TECHNICAL NOTES

Article Number - 00068-2022

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Article applies to - iKonvert, GPS160 and ST-NMEA Converter

ISSUE: Updating Firmware on STM32L based Products

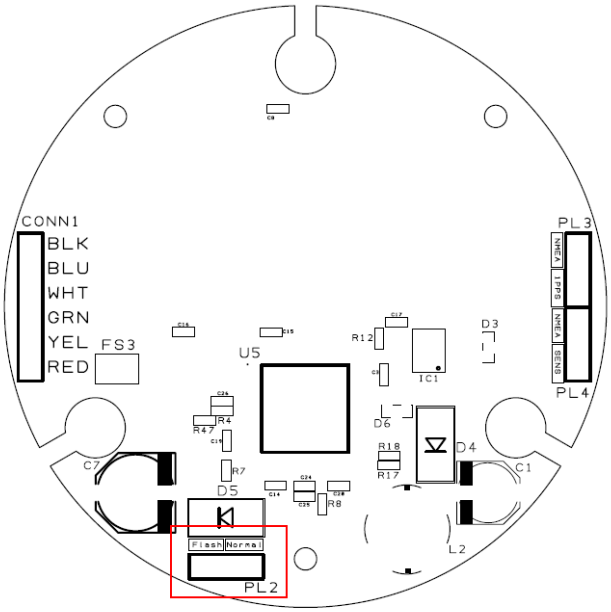
Some Digital Yacht products have an STM32L microprocessor that can be firmware updated, by running the STM32 Cube Programming software (Windows/Mac/LINUX), which can be downloaded from here…

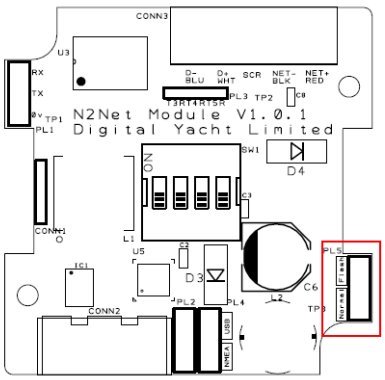
https://www.st.com/en/development-tools/stm32cubeprog.html

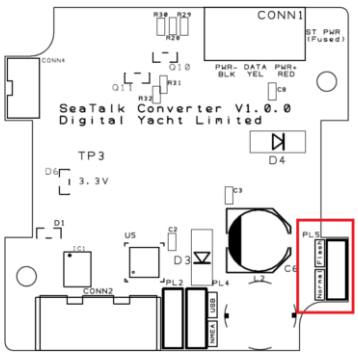
If you have a USB version, of one of these products, then you can update the firmware through the USB connection, if you have an ISO/NMEA0183 version then you will need one of Digital Yacht's USB to NMEA Adaptor cables or similar 3rd party cable.

Update Procedure:

To update the firmware, first remove power from the product to be updated. Next gain access to the PCB and locate the Boot Mode "Jumper" that is located on each of the products as shown below…

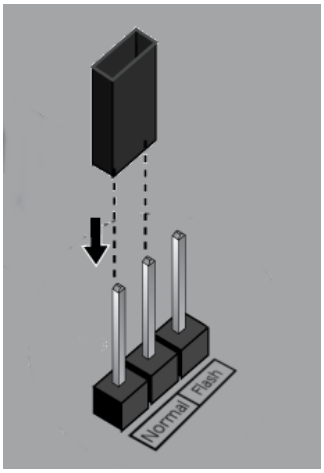






NOTE – Jumper is on underside of GPS160 PCB

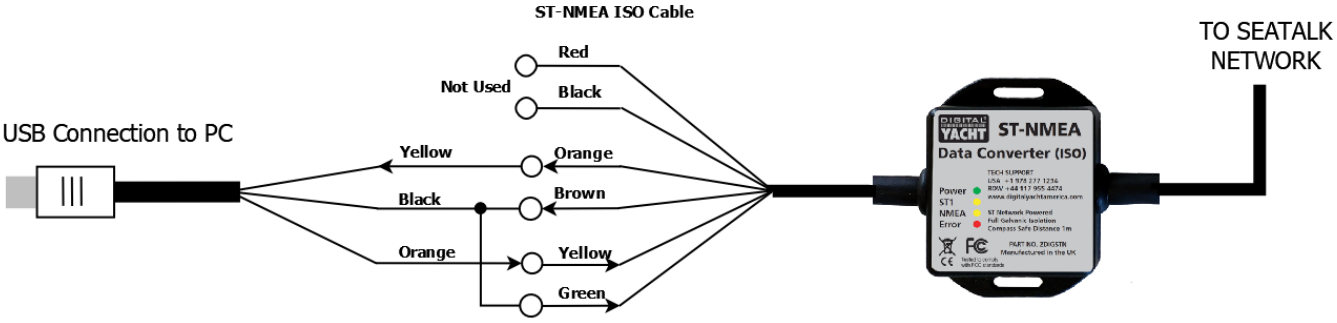
Move the “Jumper” from the **Normal** to the **Flash** position, as shown.



