USB TO 4CH RS485/422

From Waveshare Wiki
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Overview

USB TO 4CH RS485/422



(https://www.waveshare.com/usb-to-4ch-rs485-422.htm)

RS485 RS422

Introduction

USB TO 4CH RS485/422 is an industrial grade USB to RS485/422 isolated converter with original FT4232HL, onboard 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.

Features

- Adopts original FT4232HL chip, fast communicating, stable and reliable, better compatibility.
- Supports USB to RS485, USB to RS422.
- 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,
- 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 RS422 and RS284 interfaces, and users can modify it after removing the case.
- 9 LEDs for indicating the power and transceiver status.
- High-quality USB-B connectors, smoothly plug/pull.

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

Parameters

Model	Industrial Grade Digital Isolated Converter	
USB Connector	Operating voltage	5V
	Connector	USB-B Connector
	Interface Protection	200mA self-recovery fuse, isolated output
RS485/422 Interface	Connector	Screw Terminal
	Direction Control	Hardware automatic control
	Protection	TVS diode, surge protection & ESD protection (reserved 120R balancing resistor solder pads)
	Transmission Mode	Point-to-multipoints (485 mode: up to 32 nodes, it is recommended to use repeaters for 16 nodes or more； 422 mode: up to 256 nodes, it is recommended to use repeaters for 16 nodes or more)
	Baud Rate	300bps ~ 921600bps
RS485 Interface	Interface	Screw Terminal
	Interface Protection	TVS diode, surge protection & ESD protection (reserved 120R balancing resistor solder pads)
	Transmission Mode	Point to Point
	Baud Rate	300bps ~ 921600bps
Indicator	PWR	Red power indicator, light up when there is a USB connection and voltage is detected
	TXD	TX indicator, light up when the USB port sends data
	RXD	RX indicator, light up when the device ports send data back
Operating Environment	Temperature Range	-15 ~ 70℃
	Humidity Range	5% ~ 95%RH
Operating System	Mac, Linux, Android, Windows 11/10/8.1/8/7	

Interface Introduction



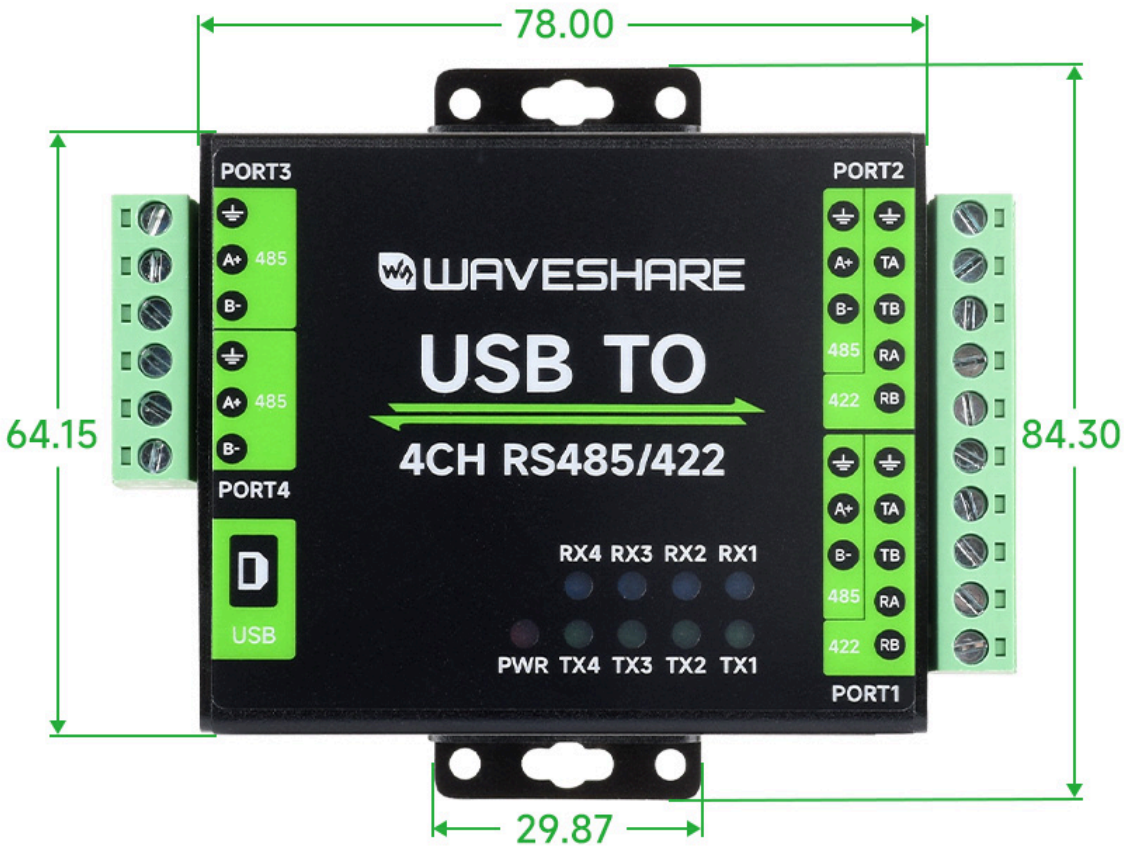
PORT 1/2 - RS485/422 Pinout	
PIN	Description
⏚	485/422 signal ground
TA	RS422 send differential signal positive RS485 differential signal positive (A+)
TB	RS422 send differential signal negative RS485 differential signal negative (B-)
RA	RS422 receive differential signal positive
RB	RS422 receive differential signal negative

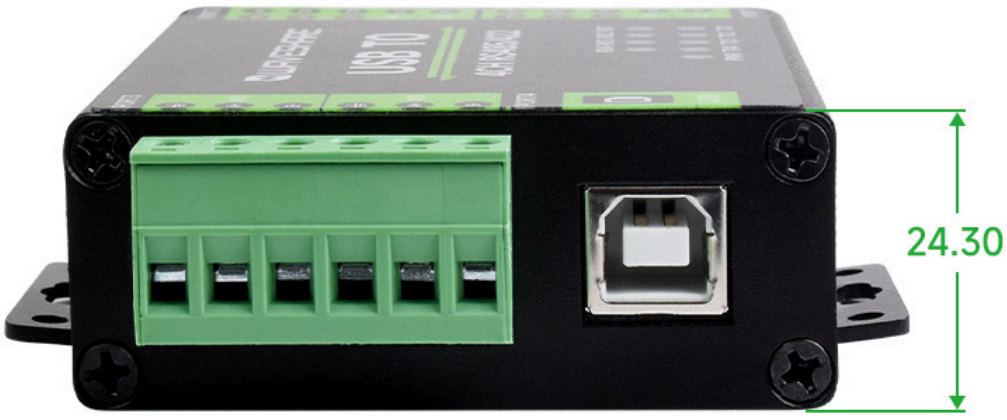
PORT 3/4 - RS485 Pinout	
PIN	Description
⏚	485 signal ground
A+	RS485 differential signal positive (A+)
B-	RS485 differential signal negative (B-)



(/wiki/File:USB_TO_4CH_RS485-422_-Inter01.png)

Dimensions



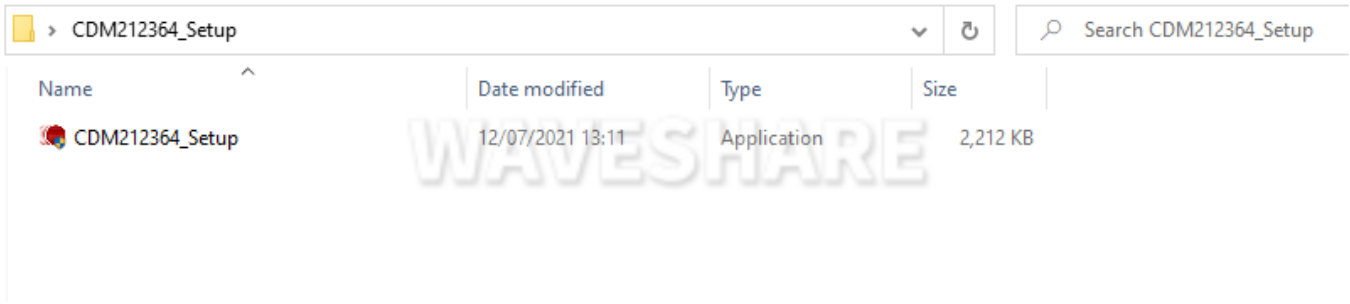


Unit: mm

(/wiki/File:USB_TO_4CH_RS485-422-Dim.jpg)

