USB TO 4CH RS485 (B)

From Waveshare Wiki
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Overview

USB TO 4CH RS485 (B)

(https://www.waveshare.com/usb-to-4ch-rs485-b.htm)

RS485, USB

Introduction

USB TO 4CH RS485 (B) is an industrial USB to RS485 converter, adopting original CH344L, with protection circuits such as built-in power isolation, ADI magnetical isolation, and TVS, aluminum alloy case design. USB TO 4CH RS485 (B) is easy to operate, automatic transmit, featuring fast communication, stability, reliability, and safety, suitable for industrial devices and applications with high requirements.

Features

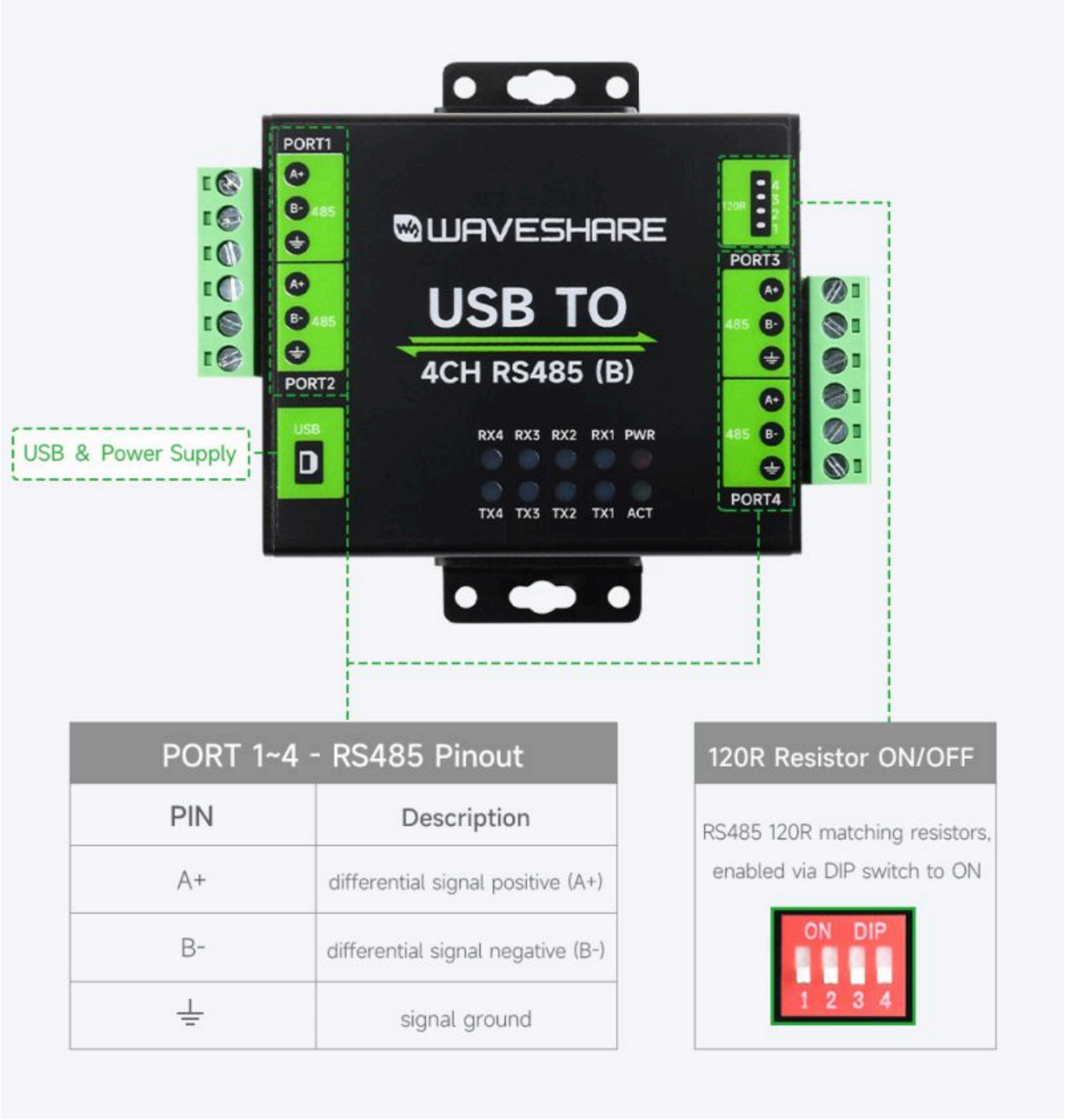
- Adopts original CH344L chip, high-speed communication, stable and reliable, better compatibility.
- Supports USB to 4-ch isolated RS485, convenient for expanding multiple RS485 industrial serial devices.
- Onboard unibody power isolation, provides stable isolation voltage, no additional power supply is required at the isolated side.
- Onboard unibody digital isolation, support signal isolation, with better reliability, stronger anti-interference ability, and lower power consumption.
- Onboard TVS (Transient Voltage Suppressor) to effectively suppress surge voltage and transient spike voltage in circuits, lightning-proof protection, and anti-static protection.
- Onboard self-resetting fuses and protection diodes ensure stable current and voltage output, prevent overcurrent and overvoltage, and improve shock resistance.
- Built-in RS485 output terminal 120R, can be enabled by dip switches, and flexible switching.
- 10x external LEDs for power, device configuration status, and signaling status.

