

# USB 2.0 to RS422/RS485 line Manual

## I. Introduction

With the continuous development of PC industry, USB interface is gradually replacing the old PC's various low speed peripheral interface. However, many important equipment in the industrial environment still use RS422/RS485 interface design. Therefore, many users use USB to RS422/RS485 converter to achieve the data transmission between PC and RS422/RS485 converter.

This universal USB2.0 TO RS422/RS485 converter requires no external power supply. Compatible with USB2.0, RS422, RS485 standards, which can convert single-ended USB signals into balanced difference RS422 or RS485 signals. Provide each line surge protection power of 600W, as well as all kinds of reasons on the line surge voltage and minimal inter-electrode capacitance, ensure the RS422/RS485 interface high-speed transmission. The RS422 and RS485 terminals are connected through the connector of DB9 male. With zero delay automatic transceiver conversion, the unique I/O circuit automatically controls the direction of data flow without any handshake signal. Such as (such as RTS, DTR, etc.) without the need to set the jumper line to achieve full duplex (RS422), half duplex (RS485) mode conversion, plug and play. Ensure fit with all existing communication software and interface hardware.

USB to RS422/RS485 interface converter can provide reliable connection for point-to-point and point-to-multipoint communication. Each of the point-to-multipoint converters can connect up to 32 RS422 or RS485 interfaces. The data communication rate is 300-460800bps, with power supply indicator and data flow indicator to indicate the fault situation, the supported communication mode is USB2.0 to RS422, USB2.0 to RS485 conversion.

## II. Main Function

USB to RS422/RS485 interface converter supports the following four communication modes:

1. Point to point/four-wire full duplex;
2. Point to multi-point/four-wire full duplex;
3. Point to point/two line half duplex;
4. Point to multi point/two line half duplex.

When the converter is wired as full duplex or half duplex, to prevent signal reflection and interference, a matching resistor (parameter of 120 ohm 1/4W) should be connected at the end of the line.

## III. Hardware Installation and Application

Please read the product manual carefully before installing the USB to RS485/422 interface converter. Connect the communication cable of the product to the USB interface end. This product adopts USB/DB9 and universal connector as the input and output interfaces, and automatically realizes RS422 or RS485 communication mode without jumper setting. Twisted pair or shielded wire can be used to connect and disassemble very conveniently. Point to point, point to multi-point, full duplex communication connected to four lines T/R+, T/R-, RxD+, RxD-, point to point, point to multi-point, half duplex communication connected to two lines T/R+, T/R-.

## IV. Performance Parameter

1. Standard: in line with USB2.0 standard, downward compatibility, in line with RS422, RS485 standard;
2. USB signal: VCC, DATA-, DATA-, GND;
3. RS422 signal: T/R+, T/R-, RxD+, RxD-, GND;
4. RS485 signal: T/R+, T/R-, GND;
5. Working mode: Asynchronous working, point-to-point or multi-point, 4-wire full duplex, 2-wire half duplex;
6. Direction control: the data flow automatic control technology, automatic discrimination and control of data transmission direction;
7. Baud rate: 460800bps, automatic detection of serial port signal rate;
8. Load capacity: support point to multi-point, each converter can be allowed to connect 32 RS422 or RS485 interface devices;
9. Transmission distance: RS422/RS485 terminal 1200 meters, USB cable no more than 5 meters;
10. Built-in photoelectric isolator and power isolator module: isolating voltage is 2000V.
11. Interface protection: Surge 600W protection power, soil 15KV electrostatic protection;
12. Interface form: USB port A type interface male connector Type-c, DB9 male connector connection;
13. Signal indication: red light power supply, green light send signal, yellow light receive signal;
14. Transmission medium: twisted pair or shielded wire;
15. Transmission rate: 300-460800BPS;
16. Use environment: -25℃~70℃, relative humidity of 5%-95%;
17. Support Windows98 / ME / 2000 / XP/Vista / 7, Linux, MAC, Wincc.

## V. Connectors and Signals

DB9 needle RS422/RS485 outlet number and pin distribution of cable is thole

Db9 needle	Output signal	RS422 full duplex wiring	RS485 half duplex wiring
1	T/R+	TXD(A+)	RS485(A+)
2	T/R-	TXD(B-)	RS485(B-)
3	RXD+	RXD(A+)	N/A
4	RXD-	RXD(B-)	N/A
5	GND	Earth GND	Earth GND



## VI. Communication Connections Awareness Map



## VII. Safety precautions

1. Data communication failure
  - A. Check whether USB connection is correct;
  - B. Check whether the connection of RS422/RS485 output interface is correct;
  - C. Check whether the power supply is normal;
  - D. Check whether the connection terminals are well connected;
  - E. Observe whether the receiving indicator will blink when receiving;
  - F. Observe whether the sending indicator will blink when sending;
2. Data loss or error
  - A. Check whether the data rate and format of both ends of the data communication equipment are consistent.

