Bluetooth RS-232 adapter user manual

1. Packing contents

1.1 Contents:

- RS-232 adapter x 1
- Battery power line and connector x 1 (10 cm)
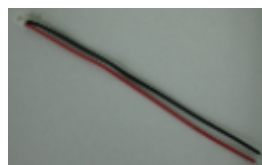- User manual x 1
- USB Cable x 1 (1.5 m)

1.2 Pictures:

White box dimension: 13 x 10 x 6 (cm)

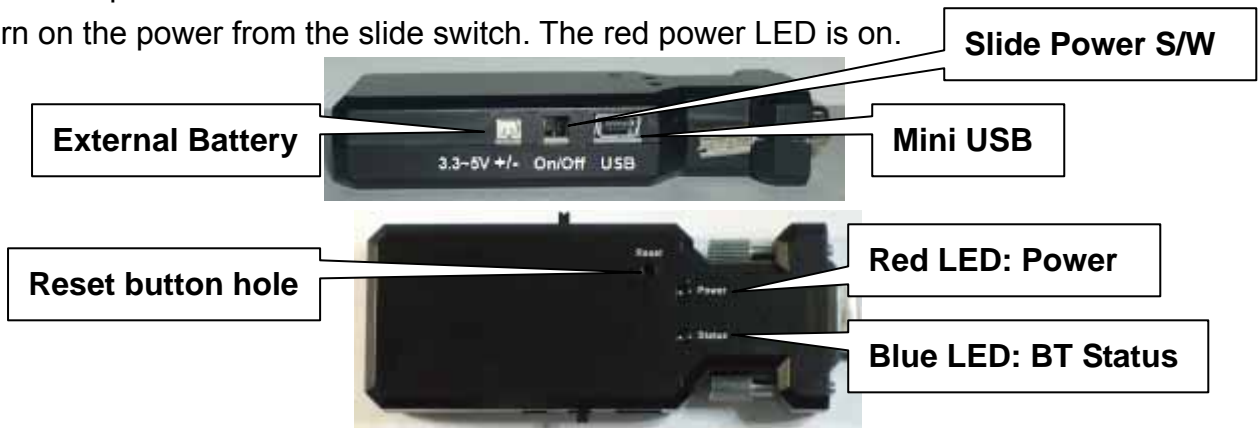(Red: "+" , Black: "-")

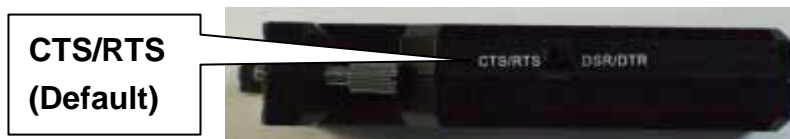**(Open the box)**   **(USB Cable)**   **(Battery cable & Connector)**

2. Quick Guide

2.1 Plug the mini USB connector into the Bluetooth RS-232 adapter and connected with the power adapter with USB or PC

2.2 Turn on the power from the slide switch. The red power LED is on.

Slide Power S/W

External Battery   **Mini USB**

3.3~5V +/-   On/Off   USB

Reset button hole   **Red LED: Power**

Blue LED: BT Status

2.3 Generally use the CTS/RTS side

CTS/RTS (Default)

2.4 Please make sure the RS-232 setting on both sides are the same.

- Baud rate: 19200 bps
- Data bit: 8

- Parity: none
- Stop bit: 1
- Flow control: H/W or none

If not, please modify the setting by using hyper terminal software and the setup command via COM port. The setup command shows on the section 11.

