Overview

Introduction

USB TO RS232/485/422/TTL, an industrial-grade isolated converter, adopts the original FT232RNL, built-in protection circuits including power isolation, ADI magnetical isolation and TVS, and with aluminum alloy case design. USB TO RS232/485/422/TTL is easy to operate and features an automatic transmission and reception conversion with zero delays. Also, it features



various advantages, such as fast communication speed, stability, reliability, and safety, and can be applied to various industrial control devices or applications with high communication requirements.

Feature

- Adopt original FT232RNL chip, fast communicating, stable and reliable, better compatibility.
- Supports multiple communication interface conversion: USB to RS232, USB to RS485, USB to RS422, USB to TTL.
- 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, lightning proof & ESD protection.
- Onboard self-recovery fuse and protection diodes, ensure the current/voltage stable outputs, provides over-current/over-voltage proof, and improve shock resistance.
- Fully automatic transceiver circuit with no delay, ensures the USB port communicates with different interfaces fastly and stably, without interfering with each other.
- Onboard TTL serial 3.3V/5V voltage translator, config the TTL level via a switch.

- 3x LEDs for indicating the power and transceiver status.
- High-quality USB-B and RS232 connectors, smoothly plug/pull.
- Industrial grade metal case, supports wall-mount and rail-mount installations, solid and beautiful, easy to install.

Parameters

PRODUCT TYPE	Industrial Grade Digital Isolated Converter		
	Operating voltage	5V	
USB	Connector	USB-B	
USB RS232	Protection	200mA self-recovery fuse, isolated output	
	Connector	DB9 male	
	Protection	TVS diode, surge protection & ESD protection	
RS232	Transmission mode	Point-to-point	
	Baud rate	300bps ~ 921600bps	
	Connector	Screw terminal	
	Direction control	Hardware automatic control	
RS485/422	Protection	600W lightning-proof and surge-suppress, 15KV ESD protection (reserved two 120R balancing resistors, enabled/disabled via jumper)	
KS485/422	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 ~ 2Mbps	
	Operating voltage	3.3V / 5V	
	Connector	Screw terminal	
	Pins	TXD, RXD, GND, 5V/3.3V	
TTL (UART)	Protection	Clamp protection diode, over-voltage/negative- voltage proof, shock resistance	
	Transmission mode	Point-to-point	
	Baud rate	300 bps ~ 2Mbps	
	PWR	Red power indicator, light up when there is a USB connection and voltage is detected	
INDICATORS	TXD	TX indicator, light up when the USB port sends data	

	RXD	RX indicator, light up when the device ports send data back
OPERATING	Temperature	-15 ~ 70°C
ENVIRONMENT	Humidity	5% ~ 95%RH
OPERATING SYSTEM	Mac, Linux, Android, Windows 11 / 10 / 8.1 / 8 / 7	

Interface Introduction





RS232 pinout				
DB9 Male (PIN) Description				
2	Receiving data (RXD)			
3	Sending data (TXD)			
5	Ground GND			
1,4,6,7,8,9	N/C			

RS485/422 Pinout				
Screw Terminal (PIN) Description				
PE	485/422 signal ground			
TA	RS422 send differential signal positive RS485 differential signal positive A+			
ТВ	RS422 send differential signal negative RS485 differential signal negative B-			
RA	RS422 receive differential signal positive			
RB	RS422 receive differential signal negative			



TTL (UART) Pinout		
Screw Terminal (PIN)	Description	
TXD	TTL transmit data pin, connect to MCU.RXD	
RXD	TTL receive data pin, connect to MCU.TXD	
GND	Connect to GND	
VCC	5V / 3.3V power supply output, configurable via 5V/3.3V level switch	
5V/3.3V level switch	TTL level selection	

Dimensions







Unit: mm

Matching Resistor





Note: The RS422 and RS485 interfaces of USB TO RS232/485/422/TTL also have a built-in 120R enable resistor, which is enabled by default, and the user can disassemble the case to modify the settings as needed.