- Industrial grade metal case, support wall-mount, and rail-mount installation, rigid and nice-looking, easy to install.

Parameters

Product Types	Industrial grade isolated USB to RS485 converter	
Host Interface	USB	
Device Interface	RS485	
Communication Range	1200bps ~ 460800bps	
USB	Operation Level	5V
	Interface	USB-B Connector
	Interface Protection	500mA self-recovery fuse, isolated output
RS485	Interface	Screw Terminal
	Direction Control	Hardware automatic control
	Interface Protection	Provide 600W lightning proof, anti-surge and 15KV ESD protection (onboard 120R balancing resistor)
	Transmission Mode	Peer-to-Multiple (up to 32 nodes, repeaters recommended for more than 16 nodes)
Indicator	PWR	Power indicator, connect to USB, Red LED lights on when detecting the voltage
	ACT	Green status indicator, lights on when detecting the driver
	RXD	RX indicator, lights on when receiving data from the corresponding port
	TXD	TX indicator, lights on when sending data from the corresponding port
Usage Environment	Temperature Range	-40℃ ~ 85℃
	Humidity Range	5% ~ 95%RH
OS	Mac, Linux, Android, Windows 11 / 10 / 8.1 / 8 / 7	

Interface Introduction



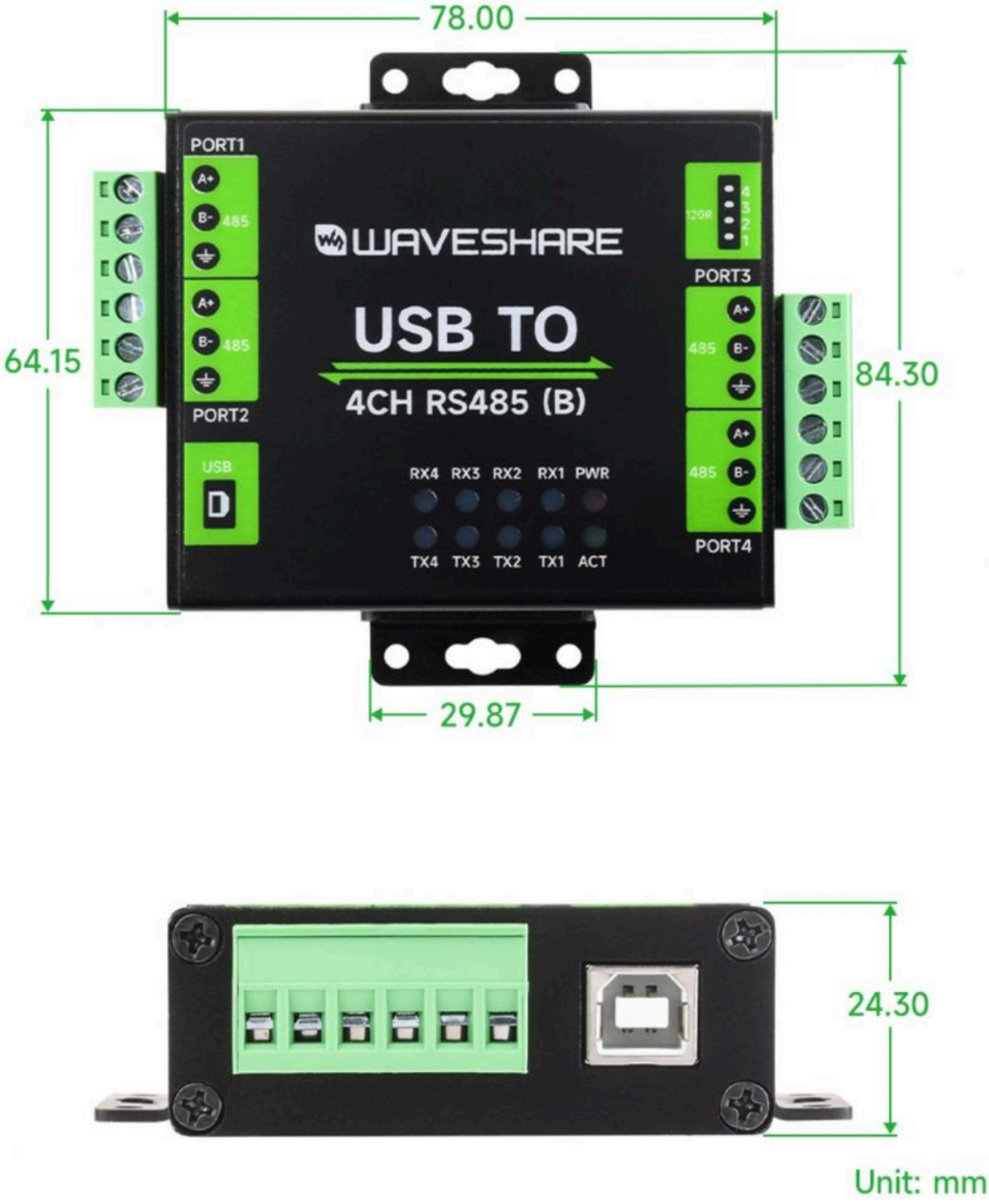
PORT 1~4 - RS485 Pinout	
PIN	Description
A+	differential signal positive (A+)
B-	differential signal negative (B-)
⏚	signal ground

