Piksi Multi - Standalone Position

Caution: Piksi Multi uses a powerful processor that can generate a significant amount of heat. Use caution when handling the board, as components may reach upwards of 140° F (60° C).

This procedure must be performed outdoors and does not require an Internet connection.

Overview

This article provides instructions to obtain a Single Point Position solution using hardware from the Piksi® Multi Evaluation Kit. It is important to mention this can be possible with Duro as well. Please be sure to complete all prerequisites before proceeding with the guide.

Prerequisites

Installing Swift Console
http://support.swiftnav.com/customer/en/portal/articles/2756825

Installing USB to Serial Adapter Drivers
http://support.swiftnav.com/customer/en/portal/articles/2757197

Powering Piksi Multi
http://support.swiftnav.com/customer/en/portal/articles/2746937

Connecting to Piksi Multi - USB to Serial Adapter
http://support.swiftnav.com/customer/en/portal/articles/2747195

Upgrading Piksi Multi Firmware
http://support.swiftnav.com/customer/en/portal/articles/2757403

GNSS Antenna Placement Guidelines
http://support.swiftnav.com/customer/en/portal/articles/2770372

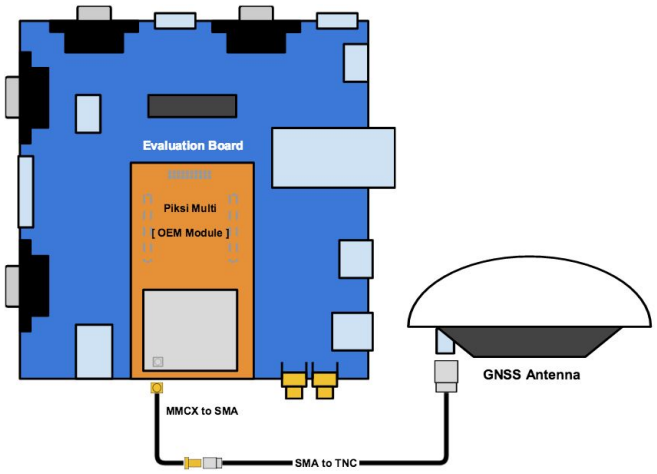
Standalone GNSS Position

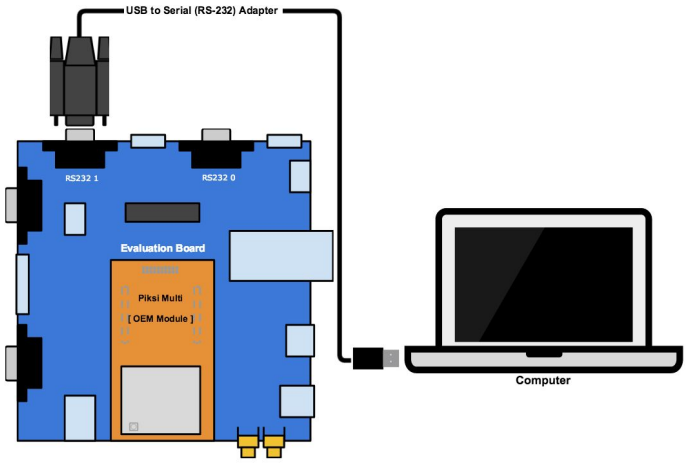
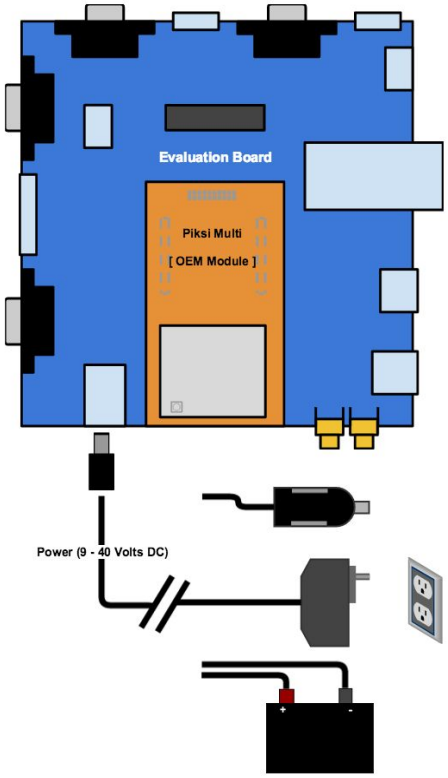
Note: A **Single Point Position** solution is a standalone autonomous GNSS position solution, with an accuracy of few meters. **SBAS** are satellite-based augmentation systems that provide corrections to obtain better accuracy than SPP. Both **SPP** and **SBAS** provide an absolute position and only one Piksi Multi receiver is required.

