Serial to Bluetooth Adapter

Serial (RS-232) to Bluetooth Class 1 Adapter

ICRS232BT1

Instruction Manual

Actual product may vary from photo

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This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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Introduction

Thank you for purchasing a Bluetooth-to-Serial (RS-232 or RS-422/485) Adapter. Featuring Bluetooth wireless technology, the serial adapter provides cable-free Serial connections between your Bluetooth equipped PC and serial devices. This product is compliant with Bluetooth v1.2 and allows you to wirelessly connect your computer and RS-232 or RS-422/485 devices 100 meters apart.

Features

- Compliant with Bluetooth standard version 1.2
- Support for Microsoft Windows 98SE, Me, 2000, XP and 2003
- Operating distance of up to 100 meters in free space
- Bluetooth Class I (20 dbm)
- SPP profile supported
- Easy operation and setting up

Before You Begin

System Requirements

- Operating System: Windows 98SE, ME, 2000, XP or above
  Mac OS 8.6 or above
- An available USB port (USB 1.1 or higher)
- A Bluetooth-enabled computer

Contents

This package should contain:

- USB to Serial Cable (1)
- Driver CD (1)
- User Manual (1)

Installation

The following information explains how to configure the Bluetooth-to-Serial Adapter and pair it with a Bluetooth host device. Please note that these instructions assume that a second Bluetooth device is present, and attached to the PC with which you want the Bluetooth-to-Serial Adapter to communicate. Please refer to the Accessories listed on page 12 for compatible Bluetooth devices.

Pairing with Windows XP SP2 embedded Bluetooth driver

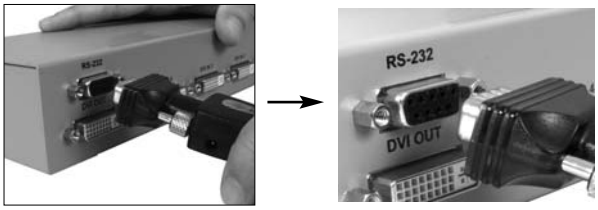
Prior to using the Bluetooth-to-Serial Adapter, configuration is required to pair the devices to achieve an exclusive connection between them using the Bluetooth Address and PIN code. Once the pairing process is complete and power has been added to the device and PC with which it is communicating, the Bluetooth-to-Serial Adapter will automatically attempt to link or be linked with another paired Bluetooth device wirelessly, as if a cable were connecting the devices.

There are two ways to configure your Bluetooth-to-Serial Adapter: **Local setup** and **Remote setup**.

Local Setup:

Local set up can be done by connecting a Bluetooth to Serial Adapter to your PC. You can connect the PC COM port to a Bluetooth to Serial Adapter directly, or through an RS-232 or RS-422/485 converter cable.

1. Connect the Bluetooth to Serial Adapter to your PC COM Port (e.g. COM1, COM2).



2. Insert the accompanying power adapter into the adapter port. Plug the remaining end into an available power outlet.

3. Push the Mode Button until the MODE LED lights light up (yellow color), indicating that the adapter is in Configuration Mode. In this mode, the Bluetooth to Serial Adapter is working in Slave state waiting to be linked with other Bluetooth devices.

4. Insert the CD driver into the CD-ROM drive, and browse to **X: \ Bluetooth \ BTRS232.exe**, where **X** is the designated CD-ROM drive. Double-click on the **BTRS232.exe** file to begin configuration.

5. Select the PC COM Port to which the Bluetooth to Serial Adapter is connected.

If this is the first time you are configuring the Bluetooth to Serial Adapter, you can choose the default Baud Rate : 115200. The local PC will use this baud rate to connect with your Bluetooth to Serial Adapter.

6. Press the Connect Button on the adapter.

Please note: the connection will fail if the wrong COM port is connected or Baud Rate is not set correctly.

