ZLAN7104/ ZLAN7144

High-Performance

WIFI Serial Device Server

RS232/485/422 To WIFI/Ethernet

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Version Information

The History of the revision to this document:

History

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Copyright information

Catalogue

Summary

ZLAN7104 is another WIFI serial device server launched by Shanghai ZLAN after ZLAN7100 and ZLAN7142. Similar with ZLAN7142, ZLAN7104 is also a high-performance wifi serial device server. But for 7104 the Ethernet and WIFI can be used meanwhile, and the configuration is more convenient. The 7104 is positioned on high stability, rich function, suitable for the high real-time and stability industrial applications, particularly for wireless remote monitoring such as PLC and so on.

ZLAN 7144 is Modbus TCP to Modbus RTU version.

Figure 1 ZLAN7104 with Antenna

The high quality power supply design in 9~48V wide voltage provides better industrial environment adaptability; Can be equipped with installation guide accessories.

The ZLAN7144 not only have the function of RS232/RS485/RS422 to WIFI TCP/IP, and integrated the function of Modbus TCP gateway, can easily achieve the Modbus

RTU protocol converting to Modbus TCP WIFI protocol.

The serial device server can easily make serial device connected WIFI network, implement the wireless network upgrade of the serial device. RS232 interface support full duplex, uninterrupted communication. RS485 is embedded 485 lightning protection. The Wifi supports STA mode to connect to the wireless router, or as AP mode which mobile phones and other wifi devices can connect to.

For users using virtual serial port can use ZLAN ZLVircom software to achieve a virtual serial port, the original PC software of serial no need modification. You can also use the Modbus TCP protocol in the Configuration Software to directly connect with the RTU device to realize wifi networking communication.

ZLAN7104 can be applied to:

- PLC Remote Wireless Monitoring
- Power /Electronic /Intelligent Instrument
- Bank /Medical Automation System
- Industrial Automation System
- Information Household Appliances

The typical application is shown as FIG. 2. The original serial device connect with ZLAN7104, then connect ZLAN7104 to wireless network through the WIFI. Then any data sent by serial device will be transparently transferred to the PC designated by ZLAN7104, and data sent to ZLAN7104 from PC via network will also be transparently transmitted to the serial device.

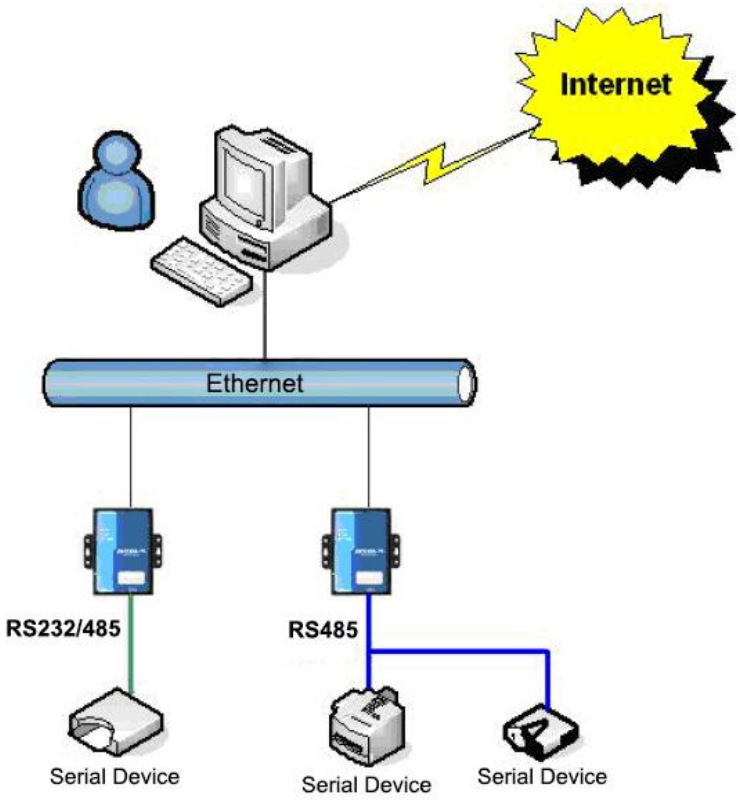


Figure 2 ZLAN7104 Network Structure

1. Function Features

1.1 Universal software function

ZLAN7104 main features are as below:

1) Support Ethernet and WIFI simultaneous access.

2) Wide voltage power supply: 9~24V supply scope. Power supply input method is available for both of industrial interface and normal power supply adapter.

3) Support 3 serial port interface: RS232/485/422. Support firmware flow control CTS/RTS and software flow control XON/XOFF.

4) Sticky packet optimization, serial port frame strong real-time. ZLAN7142 is suitable for industrial applications with strong real-time performance of serial port, which can prevent two serial port data frames from sticking together. The

subcontract interval of serial port packet of ordinary WiFi serial port server is more than 100ms, and Zlan7104 is optional as 1ms ~ 100ms, which greatly improves the resolution accuracy

5) Support upgrading program through Ethernet port in the system. Support remote network upgrades.

6) Support wifi connection between modules.

7) 4 types of LINK indicator light interfaces are provided: LINK blue means that TCP connection is established, LINK green means that Ethernet network cable is connected, WIFI blue means that WIFI connection is established as AP or STA, and WIFI green means that WIFI function is normal. Abundant indicator lights can show the state of the equipment directly

8) One-click search configuration

8.1) WiFi search: When WiFi and PC or router establish links, the device parameters can be searched and configured with one-click software by Zlvircom, so that the device IP and PC need not be in the same network segment

8.2) Network port search: when you forget the SSID or the password WIFI cannot find the module, as long as you plug in the network cable, even if it is not in a network segment, you can immediately find the module and configure the parameters of WIFI, network and serial port by using ZLAN ZLvircom tool

9) DNS resolution is supported as a DHCP Client or as a DHCP Server in AP mode

10) Support TCP Server, TCP Client, UDP, UDP multicast. As a Server, it supports up to 100 TCP connections to communicate with networking modules simultaneously. As a Client, you can connect to up to eight destination IPs

11) supports the function of sending MAC address on the device connection to facilitate the cloud management of the device

12) Support remote view of the device's TCP connection status, serial port data

transmission, receiving status through software. The virtual serial port supports data monitoring

1.2 Advanced software function

4 in ZLSN7044 indicates support for advanced soft functions, includes followings:

1) Support Modbus gateway function, support Modbus RTU to Modbus TCP. It can support the storage Modbus, which can automatically collect device data and store it. Non-storage mode Modbus gateways are also supported

2) Support multi-host function: under the query mode of one question and one answer, support network port terminal allows multiple computers to access the same serial port device at the same time

3) Support for custom heartbeat package and registration package function: it is convenient to communicate with the cloud and identify the device

4) Support TCP connection to establish the function of password verification to ensure the security of the connection

5) Support "transcoding" function, can realize the translation of specific device protocol, so that different devices docking unified software platform

6) Support HTTP data submission and distribution functions, and the cloud can directly use HTTP GET instructions to interact with the serial port data of the device

2. Technical Parameters

Figure	
Interface:	485: Terminal; 232; DB9; 422: Terminal
Power Supply:	Inside positive outside negative, standard outlet; Two lines terminal
Size:	L x W x H =9.4cm×6.5cm×2.5cm
Communicate Interface	
Wifi	802.11b/g

Serial	RS232/485/422×1: RXD, TXD, GND, CTS, RTS		
Serial Parameters			
Baud rate:	1200~115200bps	Parity:	None, Odd, Even, Mark, Space
Data size:	5~9	Flow control:	RTS/CTS, XON/XOFF, NONE
WLAN			
WLAN Standard:	802.11 b/g		
Frequency Range	2.412GHz-2.484GHz		
Transmit Power	802.11b: +20dBm(Max.); 802.11g: +18dBm(Max.);		
Receiving Sensitivity	802.11b: -89dBm; 802.11g: -81dBm;		
Antenna Choice	External: external antenna		
Hardware			
Ethernet	10M/100M		
Power	9~24V, <1W		
Work Temperature	-40~85℃		
Storage Temperature	-45~125℃		
Software			
WLAN Work Mode	STA/AP		
Security Mechanism	WEP/WPA-PSK/WPA2-PSK		
Encryption Type	WEP64/WEP128/TKIP/AES		
Protocol	TCP/UDP/ARP/ICMP/DHCP/DNS/HTTP		
Net communication method:	Socket, virtual serial port		
User Configuration	Web Server, Windows configuration tool ZLVircom		
Environment			
Running temperature:	-40~85℃		
Storage temp:	-45~165℃		
Humidity:	5~95%RH		

3. Hardware Instruction

The front view of ZLAN7104 WIFI serial server is shown in Figure 3. ZLAN7104 uses

black anti-radiation SECC board. Left and right are with two "ears" to facilitate the installation.

Size:

L × W × H = 9.4cm × 6.5cm × 2.5cm

Figure 3 7104 Front View

Panel Light:

1) **ACT:** ACT lights up when green indicates that data is normally transferred between WIFI/Ethernet and RS232/485/422. When the ACT light blinks blue, it indicates that data has been returned from RS232/485/422 to WIFI/Ethernet. If the data is short then blue flashing time is relatively short, need to pay attention to view.

2) **LINK:** LINK lights are green when the RJ45 cable is connected. When the LINK light is blue, it indicates that the TCP connection is established or is in UDP mode.

3) **POWER:** Indicates that the serial server is powered on.

4) **WIFI:** WIFI is blue when it indicates that WIFI has established a wifi connection with router as an STA or as an AP there has wifi establishing a connection with it. When the WIFI light is green: 2 seconds flashes, it indicates that it is in AP mode and no wifi connection is established; It flashes every 5 seconds, indicating that the device is in STA mode and is connecting with the router.

Figure 4 Front Interfaces of 7104

The **serial interfaces in front** of the server area shown in Figure 4, from left there have:

1) Ethernet port: standard RJ45 interface

2) R-, R+, T+, T-: where T+ is RS485A, T- is RS485B; if you need RS422, you can connect these four lines.

3) Terminal power supply +, -: voltage is 9~48VDC.

4) Power outlet: you can use the standard 5.5mm plug (core for the positive), the voltage 9~48VDC.

The **back panel** of serial server is as shown in Figure 5, from left there have:

Figure 5 The back of 7104

1) WIFI antenna. You can choose to the extending line antenna, easy to install to the outside of the metal cabinet.

2) Reset switch: putting on the reset mode, will reset wifi work mode to the AP mode, SSID into ZLAN, password is empty, IP into 192.168.1.254.

3) Serial port using standard DB9 male: line sequence as shown in Table 1:

Item	Name	Instruction
2	RXD	The receiving pins of serial device server
3	TXD	The sending pins of serial device server
5	GND	Grounding
7	RTS	After the flow control is enabled, when the pin is 0, the serial device server can accept the data of the serial device.
8	CTS	After the flow control is enabled, when the pin is 0, the serial device server can send the data of the serial device.

4. Wifi Function

4.1 AP Mode

Do not plug the cable, put 7104 power on. After a while you can see WIFI_WORK light began to flash, indicating the wifi function has been normal. By default 7104 is in AP mode and SSID is "ZLAN". See "ZLAN" in the wifi list of PC, connect the wifi.

Figure 6 Search for ZLAN hotspots

After connecting the laptop, you can automatically get an IP address from 7104. Click ZLVircom software "Device Manage" button, you can see a line in the device list, found 7104 device.

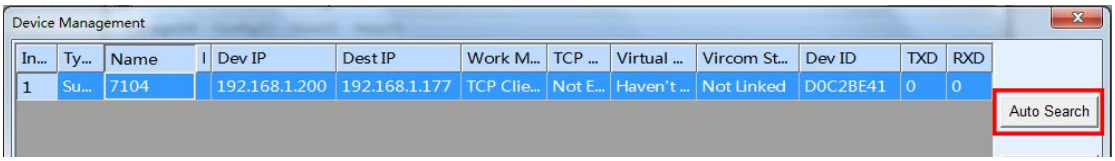


Figure 7 Search for 7104 Device

Double-click the line to open the Device Parameter Edit dialog box.