2.5 Two RS-232 adapter connections (Please refer to the section 3): One is master and the other is slave. The slave is default setting and the master will be modified by the Setup command, please check the section 11.
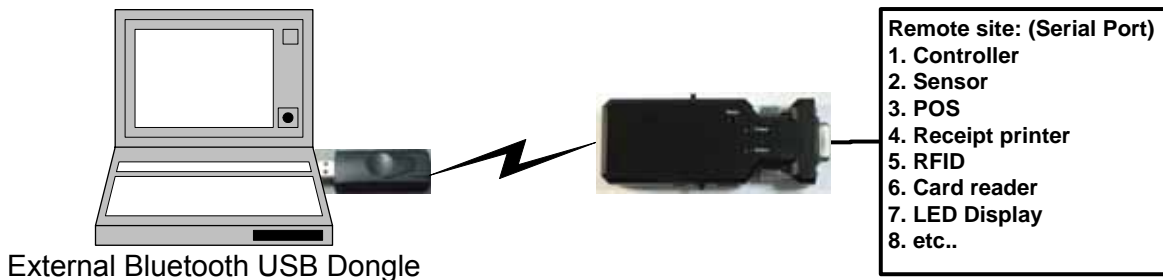
2.6 If you use the PC or NB, please start the IVT software or the built in Bluetooth management software, like Toshiba.
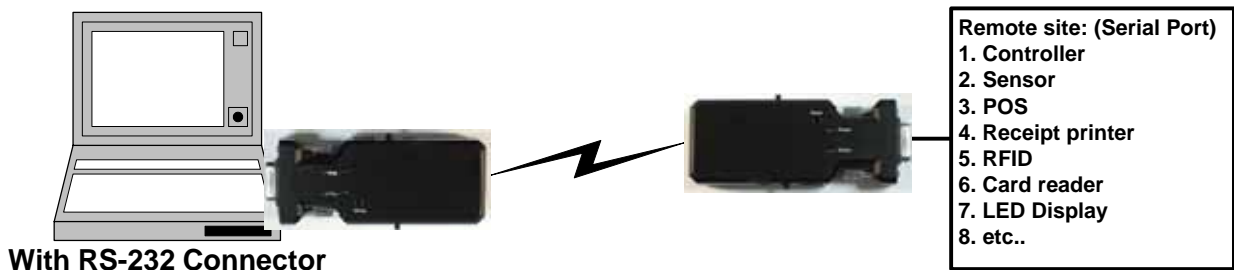
3. Connection scenarios
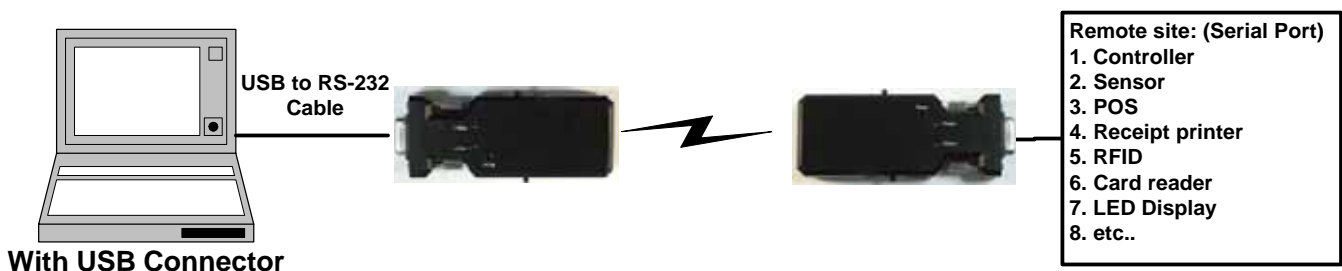
3.1 Built in Bluetooth and RS-232 adapter

Built-in Bluetooth module

Remote site: (Serial Port)
1. Controller
2. Sensor
3. POS
4. Receipt printer
5. RFID
6. Card reader
7. LED Display
8. etc..

3.2 USB Bluetooth dongle and RS-232 adapter

External Bluetooth USB Dongle

Remote site: (Serial Port)
1. Controller
2. Sensor
3. POS
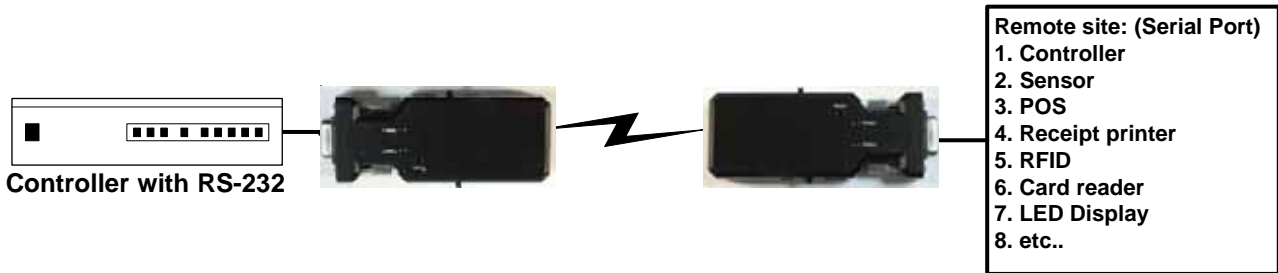4. Receipt printer
5. RFID
6. Card reader
7. LED Display
8. etc..

3.3 Two RS-232 adapters: One is master and the other one is slave (default), The PC or NB equipped with RS-232 connector.

With RS-232 Connector

Remote site: (Serial Port)
1. Controller
2. Sensor
3. POS
4. Receipt printer
5. RFID
6. Card reader
7. LED Display
8. etc..

3.4 Two RS-232 adapters: without RS-232 but with USB connector

USB to RS-232 Cable

With USB Connector

Remote site: (Serial Port)
1. Controller
2. Sensor
3. POS
4. Receipt printer
5. RFID
6. Card reader
7. LED Display
8. etc..

3.5 Two RS-232 adapters for micro controller.

Controller with RS-232

Remote site: (Serial Port)
1. Controller
2. Sensor
3. POS
4. Receipt printer
5. RFID
6. Card reader
7. LED Display
8. etc..

