ZLSN3003S

Embedded Device Networking Module

User Manual

Embedded Device Networking Solution

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Contents

1. Summary

ZLSN3003S is an embedded TTL level to Ethernet module with RJ45 Ethernet port, can achieve transparent transmission of TTL level serial data and TCP/IP/UDP data, help user MCU realize connecting to network through serial port.

Figure 1 ZLSN3003S

ZLSN3003S is a functional embedded converting module for Ethernet and serial data, it's internally integrated TCP/IP protocol stack, user can easily complete networking function of embedded devices by using it, can save human and material resources as well development time to launch the products into market faster.

The ZLAN3003S wiring connection type is different with ZLSN3003, it use pin header welded installation style. Using one-seat directly welded to user PCB, it's simpler than screw hole installation of ZLSN3003. And compared with ZLSN2003S, ZLSN3003S has Ethernet port, it makes user design workload smaller. ZLSN3003S is designed for providing the most convenient embedded networking module.
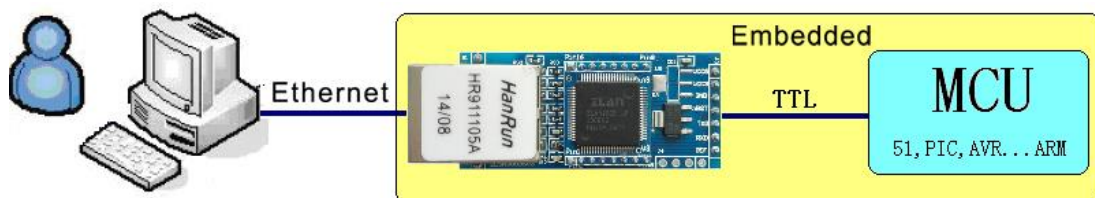
Figure 2 ZLSN3003S connection diagram

The ZLSN3003S use ZLSN2003S core module inside, so for software configuration please refer to file 《ZLSN2003S》, here we just introduce the specific character of ZLSN3003S.

2. Usage

2.1   Sub-Model Choose

ZLSN3003S provide 4 models: 5V/3.3V/high-speed/low-speed

Table 1 ZLSN3003 Sub-Model

Sub-Model	Description	Highest Baud-rate	Current (mA)
ZLSN3003SH	High-speed, power 3.3V	115200	170
ZLSN3003SH-5	High-speed, power 5V, U3 welded	115200	170
ZLSN3003SL	Low-speed, power 3.3V	38400	140
ZLSN3003SL-5	Low-speed, power 5V，U3 welded	38400	140

ZLSN3003S provide 2 types module 5V and 3.3V, when 5V power supply please connect PIN VCC5; When 3.3V power supply connect another PIN VCC3.

End with H are high-speed module, L is low-speed module. Difference of the two is the high-speed module with high temperature but can support higher baud rate. To normal 9600 serial port baud rate, you can choose model ZLSN3003SL.

2.2   Hardware interface

As shown in Figure 1, the instructions of pin from up to down are as below:

Table 2 Pin

Pin	Instruction
VCC5	Model ZLSN3003SH-5、ZLSN3003SL-5 need this pin to supply 5V power, VCC3 hang
VCC3	Model ZLSN3003SH、ZLSN3003SL need this pin to supply 3.3V power, VCC5 hang
GND	Power grounding
nRST	Low level reset, non-use hang. Can directly connect to IO mouth of MCU
TXD	TTL level output, can directly connect RXD of user MCU with 5V or 3.3V（TTL level is 3.3V）
RXD	TTL level input, can directly connect TXD of user MCU with 5V or 3.3V

DEF/CFG	When be 0 and time keep over 1s, the module will restart with default IP in static mode, Gateway 255.255.255.0, 192.168.1.1. This is avail for user forgot IP. Pull-up to VCC by 1K resist means high, connect to GND means low.

ZLSN3003S has 4 pin can be extended, shown as right down in Figure 1, default not welded pin header, if need can lead out, the definition from left to right are as below:

Table 3 Extension Pin

Pin	Instruction
CTS	TTL lever, serial port flow control pin, as RTS instruction.
LINK	When 0, means module has built TCP connection with network server or in UDP Mode, and the cable connection normally, thus the module can send and receive data. If cut cable, the LINK will be 1. The control of Ethernet port LINK led is from this pin.
485_TEN	485 sending control end, usually 0, when module sending data to serial port is 1. Can directly connect TXD_EN pin of MAX485 chip.
RTS/100M_LINK	TTL Level, serial port flow control pin. （1）　When Flow control is None and XON/XOFF the two pin has no use, usually RTS=0. （2）　Flow control set as CTS/RTS、DTR/DSR, usually RTS=0, when RTS=1 means the module cannot receive data, the user MCU should stop to send data. The reasons of module cannot receive data: module in initialization, TCP connection hasn't been built, the receiving buffer of module serial port is full. The user MCU can only be set as 0, the module can output data from serial port. （3）　RTS can be indicator of module initialization. When flow control is NONE and XON/XOFF, RTS=1 means the module is in initialization, RTS=0 means initialization finish. So can use RTS=1 to check the module whether doing reset operation including the reset after modifying parameter through ZLVircom. （4）　100M_LINK. When the flow control set as NONE and XON/XOFF, the cable must connect to the pin so it's low level, the pin can be

	used as 100M_LINK pin. Can connect to LED negative pole via 1K resistance.

