ZLAN5143I

Isolating-type Serial Device Server/ Modbus Gateway

User Manual

RS232/485/422 to TCP/IP Converter

Version Information

The History of the revision to this document:

			history
Date	Version	Document ID	Revising content
2014-10-17	Rev.1	ZL DUI 20141017.1.0	Release

Copyright information

Catalogue

1. Summery

ZLAN5143I is a high reliability and high performance serial device server and Modbus Gateway product designed by Shanghai ZLAN special for lightning resistance, anti-electromagnetic interference and resisting bad environment requirements, is the flagship product on serial device server. Can be applied to industrial application requiring anti-jamming, anti-tunnel monitoring, wind power, field geological disasters monitoring and so on.

Figure 1 ZLAN5143I Isolating-type Serial Device Server

ZLAN5143I has good interface isolation characteristic. The RS485/422 not only have ±15V antistatic, but also have 2500V interface isolation, as adding 2500V AC voltage between RS485 wire and shell, the current leakage into ZLAN5143 is less than 5 mA. For the problem of some serial device server destroyed by lightning power supply,

ZLAN5143I make isolation design for power supply, using 3000V isolation power, as adding 3000V AC voltage between input power line and shell, the current leakage into ZLAN5143I is less than 5 mA. The isolation has been through strict test.

Provide shell earth terminal, can release lightning current into the earth and protect the products. The RS485 of ZLAN5143I can drive 256 load capacity, compared to the product driving 32 loads, it can achieve the ability of monitoring more equipment to save cost.

ZLAN5143I has three interface types: RS232/485/422. The input voltage can provide DC Q2. 1 jack or terminal type, the input voltage is 18~36V (can be customized 12V). It can be equipped with guide installation accessories.

ZLAN5143I has data transparent transmission function for TCP to RS232/485/422, also has the storage type Modbus gateway function, and the storage type means 5143I can auto-collect data of Modbus RTU devices and store, so the Ethernet end collect data just directly read from inside 5143I, it greatly accelerate the data collecting speed of Ethernet end.

The typical application connection is shown in figure 2. The original serial devices connect to ZLAN5143I, then connect ZLAN5143I to network through cable. After if using "Transparent Transmission" way: any data sent by serial devices will be transparently transmitted to PC assigned by ZLAN5143I, and the data PC sending to ZLAN5143I through network also will be transparently transmitted to serial devices. If using "Modbus TCP Gateway" way: Modbus TCP software of host computer can realize the collecting of Modbus RTU devices through 5143I.
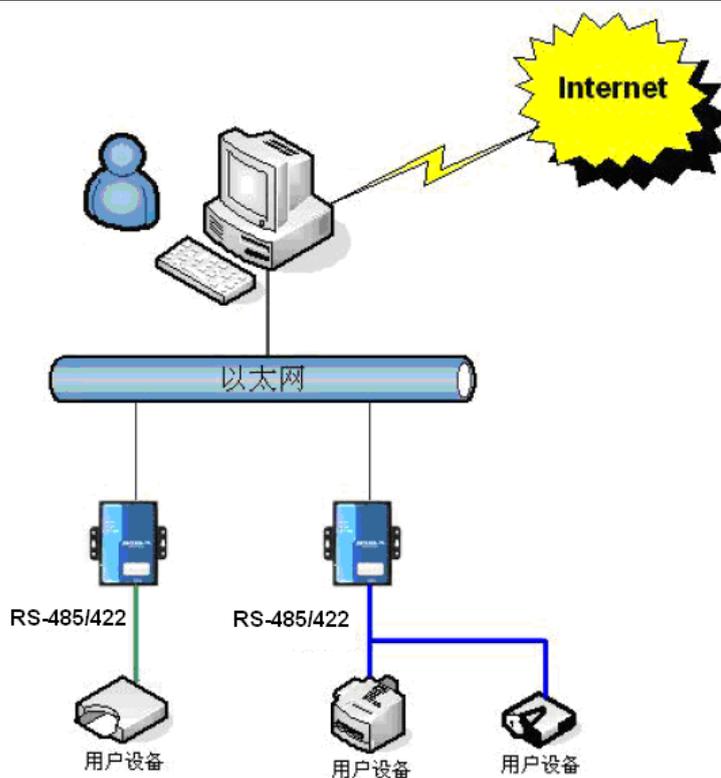
Figure 2 Connection Sketch

2. Features

1) Interface insolation: the power can reach 3KV insolation voltage; RS485/422 can reach 2.5KV insolation voltage; ±15KV ESD protection function; More than 25KV/US high common mode transient suppression.

2) RS485/422 has the ability of 256 loads.

3) Three interface types: RS232/485/422. RS422 needs customized internal jumpers, should be informed before buying.

4) Support 18~24V power supply, interface are DC Q2. 1 jack and terminal wiring. Can be customized 12V power input.

5) Having both functions: serial device server with transparent transmission and Modus gateway. Under transparent transmission, support full duplex, high speed data forwarding, no packet loss; Modbus gateway use storage type, the speed is faster than general forwarding mode.

