USB TO TTL (C)

From Waveshare Wiki
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Overview

Introduction

USB TO TTL (C) is a USB to TTL converter, connecting the USB connector of the PC or other devices to the device with TTL logic level, such as microcontrollers, sensors for data communication.

USB TO TTL (C)



(https://www.waveshare.com/usb-to-ttl-c.htm)

USB TO TTL (D)



(https://www.waveshare.com/usb-to-ttl-d.htm)

FT232
UART, USB

Features

- Adopts original FT232RNL chip, with stable high-speed communication, reliability, and better compatibility.
- Built-in self-recovery fuse and ESD for over-current/over-voltage protection, counter-current proof, improving shock resistance.
- Onboard IO protection, anti-surge design, with stable communication and safety.
- Onboard TTL serial port 3.3V/5V level transilation circuit, for switching TTL communication level.
- Onboard 3 x LED indicator, for checking power and signal transmitting status.
- Plastic case, sandblasting process, nice-looking and compact.

Specification

Items	Parameter
Model	USB to UART TTL
Power Supply	5V (USB connector)
UART (TTL level)	5V/3.3V
Baud Rate	300bps ~ 3Mbps
Hardware Flow Control	CTS and RTS
Operating Temperature	-40℃~80℃

OS	Support Win7/8/8.1/10/11, Mac, Linux, Android, WinCE, etc.

Interface Description

Pinout	Function	Input/Output
VCC	Provide 5V/3.3V for external devices (configurable via switch)	-
GND	Ground	-
TXD	UART data transmitting pin, connecting to MCU.RX	Output
RXD	UART data receiving pin, connecting to MCU.TX	Input
RTS#	Sending request, for controlling data sending, connecting to MCU.CTS	Output
CTS#	Clear sending, for controlling data sending, connecting to MCU.RTS	Input

Dimensions

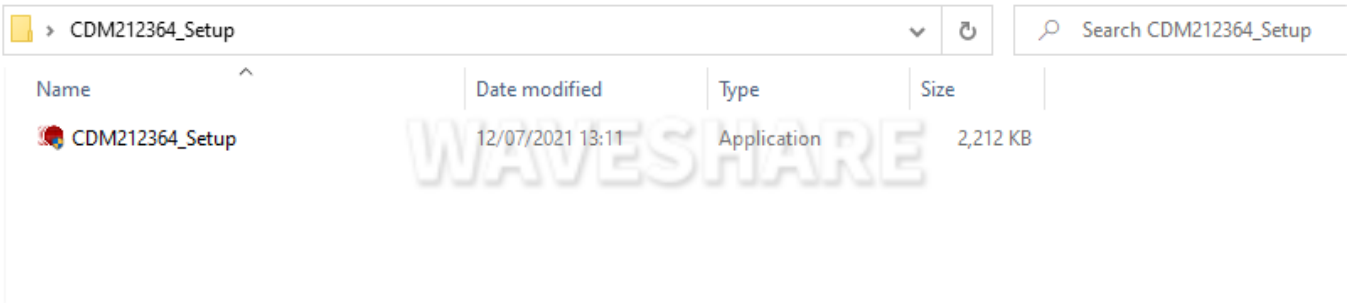


(/wiki/File:USB_TO_TTL_C.jpg)

