IRXON BT578V2 Serial Bluetooth Adapter User Guide

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IRXON

User Guides
Serial Bluetooth Adapter Model:BT578 V2
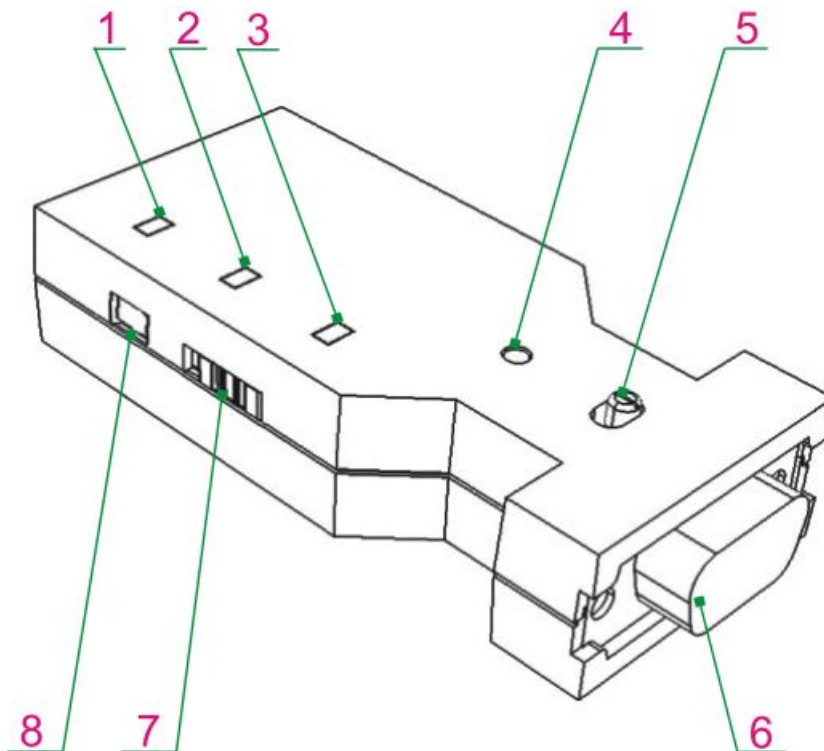
1. Serial Data Activity LED (Green)
2. Bluetooth Status LED (Blue)

3. Power/Charging LED (Red)

4. AT Command Button

5. DB9 Male/Female Slide Switch

6. Serial Port (DB9-Male)

7. Internal Battery Power Switch

8. External MiniUSB Power Port

Contents

Introduction

Thank you for purchasing IRXON BT578 Serial Bluetooth adapter! The adapter is usually connected to a serial device by DB9 serial port, and then communicates with a mobile phone or a computer via Bluetooth, it can eliminate your conventional RS232 serial cables, connects communication both sides over the air, provides a wireless serial connection with more freedom and convenience.
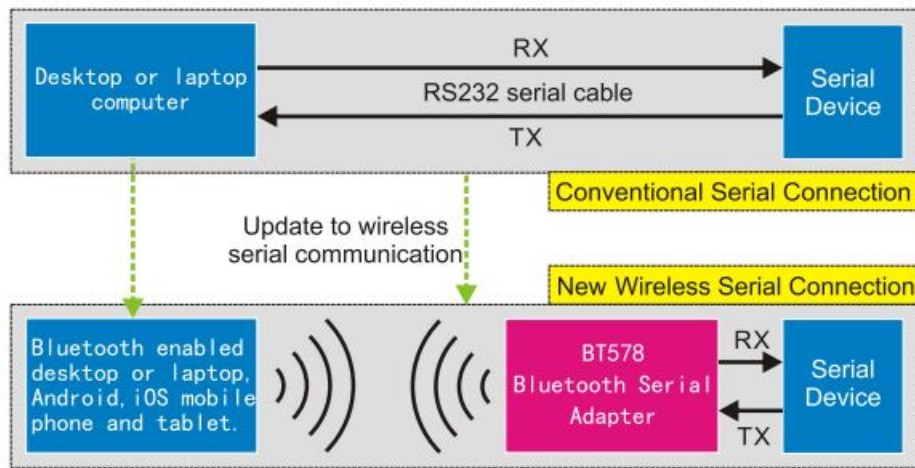
1.1 Features