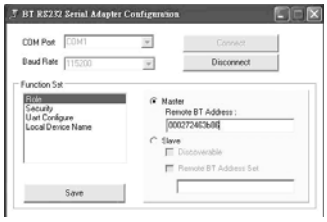
Configuration: **Role - Master or Slave (Default)**
Depending on the applications, there are two states under which Bluetooth to Serial Adapter can operate, while in DATA mode - **Master** and **Slave**. If you are using a USB Bluetooth Dongle to pair with a Bluetooth to Serial adapter, then the Bluetooth to Serial Adapter can be set to either Master or Slave state. If you are using two Bluetooth to Serial Adapters paired together, one of them requires being set to Master and the other needs to be set as Slave.

Master - Trying to link with other Bluetooth devices.

Slave - Waiting to be linked with other Bluetooth devices.

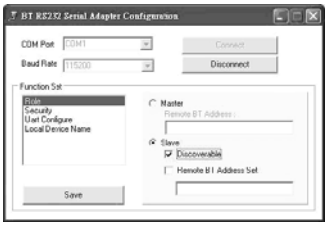
Master state :

If you choose this state, then you must enter the Bluetooth MAC Address of the remote Bluetooth device (e.g. 000272463b86) with which this Bluetooth to Serial Adapter will be paired and connected. Default is none.



Slave State (Default):

Discoverable (Default) - If Discoverable is enabled, the Bluetooth to Serial Adapter can be found by searching for Bluetooth Devices on the PC. If it is disabled, then it can not be found. This feature will prevent other Bluetooth hosts or devices from creating a link with it accidentally, if it has previously been configured to pair with another device.

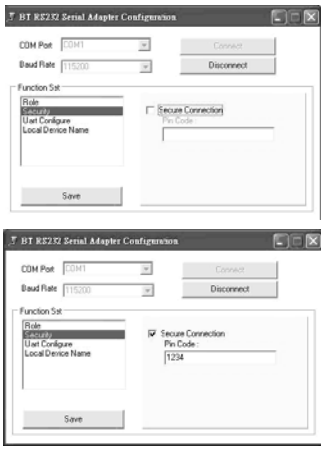


Remote MAC Address:

Enabling this feature allows you to enter the Bluetooth MAC Address of the remote Bluetooth device (e.g.000272463b86) to which the Bluetooth to Serial Adapter will be linking. If it is disabled or MAC address is left empty, any remote Bluetooth device can pair with the Bluetooth to Serial Adapter. Once the necessary changes have been made, please click the **Save** button, followed by **Yes** and **OK** on the following screens respectively.

Please note: Be sure to click the **Save** button in each modification parameter, or settings will be lost.

Configuration: Security



Secure Connection (Default PIN = 1234). Disabling this function will allow other Bluetooth devices to connect with this Bluetooth to Serial Adapter without confirming a PIN code. If it is enabled, then you should enter a PIN code (length <=12 digits). By default this feature is enabled and the PIN code is 1234.

PIN stands for Personal Identification Number. Enter the PIN code, keeping it the same as the remote Bluetooth device, so the two devices can be paired together.

Once you have made your selection, please click on the **Save** button.

Configuration: UART Configure

Change UART parameters, Bluetooth to Serial Adapter will use them to connect with a RS-232 or RS-422/485 device later.

Baud Rate: 9600 ~ 460800 (Default 115200)

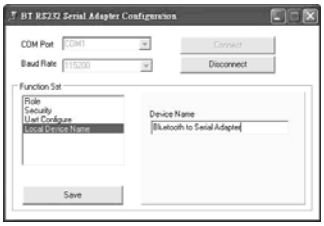
Stop Bit: One/Two (Default One)

Parity Bit: None/Odd/Even (Default None)

Following selection, please press the **Save** Button.

Please note : Maximum Baud Rate: 460.8 Kbps.

Configuration: Adapter Name



Enter a Device Name for your Bluetooth to Serial Adapter (length <= 31 alphanumeric characters). For example: “Bluetooth to Serial Adapter”.

Once you have entered this information, please press the **Save** Button, followed by the **Disconnect** button.

Automatic Connection:

Remove your Bluetooth to Serial Adapter from the PC COM port, and connect it to your RS-232 or RS-422/485 device.

Push the MODE button to change from Configuration mode to DATA mode. The MODE LED will turn off.