Modification method: modify the yellow jumper cap at the red frame.

Software Installation

USB Driver Installation

- The first method: download the driver wizard from the Internet, and automatically detect and install the driver.
- The second method: manually install the driver (the following uses WIN7 installation as an example).
- Connect the device to the computer via a USB cable, and check the device manager, the serial port number has a yellow exclamation mark, indicating that the driver is not installed.



• You can download the software installation package on the official website WIKI.





• Click Extract:

Device Driver Installation Wizar	d
	Welcome to the Device Driver Installation Wizard! This wizard helps you install the software drivers that some computers devices need in order to work.
	To continue, click Next.
	< Back Next > Cancel

• Click Next:

License Ag	reement		
Ń	To continue, accept the following lic agreement, use the scroll bar or pres	ense agreement. To read s the Page Down key.	the entire
	IMPORTANT NOTICE: PLEASE RE INSTALLING THE RELEVANT SOI This licence agreement (Licence) is (Licensee or you) and Future Techn of 2 Seaward Place, Centurion Busi Scotland (UK Company Number SC driver software provided by the Lice BY INSTALLING OR USING THIS	EAD CAREFULLY BEFOR FTWARE: a legal agreement betwe lology Devices Internation ness Park, Glasgow G41 136640) (Licensor or we) nsor(Software). SOFTWARE YOU AGRE	RE A en you hal Limited 1HH, for use of EE TO THE
	 I accept this agreement I don't accept this agreement 	Save As	Print

	< Back	Next >	Cancel
	Duon	There >	Canoor

• Check I accept this agreement (A), and then click Next:

Device Driver Installation Wiza	rd Completing the De Installation Wizard	vice Driver I
	The device driver installation wiz software for your hardware devic the software you currently have	and did not update any of your ses because it was not better than installed.
	Driver Name ✓ FTDI CDM Driver Packa ✓ FTDI CDM Driver Packa	Status Ready to use Ready to use
	< Back	Finish Cancel

• Click Finish, and check the computer device manager at this time, you can see that the port number is already available for normal use.

USB TO RS4852-9.png

Hardware Test

Test environment: PC (Windows operating system) Accessories required for testing:

- USB TO RS232 485 422 TTL x2
- Several DuPont wires
- USB-A male to USB-B male cable
- DB9 female-to-female cable

Test USB to RS485 communication

1. Connect the hardware as shown below:







2. Open two sscom software windows, open the corresponding serial port number, set the baud rate to 115200bps, enter the box "abcdefg", then open the serial port to test sending and receiving: (the same method as the RS232 test).

First, check the scheduled sending on the left window, and the time can be set to 100ms/time to see if it is sent to the right window normally, there will be no packet loss or garbled characters, and if it is normal, turn off the scheduled sending, as shown in the figure below:



3. Then check the timing sending in the right window, and the time can be set to 100ms/time to see if it is sent to the left window normally, there will be no packet loss or garbled characters, and if it is normal, turn off timing sending, as shown in the figure below:



建口号 COM17 Silicon Labs CF210x ▼ □ HEX显示 保存數据 □ 接收数据到文件 □ HEX发送 □ 定时发送: 100 ms/次 ☑ 加回车换行。	清除窗口 打开文件 发送文件 保止 清发说反 一 最前 「 English 保存参数 計開 -
● 美词串口 C 空多串口设置 Z 加封间数和分包显示 翻: 翻封词: 20 ms 第1 字节 至 末尾 - 加枝硷 None -	端口号 COMP NSB Serial Port 💽 F MEX最示 保存救援 F 接收数据到文件 F MEX发送 F 定时发送 100 ms/次 F 加回车换行
「RTS F DTR 就特案: 115200 - abodefg	● 美阔串口 ● 車谷串口沿雲 ▽ 加封首號和分包显示。 細胞 封道: 20 mc 第1 字节 至 末尾 • 加校验 None •
为了更好地发展SSD通忆件 👷 🗰	F RTS IF DTF 波特案: 115200
请您注册最立时编起客户	为了更好地发展SSCOB软件 👷 🎛
【升级到V5.13.1】★台田墨性们比40模块值得一试 ★IT-Thread中国人的开源免费操作系统 ★钢一代型打芯片栗符8266支持IT-Thread ★80055	査信注册展立印度站尾客户
www.daxia.com S:0 R:2070 COM17 已打开 1200000bps,8,1,None,None	www.daxia.com S:2070 R:0 COM9 已打开 1200000bps,8,1,None,None

