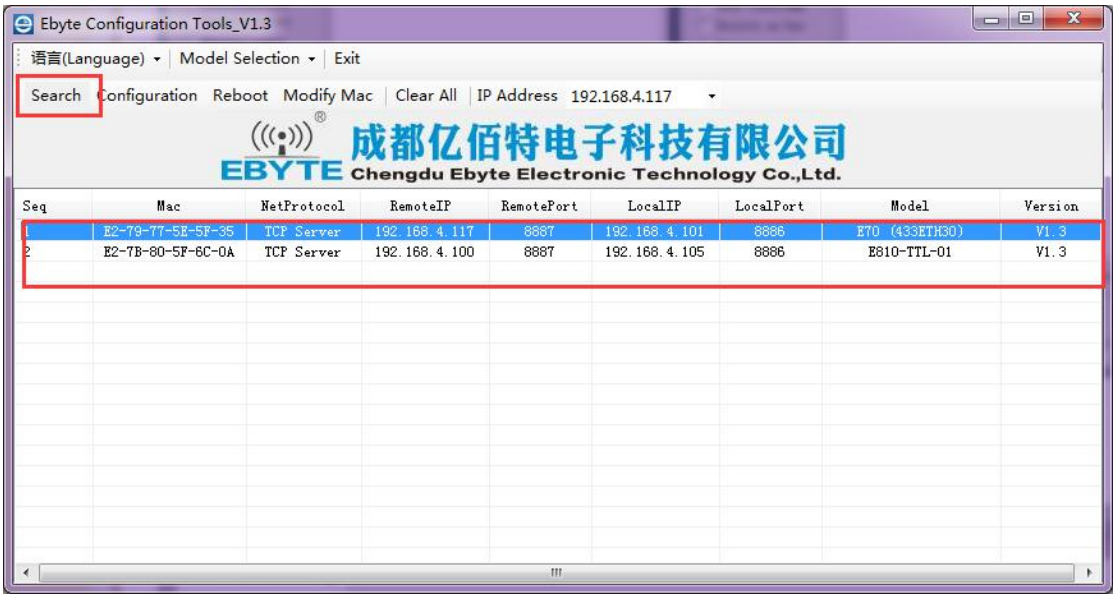


Figure 25 Searching devices

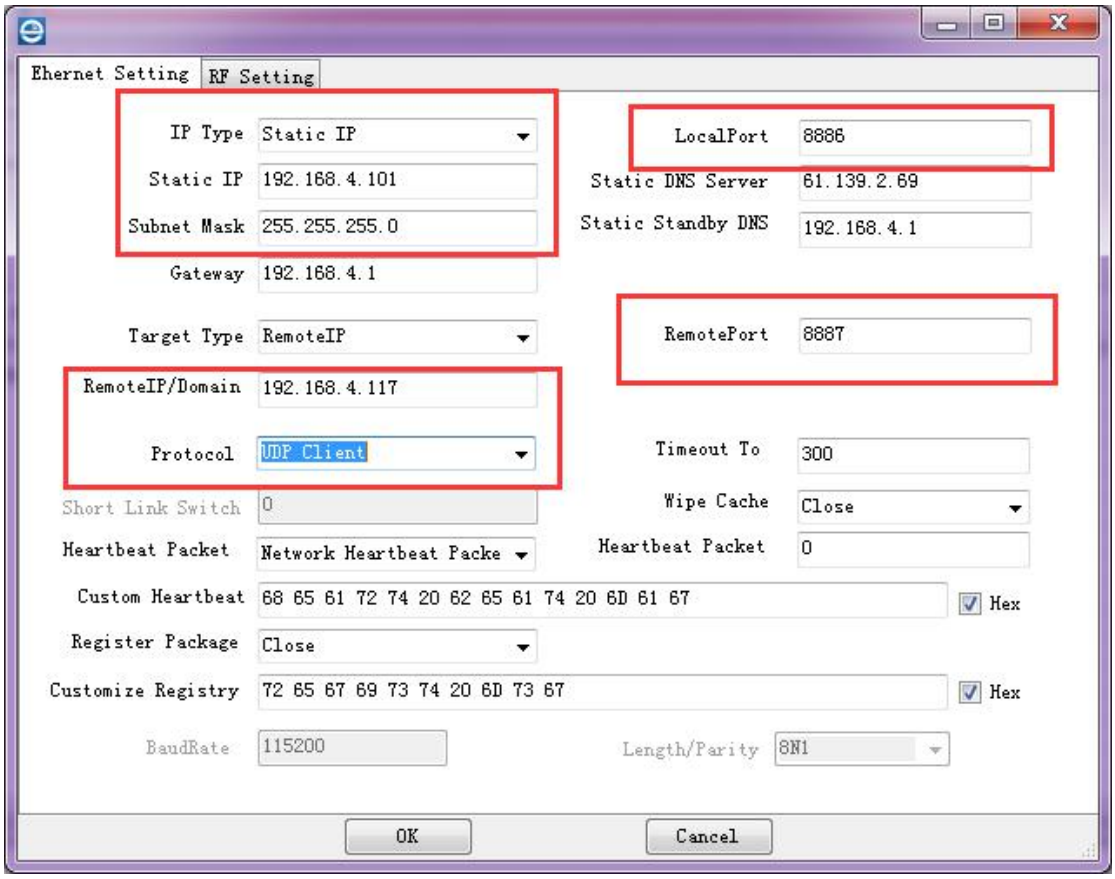
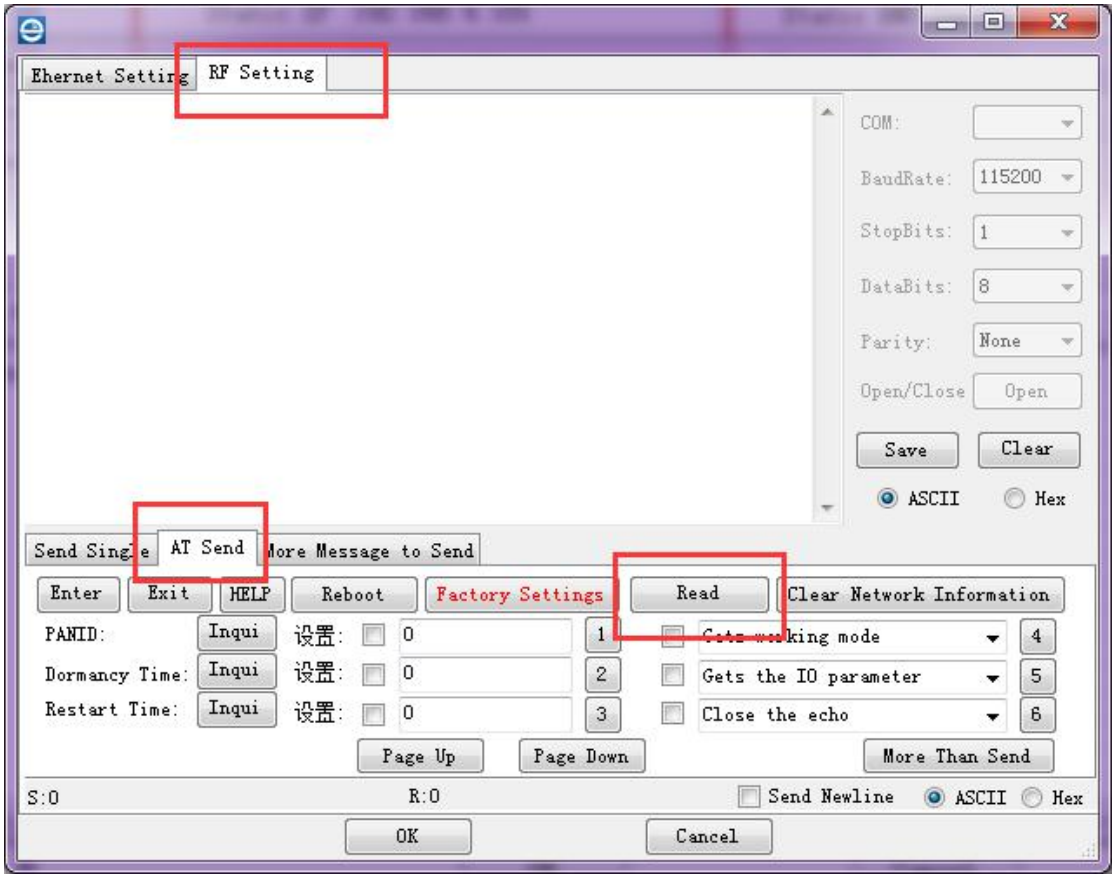


Figure 26 Parameter settings

Click Read Parameters on the RF Parameter Settings interface to obtain the module's current RF parameter settings. Then you can configure the RF settings.

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(2) Open two network debugging assistants, set the network debugging assistant protocol type to UDP Client, the network debugging assistant's server IP address is set to the module's IP address, the network debugging assistant's server port is set to the module's local port, click Connect.

(3) Enter a string of data in the sending area of network debugging assistant A, click Send, you will see that network assistant B has received the same data in the sending area of the serial port. Input a string of data in the sending area of network debugging assistant A, network assistant B also received the data. It realizes bidirectional transparent transmission.