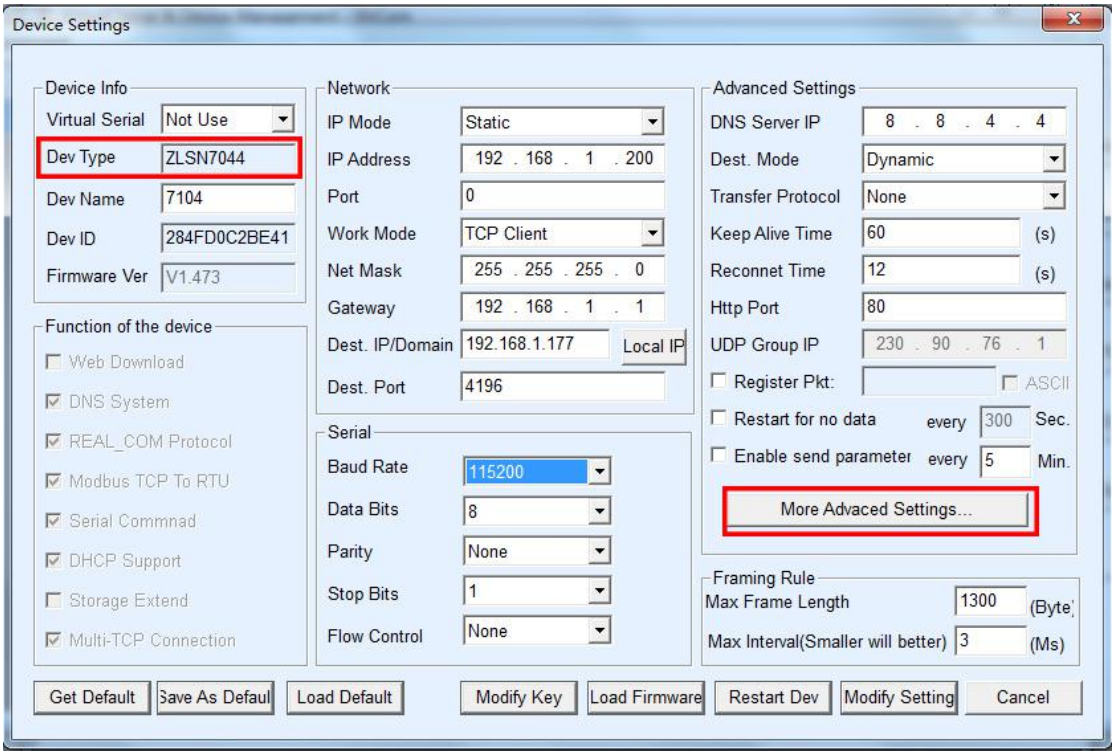


Figure 8 Device Parameter Settings dialog box

Here you can see one of the device model ZLAN7104, ZLSN7044 and so on. Here you can also configure the IP address and baud rate, the meaning of these parameters will introduce after. Please click on "More Advanced Settings", you can configure the 7104 wifi parameters in the open dialog box.

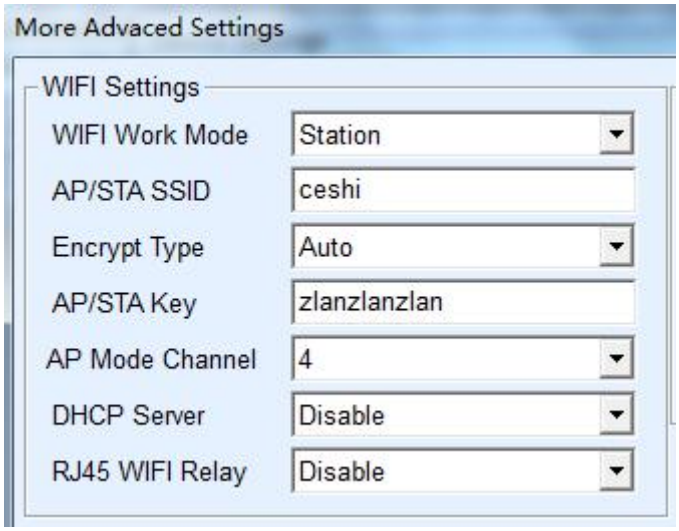


Figure 9 Wifi Parameter Configuration

The meanings of the WIFI parameter are as follows:

Name	Option Values	Instruction
WIFI Work Mode	➢ Wireless AP: 7104 can be as a hotspot to be connected by notebooks, mobile phones, etc., mainly for using the configuration in the first time. ➢ Wireless Station: As STA mode, 7104 will actively connect a hot spot (such as a router).	
AP or STA SSID	A string of 32 bytes or less	As an AP, this SSID is the hotspot name, when as STA mode, it is the SSID of the pre-connected hotspot. When changing from STA to AP mode, please pay attention to modify the SSID, otherwise it will conflict with the existing SSID on the network.
Encryption type	➢ No encryption: no password mode ➢ WEP64: Password length must be 5 characters. ➢ WEP128: Password length must be 13 characters. ➢ TKIP: TKIP encryption, password 1 to 32 bytes. ➢ AES: AES encryption, password 1 to 32 bytes. ➢ Automatic: usually routers use one of TKIP and AES, when the user is not sure, you can choose automatic mode.	
AP or STA Password	Different password length according to the type of encryption	As AP mode, this password is the password of computer, mobile phone connecting to 7104. When used as STA mode, this password is the pre-connected AP password.
AP mode selection	1～11	This parameter is only valid in AP mode, not in STA mode
DHCP server	Enable/Disable	Convenient as AP when the phone is connected to this hotspot can get IP. If you only use the Ethernet port, it is recommended to shut down the DHP server, so as not to cause DHCP server assignment conflict with the router

LAN and Wif	Enable/Disable	data from WiFi can earn the network port, the opposite meaning is still the same, that is, it is used as a router, not only as a serial server

If the 7104 as AP mode, it has two types password and no password. No password mode you just select "no encryption" type; password method is recommended to use WEP128 encryption, the password length is of 13 bytes.

4.2 STA Mode

When the STA mode is used, the user enters the SSID, encryption mode, and password of the pre-connected router in FIG. 9. When you do not know the router's encryption mode can choose "automatic" mode.

When the STA mode is used, 7104 will automatically connect to the AP hotspot after power-on. At this time, the WIFI_WORK light is flashing quickly, indicating that it is in the connecting state. WIFI_LINK lights will be on when the connection is established.

STA mode support automatic reconnection, such as AP hot restart, 7104 can automatically connect. If you cannot connect to the AP hotspot, please confirm that whether the encryption mode, password, SSID is correct, whether the antenna is installed, whether in the signal range.

4.3 Ethernet Search

One of the advantages of 7104 is having wifi and Ethernet at the same time. At any time when you cannot determine the7104 wifi parameters, cannot connect to the 7104, you can use one-key searching module of ZLVircom by plugging in network cable, configuring the required wifi parameters.

4.4 Wifi Connection in pairs

7104 support 2 modules via wifi interconnect. Interconnection configuration

parameters are as follows:

Parameters	**Module as AP**	**Module as STA**
WIFI Work Mode	Wireless AP	Wireless Station
AP or STA SSID	Same	Same
Encryption Type	Recommended as “no encryption" or WEP128	Recommended as “no encryption" or WEP128
AP or STA Password	Same	Same

When the 2 7104 establish connection via wifi, WIFI_LINK light will be on.

4.5 Wifi Signal Test

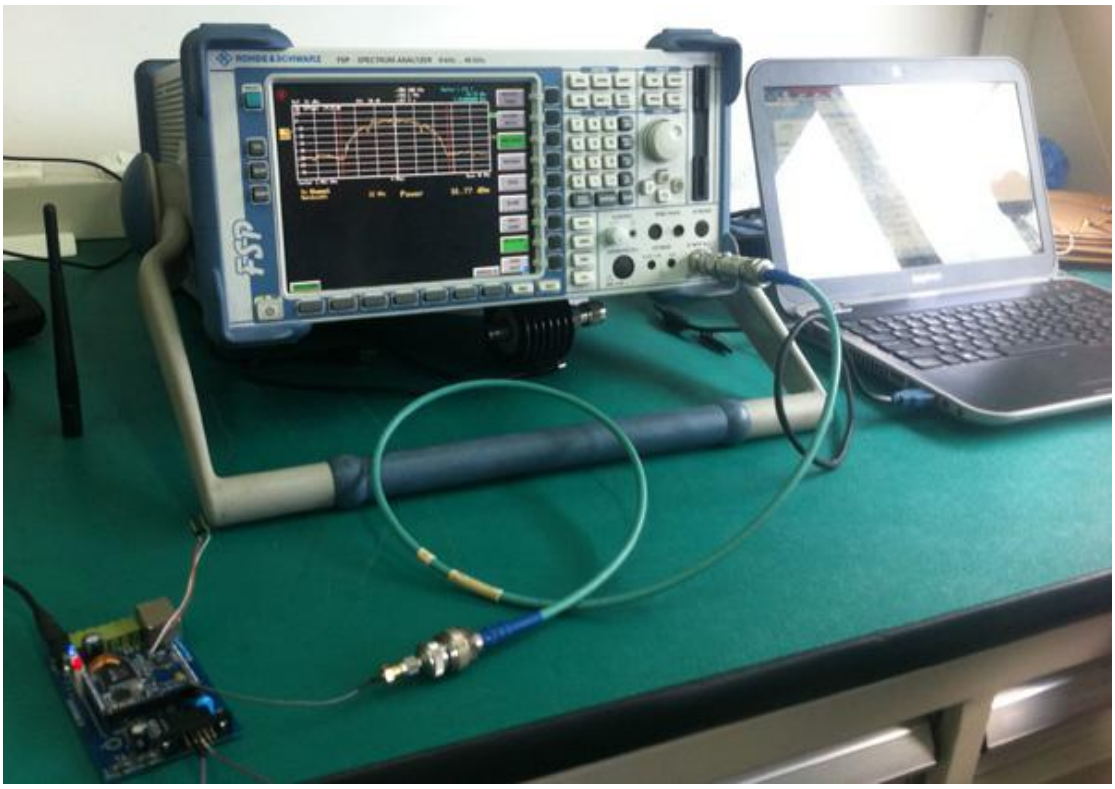


Figure 10 7104 Signal Test

The test instrument 7104 using is ROHDE & SCHWARZ 9k~40GHz spectrum analyzer.

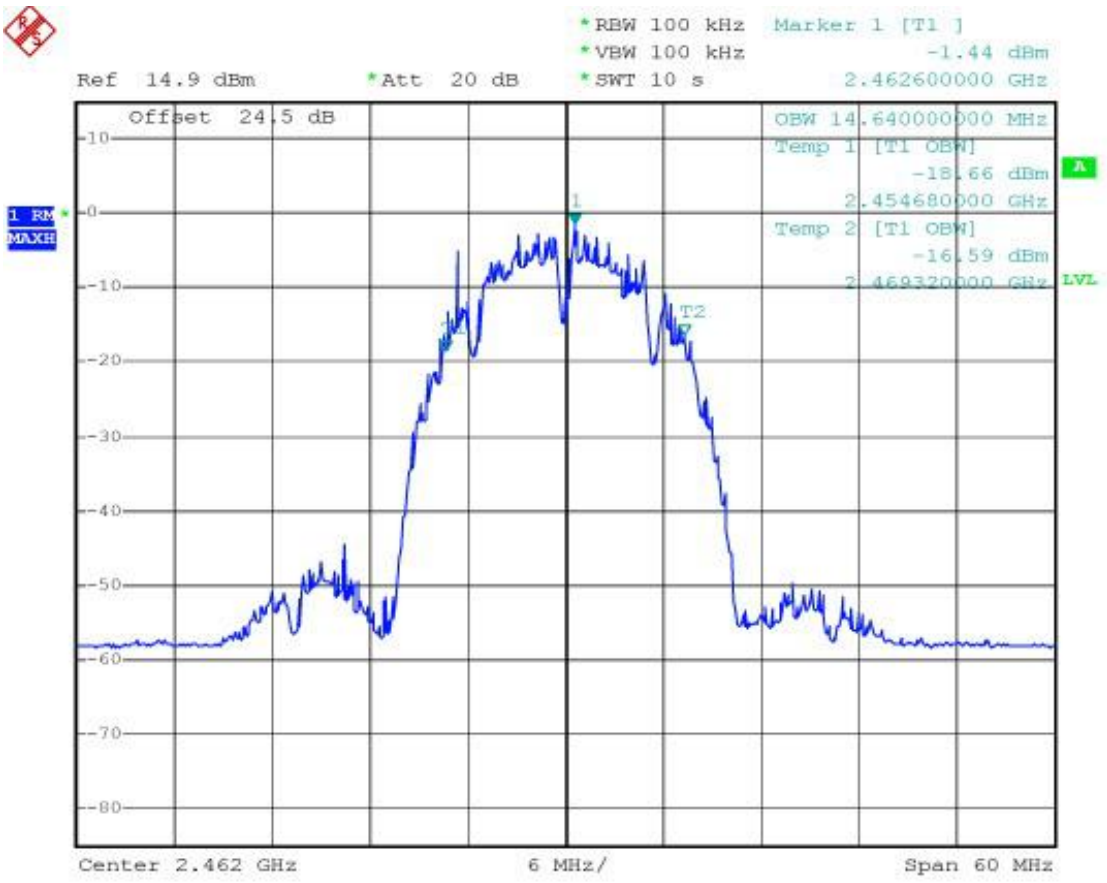


Figure 11 7104 Bandwidth Test Curve

From the bandwidth test curve, 7104's bandwidth is in the 20M range, will not interference the adjacent channel signal.

