USB TO 4CH RS232/485

From Waveshare Wiki
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Overview

Introduction

USB TO 4CH RS232/485 is an industrial isolated USB to RS232/485 converter, adopts the original FT4232HL chip, with protection circuits such as built-in power isolation, ADI magnetical isolation, and TVS, and aluminum alloy case design. It is easy to operate with a zero-delay fully automatic transceiver circuit and features fast communication speed, stability, reliability, and security, which is suitable for industrial devices and applications with high communication requirements.

USB TO 4CH RS232/485

(https://www.waveshare.com/usb-to-4ch-rs232-485.htm)

RS485, RS232

Features

- Adopts original FT4232HL chip, fast communicating, stable and reliable, better compatibility.
- Supports USB to RS232, USB to RS485.
- Onboard unibody power supply isolation, provides stable isolated voltage and needs no extra power supply for the isolated terminal.
- Onboard unibody digital isolation, allows signal isolation, high reliability, strong anti-interference, and low power consumption.
- Onboard TVS (Transient Voltage Suppressor), effectively suppresses surge voltage and transient spike voltage in the circuit, lightningproof and ESD protection.
- Onboard self-recovery fuse and protection diodes, ensure the current/voltage stable outputs, provide over-current/over-voltage proof, and improve shockproof performance.
- Built-in 120ohm resistance on RS485 output interfaces, and users can enable it through a DIP switch, easy and flexible.
- 9 LEDs for indicating the power, debugging status, and transceiver status.

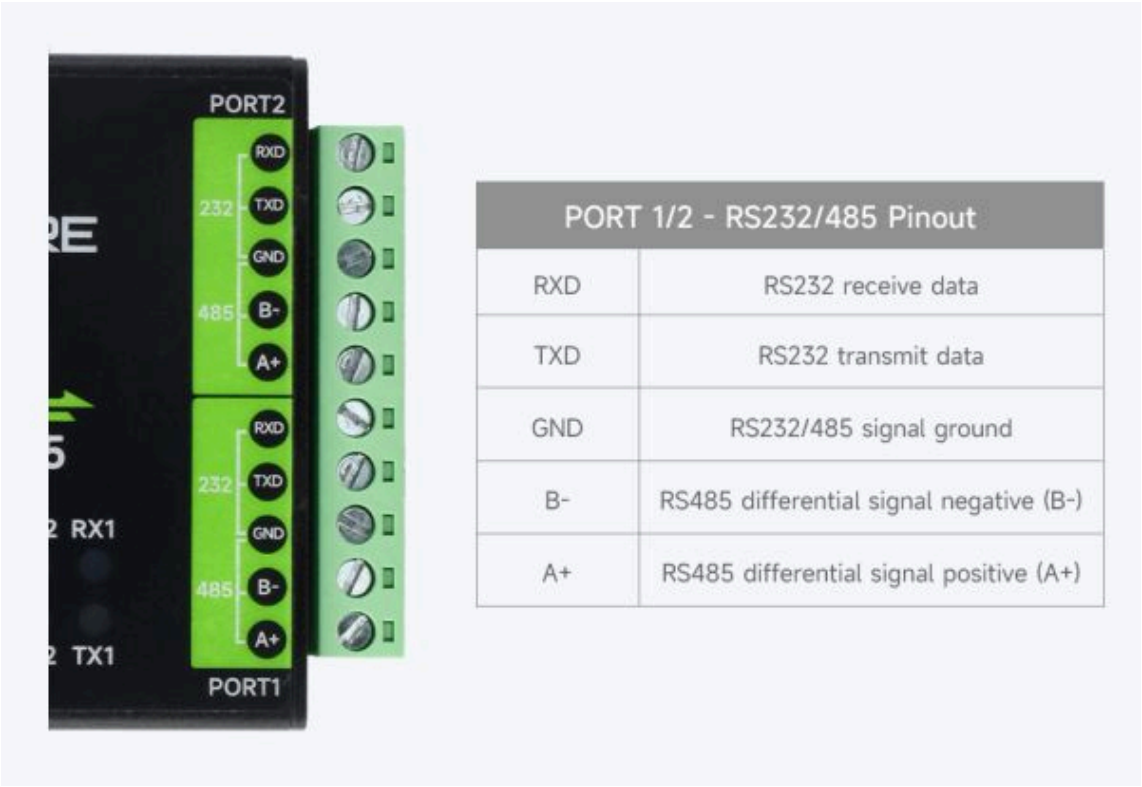
- Industrial grade metal case, supports wall-mount and rail-mount installation, solid and beautiful, easy to install.

Parameters

Types		Industrial USB to RS232/485	
Host Interface		USB	
Device Interface		RS232, RS485	
USB Interface		Operation Level	5V
		Form Factor	USB-B Interface
		Interface Protection	200mA self-recovery fuse, isolated output
PORT 1/2 Interface (RS232/485)	**Isolated RS232**	Interface	Screw Terminal
		Interface Protection	TVS diode protection, anti-surge and ESD protection, power, and digital isolation
		Transmission Mode	Point to Point
		Baudrate	300bps ~ 921600bps
	Isolated RS485	Interface	Screw Terminal
		Protection	TVS diode protection, anti-surge and ESD protection, power, and digital isolation (120R balancing resistor enabled by jumpers)
		Hardware Direction	Hardware automatic direction
		Transmission Mode	Point to multi-point (up to 32 nodes, add the relay for up to 16 nodes)
		Baudrate	300bps ~ 921600bps
PORT 3/4 Interface (Isolated RS485 Interface)		Interface	Screw Terminal
		Protection	TVS diode protection, anti-surge and ESD protection (120R balancing resitor enabled by the jumpers)
		Direction Control	Hardware automatic direction
		Transmission Mode	Point to multi-point (up to 32 nodes, add the relay for up to 16 nodes)
		Baudrate	300bps ~ 921600bps
Indicator		PWR	Power indicator, for connecting to USB; the red indicator is on when detecting the voltage
		TXD	Transmitting indicator, the green indicator is on when the data is sent from the USB interface
		RXD	Receiving indicator, the blue indicator is on when the data is sent from the device port

Usage Environment	Temperature Range	-15℃ ~ 70℃
	Humidity Range	5%RH ~ 95%RH
Operating System	Mac, Linux, Android, Windows 11 / 10 / 8.1 / 8 / 7	

Onboard Interface



PORT 1/2 - RS232/485 Pinout	
RXD	RS232 receive data
TXD	RS232 transmit data
GND	RS232/485 signal ground
B-	RS485 differential signal negative (B-)
A+	RS485 differential signal positive (A+)

(/wiki/File:USB_TO_4CH_RS232-485_details.jpg)

PORT 3/4 - RS232 Pinout	
RXD	RS232 receive data
TXD	RS232 transmit data
GND	RS232 signal ground

(/wiki/File:USB_TO_4CH_RS232-485_details2.jpg)

Dimensions

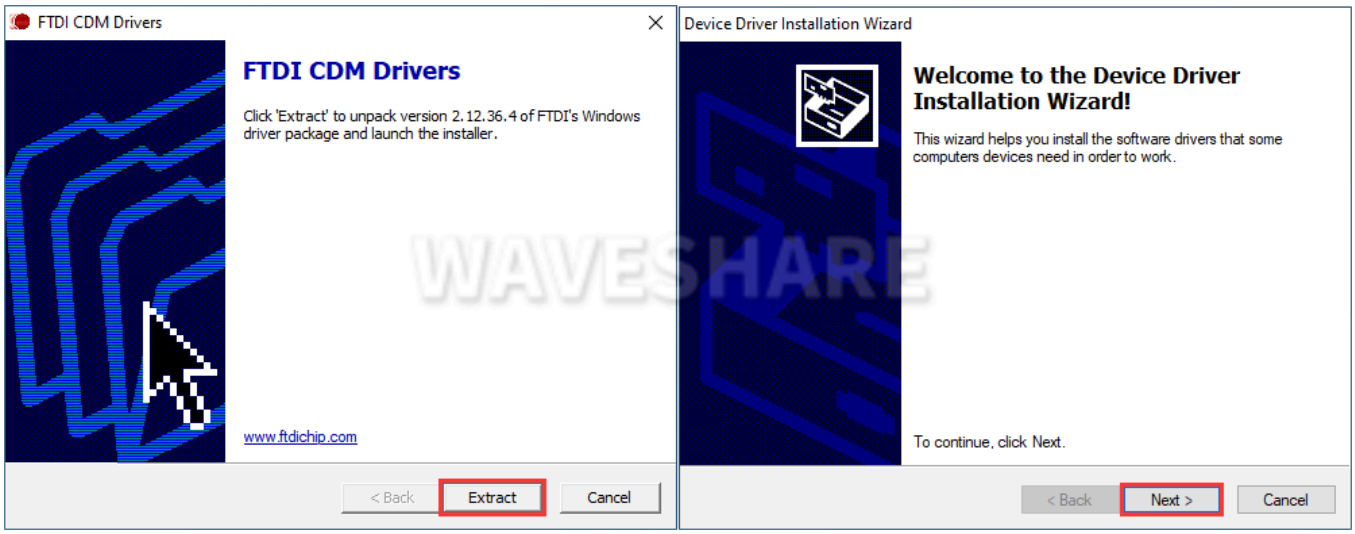
(/wiki/File:USB_TO_4CH_RS232-485_case_size.jpg)

