SZ11-TCP232/485
One optical, one electric, four-channel serial gateway

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1. Product Overview

1.1 Product Introduction

The SZ11-TCP232/485 is a four-port gateway device developed by Shanghai Shunzhou Intelligent Technology for IoT applications, featuring one optical and one electric. It can be paired with ShunzhouI-OT multifunctional boards to combine various types of devices and gateways. It enables transparent transmission of network data and four-link serial data, with multiple operating modes including TCP Server, TCP Client, UDP Client, UDP Server, Modbus TCP, and transparent transmission. The serial port baud rate supports up to 460,800 bps, and can be easily configured via host computer software, making it convenient and fast. The device features high integration, cost-effectiveness, simple development, and strong stability

1.2 Performance Characteristics

- Its basic function is to implement protocol conversion from UART to TCP/IP
- Supports 10/100/1000Mbps network ports, supports optical ports, and supports adaptive cross-connect network cables
- Supports optional POE power supply
- Supports multiple communication protocols including TCP Server, TCP Client, UDP Client, UDP Server, Modbus TCP, and multiple operating modes via transparent transmission
- Supports 4 RS485 or 4 RS232 serial ports, and supports virtual serial ports
- Supports RJ45 with Link/Act indicator lights for signal isolation
- Supports a globally unique MAC address
- Supports firmware upgrades via network
- Supports configurable DNS gateways and DNS domain name resolution functions

- Supports the Keepalive mechanism, which can quickly detect dead connections and other anomalies and quickly reconnect
- Supports registration package and heartbeat package mechanisms, customizable
- Supports MQTT Client
- Supports web page configuration parameters
- Supports industrial-grade product design, with 24-hour downtime
- Supports the Shunzhou IOT multifunctional board expansion combination

1.3 Technical Parameters

Technical specifications	
Dimensions	131mm*119mm*32mm L*W*H
Operating voltage	Standard DC 12V terminal with optional POE power supply (IEEE 802.3at).
Operating current	160mA ~200mA
Network port specifications	RJ45, 10/100M/1000Mbps, optical fiber
Serial port standards	RS485 and RS232 terminal blocks
Serial port baud rate	300—460800
Data bits	Supports 5, 6, 7, and 8-bit configurations, with default 8
Stop position	Supports 1- and 2-bit configuration, default is 1
Check bit	Supports None, Even, and Odd configurations, with None as the default
Operating temperature	-40~85℃
Storage temperature	-40~105℃
Operating humidity	5%~95% RH (non-condensing)
Storage humidity	5%~95% RH (non-condensing)

Remote upgrades	Support
Protection	Electrical isolation, anti-static 2KV, overcurrent protection, ESD protection
Installation method	Rail type
Special Notes	The casing is not sealed. If you need custom waterproofing or other functions, please contact the sales representative for communication

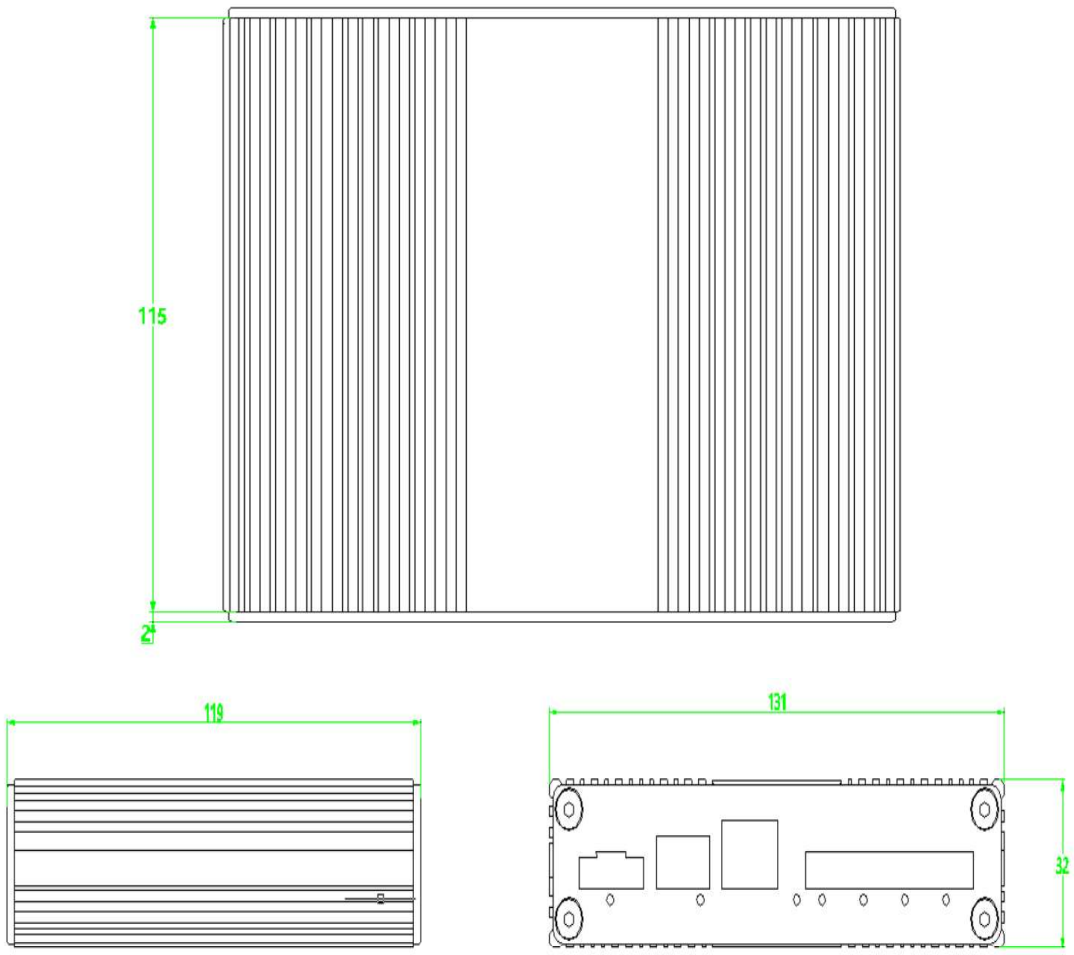
2. Dimension drawings of the external structure

2.1 Product appearance drawing



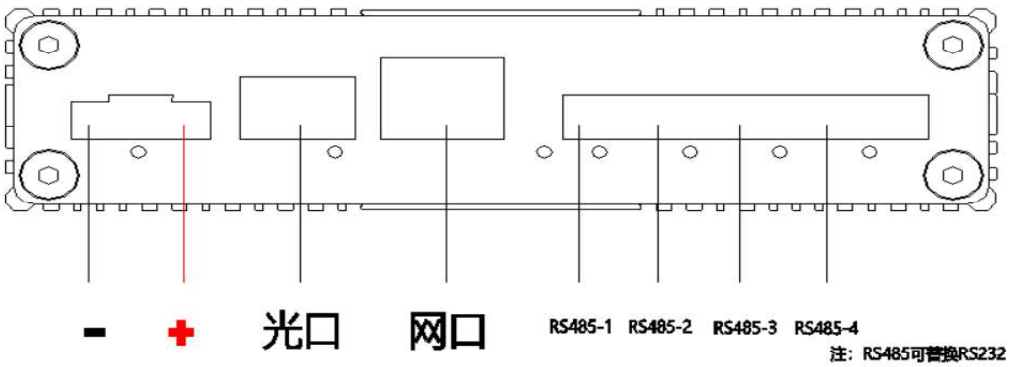
SZ11-TCP232/485 Ethernet serial gateway

2.2 Equipment Dimension Drawings



131mm*119mm*32mm (L*W*H)

2.3 Equipment interface and indicator light description



Four-channel RS485 device interface description:

DC		Smooth mouth	Electrical ports	RS485-1			RS485-2			RS485-3			RS485-4		
GND	12V	Fiber optics	RJ45	B-	A+	GND	B-	A+	GND	B-	A+	GND	B-	A+	GND

Four-channel RS232 device interface description:

DC		Smooth mouth	Electrical ports	RS232-1			RS232-2			RS232-3			RS232-4		
GND	12V	Fiber optics	RJ45	RX	TX	GND	RX	TX	GND	RX	TX	GND	RX	TX	GND

Indicator light description:

Indicator light	Working status	Reset state
POWER	The device stays on when powered on	Extinguish
ACT	The network cable connection flickers	Extinguish
DAT1	Data communication flickers	Extinguish
DAT2	Data communication flickers	Extinguish
DAT3	Data communication flickers	Extinguish
DAT4	Data communication flickers	Extinguish

3. Serial Port Setup Guide

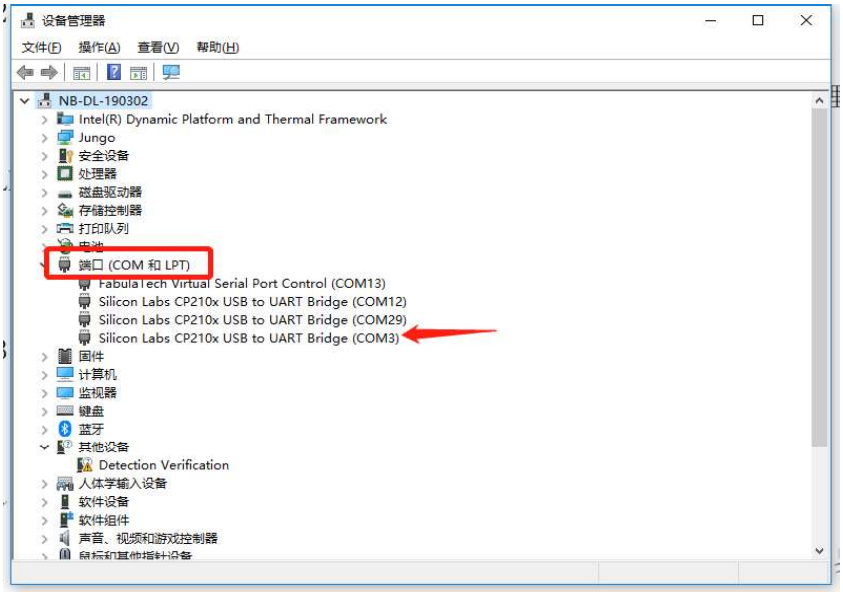
3.1 Serial Port Tool Settings

1. Hardware Connection:

Power the device (12V), then convert RS485/RS232 to serial port or USB and connect to the computer

2. Check the serial port number of the device

Right-click "My Computer" and select Manage. Find the port (COM and LPT)



3. Open the serial port debugging tool:

Serial port number: Please select the seria

the correct device

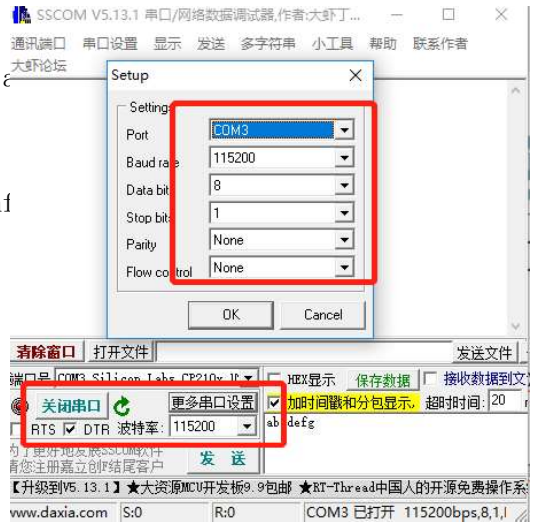
Baud rate: The baud rate for the input conf

Data bits: 8

Stop position: 1

Bit of Validation: NONE (None)

Stream control: NONE (none)



4. Network port setup guide

4.1 SZvircom Utility Software Installation

SZVircom can be used to configure parameters such as device IP and create virtual serial ports. Download address: https://www.donepower.com.cn/

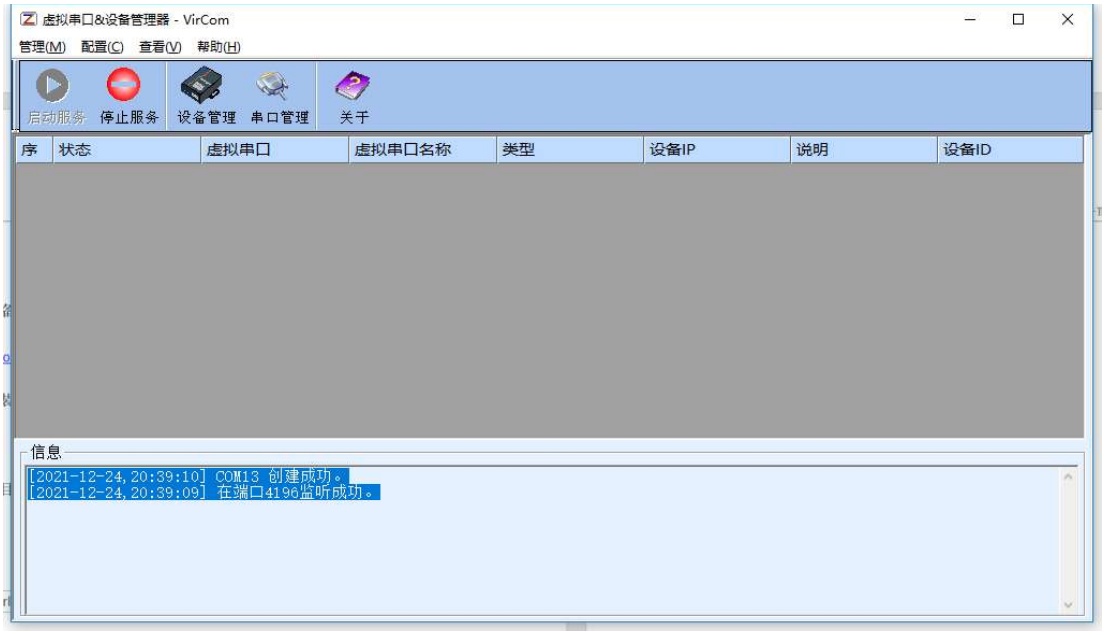
Note: SZVircom installation instructions: If you do not need the virtual serial port function, only device management and configuration are needed. Please run the SZVircom.exe directly. If the virtual serial port function is needed, first install virtual-serial-port-control3.5.msi to the default directory, then run the SZVircom.exe

4.2 SZVircom Network Port Tool Debugging

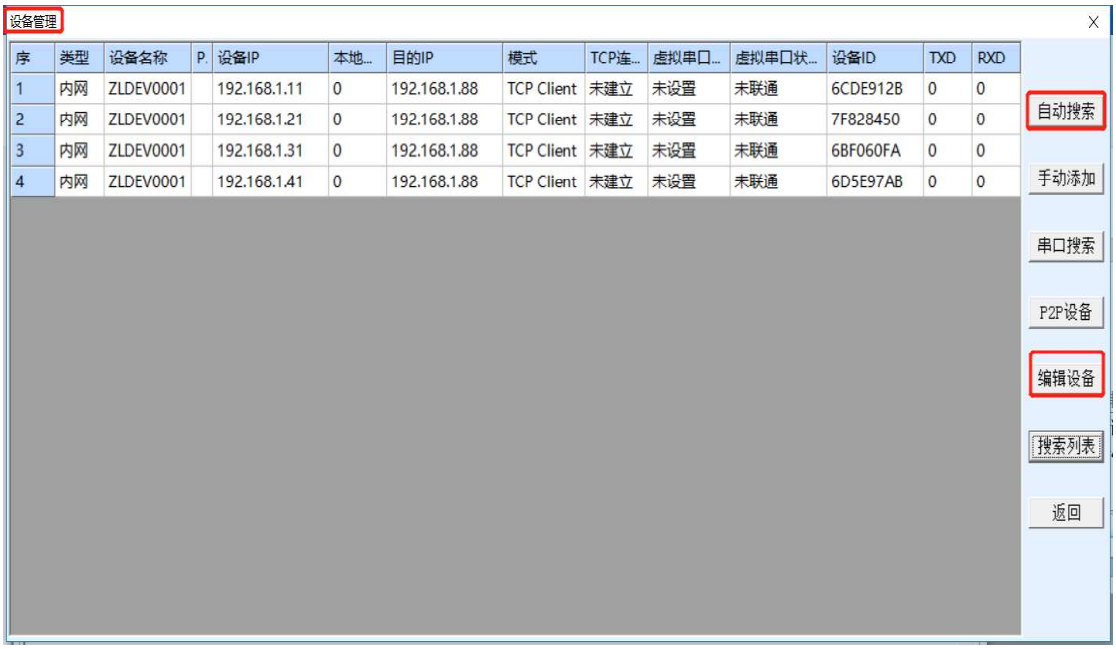
↗ 4.2.1 SZ11-TCP232/485 acts as TCP CLient to access the local computer