Figure 12 7104 Power Test Curve

From the power test curve, you can see the transmit power in the range of two test points is 17.34 dBm. Meet the requirements of the standard wifi signal transmission power.

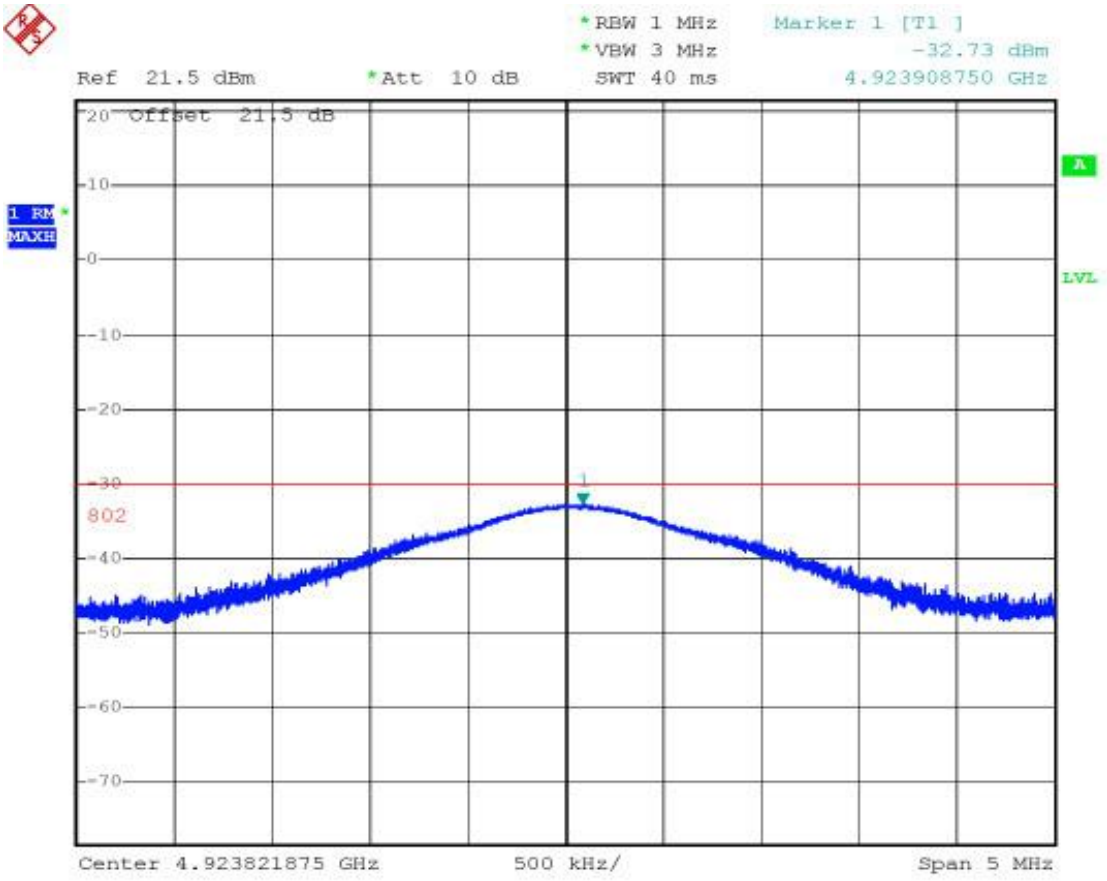


Figure 13 7104 Stray Test Curve

From the stray test of the 7104, the spurs in the vicinity of double-frequency 5GHz are less than -30dB, in line with the requirements of radio spurious radiation.

4.6 Antenna Choose

If you choose to use the built-in antenna module, no need external antenna, if you need an external antenna you need to meet the following characteristics, ZLAN can provide external antenna.

Impedance	50 Ohm
Return loss	-10dB(Max)

Connector type	I-PEX
Frequency Range	2.4～2.5GHz
VSWR	2 (Max)

5. Usage

5.1 Summary

Please use ZLVircom to configure the 7004. When 7004 access network via the Ethernet port or wifi, the computers in same LAN can search the device through installing ZLVircom tool.

5.2 Software configuration

Zlvircom can be used to configure parameters such as device IP, as well as to create virtual serial ports. If you do not need the virtual serial port capability, you can download the installment-free version. Download address:http://www.zlmcu.com/download.htm

Chart 2 ZLVircom Version

Software name	Specifications
ZLVircom device management tool （none installed version）	None installed version excludes virtual port function
ZLVircom device management tool （installed version）	Zlvircom_x64.msi and zlvircom_x86.msi. X64 for 64-bit operating systems and x86 for 32-bit operating systems

Follow the default prompts when installing. After installation, ZLvircom will be started every time the computer is started to create a virtual serial port.

5.3 Parameter configuration

After the installation of ZLvircom and the hardware connection of the device are completed, run the ZLvircom software as shown in Figure 14, and then click "Device Management" as shown in Figure 15. Using Zlvircom, you can easily search and configure device parameters in different network segments, as long as the device is under the same switch as the computer running Zlvircom

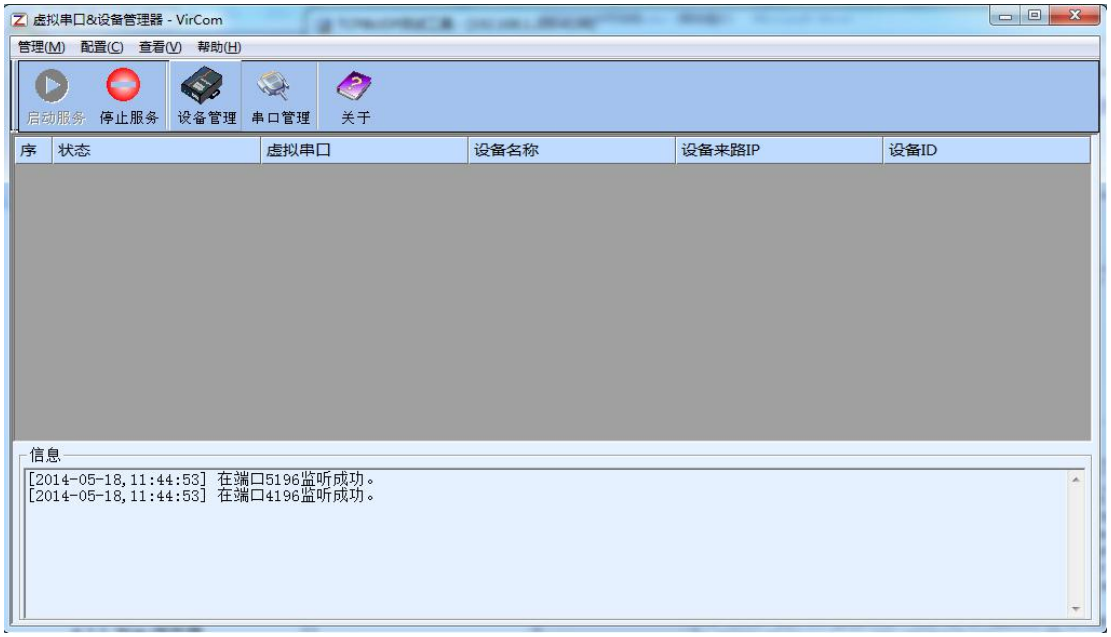


Chart 14 ZLVircom Main page

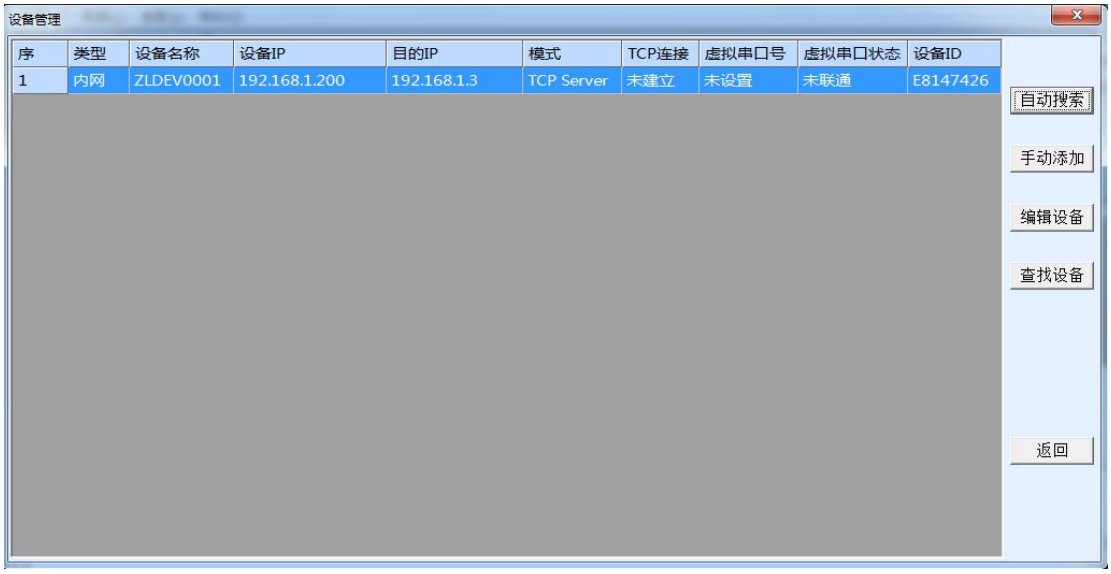


Chart 15 Device list

See all currently online devices from the device list. Click "Edit Device" to configure the parameters

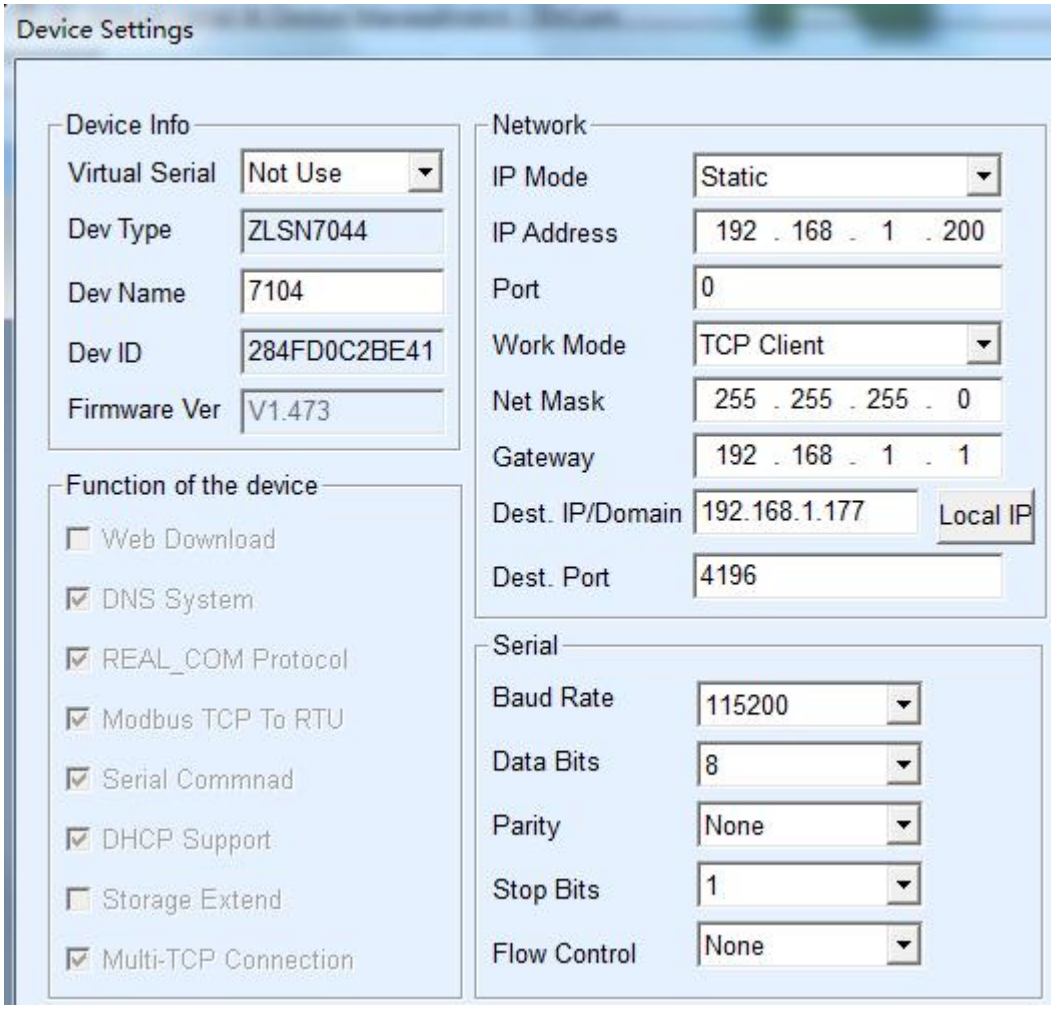


Chart 16 device data

In this interface, the user can set the parameters of the device, and then click "Modify Settings". The parameters will be set in the Flash of the device, and the power will not be lost. At the same time the device will automatically restart

Here the main configuration parameters are: serial port setting in the baud rate, data bit, check bit; IP address, subnet mask and gateway in network Settings; Sometimes according to the computer software, also need to configure the serial port server working mode.