Working with Windows

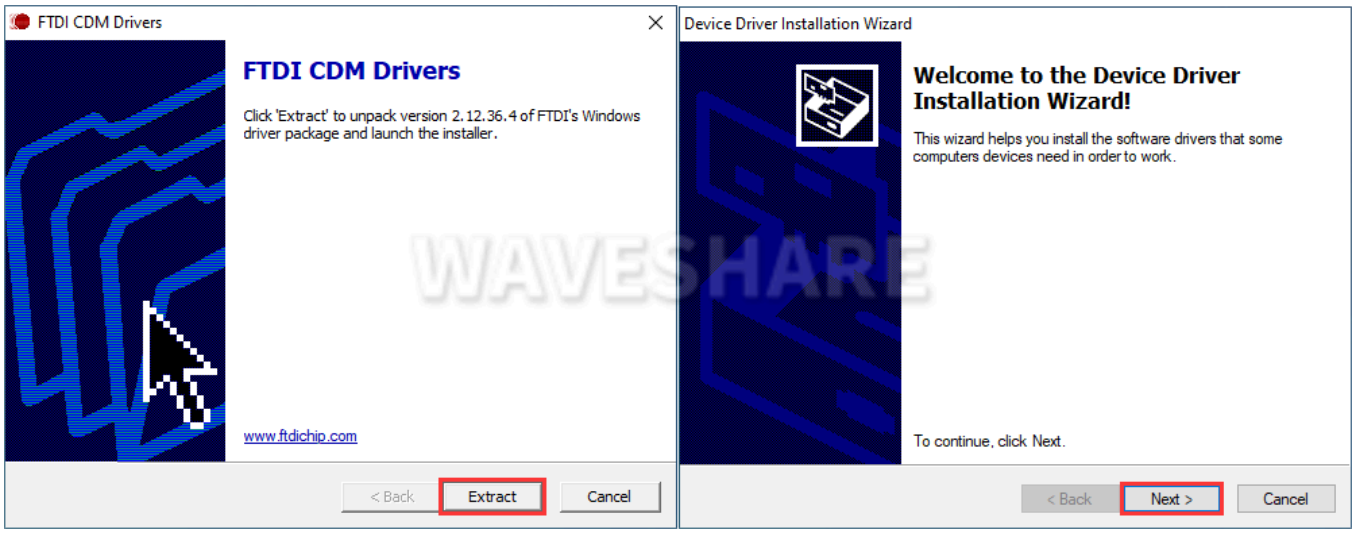
Driver Installation

- Download the VCP Driver (https://files.waveshare.com/wiki/USB-TO-4CH-Serial-Converter/CDM212364_Setup.zip):



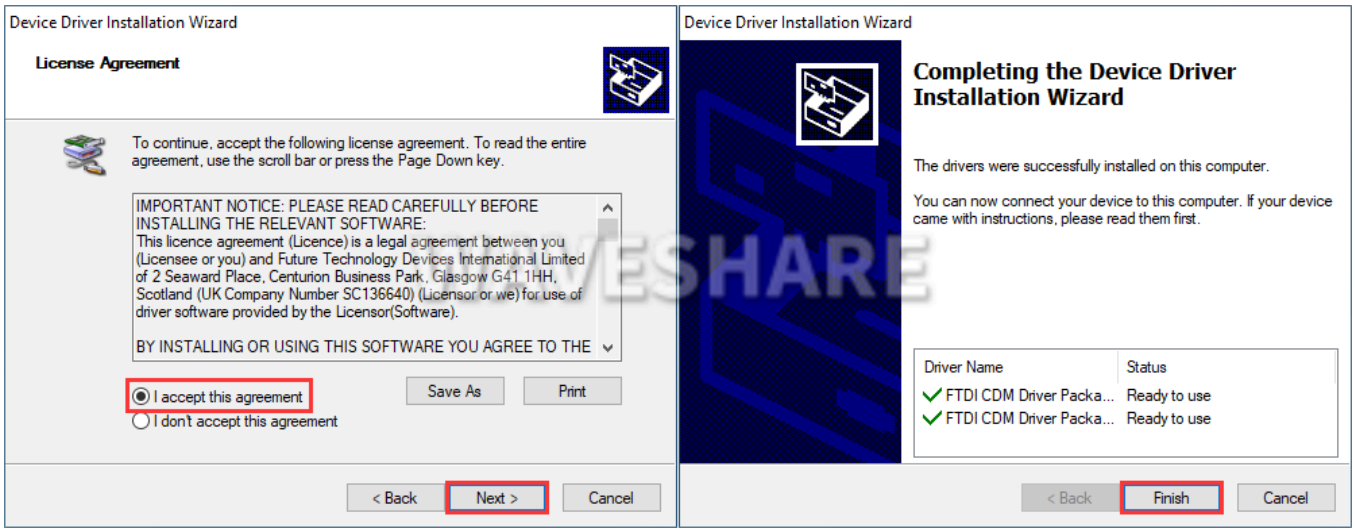
(/wiki/File:USB_TO_4CH_Serial_Converter_-02.png)

- Double-click **CDM212364_Setup.exe** to install by steps.



