ZLAN5200

Serial Device Server

User Manual

2 ports RS232/485/422 to TCP/IP converter

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Version Information

The History of the revision to this document:

History

Date	Version	Document ID	Revising content
2011-12-5	Rev.1	ZL DUI 20111205.1.0	Release

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Content

1. Summary

ZLAN5200 serial device server is a 2 ports protocol converter between RS232/485/422 and TCP/IP developed by Shanghai ZLAN. ZLAN5200 support 2 RS232 ports, 2 RS422/485 ports, can realize 2 serial ports simultaneous full-duplex working through connecting to ZLAN5200 via a cable. The RS485 interface is green terminal interface, the RS232/RS485 are RJ45 Ethernet port connection interface. ZLAN can equip RJ45 to DB9 cable, 2 such line connecting to 2 RJ45 RS232 interface can lead out 2 DB9 male RS232 splice. Also 5200 provide an extra Ethernet interface, can be used as switch or cascade. ZLAN5200 support extending to 4/6/8 ports through cascade Ethernet port. 5200 provide 2 power connecting methods of power plug and terminal, wide range voltage, as well provide shell grounding protection.

The serial device server can make serial devices conveniently connect to Ethernet and Internet, to achieve network upgrading of serial devices.

ZLAN5200 is a cost-effective serial device server, RS232 port support full-duplex and uninterrupted communication; RS485 were embedded with 485 lightning protection. Support DHCP/DHS, can easily realize remote device monitoring. Support virtual serial port, the original PC software no need any modification.

Figure 1 ZLAN5200

Can be applied to:

- Building /Entrance /Door /Security Control System
- Power /Electronic /Intelligent Instrument
- Bank /Medical Automation System
- Stock Exchange System
- Industrial Automation System
- Point-of-sale System (POS)
- Information Household Appliances

Typical application connection is shown as figure 2. First connect the original serial devices with ZLAN5200, then connect ZLAN5200 to network via cable. So any data sent by serial devices will be transparently transmitted to PC assigned by ZLAN5200, and data sent from PC to ZLAN5200 will be also transparently transmitted to serial devices.