Following this, automatic connection will begin. If configured in the Master state, the Bluetooth to Serial Adapter will scan its proximity for a Bluetooth device that has the matching MAC address and PIN code. If found, it will establish the wireless link automatically and the Bluetooth LED (blue color) on the adapter will become illuminated. If configured in the Slave state, the Bluetooth to Serial Adapter will wait for another Bluetooth device to create a link with it.

More Detail on Initial Baud Rate Setting

1) When power is applied to the Bluetooth to Serial Adapter, it will try to link (Master) or be linked (Slave) with another Bluetooth device with a matching MAC address or PIN code and build a link between them. If another Bluetooth device cannot be found (e.g. its power is turned off), the initial baud rate of the Bluetooth to Serial Adapter will be set to 115200 (default).

   If you forgot any previous settings for the Bluetooth to Serial Adapter, and want to reconfigure it, simply turn off the power of the other Bluetooth devices, and power on your Bluetooth to Serial Adapter individually. Because it is impossible for your Bluetooth to Serial Adapter to establish a link with its paired Bluetooth device (it is turned off), the baud rate of the Bluetooth to Serial Adapter will default to 115200.

   You can then use 115200 baud to connect the Adapter with your PC, then change its settings accordingly.

2) When power is applied to a Bluetooth to Serial Adapter and the paired Bluetooth device is found and automatic connection has been made between them, the BLUE Bluetooth LED on the Bluetooth to Serial Adapter will light up, and the baud rate of the Bluetooth to Serial Adapter will be the value which was previously input in UART Configure in the previous section.

   When the BLUE Bluetooth LED is illuminated on the Adapter, and you want to **local set up** your Bluetooth to Serial Adapter after entering into Configuration mode (both

blue and yellow LEDs illuminated), you must remember the baud rate and use it to connect with the COM port previously selected.

3) When power is applied to the Bluetooth to Serial Adapter, and a new baud rate is entered and saved under **UART Configure** and then push MODE button to get into DATA mode, push the MODE button again to enter into Configuration mode, where the baud rate will be the one most recently entered.

Remote Setup

This setup can be used when you connect the Bluetooth to Serial Adapter remotely to an RS232 device (e.g. a Modem), and you want to configure using a local PC. The local PC will require a USB Bluetooth Dongle as well as the required driver installation. The following illustrates a remote setup with Microsoft Windows XP SP2 embedded Bluetooth drivers. Before using remote setup, be sure to pair the Bluetooth to Serial Adapter and USB Bluetooth Dongle successfully.

Please note: If you are using Widcomm or IVT Bluetooth drivers, the following pairing steps will be different from the software you used. Although the steps are different, you still can follow these instructions to start the same functions on your Bluetooth software.

1. Please insert your USB Bluetooth Dongle into an available PC USB Port. Windows will install the drivers automatically.

2. Enter the control panel and double-click the **Bluetooth Devices** icon.

3. Push the **MODE** button. The MODE LED (yellow color) will light. Please click **Add** to search for the Bluetooth device to which the Adapter is connected.

Please note : The Bluetooth to Serial Adapter can easily be found if it is configured in DATA/Slave mode, however it will not be found in DATA/Master mode.

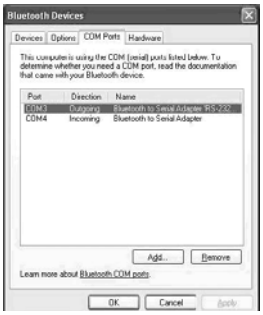
4. When the Add Bluetooth Device Wizard launches, please select My device is set up and ready to be found. Click **Next** to continue.

5. The **Windows Bluetooth Device Wizard** will find the Bluetooth to Serial Adapter. Please select the new device, and click **Next** to continue.

6. You will be asked to input the Bluetooth to Serial Adapter PIN code. If this is the first time the adapter is being configured, the PIN code is set to factory default as “1234”. As such, enter “1234” in this step. If the PIN code was previously configured, the most recent PIN code must be entered. Click **Next** to continue.

