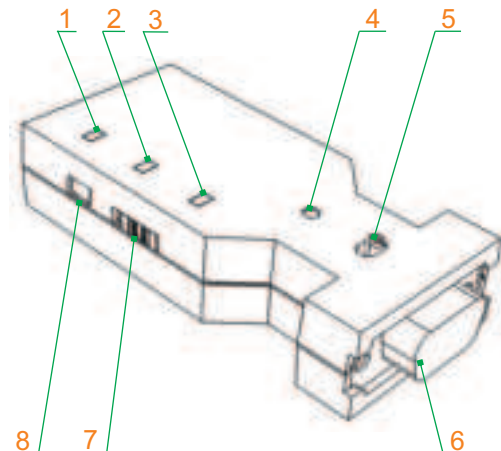
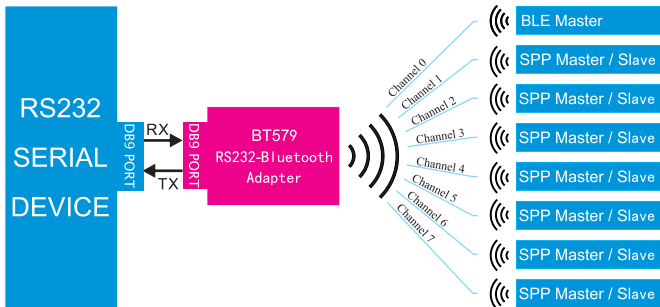




- | | |
|------------------------------|-----------------------------|
| 1, TX/RX Activity LED(Green) | 2, Bluetooth Link LED(Blue) |
| 3, Power/Charging LED(Red) | 4, AT Command Button |
| 5, DB9 Male/Female Switch | 6, DB9 Port(Male) |
| 7, Battery Power Switch | 8, Type-C Power Port |

1. Introduction

Thank you for purchasing IRXON BT579 Serial Bluetooth Adapter! This product is a Bluetooth multi-channel connection product, it usually connected to serial device through DB9 port, and then connected to one or more Bluetooth master or slave devices through Bluetooth, so as to build wireless connections between the serial device and the Bluetooth devices. Its function is shown in the figure below:



In the figure above, serial devices refer to devices that use RS232 protocol for serial communication, such as laptop or desktop computer, network equipment, instrument, medical equipment, industrial control equipment, etc.

Bluetooth BLE Master, such as Android mobile phone, Apple mobile phone, etc.

Bluetooth SPP Master, such as laptop or desktop computers, Android mobile phones, etc.

Bluetooth SPP Slave, such as IRXON BT570, BT578, BT579, etc.

1.1 Features

- Connect up to 8 Bluetooth master or slave devices at the same time.
- It's a master, it's also a slave, no need to be configured as a master or slave role,
- Built-in lithium battery(optional), a Type-C port is used for power and charging.
- A green LED is used to indicate TX/RX activity of RS232 serial communication.
- Supports Pin 9 power supply, just connect pin9 to 5V and pin5 to GND.

1.2 Package Contents

- BT579 RS232 Multi-way Bluetooth adapter x1
- DB9 male to female converter(Gender Changer) x1
- USB to Type-C power/charging cable x1

2. Specifications

2.1 Technical Specifications

- Standard: Bluetooth V3.0(SPP) + Bluetooth V4.2(BLE)
- Selectable Serial Baud Rate: 1200,2400,4800,9600,19200,38400,57600,115200 bps
- Serial Communication BLE Characteristic: 0000ffe1-0000-1000-8000-00805f9b34fb
- Typical Wireless Connection Distance: 50 meters (line of sight)
- Max TX Power: 4dBm
- RX Sensitivity: -92dBm
- Typical Working Current: 16 mA
- Dimension and Weight: 78x34x16mm, 30g

2.2 Factory settings

The factory settings of BT579 are as follows. Some settings can be modified by the user by sending AT commands to the adapter. For details, please refer to section 4.4.

