USB TO 8CH TTL

From Waveshare Wiki
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Overview

Introduction

USB TO 8CH TTL, an industrial UART TO TTL converter with an aluminum alloy case, features the original CH348L chip and built-in protection circuits such as the self-recovery fuse and TVS. This converter is easier to operate due to its fully automatic transceiver circuit with no delay. Boasting characteristics of fast communication, stability, reliability, and safety, it is an ideal choice for various industrial control devices and applications with high communication requirements.

USB TO 8CH TTL
(https://www.waveshare.com/usb-to-8ch-tt.htm)
UART, TTL

Features

- Extending USB to 8CH TTL (UART) with hardware flow control, allows concurrent and independent communication for each channel.
- Onboard resettable fuse and protection diodes, ensure the current/voltage stable outputs, provide over-current/over-voltage proof, improving shockproof performance.
- Onboard TVS (Transient Voltage Suppressor), effectively suppresses surge voltage and transient spike voltage in the circuit, lightningproof & anti-electrostatic.
- Onboard voltage translator circuit, with anti-surge and ESD protection, safe and stable communication.
- Onboard TTL serial 3.3V/5V voltage translator, config the TTL level via the switch.
- Aluminium alloy enclosure with oxidation dull-polish surface, CNC process opening, solid and durable, well-crafted.

■ 4x external LEDs for indicating the power and transceiver status.

Parameters

Product	Industrial USB to TTL converter	
Host Interface	USB	
Device Interface	TTL (UART)	
USB Connector	Operating Level	5V
	Connector	USB-B
	Protection	200mA self-recovery fuse, ESD protection
Power Port	Connector	5V DC Power Port
	Protection	Over-voltage protection and anti-reverse protection
TTL (UART)	Connector	50PIN Anti-reverse Port
	Protection	TVS diode, surge protection & ESD protection
	UART TTL Level	3.3V/5V (Adjustable)
Indicator	PWR	Power indicator, connects to USB, lights up red when voltage is detected
	ACT	Status indicator, lights up green when the driver is detected
	TXD	TX indicator, lights up when the USB port sends data
	RXD	RX indicator, lights up when the device ports send data back
Operating System	Mac, Linux, Android, Windows 11/10/8.1/8/7	

Onboard Interface

(/wiki/File:USB_TO_8CH_TTL_Interface.jpg)

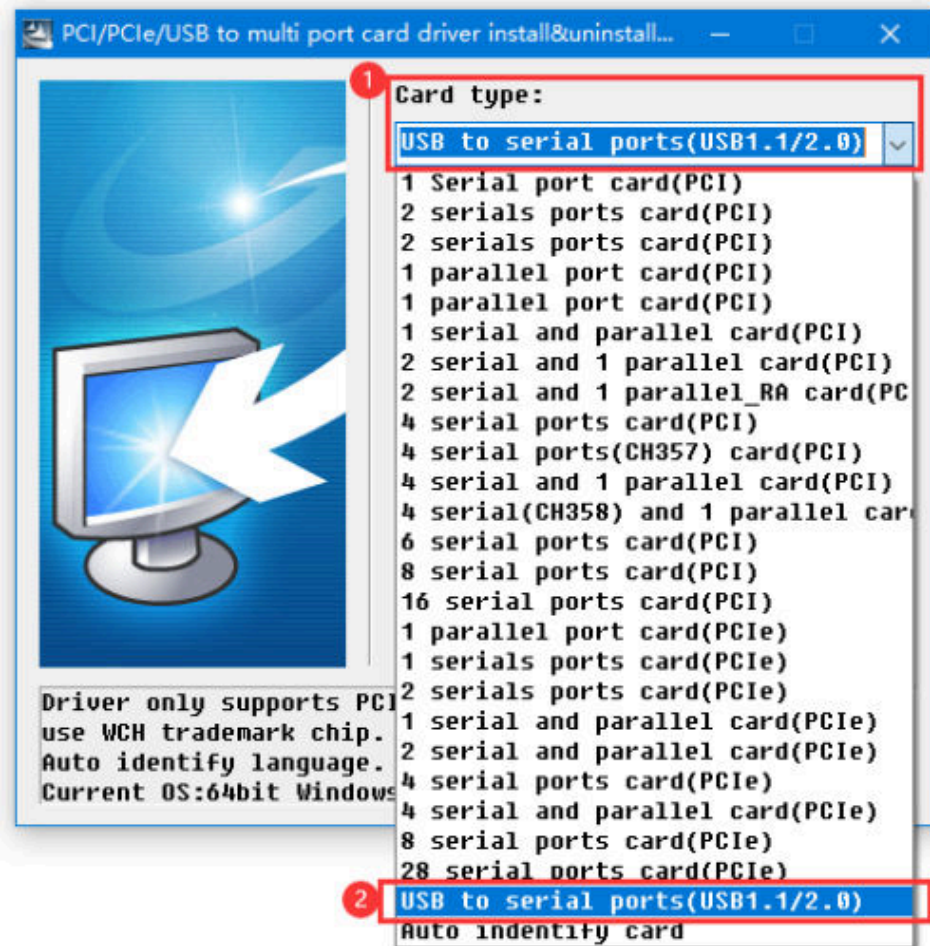| Indicator	
PWR	Power indicator, connect to USB, red light is on when the voltage is detected
ACT	Status indicator, green light is on when the driver is detected
TXD	Transmitting indicator, turn on when data is sent from the USB port
RXD	Receiving indicator, turn on when receiving data from the corresponding port