Driver Installation

- Download the driver file VCP Driver (https://files.waveshare.com/wiki/USB-TO-RS232-485-

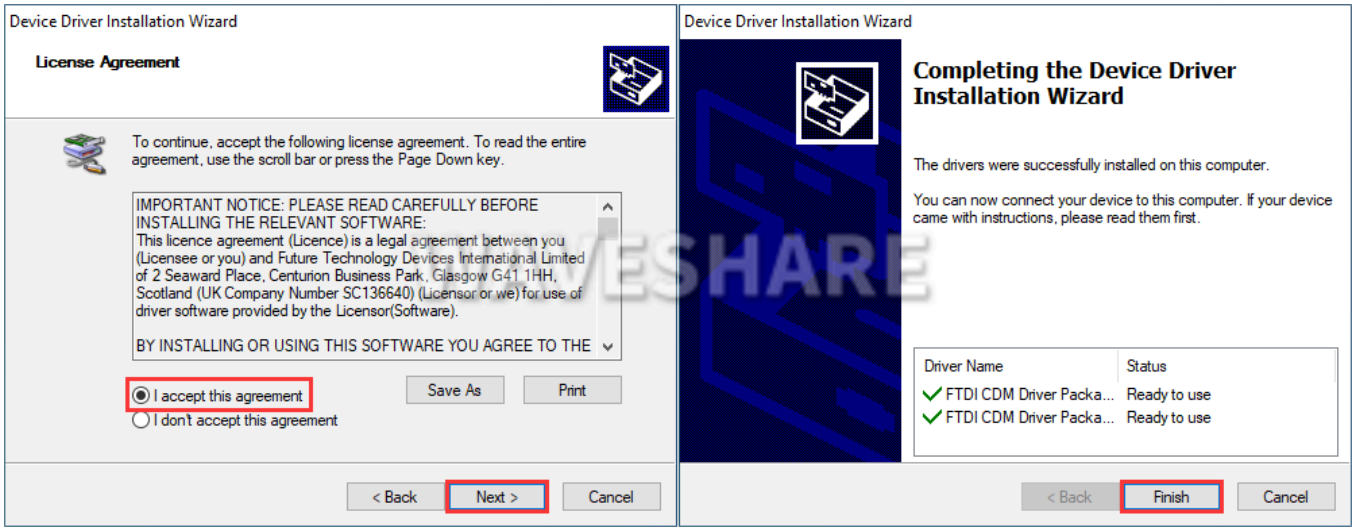
%EF%BC%88B)/CDM212364_Setup.zip)

- Double click on **CDM212364_Setup.exe** and install it.
- Click on **Extract**, and then "NEXT".



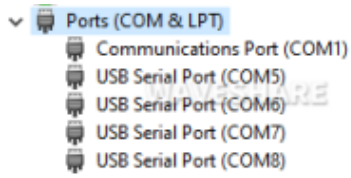
(/wiki/File:USB_TO_4CH_Serial_Converter_-03.png)

- Click on **I accept this agreement**, and then click on "NEXT", and click on "Finish".



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

- After connecting the PC, you can see the usable COM port number in the device manager.



(/wiki/File:USB_TO_4CH_Serial_Converter-05.png)

Communication Operation

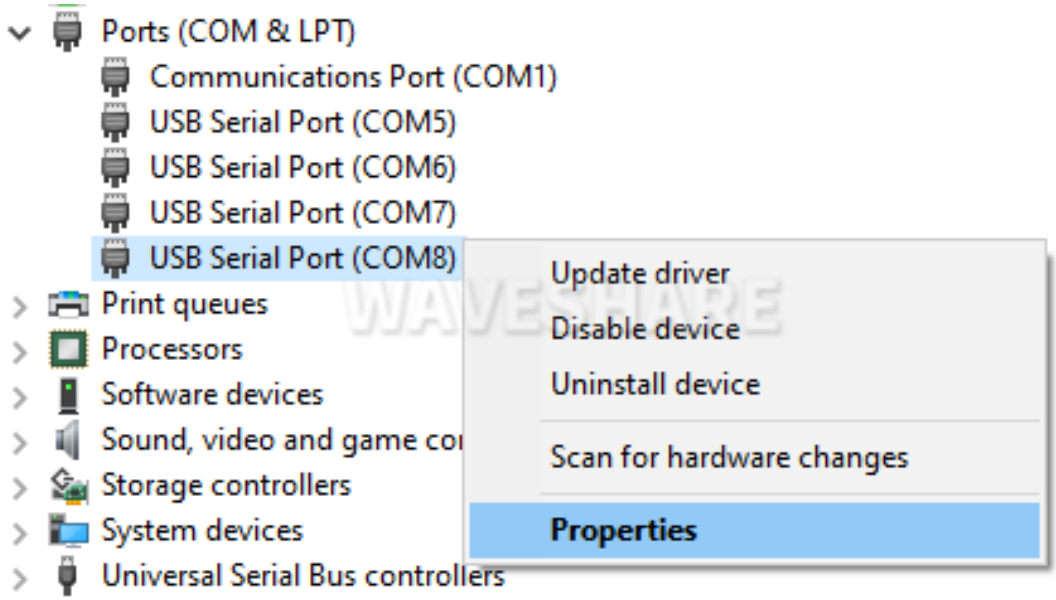
Preparation

- Open the SSCOM software.
- Select the corresponding COM port according to the functions (Generally, the identifiable 4 COM port number is Port A to Port D in descending order).