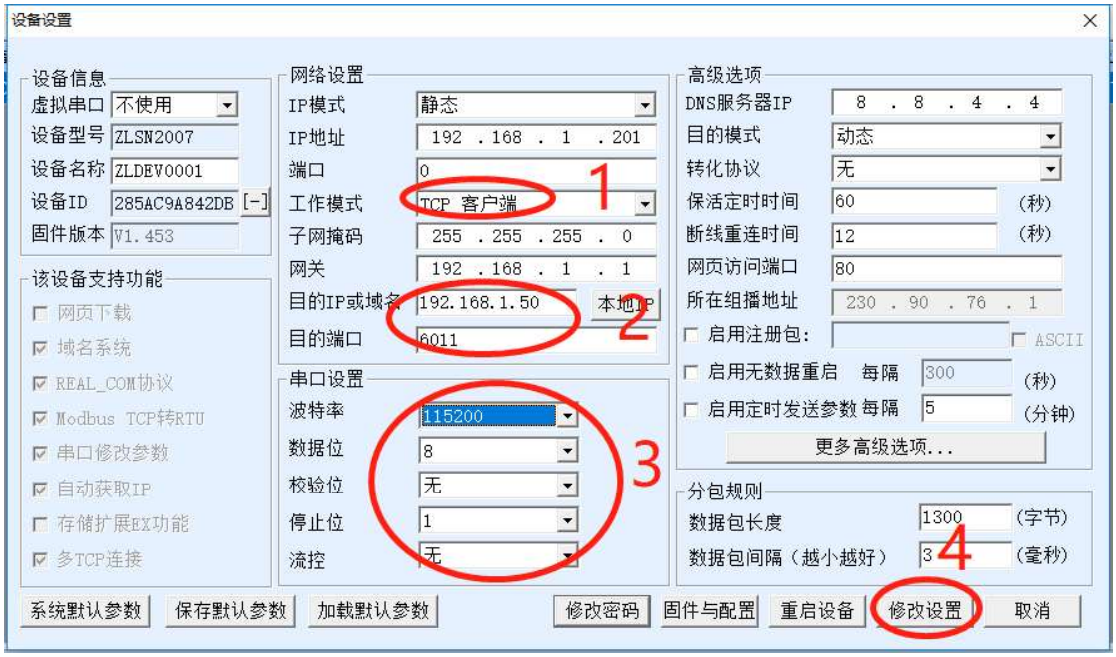
1. After downloading and completing installation, power on the device, connect the RJ45 circuit board to the computer's network, and run SZVircom5.63.exe


虚拟串口&设备管理器 - VirCom
管理(M) 配置(C) 查看(V) 帮助(H)
启动服务
停止服务
设备管理
串口管理
关于
序
状态
虚拟串口
虚拟串口名称
类型
设备IP
说明
设备ID
信息
[2021-12-24,20:39:10] COM13 创建成功。
[2021-12-24,20:39:09] 在端口4196监听成功。

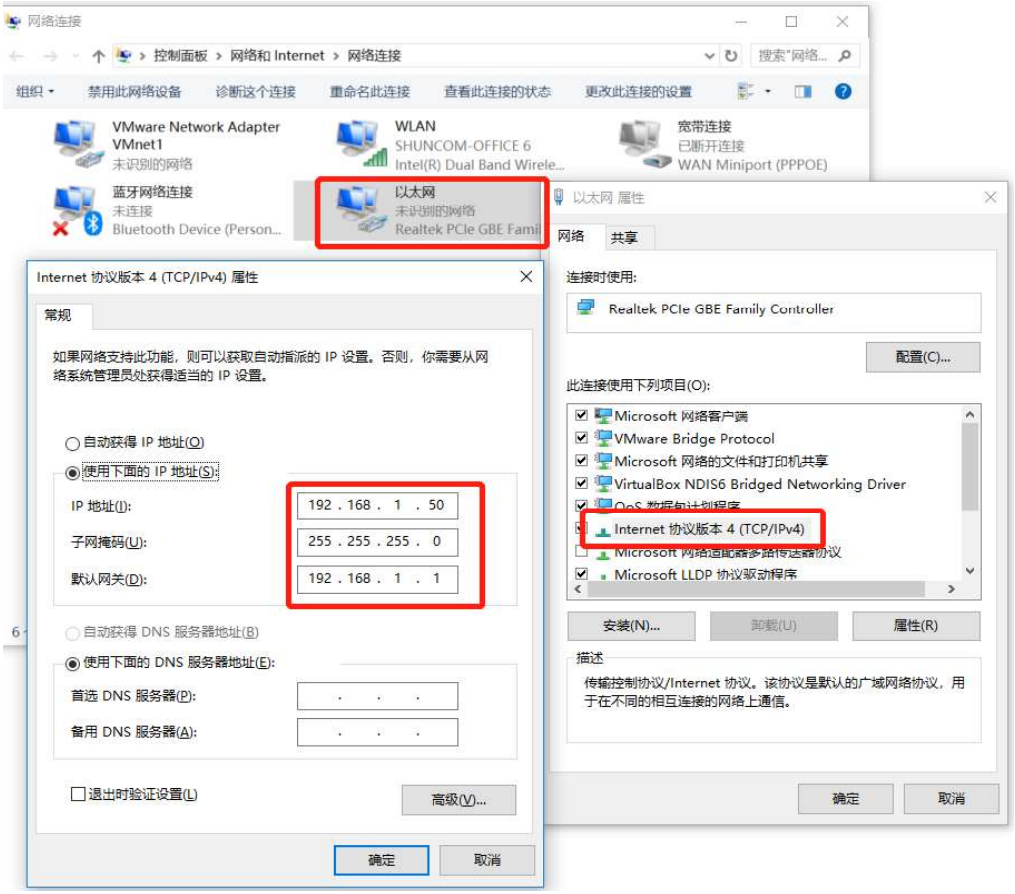
2Click "Device Management," as shown below,SZVircom can search for and configure device parameters within different network segments(Equipment andSZVircomThe computer running on the same switch can be searched). Then click "Edit Device" to configure parameters.



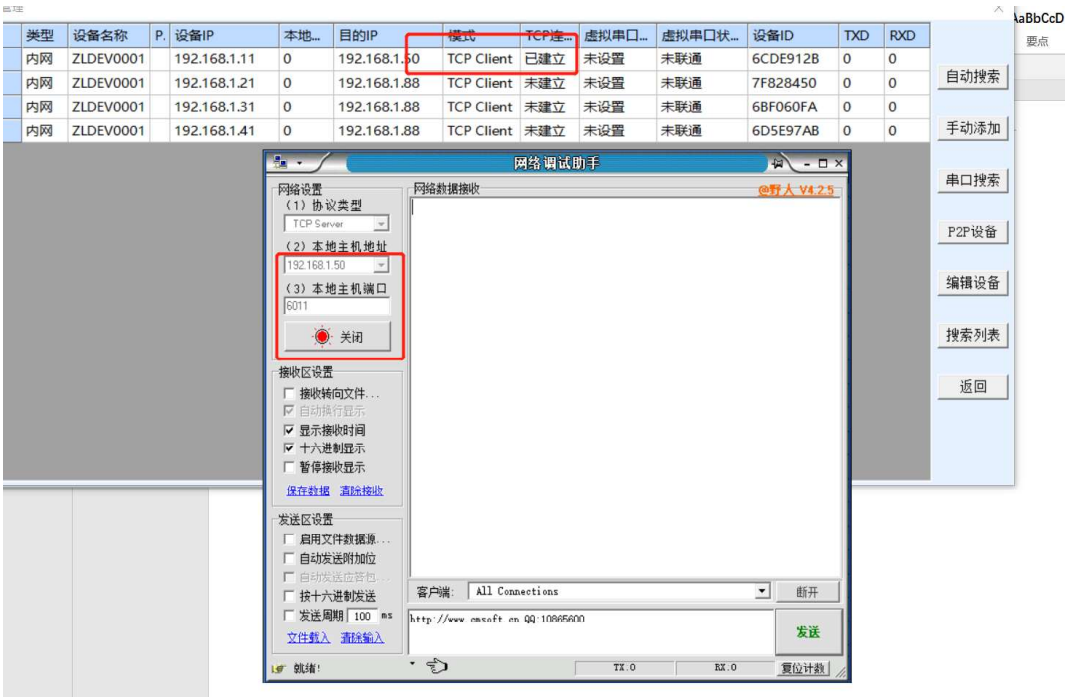
3. In this interface, users can set device parameters. The main parameters include: baud rate, data bit, and parity bit in serial port settings; Operating modes in network settings: TCP client, IP address: 192.168.1.50, destination port 6011, subnet mask, gateway, etc. Then click "Modify Settings," and the device will automatically restart