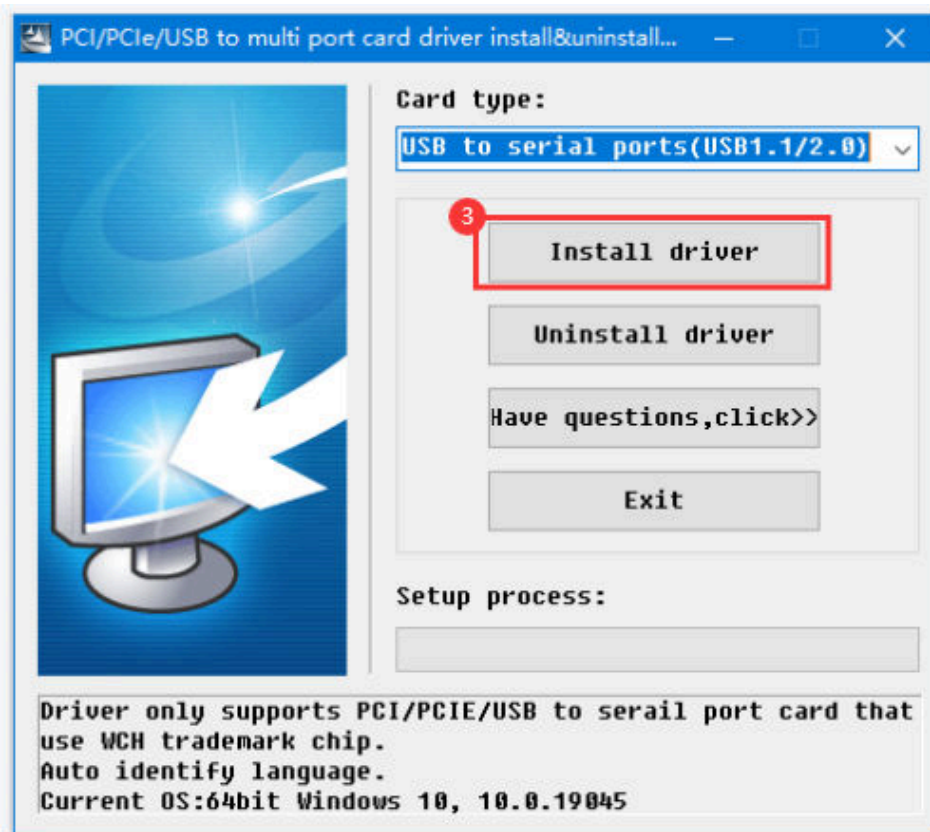# Dimensions

(/wiki/File:USB_TO_8CH_TTL_Dim.jpg)