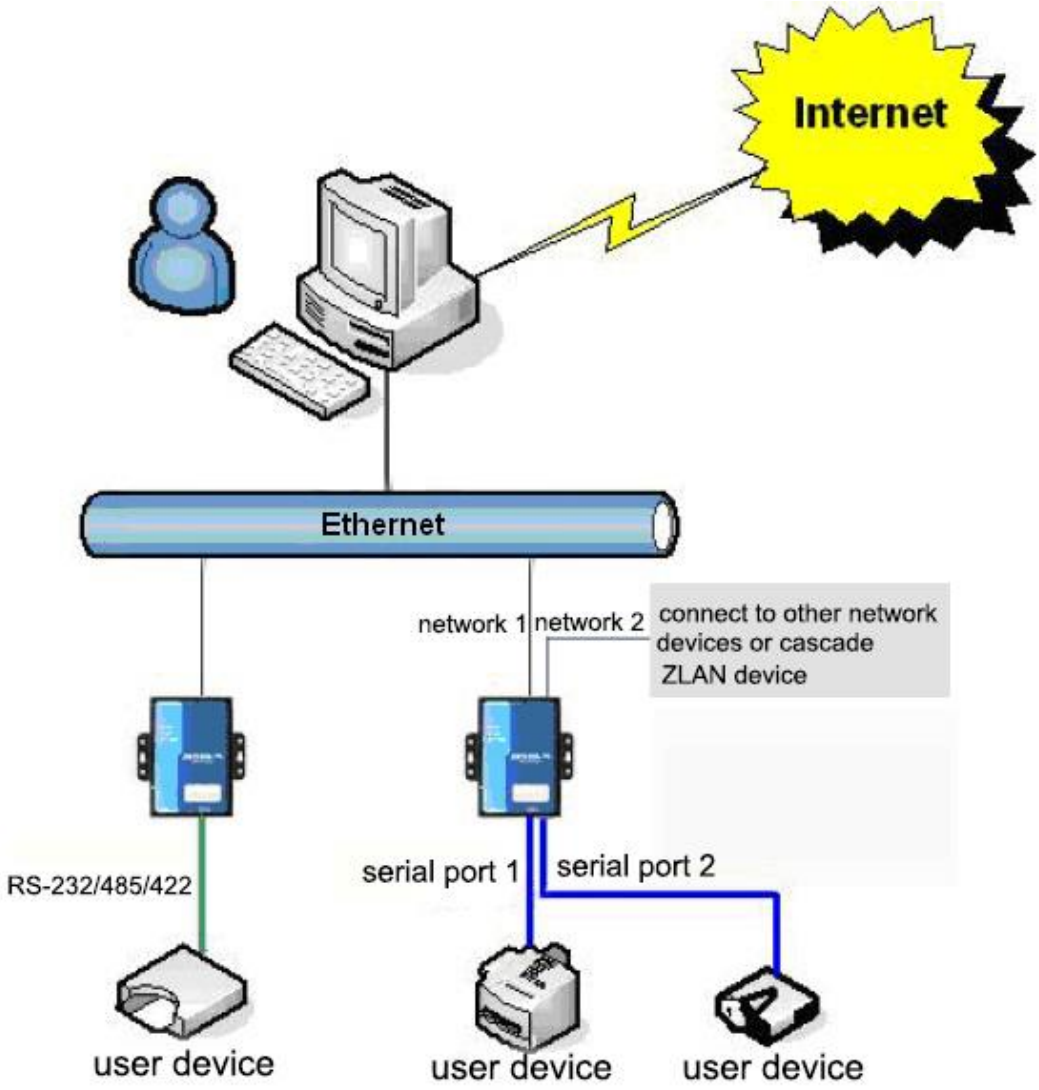

Figure 1 Connection Diagram

2. Feature

1) Support full duplex, high speed converting, and no packet lost.

   ZLAN5200 is 2 ports serial device server of cost-effective, full-duplex, no packet lost. It support simultaneously converting between Ethernet &Serial with large bulk of data with no pause, and also no data is lost.

2) Hight cost performance.

   ZLAN5200 is designed by concept of intensification, after ensure the stability. It highly takes the cost of networking upgrading in count

3) Support TCP Server, TCP Client, UDP mode, and if communicating with ZLVirCom

(our software), it automatically change to Real Com Driver Mode.

4) Support band rate 1200~460800bps, data size 5~9bits, parity of None, Odd, Even, Mark, Space. Support CTS/RTS hardware flow control.
5) Embedded with 485 lightning protection function.
6) Equipped freely with our Windows Virtual Serial & Device Management Tool ZLVirCom. It supports virtual serial and searching device or modifying parameters with ZLVircom.
7) Provide device management library (Window DLL library). It will help user to develop program with VC, VB, Delphi, C++ Builder. User need only use read() or write() function to communicate with ZLAN5200.
8) The innovative disconnecting detecting method. Whether it running in TCP Server mode or TCP Client mode, once network is disconnected by some reason, the disconnecting detecting method will detected it and reestablished the connecting.
9) Suitable for Modbus RTU networking upgrading. It is compatible with the software of SCADA/HMI software of Beijing Sunway ForceControl Technology Co. Ltd; Also it support directly transform Modbus TCP to Modbus RTU.
10) With build-in Web server, its parameters can be modified by web browser.
11) Support DHCP, easy for IP management and solve IP confliction.
12) Support DNS. It fulfills the need of access data server through domain name.
13) Support up to 100 TCP connections communicate with network modules at the same time.
14) Flexible serial data framing setting. It fulfills all kinds of serial data frame requirement.
15) UDP mode support dynamic destination address mode. It helps for multi-user mange one serial server.
16) Real Com Driver mode support using the 9-th bit to facilitate communication with milt-device. (the 9-th bit being 0 means data frame and 1 means address frame).
17) Support searching serial servers and modifying parameters through Internet remotely
18) Support parameter modifying protection, preventing modifying by accident. Support

running with default parameters.

