ZLSN2042

Embedded Modbus TCP to Modbus RTU Converter

ZL DUI 20121218.1.0

Version Information

The History of the revision to this document:

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Date	Version	Document ID	Revising content
2012-12-18	Rev.1	ZL DUI 20121218.1.0	First release

Copyright information

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1. Summary

ZLSN2042 is a embedded Modbus TCP to Modbus RTU converter. It can convert Modbus TCP data from Ethernet to Modbus RTU and vice versa. The Modbus TCP interface is 10/100M Ethernet, and the Modbus RTU interface is TTL3.3/5V serial (UART). User can easy extend this UART to RS485/232 type of serial port, or use our ZLSN5142 product.

It is specially designed to embed into user's PCB board, with small size and simple extend circuits. It provides an easy way to upgrade your Modbus RTU device to Modbus TCP device. ZLSN2042'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.

ZLSN2042 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 4 of this document to find how to switch between Modbus TCP function and normal serial server function.

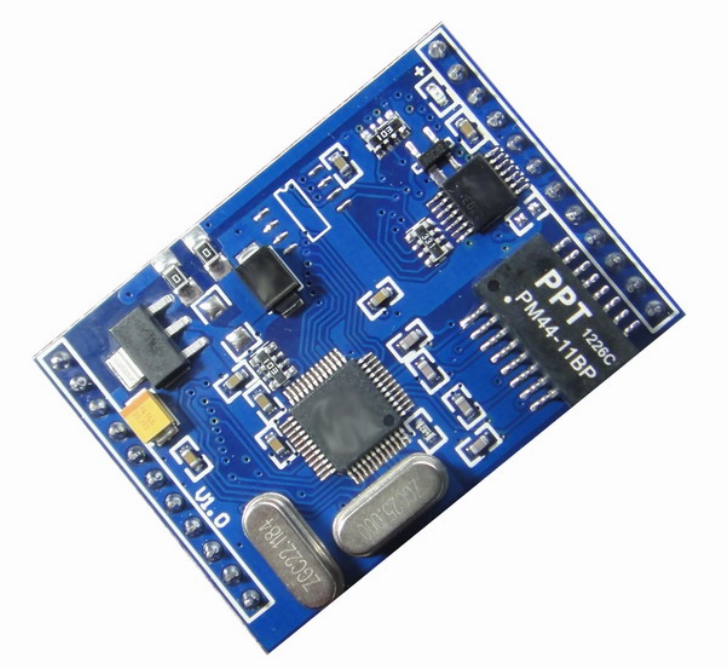


Figure 1 ZLSN2042

Only 4 lines interface to user MCU is needed. These are VCC (+5V or 3.3V selectable, please tell us when ordering), GND, TXD and RXD. Here TXD and RXD are 3.3V TTL electrical power level, which can be directly connected to user's MCU UART pins. only 4 lines Ethernet line connect to RJ45. Total minimum of 8 lines is needed.

