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WitMotion cp2102 module

WITMOTION USB-UART 6-in-1 Serial Adapter (CP2102 Module) User Manual

Model: cp2102 module

1. INTRODUCTION

The WitMotion USB-UART 6-in-1 Multi-function Serial Adapter is a versatile device designed for various serial communication needs. It supports multiple conversion functions including USB-TTL, USB-RS232, USB-RS485, TTL-232, TTL-485, and 232-485. This adapter is built with a reliable CP2102 chipset and is compatible with a wide range of operating systems and development platforms, making it suitable for diverse projects.

2. PRODUCT FEATURES

- **Multi-functionality:** Supports USB-TTL, USB-RS232, USB-RS485, TTL-232, TTL-485, and 232-485 conversions.
- **Wide Compatibility:** Compatible with Windows XP / 7 / 8 / 10 (32bit / 64bit), Linux, Wince, Mac, and Vista operating systems.
- **Robust Design:** Features a high-quality mode switch (tested for 100,000 cycles), clear status indicator LEDs, an upgraded TO5 fuse for excellent protection against short-circuits, and an imported CP2102 chipset for stable and reliable performance.
- **Adjustable Baud Rate:** Supports baud rates from 300 bps to 1.5 Mbps.

3. PACKAGE CONTENTS

The package includes the following items:

- 1x WitMotion 6-in-1 Serial Adapter
- 4x DuPont Cables
- 1x Welcome Card

All components are securely packaged in an anti-static bag to prevent damage during transit.



Image: Packaging box and included items.

4. PRODUCT OVERVIEW AND PINOUT

4.1. Adapter Layout

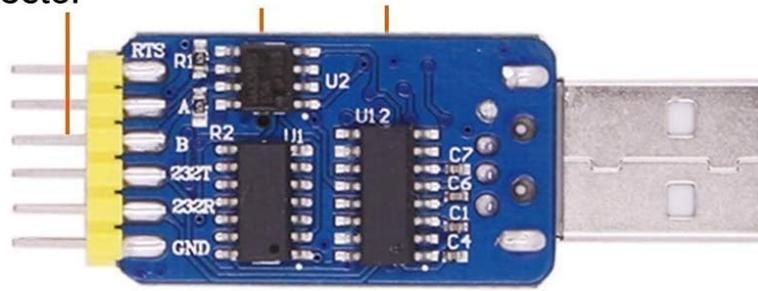
The images below illustrate the key components and connectors of the 6-in-1 serial adapter.

Input and Output

Connector

485IC

232IC



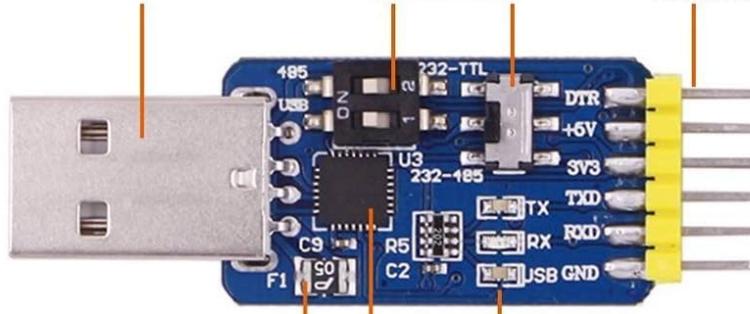
Mode Selection

Input and Output

USB Connector

Switchse

Connector

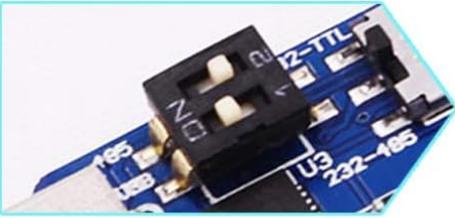


Resettable Fuses

2102IC

LED Indicator

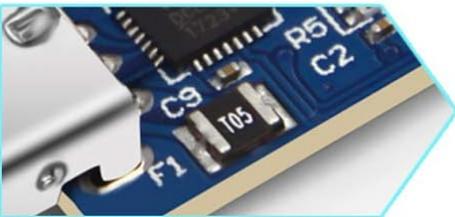
Image: Top view of the adapter, highlighting the input/output connector, 485IC, and 232IC.