USB TO 4CH RS232/485 - PORT	Communication Mode

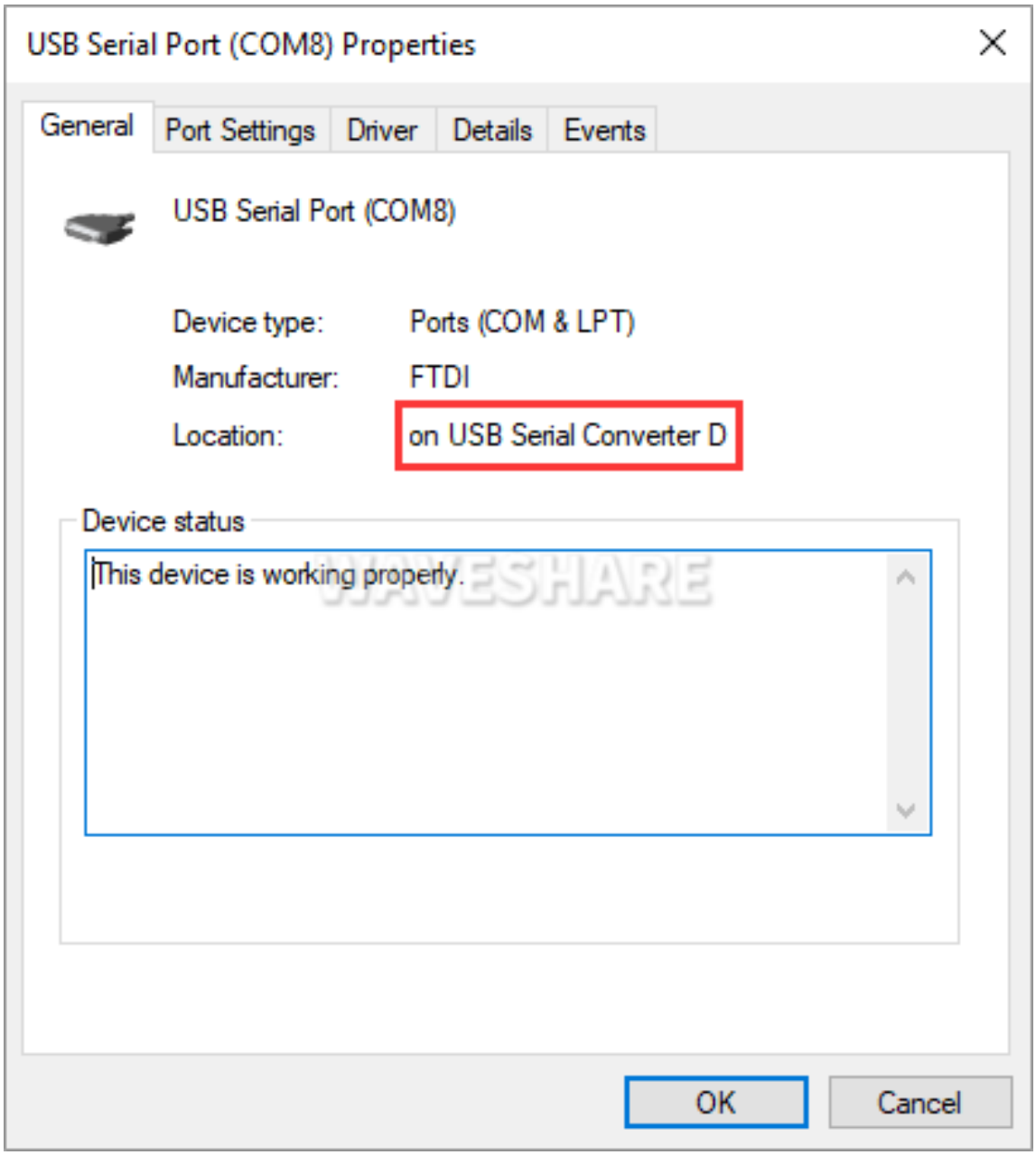
PORT A	RS232
	RS485
PORT B	RS232
	RS485
PORT C	RS232
PORT D	RS232

- You can check which PORT port is the corresponding COM port through the Device Manager.
- Right-click to check the PORT corresponding to the COM8 port.



(/wiki/File:USB_TO_4CH_Serial_Converter_Environment_1.png)

- And you can see the corresponding PORT D to the COM8.



(/wiki/File:USB_TO_4CH_Serial_Converter_Environment_2.png)

RS232 Communication

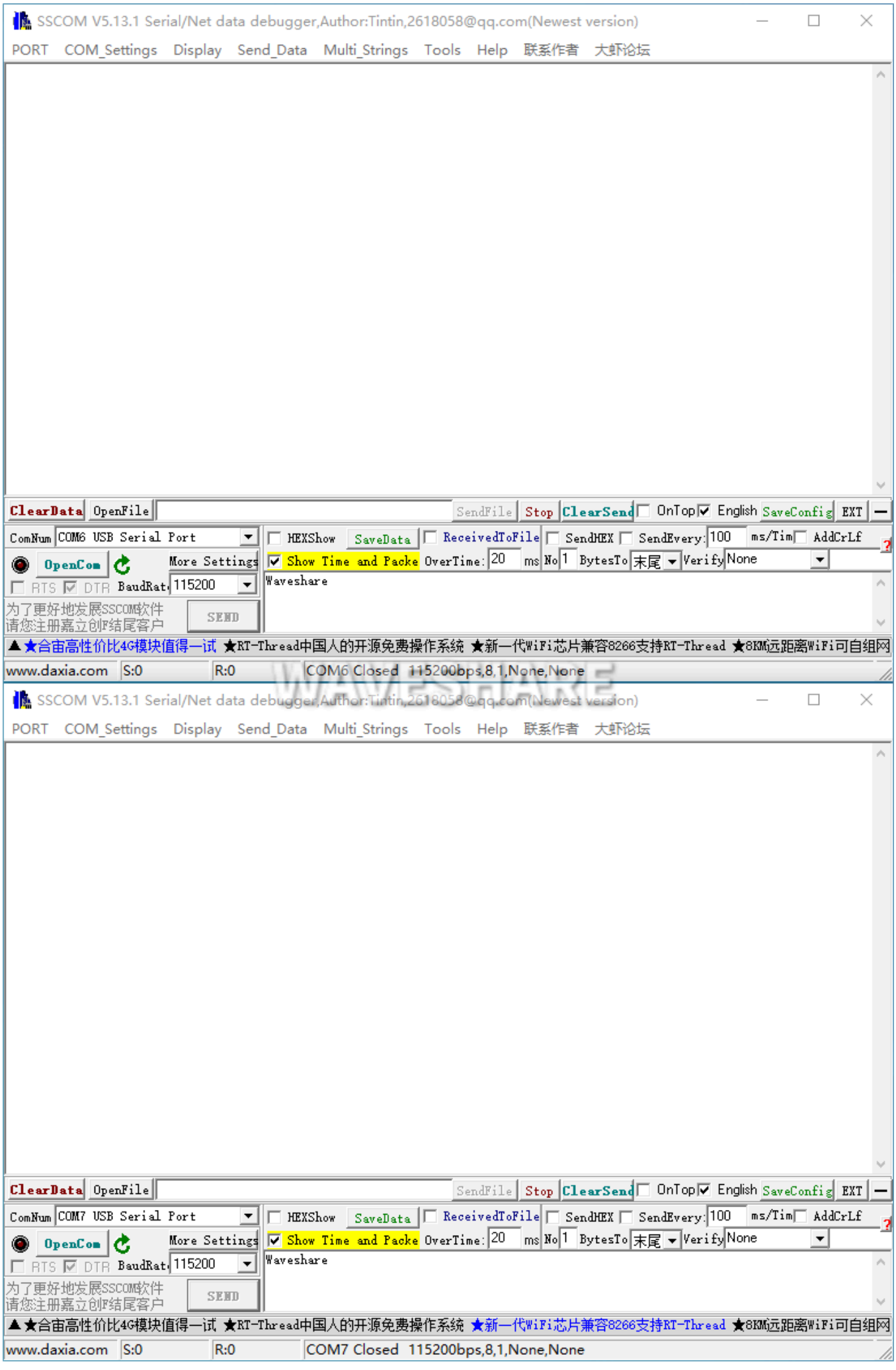
The following demonstrates communication between RS232 of PORT C and RS232 of PORT D using the product.

Hardware Communication

USB TO 4CH RS232/485 - PORT C	USB TO 4CH RS232/485 - PORT D
PORT C - RXD	PORT D - TXD
PORT C - TXD	PORT D - RXD
PORT C - GND	PORT D - GND

Software Operation

- Open 2x SSCOM windows.
- Respectively select the COM port corresponding to Port C and Port D.