When the product next powers up, the STM32 microprocessor will be in a special boot loader mode where it is ready to receive the firmware update.

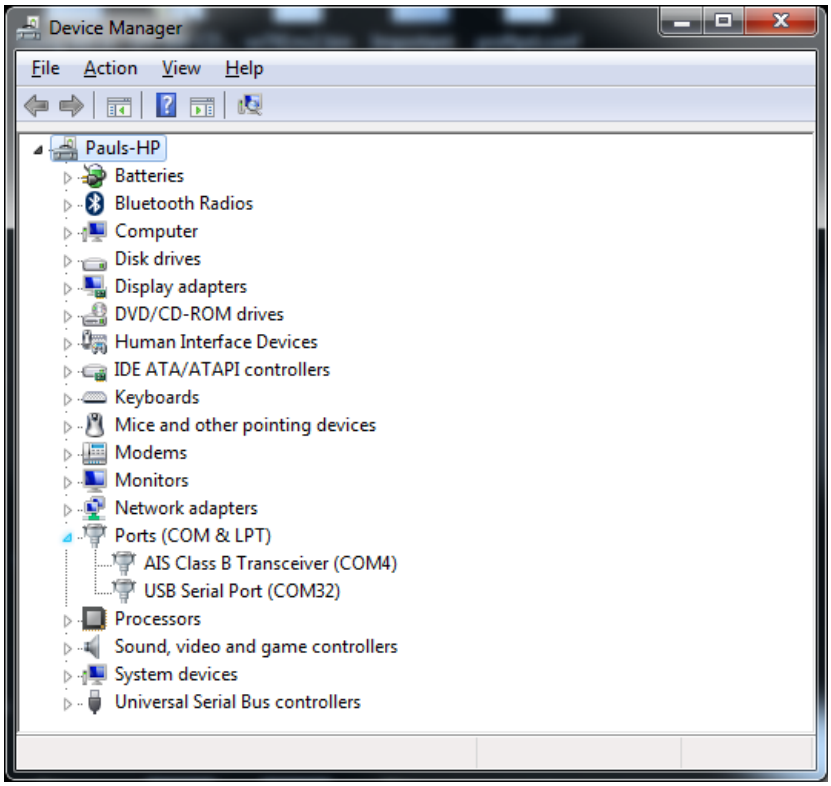
Now connect the product to the Windows PC. If it is a USB product, simply plug the USB cable in to the PC, but if the product is an ISO/NMEA0183 version, then you will need to connect it to a Digital Yacht USB to NMEA Adaptor cable as shown below.

The diagram shown is for at ST-NMEA Converter but the wire colour connections are the same for iKonvert. See Note on GPS160 (NMEA/ISO) at end of this article.



Plug the USB connector in to the Windows PC and as long as the PC is connected to the internet or it already has the USB driver loaded, it should allocate a COM port to the USB connection.

To check what COM port it has been allocated, go to the Windows Device Manager and in the **Ports (COM & LPT)** section, you should see an entry “USB Serial Port (COMx)”, as shown below…



Apply power to the product, please note that no LEDs will illuminate in this Boot Loader mode, and run the STM32 Cube Programmer software. You should see the window shown in Figure 1.