6) Support TCP Server, TCP Client, UDP mode, UDP multicast.

7) The baud rate support 1200~115200bps, the data bits support 5~9, check bits can

be five types: None, Odd, Even, Mark, Space, support CTS/RTS hardware flow control. If need to support 460800bps, choose model ZLAN5142I.

8) Rich single light: power, wiring connection, TCP connection, data activity.

9) Support multiple TCP connection, as a TCP Server, can be connected with 40 clients. As a TCP Client, can connect with 8 different destination IP and port at the same time.

10) Real COM Driver support multicomputer communication though the 9th (address frame is 1, data frame is 0).

11) Support remotely searching 5143I and configuring parameters through internet, can upgrading procedure and downloading configuration Webpage through Ethernet port.

3. Technical Parameters

Figure			
Interface:	485/422: Terminal; 232: DB9		
Power Supply:	5.5mm, Inside positive outside negative, standard outlet		
Size:	L x W x H =9.4cm×6.5cm×2.5cm		
Communicate Interface			
Ethernet:	10M/100M, 2KV electrical plus protection		
Serial	RS232/485/422×1：RXD，TXD，GND， CTS，RTS		
Serial Parameters			
Baud rate:	1200~115200bps	Data size:	None, Odd, Even, Mark, Space
Data size:	5~9	Flow control:	RTS/CTS，NONE
Software			
protocol:	ETHERNET、IP、TCP、UDP、HTTP、ARP、ICMP、DHCP、DNS		
Setting method :	ZLVirCom, WEB browser, device management library		
Net communication method:	Socket, Virtual serial , device management library		
Work Mode			
TCP server, TCP client, UDP, Real Com Driver			
Power			
Power:	18~36V DC，400~600mW（can be customized 12V input）		
Environment			
Running temperature:	-40~85℃		

Storage temp:	-45~165℃
Humidity:	5~95%RH
Isolation Characteristic	
Power Isolation:	3KV
RS485/422 Isolation:	2.5KV
HCMTI:	25KV/us
RS485/422 ESD Protection:	15KV

4. Hardware Instruction

The front view of ZLAN5143I serial device server is shown in figure 3: ZLAN5143I use black SECC board against radiation. There are equipped with two "ear" in right and left, convenient to install. And can be equipped with guide installation accessories for convenient to be installed onto the guide rall.

Figure 3 Front View

Indicator light Instructions as below:

1. Active: data activity indicator. (1) When the Ethernet end sends data to serial port, the light is green. The shiny time is 1s longer than actual communication time, more convenient for users see clearly. (2) When the serial port sends data to Ethernet end, the green light and blue light are on at the same time, the blue light is lighter but shorter. If seeing led is blue indicate there are data sending from serial port to Ethernet port.

2. Link: connecting indicator. (1) When the network cable connect well the light is green. (2) When the TCP connection is established or in UDP mode, the blue light and green light are on at the same time. The blue light is more lighter as a basic light to eye.

3. Power: electricity is red.

   Port 1, shown as figure 4:

Figure 4 Port Diagram 1

4. DC: DC plug use Q2.1 interface; Power Port: outer diameter 5.5mm, inner diameter 2.1mm, can meet the ordinary power adapter, or connect to +/- power-line terminals in terminal way. The default voltage is 18~36V. Suitable for 24V cabinets power.

5. T-, T+, R+, R-: default T- and R- internal short-circuit, T+ and R+ internal short-circuit, suitable for RS485. If need to use for 422, should not internal short-circuit. Can inform ZLAN with 422 function before buying.

6. RJ45: connecting 10M/100M Ethernet.

   Port 2, shown as figure 5:

Figure 5 Port Diagram 2

7. Reset switch: to "on" state and keep more than 1s, then back to "off", can reset the device IP as 192.168.1.254.

8. Protect switch: for subsequent extension.

9. RS232: RS232 use high-performance RS232 chip with strong compatibility. With hardware flow control.

10. PE grounding: if the two "ear" of the shell cannot effectively connect to the metal shell (such as using guide rail to install accessories), please connect the copper wire to this PE node terminal, after clamping fix the other end to grounding shell. PE grounding can effectively guide current in the case of lightning, protect products from damaged.

5. 485 Character

ZLAN5243I meet the RS485 standard, each ZLAN5143I can be with 256 terminal 485 devices. The maximum communication distance is 1200 meter, the resistance of 485 terminal is 120 ohms, usually must use terminal resistance when wiring over 300m. Pay attention to the wiring, 485+ and 485- must be a twisted-pair, in order to reduce signal interference.

6. Usage

About products software installation, parameters configuration and communication methods, please refer to the file 《Networking Product Operating Guide》: http://www.zlmcu.com/download/serial_server_user_manual.pdf.

7. Support

Shanghai ZLAN Information Technology Co.,Ltd

Address: 12 floor, Building D Everbright Exhibition Center, No. 80 Caobao Road,

Xuhui District, Shanghai, CN

Tel: +86-21-64325189

Fax: +86-21-64325200

Web: http://www.zlmcu.com

Email: support@zlmcu.com