1. Introduction

Thank you for purchasing our Bluetooth serial adaptor. The adaptor 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 laptop computer, PDA or mobile phone.

1.1. Features
- Supports Bluetooth Serial Port Profile and Generic Access Profile
- No need of external host and software
- Easy of installation and use
- Supports configuration of the local device
- Easy of maintenance
- Supports up to 100 meters (line of sight)

1.2. Package
- Bluetooth serial adaptor
- DB9 male to female converter
- USB cable for power supply
- DC adaptor
- User's manual

2. Specifications

2.1. General

Specification	Description
Baud Rate	Supports 4.8/9.6/19.2/38.4/57.6/115.2/230.4 Kbps
Coverage	Up to 100 m
Connection	Point-to-point (pico net)
Signal	TxD, RxD, GND, CTS, and RTS
RS-232 Interface	D_SUB 9-pin female
Standard	Bluetooth specification version 2.0+EDR
Frequency	2.400 to 2.4835 GHz
Hopping	1,600/sec, 1MHz channel space
Modulation	GFSK-1 Mbps, DQPSK-2 Mbps, and 8-DPSK-3 Mbps
Tx. Power	Max. 18 dBm (Class 1)
Rx. Sensitivity	-86 dBm typical
Antenna	Chip antenna
Antenna Gain	max. 1 to 2 dBi
Power Supply	+5 to +6 V DC

Specification	Description
Current Consumption	Max. 90 mA
Operation Temperature	-20°C to +75°C
Antenna Gain	max. 1 to 2 dBi
Power Supply	+5 to +6 V DC
Current Consumption	Max. 90 mA
Operation Temperature	-20°C to +75°C
Dimensions	34 mm (W) x 46 mm (D) x 16 mm (H)

2.2. RS232 Interface

2.2.1. Pin-out
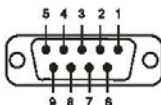
2.2.2. Signals

Pin	Signal	DTE Direction	DCE Direction	Description
1	CD	Input	Output	Not connected
2	TxD	Output	Input	Transmitted data
3	RxD	Input	Output	Received data
4	DSR	Input	Output	Not connected
5	GND	N/A	N/A	Signal ground
6	DTR	Output	Input	Not connected
7	CTS	Input	Output	Clear to send
8	RTS	Output	Input	Request to send
9	Vcc	Input	Input	Power supply

2.3. Factory Settings

The factory settings of COM port are as follows:

- Baud rate: 19200 bps
- Data bit: 8
- Parity: none
- Stop bit: 1
- Flow control: H/W or none
- Others: Please refer to section 4.3 AT Command Set.

3.2. Installation Procedure

Step 1: If provided with an external antenna, assemble it to the adaptor body.
Step 2: Plug the adaptor into the COM port of device.
Step 3: Adjust the slide switch, depending on whether the device is a DTE or DCE.
Step 4: Power the adaptor on.
Step 5: Configure the adaptor if necessary.

4. Usage

You can reprogram the default settings on the adaptor using HyperTerminal.

4.1 HyperTerminal Settings

- Bits per second: 19200 bps (baud rate)
- Data bit: 8
- Parity: None
- Stop bit: 1
- Flow control: H/W

4.2 Configuration

4.2.1 Configuration Start-up

Step 1: Plug the adaptor into a COM port of PC.
Step 2: Power the adaptor on.
Step 3: Create a HyperTerminal file.
Step 4: On the interface of the new HyperTerminal file, click Properties button.
Step 5: Select the COM port where the adaptor is attached to your PC and set the port properties as described in section 4.1 HyperTerminal Settings.
Step 6: Input "A" in the file and then press <Enter>.
If no echo, that is, nothing is displayed when you input "A", it indicates that the baud rate is incorrect. Ensure that the baud rate is 19200 bps.
Step 7: Input "AT", and then press <Enter>. "OK" is displayed.
If necessary, reprogram the configuration of adaptor using AT commands. For related commands, please refer to section 4.3 AT Command Set.

4.2.2 Master Role Configuration

You can use "ATR0" to change the adaptor to the master role.
When the adaptor is in the master role, you can use "ATO1" to manually set up a connection and "ATF?" to find the device you want to connect.