- RS232 Serial protocol: 9600,8,N,1 (9600 baud, 8 data bits, no parity, and 1 stop bit)
- Bluetooth Name: BT579_SPP_xxxx (xxxx are last 4 digits of BD address)
BT579_BLE_xxxx (xxxx are last 4 digits of BD address)
- Bluetooth SPP Pairing Password: 1234

3. Hardware Description

Please refer to the Drawing on the first page.

3.1 AT Command Button

- When one or more channel have Bluetooth connections (blue LED is on), press and hold this button to let the adapter process AT commands instead of being sent as data to other Bluetooth devices.
- When the adapter is not connected to Bluetooth device (blue LED is off), you can send AT commands without pressing this button.

3.2 Power Supply

- Internal lithium battery (if equipped) power supply: Do not insert Type-C cable, slide the internal battery power switch to serial port direction, the adapter get all power from internal battery, slide to the other side, the adapter will be shut down.

- External USB power supply: Slide the internal battery power switch in opposite direction to the serial port, insert Type-C cable, connect the cable to USB power, red LED will be turned on, the adapter get all power from external power supply.

The internal battery can be charged when the adapter is connected to external power via Type-C cable, the red LED will be turned off after the battery is full charged.

- Pin 9 of DB9 connector power supply: Connect pin9 to 4~6V and pin5 to GND.

3.3 LED Indicators

- Power/Charging LED (Red): The LED will be on when external power is connected. The LED also act as a charging indicator, when internal battery is fully charged, the LED will be turned off, the charging time from empty to full is nearly 1 hours.

- Bluetooth Link LED (Blue):

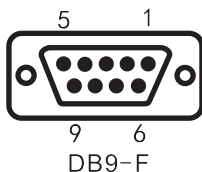
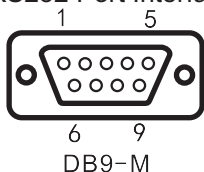
If there isn't Bluetooth link on any channel, the blue LED will be off.

The blue LED will be turned on when there are Bluetooth links on one or more channels.

- Serial Data Activity LED (Green): When bytes pass through serial port, whether it is sending or receiving, the green LED will flash to indicate.

3.4 DB9 Male/Female Slide Switch

- The serial interface of BT579 is DB9 male, it can be directly connected to the widely used female DB9 devices, the switch should be slid to mark "M" side.
- If you want to connect BT579 to a male DB9 device, please use DB9 gender changer in the package. In this case, the switch should be slid to mark "F" side.



PIN	DB9-M	DB9-F	NOTE
2	RXD	TXD	VCC:Power supply TXD:Transmit data RXD:Receive data GND:Signal ground
3	TXD	RXD	
5	GND	GND	
9	VCC	VCC	

Pin 1, 4, 6, 7, 8, No connection. VCC Range:4V~6V

4. Configuration

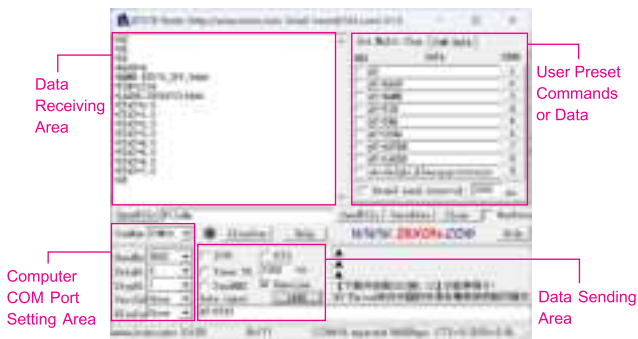
AT commands can be used to modify communication parameters of BT579, search and connect Bluetooth slave devices, and query working status of the adapter.

4.1 Hardware preparation

Connect the adapter to RS232 port of a Windows PC via DB9 gender changer, slide DB9 Male/Female Switch to mark "F" side. If your PC does not have a RS232 port, please buy a USB-RS232 serial cable to add a COM port to your computer.

