

# **ZLAN5443A**

# **Serial Device Server**

# **User Manual**

**4 ports RS232/485/422**  
**To TCP/IP converter**

Copyright©2008 Shanghai ZLAN Information Technology Co., Ltd. All right reserved

Document ID: ZL DUI 20150413.1.0



**Version Information**

The History of the revision to this document:

			<b>History</b>
Date	Version	Document ID	Revising content
2015-4-13	Rev.1	ZL DUI 20150413.1.0	Release

**Copyright information**

Information in this document is subject to change without notice. It is against the law to copy the document on any medium except as specifically allowed in the license or nondisclosure agreement. The purchaser may make one copy of the document for backup purposes. No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or through information storage and retrieval systems, for any purpose other than for the purchaser's personal use, without the express written permission of Shanghai ZLAN information Technology Co., Ltd.

## Contents

1. Summary .....	4
2. Technical parameter .....	5
3. Installation size.....	6
4. Hardware description.....	6
5. Usage .....	9
6. Modbus TCP Gateway.....	10
7. Cascade approach .....	12
8. 485 character .....	12
9. After-service and technical support.....	12

## 1. Summary

ZLAN5443A is new generation of 4 ports serial device server developed by Shanghai ZLAN. Compared with ZLAN5400A, ZLAN5443A is more cost-effective as it use the third generation hardware technology, and ZLAN5443A support Modbus TCP to Modbus RTU Gateway function. Modbus Gateway support multi Modbus clients connecting and read data at the same time, as “multi-host” function.

ZLAN5442A support 4 RS232 serial ports, 4 RS422/485 ports, realize 4 ports simultaneous full-duplex working by connecting to ZLAN5443A via a cable. It's the ideal choice of multi-serial ports networking.

ZLAN5443A support extending to 8/12/16 ports through cascade Ethernet port, up to 32 serial ports.



Figure 1 ZLAN5443A

**Feature:**

- 1) The 4 serial ports all support 3 serial forms: RS232, RS485, RS422.
- 2) The 4 serial ports can independently full-duplex working, no interference between each other.
- 3) Support extension function, can extending up to 32 serial ports.
- 4) Rich signal lights, each port has self TCP connecting indicator and data activity indicator.
- 5) Support power supply via cable ----POE power supply

## 2. Technical parameter

Interface:	RS232, RS485, RS422		
Power Supply:	5.5mm, Inside positive outside negative, standard outlet		
Size:	L x W x H = 9.2cm×19.7cm×2.5cm		
<b>Communicate Interface</b>			
Ethernet:	10M/100M, 2KV surge protection		
Serial	RS232/485/422×4 : RXD , TXD , GND , CTS , RTS , DTR , DCR		
<b>Serial Parameters</b>			
Baud rate:	1200~115200bps	Parity:	None, Odd, Even, Mark, Space
Data size:	5~9	Flow control:	RTS/CTS , DTR/DCR, NONE
<b>Software</b>			
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		
<b>Work Mode</b>			
TCP server, TCP client, UDP, Real Com Driver			
<b>Power</b>			

Power:	9 ~ 24V DC		
<b>Environment</b>			
Running temperature:	-40~85°C		
Storage temp:	-65~165°C		
Humidity:	5~95%RH		