The meanings of other parameters are detailed as follows:

Chart 3. Parameter Meaning

Parameter Name	Value Range	Instruction
Virtual Serial	Non-in use, created virtual serial port	You can bind the current device to a created virtual serial port.
Device Type		Show only the model of the core module
Device Name	Any	You can give the device a readable name, with a maximum of 9 bytes, and support the Chinese name.
Device ID		The factory's sole ID, cannot be modified.
Firmware Version		The firmware version of core module
Supporting Function		Please refer to <User Guide of Networking Products> http://www.zlmcu.com/download/serial_server_user_manual.pdf
IP Mode	Static, DHCP	The user can choose Static or DHCP (Dynamic acquisition of IP)
IP Address		The IP Address of networking products
Port	0～65535	The monitoring port of Networking products when in the TCP Server or UDP mode. As a client, it is best to specify that the port is port 0, which is good for increasing the connection speed, and the system will randomly assign a local port when using the 0 port. At this time the difference from specifying the non-zero port are: (1) local port is 0, module sets up a new TCP connection with PC when restarting, old TCP connection may not be closed, so that the old TCP connection of the host has been unable to close, specify the non-zero port does not have the problem. Generally host wants to close the old connection when the module is restarted. (2) the local port is 0, the time of TCP rebuilding connection is faster.
Work Mode	TCP Server(TCP Server Mode),TCP Client(TCP Client Mode),UDP Mode, UDP Multicast	When set to TCP Server, the network Server needs to actively connect the networking products; When set to TCP Client, the networking product initiates the connection to the network server specified by the destination IP.
Net Mask	eg: 255.255.255.0	Must be same as net mask of local LAN.

Gateway	eg: 192.168.1.1	Must be the same as the local LAN gateway. If it is not crossing outer network (such as the cable connecting computer), it is best to set the gateway as the IP address of the connected computer.
Destination IP/Domain		In the TCP Client or UDP mode, the data will be sent to the destination IP or the computer of domain name instruction.
Destination Port		In the TCP Client or UDP mode, the data is sent to the destination port of the destination IP.
Baud Rate	1200, 2400, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 57600, 76800, 115200, 230400, 460800	Serial baud rate
Data Bits	5, 6, 7, 8, 9	
Parity	None, Even, Odd, Mark, Space	
Stop Bits	1, 2	
Flow Control	None (no flow control), CTS/RTS, DTR/DCR, XON/XOFF	RS232 port valid
DNS Server IP		When the destination computer is described by a domain name, DNS server is required to resolve the domain name, which specifies the IP of this DNS server. When the IP mode is DHCP, the parameter is not specified and will be automatically acquired.
Dest. Mode	Static, Dynamic	UDP working mode: if the destination computer is described by a domain name, it's best to choose the static mode; If there are multiple computers in the LAN communicating with networking products through UDP, it is best to choose dynamic mode. TCP server mode: this parameter must be dynamic. TCP client mode: when IP mode is dynamic, the destination IP is reconnected after the device is restarted, so that the correct IP address can be obtained again. Otherwise, it will do direct connection without automatically restarting the device.
Transfer	NONE, Modbus	NONE indicates that the data forwarding from the serial port

Protocol	TCP<->RTU, Real_COM	to the network is transparent; Modbus TCP<->RTU will convert Modbus TCP protocol directly into RTU protocol to facilitate coordination with Modbus TCP protocol; RealCOM is designed to be compatible with the old version of REAL_COM.
Keep Active Time	0～255	(1) Choose 1~255, if the device is in the TCP client working mode, the TCP heartbeat will be sent automatically for every "keep alive time". This can guarantee the TCP availability of links. When set to 0, there will be no TCP heartbeat. (2) Set to 0~254, when transformation protocol choose REAL_COM protocol, the device will send a length of 0 to 1 content data for every " keep alive time " to implement the heartbeat mechanism of Realcom. When set to 255, there will be no Realcom heartbeat. (3) Set to 0~254, if the device is working on the TCP client, the device will send the parameters to the destination computer every " keep alive time ". When set to 255, no have the parameter sending function. This mechanism is not normally used, users are not required to pay attention.
Reconnect Time	0～255	Once the networking products in a TCP client mode disconnect with the server (as long as in the non-connection status), it will initiates a TCP connection to the Server every while, can be 0~254 seconds, if set 255, never for reconnection. Note first TCP connection would immediately (such as hardware on electricity, through zlvircom software restart equipment, no data), only after the first connection failure will try again after waiting for the "break time", so "break time" will not affect the network and server connection setup time under normal circumstances.
Http Port	1～65535	
UDP Group IP		UDP multicast
Enable registration packs		When the TCP connection is established, the registration packet is sent to the computer. You must select the Realcom protocol after enabling the registration package. Support TCP server and TCP client mode
Max Frame Length	1～1400	One of the rules of serial. The connected product serial port sends the received data to the network as a frame after

		receiving the length data.
Max Interval (Smaller will better)	0～255	One of the rules of serial. When there is a pause in the data received by the connected product, and the pause time is greater than that time, the received data is sent to the network as a frame.

The functions supported by the device are explained below:

Chart 4. Device supporting function

Name	Specifications
Web page download	Support through the web page to control the serial output instructions, only the product with W tail has this function
Domain System	The destination IP can be the domain name (such as the WWW server address at the beginning).
REAL_COM protocol	A non-passthrough serial server protocol, suitable for multi-serial server to bind virtual serial port over the Internet. Because the protocol contains the device MAC address, it helps the upper computer to recognize the device. In general, it can not be used
Modbus TCP to RTU	Only models with bit 3 for 4 support this feature. Can realize Modbus TCP to RTU. It also supports multi-host functionality
The serial port modifies the parameters	Support serial port class AT instruction to configure and read device parameters
Automatic IP acquisition	Support for DHCP client protocol
Storage extended EX functionality	Subsequent extension
Multi TCP connection	Supports more than 1 TCP connection when serving as a TCP server
IO interface control	Model 3 with digit 4 supports any custom instructions to control 8 IO outputs
UDP broadcast	UDP broadcast
Multi destination IP	As a TCP client, it can connect to 7 destinations simultaneously
Proxy server	Proxy server support function (specific model required)
SNMP function	Support SNMP to Modbus RTU protocol. Only those with -snmp support this feature
P2P function	Support through P2P crossing technology to achieve access to any network

	equipment function. Models with N tailings support this feature

5.4 TCP communication test

After the configuration of the device parameters, you can use the serial port tool, TCP debugging tool for TCP connection communication test

Chart 17. TCP communication

Now suppose the PC COM port (USB to RS232 line) and serial port serial port server connection, then open the ZLComDebug (http://www.zlmcu.com/download/Comdebug.rar) serial debugging assistant, and open the corresponding COM figure 18. Open TCP&UDP debugging assistant SocketTest (http://www.zlmcu.com/download/SocketTest.rar), and as a way of TCP client, fill in the destination IP for a serial port server IP (currently 192.168.1.200), The destination port is 4196, then click the "Open" button in Figure 19. Enter "SocketSend" in SocketTest and click Send, then the data will be transferred to the RS232 interface through the network port of the serial port server, and then sent to ZLComdebug, and then displayed in ZLComdebug. Conversely, type "Comdebug Send" in ZLComdebug and click Send to send the socket test and it will be displayed.

This demonstration demonstrates, the serial port server to network port, network port to serial data transparent forwarding function

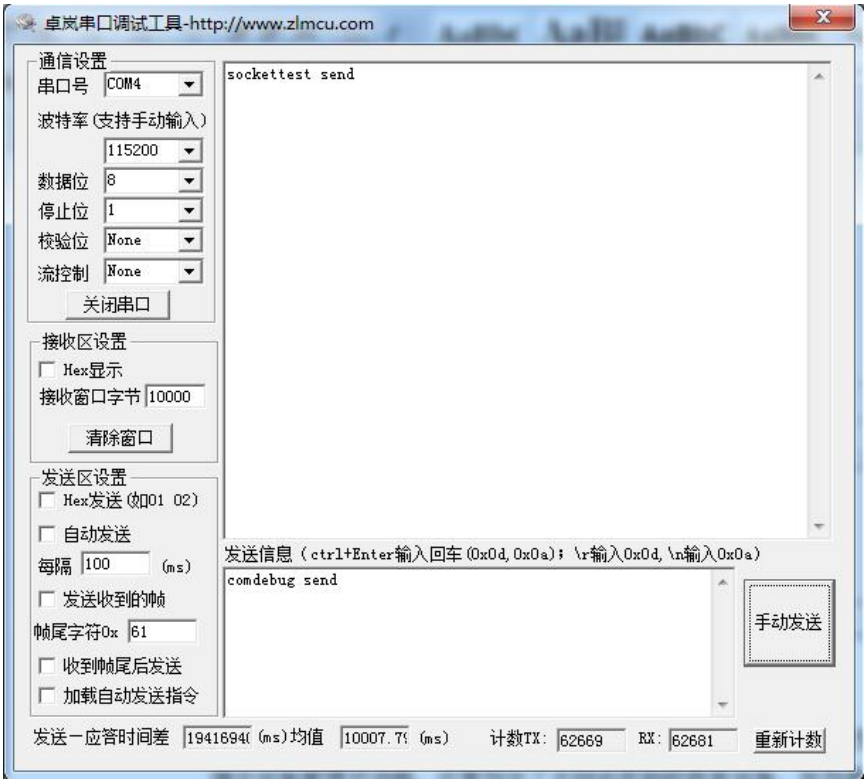


Chart 18. comdebug receive and send page

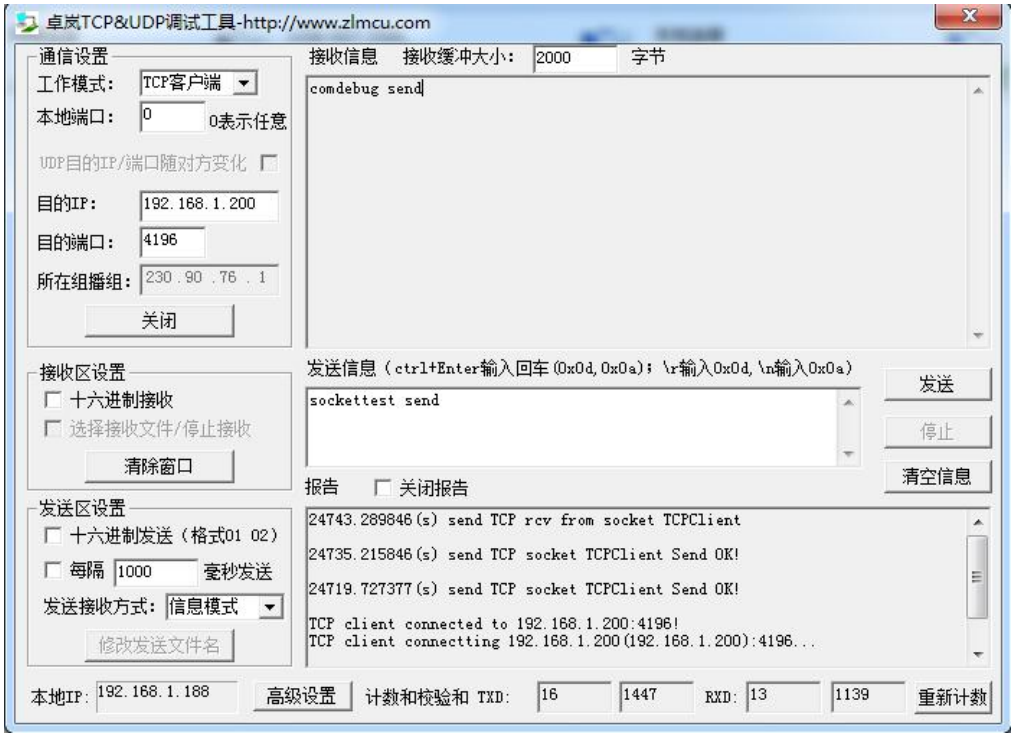


Chart 19. sockettest receive and send page

5.5 Virtual serial port test

The SocketTest in Figure 17 communicates directly with the serial port server through TCP. In order to allow the user to communicate with the serial port server, a virtual serial port should be added between the user program and the serial port server. As shown in Figure 20, ZLVircom and the user program run on a computer, and ZLVircom virtualizes a COM port to correspond to the serial port server. When the user program opens COM communication, it can be sent to the user serial port device through the ZLvircom serial port server. Here's the steps:

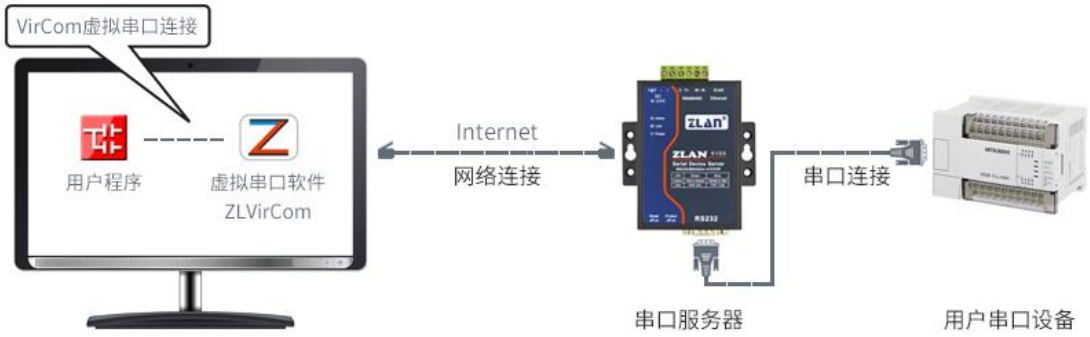


Chart 20. virtual serial port function

Click "Serial Port Management" on the main interface of ZLvircom, then click "Add" and select "Add COM5", where COM5 is the original non-existent COM port of the computer.

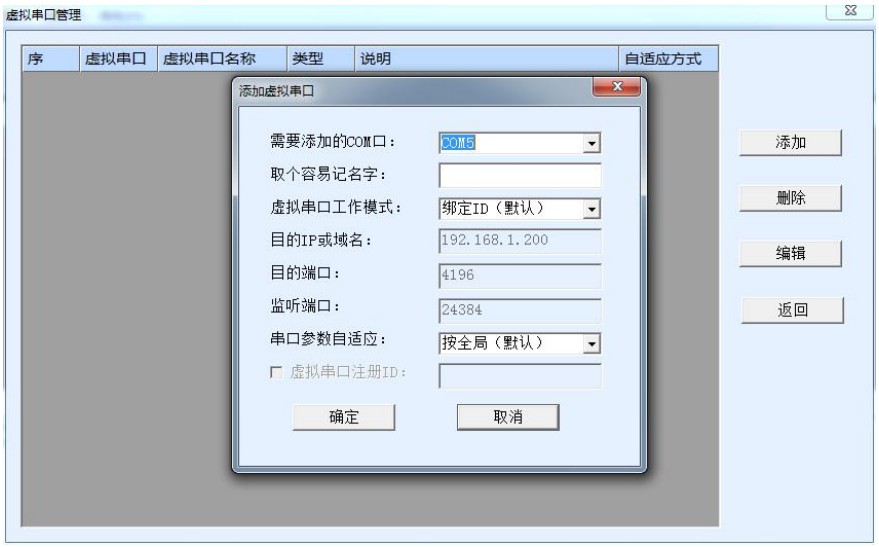


Chart 21. add virtual serial port

Then go to Device Management and double-click the device that needs to be bound to COM5. As shown in Figure 16, select COM5 from the list of Virtual Serial Ports in the upper left corner. Then click "Modify Settings." And returns to the main interface of ZLvircom. You can see that COM5 has been connected to the device with IP 192.168.1.200. You can use COM5 instead of SocketTest to communicate at this point.

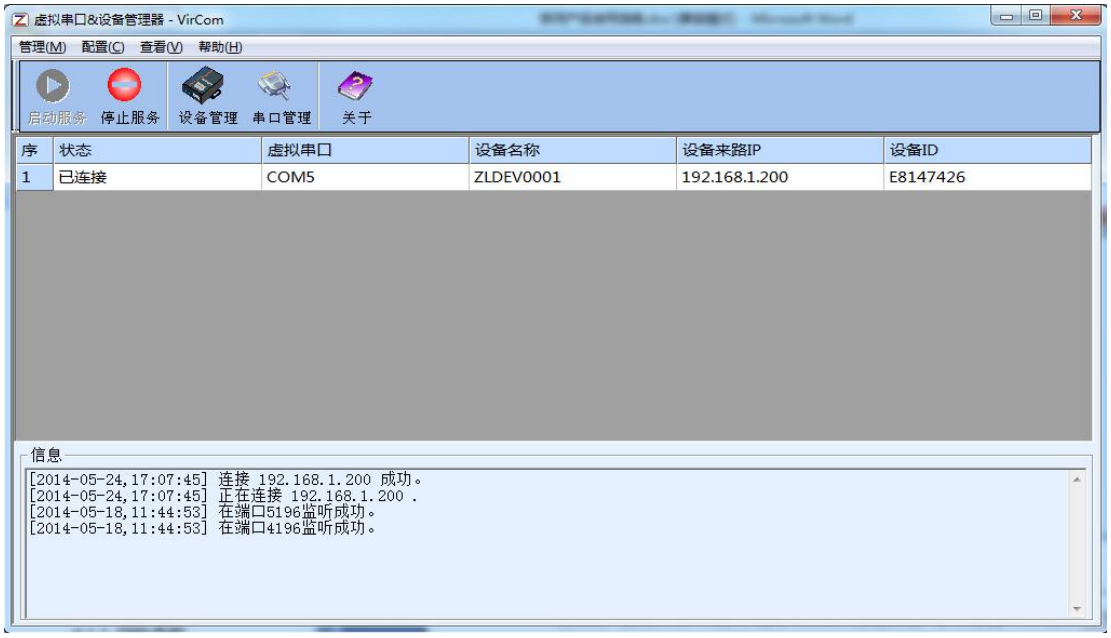


Chart 22. virtual serial port is working

Open ZLCOMDEBUG to simulate the user's serial port program, open COM5(virtual serial port above), open another ZLCOMDEBUG to simulate a serial device, and open COM4(hardware serial port). At this time, COM5 sends the data link as follows: COM5ZLVIRCOM Serial Port Server Network Port Serial Port Server COM4. On the contrary, COM4 to COM5 can also transmit data: COM4 Serial Server Serial Server Network Port ZLVIRCOMCOM5. As shown in Figure 23, both parties send and receive data.

If COM4 is changed into user serial port device, COM5 can realize the communication with user device.

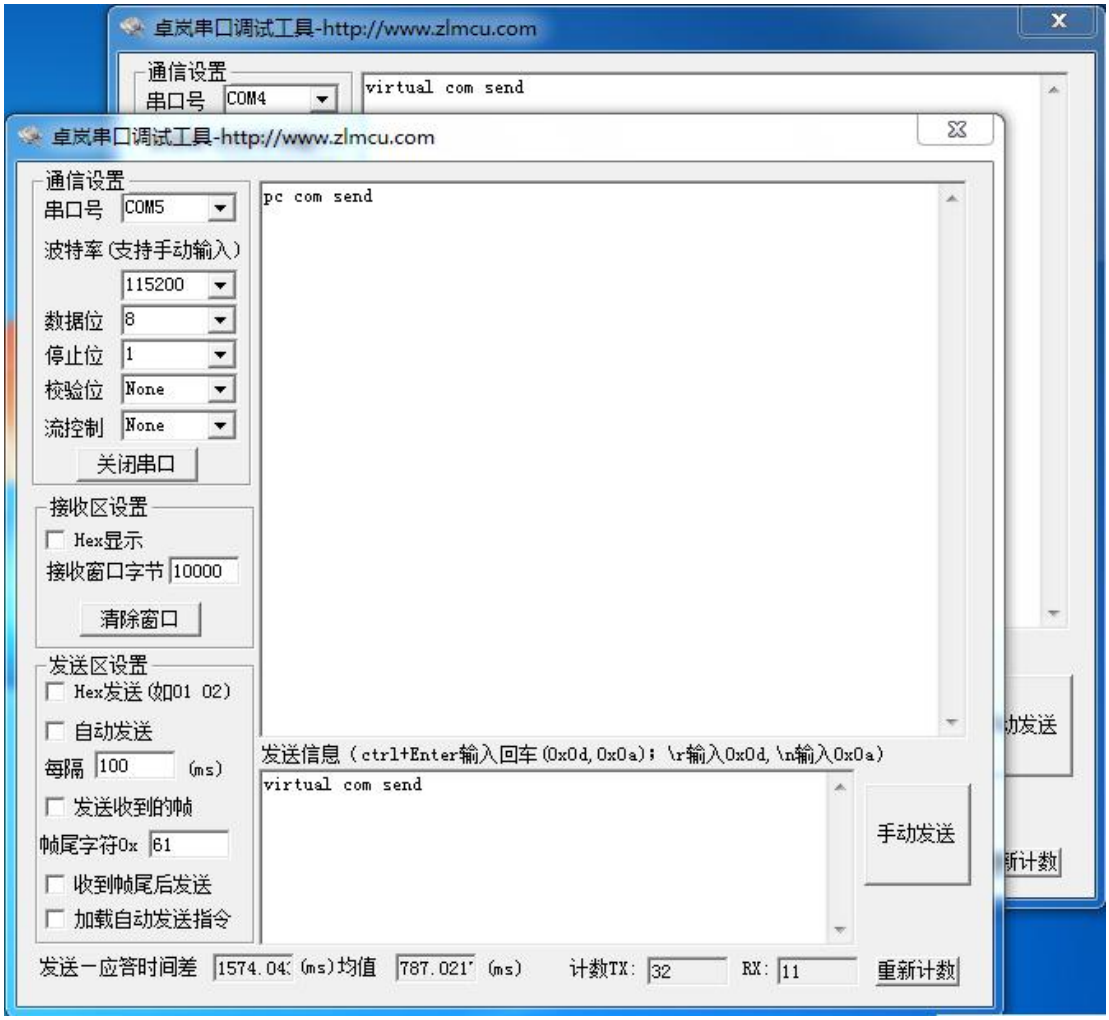


Chart 23. Communicate through virtual serial port

5.6 Modbus TCP test

By default, serial and network port data is transmitted transparently. If you want to convert Modbus TCP to RTU, select the conversion protocol as "Modbus TCPRTU" in the Device Setup dialog box, as shown in Figure 24. At this time, the device port is automatically changed to 502. At this time, the user's Modbus TCP tool connects to port 502 of the IP of the serial port server, and the Modbus TCP instructions sent will be converted into RTU instructions and output from the serial port. For example, the serial port server receives the Modbus TCP instruction of 00 00 00 00 06 01 03 00 00 00 0A, and the serial port outputs the instruction of 01 03 00 00 0A C5 CD. Note: The serial port may send multiple 01 03 00 00 00 0A C5 CD instructions. This is because the default Modbus is stored and automatically rotates the query instructions. How to switch to

non-storage mode is explained later.

Chart 24. start Modbus TCP function

If the user's Modbus TCP software is a Slave, it is necessary to change the working mode to the client on the basis of selecting the conversion protocol, change the destination IP to the IP of the computer where the Modbus TCP software is located, and the destination port is 502, as shown in Chart. 25

Chart 25. Modbus being client side

6.4 Web configuration

Using ZLvircom, device parameters can be searched and configured in different network segments. Web mode configuration needs to ensure that the computer and the serial server are in the same IP segment, and the IP address of the serial server needs to be known in advance. But Web configuration can be done on any computer that doesn't have ZLvircom.