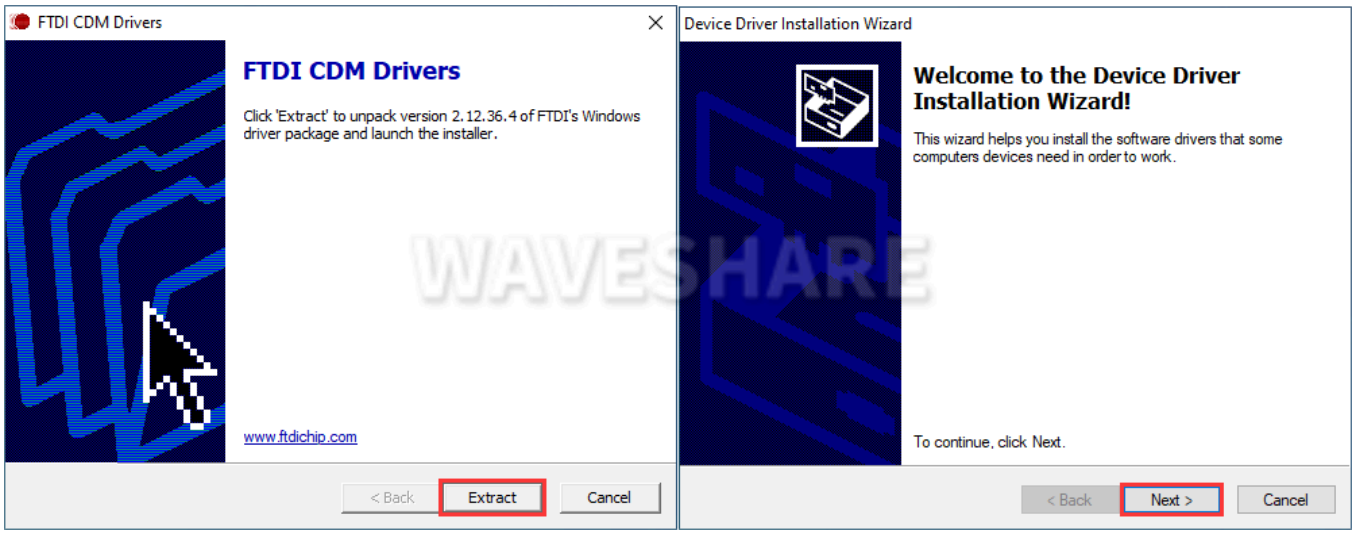
Driver Installation

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



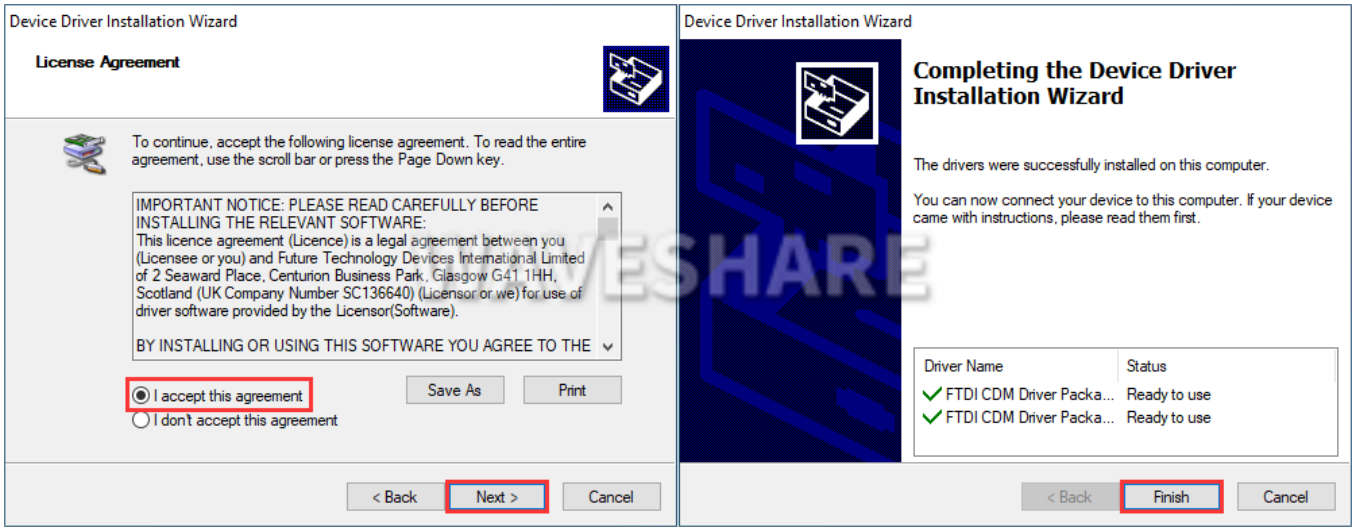
(/wiki/File:USB_TO_4CH_Serial_Converter_-02.png)

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



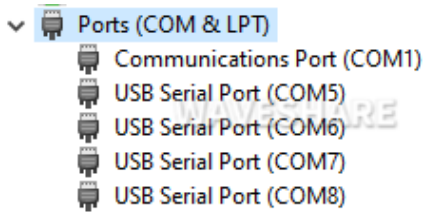
(/wiki/File:USB_TO_4CH_Serial_Converter_-03.png)

- Agree on the protocol and keep clicking on "Next".



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

- Connect the computer and device, and you can fund the new 4 COM ports in the Device Manager (If there is only one COM port after a while and cannot show more COM ports after trying, you can operate it according to #FAQ).



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

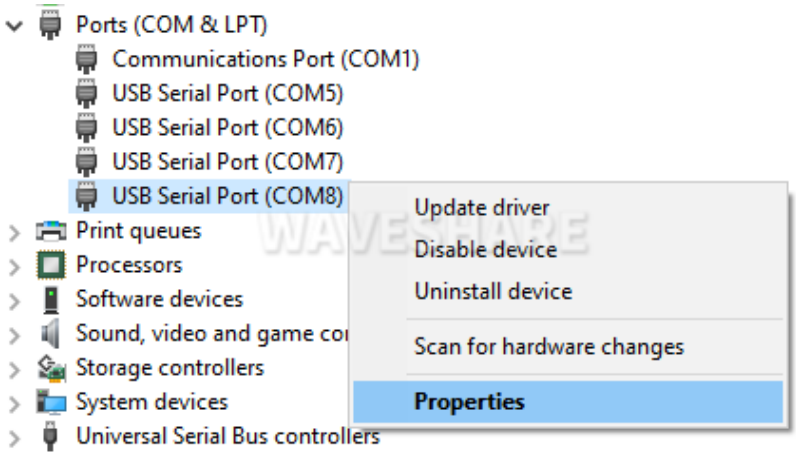
SSCOM Usage

Preparation

- Open SSCOM (https://files.waveshare.com/wiki/USB-TO-4CH-Serial-Converter/Cktszsss32.zip).
- Select the corresponding COM port based on the desired functionality. In most cases, the identified four COM port numbers are recognized from small to big, and labeled as Port A through Port D.