### 3. Installation size

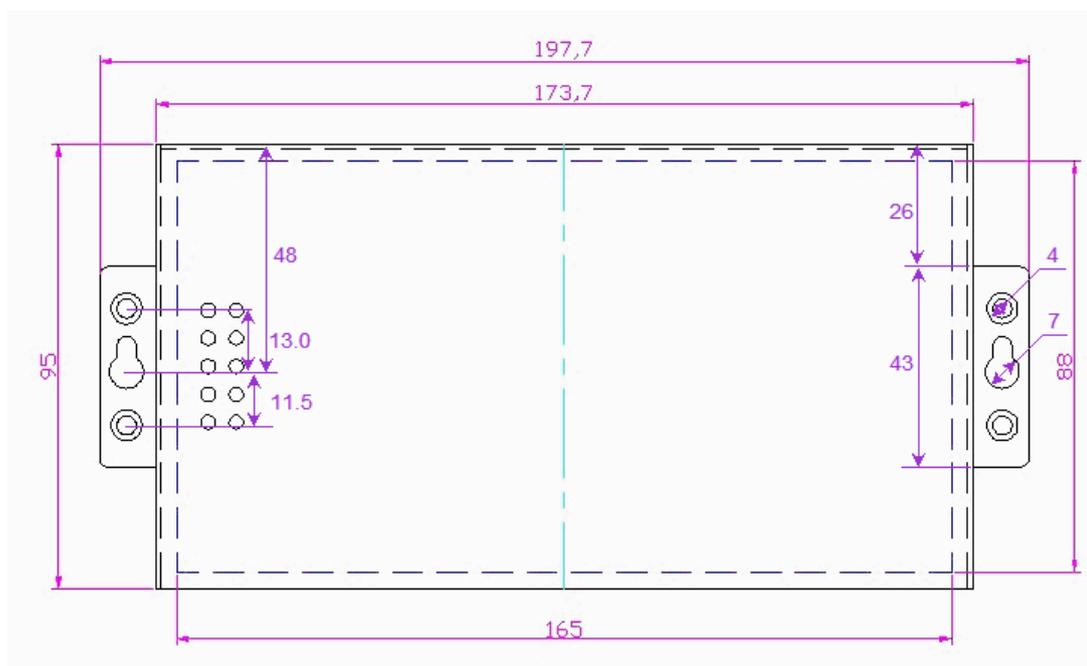


Figure 2 ZLAN5443A Installation Size

### 4. Hardware description

The front view of ZLAN5443A is shown as FIG. 3.