Please note: If your PIN code is not correct, the Bluetooth devices will not pair together. Bluetooth to Serial Adapter default PIN code is “**1234**”. If you had modified it before and forgot the PIN code, please reset your Bluetooth to Serial Adapter and follow the aforementioned steps to configure the PIN code.

7. Windows will then verify your PIN code. If the PIN code is correct, the Bluetooth to Serial Adapter and USB Bluetooth Dongle will pair together, and the Bluetooth LED (Blue color) will become illuminated. Click **Finish** to complete pairing.



8. To determine the COM port to which the Adapter is assigned, please select the **COM Ports** tab

Please note : If you want to check the Bluetooth to Serial Adapter MAC address, you can click the Bluetooth to Serial Adapter and select the **Hardware** tab. Click on **Properties** to display the MAC Address.

9.To locate the USB Bluetooth Dongle MAC address:

Select **Generic Bluetooth Radio device** on the Hardware tab, and click Properties as shown in the picture on the right.

The Generic Bluetooth Radio Properties page will pop up. Click on the **Advanced** button, to display the USB Bluetooth Dongle MAC address

Configuring the Adapter following Remote Setup

1. Browse to the BT232Config.exe file located on the accompanying driver CD in the following path: **: \ Bluetooth \ BTRS232.exe**

2. Select the COM Port, and click the **Connect** button. The local PC will use this COM port to connect with your Bluetooth to Serial Adapter.

Configuration: Role - Master or Slave (Default)

1. Click on **Role** to modify settings. Select **Slave**, and ensure there is a checkmark next to **Discoverable and Remote BT Address Set**.

2. Enter the Bluetooth MAC Address of the Bluetooth device (e.g. USB Bluetooth Dongle 000a3aa09bad) which the Bluetooth to Serial Adapter will be pairing and connecting.

3. Press the **Save** Button

Please note : In this case, we input the PC Dongle MAC address, because we want them paired and linked later. However, if you want the Bluetooth to Serial Adapter to pair with another Bluetooth device, input its MAC address, not the MAC address of PC Dongle.

Configuration: Security

To secure the connection:

1. Select **Security** under the **Function Set** section.

2. Ensure there is a checkmark next to **Secure Connection**, and enter the PIN code used to secure the remote Bluetooth device (Default, PIN = 1234).

3. Press the **Save** Button to retain settings.

Configuration: UART Configure

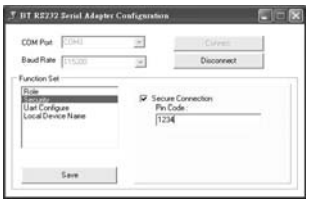
To change UART parameters:

1. Highlight **Uart Configure**.

2. Select the appropriate **Baud Rate**, **Stop Bit** and **Parity Bit** settings, based on the Serial device to which the adapter will be connecting.

3. Click the **Save** button.

Configuration: Adapter Name (Default : Serial Adapter)



To change the device name:

1. Highlight **Local Device Name**.

2. Enter the chosen device name in the text box provided (length <= 31 alphanumeric characters), for example, "Bluetooth to Serial Adapter".

3. Press the **Save** Button to retain settings, followed by the **Disconnect** button.

Automatic Connection:

Connect the Bluetooth to Serial Adapter to an RS232 device (e.g. a Modem).

Push the **MODE** button to change from Configuration mode to DATA mode. The MODE LED will shut off. This will initiate an automatic connection. In the following instructions, the PC Dongle will set up the wireless link with your Bluetooth to Serial Adapter automatically, and the Bluetooth LED (blue color) on the Bluetooth to Serial Adapter will become lit.

As an example, if there is a remotely configured Bluetooth to Serial Adapter DTE Adapter connected to an RS232 modem, and its paired device is a USB Bluetooth Dongle connected to your PC, you can then use the PC to wirelessly control the operations of the remote modem.

Application

The following example illustrates how to transfer files between a barcode scanner and PC using a Hyper-Terminal program. The Barcode scanner has a Bluetooth to Serial Adapter attached and the PC is using a USB Bluetooth Dongle. We still keep their pairing PIN code to be "1234".