1. Enter the IP address of the serial server in the browser, such as http://192.168.1.200, and open the following page.

Chart 26

2. Enter the Password in Password: the default is 123456. Click the Login button to login

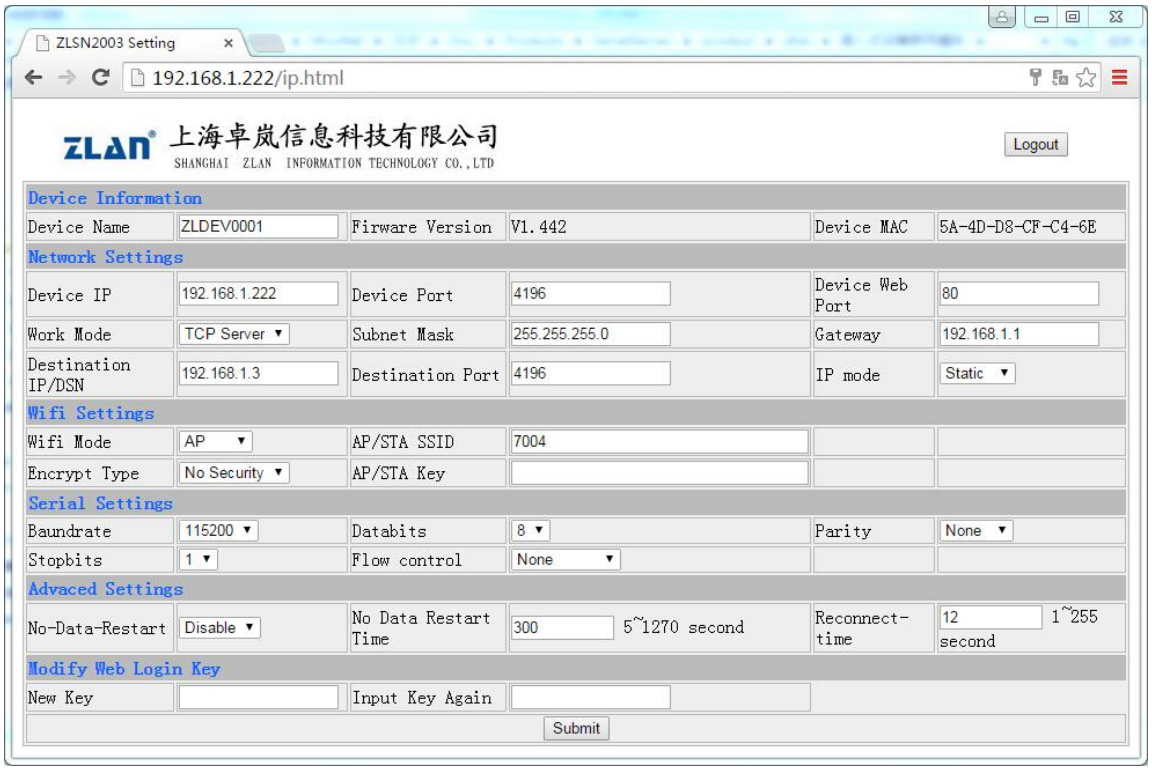


Chart 27 web configuration page

3. Serial port server parameters can be modified in the webpage that appears. Relevant parameters can refer to the meaning of parameters in Table 3.

4. After modifying the parameters, click the "Submit Modifications" button

7.0 Working mode and transformation protocol

In different applications can choose different serial server working mode, transformation protocol, so as to be more stable and reliable use, the following details.

Serial port server is basically divided into two types: virtual serial port and non-virtual serial port, as shown in Fig. 17 TCP communication schematic diagram and Fig. 20 function of virtual serial port respectively. The user software that needs to be connected with the virtual serial port is the serial port interface (COM port), that is, the user software and user equipment are serial ports; Non-virtual serial port user software is direct TCP/IP communication but user equipment is still serial

In the non-virtual serial port mode, the "conversion protocol" is divided into three ways: transparent transmission, Modbus TCP to RTU and Realcom protocol. If the user's software is Modbus TCP protocol with fixed protocol and the lower computer is Modbus RTU, the mode of switching from Modbus TCP to RTU should be selected. The Realcom protocol is currently only used when multiple serial servers are connected to a server as TCP clients and virtual serial ports are used on the server

The usage is summarized as follows：

No.	Virtual port used or not	Device working mode	Conversion protocol	Specifications
1	Yes	TCP server	No	Suitable for user software open COM port to actively collect data occasions.
2	Yes	TCP Client server	No	Suitable for the device on the initiative to send data, if the choice of TCP server may appear after the device disconnected can not be reconnected to the problem.
3	No	TCP server	Modbus TCP To RTU	The user software is Modbus

				TCP, and the user device is Modbus RTU. And Modbus TCP as the host.
4	No	TCP Client side	Modbus TCP To RTU	The user software is Modbus TCP, and the user device is Modbus RTU. And Modbus RTU as the master station.
5	Yes	TCP client server	Realcom protocol	When using a virtual serial port as a TCP client, it is best to use the Realcom protocol.
6	No	TCP Client server	No	Applicable to a large number of devices, connected to a cloud way. In general, the cloud is a public network IP server on the Internet.
7	No	TCP Client server	No	Suitable for devices and computers are in the same local network, in the local monitoring, no need to cross the Internet communication.

web configuration mode

7.1 Virtual serial port mode

If the user software uses COM port to communicate, it must use the virtual serial port mode. Including some PLC software, configuration software, instrument software and so on.

Also see if the monitoring computers and devices are on the local network:

a) If the computer is rented on the Internet on a public network IP server, then the device is bound to use the TCP client way, let the device connect to the server. ② and ⑤ in Table 5 can be selected at this time, or ⑤ must be selected for multiple serial servers

b) All in the local network (can ping each other), it is the upper computer active query or the device initiative on the data. If the device is sent on the initiative must use the device to do TCP client ② mode, otherwise you can choose ① mode.

7.2 Direct TCP/IP communication mode

If neither Modbus TCP protocol conversion nor virtual serial port is required, then the user software may directly communicate with the network port of the serial port server for TCP/IP communication, and the serial port server will convert TCP/IP data to serial port data and send it to the serial port device

The general usage of this kind of user is their own development of the upper computer network communication software, integrated equipment serial communication protocol analysis. This method is more flexible and efficient than virtual serial port. This corresponds to ⑥ and ⑦ in Chart 5

The section "6.4TCP communication test" briefly describes how a serial server communicates when acting as a TCP server. Here you'll see how the TCP client, UDP mode, and multiple TCP connections communicate with computer software. The example of computer software is SocketTest (software that mimics a user's TCP/IP communication)

The ZLAN serial port server abides by the standard TCP/IP protocol, so any network terminal that abides by this protocol can communicate with the serial port server. ZLAN Technology provides network debugging tools (SocketDlgTest program) to simulate the network terminal to communicate with the serial port server

For two network terminals (in this case, the network debugging tool and the serial port server) to be able to communicate, their parameter configurations must be paired

7.2.1 TCP client server mode

There are two working modes under TCP mode: TCP server and TCP client. No matter which mode is adopted, one side must be the server side, the other side is the client, and then the client can access the server side. Both are the client side or the server side cannot realize communication.

When the serial server is the client, there must be three corresponding relationships, as shown in Chart 28. (1) Correspondence of working mode: the working mode of the

serial port server is the server mode of the network tool corresponding to the client; (2) Correspondence of IP address: the destination IP of the serial port server must be the IP address of the computer where the network tool is located; (3) Correspondence of port: the destination port of the serial port server must be the local port of the network tool. After this setting, the serial port server can automatically connect to the network tool, and the data can be sent and received after the connection is established.

Chart 28. serial port server being client

7.2.2 Client side connect multiple servers

When ZLAN serial port server serves as TCP client, it can connect to 7 destination IP addresses at the same time, and data sent by serial port will be sent to 7 destination IP addresses at the same time. If there are not that many servers, the rest of the destination IP is vacant. It is used as follows:

Chart 29. 1st destination IP and interface

Chart 30 remaining 2-7 IP and interface

The first IP is set in the Device Settings screen as shown in Figure 29, where the first IP can be a domain name. For the remaining 2-7 IP destinations, click the "More Advanced Options" button in the device setting interface to open more advanced options for setting.

All 7 destination IPs can be connected automatically after setting up. If the connection cannot be connected, it will wait for "disconnection and reconnection" time and then reconnect repeatedly

7.2.3 TCP server mode

When the serial port server serves as the server, there are also three corresponding relationships, as shown in Figure 31, which are not explained here. After this setting, click the Open button of the network tool to establish a TCP connection with the serial port server. After the connection is established, data can be sent and received

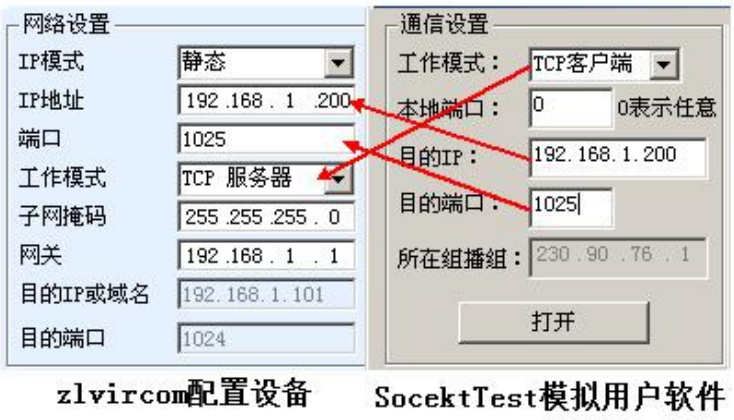


Chart 31 serial port being service side

Serial port server can accept 30 TCP connections at the same time. The data received by the serial port is forwarded to all established TCP connections. If you want to send data only to TCP that has recently received network packets, you need to enable multi-host functionality. Refer to the 9.4 multi-host functionality

7.2.4 Be both a client and a server

ZLAN Serial Server supports TCP connections even when the device is in the TCP client, that is, it also has the TCP server function

Chart 32 being both of client and server

By default, when configuring with ZLVircom, if you change the operating mode to "TCP client", the port (that is, the local port) will automatically change to 0 (0 means a random free port is selected). In order to be able to support the TCP server mode, the computer software must know the local port of the device, so it needs to specify a value here, as shown in Figure 32. The computer software can now connect to port 1024 on 192.168.1.200 to communicate. The device also connects to port 1024 on 192.168.1.189 as a client. Note that since local port 1024 is used by the server, it uses "port +1" when it is used as a client. The software on 192.168.1.189 sees the device as coming from port 1024+1=1025

7.2.5 UDP mode

In UDP mode, parameter configuration is shown in Figure 33. The left side is the

configuration of the serial port server in ZLvircom, and the right side is the setting of the network debugging tool SocketDlgTest. First, both must be working in UDP mode. In addition, as indicated by the red arrow, the destination IP and destination port of the network tool must point to the local IP and local port of the serial port server. As indicated by the blue arrow, the destination IP of the serial port server must be the IP address of the computer on which the network tool resides, and the destination port of the serial port server must be the local port of the network debugging tool. These network parameters can be configured to ensure two-way UDP data communication

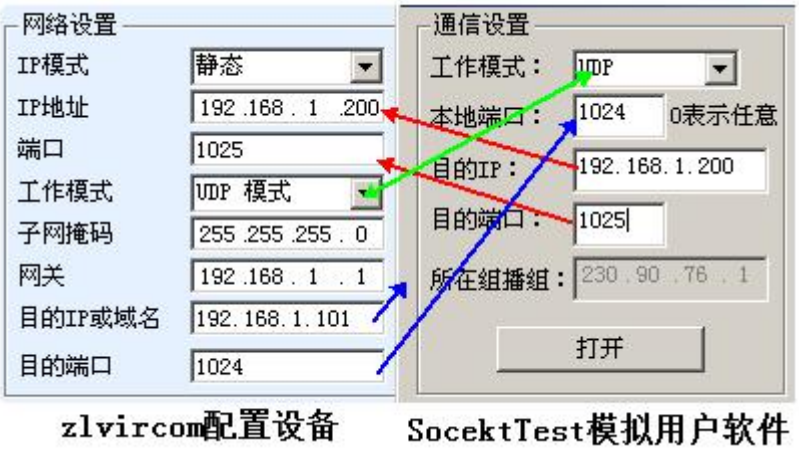


Chart 33 UDP mode configurations

7.3 Equipment couplet mode

If the host machine is not a Socket program (SocketDlgTest) or a virtual serial port, but the two devices are connected through the network port, the configuration method is similar. First, users need to connect two devices and computers to the same LAN. This computer is running ZLVircom and is connected to the computer only for configuration purposes, so the computer does not need to be connected once the configuration is complete.