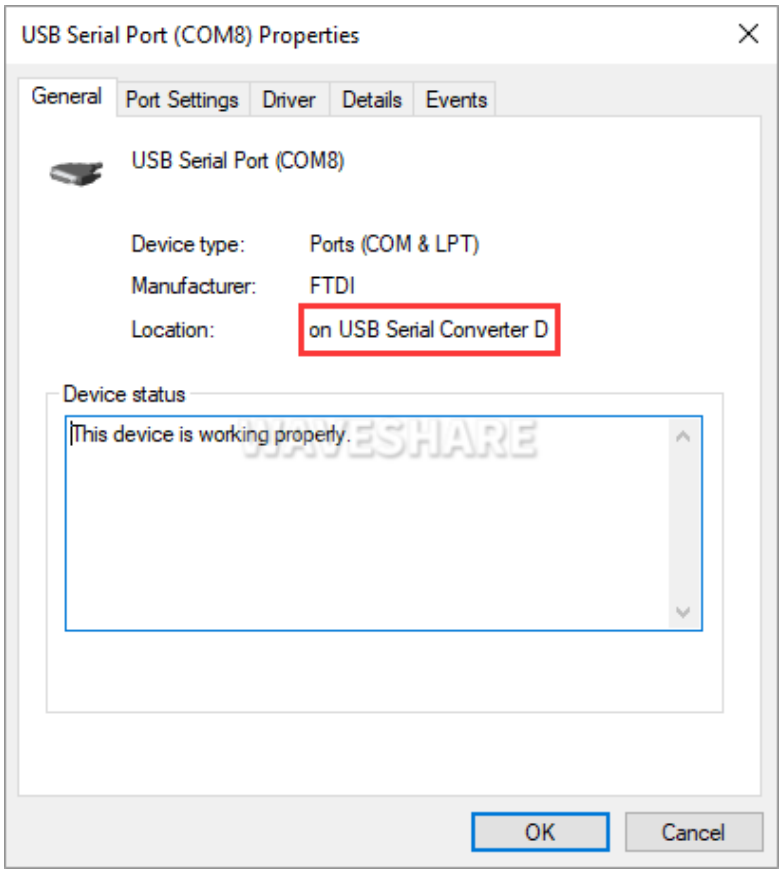
USB TO 4CH Serial Converter - PORT	Communication Mode
Port A	RS485
	RS422
Port B	RS485
	RS422
Port C	RS485
Port D	RS485

- You can check which Port corresponds to the COM port using Device Manager.
- Check which Port corresponds to COM10.



(/wiki/File:USB_TO_4CH_Serial_Converter_Environment_1.png)

- You can find that the COM8 corresponds to Port D.



(/wiki/File:USB_TO_4CH_Serial_Converter_Environment_2.png)

RS485 Communication

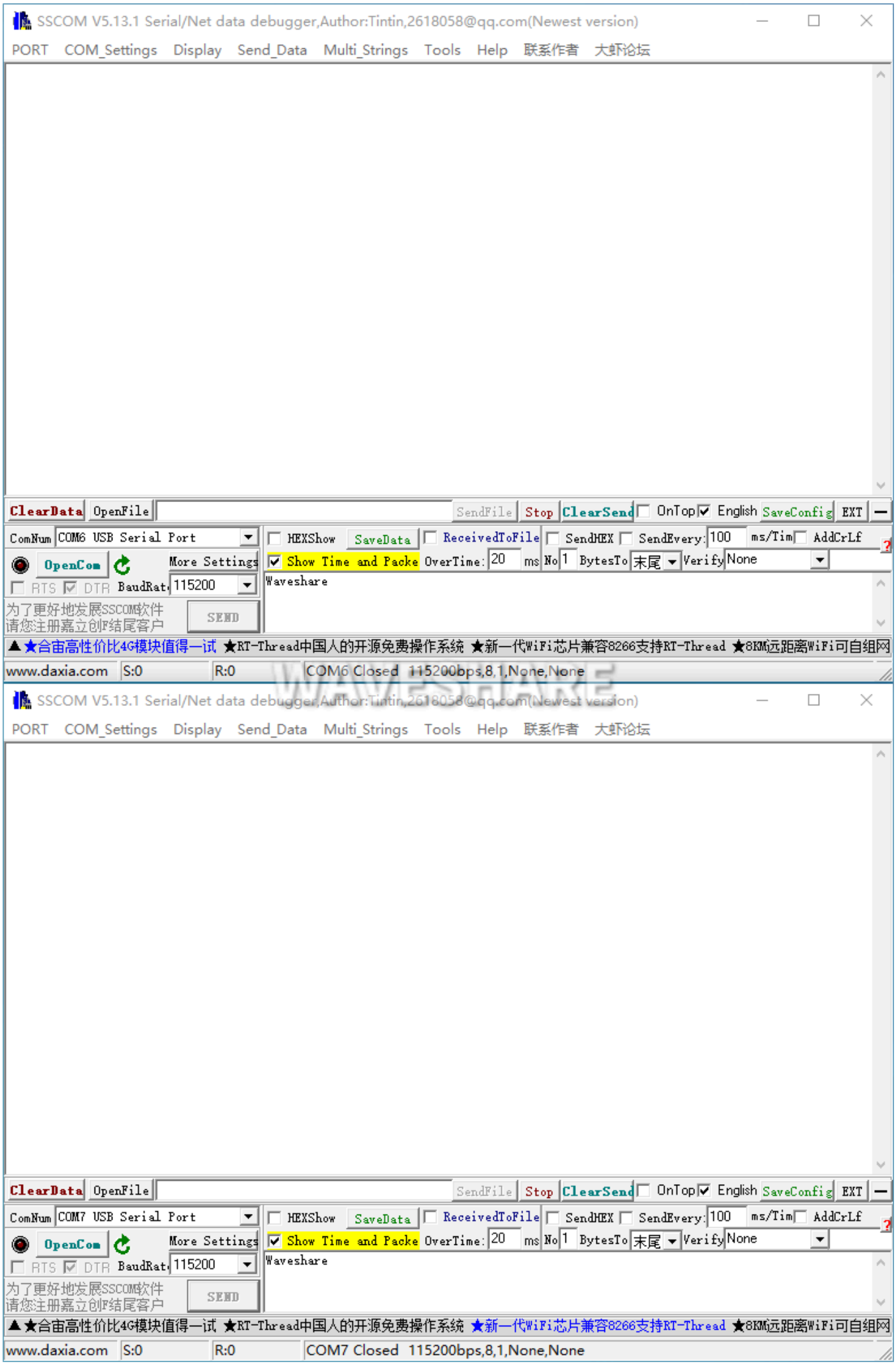
The following demonstration involves using the RS485 of Port B to communicate with the RS485 of Port C.

Hardware Connection

USB TO 4CH RS485/422 - PORT B	USB TO 4CH RS485/422 - PORT C
Port B - GND	Port C - GND
Port B - A+	Port C - A+
Port B - B-	Port C - B-