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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SEND
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www.daxia.com S:0 R:0 COM6 Closed 115200bps,8,1,None,None
WAVESHARE
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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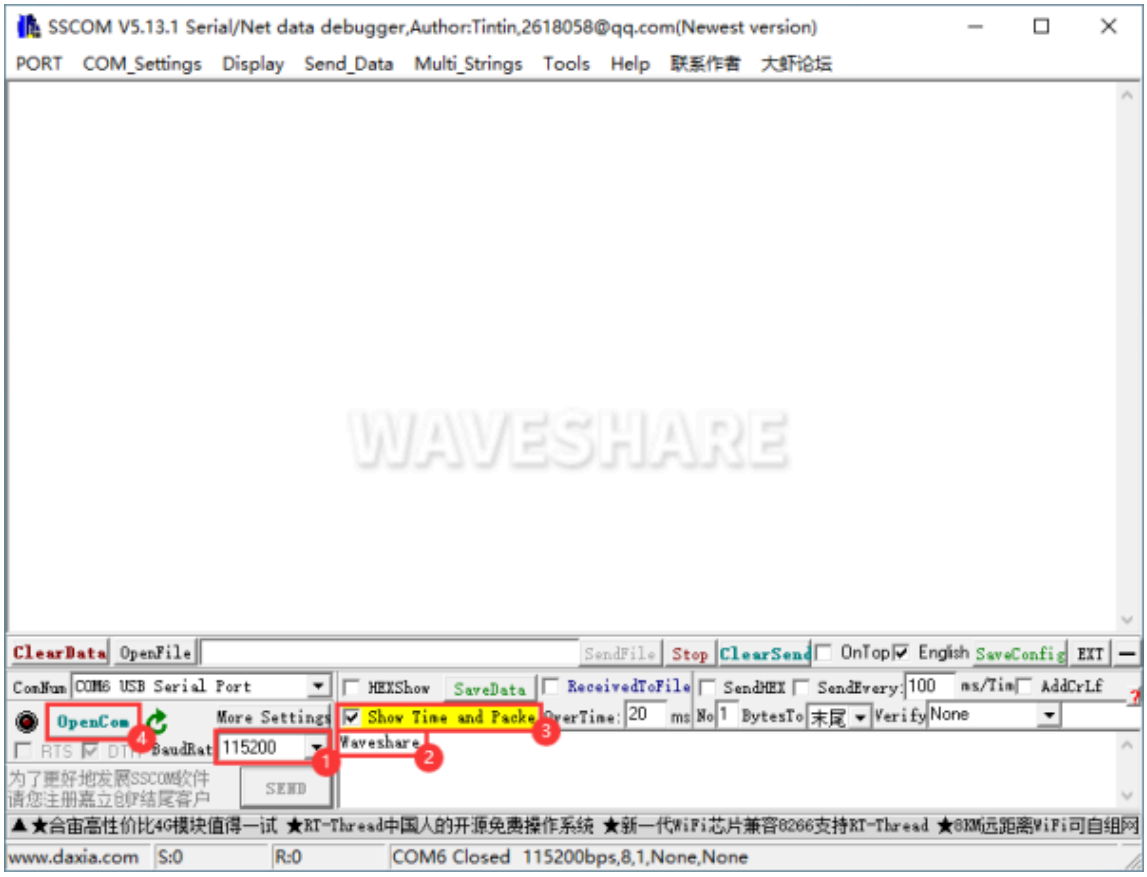
www.daxia.com S:0 R:0 COM7 Closed 115200bps,8,1,None,None

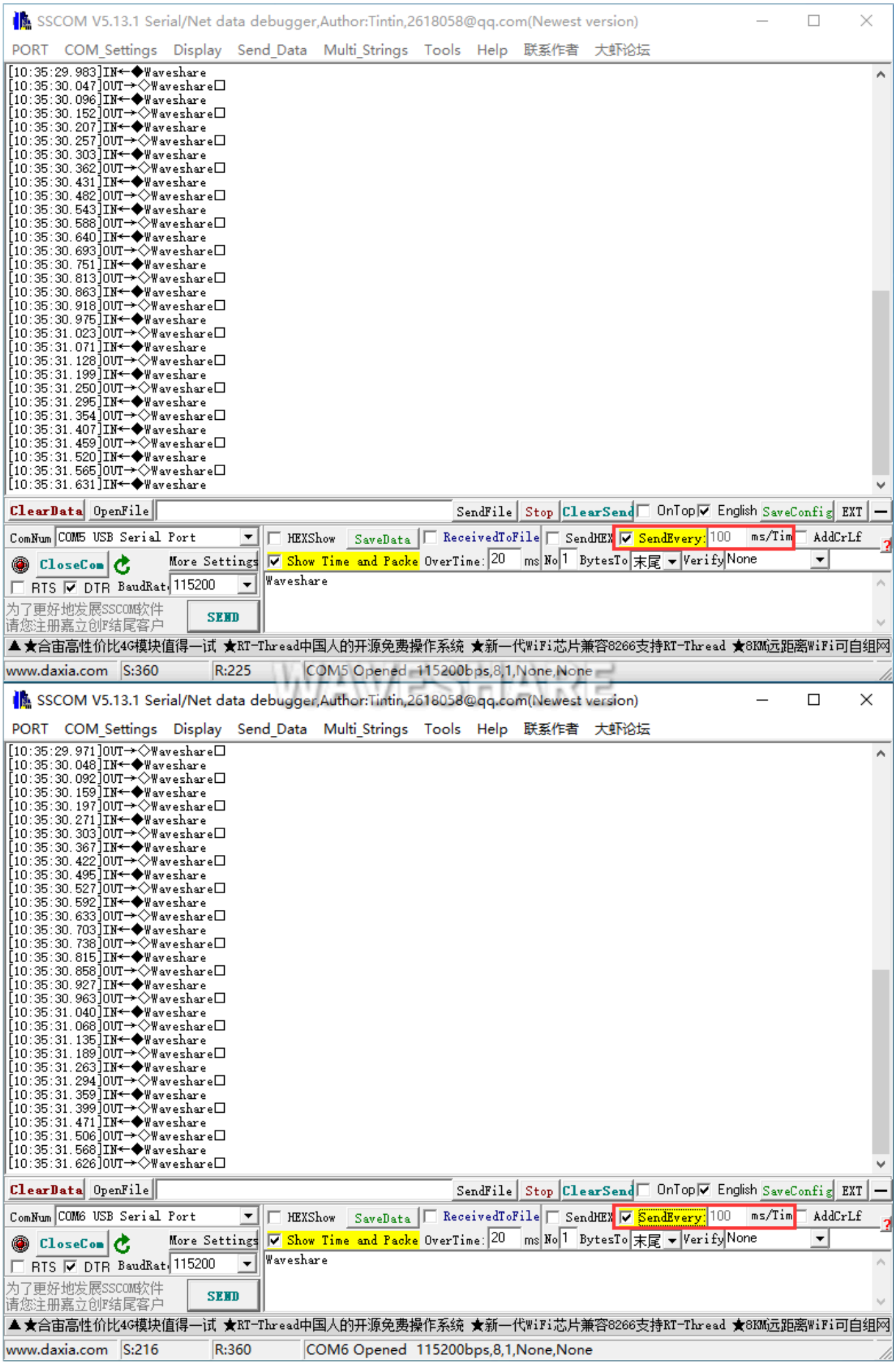
(/wiki/File:USB_TO_4CH_Serial_Converter_15.png)

- Select the baudrate as **115200**, input the characters to be send, select **show time and package**, click on **Open COM**.



(/wiki/File:USB_TO_4CH_Serial_Converter_16.png)

- Both select the **100ms** of the SSCOM, and you can see these two windows normally transmit and receive, and the test effect is shown 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
[10:35:29.983]IN←◆Waveshare
[10:35:30.047]OUT→◇Waveshare□
[10:35:30.096]IN←◆Waveshare
[10:35:30.152]OUT→◇Waveshare□
[10:35:30.207]IN←◆Waveshare
[10:35:30.257]OUT→◇Waveshare□
[10:35:30.303]IN←◆Waveshare
[10:35:30.362]OUT→◇Waveshare□
[10:35:30.431]IN←◆Waveshare
[10:35:30.482]OUT→◇Waveshare□
[10:35:30.543]IN←◆Waveshare
[10:35:30.588]OUT→◇Waveshare□
[10:35:30.640]IN←◆Waveshare
[10:35:30.693]OUT→◇Waveshare□
[10:35:30.751]IN←◆Waveshare
[10:35:30.813]OUT→◇Waveshare□
[10:35:30.863]IN←◆Waveshare
[10:35:30.918]OUT→◇Waveshare□
[10:35:30.975]IN←◆Waveshare
[10:35:31.023]OUT→◇Waveshare□
[10:35:31.071]IN←◆Waveshare
[10:35:31.128]OUT→◇Waveshare□
[10:35:31.199]IN←◆Waveshare
[10:35:31.250]OUT→◇Waveshare□
[10:35:31.295]IN←◆Waveshare
[10:35:31.354]OUT→◇Waveshare□
[10:35:31.407]IN←◆Waveshare
[10:35:31.459]OUT→◇Waveshare□
[10:35:31.520]IN←◆Waveshare
[10:35:31.565]OUT→◇Waveshare□
[10:35:31.631]IN←◆Waveshare
ClearData OpenFile SendFile Stop ClearSend OnTop English SaveConfig EXT
ComNum COM5 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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SEND
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www.daxia.com S:360 R:225 COM5 Opened 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
[10:35:29.971]OUT→◇Waveshare□
[10:35:30.048]IN←◆Waveshare
[10:35:30.092]OUT→◇Waveshare□
[10:35:30.159]IN←◆Waveshare
[10:35:30.197]OUT→◇Waveshare□
[10:35:30.271]IN←◆Waveshare
[10:35:30.303]OUT→◇Waveshare□
[10:35:30.367]IN←◆Waveshare
[10:35:30.422]OUT→◇Waveshare□
[10:35:30.495]IN←◆Waveshare
[10:35:30.527]OUT→◇Waveshare□
[10:35:30.592]IN←◆Waveshare
[10:35:30.633]OUT→◇Waveshare□
[10:35:30.703]IN←◆Waveshare
[10:35:30.738]OUT→◇Waveshare□
[10:35:30.815]IN←◆Waveshare
[10:35:30.858]OUT→◇Waveshare□
[10:35:30.927]IN←◆Waveshare
[10:35:30.963]OUT→◇Waveshare□
[10:35:31.040]IN←◆Waveshare
[10:35:31.068]OUT→◇Waveshare□
[10:35:31.135]IN←◆Waveshare
[10:35:31.189]OUT→◇Waveshare□
[10:35:31.263]IN←◆Waveshare
[10:35:31.294]OUT→◇Waveshare□
[10:35:31.359]IN←◆Waveshare
[10:35:31.399]OUT→◇Waveshare□
[10:35:31.471]IN←◆Waveshare
[10:35:31.506]OUT→◇Waveshare□
[10:35:31.568]IN←◆Waveshare
[10:35:31.626]OUT→◇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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www.daxia.com S:216 R:360 COM6 Opened 115200bps,8,1,None,None

