BT RS-232 Dongle

User's Manual

BTS-100V1



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1. Introduction

This BT RS-232 dongle is an ideal solution for cable replacement. It connects serial printers, serial scanners, or other device to a computer by remote up to 100 meters (300ft) away. Free to place device any where one like without modifying the environment for wire layout. This BT RS-232 dongle can be operated with PDA, computers, laptops, and smart phones/tablets that support BT RFCOMM profile and BT generic access profile. As such, it is ideal for use in applications where a PDA or laptop could communicate with another device (SBC, RTU, sensor, robot, radio, PBX) wirelessly.

1.1 Features

- > Extremely easy to install and use.
- > No need of external host and software
- > Supports up to 100 meters (300ft) distance (Open space, Line of site).
- Standard BT Specification Version 2.1
- Frequency 2402 ~ 2480MHz
- Baud Rate Supports 9.6/19.2/38.4/57.6/115.2/230.4 kbps
- Modulation GFSK-1 Mbps, DQPSK-2 Mbps, and 8-DPSK-3 Mbps
- > DTE/DCE mode switching
- Supports no External power requirement on condition of connecting to a host that has assigned DC5V power on the pin 9 of its DB-9 end.

1.2 Specifications:

Model No.		BTS-100V1	
Baud Rate		Supports 9.6 / 19.2 / 38.4 / 57.6 /115.2 / 230.4 kbps	
Connector		DB-9 Male	
Standard		BT specification version 2.1	
Frequency		2402 to 2480MHz	
Modulation		GFSK-1 Mbps, DQPSK-2 Mbps, and 8-DPSK-3 mBPS	
	DTE/DCE	DTE: Blue/DCE: Green	
LED	ТХ	Orange x 1	
	RX	Green x 1	
Tx Power		Max.13 dBm(Class 1)	
Rx Sensitivity		-86 dBm typical	
Power Supply		5V DC	
Housing		Plastic	
Dimension (LxWxH)	66 x 39 x 20mm	

1.3 Package Contents

- BT RS-232 Dongle with antenna
- DC5V Power adaptor
- CD Utility

2. Physical Diagram

Front view



Pin Assignment					
Pin No.	DTE	DTE Signal Name DCE Signal Nar		Signal Name	
1	х	х	х	х	
2	RXD	Receive Data	TXD	Transmit Data	
3	TXD	Transmit Data	RXD	Receive Data	
4	х	х	х	х	
5	GND	Ground	GND	Ground	
6	х	х	х	х	
7	RTS	Request to Send	Request to Send CTS Clear to Se		
8	CTS	Clear to Send RTS Requ		Request to Send	
9	VCC in	DC5V	VCC in	DC5V	

Side view

LED Indicators

- (1) DTE/DCE: Blue/Green
- (2) TX: Orange
- (3) RX: Green



Rear view

- (1) CONFIG push button
- (2) DC power jack



CONFIG push button

DC power jack

3. RS-232 Installation

Please follow below ways for serial (RS-232) installation.

3.1 Take one DB9 F/F cable and plug one end of DB9 female to the BT device, then put the other end of DB9 female on the host computer. Or use the USB to RS-232 cable and connect with the BT device.



Note: Beware that the system requirement must have the Windows OS computer built on serial port.

3.2 To further check if the COM port of serial (RS-232) was successfully installed; go to Windows Device Manager where the COM port number should be listed under 'Ports (COM & LPT)'. (Ex. COM1 or COM14)



3.3 Install the utility 'AP_UartConfig.exe' and two appendix items of CD provided.



3.4 DTE/DCE mode switching

Plug the power adapter to the device's power jack. The DTE/DCE LED lights blue, and the BT dongle is set to DTE mode (default). Then push the CONFIG button once; the DTE/DCE LED lights green, and the BT dongle is set to DCE mode. Push the CONFIG button once again; the DTE/DCE LED backs to blue.



Press the CONFIG button in 3~5 seconds, the TX LED indicator (Orange) starts blinking and go next step for configuration.