4.2 Software preparation

Many serial program can be used to communicate with BT579 adapter, we take "BT578 Tester" program as an example for demonstration. Please download the program from URL: <http://www.irxon.com/download/BT578-Tester.rar>, you'll get a exe file when extract the rar file, double click the exe file to run, the interface of the program is shown as below.



4.3 Testing command

On the program interface, select the COM port number which BT579 actually connected, and then set the baud rate and other settings to make it the same as serial settings of the adapter (factory default is 9600,8,1,N), check "new line", click "OpenCom" to open the serial port, type "AT" in data sending area, click "Send" button, if a message "+OK" is returned from the adapter in data receiving area, it means the testing AT command was run successfully, you can proceed with more AT commands.

4.4 AT commands

AT commands should be uppercase English letters, "+" is English character.

At the end of AT command, a Return(Hex:0D) and a Line Feed(Hex:0A) must be added, if you use "BT578 Tester" program, just check "New Line".

When the blue LED is on(one or more channel has Bluetooth link), you need to press and hold the AT command button to send AT command.

- Query/Change the adapter's serial baud rate

Querying format: AT+BAUD, return message such as: +BAUD=4

Changing format: AT+BAUDn, the baud rate corresponding to code n is shown in right table.

For example, send: AT+BAUD8, the baud rate will be changed to 115200 bps.

The factory default baud rate is 9600bps, and n=4.

n	Baud Rate
1	1200
2	2400
3	4800
4	9600
5	19200
6	38400
7	57600
8	115200

- Query/Change serial communication parity

Querying format: AT+PARITY, return message such as: +PARITY=0

Changing format: AT+PARITYn, code n has three values: 0 (default), 1, 2

The value 0 means no parity, 1 means odd parity (ODD), and 2 means even parity (EVEN)

- Query/Change Bluetooth SPP broadcast name

Querying format: AT+NAME, return message such as: +NAME:BT579_SPP_ABCD

Changing format: AT+NAMExxxxxx, where xxxxxx is the name of Bluetooth SPP.

The SPP and BLE name can be composed of letters, numbers, dashes or slashes, and should not exceed 18 characters.

- Query/Change Bluetooth BLE broadcast name

Querying format: AT+NAMB, return message such as: +NAME=BT579_BLE_ABCD

Changing format: AT+NAMBxxxxxx, where xxxxxx is the name of Bluetooth BLE.

- Query/Change Bluetooth SPP pairing password

Querying format: AT+PIN, return message such as: +PIN=1234

Changing format: AT+PINxxxx, where xxxx is the 4-digit Bluetooth pairing password.

The pairing password can only be composed of numbers, fixed 4 digits.

- Query the Bluetooth MAC address of the adapter

Querying format: AT+LADDR, return message such as: +LADDR=2E022316310C

- Reboot the adapter

Command format: AT+RESET. It is recommended to restart the adapter after the AT commands are set.

- Enable/disable the serial output of status information

Enable: AT+ENLOG1 (default)

Disable: AT+ENLOG0

- Query the Bluetooth connection status of all connection channels

Querying format: AT+STAT, return message is a status list of 8 channels.

The return message format is: +STAT=m,n, where m is the channel ID and n is channel connection status, 0 means the channel do not have Bluetooth connection, 1 means the channel had been occupied by a Bluetooth device.

- Query/Change data sending channel

Querying format: AT+SENDID, return message such as: +SENDID=4

Changing format: AT+SENDIDn, the code n is channel ID, the value range is 0-7, 0 is the BLE channel, and the others are SPP channels.

When BT579 is connected to Bluetooth devices on multiple channels, you can specify BT579 to send data to a certain channel by sending this command.

- Turn on/off automatic data sending channel setting

Querying format: AT+AUTEN, return message such as: +AUTEN=0

Changing format: AT+AUTENn, if n is 0, it will turn off automatic setting; if n is 1, it will turn on automatic setting.

This command is similar to AT+SENDID, both are used to set the Bluetooth data sending channel. The difference is that sending AT+AUTEN1 can enable automatic channel setting, when a certain channel receives data, it will automatically set the sending channel to this channel.