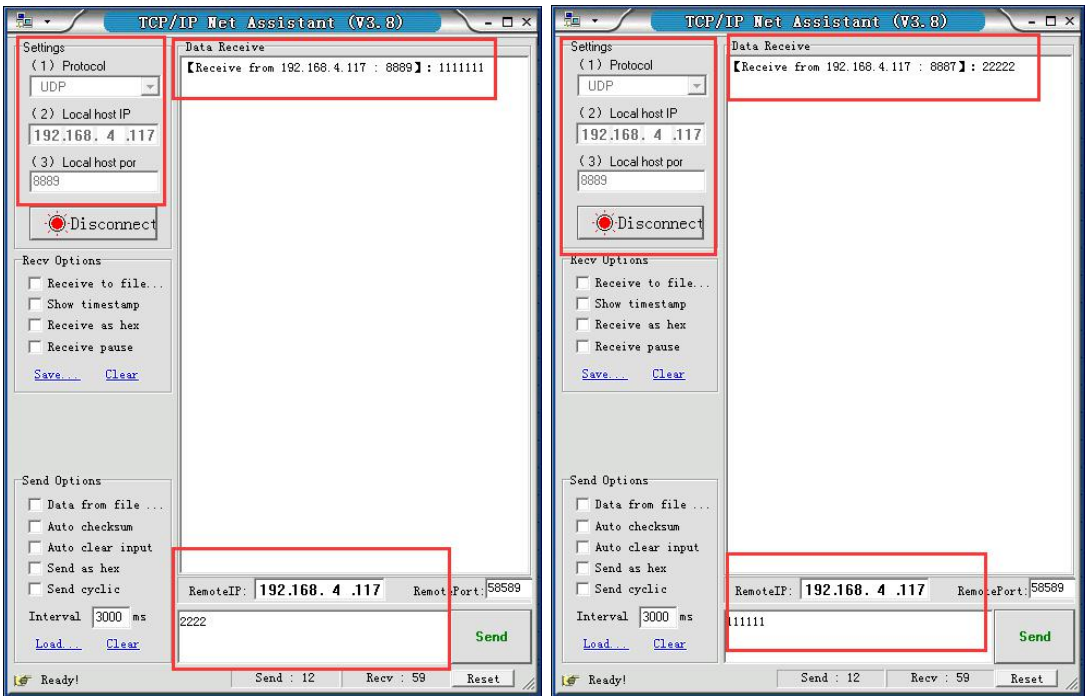


Figure 28 Data transparent transmission

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6.3. Special function instructions

6.3.1. Short connection instructions

The TCP short connection function is applied to TCP Client mode. After the short connection function is enabled, if no data is received at the serial port or network port within the set time, the connection will be automatically disconnected. The short connection function is disabled by default, disconnection time can be set after the function is enabled. The setting range is 2~255s, users can enter it directly:

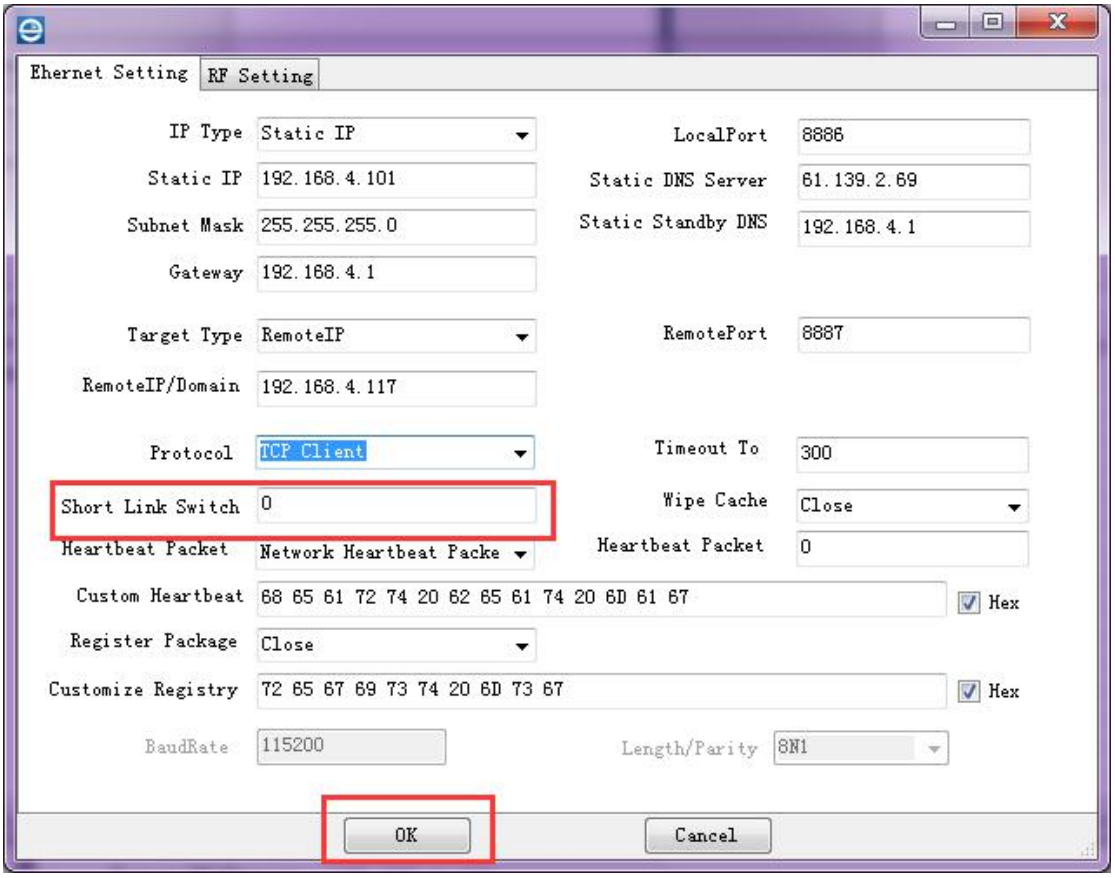


Figure 29 Short connection setting

6.3.2. Registration packet instructions

The E810-TTL-01 has four registration packet mechanisms, which are sending MAC when connecting, sending user-defined data when connecting, sending MAC for each packet of data, and sending user-defined data for each packet of data, user-defined data defaults to hexadecimal data (ascii optional).

The registration packet is closed by default, when you need to use it, you can open the network configuration software configuration. The user-defined data can be directly input.