4To use the computer as the server, you need to connect the computer's IP is set to a fixed IP。 (The computer and serial gateway segments are consistent)

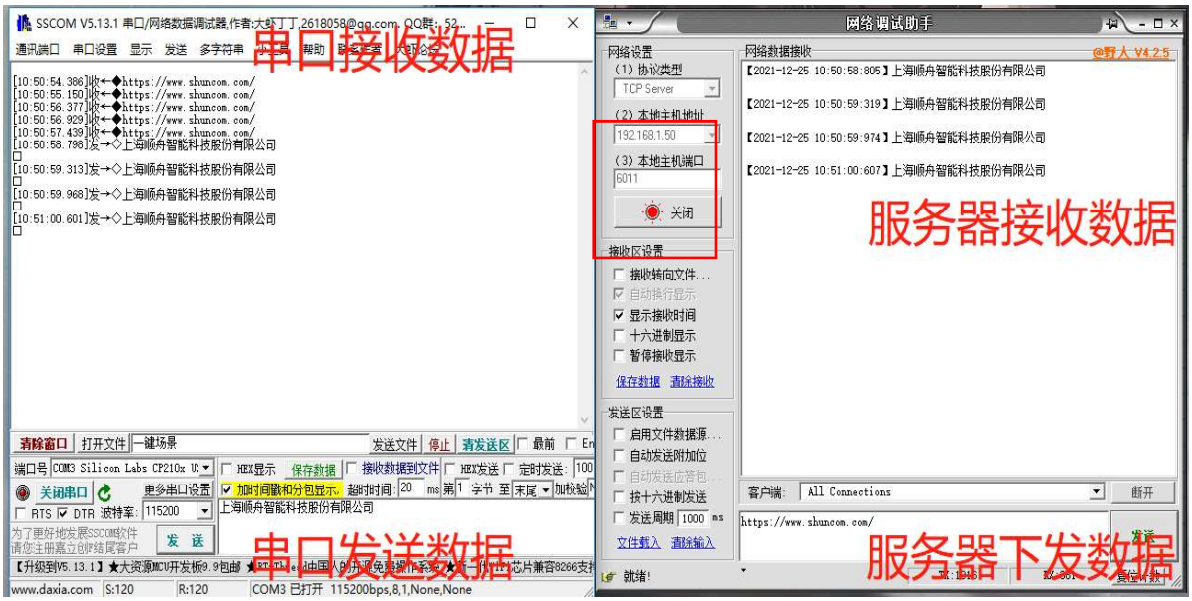


5. Open the network debugging assistant NetAssist, select the protocol type TCP Server, local host address: 192.168.1.50, local host port: 6011. Open the serial port tool and select the corresponding serial port parameters: 115200, 8+0+1



6. Click SZVircom again, then select Device Management, and check whether the serial gateway and computer have established a connection

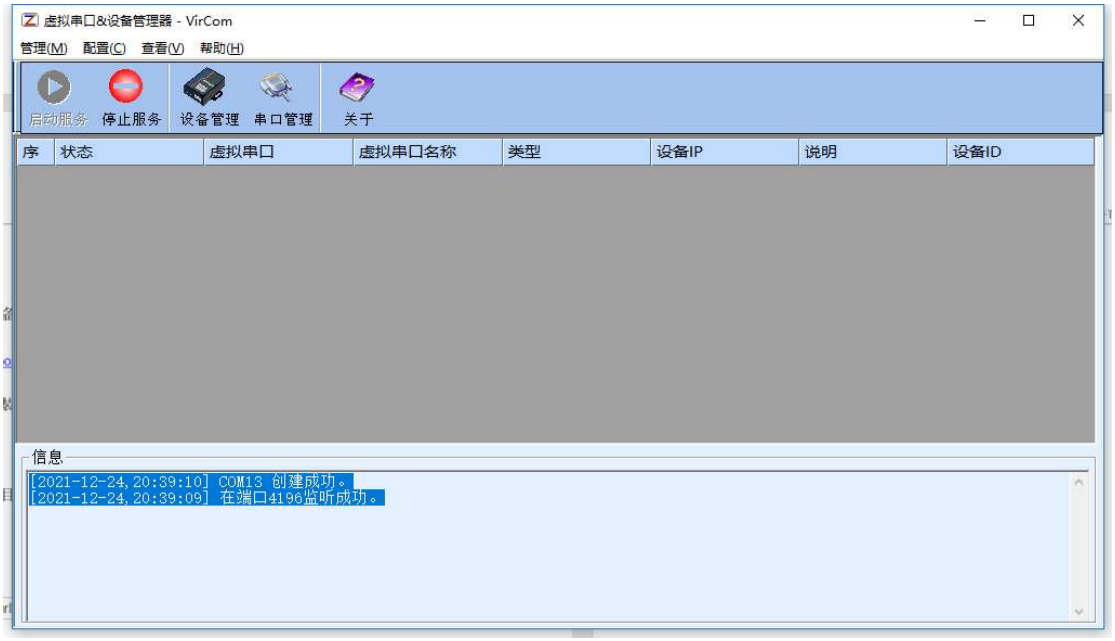
7. Network debugging assistant and serial port tools conduct data communication in the sending area respectively.



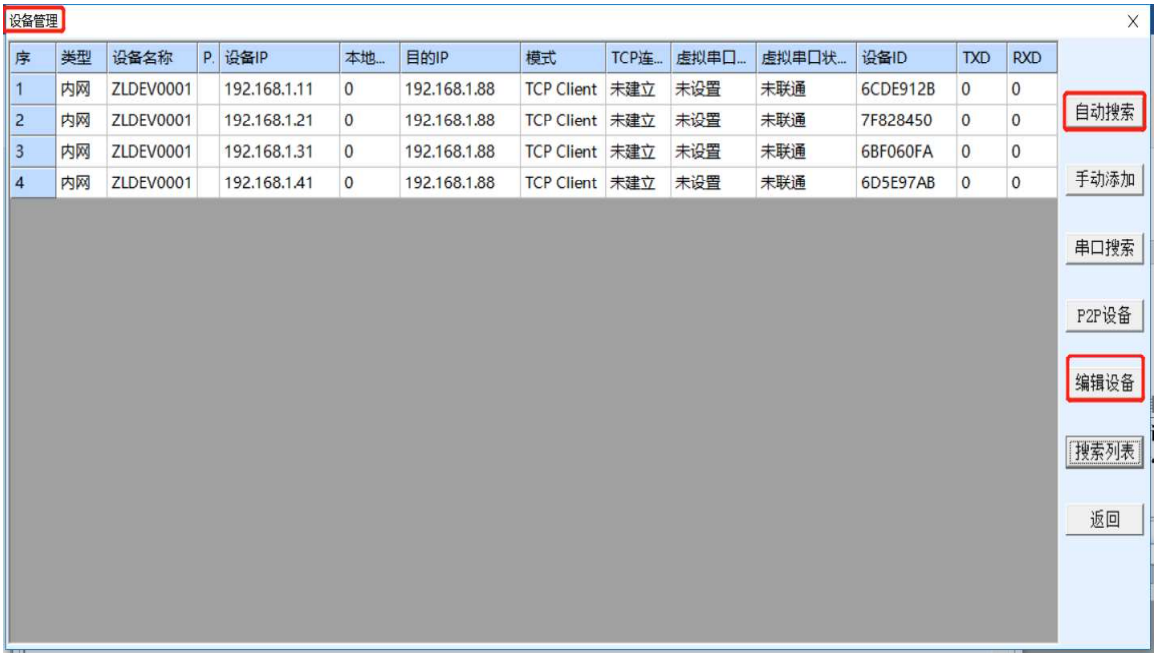
↗ 4.2.2 SZ11-TCP232/485 serves as a TCP server and server