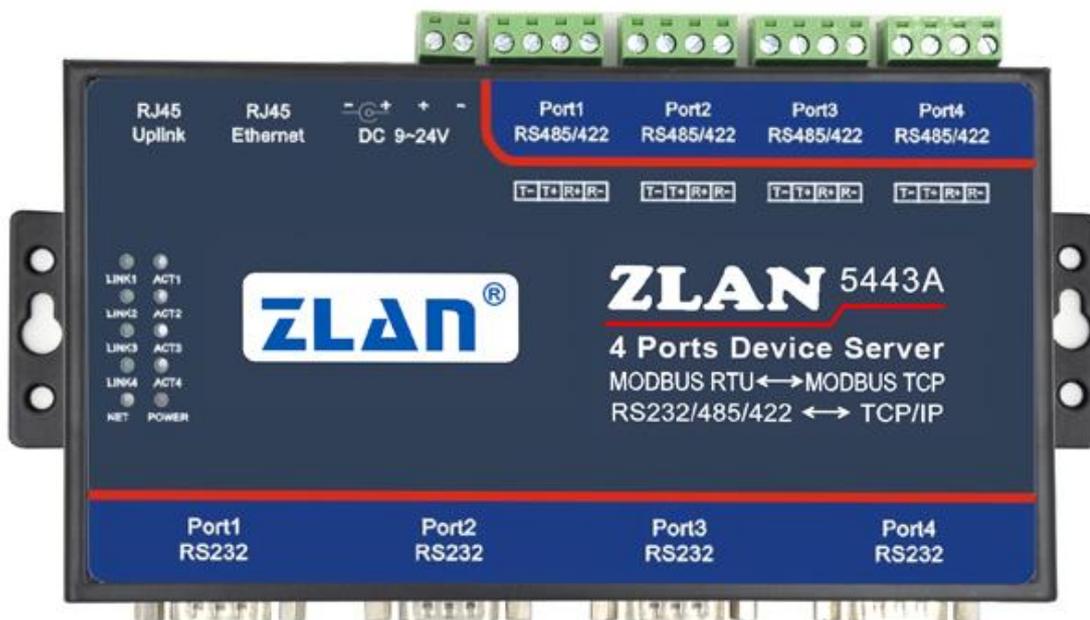


Figure 3 ZLAN5443A Front View

- 1) **Size:** L x W x H =9.2cm×19.7cm×2.5cm
- 2) **Power supply:** the standard power adaptor (5.5mm inner core is positive) or power binding post can be used. The power supply voltage can be 9 ~ 24V and the power requirement is greater than 5W.
- 3) **Ethernet Port:**
  - a) **Normal Ethernet Port:** the user connects ZLAN5443A to the switch, hub, or directly to the computer network card.
  - b) **Cascade Ethernet Port:** for cascade of ZLAN5443A, refer to the description of the cascade part in this document.
  - c) **POE power supply:** pin 5 (GND) and pin 8 (VCC) of the normal RJ45 Ethernet port can be used to supply power to ZLAN5443A, and the power supply voltage is between 9 ~ 24V. RJ45 network line sequence refers to figure 4.

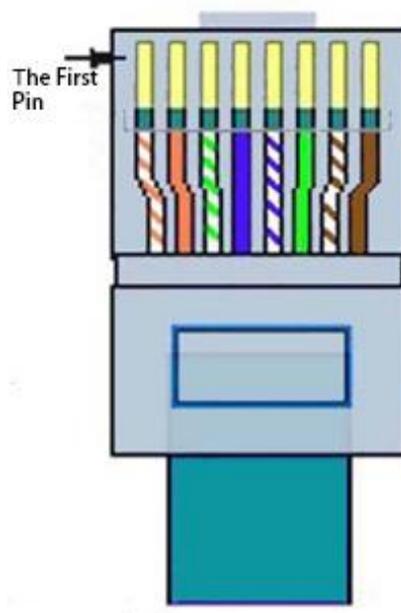


Figure 4 Network Line Sequence

4) **Indicator:**

- a) **Data forwarding indicator ACT:** ACT light indicates that data is normally transmitted between Ethernet and corresponding serial port, without data communication, ACT light is not bright.
- b) **TCP connection establishing indicator LINK:** LINK light indicates that the current TCP connection of serial port is established, and the data can be sent and received normally.
- c) **Power indicator PWR:** indicates that the serial port server has already been charged.
- d) **Network indicator NET:** indicates that the network line has been connected.

5) **Serial port:**

- a) **485/422 serial port:** when used as 485, only 2 lines are connected to it, and 4 wires should be connected when used as 422. The line sequence is shown in FIG. 3.

Table 1 RS422 Wiring Method

Item	422 line of ZLAN5443A	Connection line corresponding to user RS422
1	485-,T-	R-
2	485+,T+	R+
3	R+	T+
4	R-	T-

b) **232 serial port:** standard DB9 PIN-type interface.