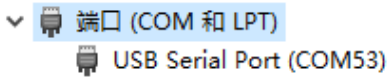
(/wiki/File:USB_TO_4CH_Serial_Converter_-03.png)

- Accept the agreement and keep clicking on "Next".



(/wiki/File:USB_TO_4CH_Serial_Converter_-04.png)

- Connect the computer and device, and you can see a new COM port in the device Manager.

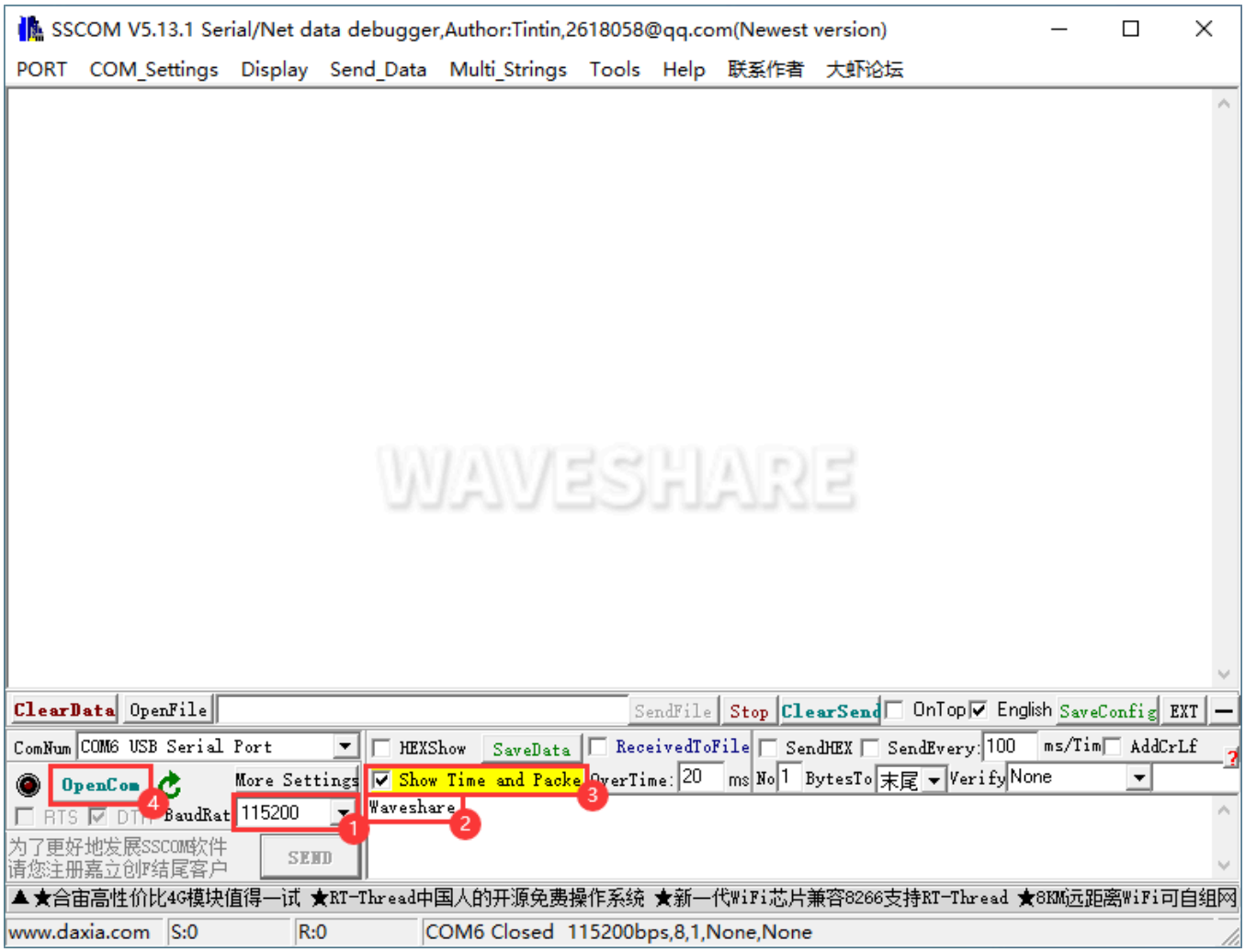


(/wiki/File:USB_TO_TTL-05.png)