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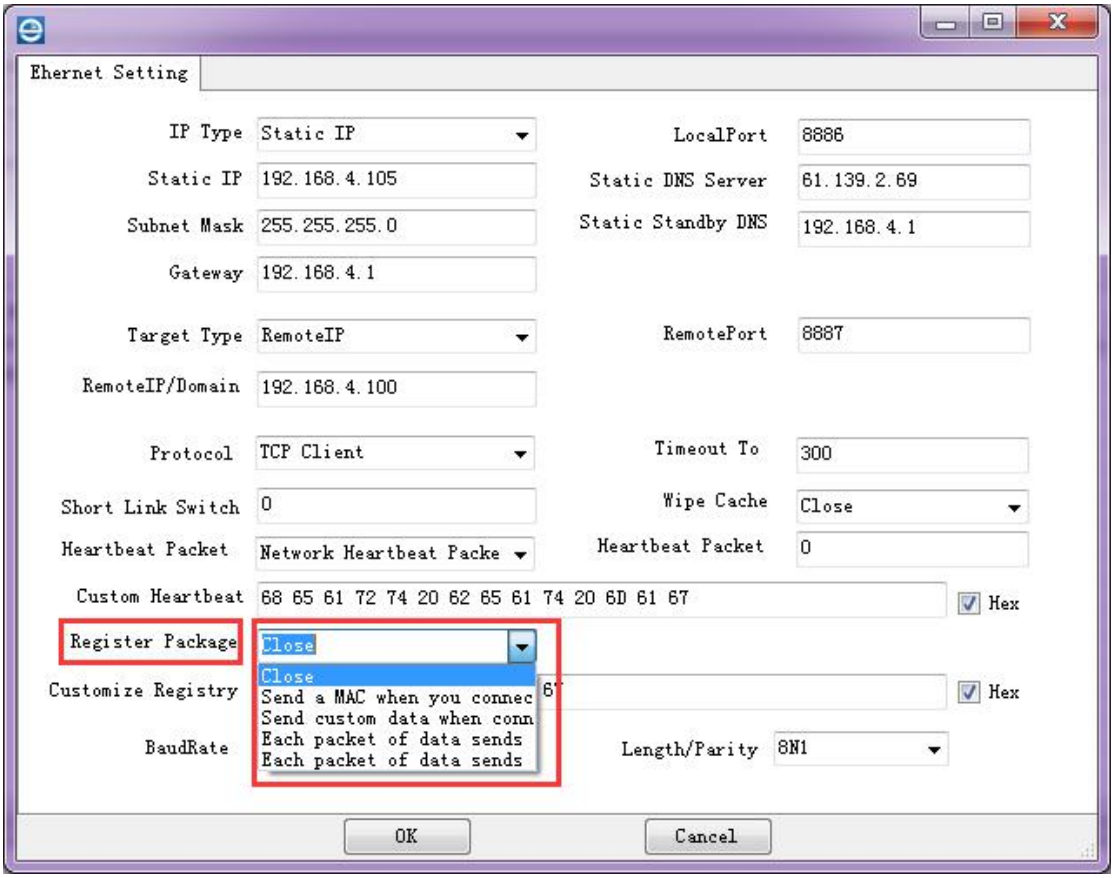


Figure 30 Registration packet setting

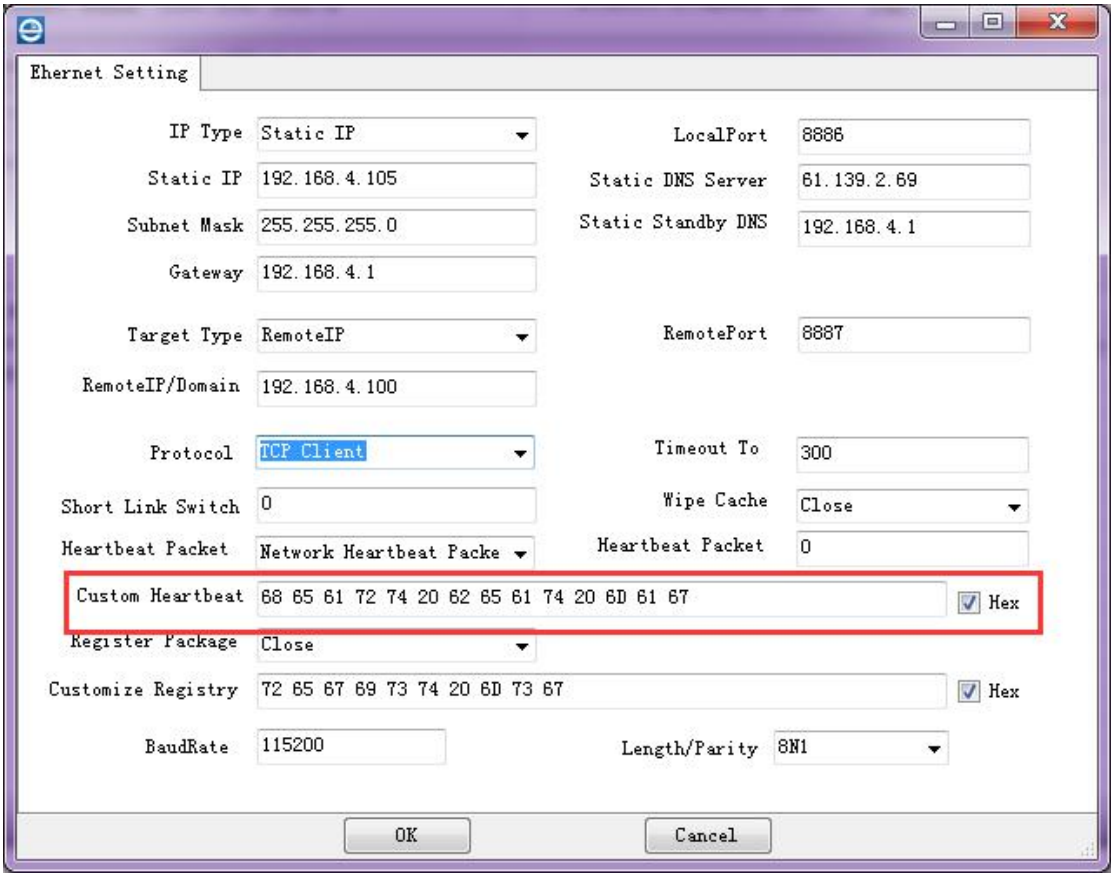


Figure 31 User-defined data setting

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6.3.3. Heartbeat packet instructions

