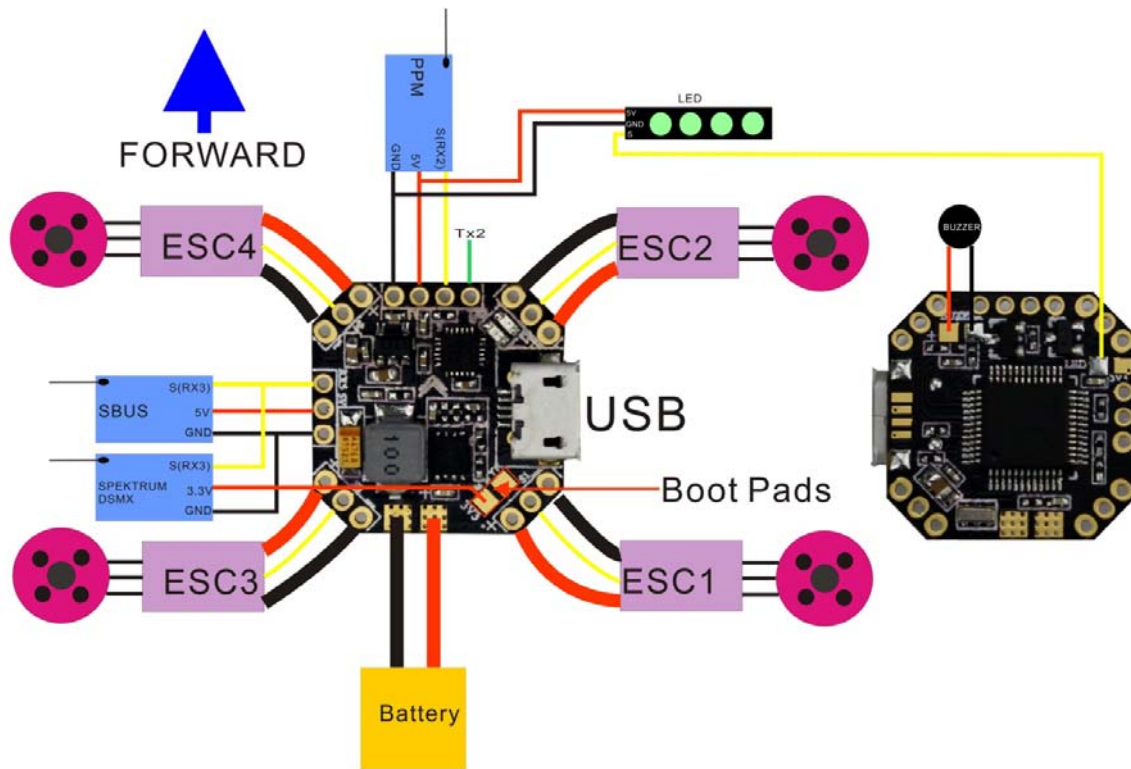# F3 Femto Manual - V1.2

(SPRACING F3EVO Firmware)

Features

- STM32F303 CPU
- MPU9250 accelerometer/gyro/compass (connected via SPI)
- 2-6S LiPo battery
- Integrated 5V/3A BEC
- Dedicated Sbus and serial RX with 5v ,Spektrum 1024/2048, SBUS, XBUS, SumD and SumH RX with built-in inverter
- 6Supports direct connection of 3.3v Spektrum Satellite receivers
- Telemetry support (frsky telemetry, smartport, and HoTT telemetry)
- Dedicated PPM receiver input
- Buzzer support
- Dedicated output for programmable LEDs - great for orientation, racing and night flying. (Currently mutually exclusive with the Transponder)
- BLHeli Passthrough ready（connect BLheli suite）
- 2.0 mm pin headers
- 80A Current tolerance (PDB)
- Integrated Battery monitoring
- Use all the features all the time; e.g. Connect your USB + SmartPort + SBus + LED Strip + Battery Monitoring + 4 motors - all at the same time!
- 20x20mm board
- Weight 2.2 grams

※UART3 （RX3）

　　　Use for Spektrum Satellite RX, Spektrum 1024/2048, SBUS, XBUS, SumD and SumH RX, etc.