(/wiki/File:USB_TO_4CH_Serial_Converter_11.png)

RS485 Communication

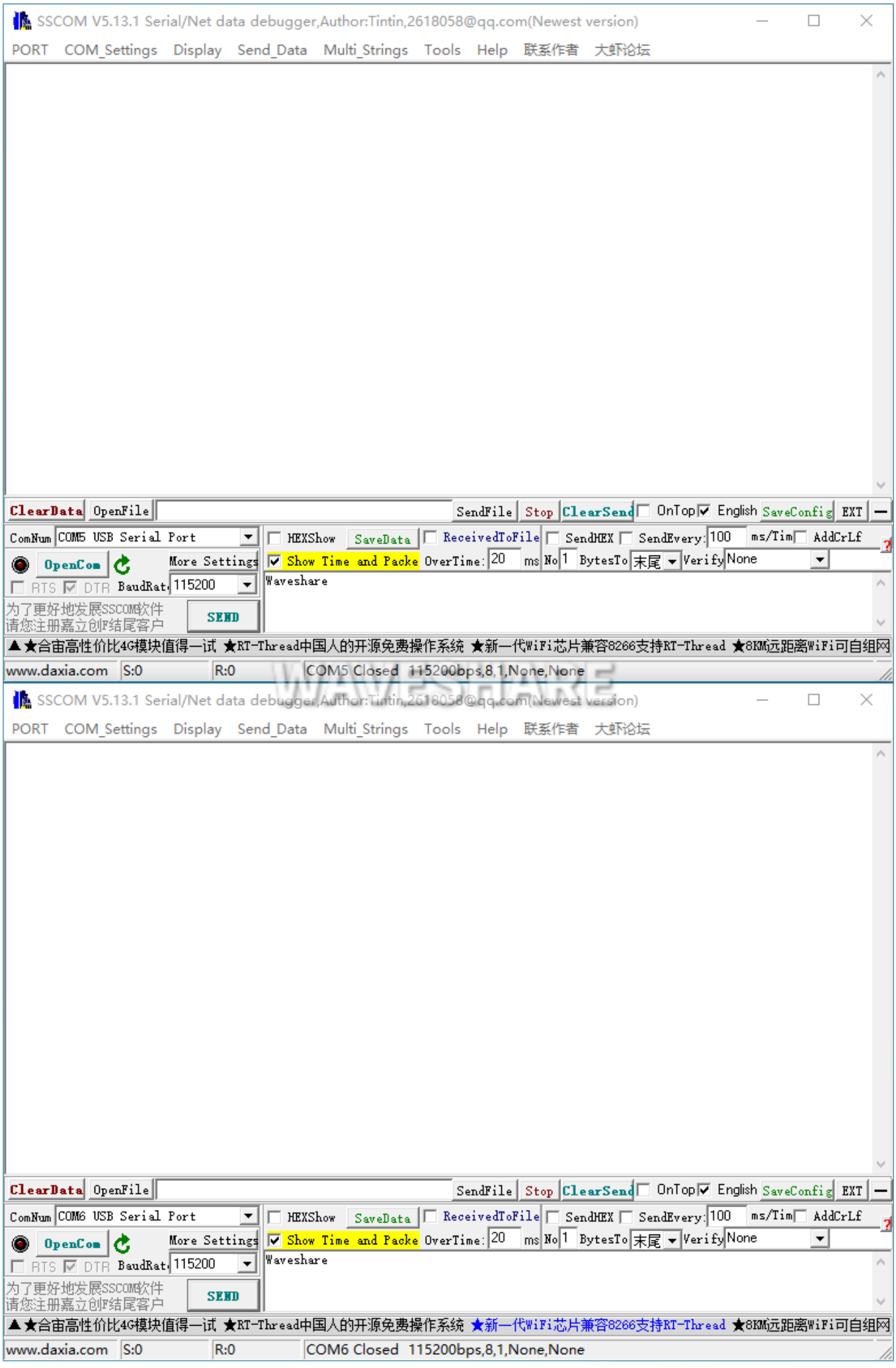
The following demonstrates communication between RS485 of PORT A and RS485 of PORT B using the product.

Hardware Connection

USB TO 4CH RS232/485 - PORT A	USB TO 4CH RS232/485 - PORT B
PORT A - A+	PORT B - A+
PORT A - B-	PORT B - B-
PORT A - GND	PORT B - GND

Software Operation

- Open 2x SSCOM windows.
- Respectively select the corresponding COM port to 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 COM5 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 COM5 Closed 115200bps,8,1,None,None
WAVESHARE
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
Waveshare
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SEND
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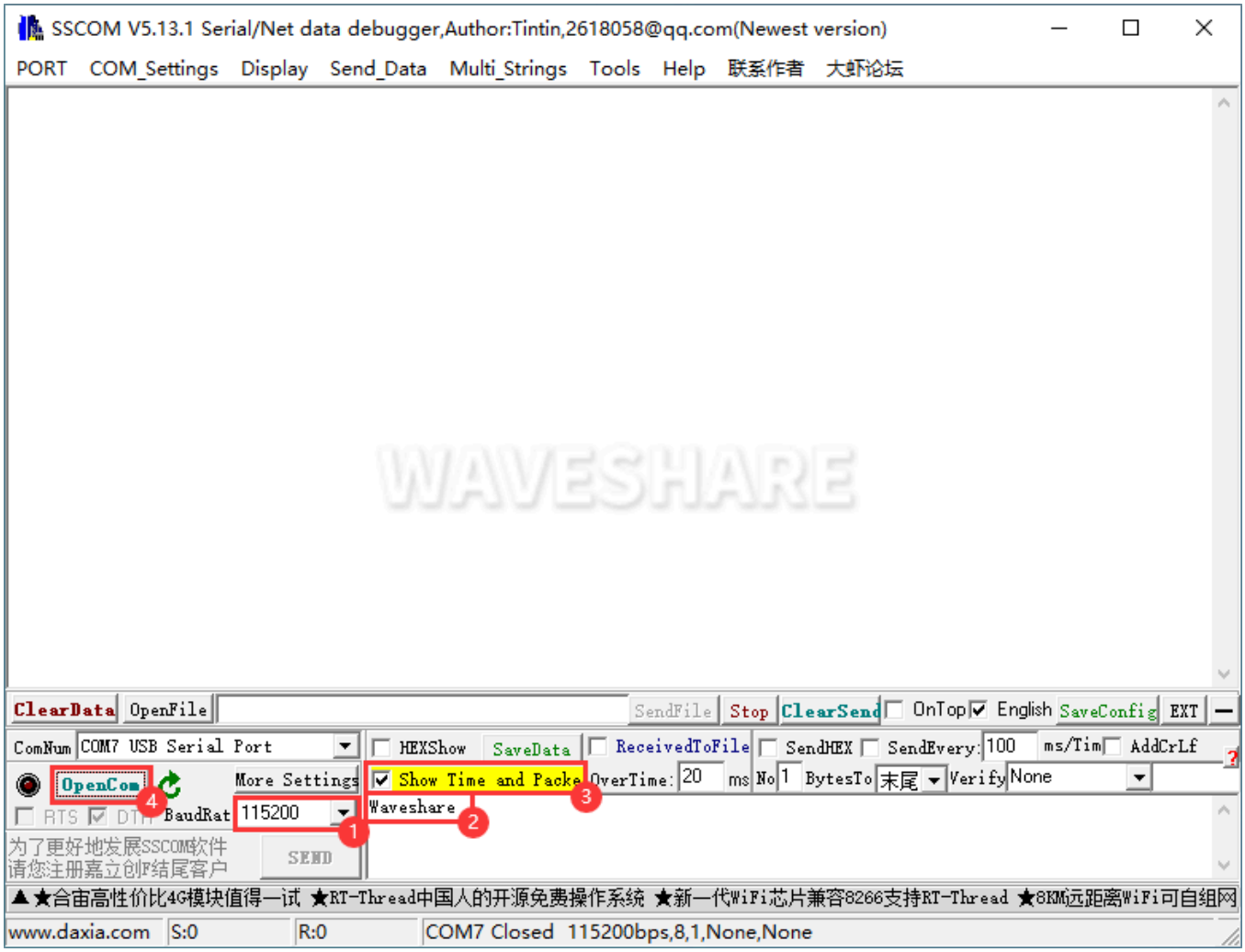
www.daxia.com S:0 R:0 COM6 Closed 115200bps,8,1,None,None

