

# ZLAN3140 User Manual

Modbus TCP & Modbus RTU  
(RS845) Converter

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### **Version Information**

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## 1. Summary

ZLAN3140 is a Modbus TCP to Modbus RTU (RS485) converter. It can convert Modbus TCP data from Ethernet to Modbus RTU (RS485) and vice versa. It provides an easy way to access your Modbus RTU device through Modbus TCP, with no need to change your hardware or software. ZLAN3140's firmware support full Modbus TCP and Modbus RTU protocol. It maps all current serial Modbus commands and registers to Ethernet Modbus TCP commands and register.

ZLAN3140 also support Ethernet to serial transparent data converting, like normal Serial Server Device. It can conveniently let your legend serial device connect to Ethernet and Internet, and upgrade the serial device with networking. It support virtual serial driver, and user's previous PC software using serial to communicating need not change.

Please refer to following part 2 of this document to find how to switch between Modbus TCP function and normal serial server function



Figure 1 ZLAN3140 converter

It can be applied to:

- building/e-guard system/security system;
- bank/medical automation system;
- dealing in securities system;
- industry automation system;

- Point of Sells (POS) system;
- Information Appliance.

The typical application is showed in Figure 2. The previous Modbus RTU device is connected to ZLAN3140 serial port, and then connects ZLAN3140 to Ethernet.