Goal

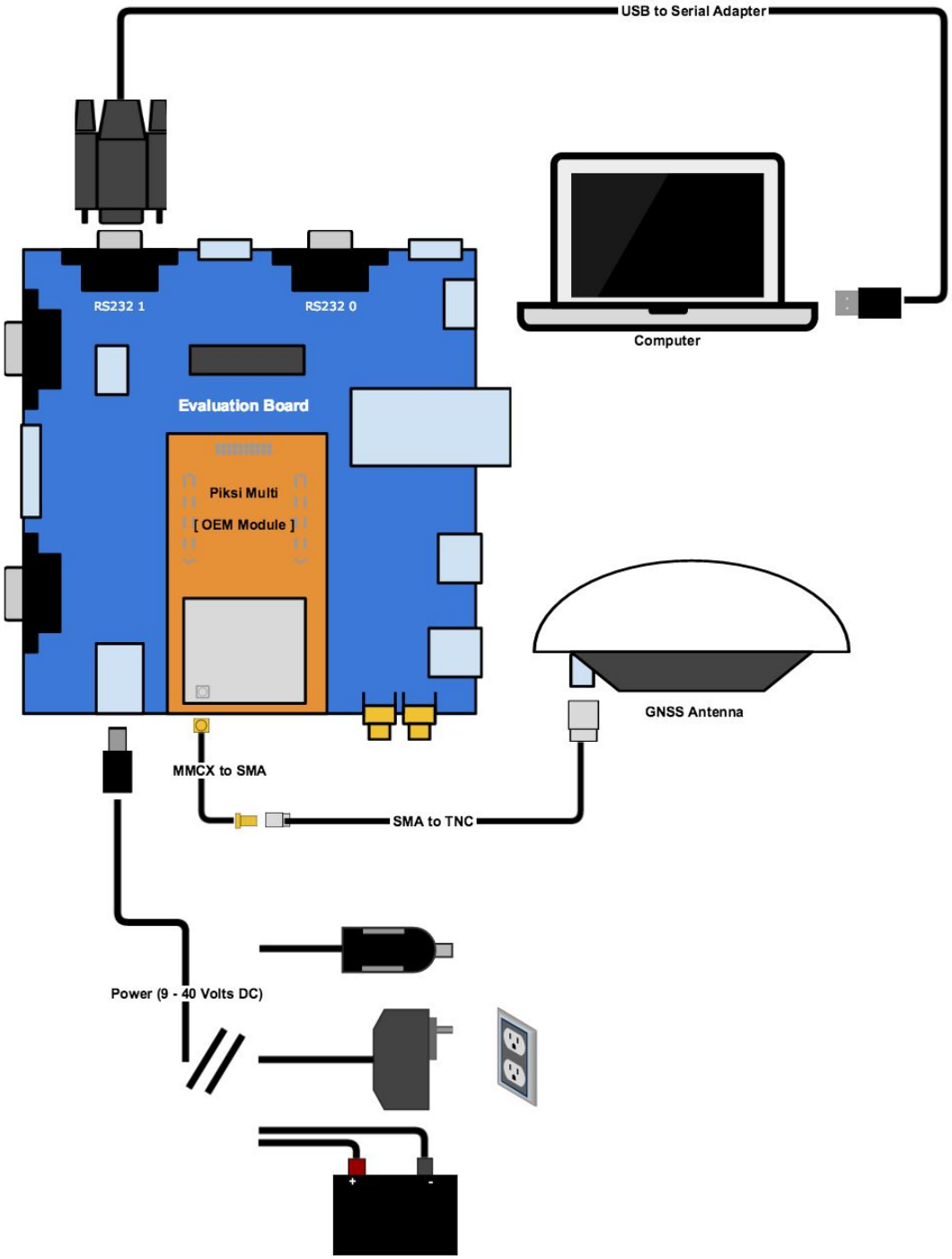
In this section, you will use one Piksi Multi to display a Single Point Position or SBAS-corrected position on the Swift Console.

Hardware Setup

Place the GNSS antenna on a tripod or on other stable structure with an unobstructed sky view. (See *GNSS Antenna Placement Guidelines*) It is recommended to secure Piksi Multi and the radio to the antenna tripod or structure.	
Connect the GNSS Antenna to Piksi Multi. • Connect the short MMCX to SMA adapter cable to the primary antenna connector on the Piksi Multi GNSS module. • Connect the SMA to TNC cable to the SMA female connector of the MMCX to SMA cable. • Connect the TNC connector to the GNSS antenna.	