TCP Server SZ11-TCP232/485 ↔ PC or terminal device ↔ TCP Client

1. Operating SZVircom5.63.exe



2. Click "Device Management". As shown below, SZVircom can search for and configure device parameters within different network segments (if the device and the computer running SZVircom are under the same switch, you can search). Next, click "Edit Device" to configure parameters

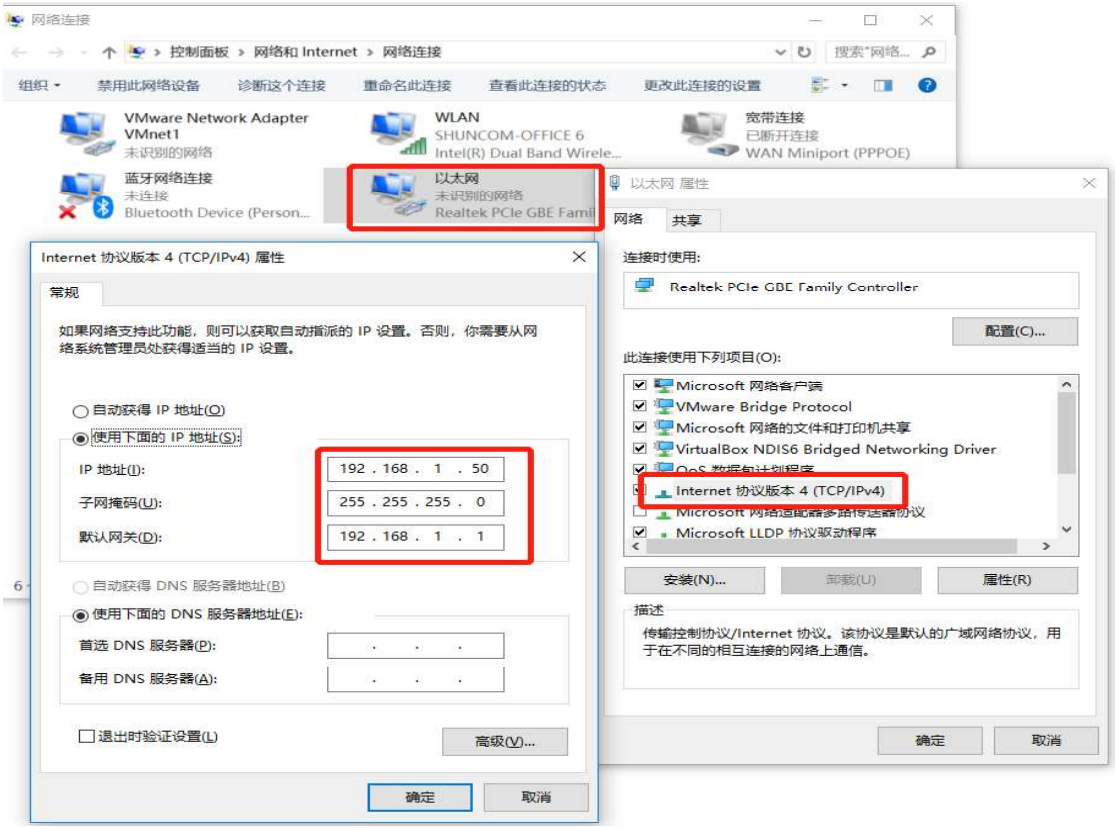


3. In this interface, users can set device parameters. The main configuration parameters include: baud rate, data bits, and parity bits in serial port settings; Operating modes in network settings: TCP server, IP

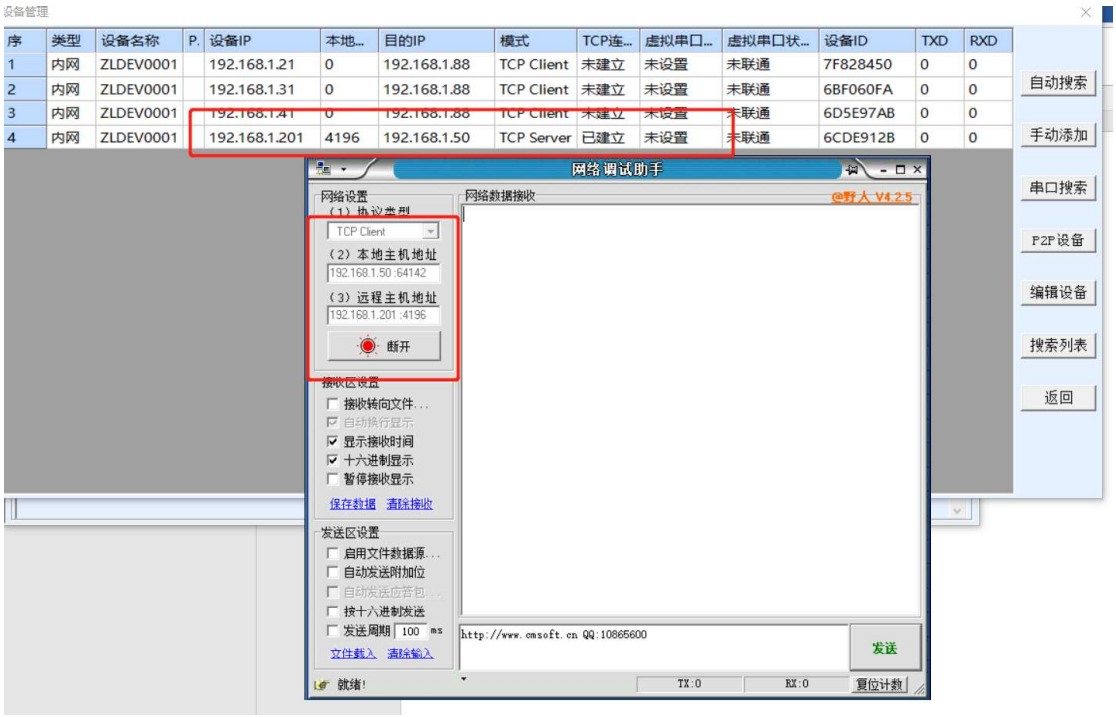
address: 192.168.1.201, port 4196, subnet mask, gateway, etc. Then click "Modify Settings," and the device will automatically restart



4. Use the computer as the server, set the computer's IP address to DHCP or keep the serial gateway on the same network segment.

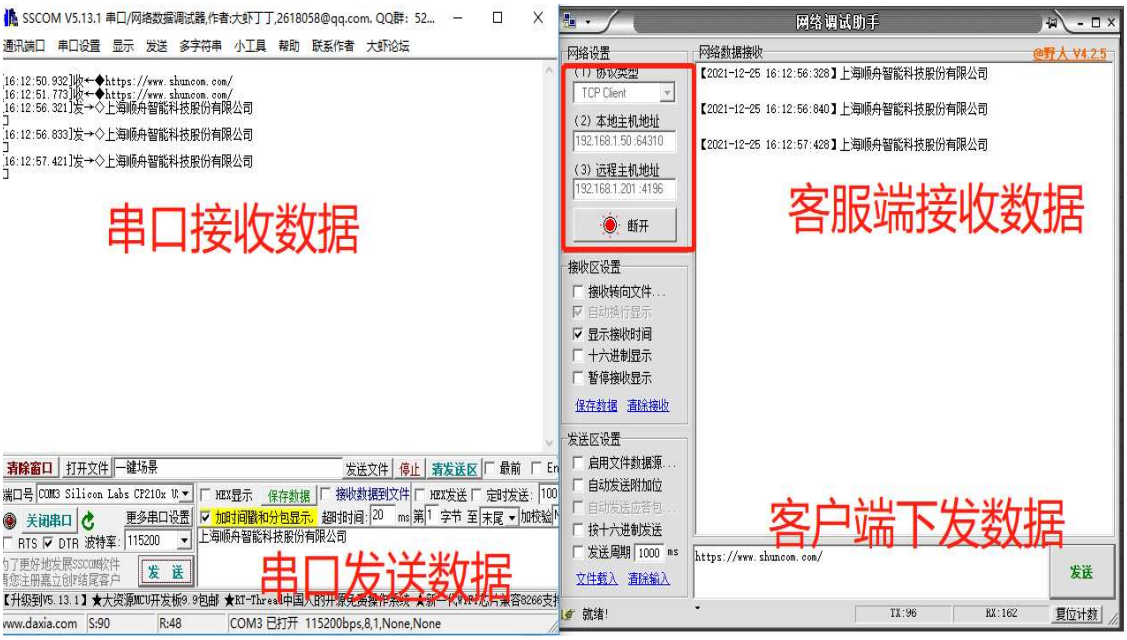


5. Open the network debugging assistant NetAssist, select the protocol type TCP Server, local host address: 192.168.1.50, local host port: 6011. Open the serial port tool and select the corresponding serial port parameters: 115200, 8+0+1