4.3. AT Command Set

The following is the AT command set for the local adaptor in the command mode (that is, the local adaptor is in the disconnection state). All the commands and parameters are case insensitive.

Command	Description
+++	Escape sequence with guard time. When the device is in Data mode, it can be forced back into Command mode while maintaining the connection to the remote device.
O	The command directs the device to switch from command mode to Online data mode. By the way, this command is used to enable/disable auto-connection feature in the master role.
O	Switch from Command mode to Online Data mode.
O0 (Default)	Automatically connect the adaptor to a device specified by "ATD" or any available device if "ATD=xxxxxxxxxxxx" is not executed. (reboot)
O1	Disable auto-connection feature. After it is executed, you need to execute "ATA" to manually connect a remote device. (reboot)
O?	Inquire the current setting.
A	This command is used to establish a connection. It is available only when the adaptor is in the master role.
A	Connect the adaptor to a specified Bluetooth device. It is available only when "ATD=xxxxxxxxxxxx" is executed.
A1-A8	Connect the adaptor to a Bluetooth device in the neighborhood found through "ATF?"
B	This command is used to display the Bluetooth address of the local adaptor.
B?	Inquire the Bluetooth address of the local adaptor.
C	This command enable or disable flow control signals (CTS/RTS) of the UART port. Note, the setting is not affected by ATZ0
C0	Disable flow control.
C1 (Default)	Enable flow control.
C?	Inquire the current setting
D	For security purpose, this command is used to specify a unique remote Bluetooth serial adaptor to be connected. In the master role, the adaptor pairs and connects with the designated remote slave address. If the adaptor is in the slave mode, this command is a filter condition to accept the inquiry of the master device.
D=xxxxxxxxxxxx	"xxxx-xx-xxxxxx" is a string of 12 hexadecimal digits.
D0	Restore the status in which the adaptor can connect with any remote address.
D?	Inquiry the designated address that can be paired and connected.
E	This command is used to specify whether the adaptor echoes characters received from the UART back to the DTE/DCE.
E0	Command characters received from the UART are not echoed back to the DTE/DCE.
E?	Inquire the current setting.

Command		Description
F		This command is used to search for any Bluetooth device in the neighborhood within one minute. If any device is found, its name and address will be listed. The search ends with a message "Inquiry ends. xx device(s) found." This command is available only when the adaptor is in the master role.
	F?	Inquire Bluetooth devices in the neighborhood, listing 8 devices the maximum
H		This command can drop the connection either in master or slave role. *Please note*: It is used to specify whether the adaptor can be discovered by remote master devices.
	H	Drop current connection.
	H0	The adaptor enters the undiscoverable mode. If a pair has been made, the original connection can be resumed. But other remote master device cannot discover this adaptor. (reboot)
	H1 *(default)*	The adaptor enters the discoverable mode. (reboot)
	H?	Inquire status of the current setting.
I		This command is used to inquire information.
	I0	Inquire version codes. (for example firmware v4.15)
	I1	List all setting values.
	I2	Inquire status on RSSI at Online Command Mode.
K		This command is used to specify one or two stop bits of COM port.
	K0 *(default)*	One stop bit.
	K1	Two stop bits.
	K?	Inquire status of the current setting.
L		This command is used to specify the baud rate of COM port.
	L0	4800 bps
	L1	9600 bps
	L2 *(default)*	19200 bps
	L3	38400 bps
	L4	57600 bps
	L5	115200 bps
	L6	230.4 Kbps
	L?	Inquire status of the current baud rate setting
M		This command is used to specify parity bit setting of COM port.
	M0 *(default)*	None parity bit.
	M1	Odd parity.
	M2	Eve Even parity
	M?	Inquire status of the current setting.

Warning to User:

This device is used on PC or Desktop RS232 port.

Operational distance from the device to the user must be maintained above 20cm.

FCC WARNING

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.

The antenna provided is a unique antenna. By installation of unauthorized antenna to this equipment. Such unauthorized installation could void the user's authority to opearte the equipment.

NOTE: The manufacturer is not responsible for and radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.