Heartbeat packets are used to ensure the reliability of the connection. E810-TTL-01 supports two heartbeat packets, which are network heartbeat packets and serial heartbeat packets. After setting the heartbeat packet type, you also need to set the heartbeat period and custom heartbeat packet data.

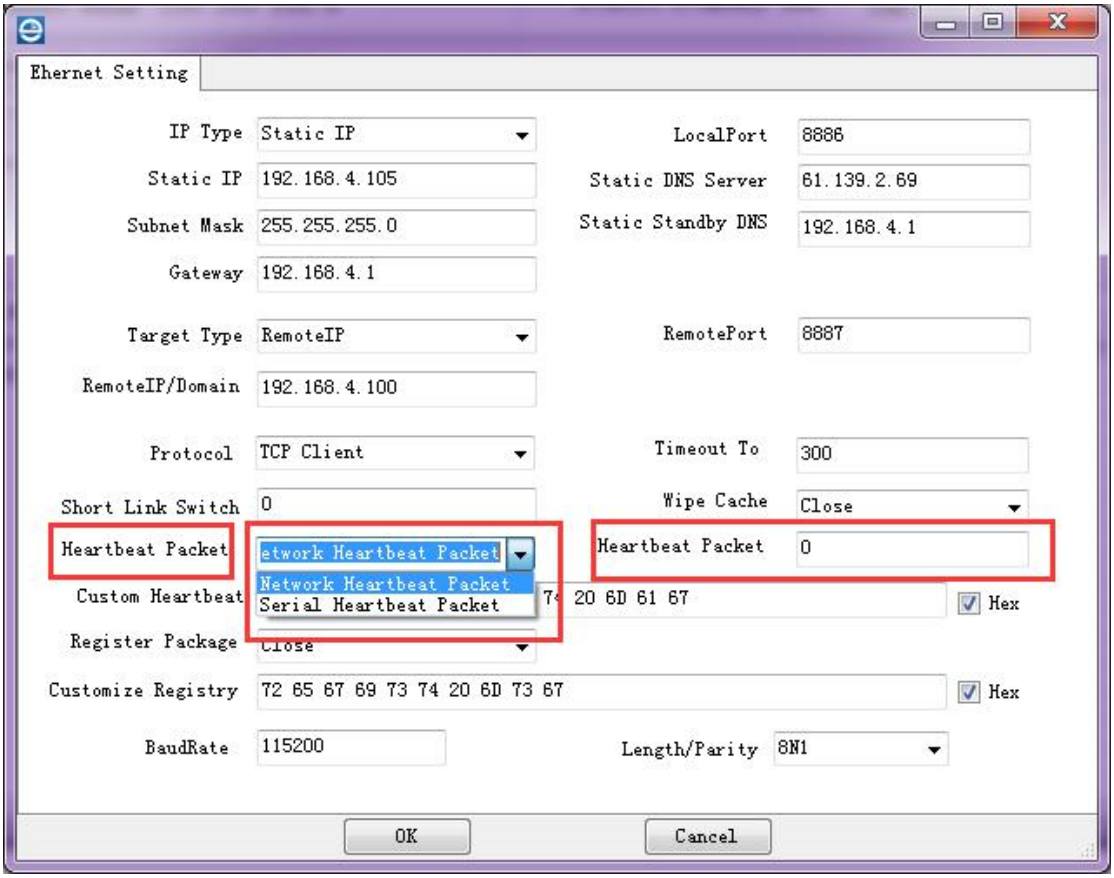


Figure 32 Heartbeat packet setting

6.3.4. Overtime restart instructions

The overtime restart is when the network port has not received data for a long time. After the module exceeds the set time, it restarts automatically to avoid communication abnormalities The restart time can be set to 60~65535S, default 300s.