The ZLSN3003S Ethernet port has 2 LED light, show as Figure 2 the green LED light in the below Ethernet port means LINK light, as TCP connection whether has been built or in UDP mode, the yellow LED in the above Ethernet port means whether there has data transceiver in serial port.
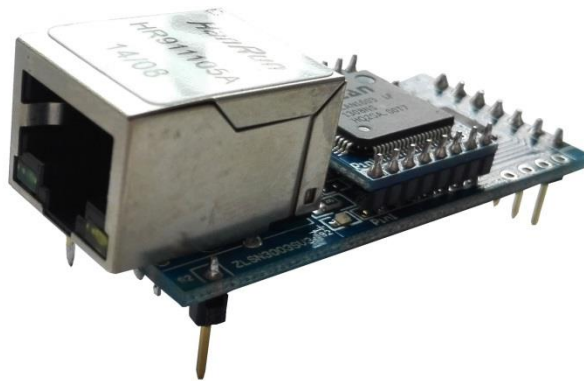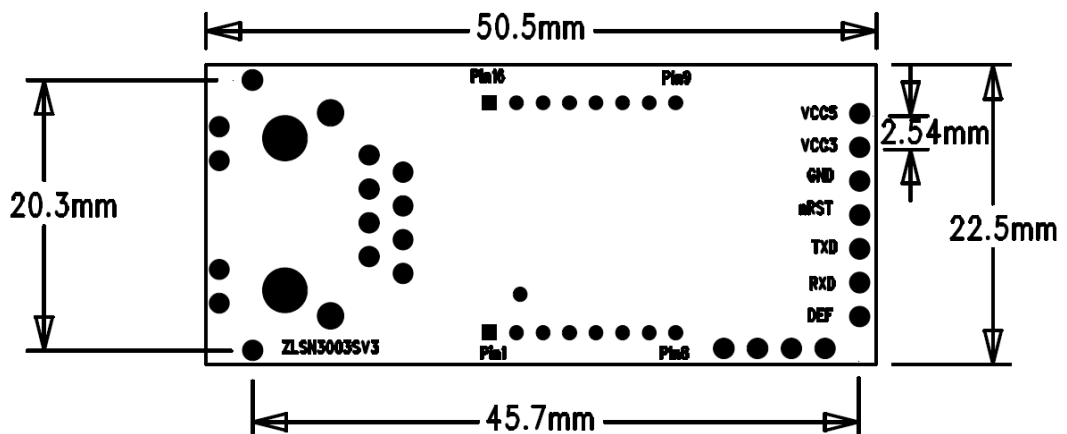

Figure 3 ZLSN3003S Ethernet Port

2.3   Electric parameter

1. VCC3：DC typical 3.3V, min 3.15, max 3.45 V, suitable for 3.3V SCM.

2. VCC5：DC typical 5V, min 4.5V, max 5.5V, suitable for 5V SCM.

3. Module current: high-speed module max 170 mA, low-speed module max 140mA.

4. Work temp.: -40~85 °C.

2.4   Mechanical size

Figure 4 ZLSN3003s Mechanical Drawing

Note: The height of RJ45 Ethernet port is 13.4mm.

2.5   Installation

ZLSN3003S can be conveniently installed to the interior of user device, just need to connect the front end of the original RS232/485 (UART Part) to ZLSN3003S serial port so can realize serial port converting to Ethernet port.

ZLSN3003S has 2 fixed pin header S1 beside Ethernet port, S1 shown as Figure 4, can conveniently fixed to circuit board.

2.6   Attention

1. The ZLSN3003S is TTL level serial port, cannot directly connect with RS232 level.

2. When ZLSN3003S connect with user MCU, ZLSN3003S TXD connect with user MCU RXD, ZLSN RXD connect with user MCU TXD. Please be attention with the cross connection style.

3. Please note that ZLSN3003S GND must connect with user circuit board GND.

4. ZLSN3003S has 5V power supply and 3.3V power supply, when 3.3V power supply U3 not welded.

5. For software configuration please refer to 《ZLSN2003S》.

3.   After-service

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