Driver Installation

- First, download the driver file USBMESR (https://files.waveshare.com/wiki/USB-TO-8CH-TTL/USBMSER.rar).
- Double-click **USBMESR.exe** and install it by steps.
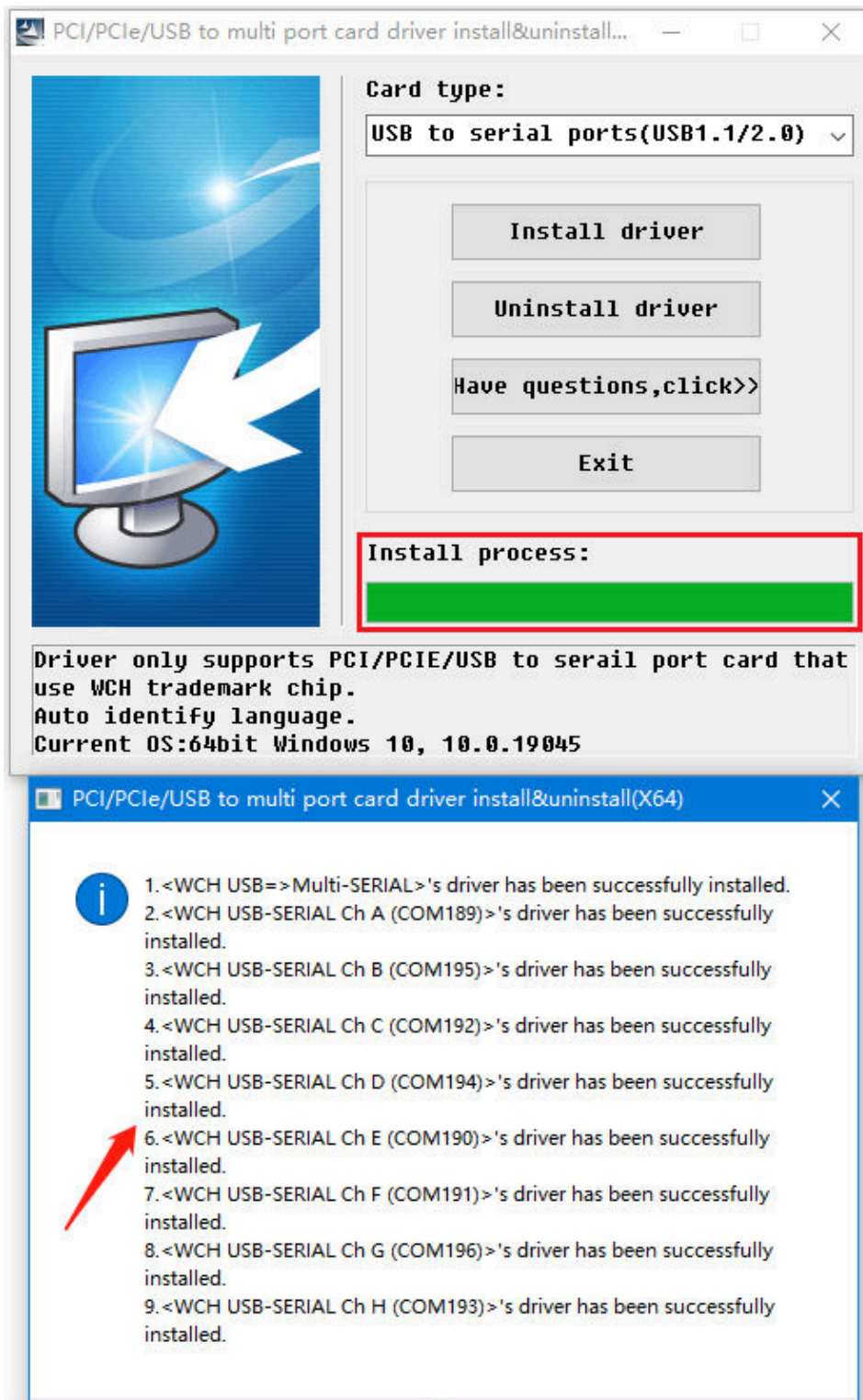- Select **USB to serial ports (USB 1.1/2.0)** as card type.