120R Resistor ON/OFF

RS485 120R matching resistors, enabled via DIP switch to ON

(/wiki/File:USB_TO_4CH_RS485_(B)_Entity_1.jpg)

Dimensions

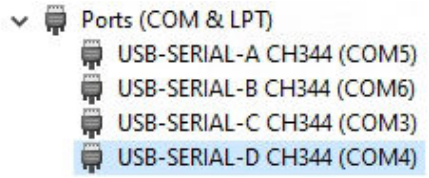


(/wiki/File:USB_TO_4CH_RS485_(B)_Entity_2.jpg)

Driver Installation

CDC Driver

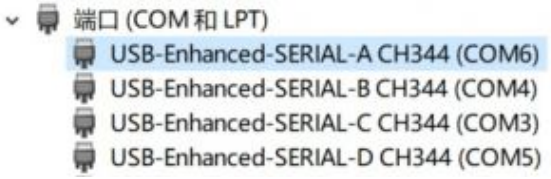
The default driver of the computer is CDC driver, and you can view it from the device manager.



(/wiki/File:USB_TO_4CH_TTL_winEN01.png)

VCP Driver

The VCP driver is the default driver demo from the manufacturer, which needs to be installed by yourself, and you can view it from the device manager.

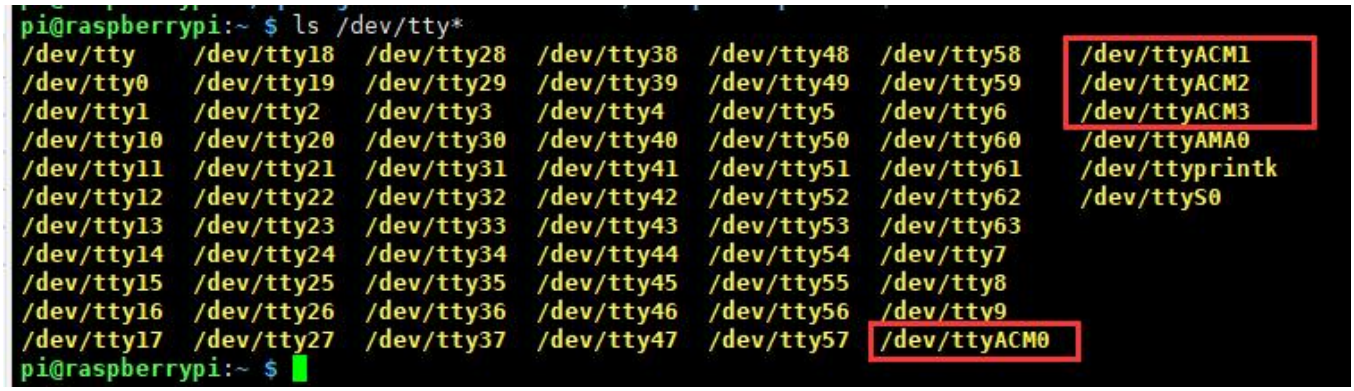


(/wiki/File:USB_TO_4CH_RS485_(B)_VCP.jpg)

Linux/RPI

Take RPI as an example, you can use the default driver. After connecting the device, run the following command to query the name of the serial device:

```
ls /dev/tty*
```



(/wiki/File:USB_TO_4CH_TTL_Linux1.jpg)

For example, use minicom (https://www.waveshare.com/wiki/Raspberry_Pi_Tutorial_Series:_Serial) to open UART, enter the following command

```
minicom -D /dev/ttyACM0
```