Click Device Management of ZLvircom to find the two devices, as shown in Figure 35. Then click "Device Edit" to configure the device. Device couplets can be divided into TCP couplets and UDP couplets. In the case of TCP connection, the parameters of the two devices are shown in Figure 34. The parameters shown by the arrow must correspond as

if they were connected to a PC. After successful TCP connection, you can check the connection status by returning to the "Device Management" dialog box, as shown in Figure 35. If the status of both devices is "Connected", it means that the TCP link between the two devices has been established.

Chart 34 TCP device couplet connection

序	网络	设备名称	设备IP	目的IP	模式	TCP连接	虚拟串口号	虚
1	内网	ZLDEV0001	192.168.1.201	192.168.1.200	TCP Client	已建立	未设置	未
2	内网	ZLDEV0001	192.168.1.200	192.168.1.1	TCP Server	已建立	未设置	未

Chart 35 TCP device couplet connection

In the case of UDP connection, the configuration parameters are shown in Chart 36. The parameters corresponding to the arrows must be one-to-one. As long as the parameters of UDP couplet are configured correctly without checking the connection status, the data sent will be automatically sent to the specified device

Chart 36 UDP device couplet connection configuration

Finally, I need to remind you that if the device is connected to each other, in addition to the network port parameters as set above, you must also set the correct serial port parameters. The baud rate of the serial server is mainly consistent with the baud rate of the user's equipment. When this is set up, user devices can send data to each other through the serial port of the two serial servers

8. Device Debugging

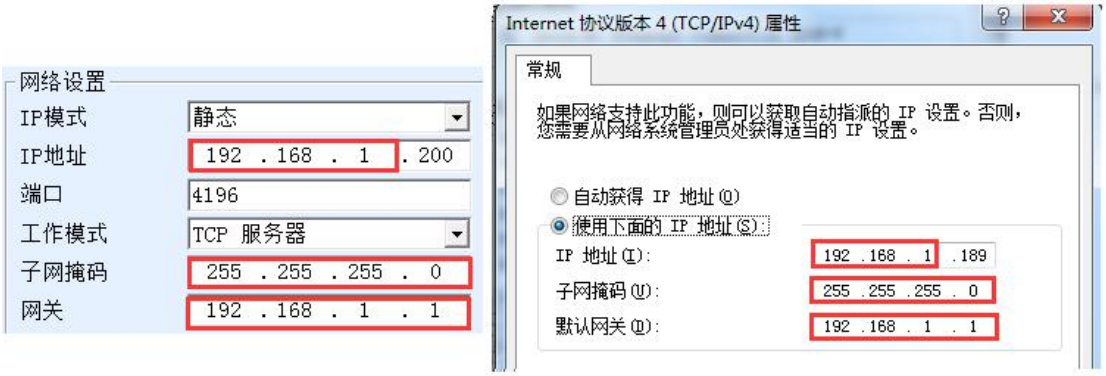
8.1 Network physical connection

The serial server can be connected to a 10M/100M switch or directly to a computer network port using a cross or direct network cable

After the connection is established, the first step is to check whether the LINK light is green. Otherwise, please check whether the network cable is well connected

8.2 Network TCP connection

When the device is used as a means of dynamic IP acquisition, it cannot be directly connected to the computer network port. Because there is no DHCP server available (usually a DHCP server is a router on the LAN). So please specify IP when connecting directly. The computer also needs to specify a fixed IP



ZLVircom中的设备IP　　计算机上的IP配置

Chart 37 Configured on the same network segment

Whether connected directly or via a switch, when configured for static IP, the device and the computer need to be on the same network segment (unless communicating

across gateways), as shown in Chart 37

Since ZLvircom supports cross-network segment search and configuration, the IP address that can be searched but cannot be communicated is generally not well configured. In this case, the device can be configured in the same network segment with ZLvircom

You can see that the Link light turns blue when establishing a TCP connection. The blue Link light can also be seen by ZLVircom. For example, in the device management list, if the TCP connection is listed as "established", the Link light is blue, which can facilitate remote diagnosis, as shown in Chart 38

Chart 38 Connection state and data receiving and receiving state

8.3 Data send and receive

When the Link light turns blue, data can be sent and received between the software and the serial server. At this point, if the software sends a data, the ACTIVE light will turn green, lasting at least 1 second. Data is also exported from the serial port of the serial port server, but the correct output depends on the configuration of the correct serial parameters (baud rate, data bits, stop bits, check bits).

For the correct command issuing, the serial port device will reply. Once there is a reply (the serial port sends data to the network port), then ACTIVE will turn blue. Otherwise, please check whether there is a problem with the serial port parameters or the serial port line.

In order to facilitate remote debugging, ZLvircom also supports remote viewing of sending and receiving data, as shown in Figure 38, where TXD is the amount of data sent by the serial port server. When refreshing the device list, the change of this value indicates that there is outgoing data, and the ACTIVE light will also be green. If you see a change in the RXD value, it indicates that the serial port device has returned data. Active is blue

8.4 ZLVircom remote monitoring data

In the case of using virtual serial port, ZLvircom supports real-time fetching of data

sent and received by virtual serial port. It is convenient for users to debug the system. The use method is as follows

Assume that the communication of virtual serial port has been established according to the method of virtual serial port test 6.5. Now you need to monitor the data passing through the virtual serial port. Open the ZLvircom Menu/Configuration/Software Configuration/Vircom Configuration dialog

Chart 39 start ZLVirocm monitoring

Check the three options to enable monitoring, hexadecimal monitoring mode, and display data receiving and receiving time, as shown in Figure 39. Then click OK. Assuming that you have sent and received data before, select a virtual serial port that you want to monitor on the home screen, and then select Menu/View/Monitor, as shown in Figure 40

Chart 40 start ZLVirocm monitoring

From the open dialog box, you can see the instructions issued by the upper computer and the instructions returned by the device, as shown in Figure 41. This function can be convenient for field communication debugging

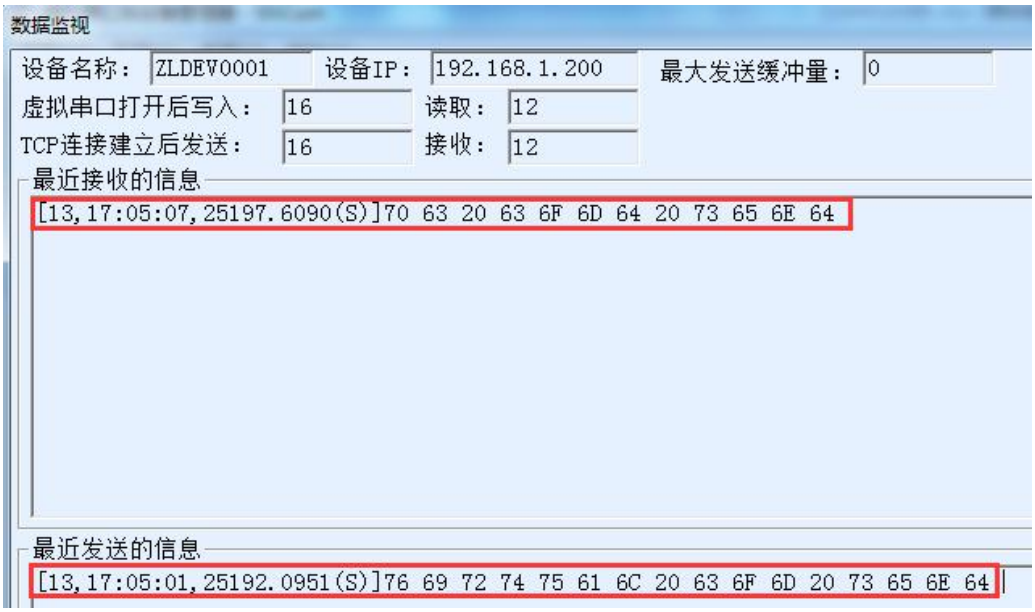


Chart 41 monitoring receive and send data

9. Modbus Advanced function

Serial port server with Modbus gateway function does not have station address and register itself, it is a communication bridge, it will generate Modbus RTU specification according to the Salve ID, function code, register number and register number in the Modbus TCP instruction sent by user software to Modbus gateway, and output it from the serial port. Think of it as a protocol "translator"

9.1 Start Modbus Gateway

First of all, the serial port server should support Modbus Gateway, i.e. the "Modbus TCP to RTU" function in Table 4 of the Device Settings dialog box should be checked

By default, the serial server is in normal pass-through mode. If you want to convert to Modbus gateway mode, please select the option Modbus TCPRTU in the "Conversion Protocol". The device then automatically changes the "port" parameter to 502 (the port of the Modbus server). The Modbus gateway is now enabled

The serial port RTU device serves as the slave station, and the upper computer Modbus TCP software connects to Port 502 of Modbus Gateway. At this time, Modbus Gateway needs to work in TCP server mode. If the serial port RTU is the master station,

the Modbus gateway works on the TCP client, and the destination IP is the IP of the computer where the Modbus TCP software is located. The destination port is usually 502

9.2 Storage Modbus Gateway

ZLAN7144 is a register-saving Modbus gateway, can save the contents of registers read in the gateway. In this way, the speed of Modbus TCP queries can be greatly improved, and the performance is superior when supporting multi-host access

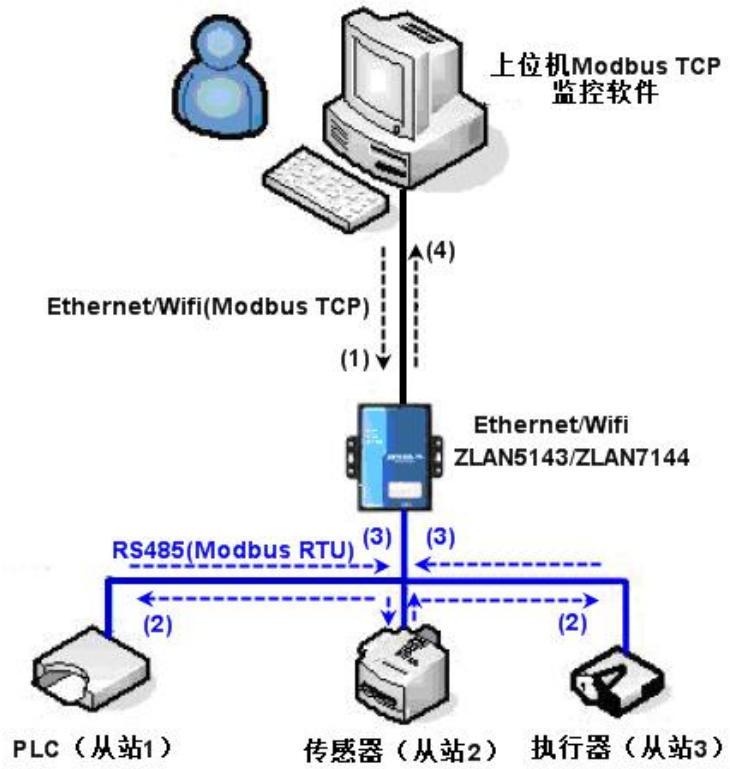


Chart 42 Storage modbus gateway working method

As shown in Fig. 42, ordinary Modbus TCP data flow directions are (1), (2), (3) and (4). In other words, the Modbus TCP instructions are first converted to the corresponding Modbus RTU instructions, and then the device responds to the Modbus RTU instructions to the Modbus Gateway, and then the Modbus Gateway transforms the Modbus TCP again and sends it to the monitoring upper computer

As we know, Modbus TCP is network communication with a fast transmission speed, which can generally be answered within 3ms, while Modbus RTU is RS485, with a speed

of only 9600bps. Generally, it takes at least 30ms to send and return an instruction. This common non-storage mode of Modbus gateway query reply time is relatively long. In addition, if there are a lot of upper computers at the same time to query data, then the serial port will be congested. If the network is compared to the highway, the serial port is compared to the single-plank bridge, then the original way is to pass the traffic flow of the highway on the single-plank bridge

Register-saving Modbus Gateway (Zlan7144) solves the above problems. It can temporarily save the register data obtained by the query in the Modbus Gateway, so that when the Modbus TCP query comes, the Modbus Gateway can immediately return the instruction, which really brings the fast characteristics of Modbus TCP into play. On the other hand, Zlan7144 can actively send instructions from the serial port to automatically update the contents of the current saved register data and save a copy of the latest register value

Register-saving Modbus Gateway is the real meaning of Modbus TCP to Modbus RTU, it really play the advantages of Modbus TCP fast, can query multiple hosts simultaneously

Note that when the serial port server acts as a TCP client, it does not have storage capability and will automatically switch to non-storage.