Device Usage

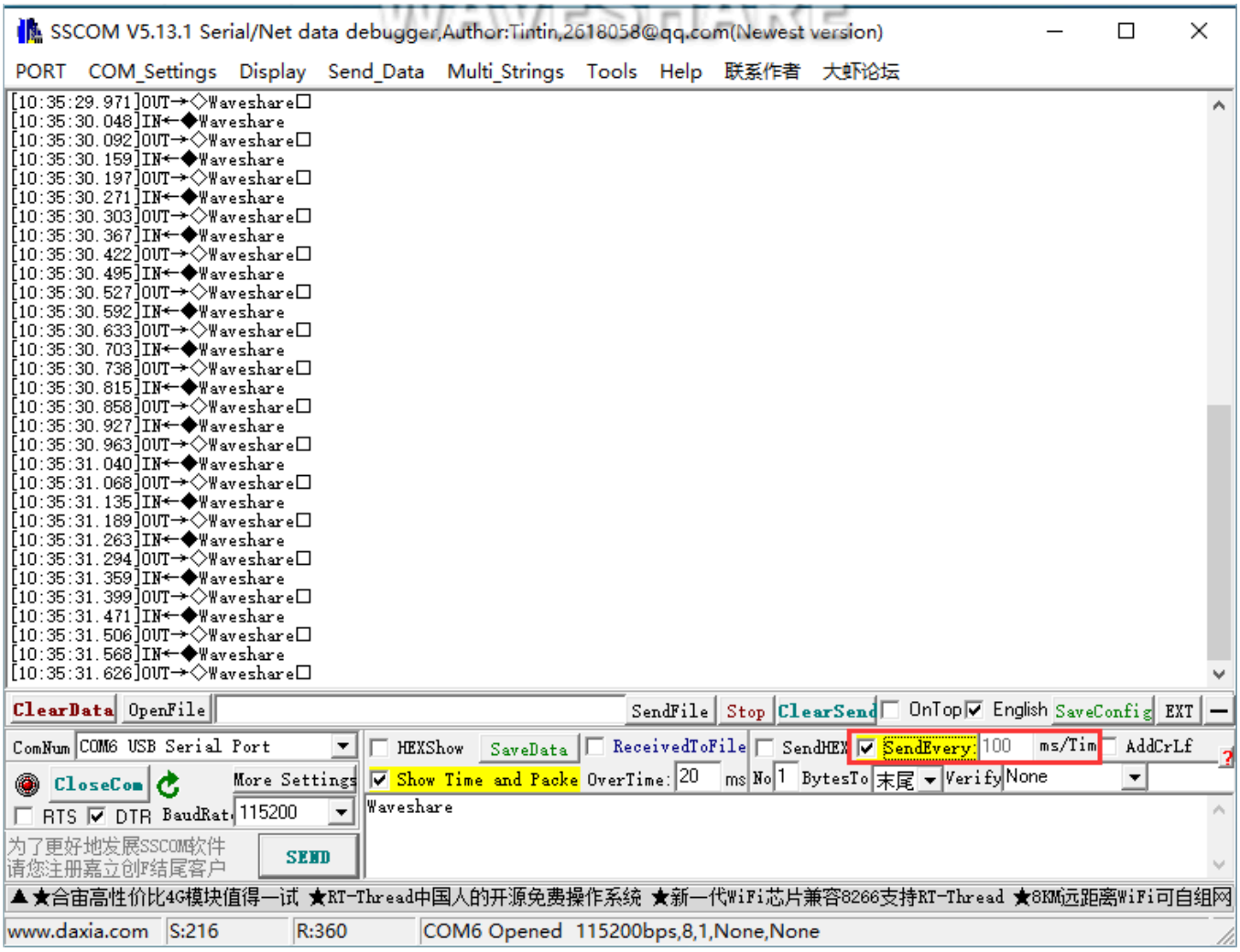
SSCOM

- Connect TXD and RXD of the device (i.e., short the blue and green wires).
- Open SSCOM (https://files.waveshare.com/wiki/USB-TO-4CH-Serial-Converter/Cktszsss32.zip), input "waveshare" in the input box, select "Show Time and Packets".



(/wiki/File:USB_TO_4CH_Serial_Converter_16.png)

- Select **100ms** intervals, and then you can observe the device sends and receives data automatically.