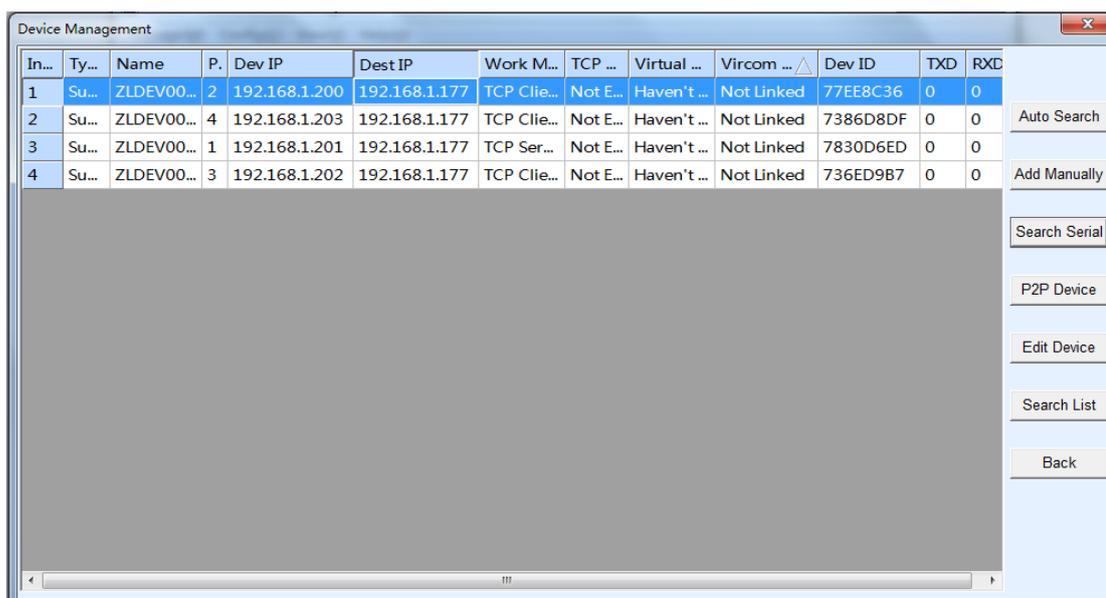
**Table 2 RS232 Wiring**

Item	Name	Instruction
2	<b>RXD</b>	receiving pin of the serial device server
3	<b>TXD</b>	sending pin of the serial device server
4	<b>DTR</b>	After the flow control in using, the serial device server will accept the data of the serial device when the pin is 0.
5	<b>GND</b>	Ground wire
6	<b>DCR</b>	After the flow control in using, the serial device server will send the data to the serial device when the pin is 0.
7	<b>RTS</b>	After the flow control in using, the serial device server will accept the data of the serial device when the pin is 0.
8	<b>CTS</b>	After the flow control in using, the serial device server will send the data to the serial device when the pin is 0.

## 5. Usage

ZLVircom is installed to manage the device.

Charging to ZLAN5443A, network wire connects to the normal Ethernet port of ZLAN5443A. Then using the "Device Manage" of ZLVircom software can see the interface shown in FIG. 5.



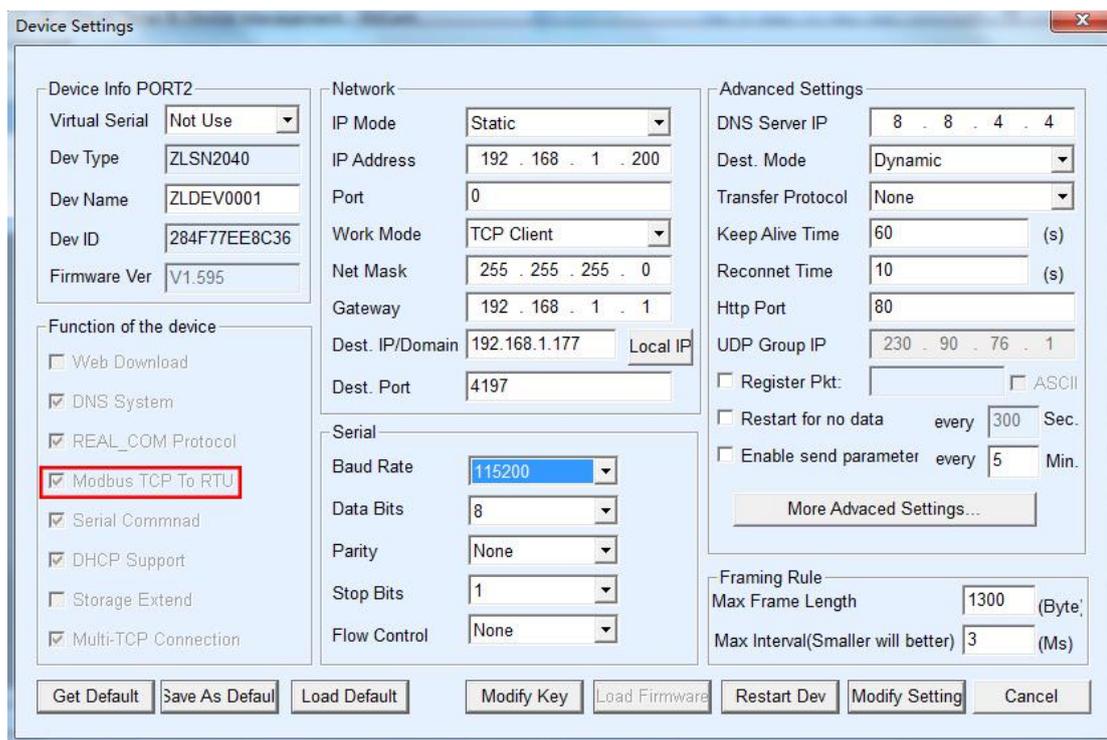
**Figure 5 ZLAN5443A searched by ZLVircom**