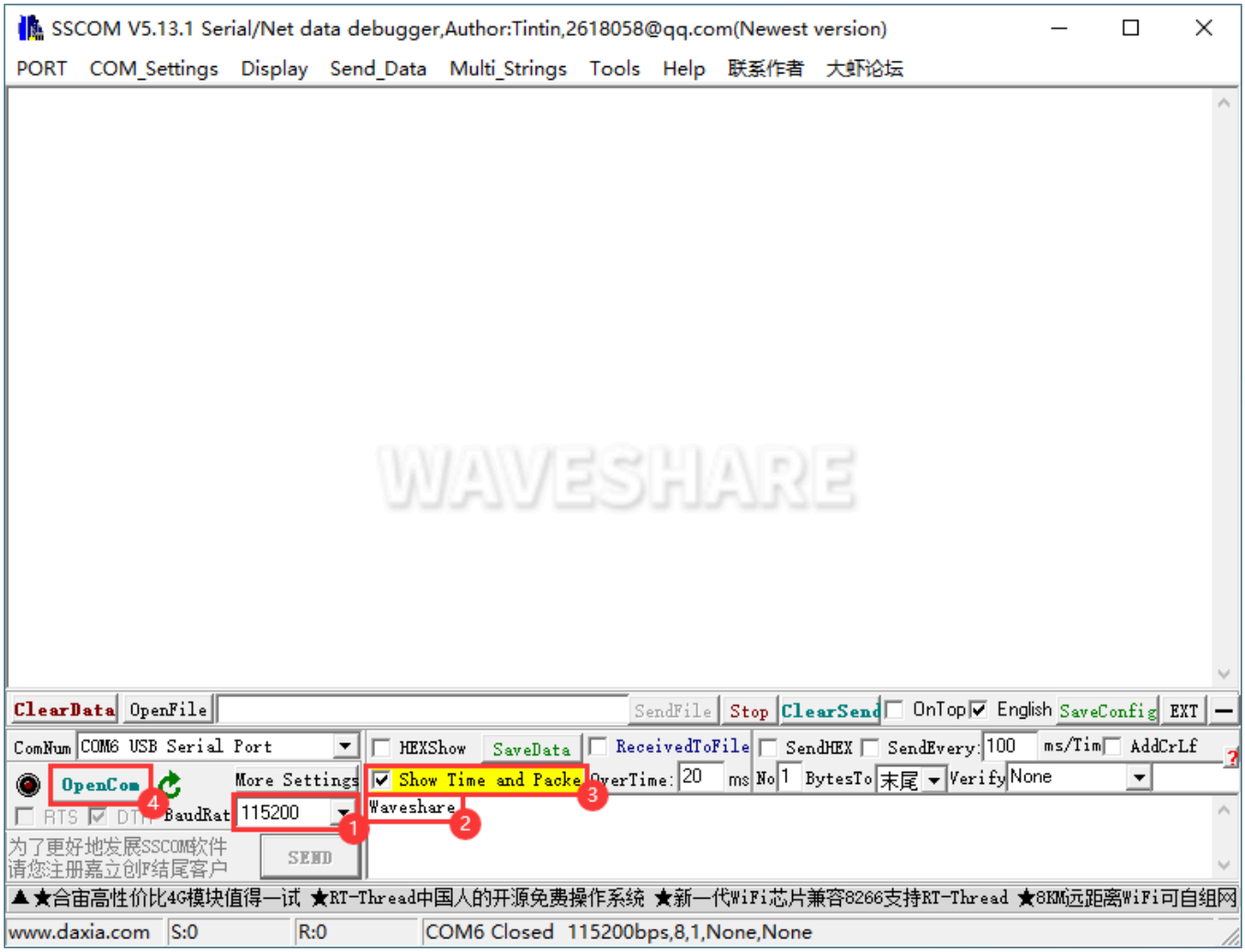
Software Operation

- Open two SSCOM interfaces.
- Respectively select the corresponding COM ports for 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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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: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

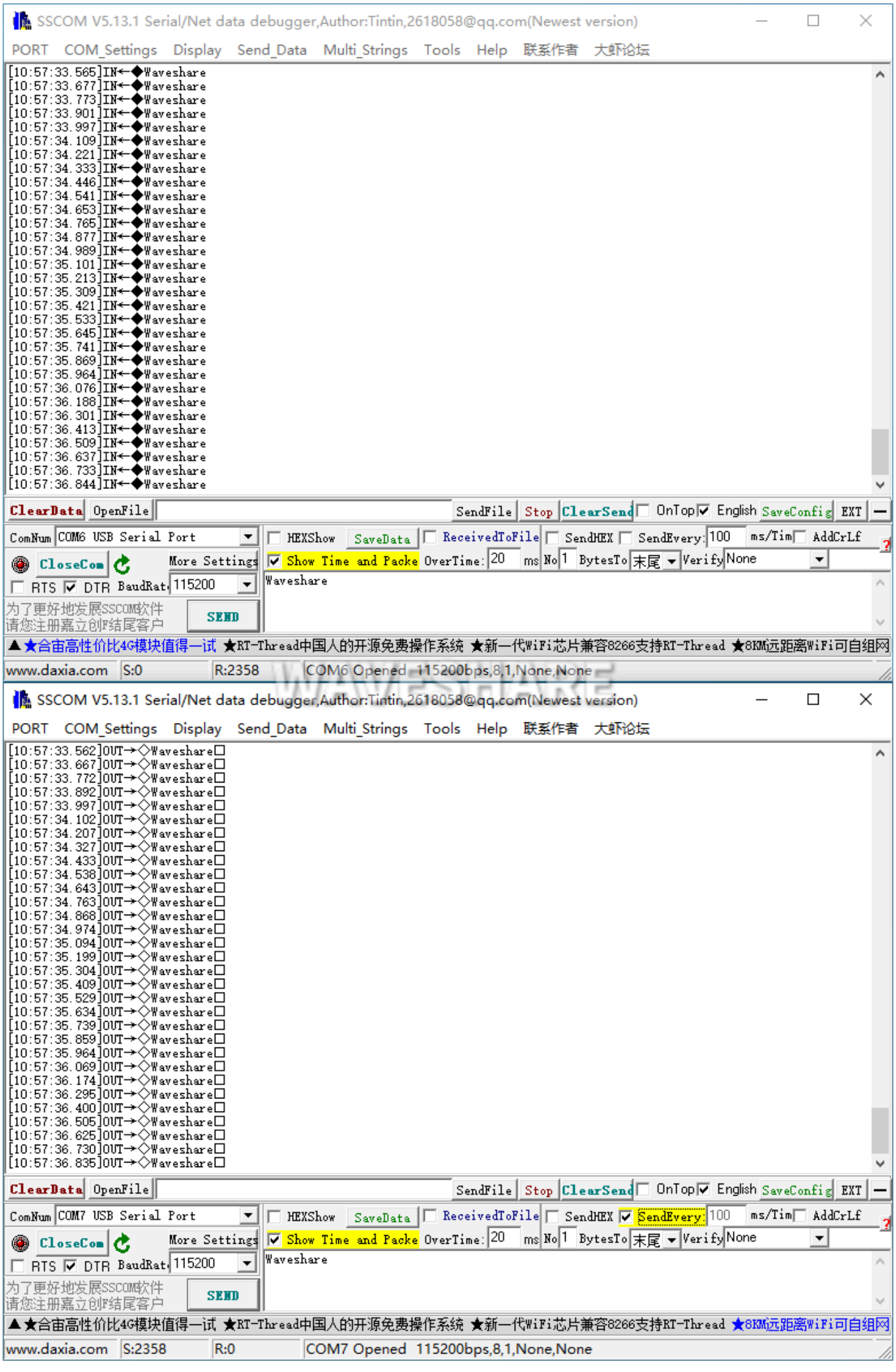
(/wiki/File:USB_TO_4CH_Serial_Converter_15.png)

- Select the baud rate as **115200**, enter the characters you want to send and select **Add Time and Pack** for a more intuitive view. Now, click on **OpenCOM**.



(/wiki/File:USB_TO_4CH_Serial_Converter_16.png)

- Select one SSCOM to transmit at **100ms** intervals, and you can observe the phenomenon of mutual sending and receiving.


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
CloseCom More Settings
RTS DTR BaudRat 115200
HEXShow SaveData ReceivedToFile SendHEX SendEvery: 100 ms/Tim AddCrLf
Show Time and Packe OverTime: 20 ms No 1 BytesTo 末尾 Verify None
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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
CloseCom More Settings
RTS DTR BaudRat 115200
HEXShow SaveData ReceivedToFile SendHEX SendEvery: 100 ms/Tim AddCrLf
Show Time and Packe OverTime: 20 ms No 1 BytesTo 末尾 Verify None
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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)