(/wiki/File:USB_TO_4CH_Serial_Converter_11_(1).png)

Working with Linux

Device Query

- Raspbian, Ubuntu, CentOS, and other mainstream Linux systems generally with FT232 driver, no need to install the driver, connected to the ready-to-use!
- Take Raspberry Pi as an example, after connecting the device, you can use it by querying the serial device name with the following command.
- Similar to common USB device usage.

```
lsusb
ls /dev/ttyUSB*
```

```
pi@raspberrypi:~ $ lsusb
Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 001 Device 004: ID 0403:6001 Future Technology Devices International, Ltd FT232 Serial (UART) IC
Bus 001 Device 003: ID 0484:5750 Specialix 7H Custom Human interface
Bus 001 Device 002: ID 2109:3431 VIA Labs, Inc. Hub
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
pi@raspberrypi:~ $ ls /dev/ttyUSB*
/dev/ttyUSB0
```

(/wiki/File:USB_TO_TTL_(C)_Linux_1.png)

Device Usage

- Download the example:

```
cd
rm -rf USB_TO_TTL_\(C\)_Demo.zip
rm -rf USB_TO_TTL_\(C\)_Demo
wget https://files.waveshare.com/wiki/USB-TO-TTL-(C)/USB_TO_TTL_(C)_Demo.zip (https://fil
es.waveshare.com/wiki/USB-TO-TTL-(C)/USB_TO_TTL_(C)_Demo.zip)
unzip USB_TO_TTL_\(C\)_Demo.zip -d ./USB_TO_TTL_\(C\)_Demo
cd USB_TO_TTL_\(C\)_Demo/Linux/
```

```
pi@raspberrypi:~/USB_TO_TTL_(C)_Demo/Linux $ cd
rm -rf USB_TO_TTL_\(C\)_Demo.zip
rm -rf USB_TO_TTL_\(C\)_Demo
wget https://www.waveshare.net/w/upload/d/d0/USB_TO_TTL_%28C%29_Demo.zip
unzip USB_TO_TTL_\(C\)_Demo.zip -d ./USB_TO_TTL_\(C\)_Demo
cd USB_TO_TTL_\(C\)_Demo/Linux/
--2023-10-23 11:13:08--  https://www.waveshare.net/w/upload/d/d0/USB_TO_TTL_%28C%29_Demo.zip
Resolving www.waveshare.net (www.waveshare.net)... 120.77.147.21
Connecting to www.waveshare.net (www.waveshare.net)|120.77.147.21|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 500 [application/zip]
Saving to: 'USB_TO_TTL_(C)_Demo.zip'

USB_TO_TTL_(C)_Demo.zip  100%[===================================>]     500  --.-KB/s    in 0.006s

2023-10-23 11:13:13 (81.1 KB/s) - 'USB_TO_TTL_(C)_Demo.zip' saved [500/500]

Archive:  USB_TO_TTL_(C)_Demo.zip
   creating: ./USB_TO_TTL_(C)_Demo/Linux/
  inflating: ./USB_TO_TTL_(C)_Demo/Linux/UART.py
```

(/wiki/File:USB_TO_TTL_(C)_Linux_2.png)

- Short TXD (green wire) and RXD (blue wire).
- Execute the example.

```
pi@raspberrypi:~/USB_TO_TTL_(C)_Demo/Linux $ sudo python3 UART.py
b'Hello, World!'

b'Hello, World!'

b'Hello, World!'

b'Hello, World!'

b'Hello, World!'

b'Hello, World!'

b'Hello, World!'

b'Hello, World!'
```