6. Click SZVircom again, then select Device Management, and check whether the serial gateway and computer have established a connection

7. Network debugging assistant and serial port tools conduct data communication in the sending area respectively.



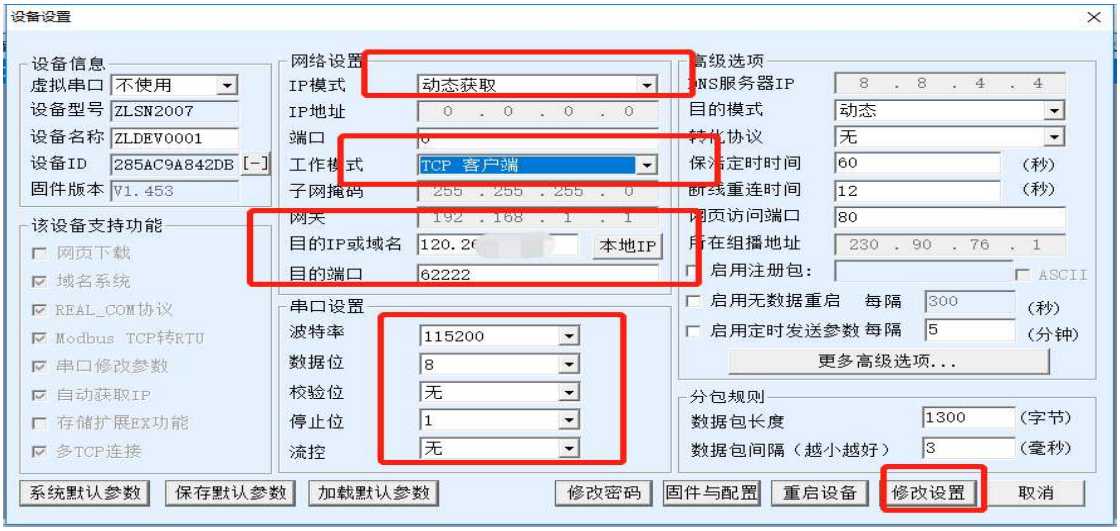
4.2.3 SZ11-TCP232/485 serves as a TCP CLient to access the external network server

TCP Client
SZ11-TCP232/485 → TCP Server
external network server

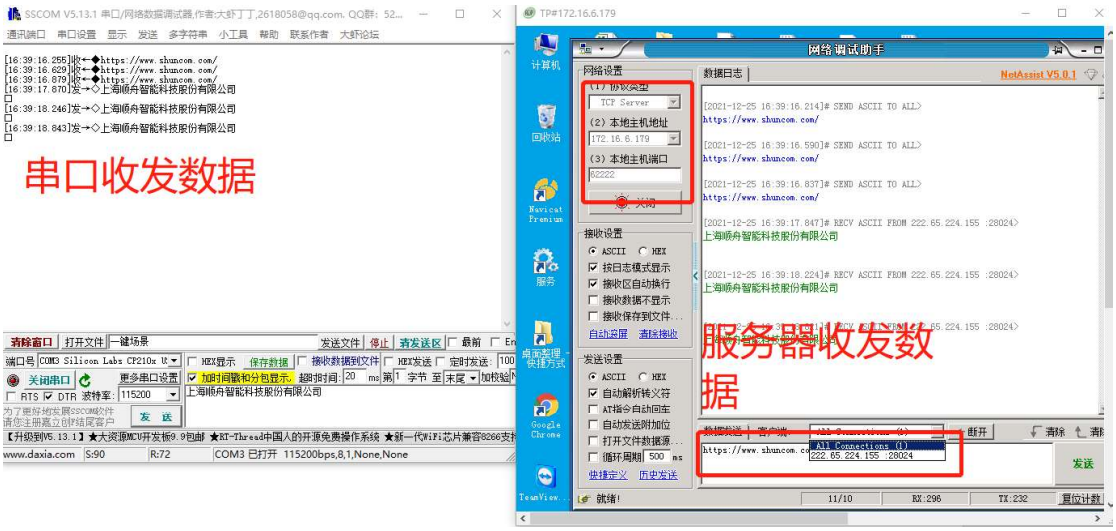
1. First, know the gateway address: XXX.XXX.XXX.XXX and port number: XXXX

2. Second, IP mode: dynamic acquisition; Operating mode: TCP client; Serial port parameter settings

3. Finally, click "Modify Settings." The network port of the SZ11-TCP232/485 can be connected to a switch or router via a network cable. Note: The router and switch here can access the external network



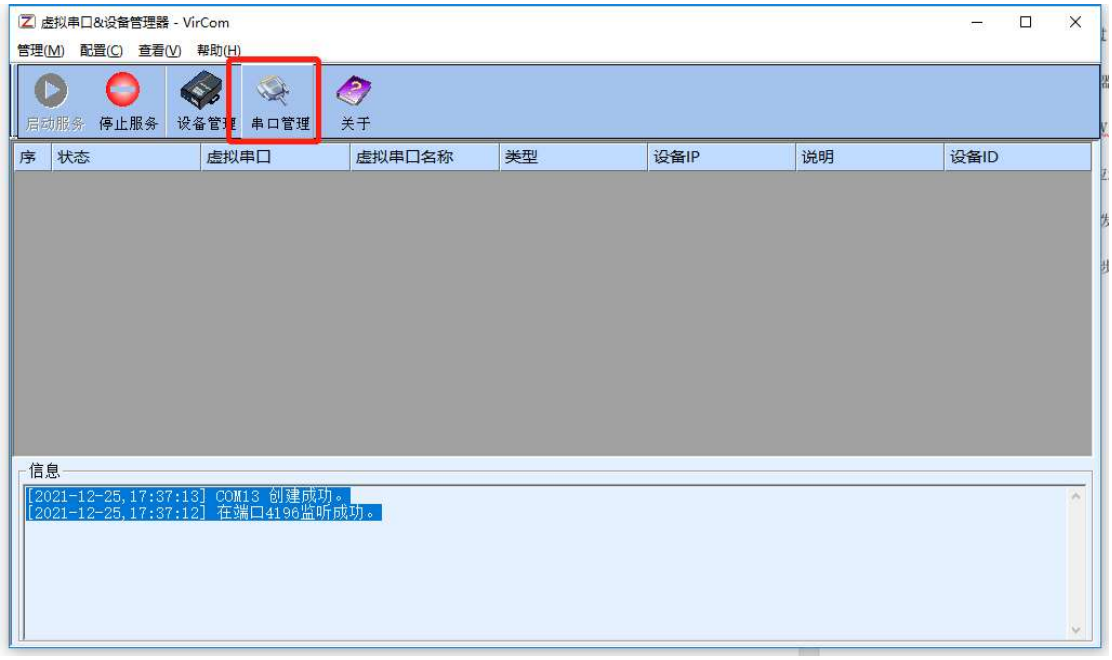
4. Check the Network Debugging Assistant. If the connection object has an IP+ port coming up, it means the SZ11-TCP232/485 connection is successful. This allows data communication between the device and the gateway