Now select the COM Port number that the USB cable has been given by Windows, select 115200 baud and ensure that Parity is set to “Even”. Once happy with the settings, click the “Connect” button

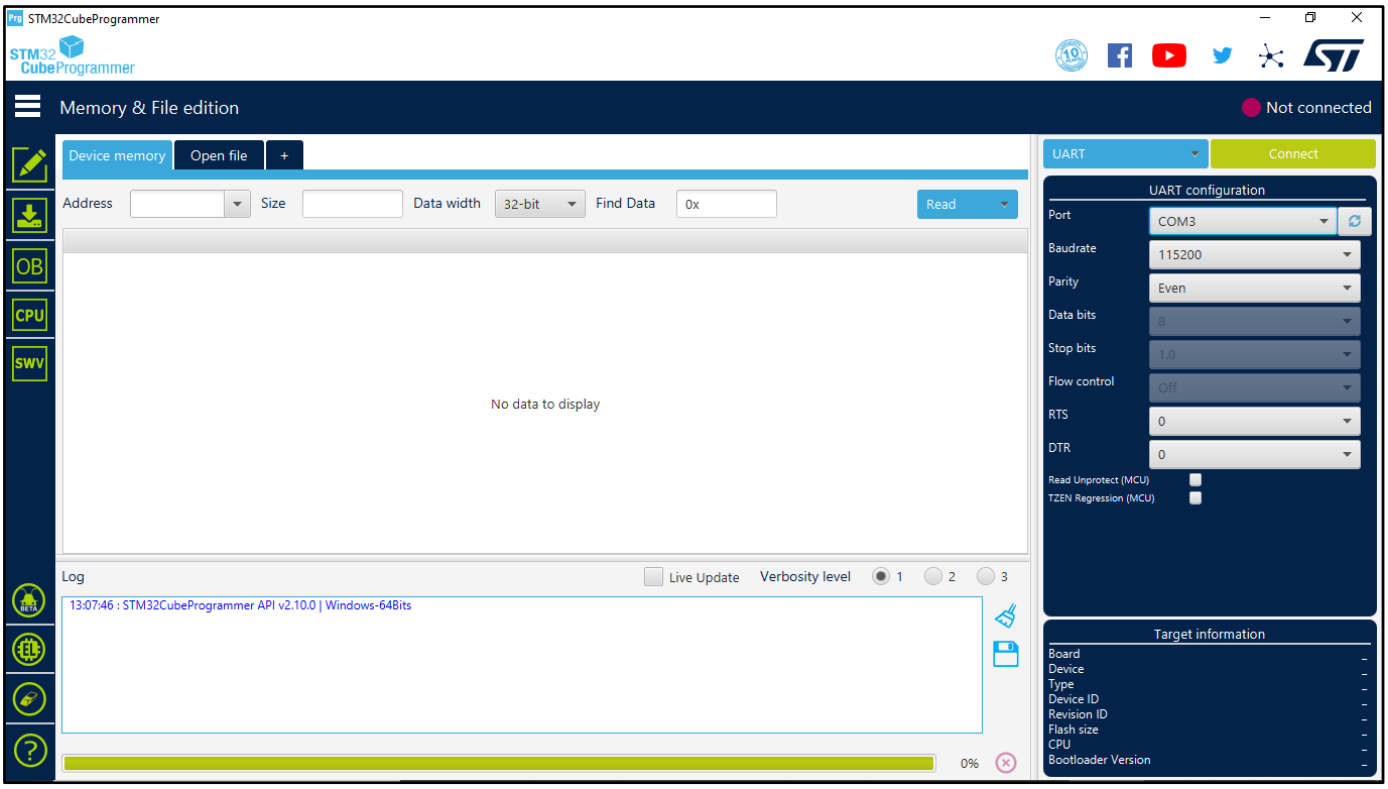


Figure 1

If the program can successfully communicate with the microprocessor, then you will see the window shown in Figure 2, with a green “Connected” icon shown in the top right corner.