- Supports Classic Serial Port Profile(SPP) and new generation Bluetooth LE(BLE).
- Communicates with PC via Bluetooth SPP, communicates with mobile phone via BLE.
- Can be connected to female or male serial port device by DB9 connector or converter .
- A green LED was used to indicate TX/RX activity of RS232 serial communication.
- Supports Pin 9 power supply, just connect pin9 to 3~6V and pin5 to GND.
- Built-in battery and charging circuit, come with a external power/charging cable.
- Supports AT command setting on computer to personalize name, baud rate, etc.
- Built in Amplifier, the typical wireless communication distance is up to 30 meters.

1.2 Package Contents

- BT578 Serial Bluetooth adapter x1
- DB9 male to female converter x1
- AC to USB power adapter x1
- USB to MiniUSB power/charging cable x1
- This User Guides x1

Specifications

2.1 Technical Specifications

- Standard: Bluetooth v2.1(SPP) + Bluetooth v4.0(BLE)
- Selectable Serial Baud Rate: 1200,2400,4800,9600,19200,38400,57600,115200 bps
- Serial Communication BLE Characteristic: 0000ffe1-0000-1000-8000-00805f9b34fb
- Typical Bluetooth Coverage: 30 meters (line of sight)
- TX Power: 3dBm
- RX Sensitivity: -90dBm
- Typical Working Current: 22 mA
- Dimension and Weight: 78x34x16mm 38g

2.2 RS232 Interface
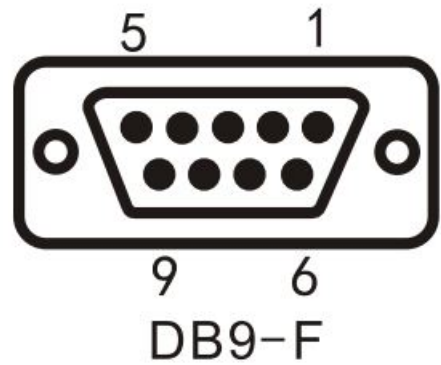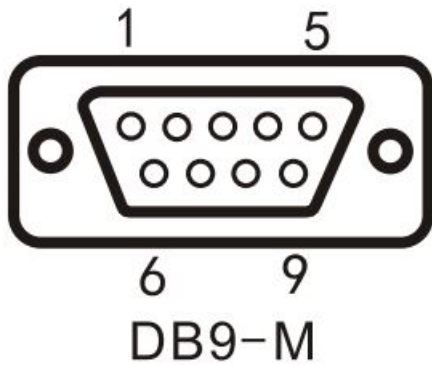
PIN	DB9-M	DB9-F	NOTE
2	RXD	TXD	VCC:Power supply
3	TXD	RXD	TXD:Transmit data
5	GND	GND	RXD:Receive data
9	VCC	VCC	GND:Signal ground

Pin 1, 4, 6, 7, 8, no connection. VCC range:3V~6V

2.3 Factory settings

The default factory settings of BT578 V2:

- Serial Port Baud Rate: 9600bps
- Serial Port Parity: none
- Serial Port Data bit: 8
- Serial Port Stop bit: 1
- Serial Port Flow Control: None
- Bluetooth Name:BT578_SPP(For Classic desktop or laptop PC connecting)

  BT578_BLE(For Android or iOS mobile phone connecting)
- Bluetooth SPP Pairing Password: 1234

  Please refer to section 4.4, AT Commands.

Hardware Structure

Please refer to hardware structure figure on the first page.