RS422 Communication

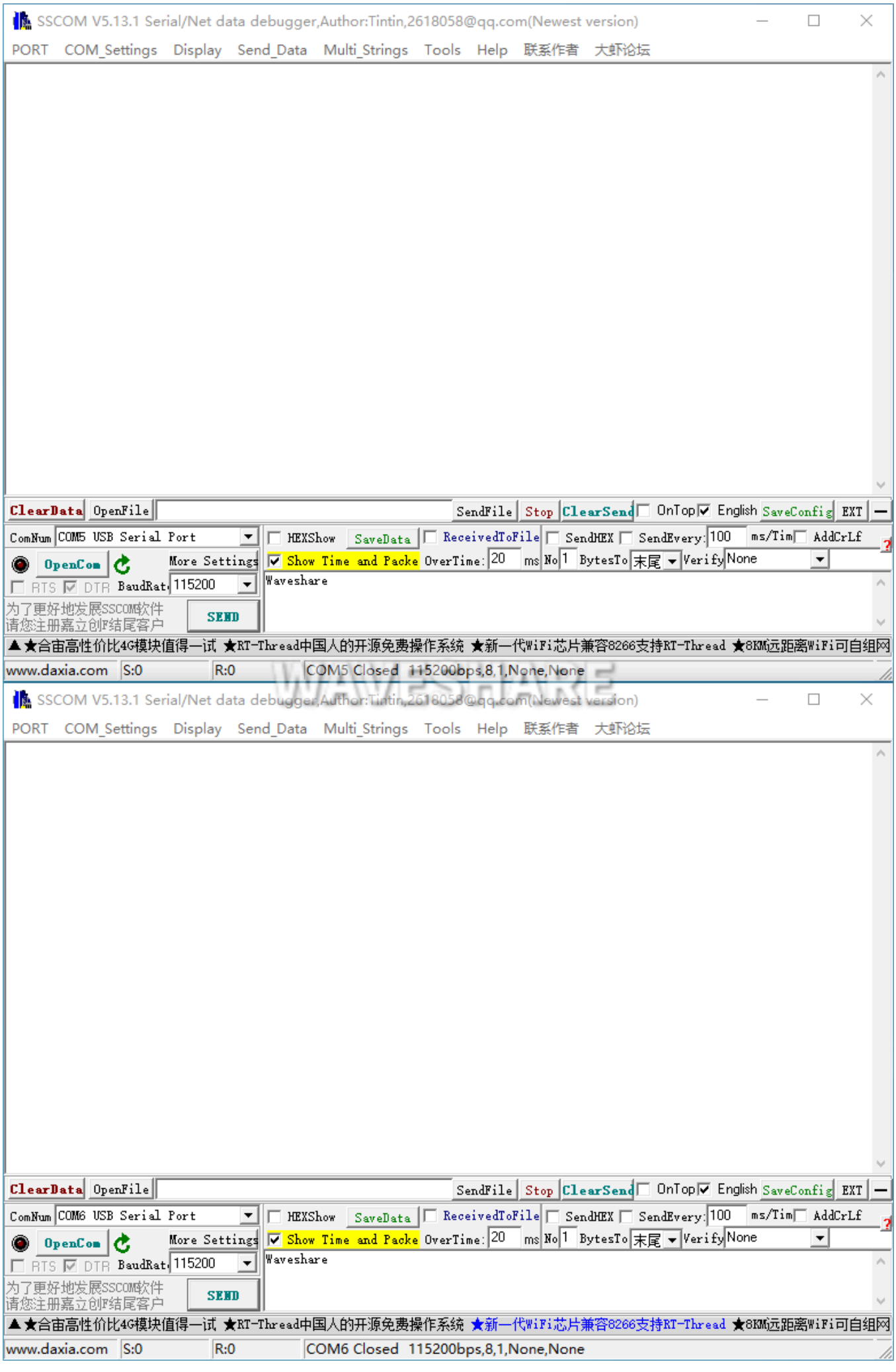
The following demonstrates communication between RS422 on Port A and RS422 on Port B of the product.

Hardware Connection

USB TO 4CH Serial Converter - PORT A	USB TO 4CH Serial Converter - PORT B
Port A - GND	Port B - GND
Port A - RA	Port B - TA
Port A - RB	Port B - TB
Port A - TA	Port B - RA
Port A - TB	Port B - RB

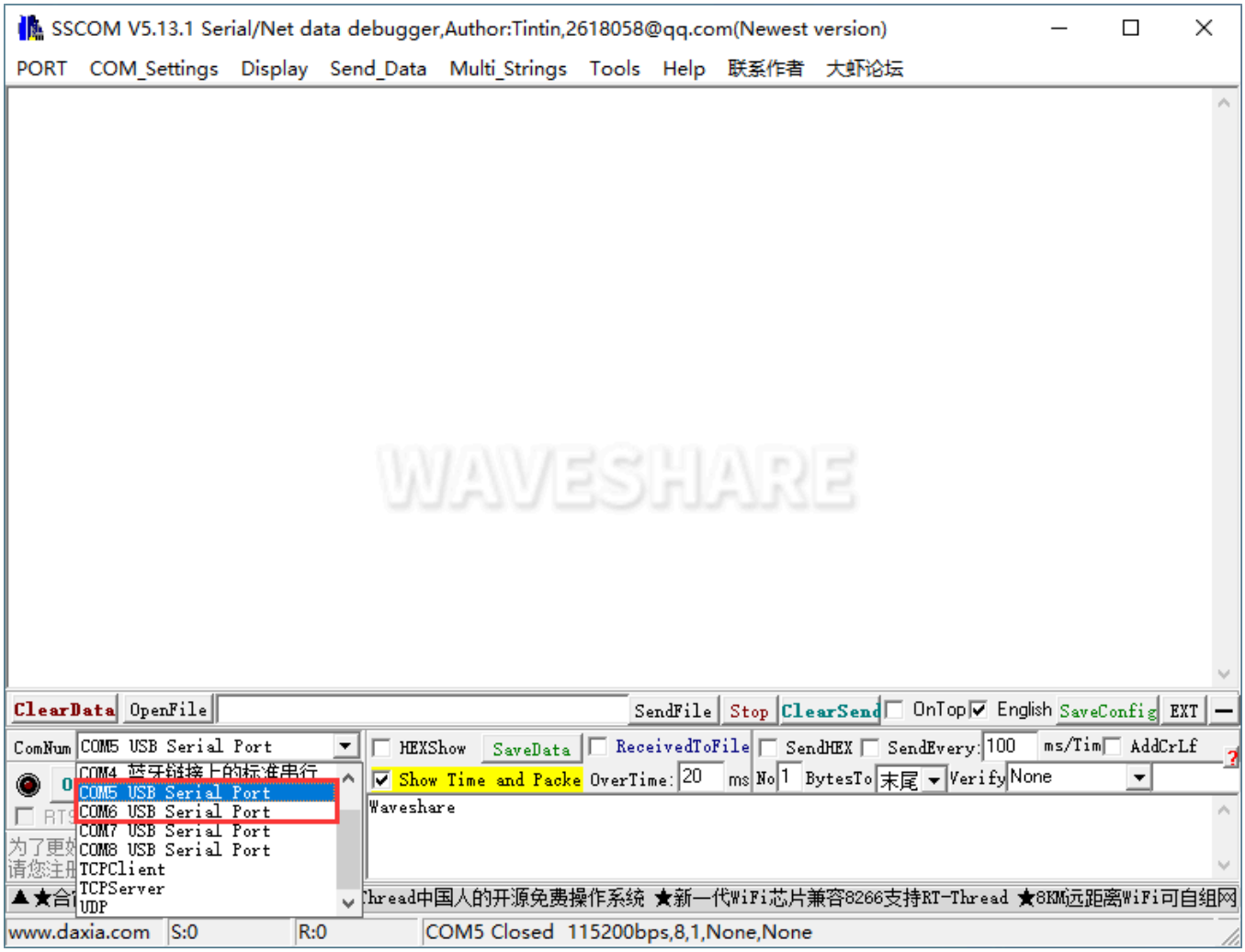
Software Operation

- Open two SSCOM interfaces.