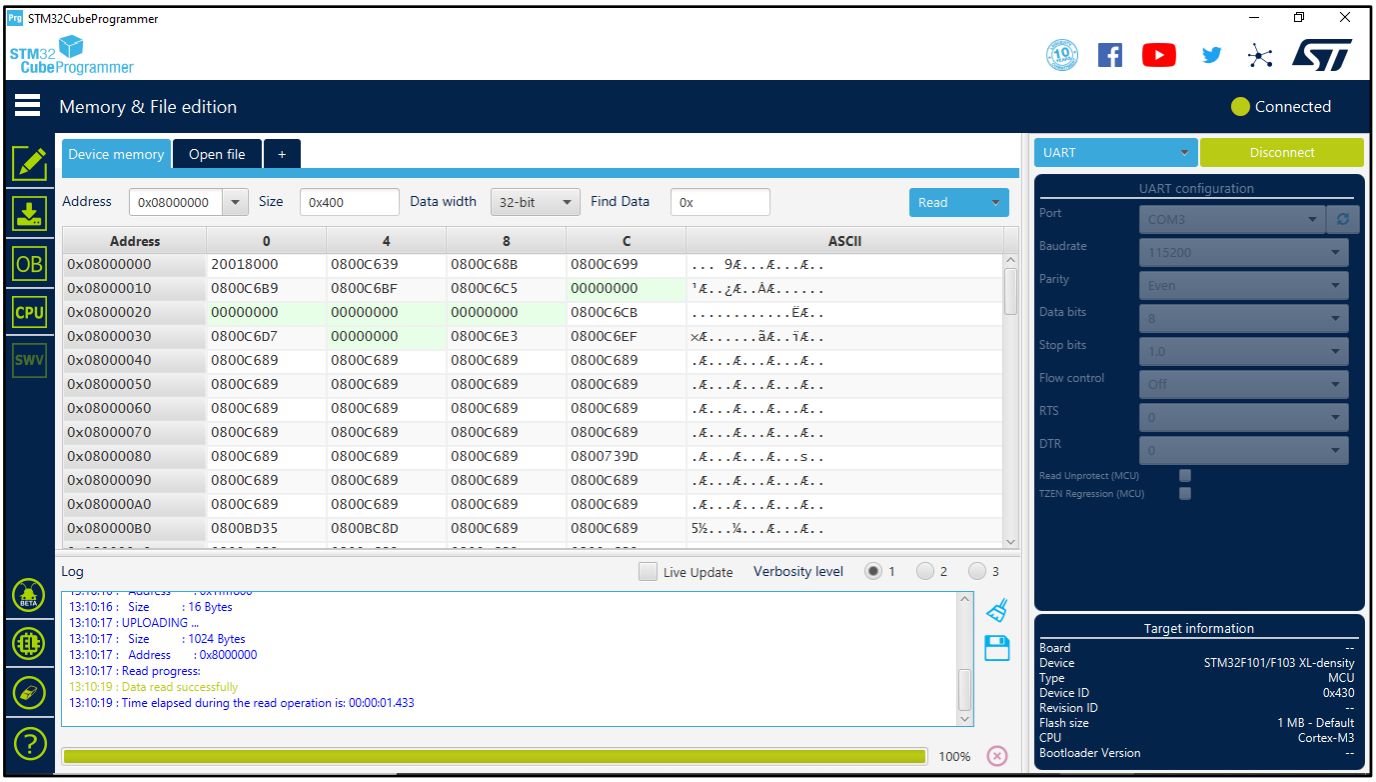


Figure 2

Now you need to select the Binary Firmware Update file. Click the  icon down the left hand side of the screen and the page shown in Figure 3 will be displayed.