4. HyperTerminal setting & Configuration

The 'AP_UartConfig.exe' programmer only can be operated and compliant with Windows 2000 / XP / Vista / 7 / 8 / 8.1 / 10 / 11. It is not applicable to operate on iOS/Mac OS or Linux.

4.1 Double click 'AP_UartConfig.exe' → This will open the configuration wizard 'BTConfiguration Tool V2.10', and then enter the correct information. In this case we have created COM port 1 so we select COM1.

BTConfiguratopn Tool V2.10	
UART Format Com Port COM1 Baud Rate Parity Check Stop Bit RTSACTS Flow	Image: Status Image: Status Image: Status Image: Status
Read	Default Write

Caution: The COM port only can be selected up to COM9 due to configuration limit.

BTConfiguratopn Tool V2.10 BTConfiguratopn Tool V2.10 UAR I Format Com Port Baud Rate Parity Check Stop Bit	COM1 ▼ COM3 ▲ COM4 ▲ COM5 □ COM6 □ COM7 □ COM8 ■	fireless 2.4G RS - 232
RTS/CTS Flow		Pre-defined Remote BD Addre: Slave Mode Status
Read		Default Write

4.2 If the serial (RS-232) COM port does not list in COM1~COM9 from the Windows Device manager, you may click 'Advanced' of Port Settings to select applicable COM port.

F	Prolific USB-to-Serial Comm Port (COM11) Properties
	General Port Settings Driver Details Power Management
	<u>B</u> its per second: 9600 ▼
	Data bits: 8
	Parity: None
	Stop bits: 1
	Flow control: None
	Advanced <u>R</u> estore Defaults
	OK Cancel

4.3 Confirm the COM Port Number is what you selected and click 'OK', then reboot the computer. In this case the serial COM port is detected as COM11; we change its COM port number to COM3 instead.

Now you may plug in the RS-232 port of the BT dongle.

Advanced Settings for COM11	Inst. Town Hangaroot	X	
☑ Use FIFO buffers (requi Select lower settings to Select higher settings fo	res 16550 compatible UART) correct connection problems. or faster performance.	OK	
Receive Buffer: Low (1)		High (14) (14)]
<u>T</u> ransmit Buffer: Low (1)	1 1 1	High (16) (16)	
COM <u>P</u> ort Number: COM3			

4.4 Back to the configuration wizard 'BTConfiguration Tool V2.10', and further check the default setting. You may click 'Read' and get the information of this device.

BTConfiguratopn Tool V2.10	Wireless 2.4G RS - 232
BTConfiguratopn Tool V2.10	
UART Format	BT Configuration
Com Port COM3	This device BT address :
Baud Rate	Device Name
Parity Check	▼ Password
Stop Bit	C Master Mode
RTS/CTS Flow	Pre-defined Remote BD Addres
	C Slave Mode
	Status
Read	Default Write

4.5 When the host computer is checking the default setting, the TX & RX LED indicators start blinking alternately in 10 seconds then light off.



BTConfiguratopn Tool V2.10			
UART Format		BT Configuration	,
Com Port 🛽	COM3	This device BT address : 001C 97 11F1021	
Baud Rate	9600 💌	Device Name Wireless 2.4G RS-232	
Parity Check	None 💌	Password 1234	
Stop Bit	1 💌	C Master Mode	
RTS/CTS Flow	None	Pre-defined Remote BD Addre: FFFF FF FFFFF	
		Status Discoverable 💌	
		1	
Read		Default Write	

- 4.6 Complete your setting baud rate and BT Configuration as below. The default password is 1234. Or you may apply changes to any desired settings on the BT dongle.
 - (1) UART Format
 - (2) Device Name
 - (3) Password

BTConfiguratopn Tool V2.10	Wireless 2.4G RS - 232
BTConfiguratopn Tool V2.10 UART Format Com Port Baud Rate Parity Check Stop Bit RTS/CTS Flow	Device Name 9600 I I I Pre-defined Remote BD Addre: FFF FFF I
Read	Default Write

4.7 Confirm your configuration or accept the changes and click 'Write'. The TX & RX LED indicators start blinking alternately in 3~5 seconds and light off.