(/wiki/File:USB_TO_8CH_TTL_Driver_2.png)

- Click on **Install Driver**.

(/wiki/File:USB_TO_8CH_TTL_Driver_3.png)

- When the progress bar is loaded, a pop-up window will appear to indicate that the driver has been installed successfully.

(/wiki/File:USB_TO_8CH_TTL_Driver_4.png)

- After connecting to the computer, you can find the available ports and their corresponding COM port. (Also, you can assign the COM port number through the serial port manager tool).
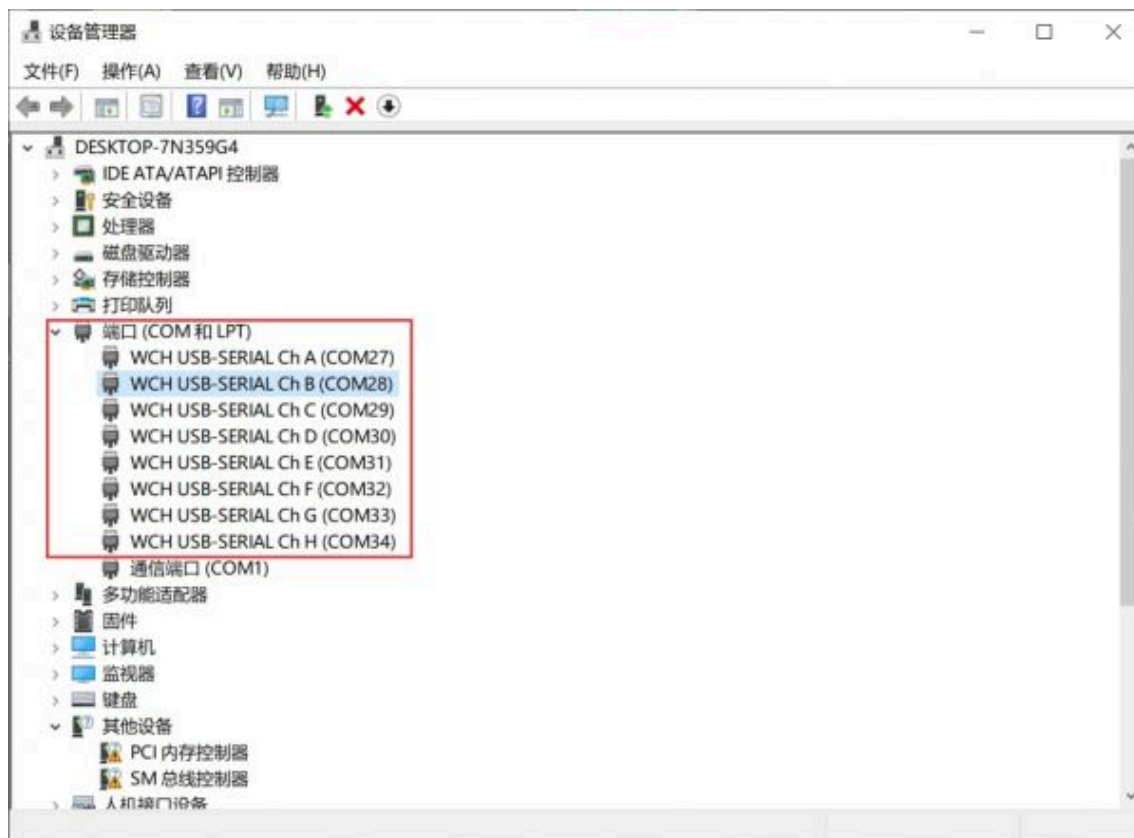
(/wiki/File:USB_TO_8CH_TTL_Driver_5.jpg)