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

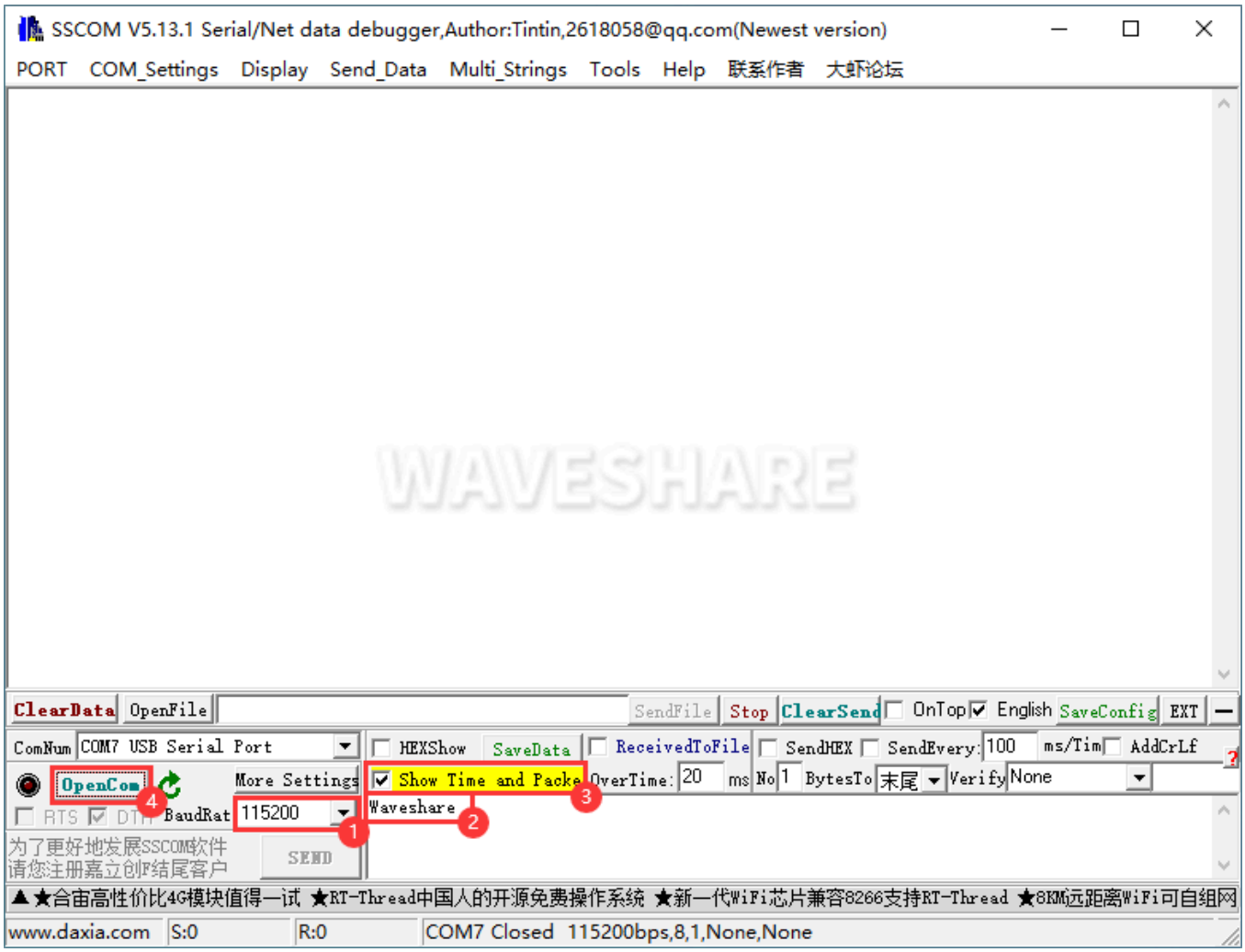
(/wiki/File:USB_TO_4CH_Serial_Converter_07.png)

- Respectively select the corresponding COM port to Port A and Port B.



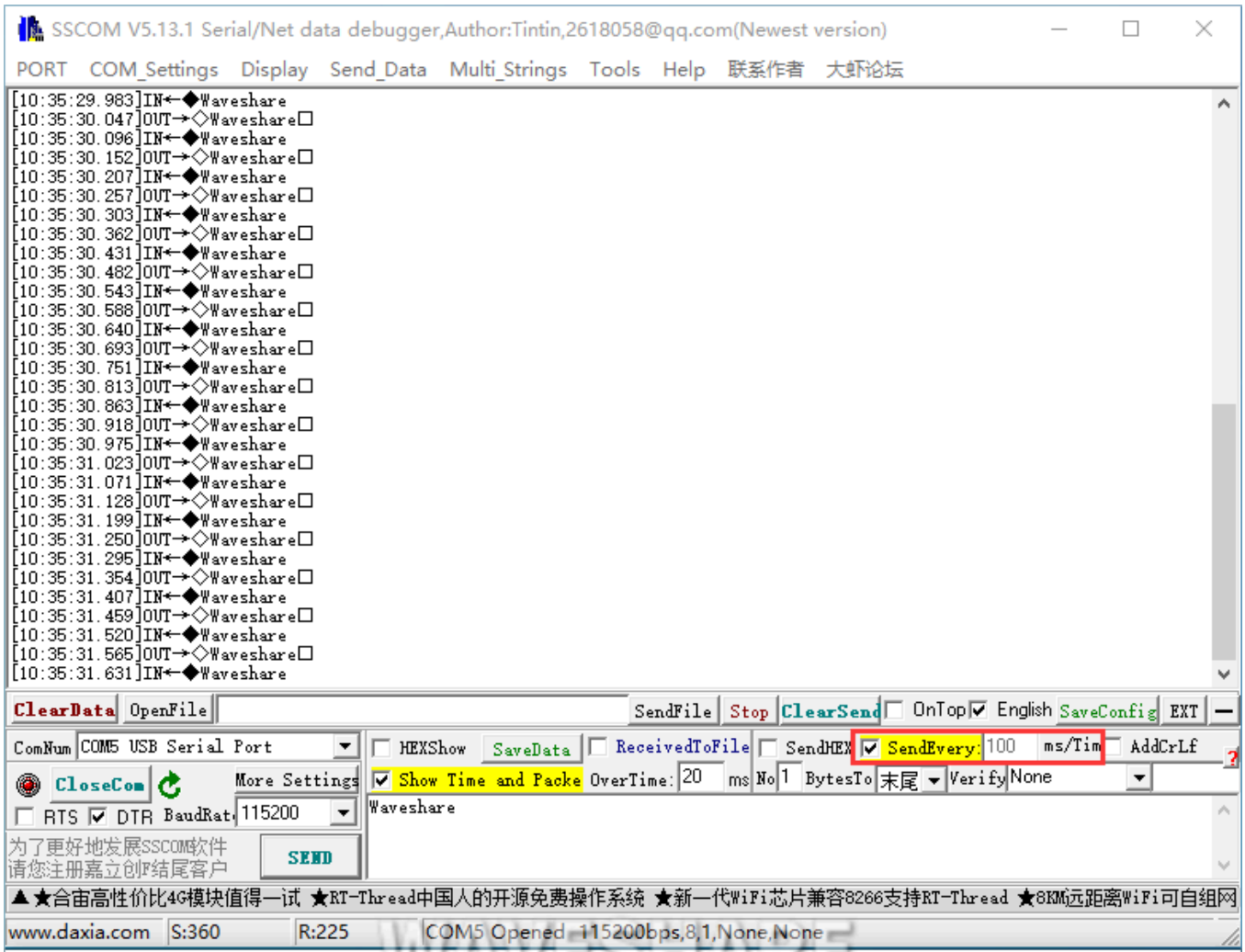
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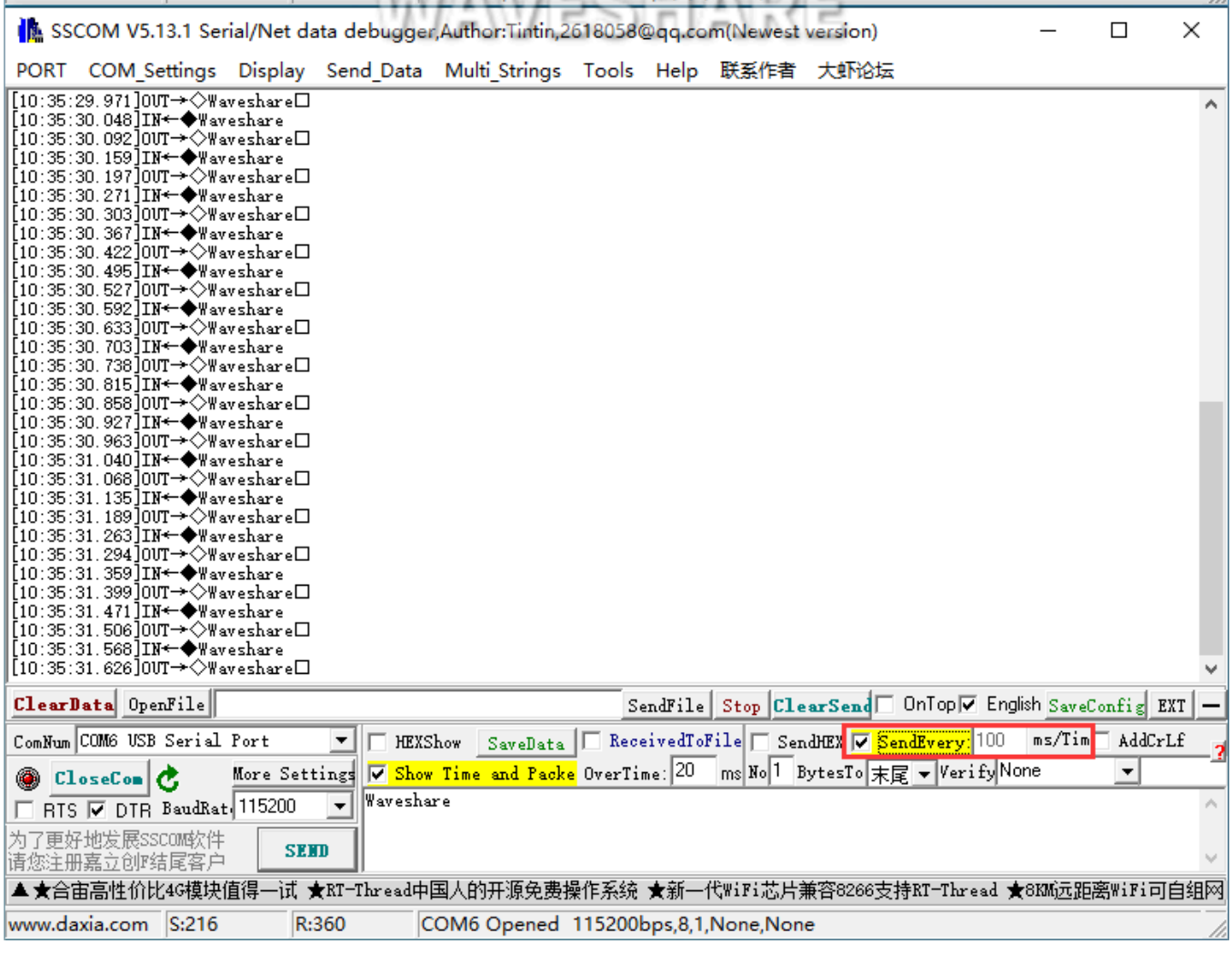
- Input the characters to be sent, select "**Show Time and Packet**" to view it more intuitively, and then click on "**Open COM**".