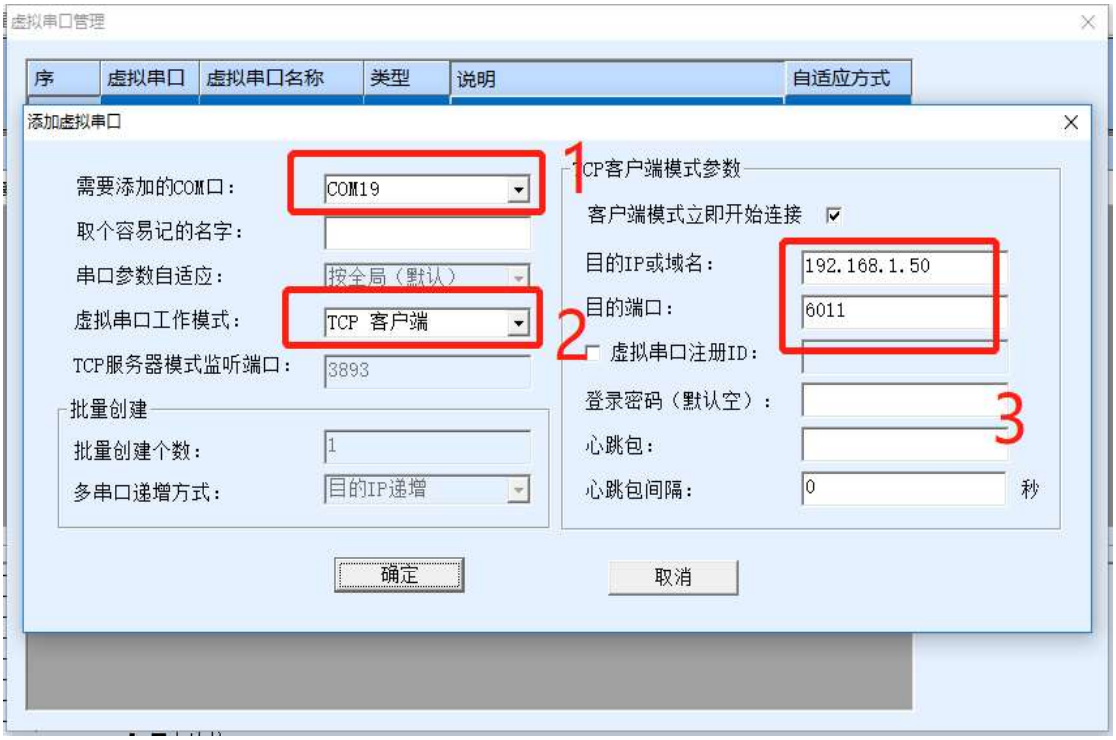
↗ 4.2.4 SZ11-TCP232/485 Virtual Serial Port Testing

For direct communication between TCP and the serial gateway, in order for users to have already developed serial port software to communicate with the gateway, a virtual serial port must be added between the user program and the serial gateway.

1. First, click on "Serial Port Management"

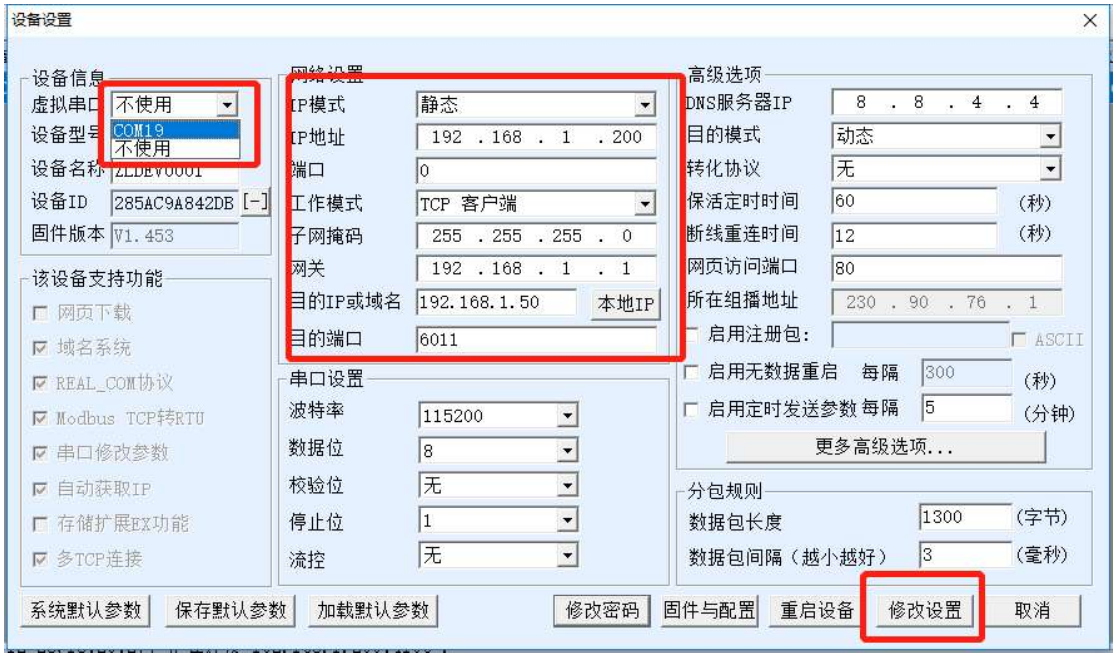


2. Add COM port (select 15 or higher to prevent the local serial port from being occupied); Virtual serial port operating mode: TCP client, target IP or domain name: 192.168.1.50, destination port number: 6011. Click "OK".

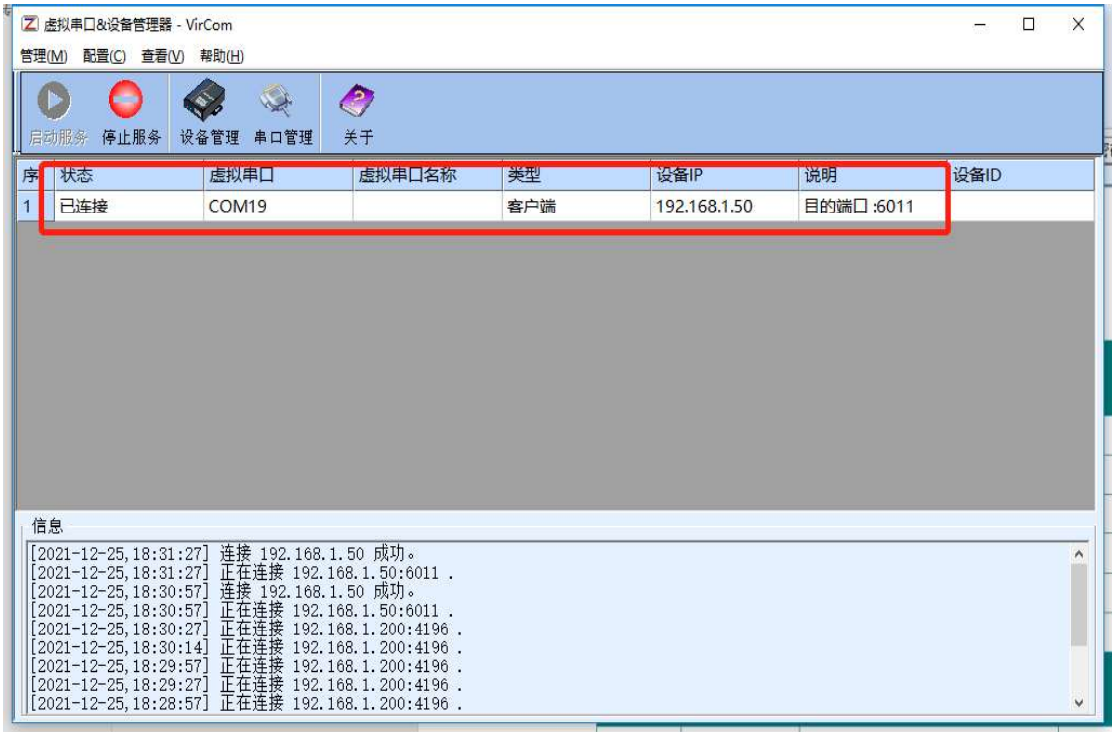


3. In this interface, users can set device parameters. The main configuration parameters include: baud rate, data bits, and parity bits in serial port settings; Operating modes in network settings: TCP server, IP

