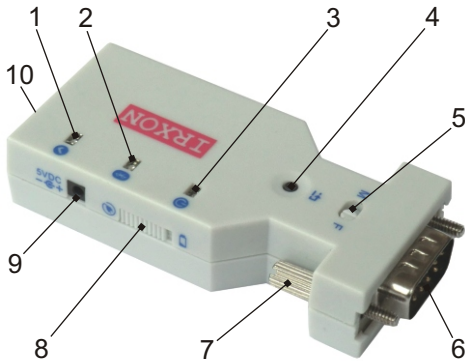


## User's Manual

BT578 RS232 Bluetooth Adapter



1. Connection Established LED (Green)
2. Bluetooth Status LED (Blue)
3. Power/Charging LED (Red)
4. AT Command Mode Button
5. DB9 Male/Female Slide Switch
6. RS232 Connector (DB9-Male)
7. Tightening Screws
8. Internal Battery Power Switch
9. External Power Connector
10. SMA Antenna (for Class1 Model)

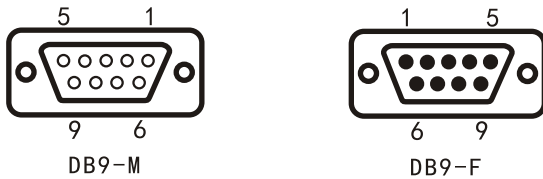
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## 2. Specifications

### 2.1 Technical Specifications

- ▶ Standard: Bluetooth SIG v2.0
- ▶ BT Profile: Bluetooth serial port profile(SPP)
- ▶ Baud Rate: 4800,9600,19200,38400,57600,115200bps
- ▶ Hopping: 1,600/sec, 1MHz channel space
- ▶ Coverage: 10 meters (line of sight)
- ▶ TX Power: 3dBm
- ▶ RX Sensitivity: -80dBm
- ▶ Current(Normal/Pairing): 8/25 mA
- ▶ Dimension and weight: 78x34x16mm 35g

### 2.2 RS232 Interface



PIN	DB9-M	DB9-F	Note
1	NC	NC	NC:Not Connected
2	RXD	TXD	TXD:Transmitted data
3	TXD	RXD	RXD:Received data
4	NC	NC	GND:Signal ground
5	GND	GND	
6-9	NC	NC	

### 2.3 Factory settings

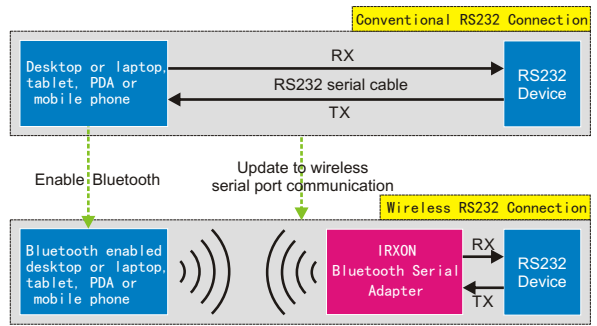
The default factory settings of BT578:

- ▶ Role: Slave
  - ▶ Baud Rate: 9600bps
  - ▶ Parity: none
  - ▶ Data bit: 8
  - ▶ Stop bit: 1
  - ▶ Flow Control: None
  - ▶ Bluetooth Name: IRXON
  - ▶ Bluetooth Pin: 0000
- Others: Please refer to section 4.4, AT Command Set.

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## 1. Introduction

Thank you for purchasing IRXON Bluetooth RS232 adapter. The adapter eliminates your conventional RS232 serial cables, providing an easy-to-use, invisible connection with superior freedom of movement. This tiny adaptor allows any device with a standard 9-pin serial port to communicate wirelessly. You can communicate with another Bluetooth serial adaptor or other Bluetooth-enabled devices such as a desktop or laptop computer, tablet, PDA or mobile phone.



Bluetooth RS232 communication diagram and application

### 1.1 Features

- ▶ The adapter can be directly connected to DB9 female device, you can also connect it to DB9 male device by using a DB9 converter in the package.
- ▶ The default Bluetooth role of BT578 adapter is slave, you can change it to master role by sending AT command.
- ▶ Supports Bluetooth Serial Port Profile and Generic Access Profile. No need of drivers.
- ▶ Multiple power supply, internal 450mA Lithium Battery, external 5V DC-IN.
- ▶ Supports AT command configuration in AT command mode.