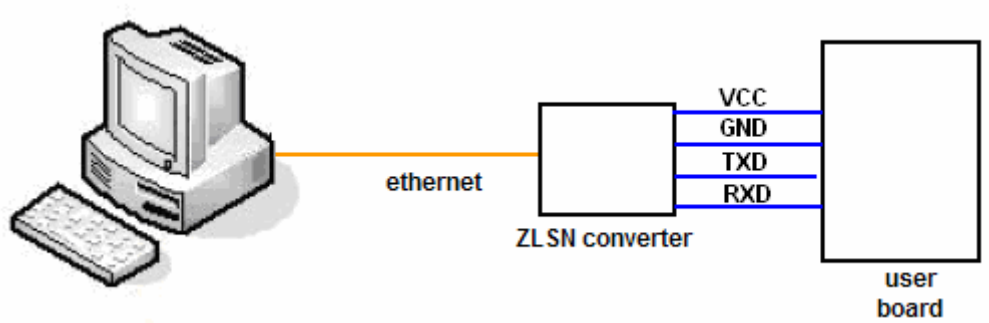


Figure 2 ZLSN2042 connection

1.1. Characteristic of ZLSN2042

1. Support both Modbus TCP to Modbus RTU and transparent mode.
2. Full Duplex, high stability.
3. Low cost Modbus TCP to RTU and serial to Ethernet solution.
4. Support TCP Server, TCP Client, UDP mode, UDP Group; Support DHCP, DNS.
5. Serial baund rate: 1200 to 460800
6. Configure module through Ethernet port by windows utility, Web Browser.
7. Provide Virtual serial port software ZLVircom.

2. Parameters

Figure		**Protocol support**	
Connecting type:	23pin module	TCP, UDP ,HTTP, ARP, ICMP, DHCP, DNS, Modbus TCP	
Dimension:	31.75 x 44.45mm	**Work mode**	
Communication interface		TCP SERVER, TCP CLIENT, UDP, UDP Group	
Ethernet:	10/100Mbps	**Power**	
Serial:	TTL(5V or 3.3V selectable, tell us while ordering): RXD, TXD,CTS, RTS	Power:	DC5V/3.3V(±5%), less than 90mA
Serial parameters		**Averment require**	
Bound rate:	1200~460800bps	Temperature:	-45~85℃
Parity:	None, Odd, Even, Mark, Space	Storage:	-45~165℃
Data bits:	5-9		
Flow control:	RTS/CTS, DTR/DSR, NONE		

3. Pin define

Pins of ZLSN2042 is defined as following:

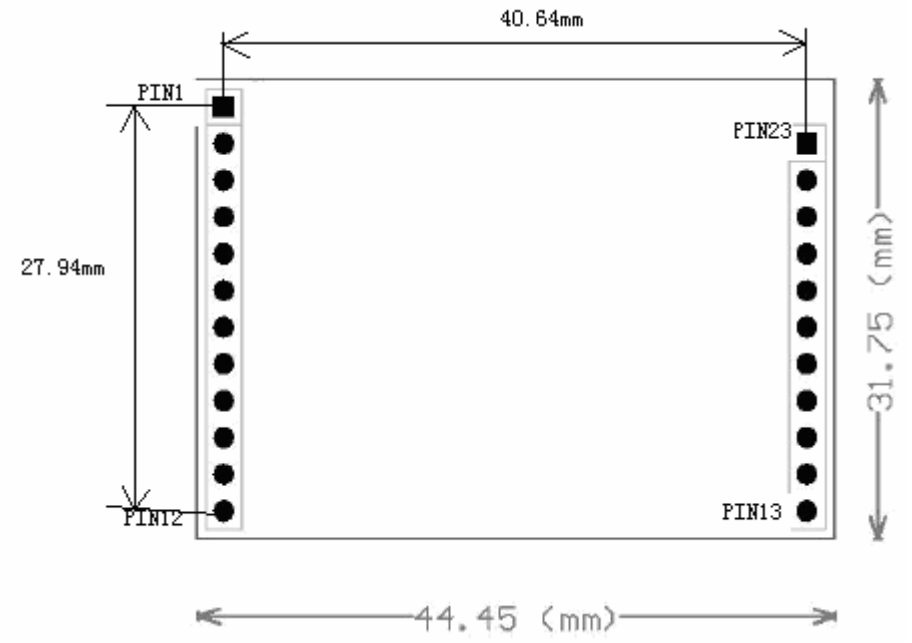


Figure 3 ZLSN2042 pins

Table 1. ZLSN2042 pin define

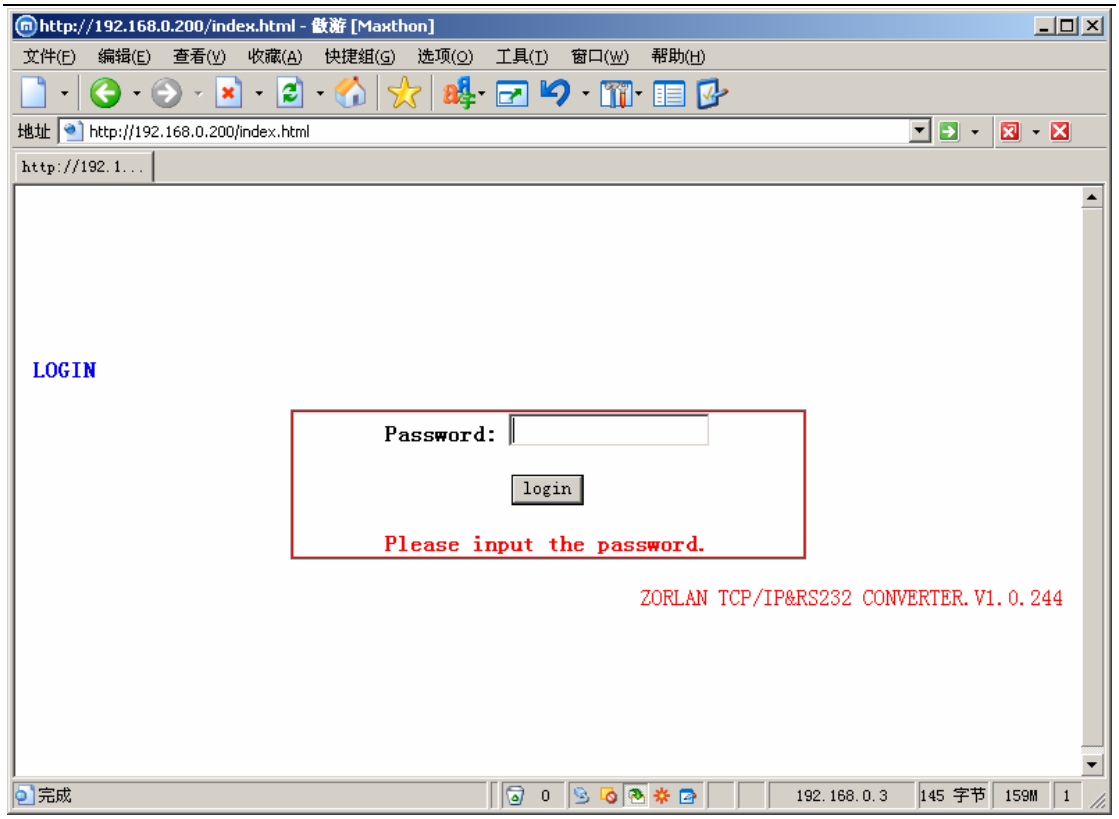
PIN	NAME	DIRECTION	PIN	NAME	DIRECTION
1	ETHER_TX+	OUT			
2	ETHER_TX-	OUT	23	RTS	OUT
3	ETHER_RX+	IN	22	CTS	IN
4	ETHER_RX-	IN	21	DEF	IN
5	CG	OUT	20	MODE	OUT
6	TXD	OUT	19	100M_LINK	OUT
7	RXD	IN	18	RESERVE	/
8	485_TXD_EN	OUT	17	NC	/
9	SPR	IN	16	LINK	OUT
10	nRST	IN	15	ACT	OUT
11	GND	IN	14	VCC(+5V)	IN
12	GND	IN	13	VCC(+5V)	IN

1. TXD,RXD: serial port
2. CTS, RTS: serial port flow control. If RTS is 0, ZLSN2042 can receive data from RXD; Only when CTS is 0, ZLSN2000 can send data if flow control is enabled.
3. MODE: not used.
4. DEF: If this pin is low level, ZLSN2042 will load the default parameters, when power on.
5. ACT: Means data coverting is under processing.
6. LINK: Measns TCP connection is established or ZLSN2000 is in UDP work mode.
7. 100M_LINK: means Ethernet line is plugged in.
8. TPIN+, TPIN-, TPOUT-, TPOUT+: Ethernet pins.
9. nRST: low level to reset modual.
10. 485_TXD_EN:485 sending control, normally it is 0. while ZLSN2042 is sending data out UART this pin go to high. It can directly connect to chip MAX485's TXD_EN pin.
11. CG: not use