Communication Operation

- Open SSCOM software (https://files.waveshare.com/upload/2/20/Cktszsss32.zip).
- In general, the identification of 8 COM port numbers usually proceeds sequentially from Port A to Port H, starting from the smallest.
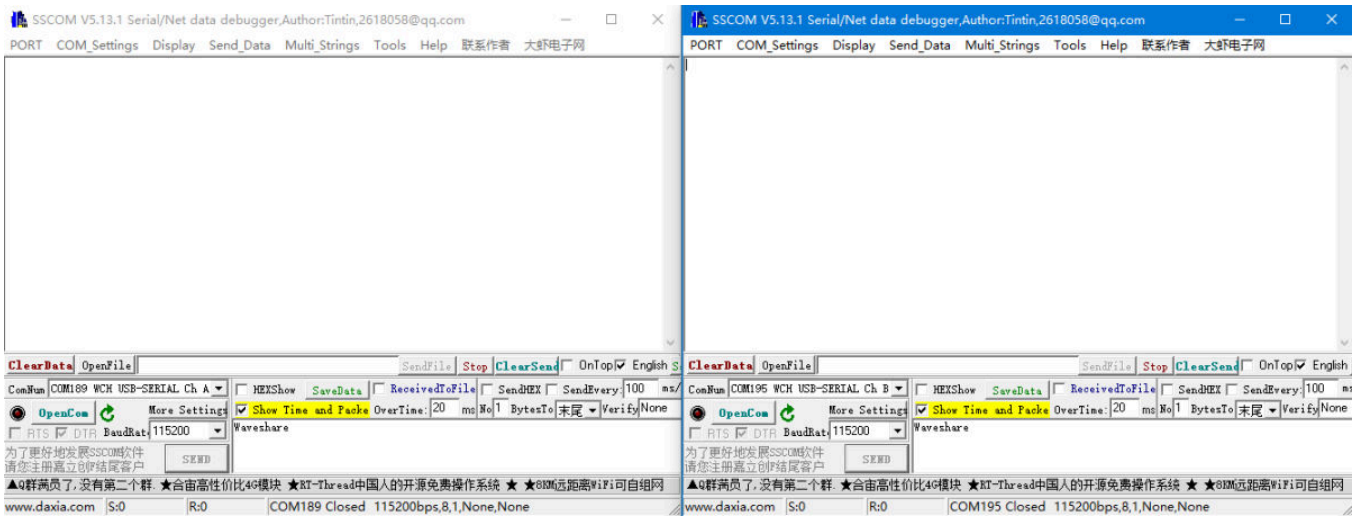
TTL Communication

The following displays how to perform the communication between the UART 0 and UART 1 of the product.

Hardware Connection

USB TO 8CH TTL - UART 0	USB TO 8CH TTL - UART 1
UART 0 - TXD	UART 1 - RXD
UART 0 - RXD	UART 1 - TXD
UART 0 - GND	UART 1 - GND

Software Operation

- Open two SSCOM interfaces.
- Select the corresponding COM port of the UART0 and UART 1, respectively.

(/wiki/File:USB_TO_8CH_TTL_communication-1.png)

- Select the baud rate as **115200**, input the characters you want to send, check **Show time and packet**, and click on **Open COM**.