RS485 Communication

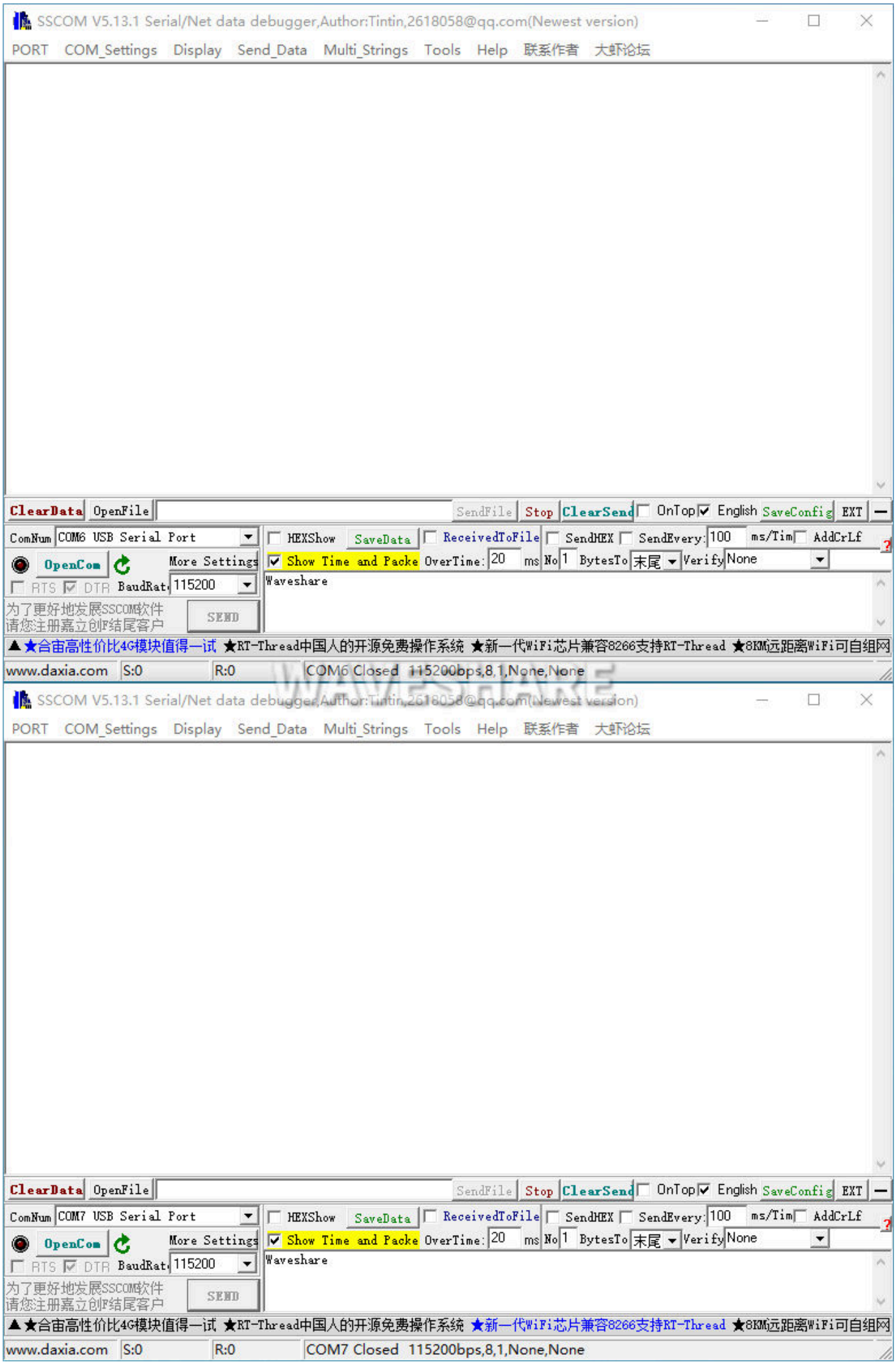
Hardware Connection

- If you want to connect it with the Port, you can refer to the following: the communication between Port A and Port B.

USB TO 4CH RS485 (B) - PORT A	USB TO 4CH RS485 (B) - PORT B
PORT A - GND	PORT B - GND
PORT A - A+	PORT B - A+
PORT A - B-	PORT B - B-

Software Operation

- Open two SSCOM windows.
- Respectively select the corresponding COM port of the Port A and Port B.


