Welcome!

Thank you for purchasing our *AZ-Delivery USB to TTL Converter*. On the following pages, you will be introduced to how to use and set-up this handy device.

Have fun!

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Introduction

The USB to TTL Converter module is a device that is used in various applications. It gives the ability to use the USB port and establish the UART (Universal Asynchronous Receiver/Transmitter) type of communication with other devices with this ability. The module is also useful for communication between the PC and microcontrollers. The module is based on the CP2102 chip which enables the USB to TTL (UART) communication.

The Universal Serial Bus function controller in the CP2102 is a USB 2.0 compliant full-speed device with integrated transceiver. The USB function controller manages all data transfers between the USB and the UART as well as command requests generated by the USB host controller and commands for controlling the function of the UART.

This USB to TTL serial converter is ideal for many uses, including:

- Programming ARM, AVR microprocessors and others
- Working with computing hardware such as routers and switches
- Serial communication with many devices such as GPS devices
- Serial terminals on devices like the Raspberry Pi

Example applications

- Upgrade of RS-232 legacy devices to USB
- PDA USB interface cable
- USB to RS-232 serial adapter

Specifications

Operating input voltage`	5V (USB)
Operating output voltage	3V, 5V pins
USB specification	2.0 (speeed up to 12Mbps)
Chip	CP2102
Baud rates	300 bps to 1.5 Mbps
Transmit buffer	640b
EEPROM memory	1024B
TX Buffer memory	640B
RX Buffer memory	576B
TTL pins	6
Operating temperature Range	-40 to +85.
Dimensions	34x16x10mm (1.3x0.6x0.4in)

The CP2102 chip is equipped with the internal voltage regulator that lowers the USB input voltage from 5V to 3.3v

The module has an onboard signaling LED. The LED is a multicolor which can display several functions when powered.

The module has an USB (OTG Type), connector which is used to connect the module with the PC.

Features

Single-Chip USB to UART Data Transfer

- Integrated USB transceiver; no external resistors required
- Integrated clock; no external crystal required
- Internal 1024-byte programmable ROM for vendor ID, product ID, serial number, power descriptor, release number, and product description strings
- EEPROM (CP2102)
- EPROM (One-time programmable) (CP2109)
- On-chip power-on reset circuit
- On-chip voltage regulator
- 3.3 V output (CP2102)
- 3.45 V output (CP2109)
- 100% pin and software compatible with CP2101

USB Function Controller

- USB Specification 2.0 compliant; full-speed (12 Mbps)
- USB suspend states supported via SUSPEND pins

Asynchronous Serial Data BUS (UART)

All handshaking and modem interface signals

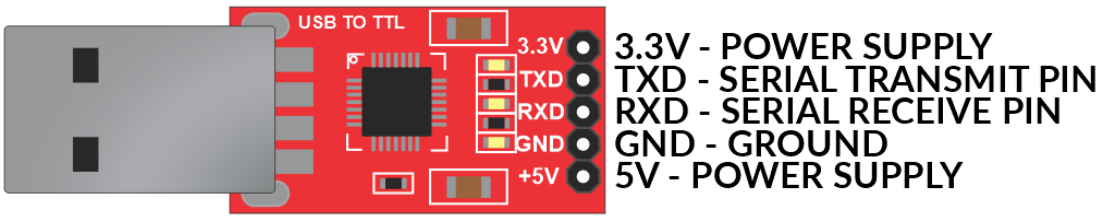
- Data formats supported:
- Data bits: 5, 6, 7, and 8
- Stop bits: 1, 1.5, and 2
- Parity: odd, even, mark, space, no parity
- Baud rates: 300 bps to 1 Mbps
- 576 Byte receive buffer; 640 byte transmit buffer
- Hardware or X-On/X-Off handshaking supported
- Event character support
- Line break transmission

Virtual COM Port Device Drivers

- Works with existing COM port PC Applications
- Royalty-free distribution license
- Windows 10/8/7/Vista/Server 2003/XP/2000
- Mac OS-X/OS-9
- Linux

The pinout

The module has two pins and USB connector. The pinout is shown on the following image:

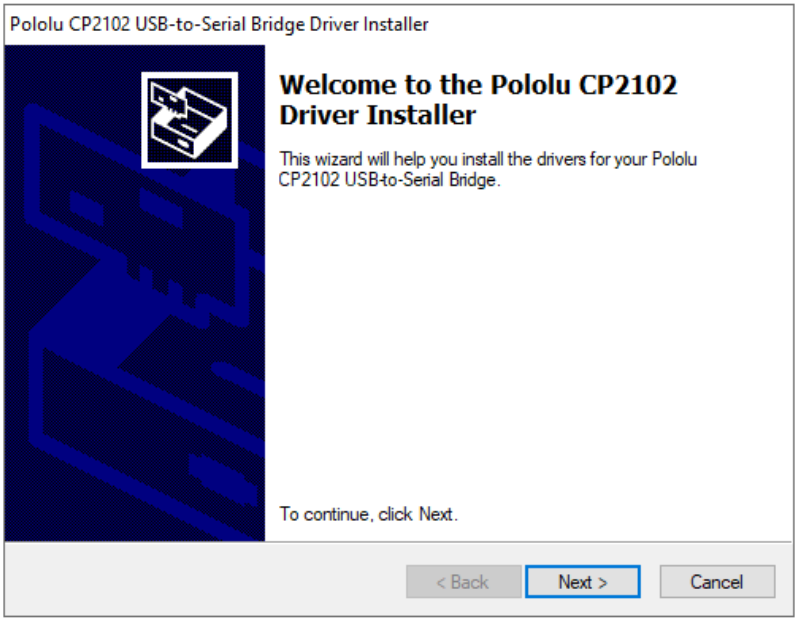


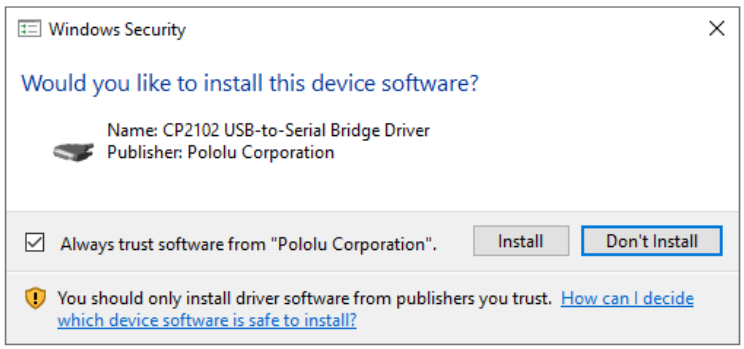
The module does not have a DTR (Data Terminal Ready) pin that is necessary in some cases when the reset function is required for proper programming procedure.

NOTE: There is a mod that can be done to the module by carefuly soldering a thin wire to the chip DTR pin (pin 28) see the datasheet for CP2102.

Driver installation

Before using the USB to TTL converter module the driver has to be installed. The driver can be downloaded from the following link.





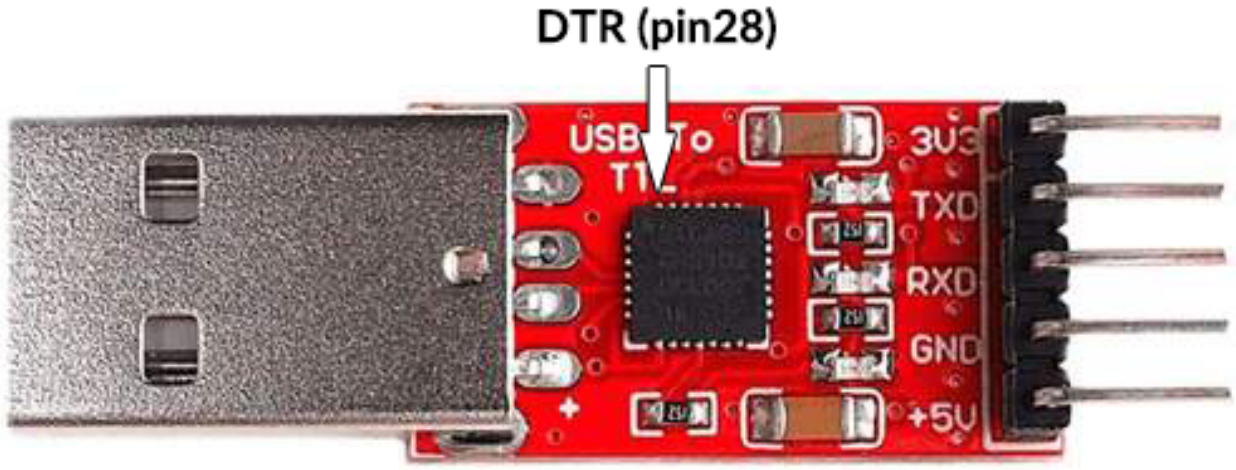
When driver installation is finished, the USB to TTL converter is ready for use.

Mods for USB to TTL converter

The USB to TTL converter can be modded for various applications. As a relatively cheap device few features can be added and functionality further expanded for use with other microcontrollers.

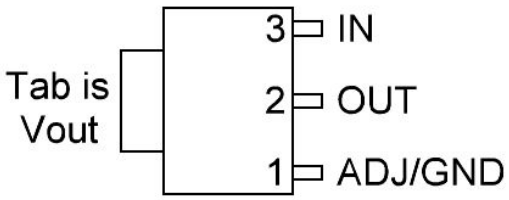
Auto-Reset Mod

First mod that can be done is the auto-reset mode. By simple adding a thin piece of wire connected to the DTR (pin 28) on the CP2102 chip, functionality module is expanded. This mode eases programming some of the micro controllers for example, PRO Mini, that has no programmer chip on-board. Similar micro controllers require the DTR (Data Terminal Ready) function for proper programming procedure. The following image shows the DTR pin to which the wire has to be soldered:



Extra current Mod

Some microcontrollers require extra current for proper functionality. This mod enables the USB to TTL converter to deliver more current for microcontrollers such as ESP8266 (requires up to 400mA). This mod uses an extra voltage regulator that can be soldered un the bottom side of the USB to TTL converter. The voltage regulator is designated as AMS1117 (3.3V) and it can deliver the current up to 500mA (optimal). Following image shows voltage regulator pinout:



Mod requires cutting a trace that leads to the 3.3V output pin. Make sure to cut the trace closer to the pin and brake the output connection from the on-board voltage regulator. Following image shows which trace has to be cut:

Voltage regulator pins are soldered to USB to TTL converter pins in following sequence:

AMS1117 pin	USB to TTL pin
IN (pin3)	5V pin
VOUT (pin2)	3.3V pin
ADJ/GND (pin1)	GND (ground)

With careful planning, voltage regulator can be soldered directly to the pins on the bottom side of the USB to TTL board PCB.

Now it is the time to learn and make your own projects. You can do that with the help of many example scripts and other tutorials, which can be found on the Internet.

If you are looking for the high quality products for Arduino and Raspberry Pi, AZ-Delivery Vertriebs GmbH is the right company to get them from. You will be provided with numerous application examples, full installation guides, eBooks, libraries and assistance from our technical experts.

https://az-delivery.de

Have Fun!

Impressum

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