Connect the Evaluation Board to your computer. • Connect the USB to Serial Adapter cable to the *RS232 1* port of the Evaluation Board. • Connect the opposite end of the USB to Serial cable to your computer.	
Connect power to the system. • Connect the included power adapter splitter to the radio and Evaluation Board • Connect your power source to the splitter. Once powered - the LED indicators of Piksi Multi will illuminate.	

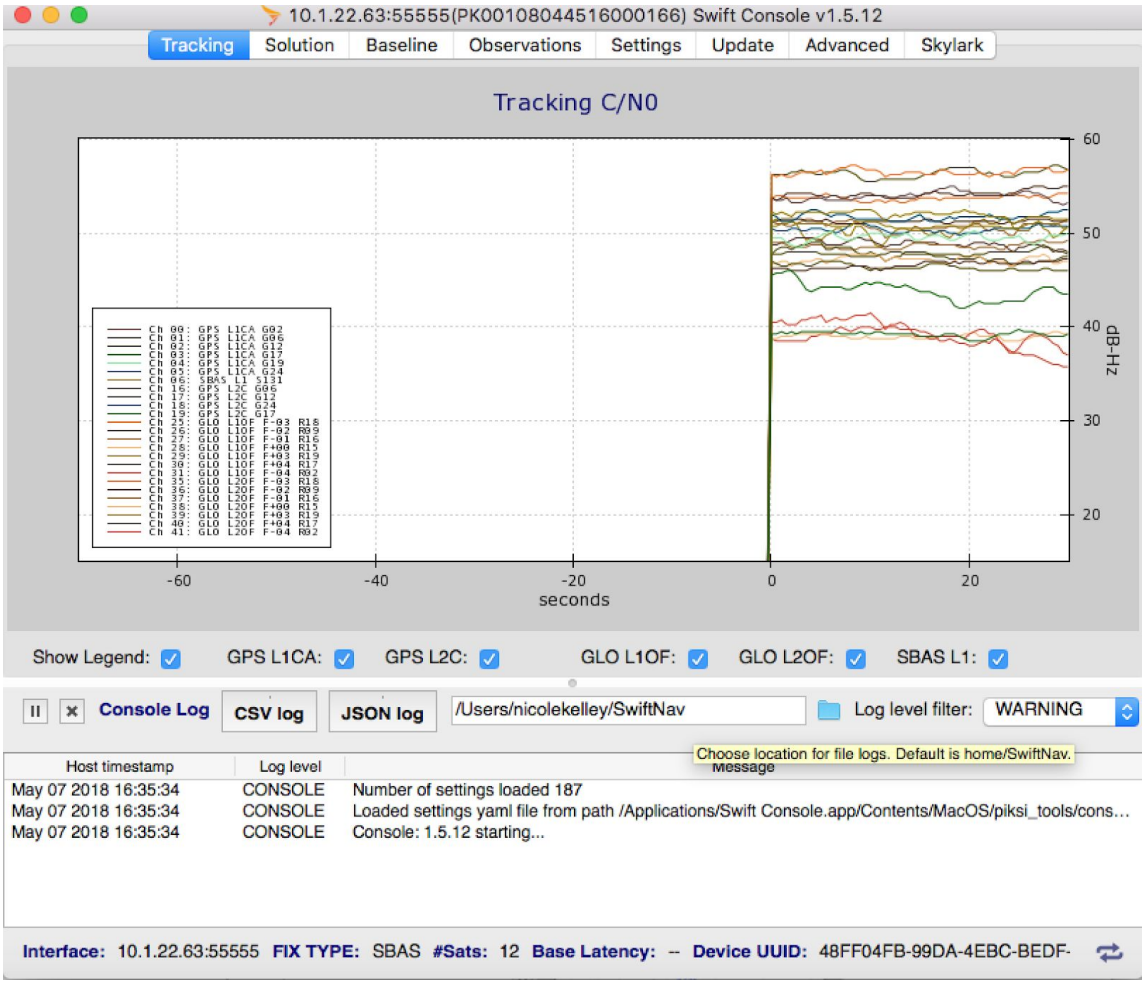
Wiring Diagram - Overview



Running the Swift Console Software

- Launch the Swift Console using as described in the previous section.
- Select the communications device and baud rate for your Piksi Multi from the drop down menu
- Ensure that you have simulation mode disabled