(/wiki/File:USB_TO_4CH_Serial_Converter_21.png)

- Both select the **100ms** of the SSCOM, and you can see the effect.


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
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: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
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:216 R:360 COM6 Opened 115200bps,8,1,None,None

(/wiki/File:USB_TO_4CH_Serial_Converter_11.png)

Resource

Software

Driver

- VCP Driver (https://files.waveshare.com/wiki/USB-TO-4CH-Serial-Converter/CDM212364_Setup.zip) (Or you can download it from FTDI website (https://ftdichip.com/drivers/vcp-drivers/).)
- Support driver-free for Linux systems.

Software

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

Datasheet

- FT432H (https://files.waveshare.com/wiki/USB-TO-4CH-Serial-Converter/DS_FT4232H-Datasheet.pdf)

STP File

- STP file (https://files.waveshare.com/wiki/USB-TO-RS485-422/USB_TO_4CH_RS485-422-STP.zip)

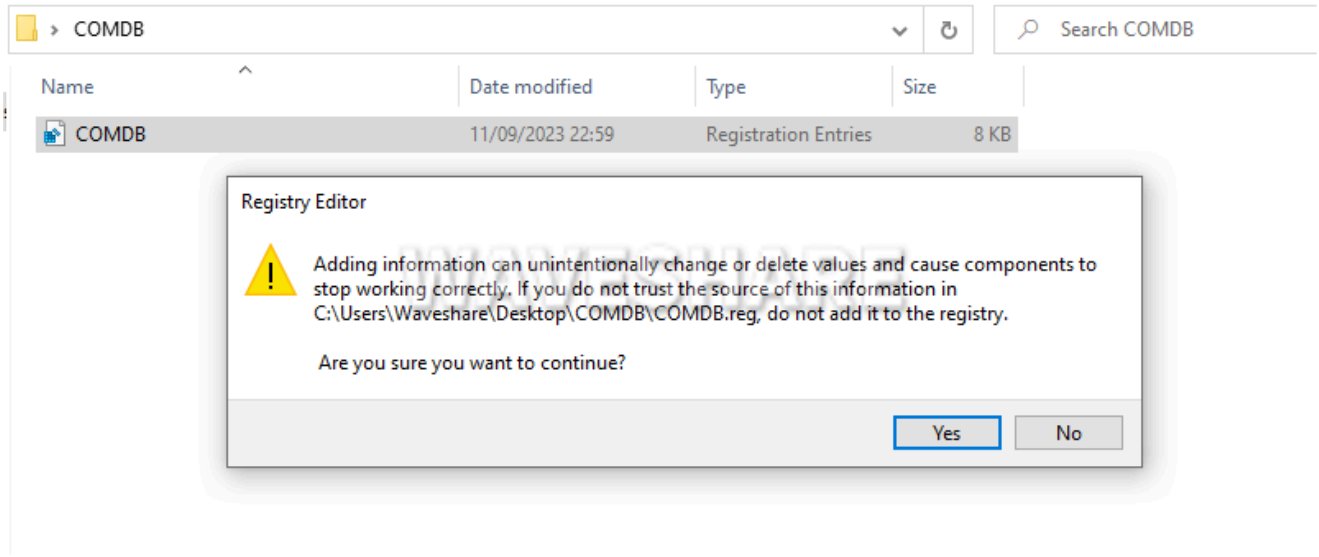
FAQ

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).

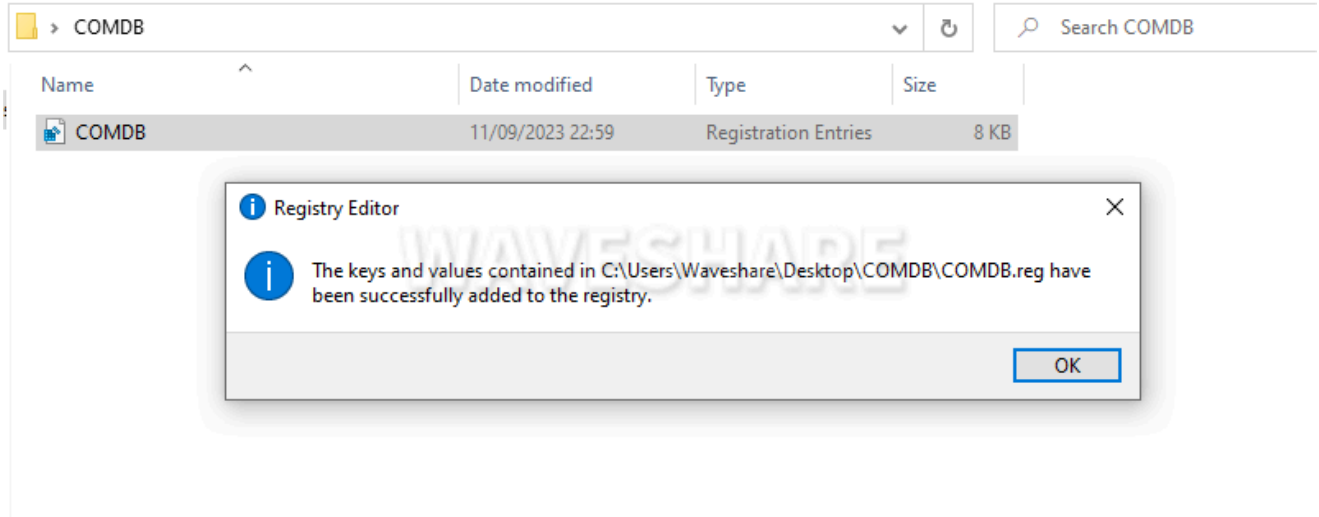
Answer:

- 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.