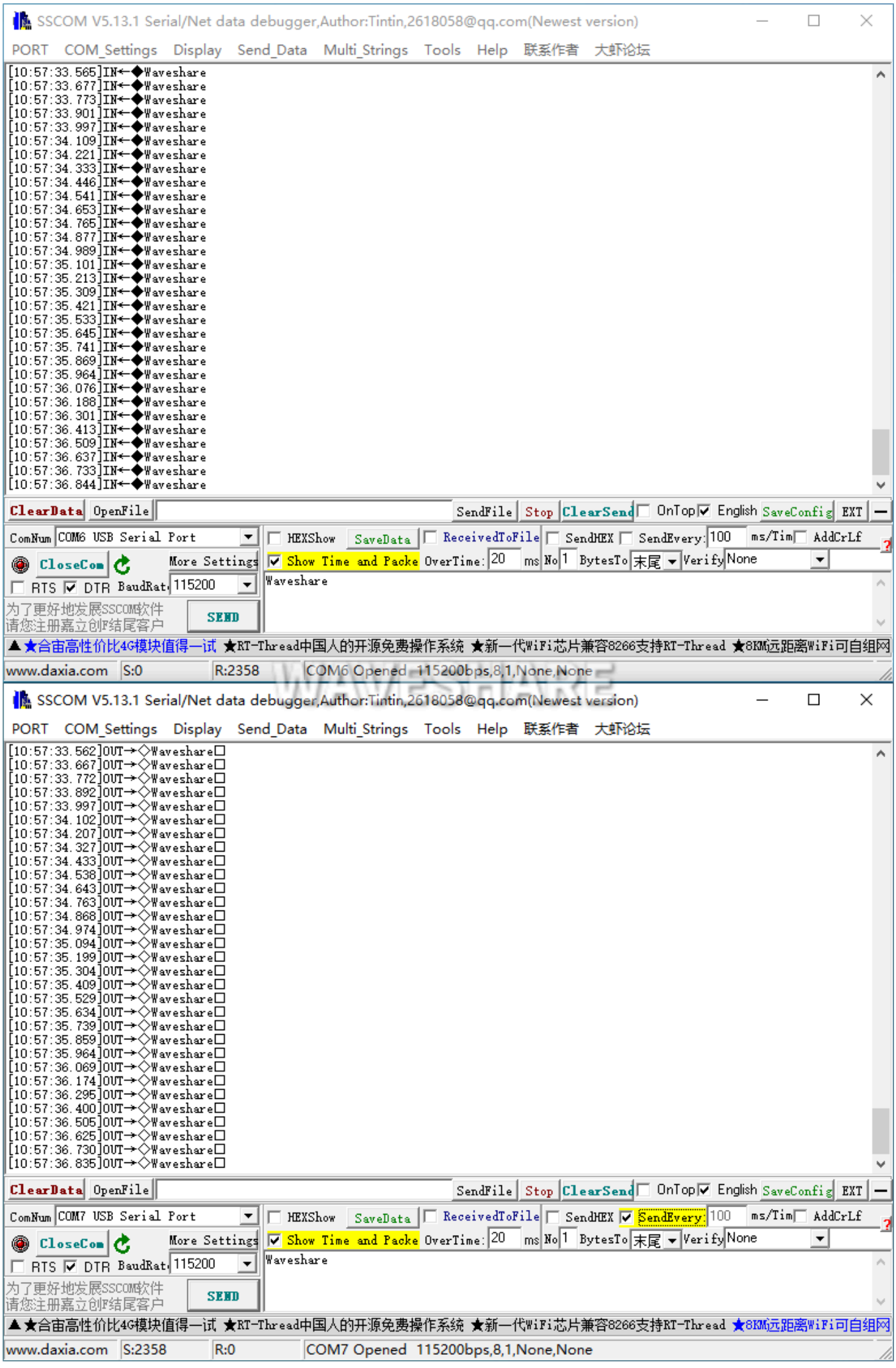
(/wiki/File:USB_TO_4CH_Serial_Converter_07.png)

- Select the baudrate as **115200**, input the characters to be send, select **Show time and package**, click on **Open COM**.



(/wiki/File:USB_TO_4CH_Serial_Converter_21.png)

- Select one of the SSCOMs at **100ms** interval, and you can see that the two 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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www.daxia.com S:0 R:2358 COM6 Opened 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
[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
Waveshare
为了更好地发展SSCOM软件
请您注册嘉立创P结尾客户
SEND
▲★合宙高性价比4G模块值得一试 ★RT-Thread中国人的开源免费操作系统 ★新一代WiFi芯片兼容8266支持RT-Thread ★8KM远距离WiFi可自组网
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

- FT4232H-Datasheet (https://files.waveshare.com/wiki/USB-TO-4CH-RS232-485/DS_FT4232H-Datasheet.pdf)

Software & Driver

- VCP driver (https://files.waveshare.com/wiki/USB-TO-4CH-RS232-485/CDM212364_Setup.zip) (or you can download it from FTDI website (https://ftdichip.com/drivers/vcp-drivers/))
- Support driver-free for Linux systems.
- SSCOM (https://www.waveshare.com/w/upload/2/20/Cktszsss32.zip)

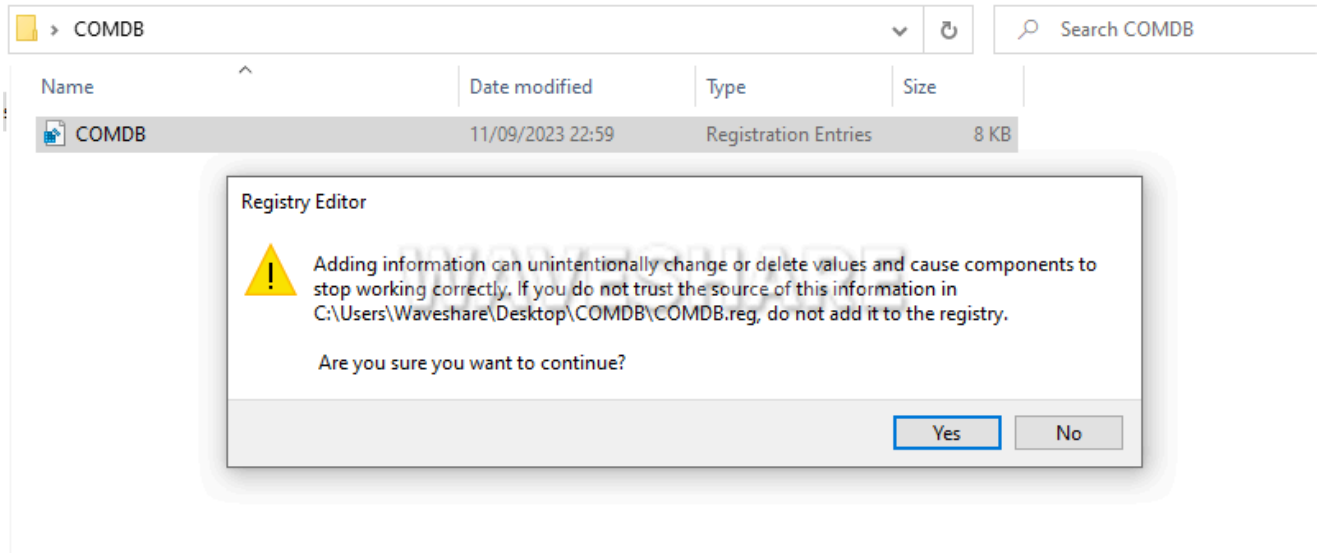
FAQ

Question:Only 1 COM port can be recognized when the device is connected to the computer (if the computer normally recognizes 4 COM ports, please do not do the following).

