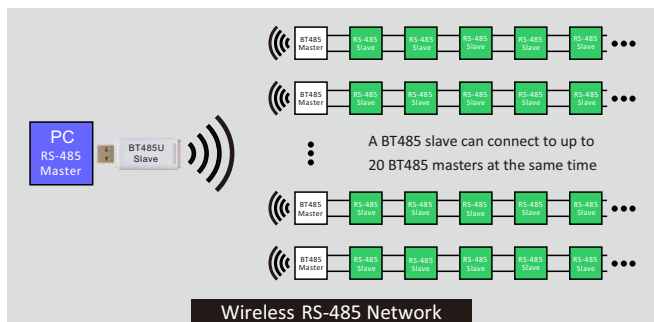
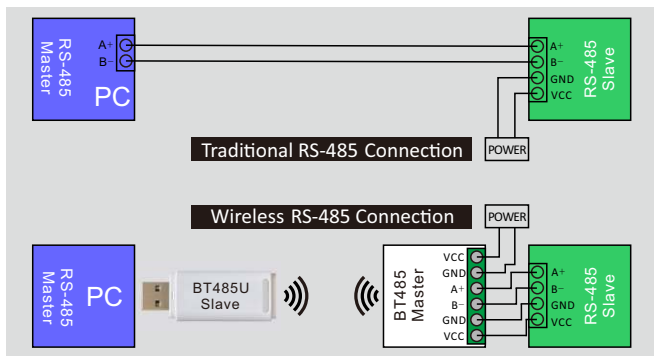


- 1, RXD Indicator (Green)
- 2, TXD Indicator (Red)
- 3, Bluetooth Indicator (Blue)
- 4, USB Connector

1. Introduction

Thank you for purchasing BT485U serial Bluetooth adapter! This product needs to be used in conjunction with BT485 Bluetooth adapter, they can replace the traditional RS-485 bus within a range of 100 meters, convert RS-485 connection into Bluetooth connection, and thus realize wireless RS-485 communication.

The BT485U is usually plugged into a computer's USB port as a Bluetooth slave, waiting for the BT485 Bluetooth master to initiate a Bluetooth connection. The BT485U can be used in pairs with a BT485 Bluetooth master or in network with multiple BT485 masters. A BT485U slave can connect to up to 20 BT485 masters at the same time, and further connect up to 255 RS-485 slave devices through the BT485 masters.



2. Product Information

2.1 Key Features

- Adapt to RS-485 physical layer, support Modbus RTU and ASCII protocols.
- Simpler and more flexible networking than traditional wired RS-485 connection.
- Bluetooth Master or slave role 2-in-1, and can be set as slave by Android APP.
- A BT485U slave can be connected to up to 20 BT485 masters at the same time.
- Bluetooth pairing encryption can enhance the security of wireless communication.
- Fast and large data transfer ability, the max RS-485 baud rate is up to 921600 bps.
- 10dBm transmitting power, communication distance up to 100 meters in open area.
- Built-in Watchdog, ensure long-term reliable and stable RS-485 communication.
- An Android APP is supplied to set the adapter, without sending AT commands.
- TXD/RXD indicator can display the data activity on RS-485U COM port.

2.2 Specifications

- Bluetooth Protocol: Version 5.1 BLE
- Selectable RS-485 Baud Rate: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600 bps
- TX Power: 10dBm
- RX Sensitivity: -98dBm
- Max Wireless Communication Distance: 100 meters (line of sight)
- Default RS-485 Communication Settings: 115200, N, 8, 1
- Default Bluetooth Name: BT485U_XXXX (XXXX are last 4 digits of MAC address)
- Default Bluetooth Role: Slave
- Default Bluetooth Pairing Password (If pairing encryption is enabled): 123456
- Visiting Password of Android APP Setting page: irxon
- Typical Working Current: 5 mA
- Working Temperature Range: -20°C~85°C
- Dimension and Weight: 56x20x9mm, 8g

Some specifications can be changed by the Android APP comes with the adapter, please refer to section 4.3 for details.

2.3 Package List

- BT485U Bluetooth Adapter x1
- This User Guides (Electronic edition)

3. Getting Started

3.1 Hardware Description

Please refer to the diagram on the first page.