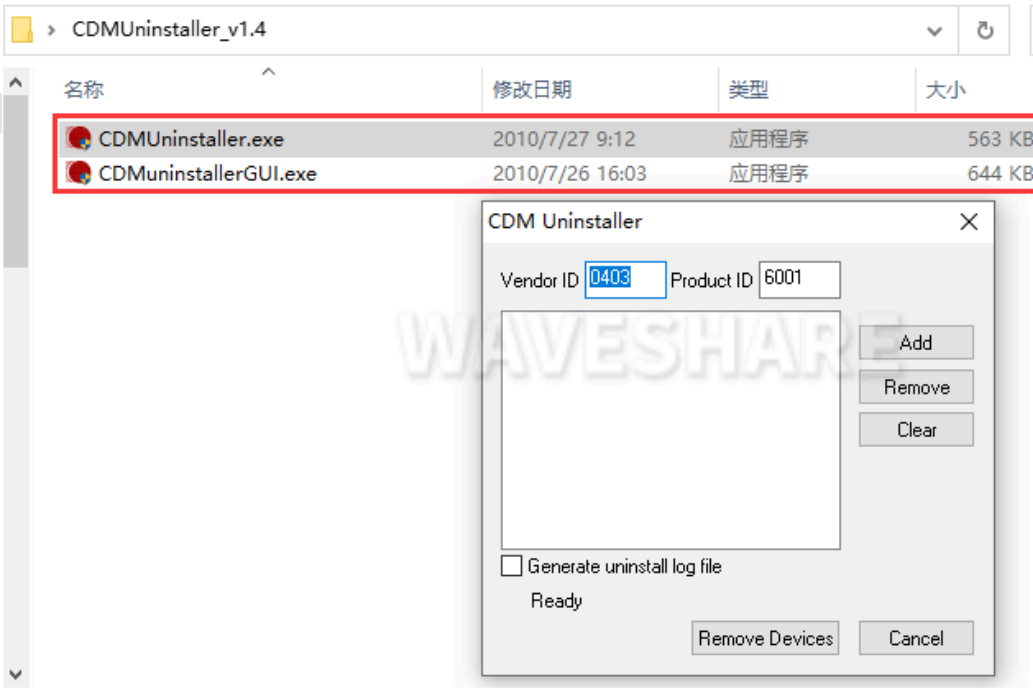
(/wiki/File:USB_TO_4CH_Serial_Converter_FAQ-01.png)



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

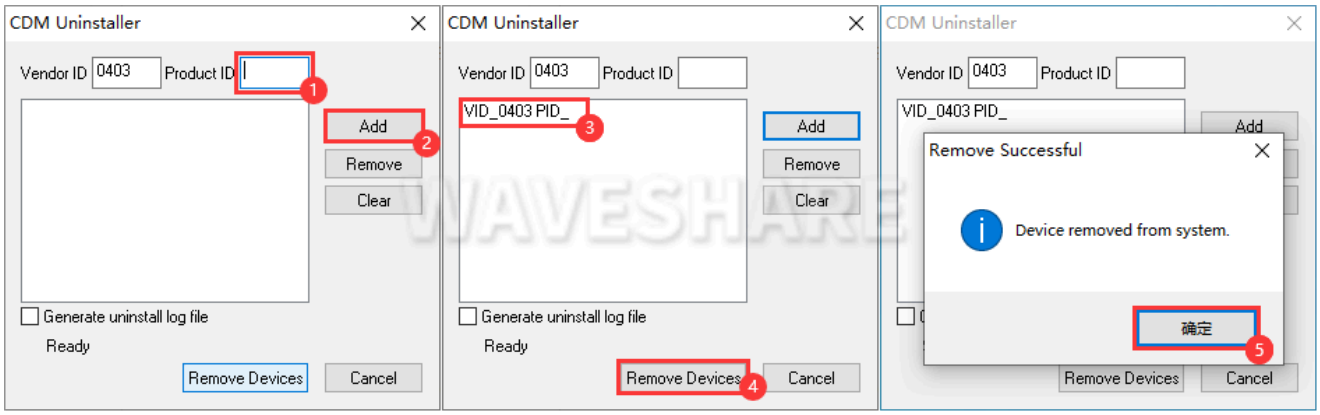
2. If there is a pop-up window, please allow the demo to run.

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)

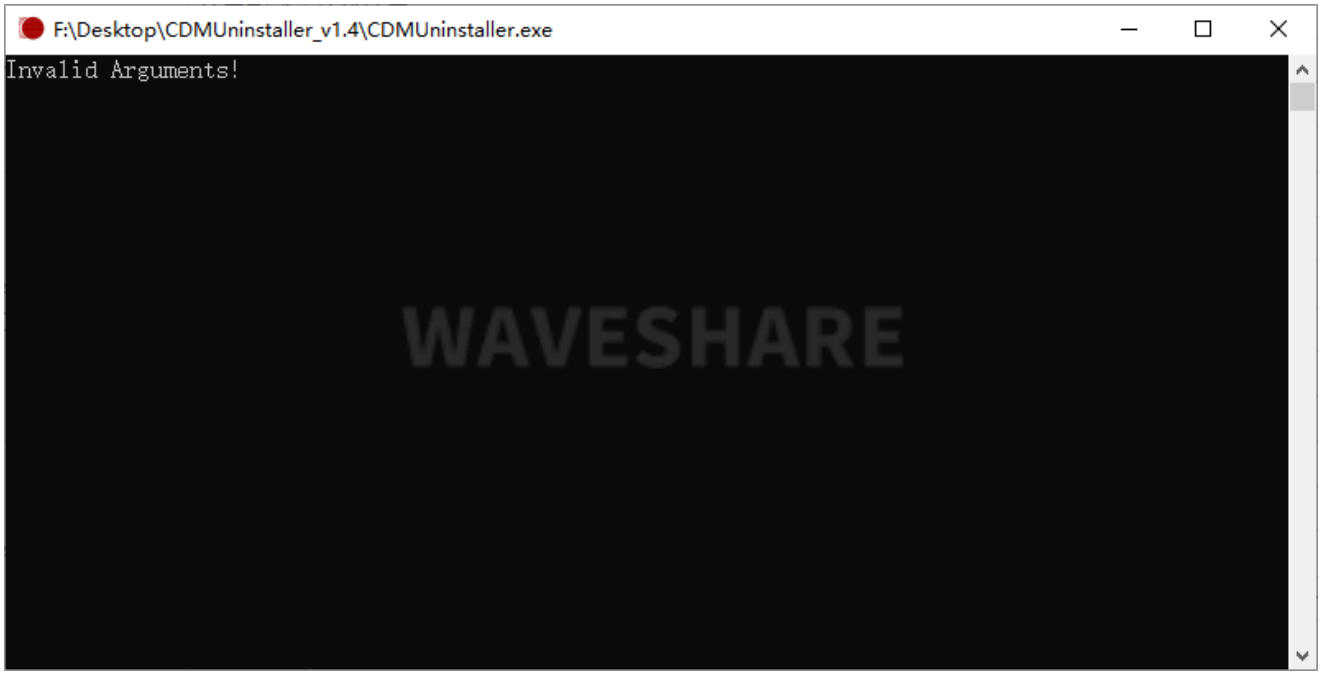
4. Configure and execute (please erase the value of "Product ID" -> Click "Add" -> ③ -> Click "Remove Devices" -> OK)



(/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)

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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