3.6 Handheld terminal with SPP profile

Handheld Terminal with Bluetooth SPP profile

Remote site: (Serial Port)
1. Controller
2. Sensor
3. POS
4. Receipt printer
5. RFID
6. Card reader
7. LED Display
8. etc..

4. How to use external battery

4.1 Options: (The cable with connector : Red: "+" , Black: "-")

● Standard A, AA or AAA battery: 3 units for each model.

Note:

1. If you use the rechargeable battery, the mini USB cable could be used to charge the battery.

2. If the battery is not rechargeable, please don't plug the mini USB. It will cause the damage to the adapter and the batteries. It will be beyond the warranty.

3. Regard with the cable and connector for the battery connection, please check the appendix 2.

● Rechargeable Li-Polymer Battery: 3.3~3.7 VDC. The capacity is depend on the applications. Generally working power consumption: 100 mAh (for reference)

Note: Please use the rechargeable Li-Polymer Battery.

4.2 Example:

Note: Please check the section 2.2, the "-" pole is near the power S/W.

5. Factory Settings for COM port and Bluetooth:

- Baud rate: 19200 bps
- Data bit: 8
- Parity: none
- Stop bit: 1
- Flow control: H/W or none
- Bluetooth PIN code is "1234"

Bluetooth default setting: Please refer to Setup command sets table in the section 11.

6. Reset Button

6.1 Disconnect and reconnect a wireless connection (after a short press).

6.2 Restore the factory settings (after over three seconds' press).

7. Slide Switch

The slide switch can swap TXD/RXD and CTS/RTS signals.

By switching, you can set the adaptor either as a DTE (towards antenna connector) or a DCE (towards RS232 connector).

8. Power Supply: The adaptor can be powered via the following source.

8.1 USB cable

8.2 External Battery: Please refer to section 4.

9. LED Status:

Status	Description
Power LED off	No power supply.
Power LED on	Firmware is running OK.
Link LED off	No pairing established.
Link LED fast (0.1 sec) blinking	Pairing (slave or master mode).
Link LED fast (0.3 sec) blinking	Discoverable and waiting for a connection (slave mode).
Link LED slow (0.9 sec) blinking	Inquiring (master mode).
Link LED very slow (1.2 sec) blinking	Connecting (master mode).
Link LED steadily on	Connection established.

10. Configuration the parameters of the COM port

10.1 Configure via Hyper terminal or Telnet

10.2 Use 3rd Party COM port tools: PuTTYtel, Hypertrm, Terminal, Virtual Serial Ports Driver XP or etc…

11. Setup Command set (Please type in all capital letter)

Command	Value	Description
ADDRESS=		This command is used to display the Bluetooth address of the local adaptor.
	?	Inquire the Bluetooth address of the local adaptor.
AT		Check the connection status between control terminal and the RS-232 adapter. Response: "OK" when the connection is ok. Response: "ERROR" when the connection is not ok.
AUTO=		This command is used to enable/disable auto-connection

		feature. It is available only when the adaptor is in the master role.
(Default)	Y	Automatically connect the adaptor to a device specified by "DEVICE" or any available device if "DEVICE=xxxxxxxxxxxx" is not executed.
	N	Disable auto-connection feature. After it is executed, you need to execute "CONNECT" to manually connect a remote device.
	?	Inquire the current setting.
BAUD=		This command is used to specify the baud rate of COM port.
	1200	1200 bps
	2400	2400 bps
	4800	4800 bps
	9600	9600 bps
(Default)	19200	19200 bps
	38400	38400 bps
	57600	57600 bps
	115200	115200 bps
	?	Inquire the current baud rate.
BIT=		Setup the data bit of the COM port
(Default)	8	8 data bit
	?	Inquire the current data bit.
CONNECT=		This command is used to establish a connection. It is available only when the adaptor is in the master role.
	DEVICE	Connect the adaptor to a specified Bluetooth device. It is available only when "DEVICE=xxxxxxxxxxxx" is executed.
	1~8	Connect the adaptor to a Bluetooth device in the neighborhood found through "SEARCH=?"
DEFAULT=		This command is used to restore the default settings and originate a warm start.
	Y	Restore the default settings (e.g. 19200 bps).
DEVICE=		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.
	xxxx-xx-xxxxxx	"xxxx-xx-xxxxxx" is a string of 12 hexadecimal digits.
	R	Restore the status in which the adaptor can connect with any remote address.
	I	Inquiry the designated address that can be paired and connected.
DISCOVER=		This command is used to specify whether the adaptor can be discovered or connected by remote devices.
	N	The adaptor enters the undiscoverable mode. If a pair has been made, the original connection can be resumed. But