3.1 AT Command Button

When Bluetooth connection is established, press and hold the AT command button , the adapter enter in AT command mode, release to come back to Bluetooth connected mode.

3.2 Power Supply

- External power supply: Slide the internal battery power switch to external power supply icon side, insert MiniUSB cable, connect cable to USB power adapter, red LED will turn on, the adapter get all power from external power adapter.

  The internal battery can be charged when BT578 adapter is connected to external power.

- Built-in lithium battery power supply: Do not insert MiniUSB cable, slide the internal battery power switch to battery icon side, the adapter get all power from internal battery, slide to the other side, the BT578 adapter will be shut down.
- Pin9 of DB9 connector power supply: Connect pin9 to 3~6V and pin5 to GND.

3.3 LED Status

- 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 about 2-3 hours.
- Bluetooth Status LED (Blue): Blinking indicates the adapter is discoverable and waiting for a Bluetooth pairing or connecting, there isn't a Bluetooth link yet.
  When the LED turns steadily on, it indicates Bluetooth link is established between the adapter and PC or mobile phone, it is ready for Bluetooth communication.
- Serial Data Activity LED (Green): When a byte passing through BT578 serial port, whether it is sending or receiving, the LED will flash to indicate. If there is a continuous data stream, the LED turns steadily on.

3.4 DB9 Male/Female Slide Switch

- The serial interface of BT578 is DB9 male, it can be directly connected to the widely used female DB9 serial port devices, the switch should be slid to mark "M" side.
- If you want to connect BT578 to a male DB9 serial port device, please use DB9 male to female converter provided in the package. In this case, the switch should be slid to mark "F" side.

Configuration

Before connecting the BT578 serial Bluetooth adapter to serial device, it is usually necessary to change some settings of the adapter, such as the baud rate. The baud rate of BT580's serial port should be kept the same as serial port baud rate of the device.

4.1 Hardware Preparation

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

4.2 Software Preparation

Almost all serial port monitor program can be used to communicate with BT578 adapter, here we take IRXON "BT578 Tester" program as an example for demonstration. Please download the program from URL below.
http://www.irxon.com/download/BT578-Tester.rar
After extracting the compressed file, you'll get "BT578_Tester.exe" file. Double click the file to run, the interface of the program is shown as below.
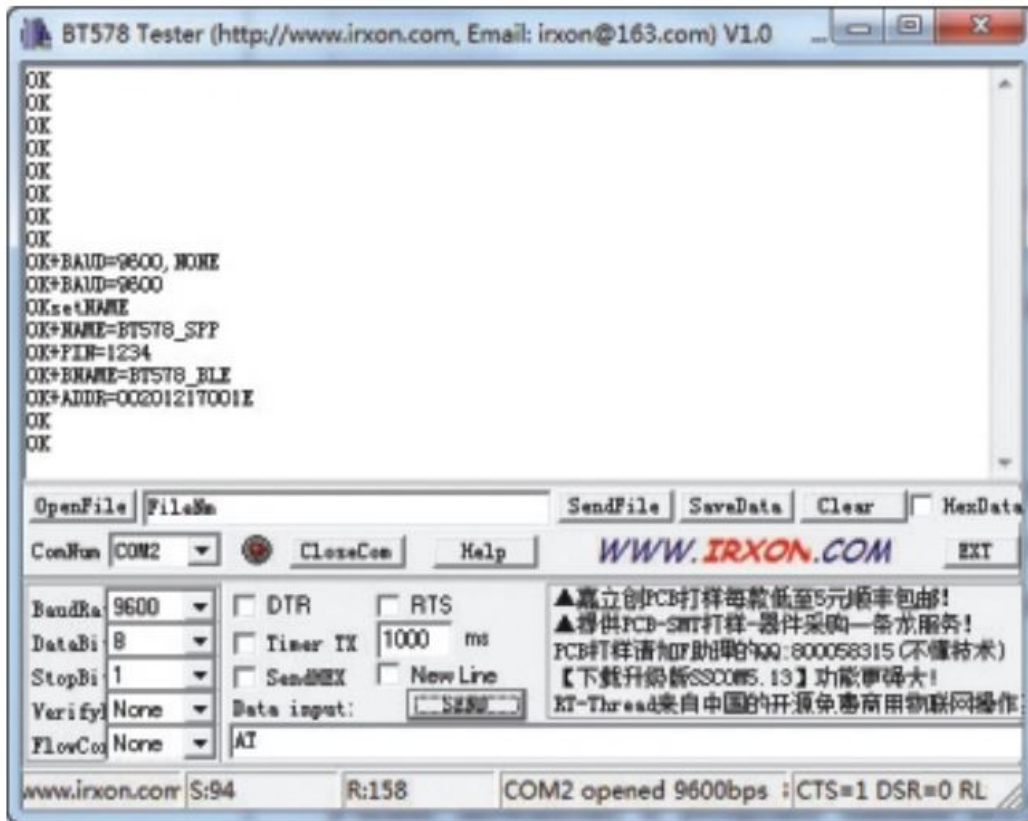
4.3 Testing AT Command