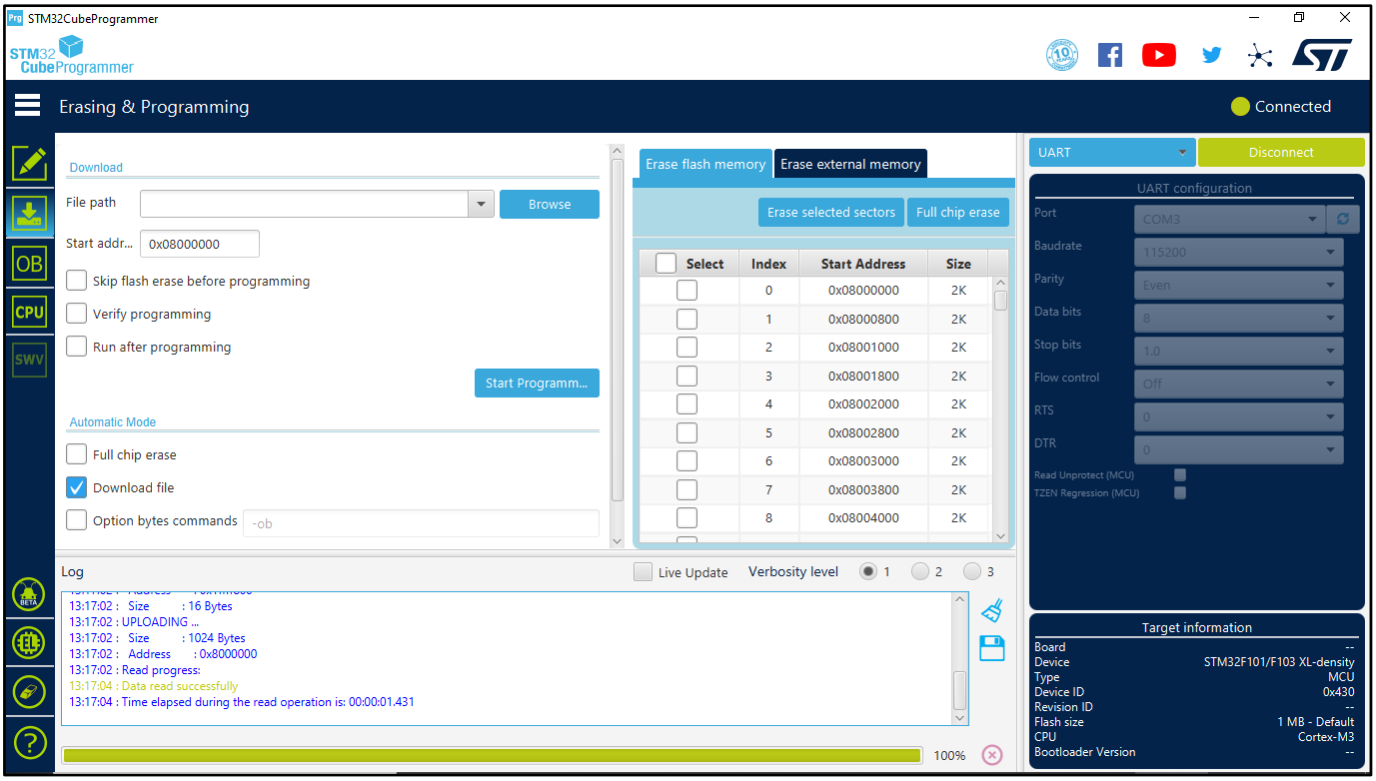


Figure 3

Click the “Browse” button and a file explorer type pop-up will appear that will allow you to locate and select the update file. Once selected click the “Start Programming” button and the update process will start with a progress bar shown along the bottom of the page as shown in Figure 4.