# Product Warranty Card

## Customer Information

Model:	
Date of purchase:	
User telephone:	
User address:	
Distributor:	
Agency address:	
User telephone:	Dealer stamp valid

## Intenence Records

Repair times	Date	Fault	Treatment measures	Repair work NO.

# USB2.0 convert RS422/RS485 serial install driver instruction

## I. Introduction to the installation of drive steps

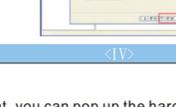
(1) take the win7 64 bit operating system as an example, use the CD installation driver Step one: In the XP system, import the installation driver, which is different from the previous installation method of double-clicking the application. Just plug in the product, right-click "Computer", and click "Manage". As shown in the figure:



Step two: After you double-click the windows7,8,10 folder, it will pop up the installation project and double-click the application:



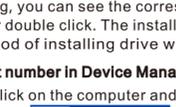
Step three: Double click the application, the name of the chip company will be popped up and click on "Extract":



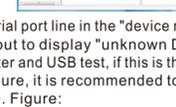
Step four: Then the driver installation guide will be popped and click next:



Step five: Select "I accept this Agreement" and click next:



Step six: After that, the window of the installation driver has been popped up, and click "finish":



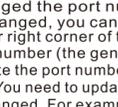
The above is the process of using win7 64 bit operating system, using CD to install and drive.

## (2) In XP system, use CD-ROM to install and drive

Step one: In the XP system, import the installation driver, which is different from the previous installation method of double-clicking the application. Just plug in the product, right-click "Computer", and click "Manage". As shown in the figure:



Step two: The first situation: pop-up the computer management system page, double click "device manager", then double click "port" after the COM port pop-up, but in the "universal serial bus controller" you can see the "Unknown Device" exclamation mark. Shown as follows: Suggest you change the USB interface, or change the computer to see whether or not the same phenomenon, if still the same is possible a serial line failure, suggest you to negotiate the return of goods.



The second situation: There is an exclamation mark in the "other equipment":



Then right-click it, click "update driver", and then pop out of the method that prompts you to install the driver, select "install it from the list or location", and click on the next step:



Step three: Then pop up the search and install options window and select "browse":



Step four: Find the drive disk, (Note that if the folder is compressed, the compression package must be decompressed first.) Select the "Windows XP" folder, click "+", and then click "confirm":



Step five: Then go back to the search and install options window, and browse the folder to see the selected "Windows XP" folder. Click next:



Step six: After that, you can pop up the hardware update wizard window and click "finish":



Step seven: The window will automatically revert to the device manager page, and you can see that there is a COM port on the port column:



Step eight: If you do not see the COM port in the device manager window, click "scan hardware changes":



## (3) \ Browser scan code to download product driver

After downloading, you can see the corresponding driver and install it after double click. The installation steps can imitate the method of installing drive when using CD.

## II. Setting up port number in Device Manager

Step one: Right click on the computer and choose "management":



Step one: Insert the serial cable into the USB interface of the computer, in the "Device Manager", "Port" item, check that the serial port cable has been installed with the driver, and the "COM" port pops up, as shown in the figure:



If you insert the serial port line in the "device manager", not to see the "COM", but to display "unknown Device", then replace the computer and USB test, if this is the case, it may be a serial line failure, it is recommended to return to the factory to replace. Figure:



Step three: See the device manager set to identify the COM device, the next figure is a LED display identification software, the software can set the port change COM slogan, the same as device manager of the COM port:



Step four: If there are no more COM ports in the software, or the selected COM port is still unable to connect, then you need to change the COM number in the device manager, right click the "COM" port in the map, and select the attributes, such as the figure:



After clicking "attribute", the first shot is a regular column. The status of the device shows "this device is working properly". The driver installation does not appear to be a problem, and then click "port settings", such as:



After clicking "Port Settings", "Bits per second" is the parameter setting of the baud rate. If you need to change it, you can change the baud rate of the serial cable here, and then click "OK" as shown in the figure



If the user changes the port of the serial line, click "Advanced" in "Port Settings", the COM port setting page will pop up immediately, select the COM port that matches the communication software, and then click "OK" as shown in the figure:



After setting the port number of the serial port line, you can return to the "device manager" to see if the port line has changed the port number. If the port number is still unchanged, you can click the update driver icon in the upper right corner of the "device manager" to update the port number (the general win7 system will automatically update the port number, XP system after the system is set up. " You need to update the driver to see if the port number is changed. For example, click Scan key:



The installation of serial port has been introduced, and the whole process has been used. If there is an installation fault on the serial cable or an exclamation mark before the COM port, it can be tested on other computers. If the same phenomenon occurs, it is recommended that the factory be repaired. In the use of communication problems, please check if your inserts are in good contact, the port number is wrong, the baud rate has been changed, and the device can turn off the power reboot, or let the device identify the serial line and so on to exclude the fault, but it does not exclude the compatibility problem.