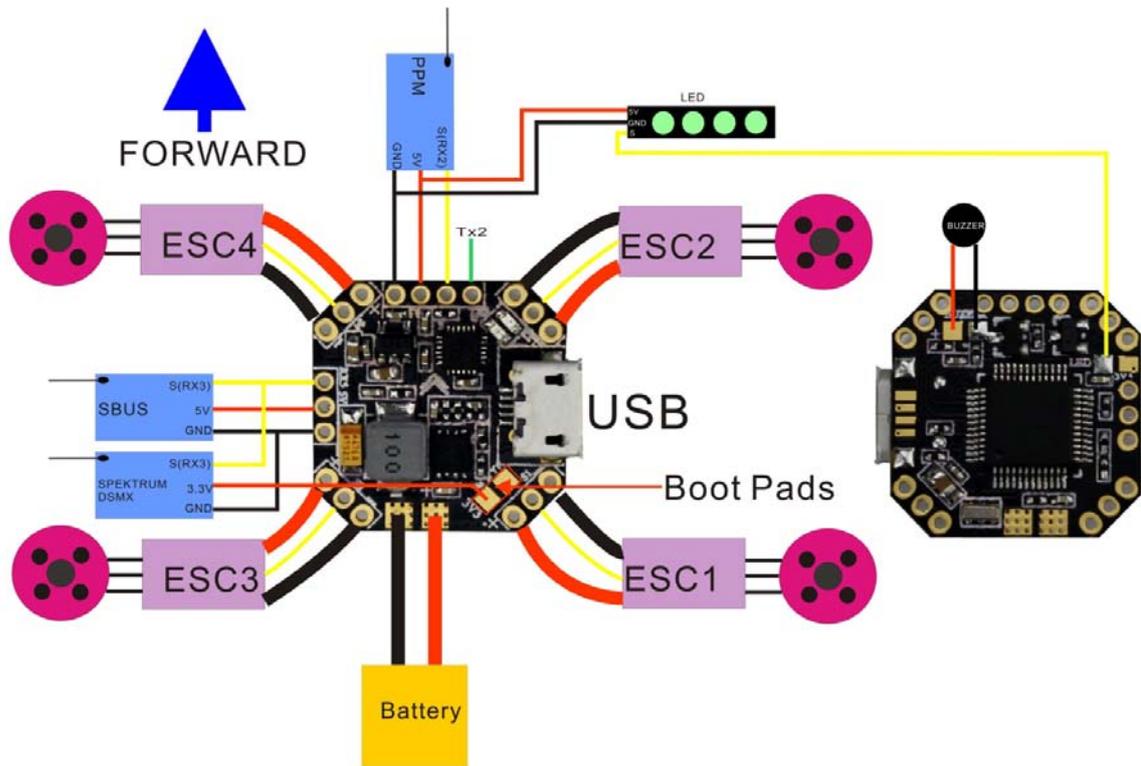


# F3 Femto Manual - V1.1

(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.