The 4 lines in this line correspond to the four serial ports in ZLAN5443A, and the corresponding IP address of ZLAN5443A is 192.168.1.200 ~ 192.168.1.203 in factory setting. The usage of a single serial port please refers to the <User Guide of Networking Products> file [http://www.zlmcu.com/download/serial\\_server\\_user\\_manual.pdf](http://www.zlmcu.com/download/serial_server_user_manual.pdf).

## 6. Modbus TCP Gateway

ZLAN5443A supports the function of Modbus TCP to Modbus RTU (Modbus Gateway function). The Modbus Gateway supports reading data on multiple Modbus Client connections, known as "multiple hosts".

Identify Gateway function: click "Device Manage" on the main interface of ZLVircom software, search the device, select the device, and click "Edit Device". The parameter settings dialog box that popup is shown as FIG. 6.



**Figure 6 Modbus Gateway Function Identification**

If the small box on the left side of the "Modbus TCP to RTU" function is already hooked, it supports the Modbus Gateway function.

Start Modbus Gateway: by default, Modbus Gateway is in normal transparent transmission mode. If you need to convert to Modbus Gateway mode, select "Modbus\_TCP Protocol" option in "Transfer Protocol". The device then automatically changes the "Port" parameter to 502 (the port of the Modbus server).

If you are an ordinary Modbus server, modify the "Work Mode" to the TCP server mode. If as a Modbus client modifying to the TCP client, and the server IP as the destination IP, the destination port is generally 502.

General ZLAN5443A is used as a Modbus server so that the PC software can realize the communication with RTU device just connecting to the IP address of any port of ZLAN5443A and reading and writing registers.

If the serial port is the main station of RTU, 5443A connects to a Modbus TCP server, just change the working mode to TCP Client. In addition, the RS485 bus idle is best reduced to about 5ms in this working mode, which is entering "More Advanced Settings" to set and

can see the RS485 bus idle.

## 7. Cascade approach

ZLAN5443A support cascade, which enables ZLAN5443A to be easily extended to 8, 12 and 16 ports converters. It is more convenient to project rebuilding and upgrade.

When do cascade, connect the cascade Ethernet port(Uplink RJ45) of upper level ZLAN5443A to the normal port(RJ45) of the lower level ZLAN5443A via the manufacturer's cascade network line (actually a shorter parallel network line). The cascade steps can be continuously carried out at a maximum of level 8.

By default, ZLAN5443A requires power supply per level. If you need to supply power through a cascade line, you need to customize it.

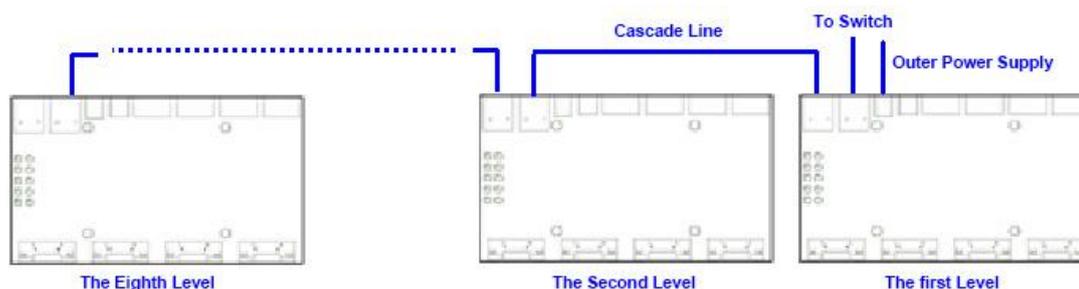


Figure 7 ZLAN5443A Cascade Method

## 8. 485 character

ZLAN5103 meet the RS485 standard, each ZLAN5103 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.

## 9. After-service and technical support

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](mailto:support@zlmcu.com)