19) Build-in 2 KV electrical plus protection in RJ45.

20) High protection of electromagnetic interference, with its high electromagnetic interference protection SECC external shell.

3. Technical Parameter

Figure			
Interface:	485: Terminal; 232: RJ45(can equip RJ45 to DB9 cable); 422: Ethernet RJ45		
Power Supply:	5.5mm, Inside positive outside negative, standard outlet; Terminal		
Size:	L x W x H = 9.4cm x 6.5cm x 2.5cm		
Communicate Interface			
Ethernet:	2 10M/100M interfaces(can connect anyone) , 2KV surge protection		
Serial	RS232/485/422×2：RXD，TXD，GND， CTS，RTS		
Serial Parameters			
Baud rate:	1200~460800bps	Parity:	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:	9～24V DC，2~4W		
Environment			
Running temperature:	-40~85℃		
Storage temp:	-45~165℃		
Humidity:	5~95%RH		

4. Hardware Description

The front view of ZLAN5103 serial device server is shown as FIG 4: ZLAN5103 use black anti-radiation SECC board, it's equipped with two "ears" for easy installation.

Size:

L×W×H=9.4cm×6.5cm×2.5cm

Panel Lights:

1) ACT: ACT light indicates that data is normally transmitted between Ethernet and rs232/485/422, and when there is no data communication, the ACT light is not on.
2) LINK: the LINK light indicates that the network connection is normal and the TCP connection has been established or in UDP mode.
3) POWER: indicates that the serial device server has already been charged.
4) NET: indicates that the network line of Ethernet1 port has been connected.


Port1
RS232/422
Port2
RS232/422
Ethernet
Uplink
Ethernet
10/100M
ZLAN
Active 1
Link 1
Power
Active 2
Link 2
Net
ZLAN 5200
2 Ports Serial Device Server
RS232/485/422 ↔ TCP/IP
RJ45 pin
RS422 pin
6
7
8
4
5
T/R+
T/R-
R+
R-
GND
Port1
RS485
Port2
RS485
DC
9~24V
PE
DC
9~24V

Figure 3

Figure 4

The front panel of serial device server is shown in figure 4:

(1) Power outlet can adopt standard plug 5.5mm (inner core is positive electrode), voltage 9 ~ 24VDC.

(2) 485 terminal can connect users' 485 positive and negative line.

The back panel of the serial service server is shown in fig.5:

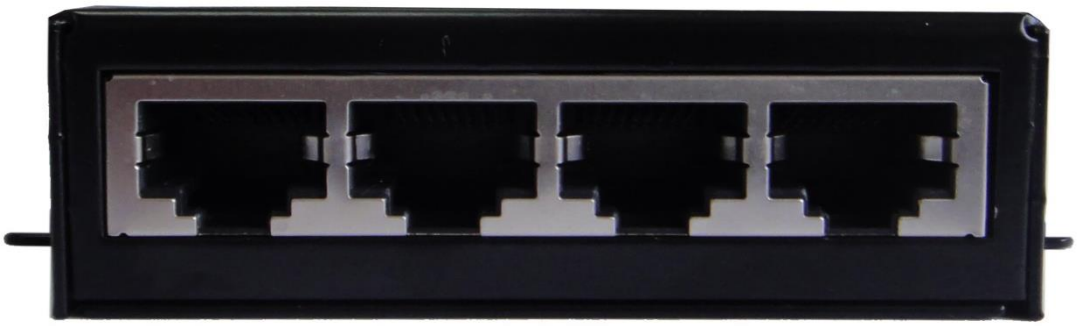

Figure 5

From left to right: the RJ1 is Ethernet1 port, the RJ2 is Ethernet2 port, RJ3 is serial port 1, RJ4 is serial port 2.