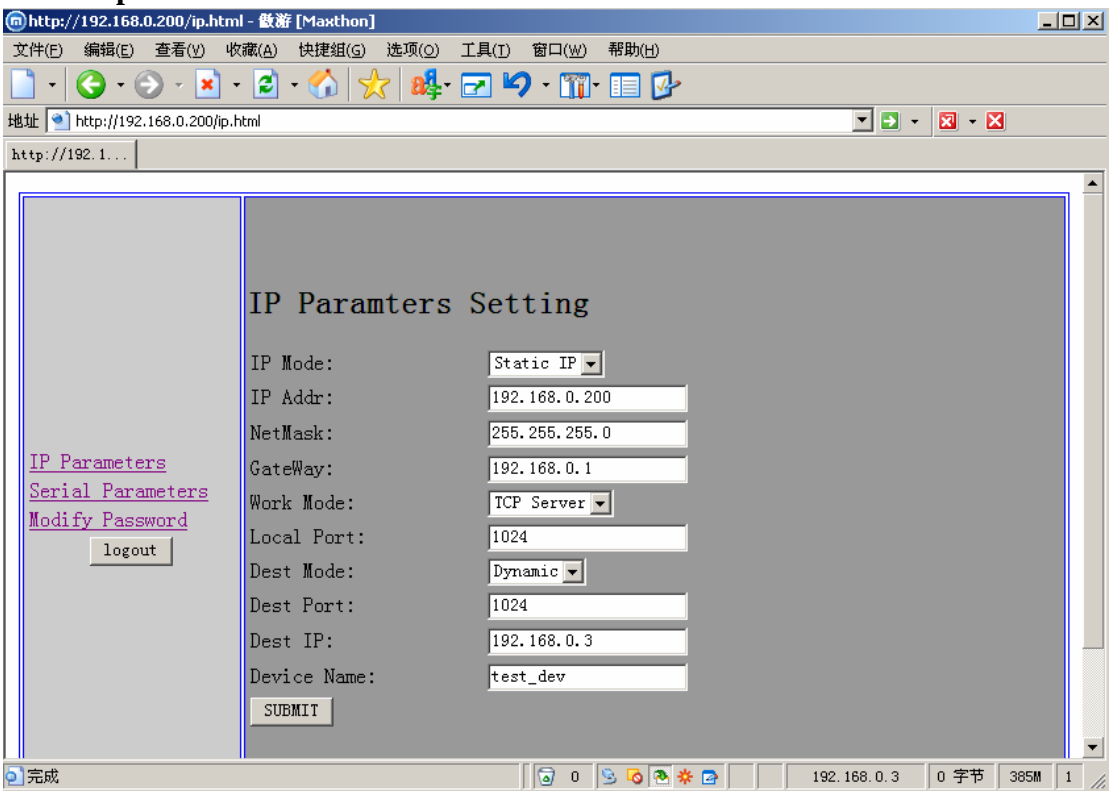
NOTE: don't connect while you not using some of the pins.

