## USB2SER (\#28024)

## FTDI FT232RQ USB to Serial Development Tool

The USB2SER provides an easy way to interface a PC to a microcontroller. It bridges the PC's USB port to logic-level RX and TX signals that can connect directly to a microcontroller's I/O pins. To the PC, the USB2SER appears as a virtual COM port. To the microcontroller, the USB2SER appears as a true 5 V serial connection consisting of a RX signal, a TX signal, and a low-pulsing RESET signal controlled by 'DTR'. This product will require a USB A to Mini B cable to be able to connect to a PC. This part can be purchased from www.parallax.com, part \#805-00006.

## Features

- Powered via the USB cable, no external supply required
- 4-pin SIP female .1" spacing connector to microcontroller circuit
- Red and blue LEDs indicate TX and RX activity
- Supports standard baud rates and custom rates, 300 baud to 3 Mbaud


## Key Specifications

- Power requirements: 5 VDC, up to 90 mA , from USB connection
- Communication: Full speed USB, full duplex 5 V non-inverted TTL serial from 300 baud to 3 Mbaud
- Operating Temperature: -40 to $+85^{\circ} \mathrm{C}$
- Module Dimensions given in the diagrams below



## Device Connection

## FTDI Virtual Com Port USB Drivers Required

Before connecting the USB2SER tool to your computer, install the correct FTDI VCP USB drivers for your operating system. A driver installer for Windows $2 \mathrm{~K} / \mathrm{XP} /$ Vista is available from a home page link at www.parallax.com. It is also bundled into the newest versions of the Parallax's BASIC Stamp Editor, Propeller Tool, and SX-Key Editor software. To obtain FTDI VCP USB drivers for other operating systems, visit www.ftdichip.com.

## Check Polarity

Be sure to verify the correct polarity before connecting the USB2SER to another board by matching the connection names located above the connector.

## Programming a BASIC Stamp from a USB Port

The USB2SER is not able to program BASIC Stamps. BASIC Stamp modules require an inverted signal. If you need to program a BASIC Stamp, use the Parallax USB to Serial (RS-232) Adapter (\#28030).

## Bill of Materials

You can build your own USB2SER adapter from the Bill of Materials and schematic shown below.

| Description | Quantity |
| :--- | :---: |
| FT232RQ Chip | 1 |
| 2 N3904 transistor | 1 |
| Red LED | 1 |
| Blue LED | 1 |
| $4.7 \mu$ F capacitor | 1 |
| $0.1 \mu$ F capacitor | 1 |
| 10 nF capacitor | 1 |
| $150 \Omega$ resistor | 4 |
| $33 \mathrm{k} \Omega$ resistor | 1 |
| USB mini B connector | 1 |
| 4 pin SIP socket | 1 |

## Module Schematic



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