※UART2/PPM - Serial RX or PPM RX + Telemetry

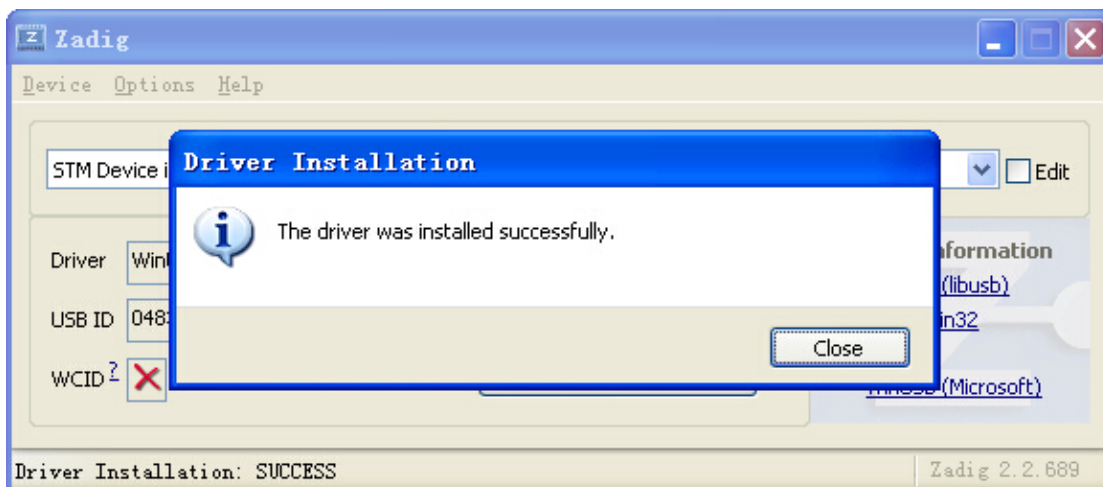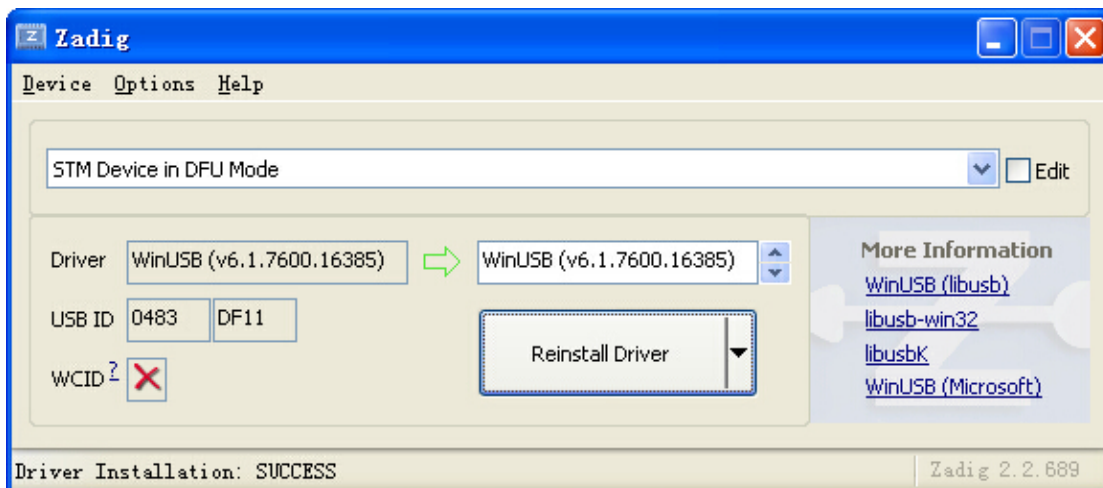　　　Use RX2 as PPM receiver. Use TX2 as telemetry output when using PPM.