(/wiki/File:USB_TO_8CH_TTL_communication-2.png)

- Select 100ms intervals in two SSCOM interfaces, and you can see they transmit and receive data normally, the effects as shown below:
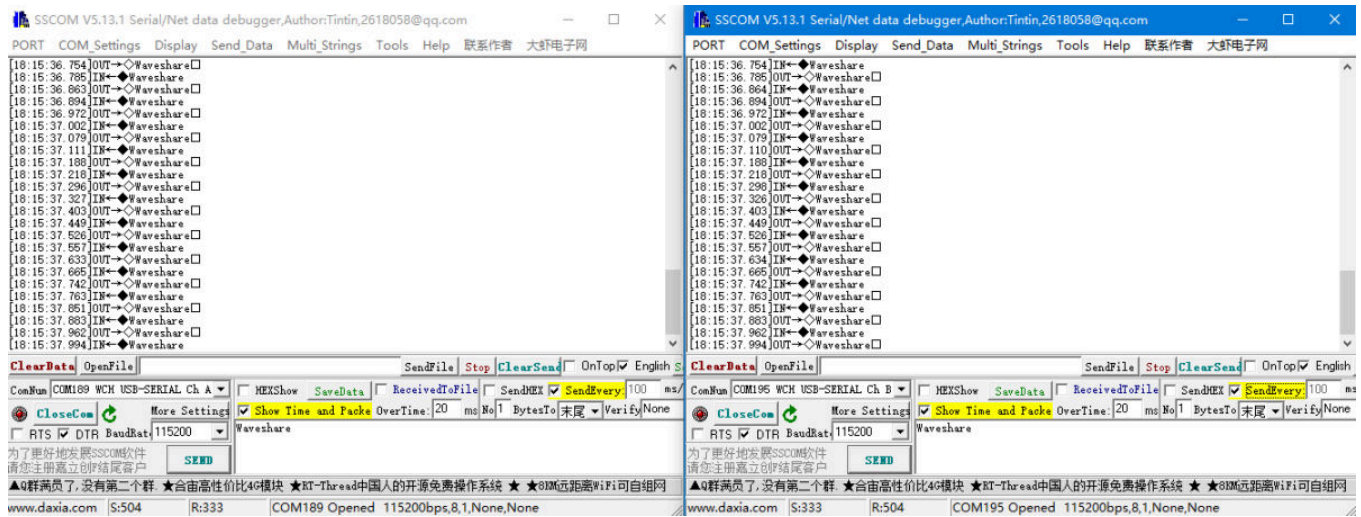
(/wiki/File:USB_TO_8CH_TTL_communication-3.png)

Resource

Datasheet

- CH348L Manual (https://files.waveshare.com/wiki/USB-TO-8CH-TTL/CH348DS1.PDF)

Software and Drivers

- SSCOM Assistant (https://files.waveshare.com/upload/2/20/Cktszsss32.zip)
- Windows USBMESR (https://files.waveshare.com/wiki/USB-TO-8CH-TTL/USBMSER.rar) driver (or download from WCH website (https://www.wch.cn/downloads/USBMSER_exe.html))
- ComPortManager (https://files.waveshare.com/wiki/USB-TO-8CH-TTL/ComPortManager.rar)
- Linux Driver (https://files.waveshare.com/wiki/USB-TO-8CH-RS485/LINUX.zip)

FAQ

Question:The interface terminal of the product is 50PIN, how to distinguish the interface?

Answer:

The interface of this product takes 2*3PIN as a group of serial ports, and circulates to the right in order. There are 8 groups of serial ports in total. The color corresponding to each interface is the color corresponding to the 50PIN wire after it is connected to the wire. The specific distinction is shown in the figure:
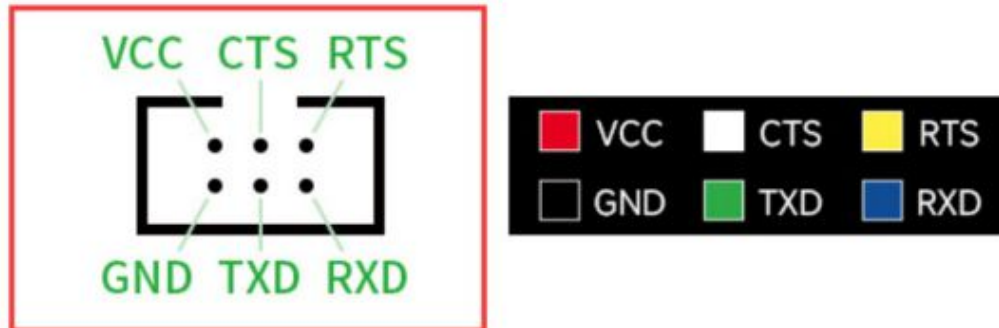
(/wiki/File:USB_TO_8CH_TTL_FAQ-1.jpg)

