

USR-TCP232-ED2 Hardware Manual

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1. Product Overview

1.1. Dimension

Module dimension: 44.45*31.75*15.4 mm, diagram as follow:

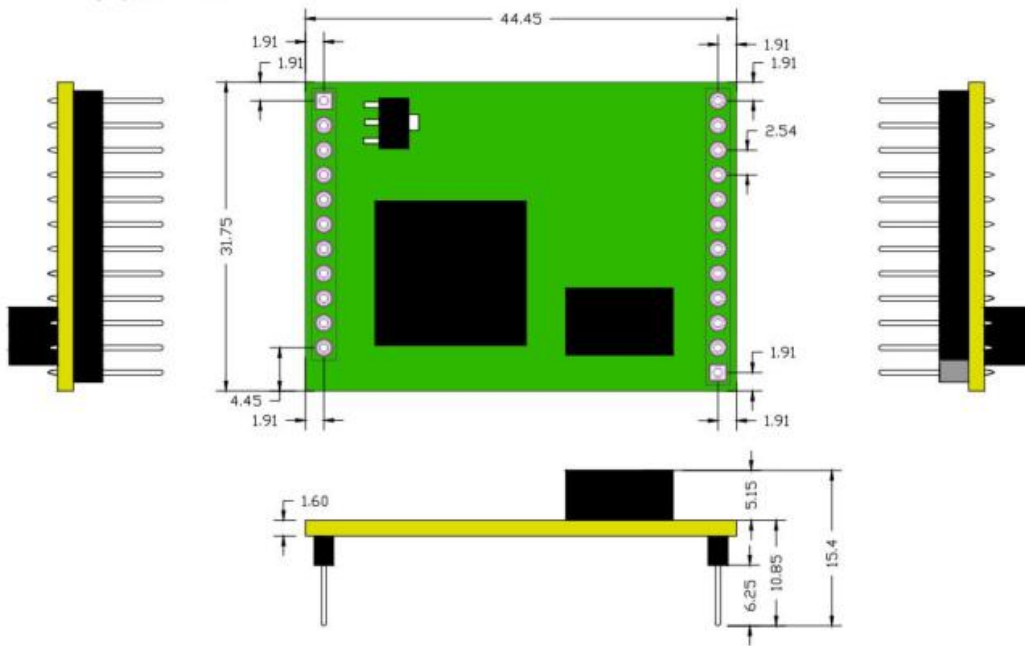
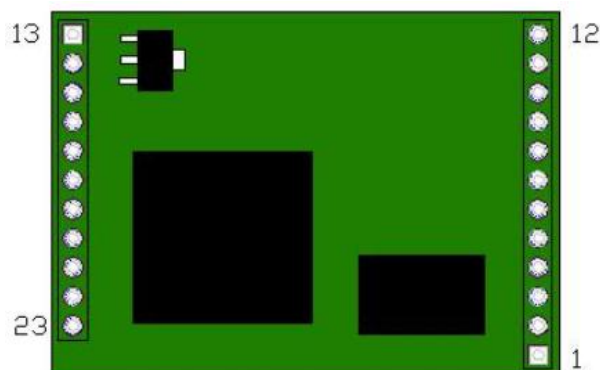


Figure 1 Dimension diagram

1.2. Encapsulation

User can download PCB Library from http://www.usriot.com/usr-tcp232_pcb/.

1.3. Pin Definition



PIN	Name	Definition
1	ETH_TX+	Ethernet interface TX+ pin
2	ETH_TX-	Ethernet interface TX- pin
3	ETH_RX+	Ethernet interface RX+ pin
4	ETH_RX-	Ethernet interface RX- pin
5	LED_DATA	Ethernet interface DATA LED
6	TXD0	Serial port 0 TX pin
7	RXD0	Serial port 0 RX pin
8	485_EN(RTS0)	RS485 receiving/transmitting control pin(Serial port 0 requesting transmitting pin)
9	Reload	Restoring default settings
10	RST	Resetting the module
11	GND	Power ground
12	GND	Power ground
13	VDD	+5V VDD
14	VDD	+5V VDD
15	LED_LINK	Ethernet interface LINK LED
16	VCC	+3.3V VCC
17	RXD1	Serial port 1 RX pin
18	TXD1	Serial port 1 TX pin
19	RXD2	Serial port 2 RX pin
20	TXD2	Serial port 2 TX pin
21	CTS0	Serial port 0 clearing transmitting pin
22	RTS1	RS485 receiving/transmitting switching control pin(Serial port 1 requesting transmitting pin)
23	CTS1	Serial port 1 clearing transmitting pin

Figure 2 Pin definition

Note:

1. ED2 adopts 5V/3.3V dual power supply and then can't work simultaneously.
2. Three serial ports can work independently and support RTS/CTS hardware flow control.