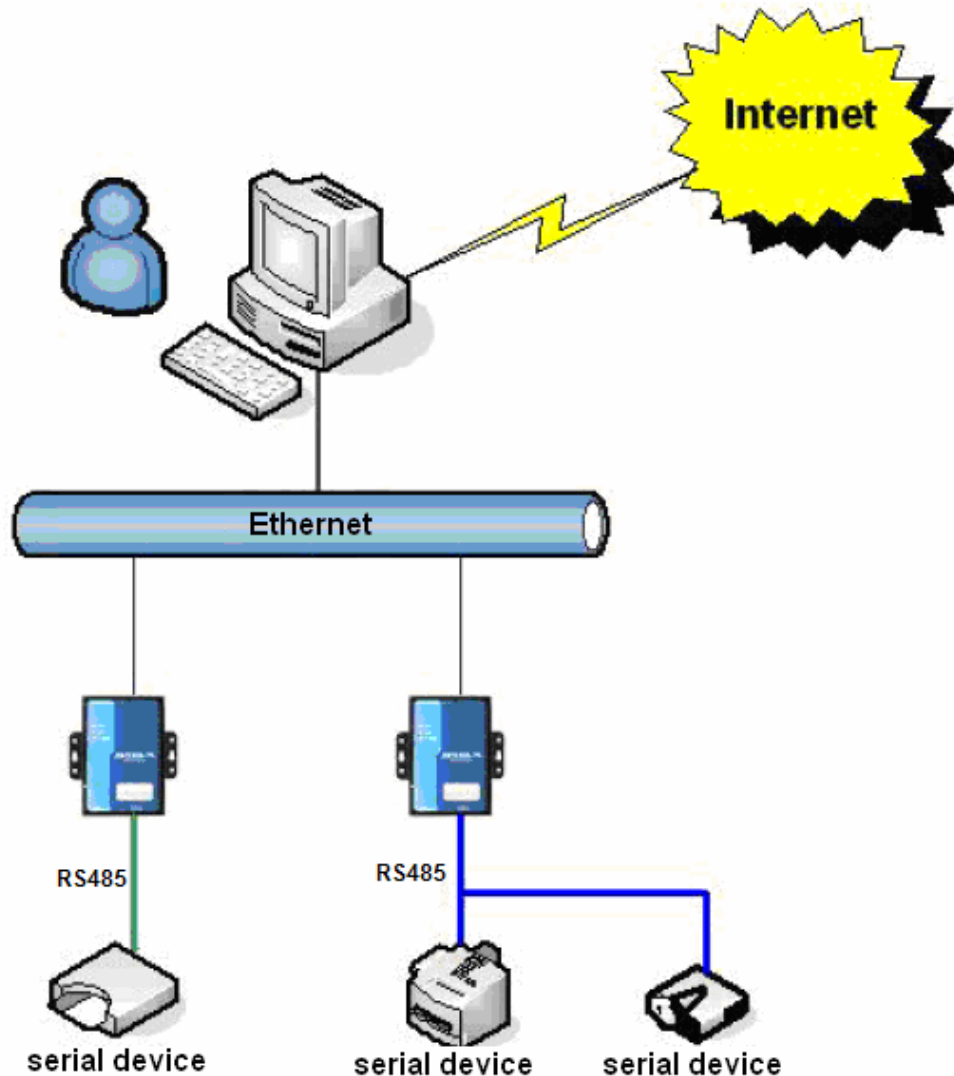


Figure 2

### 1.1. Feature

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

ZLAN3140 is the first type of full duplex, continuous, and low cost serial server in industry. 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.

ZLAN3140 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 1200~115200bps, data size 5~8bits, parity of None, Odd, Even, Mark, Space. Support CTS/RTS hardware flow control.

5. Equipped freely with our Windows Virtual Serial & Device Management Tool ZLVirCom. It supports virtual serial and searching device or modifying parameters with ZLVircom.

6. 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 ZLAN3140.

7. 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.

8. 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.

9. With build-in Web server, its parameters can be modified by web browser.

10. Low power consumption. The max power is 0.25mW.

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. Flexible serial data framing setting. It fulfills all kinds of serial data frame requirement.

14. UDP mode support dynamic destination address mode. It helps for multi-user mange one serial server.

15. 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).

16. Support searching serial servers and modifying parameters through Internet remotely
17. Support parameter modifying protection, preventing modifying by accident. Support running with default parameters.
18. Build-in 2 KV electrical plus protection in RJ45.
19. High protection of electromagnetic interference, with its high electromagnetic interference protection SECC external shell.

## 1.2. Technical Parameters

Figure			
Interface:	Serial DB9 Male; RJ45 Networking connector; Power plug-in or terminal		
Size:	L x W x H = 9.4cm x 6.5cm x 2.5cm		
Communicate interface			
Ethernet:	10M/100M, 2KV electrical plus protection		
Serial	RS485 x 1:RXD,TXD,GND		
Serial parameters			
Band rate:	1200~115200bps	Parity:	None, Odd, Even, Mark, Space
Data size:	5~8	Flow control:	
Software			
protocol:	ETHERNET, IP, TCP, UDP, HTTP, ARP, ICMP, DHCP, DNS, Modbus TCP		
Setting method :	ZLVirCom, WEB browser, device management library		
Net communication method:	Socket, Modbus TCP, Virtual serial , device management library		
Work mode			
TCP server, TCP client, UDP, Real Com Driver			
Power			

Power:	9~24V DC. lower than 50 mA
<b>Environment</b>	
Running temperature:	-40~85℃
Storage temp:	-40~120℃
Humidity:	5~95%RH

### 1.3. Hardware description

The top view of ZLAN3140 is show in Figure 3.

**Panel:**

1. ACT: the ACT light indicates if there is data transform between serial and Ethernet.
2. LINK: LINK light indicates if TCP connection is established or in UDP mode.  
Only when LINK led is lighted, serial & Ethernet transform is possible.
3. POWER.



Figure 3



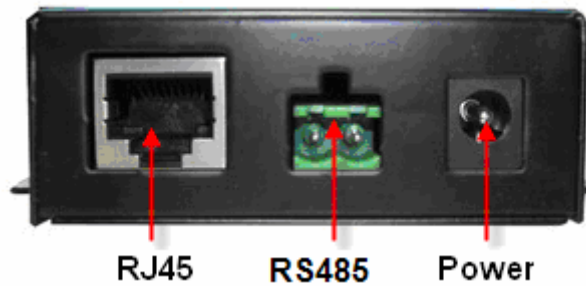


Figure 4

The front view is show in Figure 4.

1. RS845 is used to connect user RS485 device.
2. Power is a standard power plug-in (inner pin is positive).
3. RJ45 networking interface.