- Search for Bluetooth SPP slave devices

Command format: AT+INQ, return message such as:

+DEV:1=77771908CCFB,BT579_SPP_CCFB

+DEV:2=D4CE6311A941,BT578_SPP_A941

It shows that there are two Bluetooth SPP slave devices were found, and the Bluetooth address and Bluetooth name are listed.

- Connect to the Bluetooth SPP slave device found by AT+INQ command

Command format: AT+CONAxxxxxxxxxxxx

Where xxxxxxxxxxxx is the 12-digit Bluetooth address of the Bluetooth SPP slave device to be connected.

For example, we want to connect to BT578_SPP_A941 found in the previous AT+INQ command, we send: AT+CONAD4CE6311A941, return message such as:

+CONNECTED>>>0xD4CE6311A941,7

The return message means BT579 has connected to the device via channel 7.

- Disconnect the bluetooth connection of a certain channel or all channels

Command format: AT+DISCn, code n is the channel ID, the value range is 0-7.

Send AT+DISCn to disconnect the Bluetooth connection of a certain channel, and send AT+DISC to disconnect the Bluetooth connection on all channels.

5. Applications

BT579 has 8 Bluetooth connection channels and can connect to 8 Bluetooth devices at the same time. It can act as a slave, waiting for the search, pairing and connection of the Bluetooth master such as a mobile phone or computer, and it can also act as a master to search and connect to Bluetooth slaves such as IRXON BT570/BT578/BT579.

5.1 Connect to Windows PC via SPP

On a laptop or desktop computer, start to search Bluetooth device, select BT579_SPP in the found Bluetooth devices list (do not select BT579_BLE), and enter the BT579 pairing password (default password is 1234).

After the pairing, check "Device Manager" on the computer, the system had assigned a outgoing Bluetooth virtual COM port to the BT579 adapter.

In the user's serial device application program, just select the virtual COM port number and open the COM port, a Bluetooth link between the computer and the BT579 adapter will be established, it's ready to communicate with BT579, and further communicate with serial device which the adapter attached to.

5.2 Connect to Android phone via SPP or BLE

Bluetooth SPP is well supported on the Android system (iOS has limitation), and there are many good apps to use. We recommend an App named "Serial Bluetooth Terminal" , you can install it from Google Play. The App supports both SPP and BLE, so it is good for connecting the BT579 adapter which supports SPP and BLE dual-mode.

To connect the adapter to an Android device via SPP, you need to search and pair with BT579_SPP_xxxx in the system "Settings" - "Bluetooth" firstly, after pairing, open "Serial Bluetooth Terminal", click "Devices", and click BT579_SPP in the "Bluetooth CLASSIC" column to build a SPP connection with the adapter.

Exit SPP connection, in the "Bluetooth LE" column, click "SCAN", select BT579_BLE_xxxx in the scan list, a BLE connection with the adapter will be built.

It's ready to communicate with BT579 adapter, and further communicate with serial device which BT579 attached to.

5.3 Connect to iPhone via BLE

The BLE communication is done by writing and listening to the Bluetooth characteristic "FFE1" of the adapter. Please install an APP named "LightBlue" in the App Store, run the app, select BT579_BLE_xxxx in Bluetooth scan list, click "0xFFE1" on next interface, check "Listen for notification" to enable data receiving, and click "Write new value" to send data to the adapter.

5.4 Connect IRXON BT570/BT578/BT579 via SPP

BT579 can act as a Bluetooth master to search for and connect to Bluetooth slave devices. To connect to slave, you need to send two AT commands: "AT+INQ" and "AT+CONA", please refer to section 4.4 for details.

You can bind a SPP slave device by sending "AT+BANDx", where x is the 12-digit MAC address of slave device, BT579 will connect to the slave device automatically after binding. Sending "AT+CLRBAND" will unbind the slave device.

For more information, please visit <http://www.irxon.com/english/>