SSCOM V5.13.1 Serial/Net data debugger,Author:Tintin,2618058@qq.com(Newest version)
PORT COM_Settings Display Send_Data Multi_Strings Tools Help 联系作者 大虾论坛
ClearData OpenFile SendFile Stop ClearSend OnTop English SaveConfig EXT
ComNum COM6 USB Serial Port
HEXShow SaveData ReceivedToFile SendHEX SendEvery: 100 ms/Tim AddCrLf
OpenCom More Settings
Show Time and Packe OverTime: 20 ms No 1 BytesTo 末尾 Verify None
RTS DTR BaudRat 115200
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www.daxia.com S:0 R:0 COM6 Closed 115200bps,8,1,None,None
SSCOM V5.13.1 Serial/Net data debugger,Author:Tintin,2618058@qq.com(Newest version)
PORT COM_Settings Display Send_Data Multi_Strings Tools Help 联系作者 大虾论坛
ClearData OpenFile SendFile Stop ClearSend OnTop English SaveConfig EXT
ComNum COM7 USB Serial Port
HEXShow SaveData ReceivedToFile SendHEX SendEvery: 100 ms/Tim AddCrLf
OpenCom More Settings
Show Time and Packe OverTime: 20 ms No 1 BytesTo 末尾 Verify None
RTS DTR BaudRat 115200
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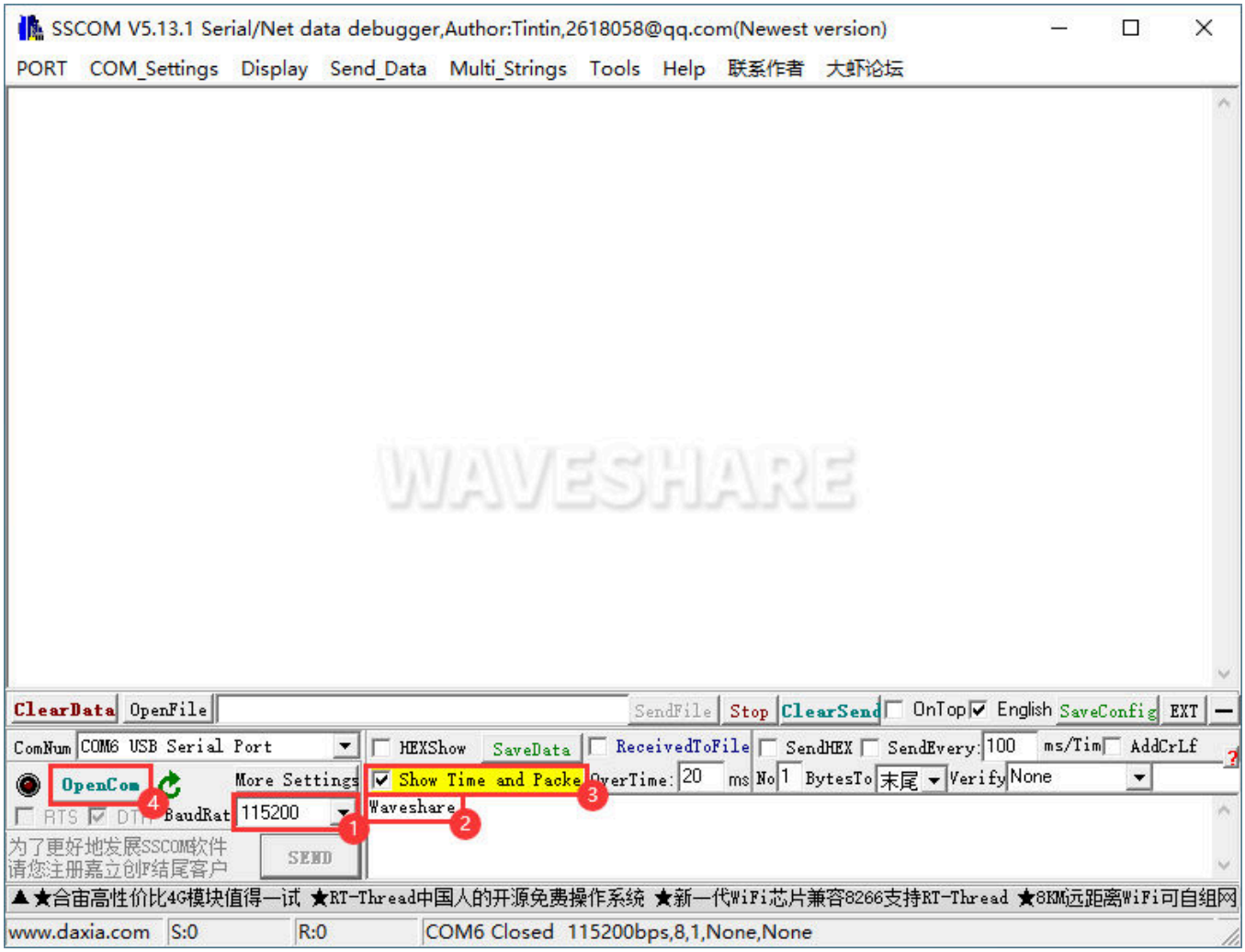
www.daxia.com S:0 R:0 COM7 Closed 115200bps,8,1,None,None