The back view is show in Figure 5:

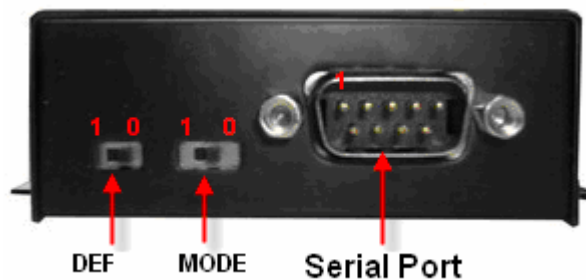


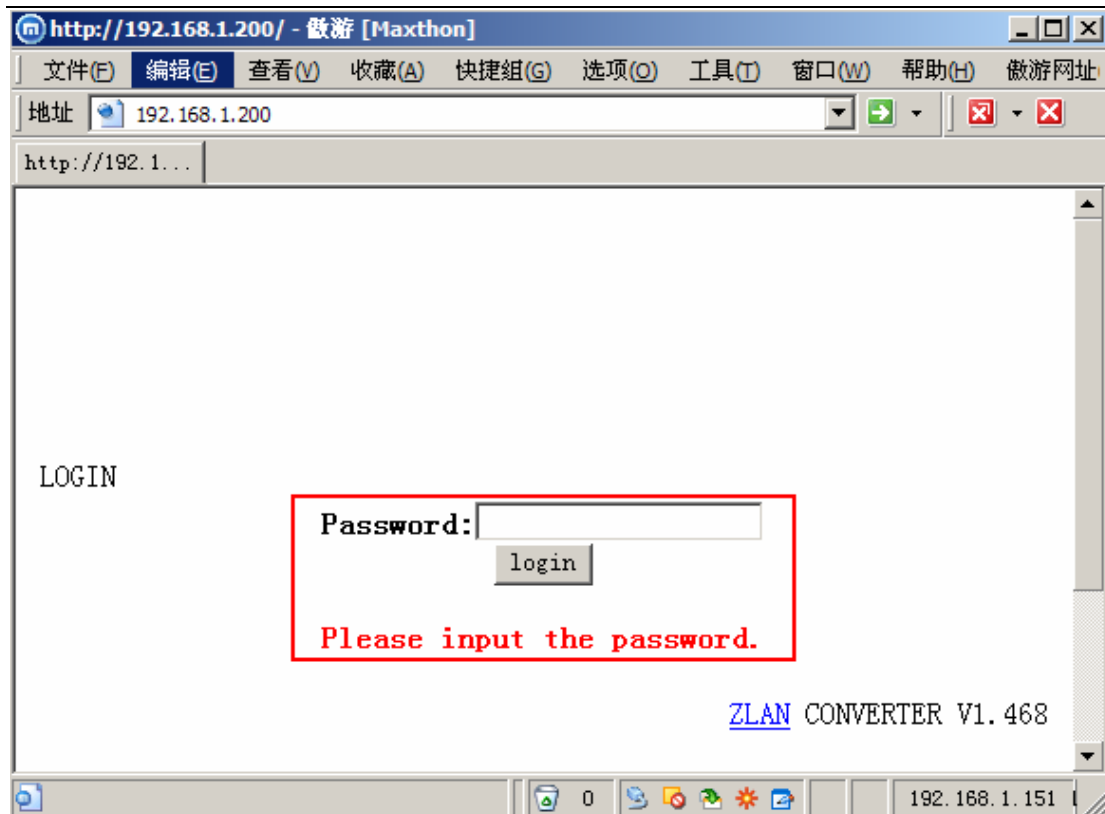
Figure 5

1. DEF switch: When DEF is push to 1, serial server will start with default parameter (default IP is 192.168.0.254)
2. MODE switch: when MODE is push to 1, parameters can be modified.
3. RS422 port.