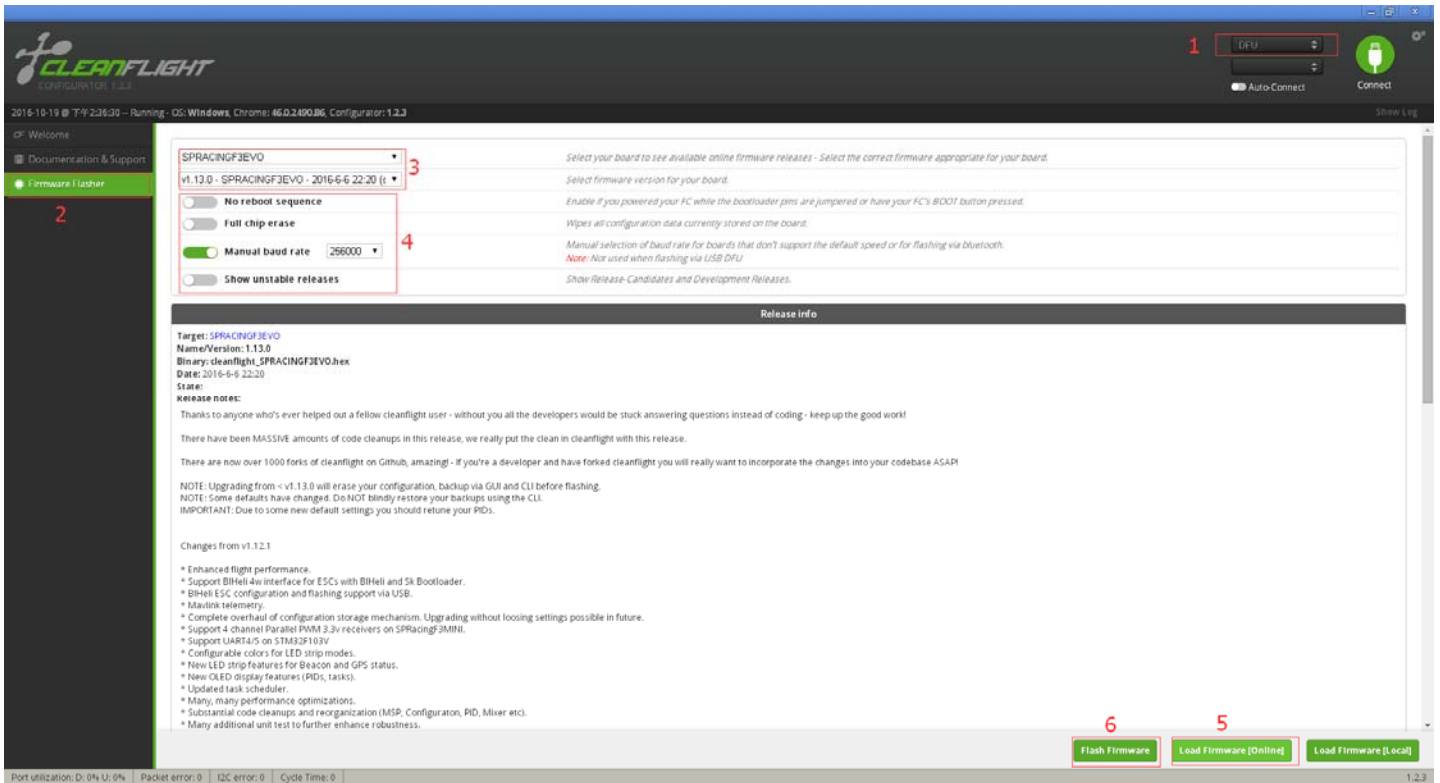# Via Device Firmware Upload（DFU，USB）-windows

Required Software:

- A SPRACINGF3EVO.hex file (for flashing).
- Zadig USB driver installation -> http://zadig.akeo.ie/
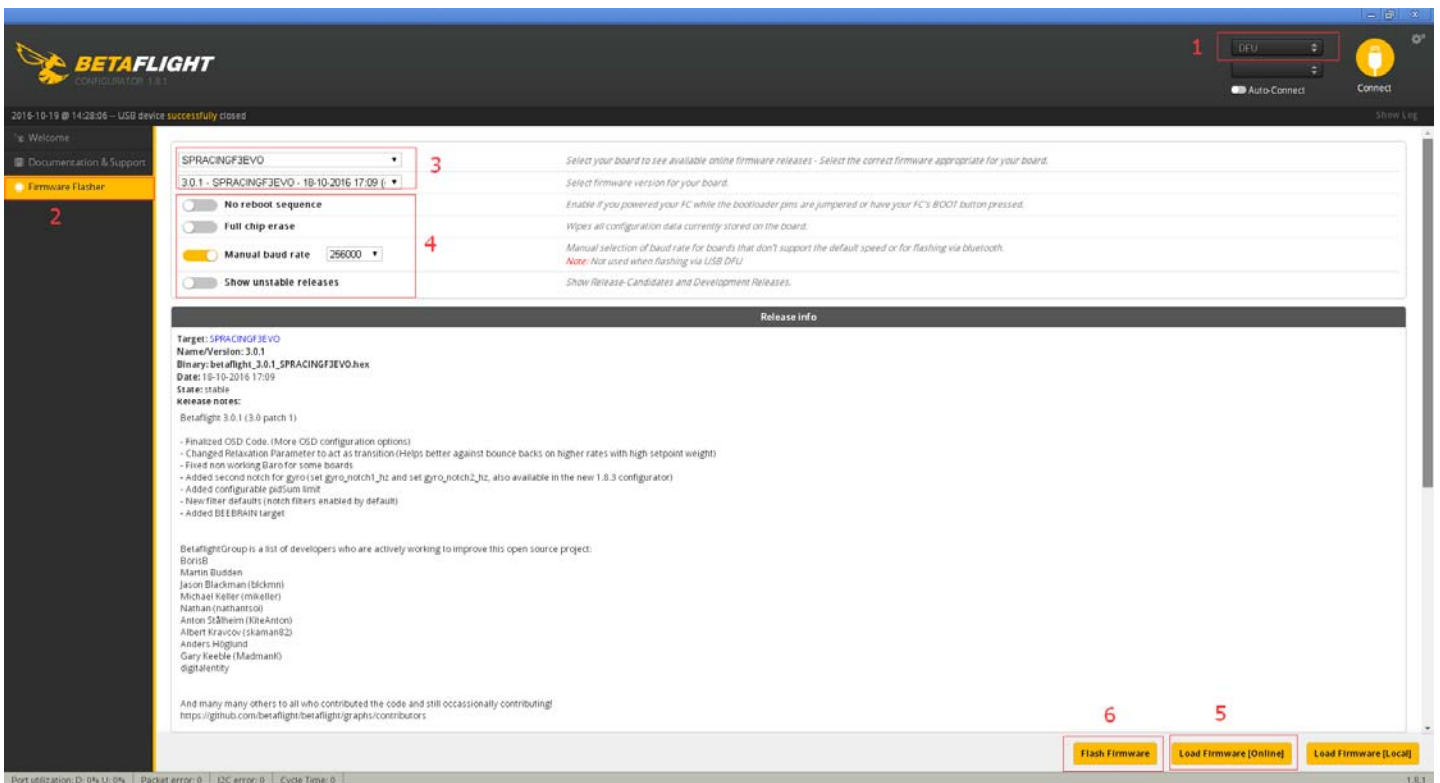- cleanflight Configurator

Flashing steps:

- Place the board into DFU mode by shorting out (soldering or screwdriver) the boot pins on top of the board .Your device will be detected as a STM Device in DFU mode (or STM BOOTLOADER).

- Load up Zadig USB driver and select the STM DFU or STM BOOTLOADER device (if it is not listed please confirm step 1, and / or select "Options / View All Devices" in the Zadig menu. Install the WinUSB driver.

Start Cleanflight Configurator. It should detect a DFU mode device on the Flash Firmware tab.

- Betaflight Configurator

Virtual Communications Port

The F3 Femto utilises the STM32 Virtual Com Port (VCP). This allows the UARTs on board to be utilised whilst the USB is connected. This requires the STM VCP driver to be installed in order for the VCP to be recognised.

The STM32 VCP driver can be downloaded here --> http://www.st.com/web/en/catalog/tools/PF257938

NOTE: Once you download and run the installation it has **not** installed the driver, merely unpacked the choice of drivers. Locate the installation directory and then run the EXE file pertaining to your system.

e.g. C:\Program Files (x86)\STMicroelectronics\Software\Virtual comport driver\Win8\ <- will have two files present. One for 64 bit systems and one for 32 bit systems.