

COMPARISON OF *BLUETOOTH*[®] MODES FOR TSL[®] READERS

OVERVIEW

Our *Bluetooth*® readers support two modes of operation over *Bluetooth*®. When connected via USB the reader always supports the TSL ASCII 2 protocol but when connected over *Bluetooth*® the reader can either be set to use the TSL ASCII 2 protocol (*Bluetooth*® SPP Mode) or it can appear as a *Bluetooth*® keyboard (*Bluetooth*® HID Mode).

Instructions for changing *Bluetooth*® modes can be found in Appendix A

The comparison chart below is designed to help you understand the differences between the two operating modes:

COMPARISON

<i>Bluetooth</i> ® SPP Mode	<i>Bluetooth</i> ® HID Mode
Apps need to be written with specific support for the reader	Apps can use the reader without modification
<p>The Reader can be discovered and paired in the Bluetooth Settings or from within the App but the App controls the connection</p> <ul style="list-style-type: none"> Connects when instructed by the App Disconnects when instructed by the App The reader powers off when no longer connected and idle The App needs to connect to restore 	<p>Reader is discovered and paired in the Host Bluetooth Settings (often appears as a Keyboard)</p> <ul style="list-style-type: none"> After pairing the reader connects automatically If idle the reader sleeps and the connection is dropped The reader, when woken, automatically reconnects to the host device
Apps receive and interpret TSL ASCII 2 Protocol responses when the user triggers an RFID or barcode scan	Apps receive input as Key strokes from the reader including Tab and Return/Enter keys
<p>The App can respond and react intelligently to responses e.g.</p> <ul style="list-style-type: none"> duplicate responses can be ignored or counted incoming tag data can be truncated, stripped or transformed into alternative representations: Hex, ASCII, GS1 EPC URI, etc... 	<p>The reader types text for each barcode/RFID scan received</p> <ul style="list-style-type: none"> The tag values can be returned in Hex or ASCII representations Up to 2 Additional characters can be inserted before and after the text sent The reader cannot truncate or strip values from tag data
The App can change the Reader's behaviour	The Reader can only send scanned data to the host, the host cannot change the reader's behaviour
The Reader's behaviour and command parameters are controlled in real time by the App e.g. the trigger action can change to suit the task that the User is performing; the App can allow the User to specify Inventory output power	The Reader's behaviour, such as the action of the reader's trigger switch, the inventory output power, the idle sleep timeout and other command parameters can be configured only once at start-up.

COMPARISON (CONTINUED)

<i>Bluetooth</i> ® SPP mode	<i>Bluetooth</i> ® HID mode
Configuration is held within the App (any configuration in the AUTO.TXT is likely to be overridden by the App settings)	All configuration is held in an AUTO.TXT file stored on an SD-Card Removing the SD-card or deleting the AUTO.TXT and power-cycling the unit restores default settings.
All reader activity, by default, is saved to a log file if an SD-Card is fitted	All reader activity, by default, is saved to a log file if an SD-card is fitted

APPENDIX A

INTRODUCTION:

TSL[®] *Bluetooth*[®] Readers can be operated in *SPP mode* where the Reader is controlled by a custom-written application or in *HID mode*, where the Reader behaves like a *Bluetooth*[®] Keyboard.

The HID mode has two variants:

1. *HID mode* Compatible with Android, Windows and Apple devices
2. *HID Apple mode* Compatible only with Apple devices providing an on-screen keyboard toggle

The *Bluetooth*[®] operating mode of a TSL[®] Reader can be changed using the steps detailed below.

PREPARATION:

Download and install the "[TSL PC Firmware Downloader](#)" from the product's [Downloads Page](#) (free, one time, registration required)

TO SWITCH TO *BLUETOOTH*[®] HID MODE:

- First delete existing pairings to the TSL[®] Reader
- Launch the downloader (*Desktop Firmware Loader*)
- Connect the TSL[®] Reader to the computer using the supplied USB cable.
- The driver should install automatically (*)
- The downloader should prompt as the com port arrives and select the com port automatically ("COMn arrived")
- Select **Action>Reset Bluetooth to HID mode** or **Action>Reset Bluetooth to HID Apple mode** (wait for the process to complete)
- Disconnect the TSL[®] Reader from the computer (unplug USB)
- Wake the TSL[®] Reader (pull trigger, blue flashing LED)
- Pair to the reader on the device (it typically appears as a keyboard icon and connects automatically)
- Scanned data should now be typed into the current application on the device

TO SWITCH TO *BLUETOOTH*[®] SPP MODE:

- First delete existing pairings to the TSL[®] Reader
- Launch the downloader (*Desktop Firmware Loader*)
- Connect the TSL[®] Reader to the computer using the supplied USB cable.
- The driver should install automatically (*)
- The downloader should prompt as the com port arrives and select the com port automatically ("COMn arrived")

- Select **Action>Reset Bluetooth to SPP mode** (wait for the process to complete)
- Disconnect the TSL[®] Reader from the computer (unplug USB)
- Wake the TSL[®] Reader (pull trigger, blue flashing LED)
- Pair to the reader on the device
- Launch an Application (e.g. *RFID Explorer*) to use the reader

(*) if not download from here <http://www.ftdichip.com/Drivers/VCP.htm>

Further information can be found from the Reader download pages (free, one time, registration required - see links above)

Application Note – Bluetooth[®] HID mode: Provides further examples for configuring HID mode

Application Note – Using the Micro SD log and auto-run files: Describes using the AUTO.TXT

TSL ASCII Protocol 2.4 Rev B: Details all the commands including for HID *.st*, *.hs*, *.hc*, and *.hd*

If you encounter any issue while following the above procedure please contact support@tsl.com providing the following information:

- The serial number of the TSL[®] Reader
- The Firmware version of the TSL[®] Reader
- The step at which the procedure failed
- A description of the fault that occurred

Firmware requirements: 1128 - v4.2.7 or greater; 1153 – v2.1.7 or greater; 1166 – v1.1.6 or greater

About TSL

ABOUT

TSL designs and manufactures both standard and custom embedded, snap on and standalone peripherals for handheld computer terminals. Embedded technologies include:

- RFID - Low Frequency, High Frequency & UHF
- *Bluetooth*® wireless technology
- Contact Smartcard
- Fingerprint Biometrics
- 1D and 2D Barcode Scanning
- Magnetic Card Readers
- OCR-B and ePassport

Utilizing class leading Industrial design, TSL develops products from concept through to high volume manufacture for Blue Chip companies around the world. Using the above technologies TSL develops innovative products in a timely and cost effective manner for a broad range of handheld devices.

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