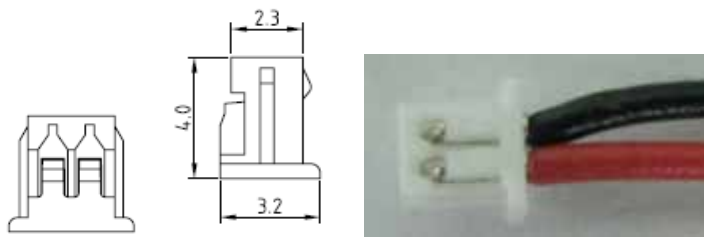|		
		other remote master device cannot discover this adaptor.
(Default)	Y	The adaptor enters the discoverable mode.
	?	Inquire the current setting.
ECHO=		This command is used to specify whether the adaptor echoes characters received from the UART back to the DTE/DCE.
	N	Command characters received from the UART are not echoed back to the DTE/DCE.
(Default)	Y	Command characters received from the UART are echoed back to the DTE/DCE.
	?	Inquire the current setting.
FLOW=		This command enable or disable flow control signals (CTS/RTS) of the UART port. Note, the setting is not affected by DEFAULT.
	N	Disable flow control.
(Default)	Y	Enable flow control.
	?	Inquire the current setting
NAME=		This command is used to specify a name for the adaptor. You can specify a friendly name using 0 to 9, A to Z, a to z, space and –, which are all valid characters. Note that "first space or -, last space or – isn't permitted". The default name is "Serial Adaptor".
	xxxxx	"xxxxx" is a character string with a maximal length of 16.
	?	Inquire the name of the local adaptor.
PARITY=		This command is used to specify parity bit setting of COM port.
(Default)	N	None parity bit
	O	Odd parity
	E	Even parity
	?	Inquire the current setting.
PIN=		This command is used to specify a PIN. The default PIN is "1234". Paired adaptors should have a same PIN.
	xxxxx	"xxxxx" is a 4~8-digit string.
	N	Cancel authentication by PIN.
	?	Inquire the current PIN.
PROMPT=		The command is used to decide whether result messages are prompted when Setup commands are executed. The result messages are: OK/ERROR for command execution, or CONNECT/DISCONNECT for connection status.
(Default)	Y	Prompt result messages.
	N	Not prompt result messages.
	?	Inquire the current setting.
ROLE=		This command is used to specify whether the adaptor is in the master or slave role. If the device role is changed, the adaptor will reboot and all paired addresses will be cleared.
	M	Set the adaptor to the master role.

(Default)	S	Set the adaptor to the slave role.
	?	Inquire the current role of the adaptor.
SEARCH=		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.
	?	Inquire Bluetooth devices in the neighborhood, listing 8 devices the maximum
STOP=		This command is used to specify one or two stop bits of COM port.
(Default)	1	One stop bit.
	2	Two stop bits.
	?	Inquire the current setting.
VERSION=		This command is used to inquiry the firmware version.
	?	Inquire the version codes.

Appendix 1: Specifications:

Specification	Description
Baud Rate	Supports 1.2/2.4/4.8/9.6/19.2/38.4/57.6/115.2 Kbps
Coverage	Up to 100 m
Connection	Point-to-point (pico net)
Signal	TxD, RxD, GND, CTS/RTS and DSR/DTR
RS-232 Interface	D_SUB 9-pin female
Standard	Bluetooth specification version 2.0+EDR
Profiles	Serial Port Profile(SPP)
Data Bit	8 bit
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 (Default), SMA or Dipole (optional)
Antenna Gain	Chip antenna max. 1 to 2 dBi
Power Supply	+5 to +6 V DC
Current Consumption	Max. 90 mA
Operation	-20°C to +75°C
External Battery Input	3~5 VDC input 3.3 VDC Rechargeable Li-Polymer Battery or AAA x 3
Dimensions	35 mm (W) x 45 mm (H) x 15 mm (D)

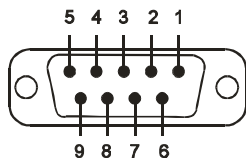Appendix 2: External Battery Connector Specification

1. Figures:

(Red: "+" , Black: "-")

2. Electric Specification:

- Pitch Between Poles: 1.25 mm
- Current Rating: 1A AC/DC
- Voltage Ration: 100V AC/DC
- Contact Resistance: 20mΩ Max.
- Withstand Voltage: 500V AC/Minute
- Insulation Resistance: 100MΩ Min.
- Temperature Range: -25   To +85

Appendix 3: RS232 Interface

1. Pin-out:

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 (Remarks)
8	RTS	Output	Input	Request to send (Remarks)
9	Vcc	Input	Input	Power supply

Remarks: The default hardware configuration is for using CTS/RTS. The DSR/DTR is rarely used.

Declaration:
1. The information contained in this document is subject to change without notice.
2. Document Release V1.4, Date: 2009.04.30