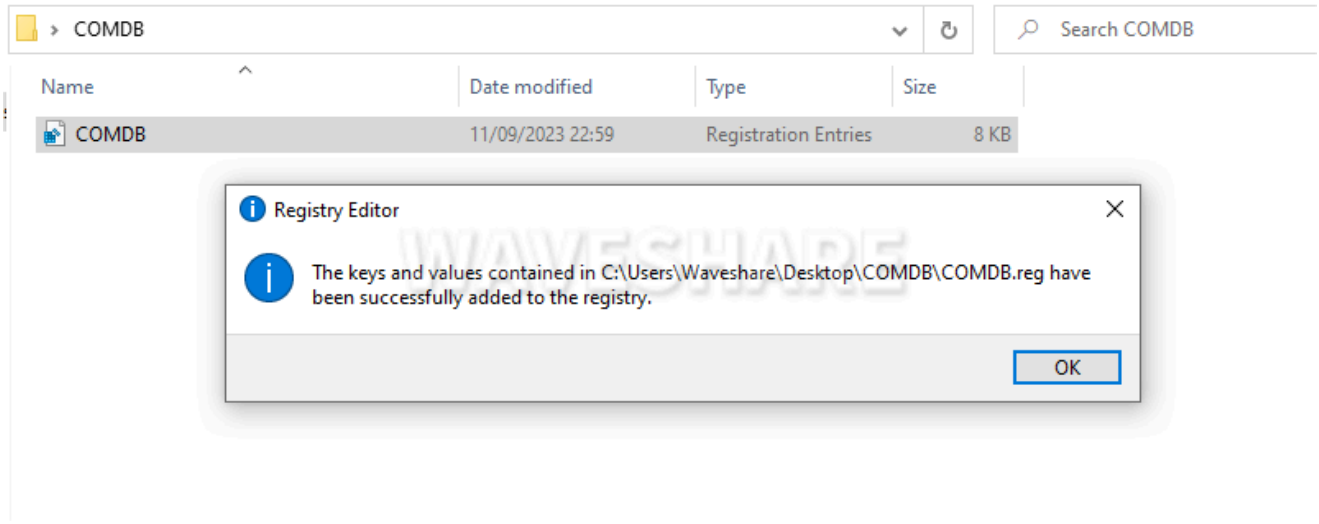
Answer:

- It may be caused by a corrupt registry, and you can address it by performing the following steps:

1. Download the registry-related demo (https://files.waveshare.com/wiki/USB-TO-4CH-Serial-Converter/COMDB.zip) and run it.



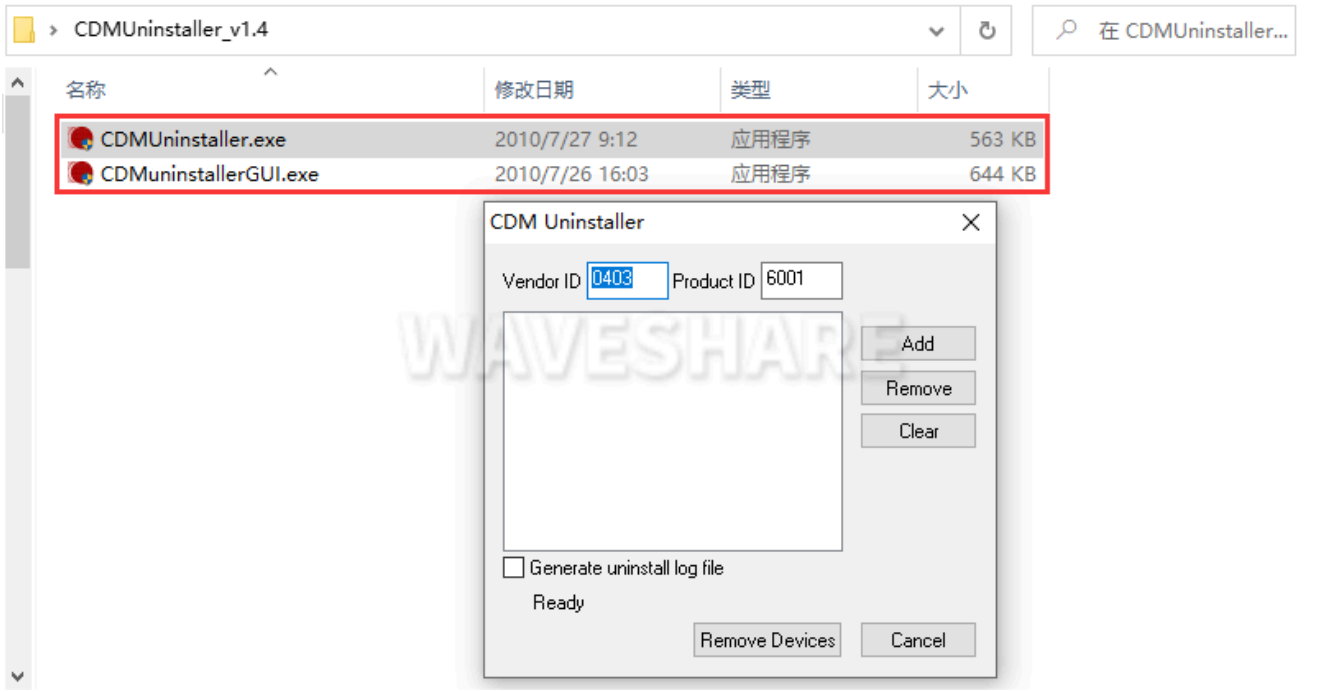
(/wiki/File:USB_TO_4CH_Serial_Converter_FAQ-01.png)



(/wiki/File:USB_TO_4CH_Serial_Converter_FAQ-00.png)

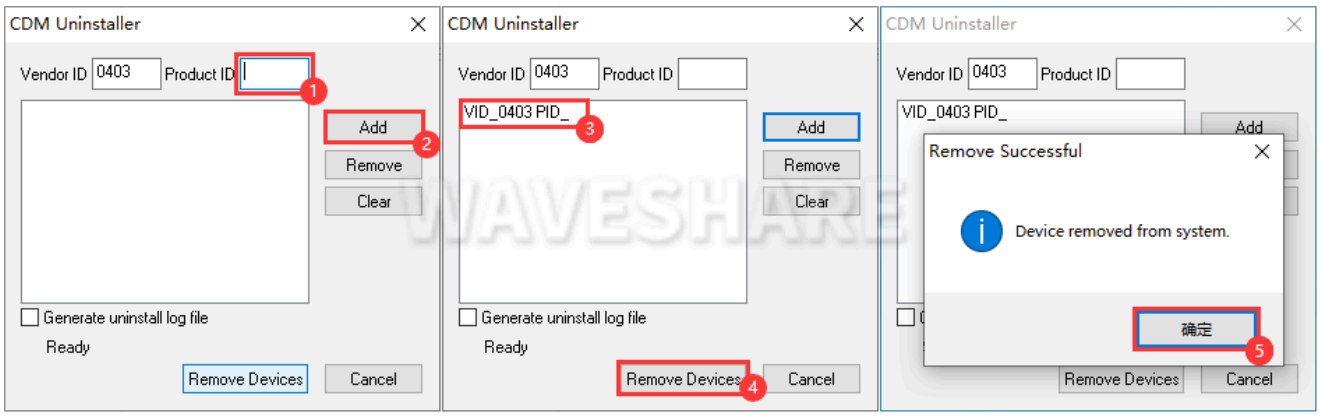
2. If there is a pop-up window, please allow the demo to run.