Bluetooth MAC addresses :

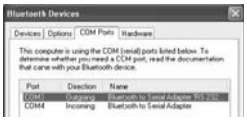
Bluetooth to Serial Adapter: 000272463b86 (in Master state).

USB Bluetooth Dongle : 000a3aa09bad (in Master/Slave state).

1. Configure your Bluetooth to Serial Adapter by local or remote settings as described in the corresponding instructions.

2. Pair the Bluetooth to Serial Adapter and USB Bluetooth Dongle by USB Bluetooth dongle bound software, such as Widcomm, IVT, or Microsoft Windows XP SP2 embedded drivers.

3. Please make sure the COM port number that the Bluetooth to Serial Adapter connects to your PC is correct.



4. Execute the Hyper Terminal program to test the data transmission on your PC.

Start > Program > Accessories > Communications > Hyper Terminal

5. Enter Barcode Scanner Test as the project name, and press the **OK** button.

6. Select COM3, or the COM port to which your Bluetooth to Serial Adapter is wirelessly connected, and press **OK**.

7. Configure the necessary parameters under Properties for the COM3 port, and click the **OK** button. Please note: All parameters should be identical to those set for the Serial Adapter, or the data transmission will fail.

8. If the COM port is available, the barcode scanner will successfully connect to the Bluetooth to Serial adapter. The Bluetooth LED (blue color) will illuminate.

9. Try using the barcode scanner. The barcode scanner will now be displayed in the Hyper Terminal.

Troubleshooting

I am unable to access Configuration mode when pushing the MODE button?
Turn off the power to the Bluetooth to Serial Adapter, and remove it from your serial (RS-232/422/485) device. Then apply power to it, and try again (like a hardware RESET)

While in DATA mode, automatic link can not be established
1) Ensure the remote MAC address is set correctly.

2) Ensure the PIN code is correctly entered, and that it is identical between devices.

3) Repeat the configuration processes for the two devices again to ensure all settings are correct.

Garbage code is being received
Usually this means that the wrong RS-232/422/485 parameters were set, such as baud rate or parity bit. Reconfigure your Bluetooth to Serial Adapter to a correct setting.

Mass data transmission will stop midway or receive garbage code
Please select “Hardware” in flow control setting.

Cannot connect the Bluetooth to Serial Adapter when in Remote Setup
Ensure that the Bluetooth to Serial Adapter is staying in DATA mode. If YES, please disconnect the link first. This can be done by turning off the power of another Bluetooth device with which this Bluetooth to Serial Adapter is linked.

Turn off power of Bluetooth to Serial Adapter, then restore power. Push the MODE button to get into Configuration mode.

Reconfigure Bluetooth to Serial Adapter, without the previous baud rate setting
Turn off power to the Bluetooth to Serial Adapter, then restore power. Push the MODE button immediately before it automatically links with another Bluetooth device (i.e. prevent the link from being built). Baud rate will default to 115200, which allows you to access configuration mode.

Specifications

Connectors	1 x Serial port (DB9 male)
Maximum Data Transfer Rate	9,600 to 460,800 bps
Chipset	Maxim MAX3238E
OS Support	Supports Windows 98SE / ME / 2000 / XP or later
Operation Temperature	0 to 60 Degrees C
Storage Temperature	10 to 70 Degrees C
Modulation Method	GFSK, 1 Mbps, 0.5BT Gaussian
Sensitivity	<-88dBm at <0.1% BER
Power Consumption	Tx Typical: 115mA Rx Typical: 75mA Standby Mode: 15mA
I/O Interface	RS-232 DTE Mode
Signal type(s)	RxD, TxD, RTS, CTS, DTR, DSR, DCD, GND

Accessories

USBBTOOTH1
USB to Class 1 Bluetooth Adapter

USBBTOOTH2
USB to Class 2 Bluetooth Adapter

NM9FF
Null Modem Adapter DB9 Female to DB9 Female

NM9MM
Null Modem Adapter DB9 Male to DB9 Male

SCNM9FM
10 ft. Cross Wired Serial/Null Modem Cable DB9 F/M

SCNM9FF
10 ft. Cross Wired Serial/Null Modem Cable DB9 F/F

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