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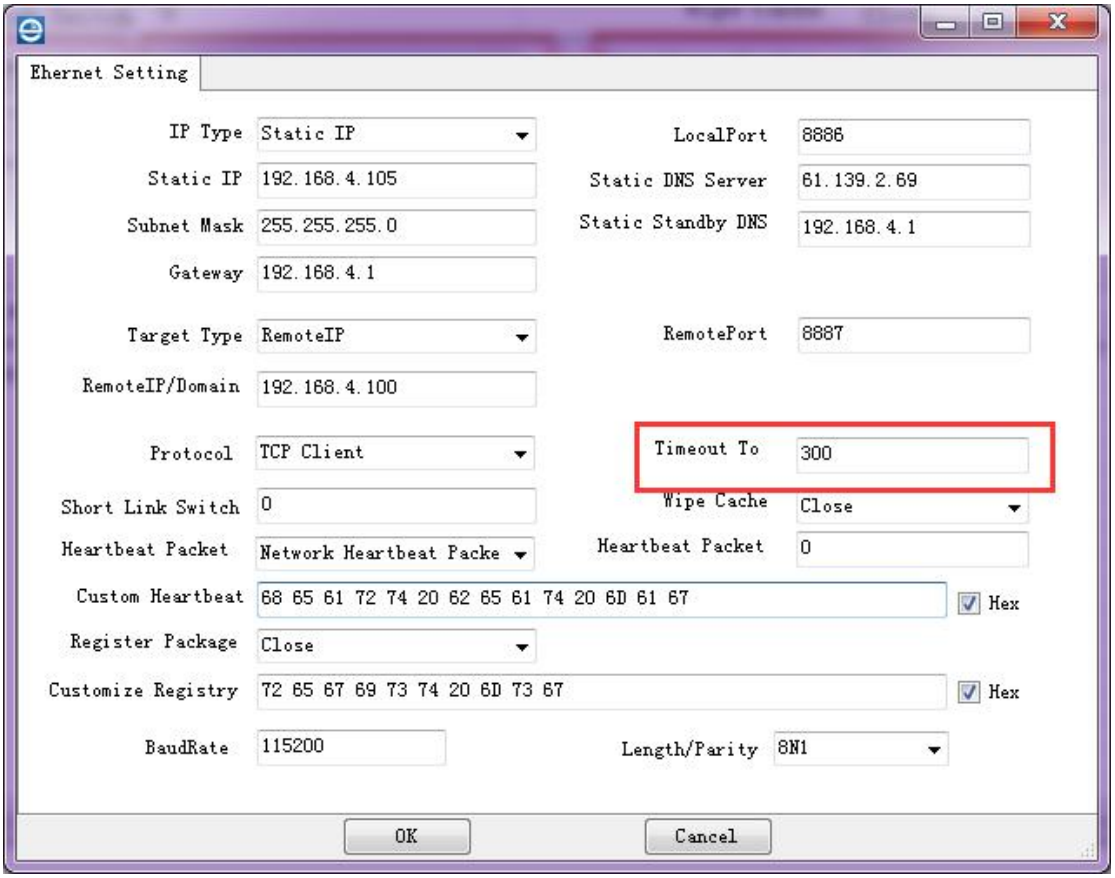


Figure 32 Overtime restart setting

6.3.5. Clearing cache instructions

When TCP is not established, the data received by the serial port is in the buffer, and users can set to clear buffer according to the requirements, default closed.

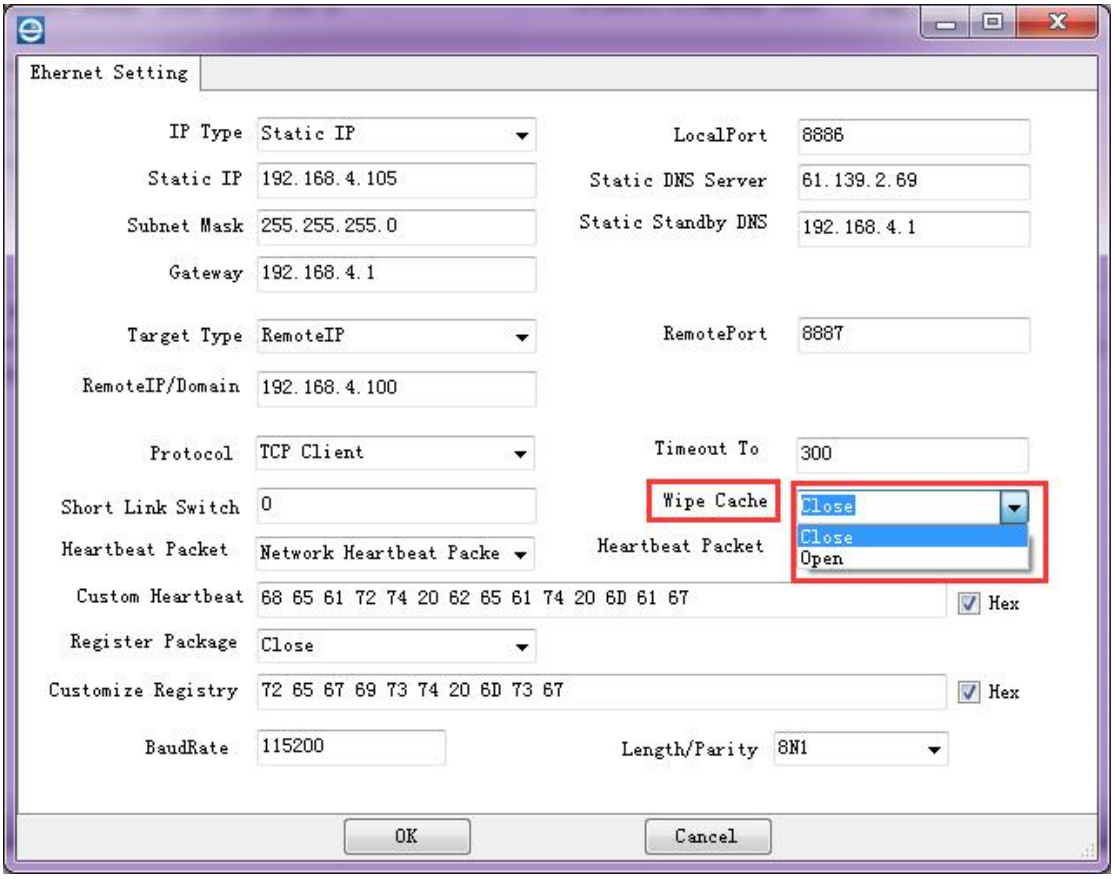


Figure 33 Clearing cache setting

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7. AT Command

7.1. AT command summary

AT command means, a user instruction set command is transmitted by UART module in command mode, explained later in detail using the AT command format. When switching on to the configuration mode after power-on, the module can be set via the UART.