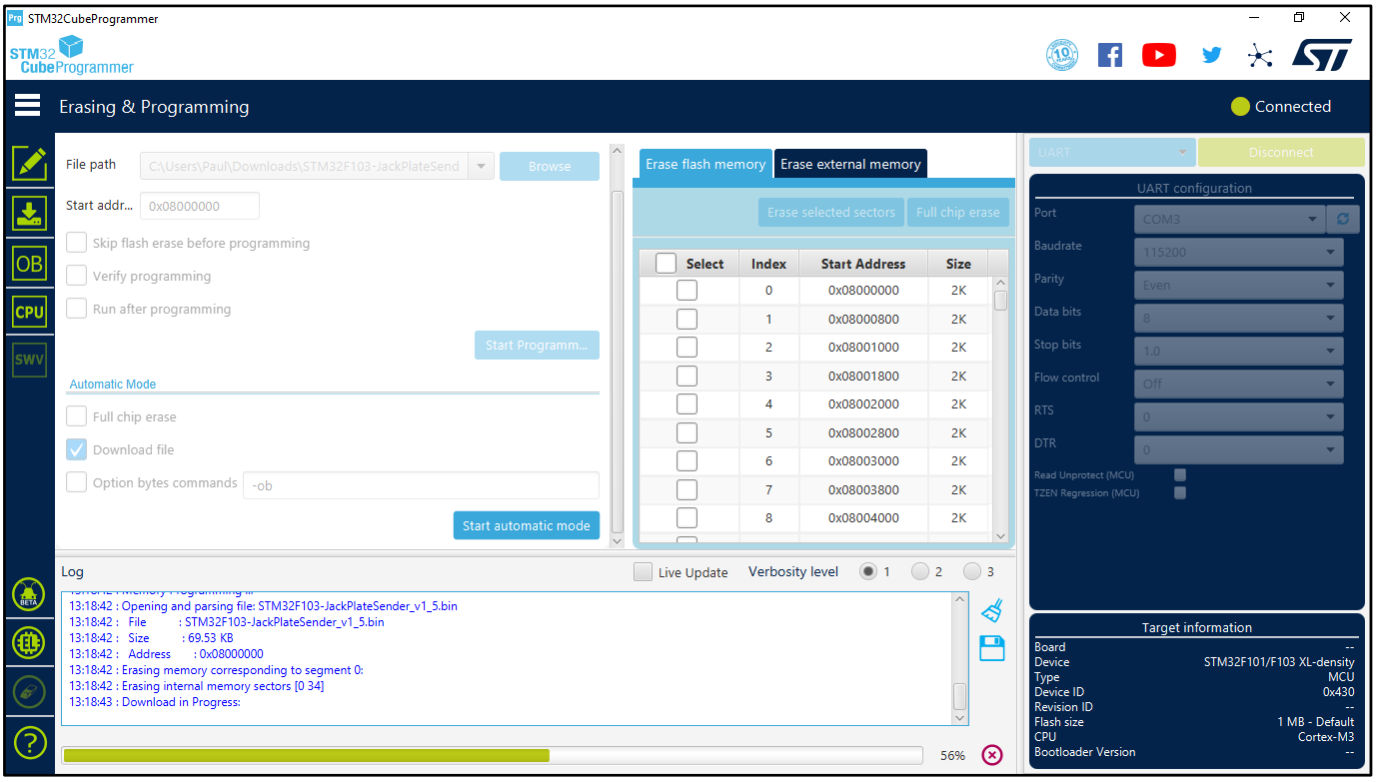


Figure 4

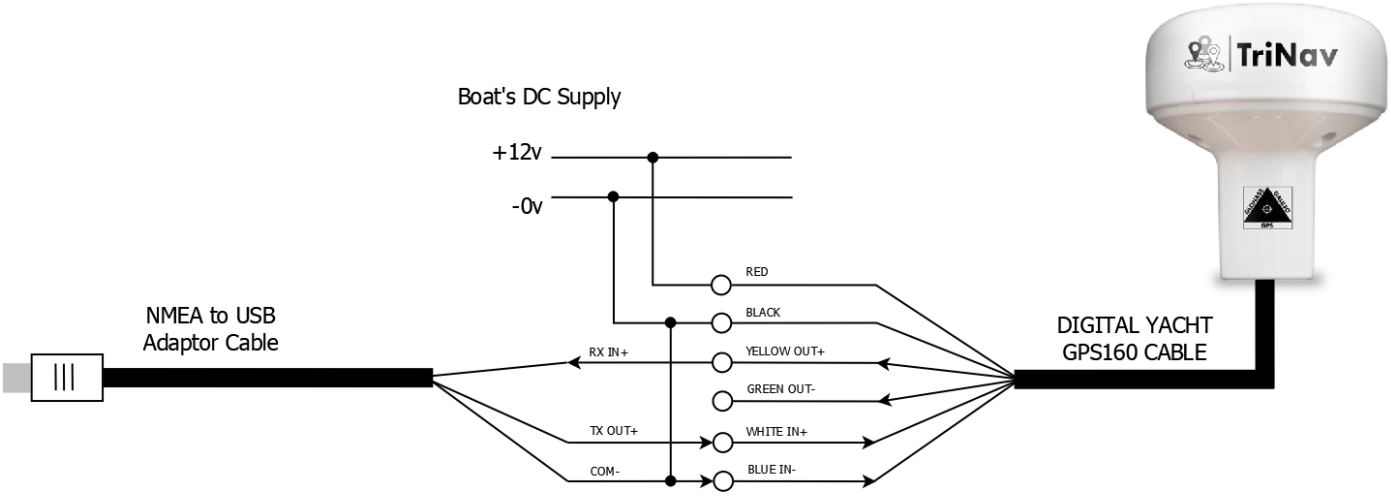
When the progress bar reaches 100%, you should get a pop-up window saying that the update was successful.

IMPORTANT – Remember to move the “Jumper” from the **Flash** position back to the **Normal** position

Updating is now complete and you can click the “Disconnect” button, close the Cube Programmer software and power cycle the unit.

Additional Note for GPS160 (ISO):

If you are using updating the firmware on a GPS160 (ISO) version then you need to connect it to one of our NMEA to USB adaptor cables as shown below.



In Addition, you need to move the Jumpers on PL3 and PL4 to the NMEA position as shown by the red rectangles shown below.