2. Hardware Design

2.1. Typical connection

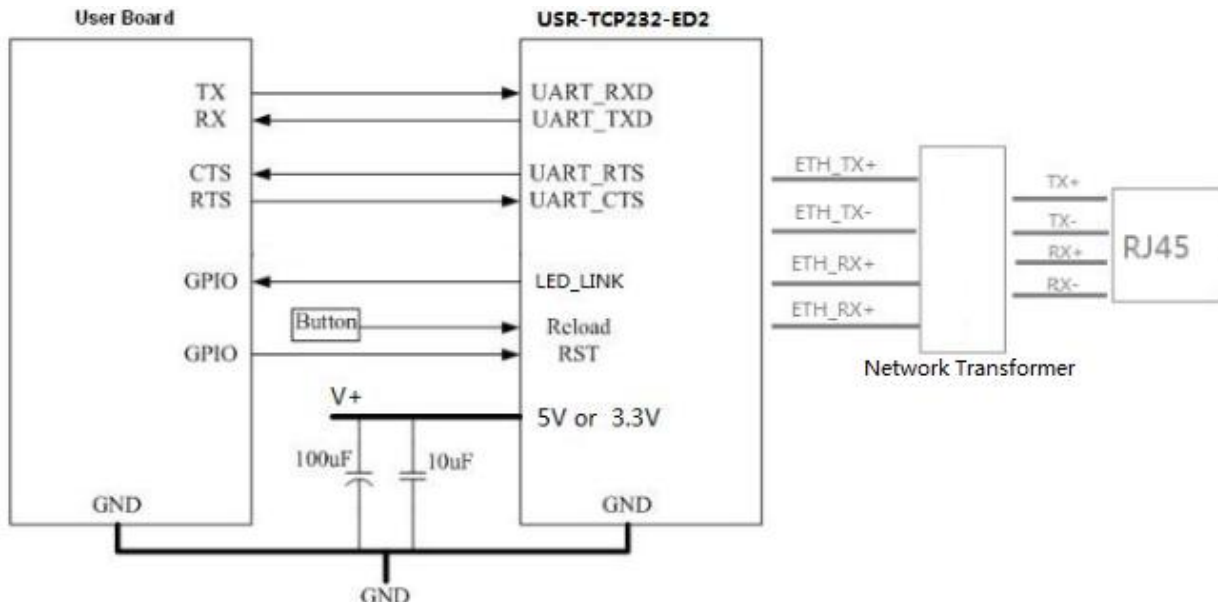


Figure 3 Typical connection

Note:

1. RST: Resetting module and taking effect in low level. RST pin has connected to internal 10K Ohm pull-up resistor to 3.3V. User can pull down RST pin to low level over 300ms to reset the module.
2. LED_Link: LED pin for module connection status. After module establishing connection, LED_Link will output low level.
3. Reload: Reload pin can connect to external button or configuration pin and Reload pin has connected to internal 10K Ohm pull-up resistor to 3.3V. User can press button to pull down Reload pin to low level over 3 seconds to restore default settings.
4. UART_TXD/RXD/RTS/CTS: ED2 supports three serial ports and they can work independently. ED2 also supports RTS/CTS hardware flow control. Pin 8 is RS485 receiving/transmitting control pin and can also be used as serial port 0 requesting transmitting pin.
5. ED2 supports 5V/3.3V dual power supply and they can't work simultaneously.

2.2. Power Interface

USR-TCP232-ED2 adopts 3.3V/5V dual power supply and they can't be used simultaneously. Working current 120mA@5V.

1. VCC: 3.3V DC power supply. Voltage range: 3.0~3.6V and be suitable for 3.3V MCU.
2. VDD: 5V DC power supply. Voltage range: 4.75V~5.5V. When user connect to 5V MCU, please refer to **2.3. UART Interface** switching circuit .

2.3. UART Interface

UART is serial data interface that can connect the RS-232 chip and transfer to the RS-232 level. UART interface includes TXD/RXD. Take the RS-232 level as a reference circuit diagram as follows:

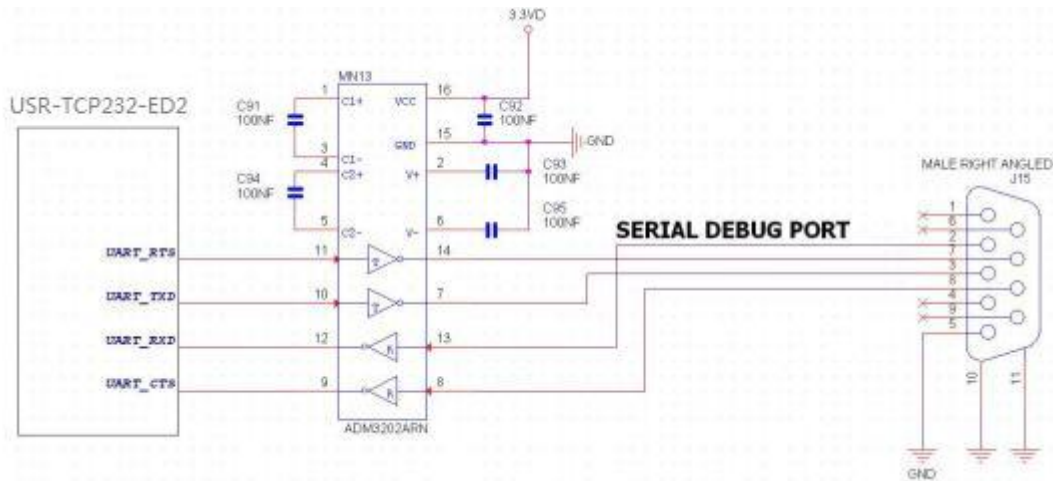


Figure 4 UART interface

When communicating with a MCU at 3.3V, simply connect the module's TXD to the MCU's RXD and the module's RXD to the MCU's TXD. When communicating with a MCU at 5V, a switching circuit is necessary. The switching circuit diagram is as follows:

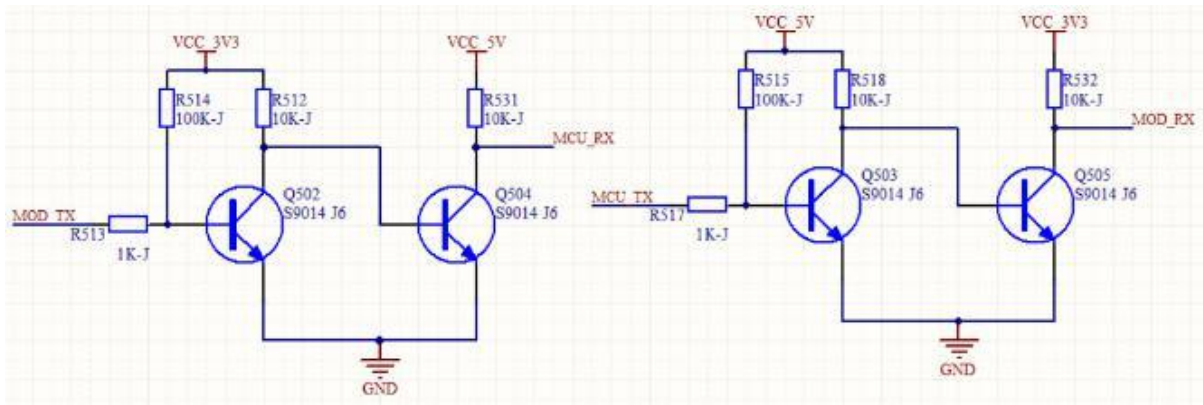


Figure 5 Switching circuit

2.4. 10/100M Ethernet interface

ED2 has a built-in transformer, so ED2 can connect directly to an RJ45 connector or network cable.

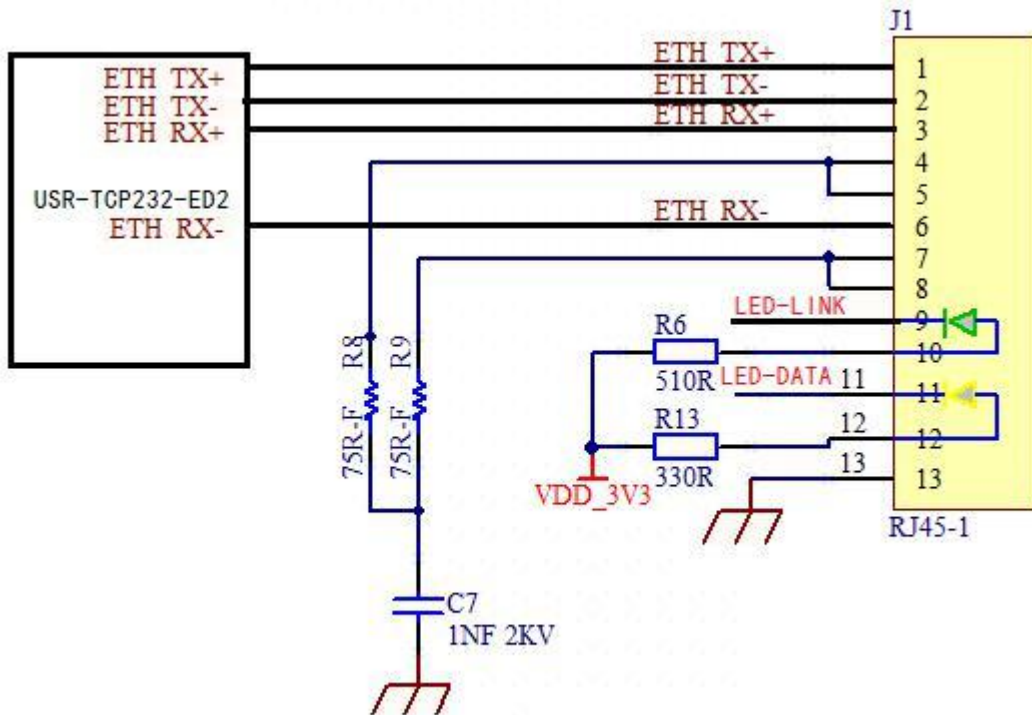


Figure 6 Ethernet interface

3. Contact

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4. Disclaimer

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5. Update History

2017-11-08 V1.0.1.01 created based on Chinese version V1.0.1.