Test USB To RS422 Communication

1. Connect the hardware as shown below:



Note: The RS485 interface of this product also has a built-in 120R enabling resistor, which is turned on by default. Users can disassemble the case to modify the settings according to their needs. If signal isolation is required, PE can also be connected to the ground.

• Open two SSCOM windows on the computer, open the corresponding port number, set the same baud rate, and click "Send" at regular intervals to receive and send normally. The test results are shown in the figure below:



Test USB To RS232 Communication

1. Connect the hardware as shown below:



2. Open two sscom software windows, open the corresponding serial port number, set the baud rate to 115200bps, enter the box "abcdefg", and then open the serial port to perform the sending and receiving test:

First, check the scheduled sending on the left window, and the time can be set to 100ms/time to see if it is sent to the right window normally, there will be no packet loss or garbled characters, and if it is normal, turn off the scheduled sending, as shown in the figure below:



3. Then check the timing sending in the right window, the time can be set to 100ms/time, and see if it is sent to the left window normally, there will be no packet loss or garbled characters, and if it is normal, turn off timing sending, as shown in the figure below:

	LissCOM V5.13.1 単口/周緒数振興試験(作者大部)丁ブブ(2618058のgq.com, QQ群: 52502449(最新版本) ー 通讯論口 単口设置 显示 发送 多字符串 小工具 移助 既新作者 大部行法 5	×
17:56:08:74510t++ abodefg 17:56:09:09510t++ abodefg	17:56:00.635]安+◇abodafg 17:56:00.743]安→◇abodafg	^
[17:56:08:967] 快 — 金 Andafg	17:56:08:095]友→○abedefg 17:56:08:996]放→○abedefg	
117:56:09.18830€ ← Autorfu	17.55:00.075]友→◇abolafg 17.55:70.0133世→◇abolafg	



Test USB To TTL Communication

1. Connect the hardware as shown in the figure below:



Open two sscom software windows, open the corresponding serial port number, set the baud rate to 115200bps, enter the box "abcdefg", then open the serial port, and perform the sending and receiving test: (the same method as the RS232 test.)
 Check the scheduled sending on the left window first, and the time can be set to 100ms/time to see if it is sent to the right window normally, there will be no packet loss or garbled characters, and if it is normal, turn off the scheduled sending, as shown in the figure below:



4. Then check the timing sending on the right window, the time can be set to 100ms/time, and check whether it is sent to the left window normally, there will be no packet loss or garbled characters, and if it is normal, turn off timing sending, as shown in the figure below:



Resource

Software

- VCP Driver (or download from FTDI official website):
 - FT232 Driver-Windows-32bit ₽
 - FT232 Driver-Windows-64bit ₽
 - MAC FT232 Driver-MAC-64bit ₽
- Sscom Windows 🗗
- Sscom Android
- Putty.zip 🗗

Datasheet

- FT232R ₽
- SP481E SP485E

FAQ

Question:What should I do if there are issues with short-distance RS485 communication in which I'm receiving extra 0s or garbled data?

Answer:

• In general, the short-distance communication can be removed from RS422/RS485's two 120Ω terminal, and connect jumper caps to NC.



 When multiple devices connect to the RS485 serial bus over a long distance, in general, we add 120Ω matching resistors to the first and last devices on the RS485 bus.



Question: How can I confirm that the module's functions are normal?

Answer:

RS232, RS422, and TTL are full-duplex communication, you can choose a loopback test to confirm the module function, the following RS422 as an example test:

TA-RA



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 AM GMT+8 (Monday to Friday)

Submit Now