In the program window, select the COM port which the adapter connected to, configure the COM port using the same settings as BT578 serial port(default 9600,N,8,1), ensure the blue LED is blinking (Bluetooth not connected), click "Open Com" button, input testing command "AT" in data input box, then press "SEND", if BT578 returns a message "OK" in upper receiving area, it means testing AT command was run successfully, you can proceed with more AT commands.

4.4 AT Commands

AT commands should use uppercase English letters, +, =, ? are English symbols.

- Inquire/Change BT578 serial port baud rate and parity bit Inquiring command: AT+BAUD=? Return message such as: OK+BAUD=9600,NONE Changing command: AT+BAUD=, , there are 8 selectable values, they are: 1200, 2400, 4800, 9600(default), 19200, 38400, 57600, 115200. , there are 3 selectable values, they are: N, O, E. The value N means NONE (no parity bit, default); The value O means ODD (odd parity); The value E means EVEN (even parity). The can be omitted, that is to keep the parity value unchanged. For example, send to the adapter: AT+BAUD=115200,E, if OK message is returned, it means that the serial port settings of BT578 adapter have been changed to 115200,E,8,1 (the factory default is 9600,N,8,1). If AT+BAUD=115200 is sent, the baud rate will be changed to 115200, and the parity will not be changed.
- Inquire/Change Bluetooth SPP broadcasting name Inquiring command: AT+NAME=? Return message such as: OK+NAME=BT578_SPP Changing command: AT+NAME=, Return message: OKsetNAME The Bluetooth SPP name can be composed of letters, numbers, dashes or slashes, and should not exceed 12 characters.
- Inquire/Change BLE broadcasting name Inquiring command: AT+BNAME=? Return message such as:OK+BNAME=BT578_BLE Changing command: AT+BNAME=, Return message: OKsetNAME The BLE name can be composed of letters, numbers, dashes or slashes, and should not exceed 12 characters.
- Inquire/Change Bluetooth SPP pairing password Inquiring command: AT+PIN=? Return message such as:

OK+PIN=1234 Changing command: AT+PIN=, Return message such as: OKsetPIN The password can be composed of letters and numbers, no more than 12 characters, the factory default is 1234. The password is unnecessary in BLE connecting.

- Inquire BT578's Bluetooth address Command: AT+ADDR=? Return message such as: OK+ADDR=2C36FA2DCFA8

Application

The BT578 serial Bluetooth adapter is usually connected to a serial device by DB9 port, and then communicate with a computer via Bluetooth SPP or communicate with a mobile phone via Bluetooth LE, finally, it makes a wireless serial connection between serial device and PC or mobile phone.