BTConfiguratopn Tool V2.10 UART Format Com Port COM3 Baud Rate 9600	BT Configuration This device BT address : 001C 97 1F1021 2 Device Name Wireless 2.4G RS-232
Parity Check None Stop Bit 1 RTS/CTS Flow None	C Master Mode Pre-defined Remote BD Addret FFFF FF FFFFFF Slave Mode
1	Status Discoverable



5. BT pairing and connecting

For the compatibility, the BT pairing is not applicable to operate on iOS devices such as iPhone, iPad etc.

5.1 Click the BT icon on the taskbar of computer OS and plug the power adapter to the dongle's power jack. The DTE/DCE LED lights blue.



5.2 Use your BT software and click 'Add a device' to search for BT devices in range.



5.3 Once the device is detected, it will show the 'Wireless 2.4G RS232' on the screenshot of 'Add a device'.

🕞 🗗 Add a device	×
Select a device to add to this computer	
Windows will continue to look for new devices and display them nere. Brother MFC-7360N Wireless 2.4G RS-232 University of the second s	
Web Services Bluetooth Other	
<u>N</u> ext	ancel

5.4 Click 'Wireless 2.4G RS232' and pair.

🕞 💣 Add a device		×
Select a device to add to this computer Windows will continue to look for new devices and	d display them here.	
Brother MFC-7360N [001ba972f03d] Web Services	Wireless 2.4G RS-232 Bluetooth Other	
Connecting to device		
	<u>N</u> ext	ancel

		×
Θ	🖉 Add a device	and farms + ty
	Select a pairing option	
	Create a pairing code for me The device has a keypad.	
$\left(\right)$	Enter the device's pairing code The device comes with a pairing code. Check for one on the device or in the device manual.	Wireless 2.4G RS-232
	Pair without using a code This type of device, such as a mouse, does not require a secure connection.	
	How can I tell if my device has a pairing code?	
		<u>N</u> ext Cancel

5.6 Enter the pairing code and click 'Next'. (Default is 1234)

			x
\bigcirc	🖉 Add a device		
	Enter the pairing code for the device This will verify that you are connecting to the correct device.		
	1234		
	The code is either displayed on your device or in the information that came with the device.	Wireless 2.4G RS232	,
8			
	What if I can't find the device pairing code?		
		<u>N</u> ext Can	cel

5.7 It may fail to pair and pop up error message if you can not enter pairing code in 60 seconds. Please check your BT device is working and pair again.



5.8 When the pairing is succeeded, the BT device will have its COM port number and ready to use. In this case, COM9 & COM10 are distributed to BT devices.



5.9 When the BT device is connected successfully, click 'Close'.



5.10 Click the device icon 'Wireless 2.4G RS232'



5.11 Select 'Hardware' and you will see 'Standard Serial over Bluetooth link (COM9)' in the screenshot that indicates the COM port number used for connection with the BT device. (Ex. COM9)

Wireless 2.4G RS232 Properties	×
General Hardware Services Bluetooth	
Wireless 2.4G RS232	
Device Functions:	
Name	Туре
The Standard Serial over Bluetooth link (COM9)	Ports (COM & LPT)
Device Function Summary	
Manufacturer: Microsoft	
Location: on Bluetooth Device (RFCOMM	Protocol TDI)
Device status: This device is working properly.	
	Properties
ОК	Cancel Apply

5.12 Open the Windows Device manager; it shows a new COM port has been established.



5.13 Congratulation! You have finished pairing the BT device successfully.



Typical application diagram (DTE Mode)



The BT RS-232 dongle set as DTE mode is installed between a PC or an Android tablet/phone and connected DB-9 serial (RS-232) devices.

Pairing with Android tablet or smartphone

Step 1





Step 3

1000 1		*	Ø 1 76%	11:06	₽ 🗱 🏹 🖉 📲 11:06
Çî 🏹 Co	onnect				Connect
	Т	ermina	al		Terminal
12345	6789			,	123456789
	Ν (/r/n	Hex Se	nd	Vr/n Hex Send
		Data sent.			123456789
*		nomina da	te ≜∖ I mm	~	Information:123456789
*	₩ ¥	9.		<u> </u>	
-	1	2	3		
<u>/</u>	4	5	6	•	
+	7	8	9	,	
Sym	໊	0		4	

5.14 Pairing master & slave units

Typical application diagram (DCE mode)



2 BT RS-232 dongles set as DCE mode are installed between a PC or PDA (Master) and the other PC (Slave) by DB-9 connections.