Superior Mode Switch
High quality Mode switch
Passed 100,000 times of switching test



Imported CP2102 Chipset
Better performance



Upgraded TO5 Fuse
Excellent protection
Prevent the converter from short-circuit effectively



LED Instruction Light
Easy to tell working status

● USB ● RX
● TX

Image: Bottom view of the adapter, highlighting the USB connector, mode selection switch, resettable fuses, CP2102 IC, and LED indicators.

4.2. Pin Descriptions

The following table details the function of each pin on the adapter's input/output connector:

Name	Function
+5V	Module power, 5V input, output
3V3	Module power, 3.3V output
RX	Serial data input, TTL level
TX	Serial data output, TTL level
232R	Serial data input, 232 level
232T	Serial data output, 232 level
A	RS485 Signal line A
B	RS485 Signal line B
GND	Ground
DTR	Data Terminal Ready / Control Flow Output

Name	Function
RTS	Request To Send

Image: Pinout table for the serial adapter.

5. SETUP AND INSTALLATION

5.1. Driver Installation

Before using the adapter, you must install the appropriate drivers for the CP2102 chipset on your computer. Drivers are typically available for Windows, Linux, and Mac operating systems. Please visit the official WitMotion website (www.wit-motion.com) for the latest drivers and installation tutorials.

1. Download the correct CP2102 driver for your operating system from the WitMotion website.
2. Follow the on-screen instructions to install the driver.
3. After installation, connect the adapter to your computer's USB port. The system should recognize the device and assign a COM port.

5.2. Connecting to a Device

Connect the adapter to your target device using the DuPont cables. Ensure correct pin connections based on the desired communication protocol (TTL, RS232, or RS485). Refer to the operating instructions for specific connection diagrams.

6. OPERATING INSTRUCTIONS

6.1. Mode Selection Switch

The adapter features a mode selection switch to choose between different serial communication protocols. Carefully set the switch to the desired mode before connecting to your device.

