APPENDIX D - iOS UniLinker and SP2100 in MFi Mode

NOTE! This procedure may not work correctly if you've already made a HID connection with your iOS device. To clear the iOS to SP2100 relationship:

1. On the iOS device, go to *Settings*, *General*, *Bluetooth* and find the SP2100 bluetooth connection. Press the blue arrow in the blue bordered white circle at the far right. From the screen that appears, press the "*Forget this Device*" button.
2. Now reset the iPad by pressing the Home Button (screen side, bottom center) and the Power Button at the same time until the white Apple logo appears.

D.1- UniLinker: MFi Demo of Programmatic Control of the SP2100

In ***Section 2.9***, we talked about the bluetooth connection methods between the SP2100 and host devices. Of the different connection types, MFi was defined as an acronym for "Made for iPad/iPhone/iPod". MFi is basically an SPP (serial port protocol) connection with the iPhone security check added. This security check confirms that the accessory is Apple Certified and Approved. The SP2100 is certified as a MFi or "Made for iPxx" accessory.

The MFi connection gives Application Developers granular control of the settings and operation of the SP2100. Using this connection, you can access all the settings of the SP2100's System Menu and control them programmatically. In addition, you can not only receive the scanned barcode data, but you can format and send a text string to be displayed on the SP2100's 2-color OLED screen. Displaying on-screen instructions allows the user to use the SP2100 for information and instruction instead of having to view the host.

To make development easier, we provide support for the SP2100's free Software Developer's Kit (SDK). Application developers can download and install UnionNet's UniLinker program from the AppStore. UniLinker, with the corresponding source code, is the quickest way for a developer to understand how to control the SP2100 using the MFi bluetooth connection to an Apple iOS device. Below are the instructions to install and run the AppStore version of UniLinker and connect the SP2100 via Mfi.

D.2 - Install UniLinker from the Apple AppStore

Download UniLinker from the AppStore - see ***figure D1 at right***

1. On your iPad, iPhone or iPod Touch, locate and launch the AppStore ❶ application
2. Type "unilinker" in the search box at the top right hand side of the screen ❷. Then press the "search" button on the soft keypad and select iPhone Apps.
3. The UniLinker App will be displayed. Press the "**FREE**" button to the right of the application name ❸. The button caption will change to "INSTALL APP". Press to install the application ❹. The Unilinker application will be downloaded to your device.
4. Press the "Home" button of the device, and locate **BUT DON'T LAUNCH** the "UniLinker" icon. ❺

figure D1

D.3 - Set Bluetooth MFi Mode on the SP2100

On the SP2100 -

Make sure your SP2100 is turned on (press the Scan button for 3-5 seconds). Press the SP2100's front Scan Button and verify that it isn't currently connected to a host device. If the SP2100 displays anything other than **MUX** it is currently connected to another device. Find the device and turn off the bluetooth radio to break the connection to the SP2100

Before you get started making the HID connection, make sure your SP2100 is set with MFI Mode enabled ***(refer to figure D2)***:

1. Press & hold the Top Side button until the System Menu appears.
2. Select **3.Bluetooth** and press the Scan Button to select the option.
3. Select **3.MFI Mode,** then highlight **Enable** & press the Scan Button to select.
4. Select **0.Exit Sub Menu** then **0.Exit Menu**.
5. There should now be an "i" on the far left of the Status Bar (circled in green in ***figure D2***. The SP2100's LED Indicator will flash red.

figure D2

NOTE:

- If the SP2100 displays anything other than **MUX** it is currently connected to another device. Find the device and turn off the bluetooth radio to break the connection to the SP2100. (See ***Section 3.9***)

APPENDIX D - iOS UniLinker and SP2100 in MFi Mode - con't

D.3 - Set Bluetooth MFi Mode on the SP2100, con't

If the SP2100 displays **MUX** and there is an "i" on the far left of the Status Bar as circled in green in ***figure D2***, continue by scanning the Bundle and Protocol barcodes in the instructions below.

Set the Bundle and App (protocol) ID's -

In order for the SP2100 to recognize that it supposed to work with the UniLinker application, the iOS device needs to know the Bundle and App ID's. An App ID is the ID number of the Unilinker program in the AppStore, and the BundleID is used by iOS on the host to uniquely identify the application. We'll scan barcodes to set each.

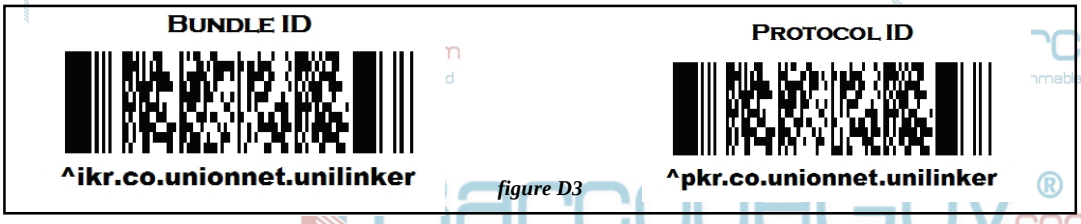

figure D3

figure D4

Refer to ***figure D3*** and ***figure D4*** above:

1. Scan the BundleID barcode on the left side of figure D3 above. The SP2100 will momentarily display the "Setup Bundle ID" screen ❶, then return to the main screen and Status bar.
2. Scan the AppID barcode on the right side of figure D3 above. The SP2100 will momentarily display the "Setup Apple ID - RESET BLUETOOTH" screen. ❷

You can now set up the bluetooth connection between the SP2100 and your Apple mobile device.

D.4 - Make the Mfi Bluetooth Connnection

On the iPad - iPhone - iPod Touch - Refer to ***figure D5***

1. Select the "Settings" icon ❶, then select "General" ❷ Make sure the Bluetooth slider ❸ is set to on.
2. The iPxx will search for new bluetooth devices as indicated by the swirling circle .
3. The iPxx will find the SP2100 and list it as "SP2100-XXXXXXX" ❹ where the last 7 digits are the serial number of the barcode scanner.
4. Press on the "SP2100" line. After a few moments the iPxx will display "Connected" ❺. The SP2100 will beep and display **HID** in the Status Bar ❻.
5. A few moments after the HID connection is displayed on the SP2100, the iOS device will display a message "UniLinker would like to communicate with the UnionNet SP2100. ❼ Press the "Allow" button
6. The SP2100 will beep once and the Status Bar will change from **HID** to **MFi** ❽. UniLinker will automatically launch.

figure D5

The UniLinker program is mostly self-explanatory. We suggest that before you scan anything, that you go into the settings tab at the bottom of the program and play around there to start. And don't forget, if you have any questions, don't hesitate to give us a call.

END OF PROCEDURE