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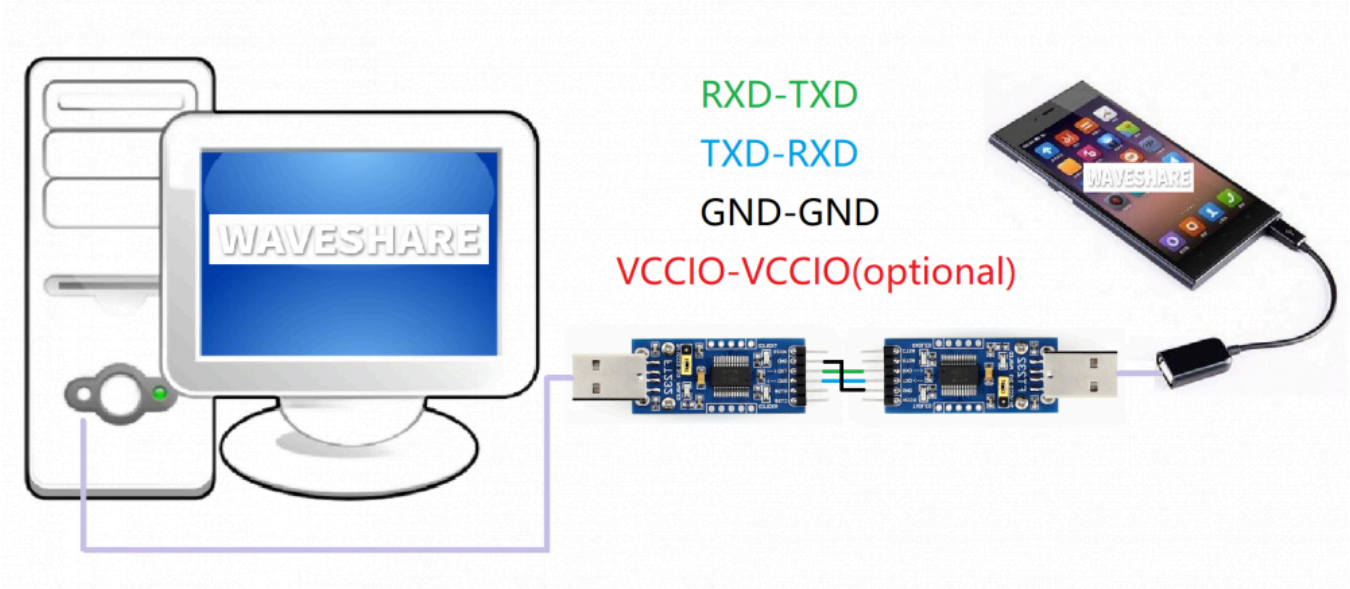
Android

Software Installation

- Download Android serial assistant (https://files.waveshare.com/upload/e/ef/SerialTool_Android.zip), unzip it, and install it.
- The above software has integrated the FT232 driver, there is no need to install additional drivers.