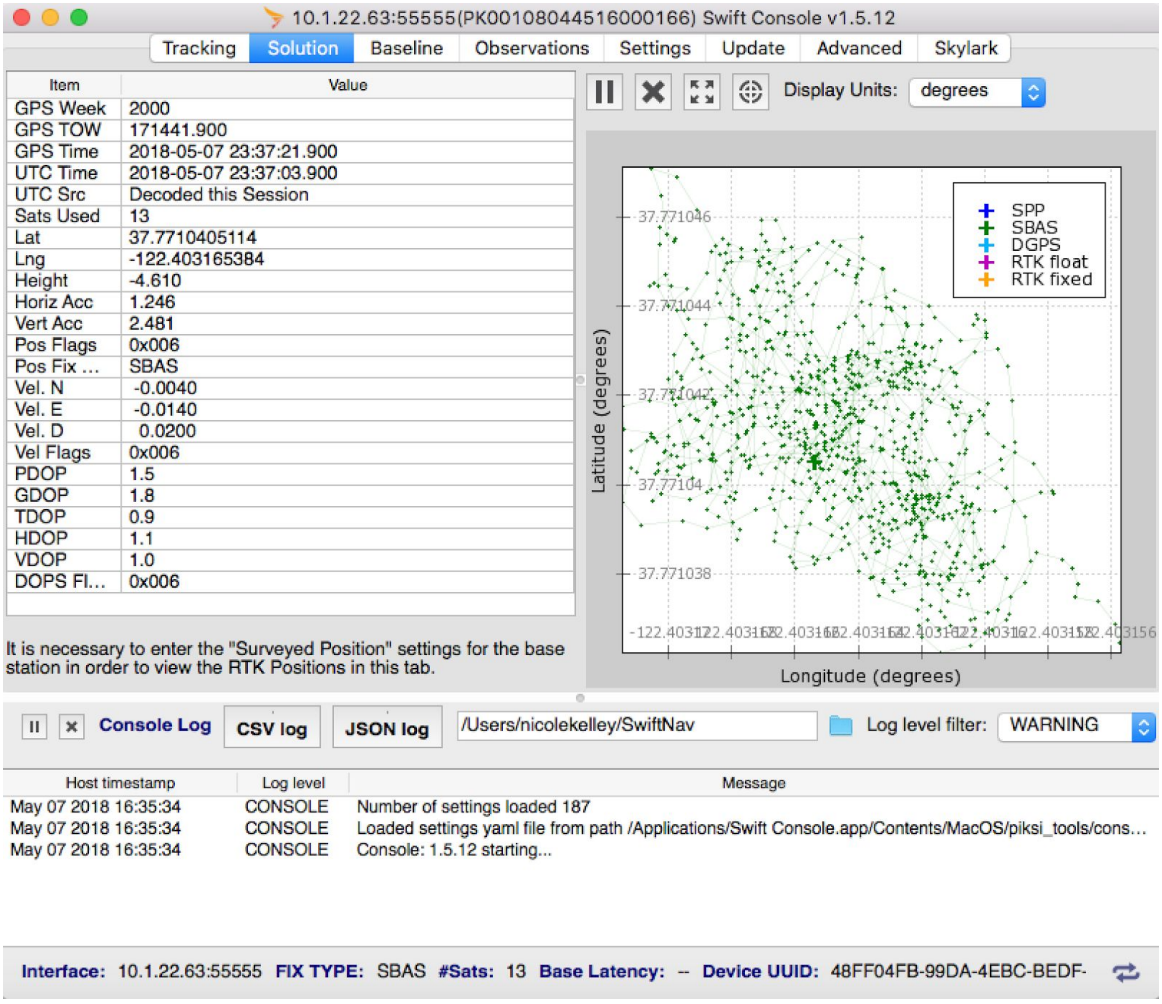
Checking Satellite Signals



Open the Tracking tab. If a satellite signal has been successfully acquired, it will be assigned to a tracking channel and transitioned to tracking mode. In the Tracking tab you will see a line added to the plot indicating the signal strength of that satellite (L1 and L2 signals from the same satellite will be shown separately). Wait until at least 4 satellites are tracking with signal strengths above 33 dB-Hz.

Controls for the tracking display can be found directly below the graph. The type of signals displayed can be hidden or displayed with the checkboxes in the legend.

Viewing Position Solutions



Once satellite signals are being tracked Piksi Multi will receive the data it needs to compute the position solution. This data is called the *ephemeris* and it takes approximately 30 seconds to collect. Open the Solution tab and you should see Piksi outputting position solutions represented as blue points on the graph (for SPP solutions) or green points (for SBAS solutions).

Hint: The yellow POS LED indicator on the Piksi Multi board gives you insight into the position solution status. A blinking POS LED indicates that satellites are being tracked, but no position solution is available yet. A solid orange POS LED indicates a valid position fix.