Question:In general, is it enough to use USB power supply, when do I need to use DC power supply?

Answer:
- Generally, USB power supply is enough, and for old computers with insufficient USB power supply, DC power supply can be used.
- If multiple channels are used at the same time, multiple devices are connected at the same time, the communication distance is relatively long, the bandwidth can not be loaded, it is necessary to use; TTL power consumption is relatively low.

Question:What can be done to solve the problem of garbled code or not receiving any communication reply during communication?

Answer:

This product has a level conversion chip on board, and there is a data conversion rate when using, so please try to avoid too much data conversion in the middle of the communication.

Question:Why is there no descriptor (COM port number) for serial devices in the Linux system after connecting this product?

Answer:

- It is because the driver is not installed, you can download it from #Resource.
- Here take the Raspberry Pi system as an example. It may be different in various systems, please modify it according to your situation.

```
pi@xl:~/Music/LINUX $ cd driver/
pi@xl:~/Music/LINUX/driver $ sudo make
make -C /lib/modules/5.10.17-v7l+/build  M=/home/pi/Music/LINUX/driver
make[1]: Entering directory '/usr/src/linux-headers-5.10.17-v7l+'
make[1]: Leaving directory '/usr/src/linux-headers-5.10.17-v7l+'
pi@xl:~/Music/LINUX/driver $ sudo cp ch9344.ko /lib/modules/`uname -r`/kernel/drivers/us
b/serial
pi@xl:~/Music/LINUX/driver $ sudo depmod -a

pi@xl:~/Music/LINUX/driver $
pi@xl:~/Music/LINUX/driver $ sudo modprobe ch9344
pi@xl:~/Music/LINUX/driver $ sudo reboot ▊
```

(/wiki/File:USB_TO_8CH_RS485_FAQ-1.jpg)

```
pi@xl:~/Music/LINUX/driver $ lsusb
Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 001 Device 004: ID 1a86:55d9 QinHeng Electronics
Bus 001 Device 002: ID 2109:3431 VIA Labs, Inc. Hub
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
pi@xl:~/Music/LINUX/driver $ ls /dev
autofs          loop5          ram4          tty14  tty4   tty8          vcsa1
block           loop6          ram5          tty15  tty40  tty9          vcsa2
btrfs-control   loop7          ram6          tty16  tty41  ttyAMA0       vcsa3
bus             loop-control   ram7          tty17  tty42  ttyCH9344USB0 vcsa4
cachefiles      mapper         ram8          tty18  tty43  ttyCH9344USB1 vcsa5
ch9344_iodev0   media0         ram9          tty19  tty44  ttyCH9344USB2 vcsa6
char            media1         random        tty2   tty45  ttyCH9344USB3 vcsa7
console         mem            raw           tty20  tty46  ttyCH9344USB4 vcsm-cma
cuse            mmcblk0        rfkill        tty21  tty47  ttyCH9344USB5 vcsu
disk            mmcblk0p1      rpivid-h264mem tty22 tty48  ttyCH9344USB6 vcsu1
dma_heap        mmcblk0p2      rpivid-hevcmem tty23 tty49  ttyCH9344USB7 vcsu2
dri             mqueue         rpivid-intcmem tty24 tty5   ttyprintk     vcsu3
fd              net            rpivid-vp9mem tty25  tty50  uhid          vcsu4
full            null           serial1       tty26  tty51  uinput        vcsu5
fuse            port           shm           tty27  tty52  urandom       vcsu6
gpiochip0       ppp            snd           tty28  tty53  v4l           vcsu7
gpiochip1       ptmx           spidev0.0     tty29  tty54  vchiq         vga_arbiter
gpiomem         pts            spidev0.1     tty3   tty55  vcio          vhci
hwrng           ram0           stderr        tty30  tty56  vc-mem        video10
initctl         ram1           stdin         tty31  tty57  vcs           video11
input           ram10          stdout        tty32  tty58  vcs1          video12
kmsg            ram11          tty           tty33  tty59  vcs2          video13
log             ram12          tty0          tty34  tty6   vcs3          video14
loop0           ram13          tty1          tty35  tty60  vcs4          video15
loop1           ram14          tty10         tty36  tty61  vcs5          video16
loop2           ram15          tty11         tty37  tty62  vcs6          watchdog
loop3           ram2           tty12         tty38  tty63  vcs7          watchdog0
loop4           ram3           tty13         tty39  tty7   vcsa          zero
pi@xl:~/Music/LINUX/driver $ ▊
```