Switching from transparent transmission mode to command mode:

The UART device sends "+++" to the module continuously, after the module receives "+++", the module starts timeout after 3 seconds. If any AT command is received within the timeout period, the module will successfully switch to the configuration mode. Before the mode was successfully switched, any UART data was transmitted through the network. Switching from command Mode to Transparent Transmission Mode

The serial device sends the command "AT+ EXAT" to the module. After receiving the instruction, the module returns "+OK" and switches to the transparent transmission mode at the same time.

Instructions： <CR>： ASCII code 0x0d; <LF>： ASCII code 0x0a;

7.2. AT command error code

Error code	Instruction
-1	Invalid command format
-2	Invalid command
-3	Invalid operating code
-4	Invalid parameters
-5	Operation not allowed

7.3. AT command set

No.	Command	Instruction
1	REBT	Restart the module
2	VER	Query version number
3	EXAT	Exit AT command mode
4	RESTORE	Restore factory settings
5	UART	Set/Query UART Parameters
6	UARTCLR	Set/Query whether the serial port cache is cleared before connection
7	MAC	Query module MAC address
8	USERMAC	Set custom MAC address
9	LINKSTA	Query TCP connection status
10	WAN	Set/Query WAN Parameters
11	LPORT	Set/Query local port number
12	SOCK	Set the query local port number
13	REGMOD	Set/Query Registration Package Mode
14	REGINFO	Set/Query Custom Registration Package Information
15	HEARTMOD	Set/Query heartbeat packet mode
16	HEARTINFO	Set/Query custom heartbeat packet information
17	HEARTM	Set/Query heartbeat packet time
18	SHORTM	Set/query short connection time
19	TMORST	Set/Query timeout restart time
20	H	Help

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7.4. AT command detailed instructions

7.4.1. AT+REBT

Function： Restart the module

Format： Set

Send：**AT+REBT<CR>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter： No

<Note>：After this command is executed correctly, the module restarts and it will exit AT mode.

7.4.2. AT+VER

Function： Query version number。

Format：Set

Send：**AT+VER<CR>**

Return：**<CR><LF>+OK=<ver><CR><LF>**

Parameter： ver Module firmware version

7.4.3. AT+EXAT

Function： Exit AT command mode, Enter transparent transmission mode

Format： Set

Send：**AT+EXAT<CR>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter： No

<Note>： After the command is executed correctly, the module switches from command mode to transparent mode.

7.4.4. AT+RESTORE

Function： Restore factory settings

Format： Set

Send：**AT+RESTORE<CR>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter： No

7.4.5. AT+UART

Function： Set/Query UART Parameters

Format： Query

Send：**AT+UART<CR>**

Return：**<CR><LF>+OK=< baudrate,parity ><CR><LF>**

Set

Send：**AT+UART=< baudrate,parity><CR><LF>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter：

Baudrate 1200~921600bps.

Parity

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NONE No parity。

EVEN Even parity。

ODD Odd parity。

Example： AT+UART=115200,NONE<CR>

Default： UART=115200,NONE

7.4.6. AT+UARTCLR

Function： Set/Query whether the serial port cache is cleared before connection

Format： Query

Send：**AT+ UARTCLR <CR>**

Return：**<CR><LF>+OK=< sta ><CR><LF>**

Set

Send：**AT+ UARTCLR =< sta ><CR>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter： sta status

ON Clear the UART cache before connecting.

OFF Do not clear the UART cache before connecting.

Example： **AT+UARTCLR=OFF<CR>**

Default： UARTCLR=OFF

7.4.7. AT+MAC

Function： Query module MAC address

Format： Query

Send：**AT+MAC<CR>**

Return：**<CR><LF>+OK=<mac><CR><LF>**

Parameter： MAC address of the mac module (eg D8B04CD39463)

7.4.8. AT+USERMAC

Function： Set custom MAC address

Format： Set

Send：**AT+ USERMAC =< MAC ><CR>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter： MAC address of the mac modul, The first byte must be an even number, for example D8B04CD39463.

Example： AT+USERMAC=D8B04CD39463<CR>

7.4.9. AT+LINKSTA

Function： Query TCP connection status.

Format： Query

Send：**AT+ LINKSTA<CR>**

Return：**<CR><LF>+OK=< sta ><CR><LF>**

Parameter：

Sta Whether to establish a TCP connection,

Connect / Disconnect

Connect TCP connected

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Disconnect TCP not connected。

7.4.10. AT+WAN

Function： Set/Query WAN Parameters（DHCP/STATIC）。

Format： Query

Send：**AT+WAN<CR>**

Return：**<CR><LF>+OK=< mode,address,mask,gateway,dns,alternate dns><CR><LF>**

Set

Send：**AT+WAN=< mode,address,mask,gateway,dns,alternate dns ><CR>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter： mode Network IP mode (mode can only set static mode)

static Static IP/DHCP: Dynamic IP (address, mask, gateway parameter omitted)

address IP address

mask Subnet mask

gateway Gateway address

dns Domain Name Resolution Server Address

Alternate dns Alternate Domain Name Resolution Server Address

Example： AT+WAN=STATIC,192.168.4.101,255.255.255.0,192.168.4.1,61.139.2.69,192.168.4.1<CR>

Default： WAN=STATIC,192.168.4.101,255.255.255.0,192.168.4.1,61.139.2.69,192.168.4.1

7.4.11. AT+LPORT

Function： Set/Query local port number

Format： Query

Send：**AT+LPORT<CR>**

Return：**<CR><LF>+OK=< sta ><CR><LF>**

Set

Send：**AT+LPORT =< sta ><CR>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter：

sta 0 means random port, 1-65535 means socket local port.

