3. Test TTL-RS485 mode

Before testing, confirm that the serial port driver has been correctly installed and that the computer can correctly recognize the COM port device after plugging in the module.

TTL-RS485 mode is typically used to convert TTL serial port data into RS485 data to enable interaction with a computer, allowing users to view the serial port data content and perform some debugging through serial port assistant software.

RS485 is a half-duplex mode and cannot be directly shorted like TTL; it requires testing through an external module.

Before starting the test, you will need to prepare the following hardware: a Windows computer, two matching USB Type-C data cables, three serial port modules, and seven female-to-female DuPont wires.

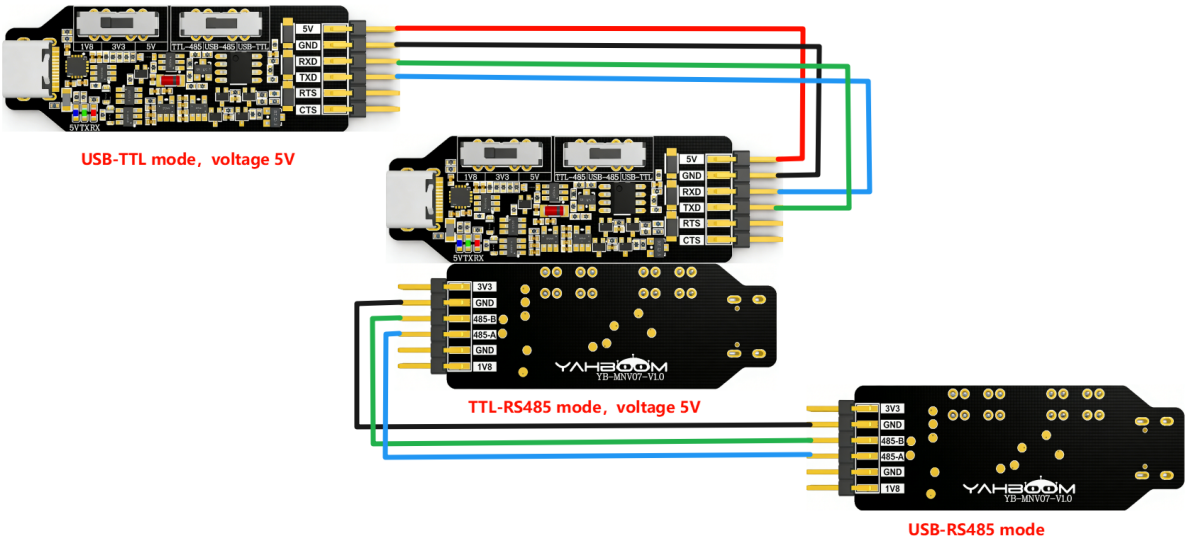
We will test the functionality of TTL-RS485 using a Windows computer. The procedure is as follows:

（1）Switch the three modules to USB-TTL mode, TTL-RS485 mode, and USB-RS485 mode respectively.

For detailed configuration information, please refer to the table below.

Serial Number	Module mode	operate	Remark
1	USB-TTL mode	Set the operating mode selection switch to the right (USB-TTL mode) and the voltage selection switch to the right (5V).	The voltage between modules must be kept the same; otherwise, problems such as garbled characters will occur.
2	TTL-RS485 mode	Set the operating mode selection switch to the left (TTL-RS485 mode) and the voltage selection switch to the right (5V).	The voltage between modules must be kept the same; otherwise, problems such as garbled characters will occur.
3	USB-RS485 mode	Set the operating mode selection switch to the middle USB-RS485 mode. The voltage selection switch is not required; any voltage is acceptable.	

（2）Connect the wires according to the diagram below.