2 BT RS-232 dongles set as DCE/DTE mode are installed between a PC or PDA (Master) and serial (RS-232) devices by DB-9 connections.

Open the configuration wizard 'BTConfiguration Tool V2.10' and set the two BT dongles which can be paired by one is set as 'Master', another is set as 'Slave'. And then it can transfer data thru the two BT dongles successfully.

BTConfiguratopn Tool V2.10	Wireless 2.4G RS - 232
BTConfiguratopn Tool V2.10 UART Format Com Port Baud Rate Parity Check Stop Bit RTS/CTS Flow	BT Configuration 9600 Image: Status Device Name Wireless 2.4G RS-232 C Master Mode Status Discoverable
Read	Default Write

5.14.1 Check the Mac address of 'Slave' unit thru BT Configuration before setting the 'Master' unit. In this example, we get the Mac address of 'Slave' unit 001C.97.1F1021.

BTConfiguratopn Tool V2.10	Wireless 2.4G RS - 232
BTConfiguratopn Tool V2.10 UART Format Com Port Baud Rate Parity Check Stop Bit RIS/CTS Flow	COM3 BT Configuration This device BT address : 001C 97 1F1021 Device Name Wireless 2.4G RS 12 Password 1234 Mone I C Master Mode I C Pre-defined Remote BD Addres 0016 E6 E42D2
	C Slave Mode Status Discoverable
Read	Default Write

5.14.2 Setting the 'Master' unit: Overwrite the Mac address 001C.97.1F1021 on the 3 columns behind 'Pre-defined Remote BD Address'. And then select the 'Master Mode'; tick off 'Pre-defined Remote BD Address' and click 'Write'.

🛃 BT	Configuratopn Tool V2.10	i harden hard	Wireless 2.4G	RS - 232
B	IConfiguratopn Tool V2.10 UART Format Com Port Baud Rate Parity Check Stop Bit	COM3 9600 None	BI Conf This d	iguration levice BT address : 001C 97 IF1021 Device Name Wireless 2.4G RS-322 Password 1234
	RTS/CTS Flow	None	T	Pre-defined Remote BD Addrey 001C 97 1F1021 Slave Mode Status Discoverable T
	Read			Default Write

5.14.3 **Setting the 'Slave' unit:** Check the Mac address of 'Slave' unit thru BT Configuration and select the 'Slave Mode'; select Status 'Discoverable' then click 'Write'.

BTConfiguratopn Tool V2.10	Wireless 2.4G RS - 232
UART Format Com Port Baud Rate Panity Check Stop Bit RIS/CIS Flow	COM3 Image: Status BT Configuration 9600 Image: Status Device BT address : 001C 97 1F1021 9600 Image: Status Device Name Wireless 2.4G RS-232 Password 1234 1 Image: Status Discoverable Image: Status Discoverable Image: Status Discoverable
Read	Default 2 Write

Note: When you finish above settings, the both power adapters of the two BT dongles must be removed, and then restart the two BT dongles.

6. Regulatory Compliance

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CE Certification

This equipment complies with the requirements relating to electromagnetic compatibility. It has been manufactured under the scope of RoHS compliance.

FCC Compliance Statement

This equipment generates and uses radio frequency and may cause interference to radio and television reception if not installed and used properly. This equipment has been tested and found to comply with the limits of 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.

You are cautioned that changes or modification not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation

RF Exposure Statement

The equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter.



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In 2006 the European Union introduced regulations (WEEE) for the collection and recycling of all waste electrical and electronic equipment. It is no longer allowable to simply throw away electrical and electronic equipment. Instead, these products must enter the recycling process.

Each individual EU member state has implemented the WEEE regulations into national law in slightly different ways. Please follow your national law when you want to dispose or any electrical or electronic products. More details can be obtained from your national WEEE recycling agency.

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