(/wiki/File:USB_TO_8CH_RS485_FAQ-2.jpg)

Question:What the dimension of its mounting holes is?

Answer:

- The mounting holes on both edges are the same, as shown below:
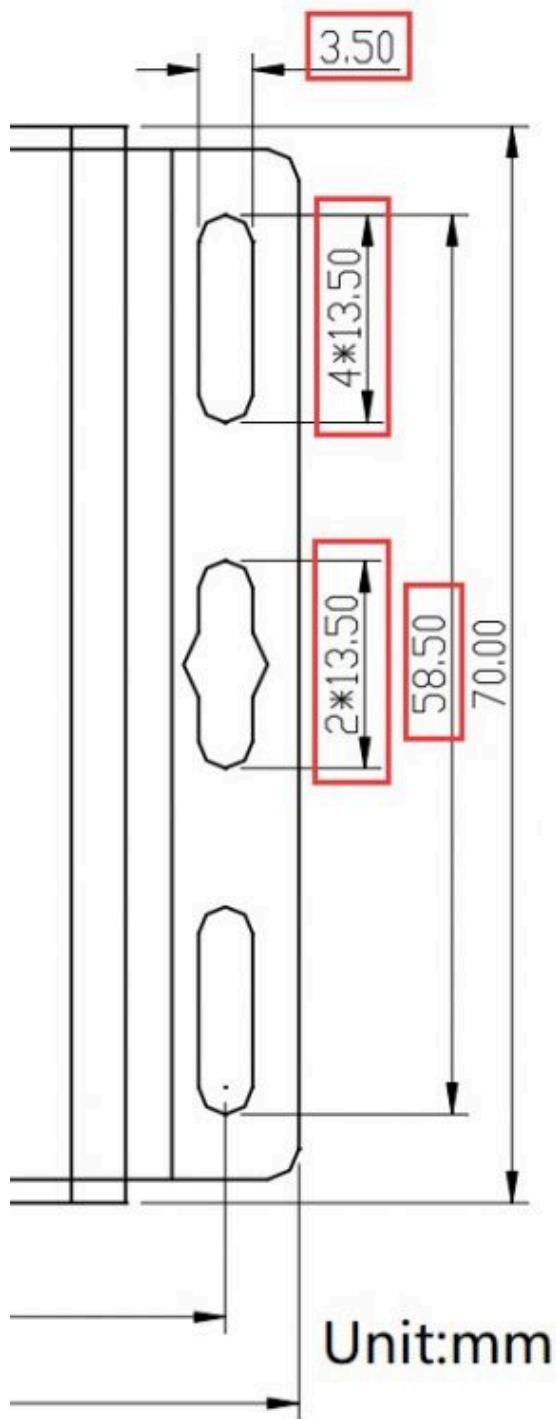
(/wiki/File:USB_TO_8CH_TTL_FAQ-4.jpg)

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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