The features of the storage Modbus are listed below:

1. The first Modbus TCP query instruction is non-storage. Because you have to wait for the RTU device to return data slowly before you can restore the register content to the network port

2. If a particular instruction is no longer queryd by the host machine on the network side within 5 seconds, the instruction is automatically deleted and no longer sent from the serial port to the RTU device

3. Currently, 10K Modbus caches can be stored, and approximately 500 instructions can be stored simultaneously for a normal single-register query

4. When there are multiple instructions at the same time in the query, sent in accordance with the order, the first instruction to send the first instruction reply waiting for 485 anti-collision time (refer to the multi-host section) second instruction sent..... . Go back to the first command after answering the last command

9.3 Disable Storage Modbus Gateway

Although the storage Modbus has a faster response time, some users do not want the RTU device to receive a large number of query instructions, which affects the internal processing speed of the instrument. You can turn off storage at this point

To disable storage, in the Parameters Configuration dialog box, click the More Advanced Options button, remove one of the supports shown in Figure 43 and then click OK. Then go back to Device Settings and click Modify Settings.

Note that when configuring the transformation protocol using the Web, the default is a non-storage Modbus gateway

Chart 43 disable Storage function

9.4 Multi-master function

As shown in Figure 43, "RS458 Multi-host Support" and "RS485 Bus Conflict Detection Function" are the multi-host functions of Zhuolan. They are generally both enabled and disabled. When enabled, devices that convert the protocol to Modbus TCP have the function of storage Modbus Gateway, otherwise it is non-storage Modbus Gateway. If the conversion protocol is not, it can generally let the user-defined RS485

protocol also has the function of a serial port device that multiple hosts access at the same time, which is impossible to achieve in the pure RS485 network, because multiple master stations send at the same time will produce conflicts on the RS485 bus. Multiple hosts of Zhuolan serial port server can "coordinate" the RS485 bus to achieve the purpose of multi-host access.

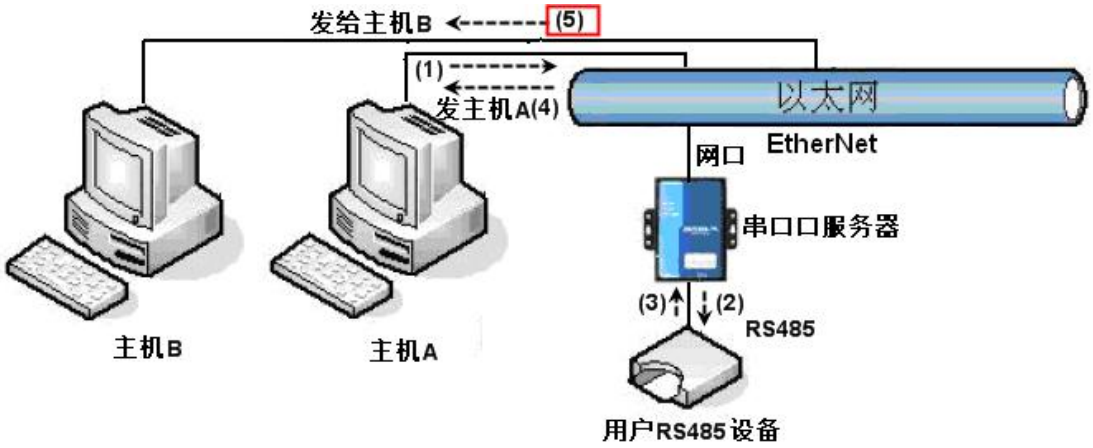


Chart 44 Multi-master demo

As shown in Figure 44, in the ordinary mode, when two hosts, Host A and Host B, are connected to the serial port server at the same time, Host A sends instruction (1), RS485 receives instruction (2), and RS485 returns instruction (3). However, the network terminal of the serial port server sends instruction (4) to Host A and (5) to Host B at the same time. Because Host B did not send the query, but it also received the reply command (5), Host B may generate a communication exception error. In multi-host mode, there are only instructions (4) and no instructions (5), because the serial server automatically remembers the host to be returned and only returns instructions to the nearest communication host. Host A queries only reply to A, and Host B queries reply to Host B

Another effect is that, in the ordinary mode, host A and host B send data at the same time will produce the combination of instructions on the RS485 bus, which can not be recognized normally; Under the multi-host mode, the serial server can schedule the order of A and B in using the bus, so as to effectively solve the conflict problem of multi-machine simultaneous access

If the conversion protocol is "none", multi-host function will not be enabled by default. When multi-host is required, please click "More Advanced Options" in the device configuration dialog box, and then tick "RS485 Multi-host Support".

9.5 Multi-master parameter

The meanings of "RS458 multi-host support" and "RS485 bus collision detection function" are introduced as follows

Chart 45 RS485 Multi-master support

Among them, RS485 instruction reply timeout is: the maximum time interval between the serial port server sending this instruction and receiving the reply from the serial port. The time entered should be greater than the actual maximum time interval. Because if the timeout is determined, the next instruction will be sent

Chart 46 RS485 Conflict-proof free time

RS485 bus collision time: indicates how many milliseconds the serial port server waits to send the second instruction after receiving the reply of the first instruction. This parameter actually defines the speed of the instruction rotation. This value is recommended above 20ms. The "maximum wait time of 3 seconds" parameter is generally not modified

When the conversion protocol is selected as "Modbus TCP to RTU" by the user using ZLvircom, ZLVricom will automatically check the above two enabling boxes (unless the user manually enters the advanced option to remove them), and the above two times will be automatically configured according to the baud rate. However, if the user has a long MODUS command or if the conversion protocol is "none", you need to manually configure these two parameters

The following are the recommended values for setting the above parameters:

1. Chart 46 shows "anti-collision time of RS485 bus", which can be generally set as twice of the "packet interval" in the lower right corner of the parameter configuration interface, but the minimum can not be less than 20

2. Chart 45 shows "RS485 instruction reply timeout", which is generally determined according to the length of the back and forth instructions. If the sent instruction is N bytes and the reply is M bytes, then the recommended setting value is: "packet interval" × (N+M+5) +100

9.6 Modbus under multi-purpose IP

As shown in Figure 44, if the serial port device (RTU device) is the master station and the network port device (Modbus TCP device) is the slave station, and there are multiple network port slave devices simultaneously. At this time, the serial port server can connect the multiple network port devices as the client according to the method introduced in 7.2.2 Client Connection to Multiple Servers

At this point, the functions that need to be realized are: when serial RTU sends instructions, it can be sent to multiple network port devices, and the network port devices can identify whether to send them through the Slave ID field, and only the network port devices corresponding to Slave ID can reply. The response from the network port is sent to the serial port server and converted into RTU instructions that are output from the serial port to the RTU device

At this time, it should be noted that the two boxes shown in Figure 46 as "RS485 bus collision prevention time" and Figure 45 as "RS485 instruction response timeout time" need to be removed. Otherwise, the above forwarding function cannot be realized

Another application is that the serial port server is connected to multiple network port devices as a Client, but the RTU device is not the master station. It is the network port device that sends first, and the RTU device responds (as a slave station). At this time, "RS485 bus collision prevention time" and "RS485 instruction response timeout

time" two boxes still need to be checked, so that multiple hosts can access the function of an RTU device at the same time

10. Register Pack and heartbeat pack

Registration packs and heartbeat packs are a feature suitable for devices and cloud software communication

10.1 Register Pack

The definition of a registration package is that when a computer software establishes a TCP connection with a serial server module (later referred to as a module), the module first sends a string of codes to the software so that the software can know which module is communicating with it. This string of codes is the registration package

The registration package is very suitable for monitoring the Internet of Things, because the cloud software generally runs on the public network server of the Internet, and the modules are scattered in various collection and monitoring points. How to make the cloud software identify the module is very important, which is necessary to realize the communication of the Internet of Things.

Shanghai ZLAN serial server provides the following registration methods

10.1.1 Send MAC address on connection

Send MAC address on the connection: This is not only supported for model 4 (e.g. 5143), but also for regular models. It works by sending the module's MAC address to the cloud when it connects to it. Since the MAC address is unique, the device can be uniquely identified. This approach is simple and does not require registration package writing for each device, so it is simple and effective. To use it, click "More Advanced Options" in the Device Settings dialog box, find "Send MAC address when TCP is established" in the middle and upper part, check the box in the front, then go back to the Settings interface and click "Modify Settings".

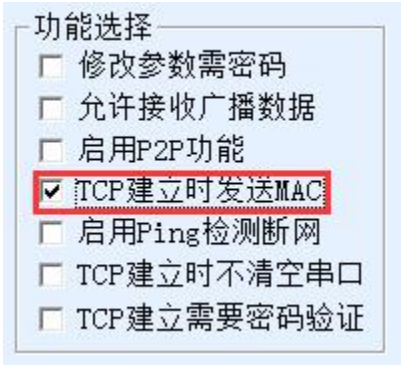


Chart 47 send MAC address on connection

10.1.2 Realcom protocol

Realcom protocol is a mature protocol containing registration package and heartbeat package, users can use this protocol to achieve registration package and heartbeat package functions. To enable the Realcom protocol, select "Conversion Protocol" as "REAL_COM Protocol" in the "Device Settings" dialog box. Note that the part of "Enable Registration Package" needs to be blank and unchecked

Chart 48 start realcome protocol

Realcom protocol will not be transparent transmission communication after enabled, it has the following characteristics：

1. When the device establishes a TCP connection with the cloud, the device automatically sends a hex registration packet FA 07 13 02 FA 02 MAC[5] MAC[4] MAC[3] MAC[2] MAC[1] MAC[0] FA FF. Where MAC[5]~MAC[0] is the MAC address of the device

2. The device automatically adds a 3-byte prefix to the FA 01 01 header when

sending data to the network

3. The device sends a 1-byte heartbeat packet of 00 to the software every time the activation time is maintained

The REAL_COM protocol contains MAC addresses inside the registration package, which can be used as the registration package for devices. But because of its fixed format, only cloud software can design the Realcom protocol to be compatible with this approach.

10.1.3 Customized register pack

Custom registration package mode is that the user can fill in an arbitrary registration package format. In the device setting interface, the configuration is as follows:

Chart 49 configurate register pack

The difference with the REAL_COM protocol is that the registration package is enabled and the registration package information such as 31, 32, 33, 34 is filled in. Notice it's hexadecimal, which means it's actually sending the string 1234. If you want a string display, click the "ASCII" option next to it.

When the device is connected to the cloud software, it can automatically send 31, 32, 33, 34 hexadecimal registration packets. This mode of registration package is more flexible, allowing the device to adapt to the existing cloud registration package format; However, there is no MAC wildcard in the registration package, so it is more complicated to configure a different registration package for each device. The above sending MAC address and

RealCom two methods of each device configuration is the same, but due to different MAC registration package naturally different.

The maximum registered packet length is 33 bytes. This approach supports UDP mode registration package and heartbeat package

10.1.4 Transcoding configuration files

ZLAN's 5143 series supports the "transcoding" function, which can write a transcoding configuration form for the serial port server, thus realizing the user's fully customized registration package, and can use MAC address wildcard, which can solve the trouble of writing custom registration package for each device, and has no limit on the length of the registration package

For specific use methods, you can consult the configuration of "transcoding" function of ZLAN, or refer to the function of "12 transcoding"

10.2 Heartbeat Pack

The heartbeat packet is mainly used to detect whether the communication link is broken. The way this is done is that every once in a while the device sends a heartbeat packet to the server software, which, when received by the server, is discarded and is not considered valid for communication

The heartbeat package has two main functions: first, it can let the upper computer software know that the device is active; Secondly, if the device fails to send the heartbeat, the device in the TCP client will automatically re-establish the TCP connection, so it is a means to restore the network communication

Chart 50 Keep running time

As shown in Figure 50, the dispatch time of the heartbeat packet is set by the "hold time"

11. After-sale service

Shanghai ZLAN Information Technology Co., Ltd.

Address: 12 floor, D building, No. 80 CaoBao road, Xuhui District, Shanghai, China

Phone: 021-64325189

Fax: 021-64325200

Web: http://www.zlmcu.com

Email: support@zlmcu.com