- **Bluetooth Link Indicator (Blue):** When this light is on, it means the BT485U adapter do not have Bluetooth connection yet. When the adapter is connected to other Bluetooth device, the light will be turned off. Please note that the BT485U Bluetooth slave can be connected to multiple masters, and after being connected to the first master, the light will be off and no longer lit, but it will not affect the connecting of following masters.
- **TXD Indicator (Red) :** When there is data transmission, this light will flash to indicate. If there is continuous data transmission, the light will remain on.
- **RXD Indicator (Green) :** When there is data receiving, this light will flash to indicate. If there is continuous data receiving, the light will remain on.
- **USB Connector :** Plug in USB port of desktop or laptop PC.

3.2 Driver Installation

The interface chip of BT485U is CH340, please download the driver for windows system from this web address: <https://www.wch.cn/download/file?id=65>

The website also provides CH340 chip drivers for Apple and Linux systems, please search and download if needed.

Please run the Windows system driver installation program downloaded in the previous step, then insert the BT485U adapter into computer. Windows system will automatically install driver for the adapter. After the installation, open "Device Manager" and check "Ports", a new CH340 COM port is added. Please remember the port number, it will be used in subsequent RS-485 communication. As shown in the following figure:



4. Instructions

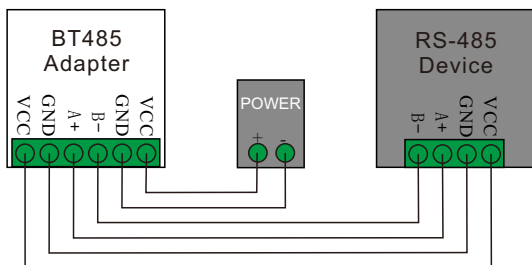
The BT485U adapter should be used in pairs with BT485 adapter, or one BT485U slave and multiple BT485 masters in a network, please refer to the diagram on page 2.

Please purchase one BT485U adapter and one or more BT485 adapters according to your RS-485 network layout, and follow the steps below to connect and set the adapter, you'll change RS-485 communication to wireless or partial wireless RS-485 communication.

4.1 Connecting the Hardware

BT485U: Inserting the adapter into USB port of your computer, the blue LED will lit up if the adapter do not have Bluetooth connections.

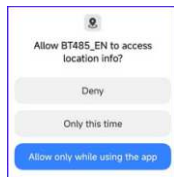
BT485: Following the figure below to connect BT485 adapter to RS-485 device through the terminal block. Turn on power, the blue LED of BT485 will be lit up if the Bluetooth is not connected to other Bluetooth device.



4.2 Installing BT485 Android APP

Please download the APP from IRXON website, this is the link: https://www.irxon.com/download/BT485_EN.zip.

After extracting the zip file, you'll get a apk file, install the apk file on your Android phone

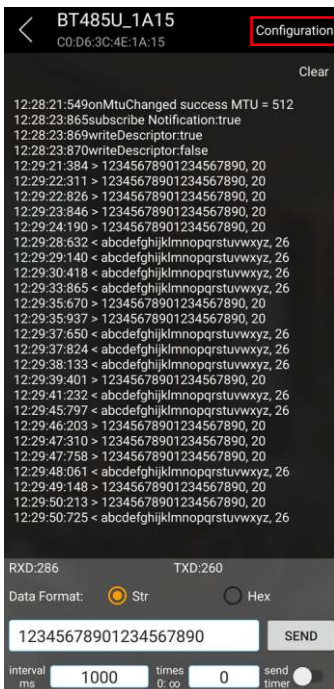
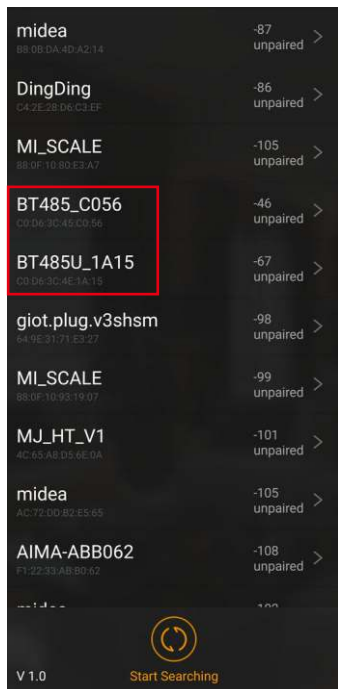


or pad, if the system pops up warnings during the installation, please ignore. After the installation is complete, a BT485 App icon will be added to the screen, as shown in the left picture above.