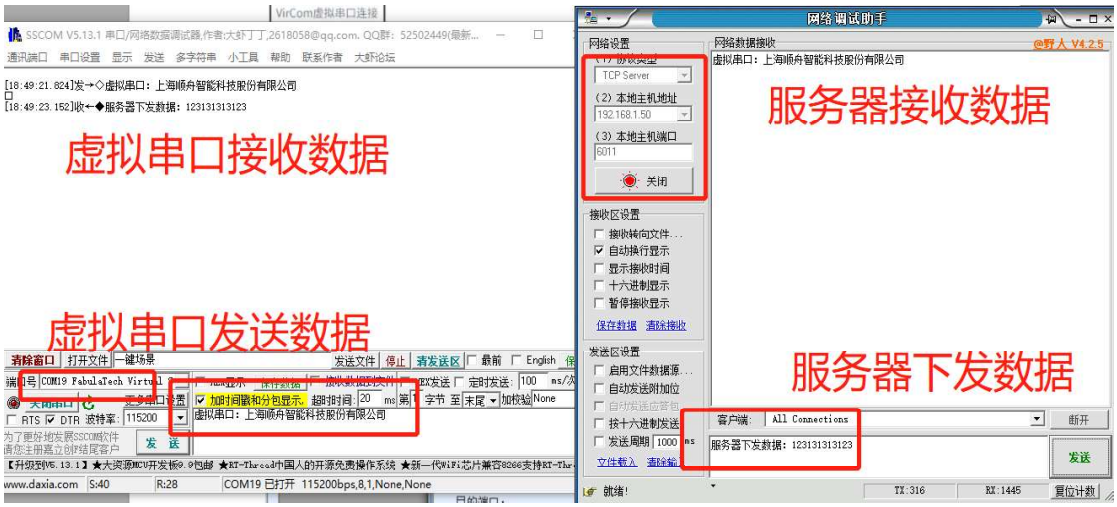
address: 192.168.1.50, port 6011, subnet mask, gateway, etc. Then click "Modify Settings," and the device will automatically restart



4. Return to the homepage and check if the device is connected.



5. Open the virtual serial port COM19 and network debugging assistant to enable data communication.



5. Software Function Introduction

Equipment information description			
Sorting	Parameter name	Function	Note
1	Virtual serial port	Created virtual serial ports	
2	Device model	Default, cannot be modified	
3	Equipment name	Subject to modification	
4	Device ID	Default, cannot be modified	
5	Firmware version	Default, cannot be modified	
This device supports various functions			
1	Web download	Default, cannot be modified	
2	Domain name system	Default, cannot be modified	
3	REAL_COM Agreement	Default, cannot be modified	A non-passthrough serial gateway protocol, suitable for multi-serial gateways to bind virtual serial ports over the Internet. Because the protocol contains the device's MAC address, it helps the host computer identify the device. Generally, it can not be used.
4	Modbus TCP to RTU	Default, cannot be modified	Only model digit 3 with 4 supports this function. Modbus TCP to RTU can be

			achieved. It also supports multi-host functionality.
5	Serial port modification parameters	Default, cannot be modified	Supports serial port AT instructions for device parameter configuration and reading.
6	Automatically obtain IPs	Default, cannot be modified	Supports DHCP client protocol
7	Storage extension EX function	Default, cannot be modified	Subsequent expansions
8	Multiple TCP connections	Default, cannot be modified	When acting as a TCP gateway, it supports more than one TCP connection.
Network settings			
1	IP mode	Static, DHCP	Users can choose static or DHCP (Dynamic IP Acquisition)
2	IP address	IP address of the serial gateway	
3	Port	0～65535	The listening port when the serial gateway is in TCP Server or UDP mode. As a client, the most specified port is port 0, which helps improve connection speed. When port 0 is used, the system will randomly assign a local port. The difference between this and non-zero port is: (1) When the local port is 0, the device restarts and re-establishes a new TCP connection with the PC. The old TCP connection may not be closed, and there may be multiple fake connections with the device. Generally, the host computer wants to close the old connection when the device restarts; Specifying a non-zero port will close the old connection. (2) When the local port is 0, TCP reconnects quickly. When the serial gateway is in TCP client mode, it also acts as the TCP gateway to listen for connections at the port. At the same time, the local port number used by the TCP client to connect to the gateway is "Terminal + 1"
4	Working mode	TCP gateway mode, TCP Client mode, UDP mode, UDP multicast	When set as a TCP gateway, the serial gateway waits for the computer to connect; When set as a TCP client, the

			serial gateway actively initiates a connection to the network gateway specified by the destination IP.
5	Subnet mask	For example: 255.255.255.0	The subnet mask must be the same as the local LAN subnet.
6	Gateway	For example: 192.168.1.1	It must be the same as the local LAN gateway.
7	Purpose IP or domain name	In TCP client or UDP mode, data is sent to the computer indicated by the destination IP or domain name.	
8	Destination port	In TCP client or UDP mode, data is sent to the destination The destination port of the IP.	
This device supports various functions			
1	Porter rate	300、1200、 2400、 4800、 7200、9600、 14400、 19200、28800、 38400、 57600、76800、 115200、 230400、460800	
2	Data bits	5、 6、 7、 8、 9	
3	Check bit	None, even, odd, marked, empty Grid	
4	Stop position	1、 2	
5	Flow control	Support	
Advanced options features			
1	DNS gateway		When the destination IP is described by a domain name, you need to enter the DNS gateway IP. When the IP mode is DHCP, you don't need to specify a DNS gateway; it will automatically obtain it from the DHCP gateway.
2	Purpose Mode	Static and dynamic	In TCP client mode: After using static destination mode, the device will automatically restart after 5 consecutive failures to connect to the gateway.
3	Conversion protocols	Transparent transmission,	NONE means data forwarding from the serial port to the network is

		ModbusTCP<->RTU, Real_COM	transparent; Modbus TCP<->RTU directly converts Modbus TCP protocol into RTU protocol, making it easier to integrate with Modbus TCP; RealCOM is designed to be compatible with older versions of the REAL_COM protocol; it is a virtual serial port protocol, but when using virtual serial ports, it is not necessarily necessary to select the RealCom protocol.
4	Maintain a timer for life	0～255	Heartbeat interval. (1) When set to 1~255, if the device is in TCP client mode, it will automatically send TCP heartbeats every "Keep Time Live" interval. This ensures the TCP validity of the link. When set to 0, there will be no TCP heartbeats. (2) When set to 0~254, when the conversion agreement is selected as REAL_COM protocol, every Keep-Time interval, the device will send a data of length 1 and content 0, implementing the heartbeat mechanism in the Realcom protocol. When set to 255, there will be no Realcom heartbeats. (3) When set to 0~254, if the device is running a TCP client, it will send device parameters to the destination computer at regular intervals during active time. When set to 255, it will send parameters without parameters, enabling remote device management.
5	Disconnection and reconnection time	0～255	In TCP client mode, if the connection is not successful, each "disconnect reconnection time" restarts the TCP connection to the computer. It can be 0~254 seconds; if set to 255, it means no reconnection is performed. Note that the first TCP connection (such as hardware power-on, device restart via SZVircom software, no data light) is usually made immediately; only after the first connection fails will the "disconnect reconnect time" be waited for before trying again. Therefore, the

			"disconnection reconnection time" does not affect the normal connection establishment time between the network and gateway
6	Web access port	1～65535	The default is 80
7	The multicast address	Used during UDP multicast	
8	Enable the registration package	When a TCP connection is established, the registration package is sent to the computer. After enabling the registration package, you must select the Realcom protocol. Supports both TCP gateway and TCP client modes.	
Subcontracting rules			
1	Packet length	1～1400	One of the serial port frame segmentation rules. After receiving data of this length, the serial gateway sends the received data as a frame to the network.
2	Packet spacing	0～255	Serial port frame segmentation rule two. When the data received by the serial gateway pauses and the pause duration exceeds this duration, the received data is sent to the network as a frame.

6. General fault troubleshooting

6.1 Serial port cannot transmit data; check the serial wiring

1. Check whether the RS485 or RS232 wiring is correct.

6.2 Network connection abnormalities

1. Check whether the network cable is properly connected.
2. Check the power supply; the indicator light will turn on
3. Check whether the switch is working properly, with the IP on the same network segment or connected to a computer. Check if the IP is on the same subnet

7. Non-Liability Assumption

Our company assumes no responsibility for violations of this manual or for repairs or maintenance services provided by unauthorized personnel, resulting in inability to use the device normally or incorrect installation.

Once the controller's casing is opened, the quality guarantee expires immediately.

8. Technical Support

If you have any technical or application questions, please contact our technical staff;

GUANGDONG DONE POWER TECHNOLOGY CO.,LTD

Website: http://www.donepower.com.cn