5.1 Preparation

RS232 serial communication requires two different serial devices have the same serial port settings. For the device which the BT578 adapter will be connected to, please first check the documentation of the device to know its serial port settings. The default settings of the
BT578 serial port are 9600,N,8,1, if this settings is different from serial port settings of device, please refer to section 4.4 to modify the BT578 serial port, make BT578 adapter and the device have same serial port settings. Connect BT578 adapter to the serial device by DB9 connector. If the DB9 port of the device is male, please use male-to-female converter to connect, and slide the Male/Female switch to mark "F" side.
Turn on the power of the BT578, prepare for Bluetooth finding and connecting. Usually, BT578 communicate with a computer via the traditional Bluetooth SPP protocol, and communicate with a mobile phone via the Bluetooth LE, but it can not communicate with a computer and a mobile phone at the same time.

5.2 Communicate with computer via Bluetooth SPP

On a laptop or desktop computer, start to search Bluetooth device, select BT578_SPP in the found Bluetooth devices list (do not select BT578_BLE), send a pairing request from the computer, and enter the BT578 pairing password (default password is 1234).
After the pairing is completed, check "Device Manager" of the computer, the system had assigned a Bluetooth virtual COM port to the BT578 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 BT578 adapter will be established (the blue LED turns steadily on), it's ready to communicate with BT578 adapter, and further communicate with serial device which BT578 adapter is attached.

5.3 Communicate with mobile phone via Bluetooth LE

BLE communication is a process of reading and writing BLE characteristic, it is necessary to run BLE communicating APP in Android or iOS mobile phone.

- For iPhone, please install a universal BLE communication APP named "LightBlue" in the App Store. LightBlue is a professional APP, user can communicate with BT578 by writing characteristic FFE1 and listening for its notifications.
- For Android phone, please download a APP named "ATBlue" from the URL below.
  http://www.irxon.com/download/ATBlue-EN.rar After extracting the compressed file and installation on Android mobile phone, tap ATBlue icon to run the APP.
  The APP is specified for BT578 adapter, tap "SCAN" button to start searching nearby BLE devices, then tap "BT578_BLE" in the found Bluetooth devices list, a Bluetooth link between mobile phone and BT578 adapter will be established (the blue LED turns steadily on), it's ready to communicate with BT578 adapter, and further

communicate with serial device which BT578 adapter is attached.

FAQ

Q: I input AT commands in BT578 Tester on a Windows computer, but the program can't get return OK message from BT578, what's the problem?

A: There are many possibilities to cause the problem:

1. It is possible that the computer serial port settings in the serial port monitor program are incorrectly selected, such as serial port number, baud rate, data bit, stop bit, parity, Flow control. The computer serial port settings should be consistent with the adapter serial port.

2. The AT commands to modify BT578 serial port setting will take effect immediately. After the serial port settings of the adapter are changed, the computer serial port should be modified to same settings in time, otherwise the AT command setting cannot proceed.

3. The position of the Male/Female slide switch should be placed on the side of "F" mark.

4. After the Bluetooth link is established (the blue LED stay on), the AT command will be sent as normal data to computer or mobile phone. To force BT578 dispose AT command in link state, press and hold AT command button, then the AT command can be recognized.
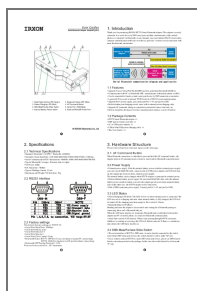
Q: BT578 support both SPP and BLE, what's the difference between the SPP and BLE?

A: From the user perspective, the two have the following differences:

1. The user interface is different: The interface provided by SPP is a Bluetooth virtual serial port; The interface provided by BLE is a Bluetooth characteristic.

2. Bluetooth link objects is different: SPP is usually used to connect to a computer; BLE is usually used to connect to a Android or iOS mobile phone.

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

Documents / Resources

IRXON BT578V2 Serial Bluetooth Adapter [pdf] User Guide
BT578V2, BT578V2 Serial Bluetooth Adapter, Serial Bluetooth Adapter