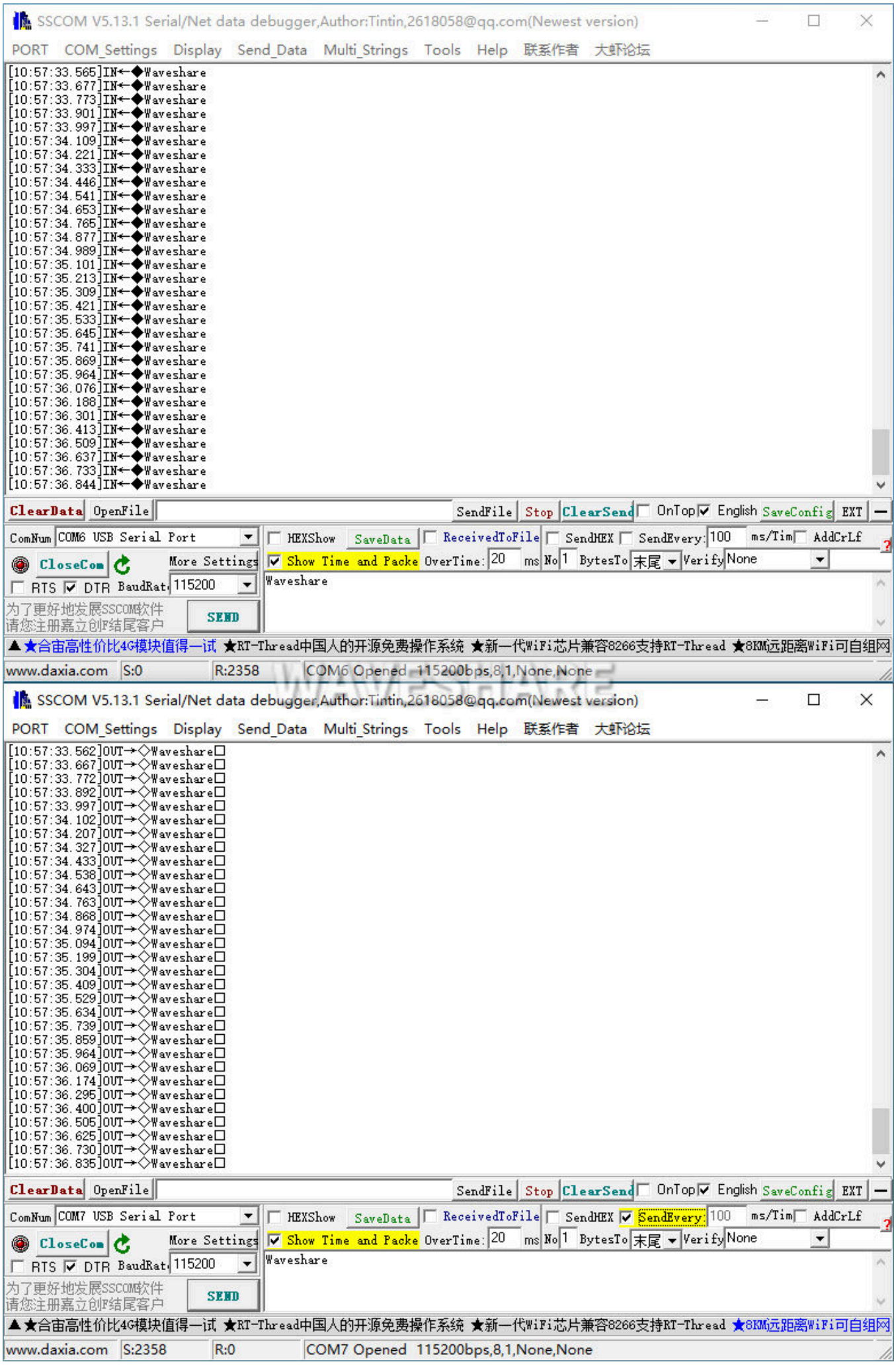
(/wiki/File:USB_TO_4CH_Serial_Converter_15.png)

- Select the baud rate as 115200, input the characters you need to send, select **Show Time and Packet** for better effect, and click **Open COM**.



(/wiki/File:USB_TO_4CH_Serial_Converter_16.png)

- Select **100ms interval** of one of the SSCOMs, you can see that the two Port ports are sending and receiving normally, and the test result is shown in the figure below:


SSCOM V5.13.1 Serial/Net data debugger,Author:Tintin,2618058@qq.com(Newest version)
PORT COM_Settings Display Send_Data Multi_Strings Tools Help 联系作者 大虾论坛
[10:57:33.565]IN←◆Waveshare
[10:57:33.677]IN←◆Waveshare
[10:57:33.773]IN←◆Waveshare
[10:57:33.901]IN←◆Waveshare
[10:57:33.997]IN←◆Waveshare
[10:57:34.109]IN←◆Waveshare
[10:57:34.221]IN←◆Waveshare
[10:57:34.333]IN←◆Waveshare
[10:57:34.446]IN←◆Waveshare
[10:57:34.541]IN←◆Waveshare
[10:57:34.653]IN←◆Waveshare
[10:57:34.765]IN←◆Waveshare
[10:57:34.877]IN←◆Waveshare
[10:57:34.989]IN←◆Waveshare
[10:57:35.101]IN←◆Waveshare
[10:57:35.213]IN←◆Waveshare
[10:57:35.309]IN←◆Waveshare
[10:57:35.421]IN←◆Waveshare
[10:57:35.533]IN←◆Waveshare
[10:57:35.645]IN←◆Waveshare
[10:57:35.741]IN←◆Waveshare
[10:57:35.869]IN←◆Waveshare
[10:57:35.964]IN←◆Waveshare
[10:57:36.076]IN←◆Waveshare
[10:57:36.188]IN←◆Waveshare
[10:57:36.301]IN←◆Waveshare
[10:57:36.413]IN←◆Waveshare
[10:57:36.509]IN←◆Waveshare
[10:57:36.637]IN←◆Waveshare
[10:57:36.733]IN←◆Waveshare
[10:57:36.844]IN←◆Waveshare
ClearData OpenFile SendFile Stop ClearSend OnTop English SaveConfig EXT
ComNum COM6 USB Serial Port HEXShow SaveData ReceivedToFile SendHEX SendEvery: 100 ms/Tim AddCrLf
CloseCom More Settings Show Time and Packe OverTime: 20 ms No 1 BytesTo 末尾 Verify None
RTS DTR BaudRat 115200
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SSCOM V5.13.1 Serial/Net data debugger,Author:Tintin,2618058@qq.com(Newest version)
PORT COM_Settings Display Send_Data Multi_Strings Tools Help 联系作者 大虾论坛
[10:57:33.562]OUT→◇Waveshare□
[10:57:33.667]OUT→◇Waveshare□
[10:57:33.772]OUT→◇Waveshare□
[10:57:33.892]OUT→◇Waveshare□
[10:57:33.997]OUT→◇Waveshare□
[10:57:34.102]OUT→◇Waveshare□
[10:57:34.207]OUT→◇Waveshare□
[10:57:34.327]OUT→◇Waveshare□
[10:57:34.433]OUT→◇Waveshare□
[10:57:34.538]OUT→◇Waveshare□
[10:57:34.643]OUT→◇Waveshare□
[10:57:34.763]OUT→◇Waveshare□
[10:57:34.868]OUT→◇Waveshare□
[10:57:34.974]OUT→◇Waveshare□
[10:57:35.094]OUT→◇Waveshare□
[10:57:35.199]OUT→◇Waveshare□
[10:57:35.304]OUT→◇Waveshare□
[10:57:35.409]OUT→◇Waveshare□
[10:57:35.529]OUT→◇Waveshare□
[10:57:35.634]OUT→◇Waveshare□
[10:57:35.739]OUT→◇Waveshare□
[10:57:35.859]OUT→◇Waveshare□
[10:57:35.964]OUT→◇Waveshare□
[10:57:36.069]OUT→◇Waveshare□
[10:57:36.174]OUT→◇Waveshare□
[10:57:36.295]OUT→◇Waveshare□
[10:57:36.400]OUT→◇Waveshare□
[10:57:36.505]OUT→◇Waveshare□
[10:57:36.625]OUT→◇Waveshare□
[10:57:36.730]OUT→◇Waveshare□
[10:57:36.835]OUT→◇Waveshare□
ClearData OpenFile SendFile Stop ClearSend OnTop English SaveConfig EXT
ComNum COM7 USB Serial Port HEXShow SaveData ReceivedToFile SendHEX SendEvery: 100 ms/Tim AddCrLf
CloseCom More Settings Show Time and Packe OverTime: 20 ms No 1 BytesTo 末尾 Verify None
RTS DTR BaudRat 115200
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www.daxia.com S:2358 R:0 COM7 Opened 115200bps,8,1,None,None

(/wiki/File:USB_TO_4CH_Serial_Converter_17.png)

Resource

Datasheet

- CH344 Datasheet (https://files.waveshare.com/upload/3/35/CH344DS1.PDF)

Software and Driver

- SSCOM (https://files.waveshare.com/wiki/RS232-485-422-TO-CAN/Cktszsss32.zip)
- Windows VCP Driver (https://files.waveshare.com/upload/f/f1/CH343SER.7z)

FAQ

Question:After installing the driver in the WIN7 environment, it shows that the digital signature of this device cannot be verified.