Example： AT+SOCKPORT=8886<CR>

Default： SOCKPORT=8886

7.4.12. AT+SOCK

Function： Set/Query Network Protocol Parameter Format.

Format： Query

Send：**AT+SOCK<CR>**

Return：**<CR><LF>+OK=< protocol,IP,port ><CR><LF>**

Set

Send：**AT+SOCK=< protocol,IP,port ><CR>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter：

Protocol protocal type，TCPS / TCPC / UDPS / UDPC

TCPS is TCP server

TCPC is TCP client

UDPS is UDP server

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UDPC is UDP client

IP When the module is set to "CLIENT", it refers to the IP address or domain name of the target server.

Port Port number: Local port number in Server mode, remote port number in Client mode, decimal number, less than 65535.

Example： AT+SOCK=TCPC,192.168.4.100,8887<CR>

Example： AT+SOCK=TCPC,www.cdebyte.com

Default： SOCK=TCPC,192.168.4.100,8887

7.4.13. AT+REGMOD

Function： Set/Query Registration Package Mode

Format： Query

Send：**AT+REGMOD<CR>**

Return：**<CR><LF>+OK=< status ><CR><LF>**

Set

Send：**AT+REGMOD =< status ><CR>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter：

status

EMBMAC A 6-byte MAC is added as registered packet data before each packet sent to the server.

EMBCSTM Add custom registration packet data before each packet sent to the server.

OLMAC Only send a 6-byte MAC registration packet when connecting to the server for the first time.

OLCSTM Send a user-defined registration package when connecting to the server for the first time.

OFF Disable registration package mechanism.

Example： AT+ REGMOD =EMBMAC<CR>

Default： REGMOD =EMBMAC

7.4.14. AT+REGINFO

Function： Set/Query Custom Registration Package Information

Format： Query

Send：**AT+ REGINFO <CR>**

Return：**<CR><LF>+OK=< data ><CR><LF>**

Set

Send：**AT+ REGINFO =< data ><CR>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter：

data ASCII code or hexadecimal data within 40 bytes。

例如： AT+ REGINFO = regist msg <CR>

Default： REGINFO=regist msg

7.4.15. AT+HEARTMOD

Function： Set/Query heartbeat packet mode

Format： Query

Send：**AT+ HEARTMOD<CR>**

Return：**<CR><LF>+OK=< mode ><CR><LF>**

Set

Send：**AT+ HEARTMOD=< mode ><CR>**

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Return：**<CR><LF>+OK<CR><LF>**

Parameter：

mode

NET Network heartbeat packet.

UART UART heartbeat packet.

Example： AT+HEARTMOD=NET<CR>

Default： HEARTMOD=NET

7.4.16. AT+HEARTINFO

Function： Set/Query custom heartbeat packet information

Format： Query

Send：**AT+ HEARTINFO<CR>**

Return：**<CR><LF>+OK=< data ><CR><LF>**

Set

Send：**AT+ HEARTINFO=< data ><CR>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter：

data Heartbeat packet data within 40 bytes of ASCII code or hexadecimal data.

Example： AT+ HEARTINFO = heart beat mag <CR>

Default： HEARTINFO=heart beat mag

7.4.17. AT+HEARTM

Function： Set/Query heartbeat packet time.

Format： Query

Send：**AT+ HEARTM <CR>**

Return：**<CR><LF>+OK=< time ><CR><LF>**

Set

Send：**AT+ HEARTM =< time ><CR>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter：

Time Heartbeat time, 0 off, range 1 to 65535S.

Example： AT+HEARTM=0

Default： HEARTM=0

7.4.18. AT+SHORTM

Function： Set/query short connection time.

Format： Query

Send：**AT+ SHORTM<CR>**

Return：**<CR><LF>+OK=< time ><CR><LF>**

Set

Send：**AT+ SHORTM=< time ><CR>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter： time Short connection time, 0 off, range 2-255S.

Example： AT+SHORTM=0<CR>

Default： SHORTM=0

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7.4.19. AT+TMORST

Function： Set/Query timeout restart time

Format： Query

Send：**AT+ TMORST<CR>**

Return：**<CR><LF>+OK=< time ><CR><LF>**

Set

Send：**AT+ TMORST=< time ><CR>**

Return：**<CR><LF>+OK<CR><LF>**

Parameter： time Timeout restart time, 0 off, range 60-65535S。

Example： AT+TMORST=0<CR>

Default： TMORST=300

7.4.20. AT+H

Function： Help

Format： Query

Send：**AT+ H <CR>**

Return：**<CR><LF>+OK=<sta><CR><LF>**

Parameter： sta help information.

8. Important Notes

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

9. About us

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