INSTRUCTIONS

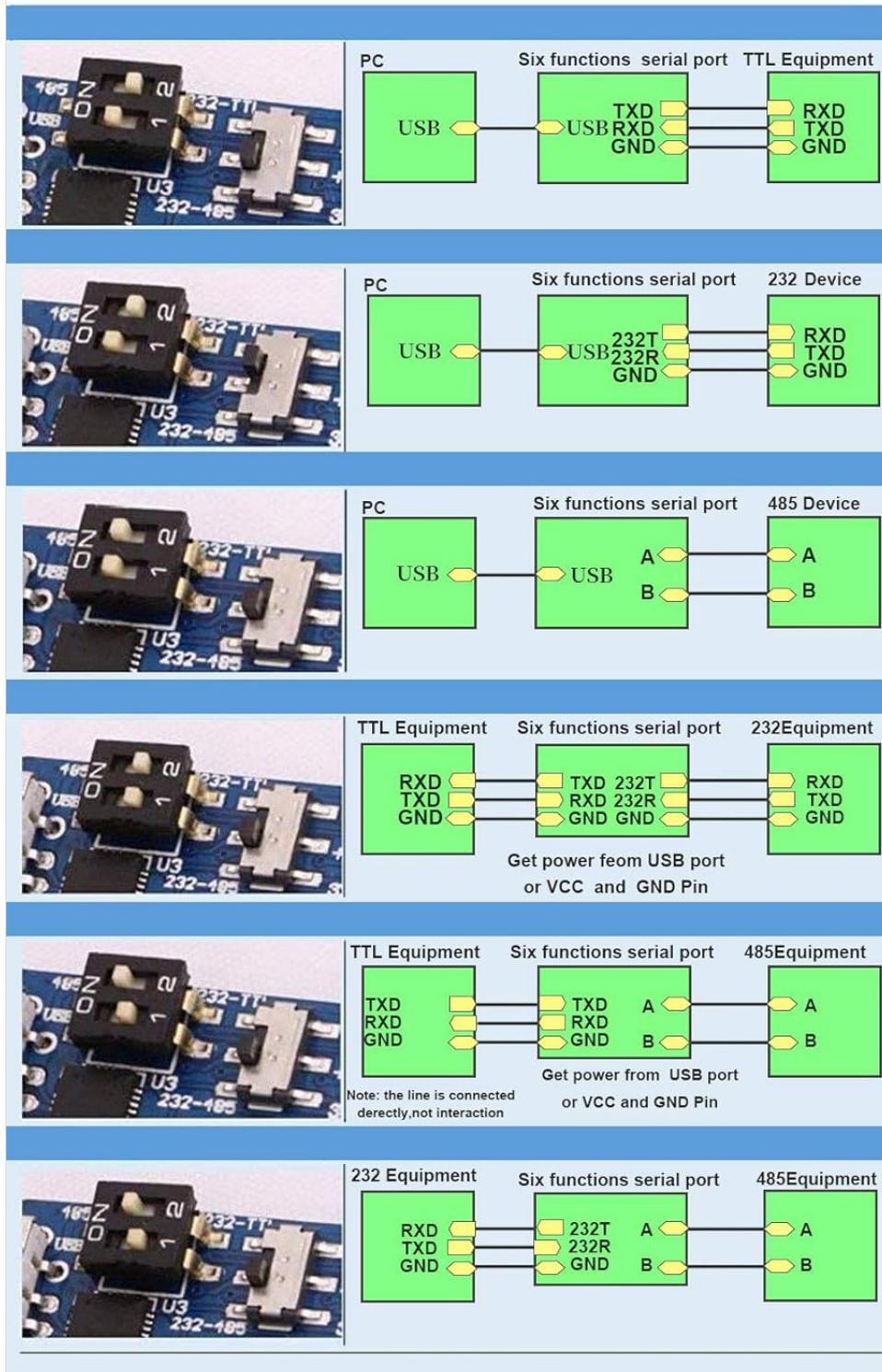


Image: Close-up of the adapter's components, including the mode switch.

6.2. LED Indicators

The adapter is equipped with LED indicators to show its working status:

- **Yellow LED:** Indicates USB power/connection status.
- **Green RX LED:** Flashes when data is being received.
- **Red TX LED:** Flashes when data is being transmitted.

6.3. Connection Examples

The following diagrams illustrate common connection scenarios for various serial communication types:



Image: Detailed connection diagrams for different serial communication modes.

- **USB to TTL:** Connect the adapter's TX, RX, and GND pins to the corresponding RX, TX, and GND pins of your TTL device.
- **USB to RS232:** Use the 232T, 232R, and GND pins for RS232 communication.
- **USB to RS485:** Connect the A and B pins for RS485 communication.
- **TTL to RS232/RS485, 232 to 485:** For these conversions, ensure the adapter receives power from the USB port or an external VCC/GND pin. Connect the respective TX/RX or A/B lines between the devices. Note that for direct TTL-232/485 or 232-485 conversions, the USB connection is primarily for power, not direct data interaction with the PC.

7. TROUBLESHOOTING

If you encounter issues while using the WitMotion 6-in-1 Serial Adapter, consider the following troubleshooting steps:

- **Driver Not Recognized:** Ensure the CP2102 driver is correctly installed. Try reinstalling the driver or connecting the adapter to a different USB port.
- **No Data Transmission/Reception:**
 - Verify that the mode selection switch is set to the correct protocol (TTL, RS232, or RS485).
 - Check all wiring connections for correctness and ensure they are secure.
 - Confirm that the baud rate settings on both the adapter and your target device match.
 - Observe the RX/TX LEDs. If they are not flashing during data transfer, there might be a connection or configuration issue.
- **Power Issues:** Ensure the adapter is receiving sufficient power from the USB port. The yellow USB LED should be illuminated.
- **Software Configuration:** Double-check your serial terminal software or development environment settings (COM port, baud rate, data bits, parity, stop bits).

For further assistance, refer to the tutorials available on the WitMotion website (www.wit-motion.com) or YouTube channel (www.youtube.com/c/WITMOTION). You can also contact our support team at support@wit-motion.com.

8. SPECIFICATIONS

Specification	Value
Brand	WITMOTION
Model Number	cp2102 module
Hardware Interface	USB
Baud Rate	300 bps ~ 1.5 Mbps
Operating System Compatibility	Windows XP / 7 / 8 / 10 (32bit / 64bit), Linux, Wince, Mac, Vista
UPC	680904597570

9. WARRANTY AND SUPPORT

WitMotion provides a **12-month quality guarantee** for this product. If you have any questions or require

technical assistance, please utilize the following resources:

- **Online Tutorials:** Comprehensive guides and video tutorials are available on our official website and YouTube channel. Links are provided on the welcome card included in your package.
 - Website: www.wit-motion.com
 - YouTube: www.youtube.com/c/WITMOTION
- **Email Support:** For direct technical support, please contact us at support@wit-motion.com. Our team is dedicated to providing satisfactory service and solutions.