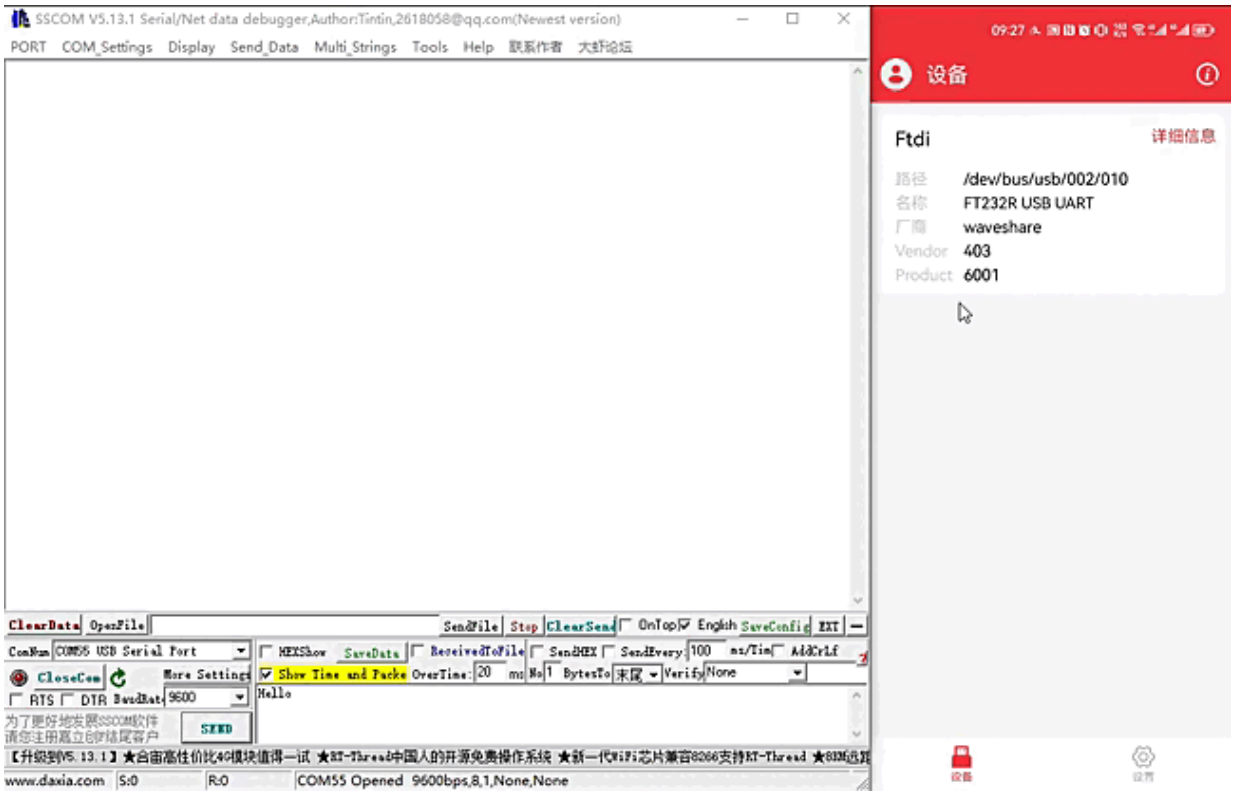
Device Usage

- Connect the USB of USB TO TTL (C) to the USB port of your Android phone through the OTG adapter cable, and at the same time, connect another USB TO TTL (C) to your computer through the USB port:



(/wiki/File:FT232-mobile_phone.png)

- A prompt appears to ask if the application is allowed to access the USB device, just OK.
- Enter the string to be sent into the cell phone's serial assistant, and the computer side receives the corresponding string in the serial assistant sscom, and vice versa.



(/wiki/File:FT232_USB_UART_Board_15.gif)

- If you need to use the English version of the test assistant, you can search and install the appropriate debugging assistant software, which usually comes with a driver.

macOS

- First click on here (https://files.waveshare.com/upload/6/6e/MAC_FT232_Driver_D2XX1.4.24.7z) to download and install the driver.
- Click here (https://www.ftdichip.cn/Support/Documents/AppNotes/AN_134_FTDI_Drivers_Installation_Guide_for_MAC_OSX.pdf) to see how to install it.
- After the installation is complete, open the serial port assistant (For Mac, directly download the serial port debugging assistant online).

Resource

Demo

- Demo example (https://files.waveshare.com/wiki/USB-TO-TTL-(C)/USB_TO_TTL_(C)_Demo.zip)

Software

Driver

Install the following driver demo or download it from FTDI website (https://ftdichip.com/drivers/vcp-drivers/), for other systems, you can download the corresponding VCP from the FTDI website.

- Windows — VCP Driver (https://files.waveshare.com/wiki/USB-TO-TTL-(C)/CDM212364_Setup.zip)
- macOS — VCP Driver (https://files.waveshare.com/wiki/USB-TO-TTL-(C)/USB_TO_TTL_(C)_Driver_Mac_x64.zip)
- Android—SerialTool (https://files.waveshare.com/upload/e/ef/SerialTool_Android.zip)
- Linux supports FTDI devices, no drivers are required.

Software

- SSCOM (https://files.waveshare.com/wiki/USB-TO-4CH-Serial-Converter/Cktszsss32.zip)

Datasheet

- FT232RN (https://www.waveshare.com/w/upload/c/c5/DS_FT232RN.pdf)

FAQ

Question: Is there any way to determine if the FT232 is functioning properly?

Answer:

You can short TXD, RXD, and then send data in the serial port debugging assistant to see if there is any corresponding data return, if there is, the function is normal. As shown in the #SSCOM.

Question: Which driver for Linux?

Answer:

Linux supports this FTDI device, no need to install the driver.

Support

Technical Support

If you need technical support or have any feedback/review, please click the **Submit Now** button to submit a ticket, Our support team will check and reply to you within 1 to 2 working days. Please be patient as we make every effort to help you to resolve the issue.
Working Time: 9 AM - 6 PM GMT+8 (Monday to Friday)

Submit Now (https://service.waveshare.com/)

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