4. Use web to comfit ZLSN2042

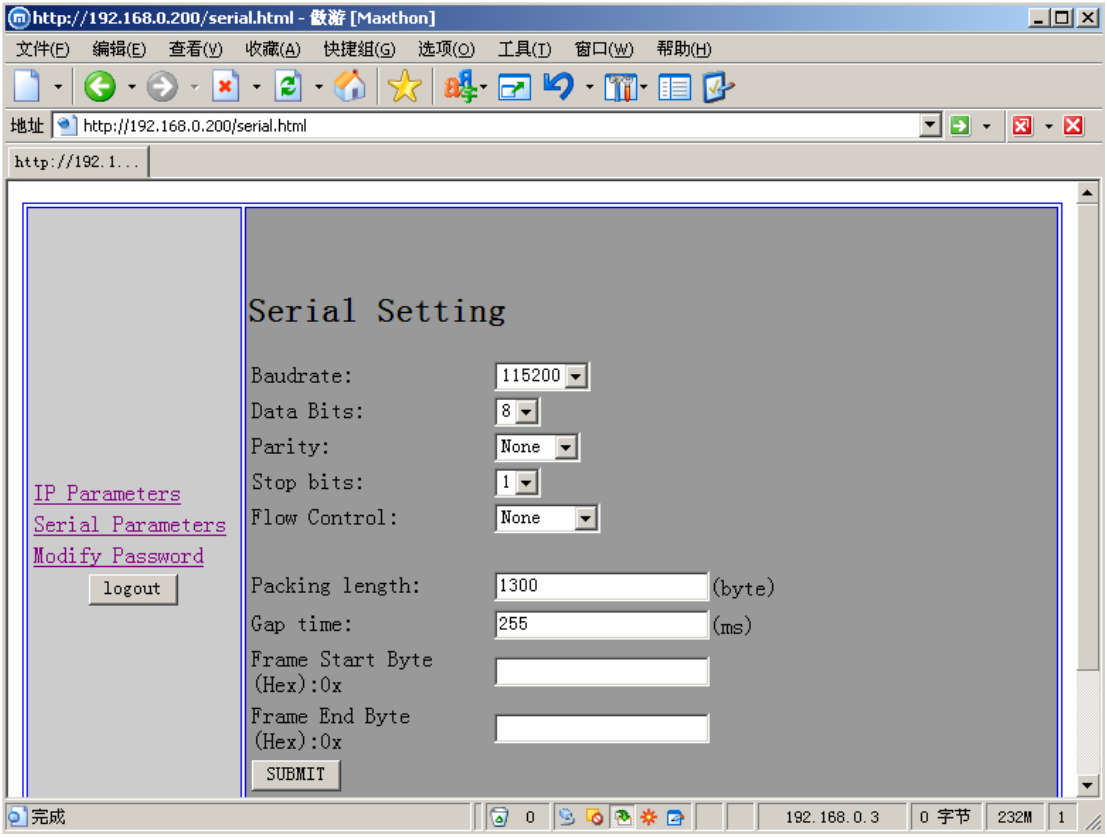
Login:



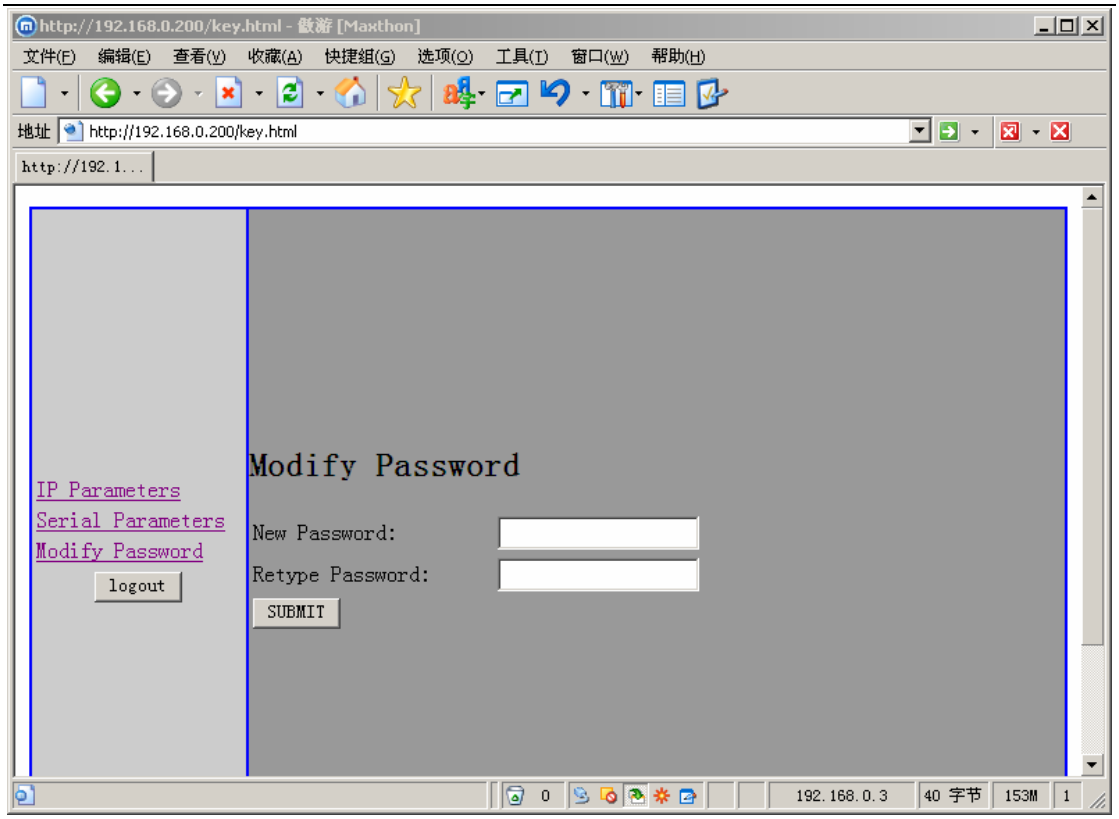
Net parameters:



Serial parameters:



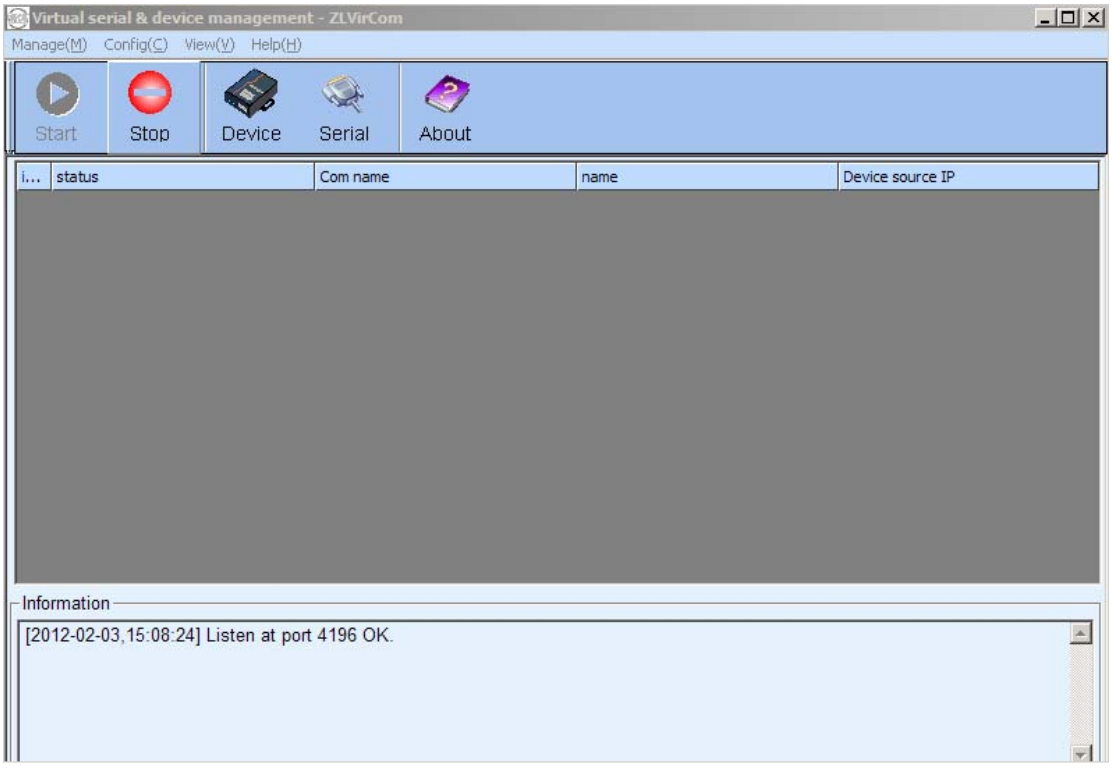
Modify login key:

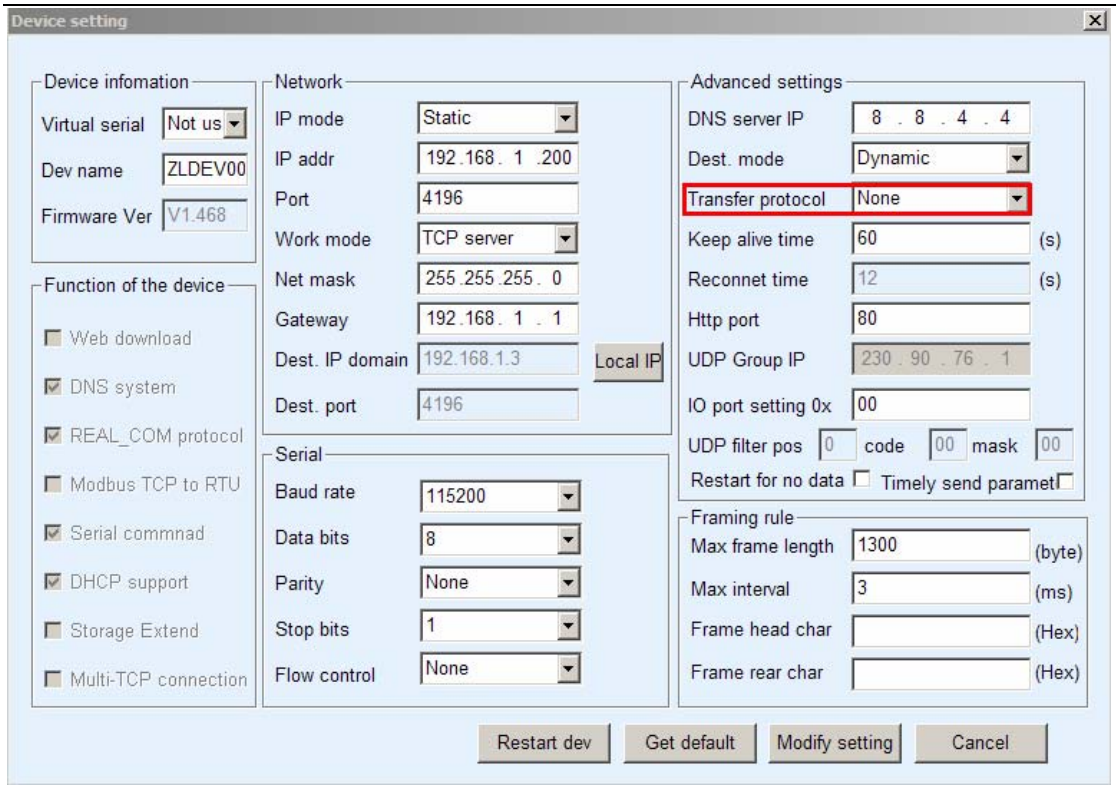

http://192.168.0.200/key.html - 傲游 [Maxthon]
文件(F) 编辑(E) 查看(V) 收藏(A) 快捷组(G) 选项(O) 工具(T) 窗口(W) 帮助(H)
地址 http://192.168.0.200/key.html
http://192.1...
IP Parameters
Serial Parameters
Modify Password
logout
Modify Password
New Password:
Retype Password:
SUBMIT
192.168.0.3
40 字节
153M

5. Use Vircom windows utility to 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”.





6. Contact us

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