(3) RS232 adopts RJ45, and ZLAN provides a customized RJ45 to DB9 switch, which can be converted to DB9 male head (needle) interface.

The line sequence of RJ45 Ethernet port shows as table 1:

Table 1

Item	Name	Instruction
2	**RXD**	receiving pin of the serial device server
3	**TXD**	sending pin of the serial device server
5	**GND**	Ground wire
1	**RTS**	After the flow control in using, the serial device server will accept the data of the serial device when the pin is 0.
4	**CTS**	After the flow control in using, the serial device server will send the data to the serial device when the pin is 0.

The RJ45 to DB9 line, line sequence of DB9 male head shows as table 2:

Table 2

Ethernet Port No.	Serial Port No.
1	6、8
2	2
3	3
4	4、7
5	5

(4) RS422 adopts RJ45 (note that the 422 interface is not opened by default, and the 422 function is required before purchase). The RJ45 line sequence is shown in table 3:

Table 3

Item	422 line of ZLAN5200	The corresponding connection line to user RS422
6	T/R+	R+
7	T/R-	R-
8	R+	T+
4	R-	T-

Others:

(1) **Power supply:** the standard power adaptor (5.5mm inner core positive) or power

supply terminal can be used. The power supply voltage can be 9 ~ 24V. The current requirement is greater than 500mA.

(2) Ethernet port:

a) Ethernet1-normal Ethernet port: the user connects ZLAN5200 to the switch, hub, or directly to the computer network card via the Ethernet port.

b) Ethernet2-cascade Ethernet port: in the same LAN with Ethernet1, for ZLAN5200 cascades or connecting with other network devices, referring to the instructions in the document cascade section.

c) POE power supply: through the pin 5 (GND) and pin 8 (VCC) of normal RJ45 Ethernet port supply power to ZLAN5200, and the power supply voltage is anywhere from 9 ~ 24V. RJ45 network line sequence reference figure 6. By default, POE power is disabled and if need the function please contact ZLAN.

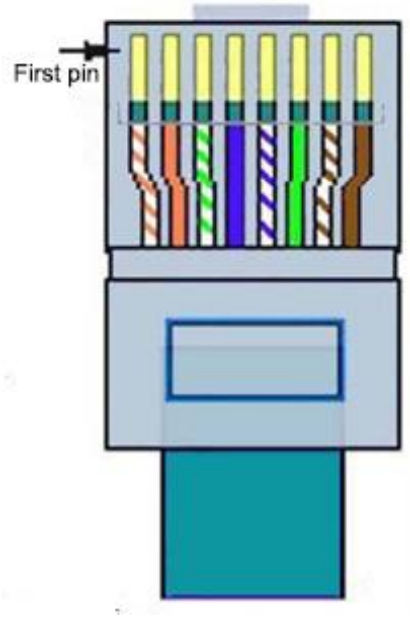

Figure 6 Ethernet Line Sequence

5. Cascade Approach

1) ZLAN5200 support cascade, it's convenient for ZLAN5200 extending to 4/6/8 ports converter. More convenient for project reconstruction and upgrade.

2) When cascading, use factory equipped cascade network cable (actually shorter parallel network cable) to connect cascade Ethernet port (Uplink RJ45) of up level

ZLAN5200 with common Ethernet port (RJ45) of next level ZLAN5200. The cascade steps can be done continuously, up to 8.

3) In default every level of ZLAN5200 needs power supply. If need power supply through cascade cable, should be customized.

Figure 2 ZLAN5200 Cascade Approach

6. 485 Character

ZLAN5200 meet the RS485 standard, each ZLAN5200 can be with 32 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.

7. Usage

Please refer to file < User Guide of Networking Products>.

8. After-service and technical support

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