### 1.2 Package Contents

- ▶ BT578 RS232 Bluetooth adapter x1
- ▶ DB9 female to female converter x1
- ▶ 220V-USB power adapter x1
- ▶ USB cable for power supply x1
- ▶ User's manual x1

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## 3. Hardware Structure

Please refer to hardware structure figure on the first page.

### 3.1 AT Command Mode Button

- ▶ When the blue LED is in fast blinking status (Pairing mode), clicking the AT command mode button allows the adapter entering into AT command mode, the baud rate used by the AT command mode is same as communication baud rate (default 9600bps). The adapter can exit AT command mode when it is turned off.
- ▶ When the adapter is communicating (Green LED turns steadily on), press and hold down the AT command mode button, the adapter can enter into AT command mode, release to come back to communication mode.
- ▶ If you forget current baud rate you had ever specified, the following steps can be used to reset the baud rate: Press and hold the AT command mode button and turn on the adapter at the same time, the adapter will boot into a special AT command mode, the blue LED flashes slowly, at this time, the baud rate used by AT command mode is fixed to 38400bps, you can specify a new baud rate at this AT command mode.

### 3.2 Power Supply

- ▶ External power supply: Slide the internal battery power switch to external power supply icon side, insert one end of external power cable into external power connector, the other end connect to 220V-USB power adapter, the red LED will turn on, the adapter get all power from 220V-USB power adapter.
- The internal lithium battery can be charged when the BT578 adapter use external power, internal charging circuit can manage charging process and avoid over charging. when charging is completed, the red LED turn off.
- ▶ Built-in lithium battery power supply: Do not insert external power cable, slide the internal battery power switch to battery icon side, the adapter get all power from internal lithium battery, slide to the other side can shut down BT578 adapter.

### 3.3 LED indicator Information

- ▶ Power/Charging LED (Red): When External Power is Connected, the red LED is turned on, the LED also act as a charging indicator, when the internal battery is full charged, this LED will turn off.
- ▶ Bluetooth Status LED (Blue): Fast blinking when the adapter is ready for pairing (Pairing mode), slow double blinking indicate a Bluetooth Connection.
- ▶ Connection Established LED (Green): The green LED turns steadily on when Bluetooth Connection established. If the green LED is off, you are not ready for communicating.

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### 3. 4 DB9 Male/Female Slide Switch

- ▶ The slide switch can swap TXD/RXD signals. By switching, you can set the adapter either as a DTE or a DCE Device.
- ▶ If you connect the adapter to a DB9 female device directly, please slide the switch to M side. If you connect the adapter to a DB9 male device via the DB9 converter, please slide the switch to F side. (To avoid unstable connection, please give more power to the switch handle when you slide the switch)

## 4. Configuration

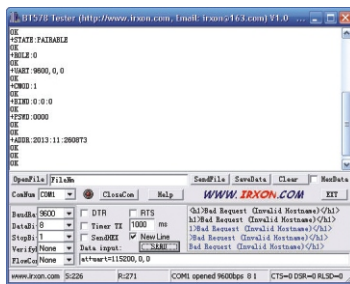
You can reprogram the default settings of BT578 by sending AT command to the adapter. It usually need to operate on a computer, so you must build a serial testing environment on the computer.

### 4.1 Hardware Installation

- ▶ Plug the adapter into a COM port of PC via DB9 converter, slide DB9 Male/Female Switch to F side. If your PC does not have a COM port, you can buy a USB-RS232 adapter to add a COM port to the computer.
- ▶ Power the adapter on.

### 4.2 Software Installation

Please download a program named **BT578 tester** from IRXON website. <http://www.irxon.com/english/index.htm>  
Double click the program to run, the interface of the program is as below.



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disconnected, unknown

- ▶ Remove all remembered bluetooth address

Command: AT+RMAAD

- ▶ Inquire/Specify connecting mode

Inquiring Command: AT+CMODE

Specifying Command: AT+CMODE=mode number

Mode number: 0:Connect the adapter to a specified Bluetooth address device which AT+BIND command defined, 1:connect to any remote Bluetooth address.

The default connecting mode is 1.