When you run the App for the first time, it will ask for location permission, please select "Allow only while using the app", as shown in the right picture above.

Open the App, it will automatically search for Bluetooth devices, you can tap the round button at the bottom to stop the search. As shown in the left picture below, a BT485 and a BT485U adapters were found.

Tap on the BT485U adapter, a new interface will appear, as shown in the right picture below, where you can test bluetooth communication. Tap "Configuration" in the upper

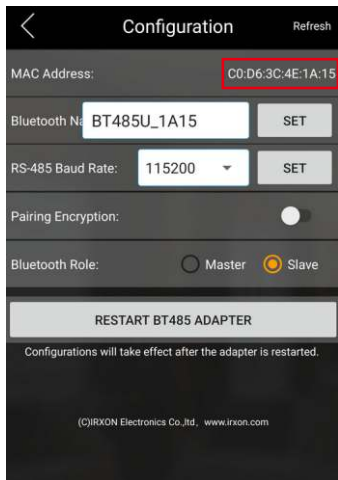


right corner will enter configuration interface. The first access to the interface requires password verification, and the default access password is 5 letters: "irxon".

4.3 Configuration

In configuration interface of the App, please set BT485U and BT485 as described below.

- Set BT485U as a Bluetooth slave, and set the baud rate the same as original RS-485 communication system. Record MAC address of the BT485U adapter in order to be used in next step. As shown in the left figure below.
- Set BT485 adapter which connected to RS-485 slave device as the Bluetooth master, and set the baud rate the same as RS-485 slave device, input BT485U MAC address recorded in the previous step in the Binding MAC field. As shown in the right figure below.



- There is only one BT485U Bluetooth slave role in wireless RS-485 network, while there can be up to 20 BT485 Bluetooth masters. Just add the masters to network one by one by repeating the Bluetooth master configuration step.

4.4 Wireless RS-485 Communication

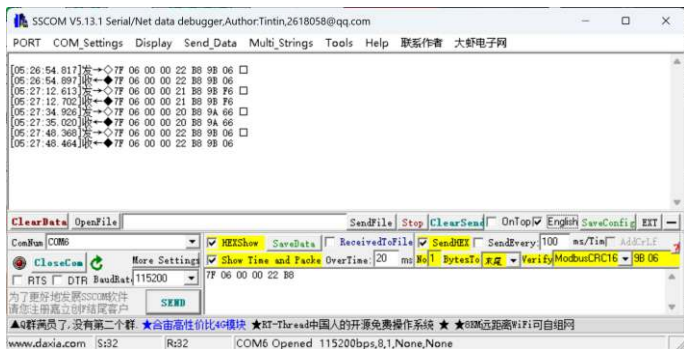
After configuration is completed and the adapter is restarted, the BT485 Bluetooth master will automatically search and connect to its binding MAC BT485U adapter. The blue light

will be turned off when the Bluetooth link is built, and it's ready for wireless RS-485 communication.

In the above two screenshots of configuration, the PC which BT485U_1A15 plugged in act as a RS-485 master. BT485_C056 adapter is actually connected to a 4-Digit 7-Segment LED display and the display act as a RS-485 slave. After the two adapters are connected via Bluetooth, just like connecting an invisible RS-485 cable between the PC and the LED display.

Open a serial communication program on the computer, such as SSCOM5.13, and send a Modbus_RTU instruction: 7F 06 00 00 22 B8, the LED display will show 8888 on the screen. The first digit 7F of the instruction is the RS-485 address of the LED display, the second digit 06 is function code, which means writing a single register, the third and fourth digits 0000 are the register address, and the fifth and sixth digits 22 B8 are hex value to be written, which is 8888 in decimal.

The instruction sending interface is shown in the figure below:



4.5 Pairing Encryption

In order to improve the security of wireless communication, it is recommended to enable pairing encryption. Both BT485 master and BT485U slave need to enable the encryption and use the same pairing password in configuration interface of BT485 App.

The default pairing password is 123456. If you want to change it, please record the new pairing password to avoid forgetting it.