## 2. Config

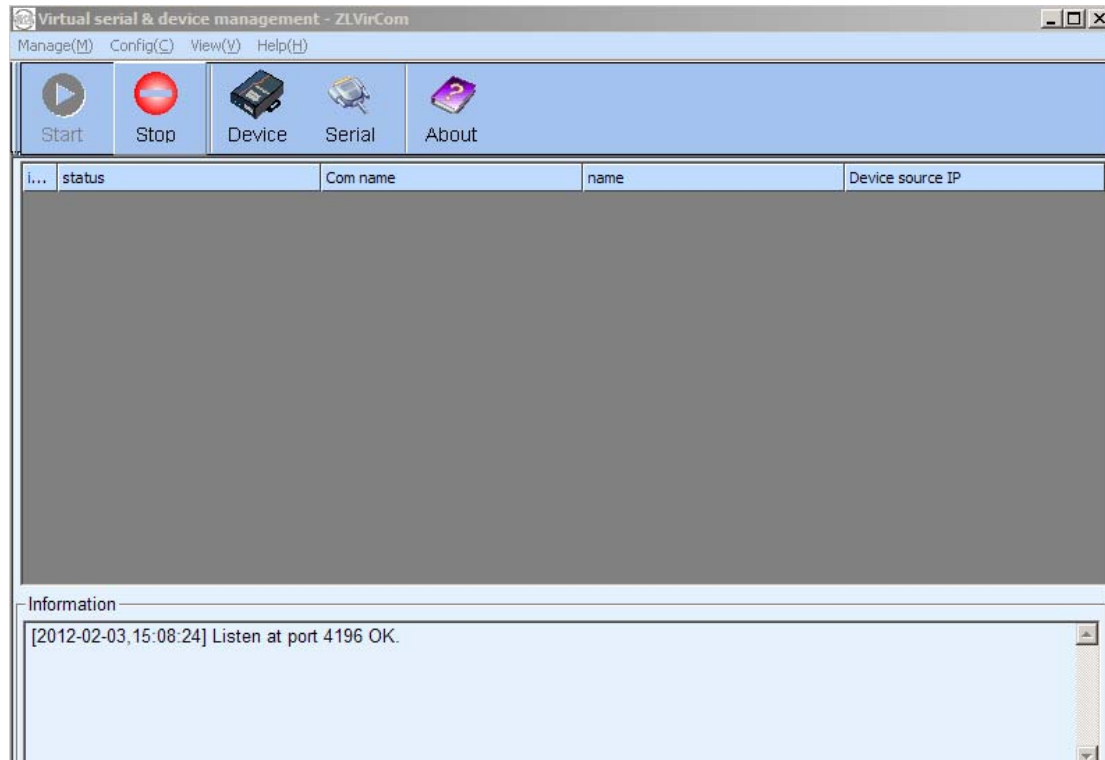
### 2.1. web config

Input the IP of ZLAN3140 in the web browser and open the login web. Input the password of 123456 and login. Then you open a configuration web and you can change IP, baudrate and so on.



## 2.2. windows tool config

Please run the English version of zlvircom software. Then press Device button. In the next press search button and find the device then press Edit button to edit this device.



In order to switch between Modbus TCP function and normal Serial Server function, please select the following “Transfer protocol” between “None” and “Modbus TCP”.

The screenshot shows a 'Device setting' window with the following sections:

- Device information:** Virtual serial (Not us), Dev name (ZLDEV00), Firmware Ver (V1.468).
- Function of the device:** Web download, DNS system, REAL\_COM protocol, Modbus TCP to RTU, Serial commnad, DHCP support, Storage Extend, Multi-TCP connection.
- Network:** IP mode (Static), IP addr (192.168.1.200), Port (4196), Work mode (TCP server), Net mask (255.255.255.0), Gateway (192.168.1.1), Dest. IP domain (192.168.1.3), Dest. port (4196). A 'Local IP' button is next to the Dest. IP domain field.
- Serial:** Baud rate (115200), Data bits (8), Parity (None), Stop bits (1), Flow control (None).
- Advanced settings:** DNS server IP (8.8.4.4), Dest. mode (Dynamic), Transfer protocol (None), Keep alive time (60 s), Reconnet time (12 s), Http port (80), UDP Group IP (230.90.76.1), IO port setting 0x (00), UDP filter pos (0), code (00), mask (00), Restart for no data (checkbox), Timely send paramet (checkbox), Framing rule: Max frame length (1300 byte), Max interval (3 ms), Frame head char (Hex), Frame rear char (Hex).

Buttons at the bottom: Restart dev, Get default, Modify setting, Cancel.

### 3. Support

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