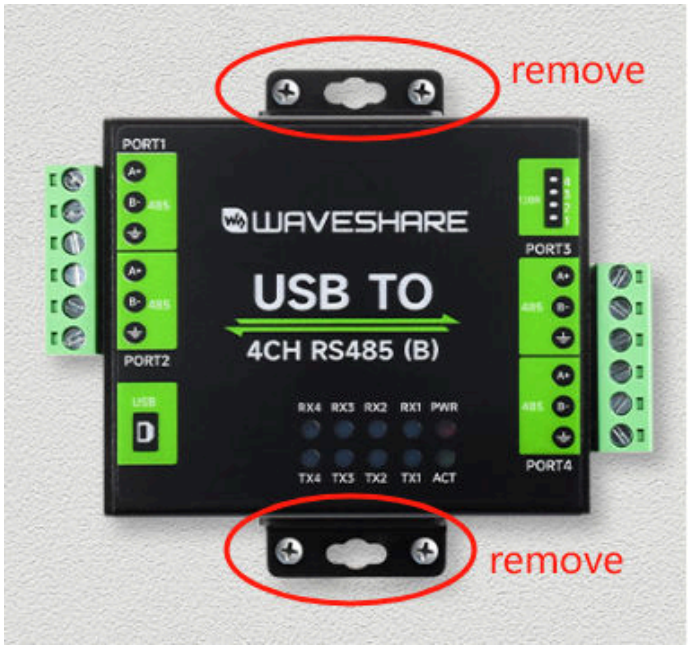
Answer:

This is a Microsoft bug, click to download the driver repair tool (https://files.waveshare.com/upload/e/ef/Windows6.1-KB3033929-x64.zip) and install it.

Question:Can you explain to me how to install a DIN rail bracket?

Answer:

The rails and ears share screw holes. Please remove the wall mounting ears and install the DIN rail bracket as shown:

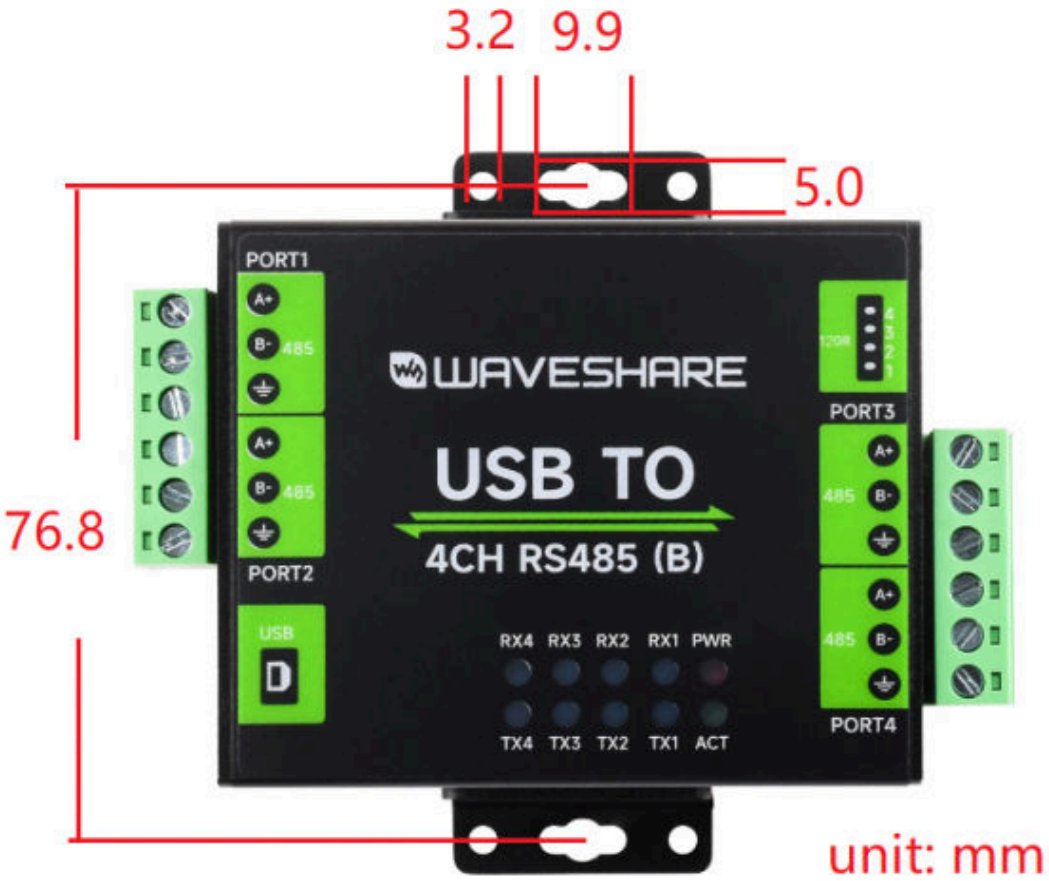


(/wiki/File:Din-485.png)

Question:What are the parameters of the screw holes and distance?

Answer:

Please note that the rail and mounting ear share the same screw hole. Before installing the DIN rail, you need to remove the mounting ear. As shown below:



(/wiki/File:485-distant.png)

Question:Is there all 4 RS485 channels isolated from each other, or if they all share the same ground?

Answer:

The USB and four RS485 interfaces are isolated, but there is no isolation between the four RS485 interfaces; that is, when the high voltage on the RS485 side is damaged, the USB side will be protected, but the RS485 side will not be protected.

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)

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