- ▶ Inquire/Specify binding remote Bluetooth address

Inquiring Command: AT+BIND

Specifying Command: AT+BIND=Bluetooth address

The default binding address is 00:00:00:00:00:00

## 5. Usage

### 5.1 How to use

The purpose of using BT578 adapter is to replace the original serial cable, user must have a clear replacing plan before purchasing the product. Here are some typical usage of BT578 RS232 Bluetooth adapter.

1, Connecting a BT578 slave role to a RS232 device, communicating with Bluetooth master devices, such as Bluetooth laptop, USB Bluetooth adapter, Bluetooth tablet, mobile phone and Bluetooth enabled PDA.

This is the most common way to use BT578. BT578 slave role has to wait for searching, pairing from Bluetooth master device, after pairing, Bluetooth master device is assigned a Bluetooth virtual COM number to connect to BT578 slave role, you must set your serial communication applications using the virtual serial port, then you can communicate with your RS232 device wirelessly.

2, BT578 master role communicate with BT578 slave role. First you must set one of BT578 adapters to master role by sending AT command, replacing your original serial cable with a BT578 master role and a BT578 slave role, the master can pair and communicate with the slave automatically. After a successful connection, the blue LED drive into a double flash, while the green LED turns steadily on.

3, BT578 master role search for other Bluetooth devices. The master role begin to search when it is switched on, if the surrounding Bluetooth device respond to the request of BT578 master, a Bluetooth connection will be established.

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### 4.3 Test Command

Select the COM port where the adapter is attached to your PC and set the port properties as default factory settings described in section 2.3. Ensure that you have checked **New line** option, ensure that the blue LED is in fast blinking status (Pairing mode), click the AT command mode button to enter into AT command mode, open COM port, Input test command **AT** in data input area, and then press **SEND**, if **OK** is displayed in upper area, you are ready for all AT command set.

### 4.4 AT Command Set

All AT commands must be followed with \r\n, that is why you must check **New line** option in the BT578 tester program. Some AT commands may take effect after the adapter is rebooted.

- ▶ Test Command

Command: AT

Response: OK

- ▶ Inquire the Bluetooth address of the adapter

Command: AT+ADDR

Response: For example, +ADDR:ABCD:EF:123456

- ▶ Inquire/Specify COM port properties

Inquiring Command: AT+UART

Specifying Command: AT+UART=baud rate, stop bit, parity

baud rate: 4800, 9600, 19200, 38400, 57600, 115200

stop bit: 0: one stop bit, 1: two stop bits

parity: 0:None parity bit, 1:Odd parity, 2:Even parity

- ▶ Inquire/Specify master or slave role

Inquiring Command: AT+ROLE

Specifying Command: AT+ROLE=Role number

Role number: 0:slave role, 1:master role

- ▶ Specify Bluetooth name

Command: AT+NAME=Bluetooth name

You can specify a friendly name using 0 to 9, A to Z, a to z, space and -

- ▶ Inquire/Specify Bluetooth pairing PIN

Inquiring Command: AT+PSWD

Specifying Command: AT+PSWD=PIN

The default PIN of BT578 is 0000

- ▶ Inquire working state

Command: AT+STATE

Response: initialized, ready, pairable, paired, inquiring, connecting, connected,

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### 5.2 Using Steps

- 1, Configure the adaptor before usage if necessary.
- 2, Plug the adaptor into the COM port of your device.
- 3, Adjust the slide switch, depending on whether the device is connected to a male or female DB9 port.
- 4, Power the adaptor on.
- 5, pair with remote Bluetooth device.
- 6, If green LED turns ON, your device can communicate with remote Bluetooth device.

## 6. FAQ

**Q:** I input test command AT in BT578 test program, the adapter do not return OK message.  
**A:** There are many possible reasons for the problem.

- 1, BT578 must have same COM port properties with COM port of computer or device it connect to. So make sure the connected COM port have same baud rate, data bit, stop bit, parity.
- 2, Try to slide the DB9 Male/Female Switch to the other side.
- 3, The adapter hasn't entered AT command mode, please click AT command mode button.
- 4, The adapter has connected to other remote Bluetooth device(Green LED ON), please disconnect and make sure the green LED is off when you send AT command.

For more information of the product, please visit IRXON website: <http://www.irxon.com/>

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