3. Download Configuration Software (https://files.waveshare.com/wiki/USB-TO-4CH-Serial-Converter/CDMUninstaller_v1.4.zip) to select **CDMUninstaller.exe** and open. **(If CDMUninstaller.exe can not successfully run, please use CDMuninstallerGUI.exe.)**



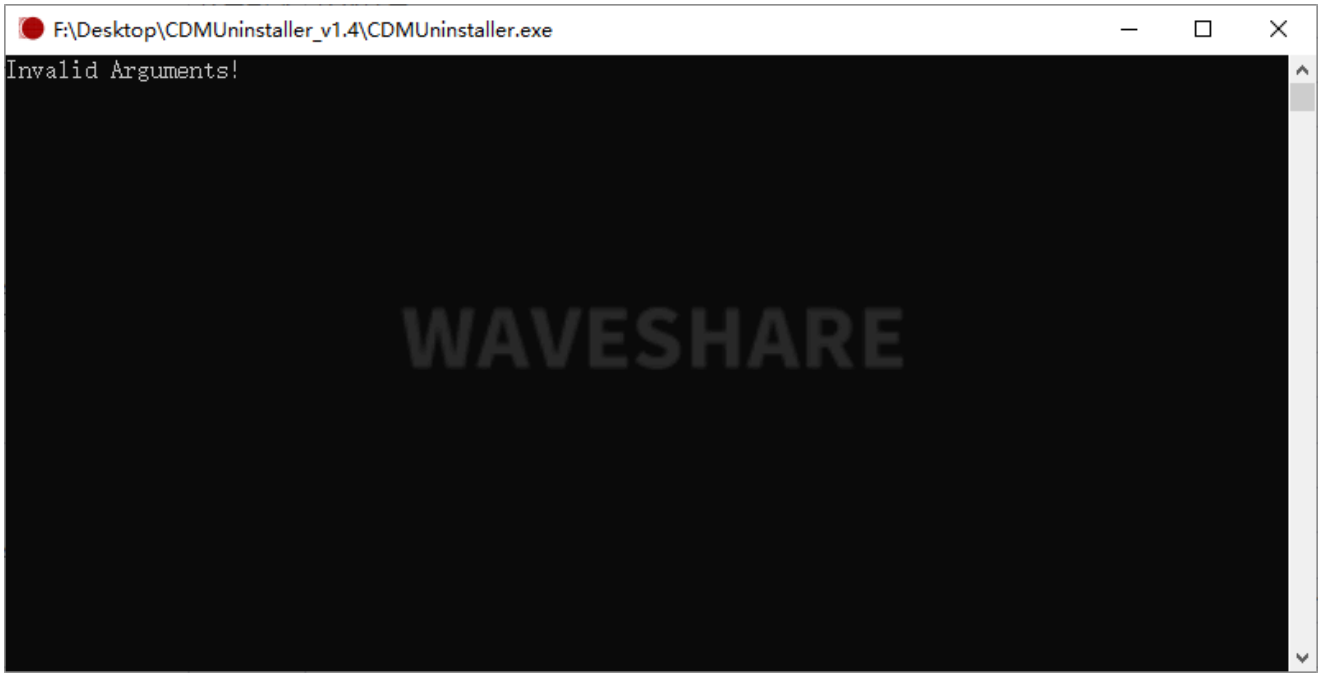
(/wiki/File:USB_TO_4CH_Serial_Converter_FAQ-02.png)

4. Configure and execute (please erase the value of "Product ID" -> Click "Add" -> ③ -> Click "Remove Devices" -> OK).



(/wiki/File:USB_TO_4CH_Serial_Converter_FAQ-03.png)

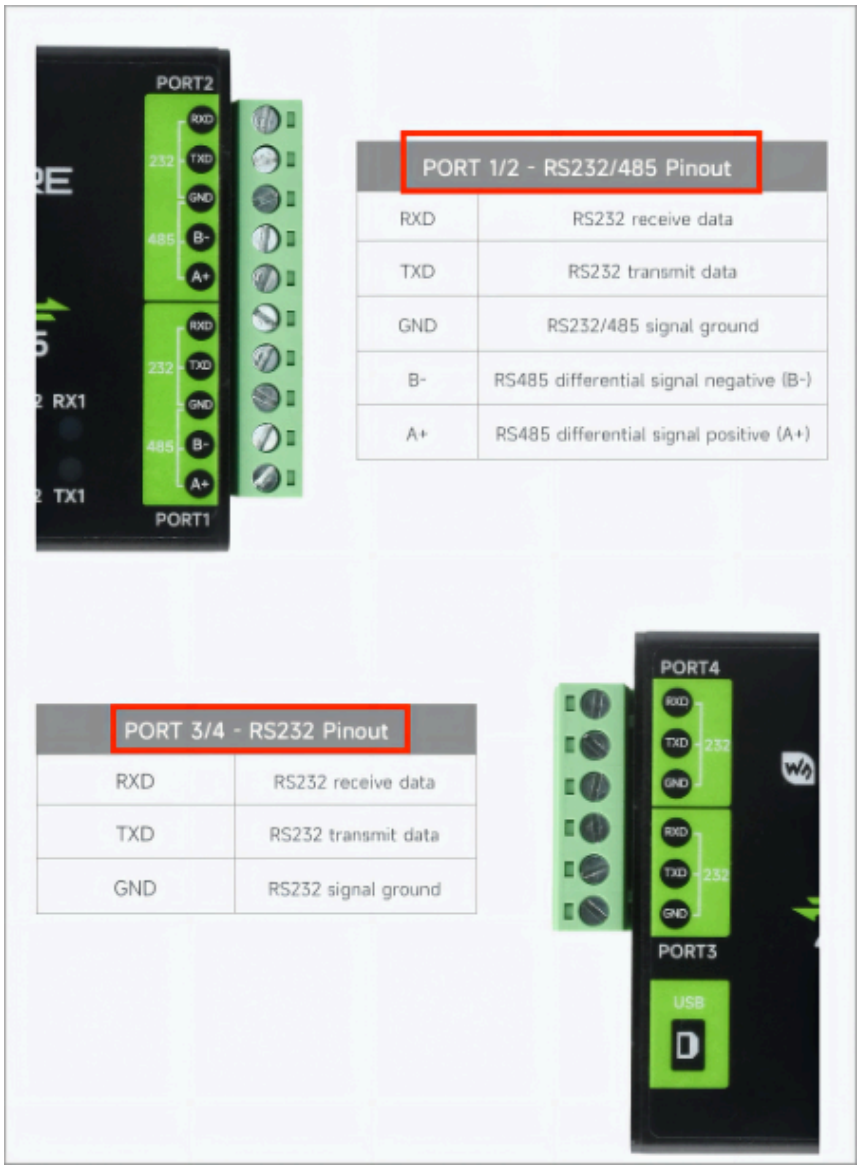
5. If the **CDMUninstaller.exe** can not successfully run (as the following shows), please use **CDMuninstallerGUI.exe**.



(/wiki/File:USB_TO_4CH_Serial_Converter_FAQ-04.png)

Question: Can this product work on 4 channels at the same time? Is it possible to support 4-ch RS232 or 4-ch RS485 communication?

Answer:



(/wiki/File:USB_TO_4CH_Serial_Converter_FAQ-07.png)

Port3 and Port4 do not have RS485 pins, that is, RS485 only leads to two channels, and Port1~4 all lead to RS232 pins.

- Support **4-channel RS232** working at the same time, do not support **4-channel RS485** working at the same time.
- Support **2-channel RS485** and **2-channel RS232** work at the same time.
- Support **1-channel RS485** and **3-channel RS232** work at the same time.
- Support **Port1~4** work individually.
- Support USB to **1-ch RS232/485** + **1-ch RS232/485** + **1-ch RS232** + **1-ch RS232**.

Question:Why WIN7 driver installation failed?

Answer:

You can install this driver (https://www.waveshare.com/w/upload/0/0c/CDM_v2.08.30_WHQL_Certified.zip).

Question: Does USB TO 4CH RS232/485 support 4-CH RS485 communication?

Answer:

- No, this product's **PORT1** and **PORT2** support RS485 communication, while the other 2 channels do not.

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/)