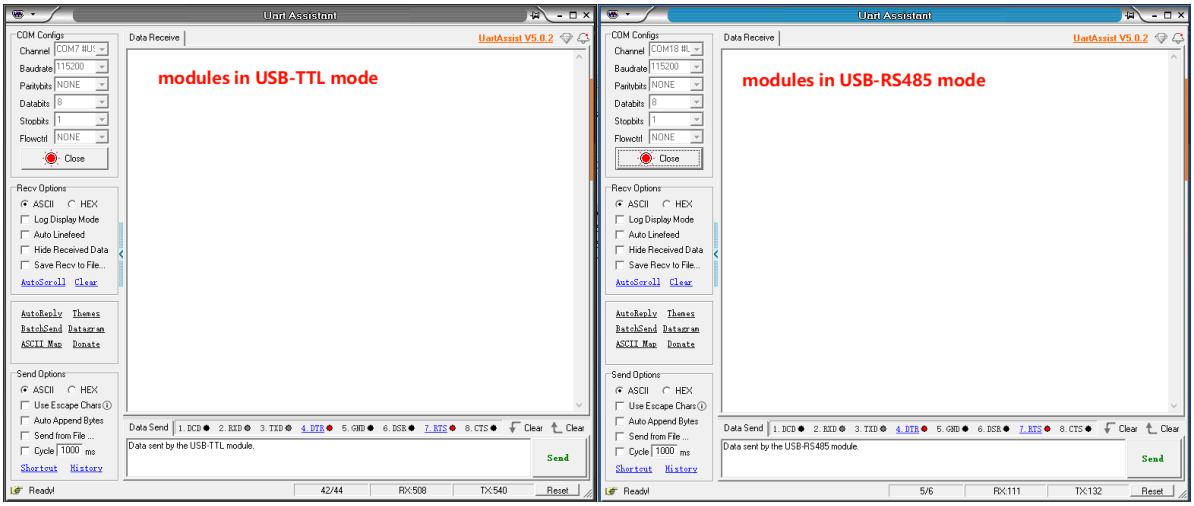


USB-TTL mode module	TTL-RS485 mode module
5V	5V
GND	GND
RXD	TXD
TXD	RXD

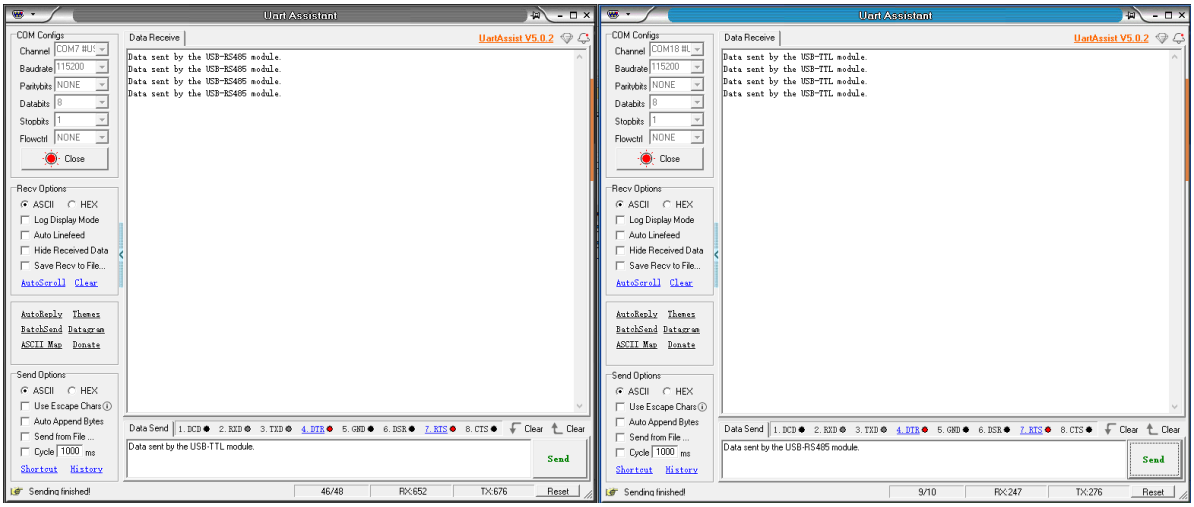
TTL-RS485 mode module	USB-RS485 mode module
GND	GND
485-A	485-A
485-B	485-B

（3）Connect the USB-TTL mode module and the USB-RS485 mode module to the computer using USB-Type-C cable.

（4）Open the serial port assistant software (you can find it in Annex -> Serial Port Assistant), open two serial port assistant windows, and select the serial port numbers of the two modules respectively.



(5) Clicking "Send" on the serial port assistant in USB-TTL mode will receive data on the serial port assistant in USB-RS485 mode. Conversely, clicking "Send" on the serial port assistant in USB-RS485 mode will receive data on the serial port assistant in USB-TTL mode. The test results are shown in the following figure.



The above are the testing steps for TTL-RS485 mode.