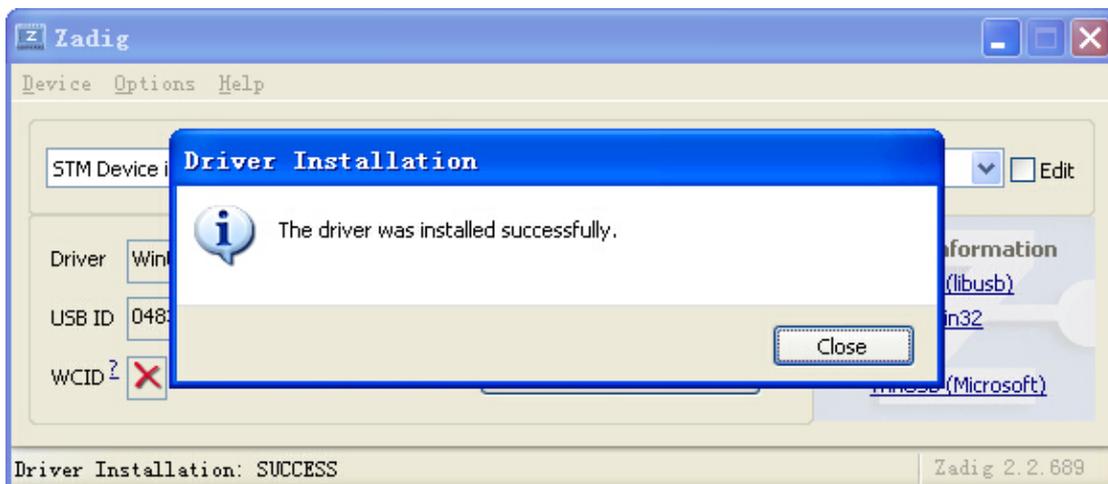
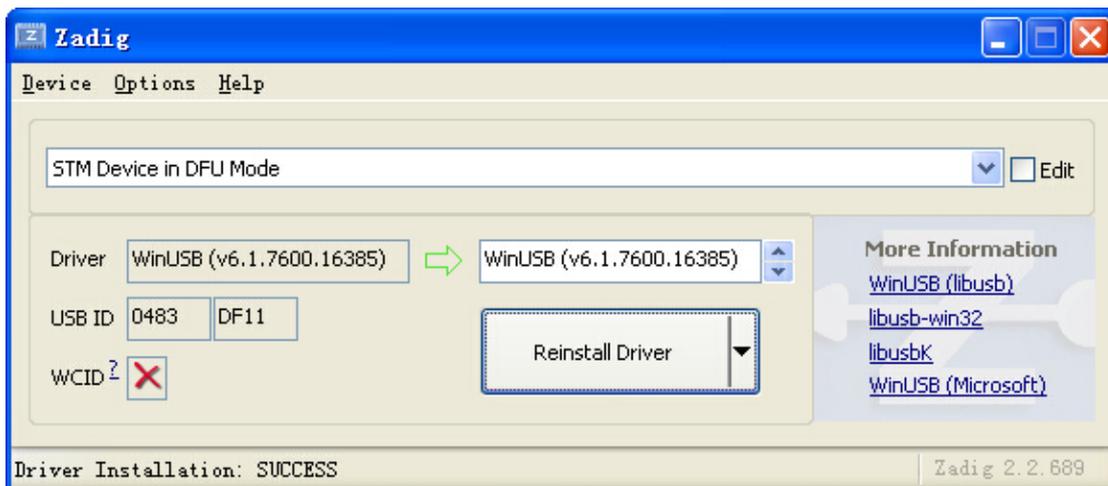
## Via Device Firmware Upload (DFU, USB) -windows

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.

2016-10-19 @ 7:49:23:30 - Running - OS: Windows, Chrome: 46.0.2400.96, Configurator: 1.2.3

SPRACINGF3EVO

v1.13.0 - SPRACINGF3EVO - 2016-6-6 22:20 (t)

No reboot sequence

Full chip erase

Manual baud rate: 256000

Show unstable releases

Release info

Target: SPRACINGF3EVO  
 Name/Version: 1.13.0  
 Binary: cleanflight\_SPRACINGF3EVO.hex  
 Date: 2016-6-6 22:20  
 State: stable

release notes:

Thanks to anyone who's ever helped out a fellow cleanflight user - without you all the developers would be stuck answering questions instead of coding - keep up the good work!

There have been MASSIVE amounts of code cleanups in this release, we really put the clean in cleanflight with this release.

There are now over 1000 forks of cleanflight on Github, amazing! - if you're a developer and have forked cleanflight you will really want to incorporate the changes into your codebase ASAP!

NOTE: Upgrading from < v1.13.0 will erase your configuration, backup via GUI and CLI before flashing.  
 NOTE: Some defaults have changed. Do NOT blindly restore your backups using the CLI.  
 IMPORTANT: Due to some new default settings you should return your PIDs.

Changes from v1.12.1

- Enhanced flight performance.
- Support BiHeli 4w interface for ESCs with BiHeli and 5k Bootloader.
- BiHeli ESC configuration and flashing support via USB.
- Maximu telemetry.
- Complete overhaul of configuration storage mechanism. Upgrading without loosing settings possible in future.
- Support 4 channel Parallel PWM 3.3v receivers on SPRACINGF3MINI.
- Support UART15 on STM32F103V
- Configurable colors for LED strip modes.
- New LED strip features for Beacon and GPS status.
- New OLED display features (PIDs, tasks).
- Updated task scheduler.
- Many, many performance optimizations.
- Substantial code cleanups and reorganization (MSP, Configurator, PID, Mixer etc).
- Many additional unit test to further enhance robustness.

Flash Firmware Load Firmware [Online] Load Firmware [Local]

- Betaflight Configurator

2016-10-19 @ 14:28:06 - USB device successfully closed

BETAFLIGHT

SPRACINGF3EVO

3.0.1 - SPRACINGF3EVO - 18-10-2016 17:09 (t)

No reboot sequence

Full chip erase

Manual baud rate: 256000

Show unstable releases

Release info

Target: SPRACINGF3EVO  
 Name/Version: 3.0.1  
 Binary: betaflight\_3.0.1\_SPRACINGF3EVO.hex  
 Date: 18-10-2016 17:09  
 State: stable

release notes:

Betaflight 3.0.1 (3.0 patch 1)

- Finalized OSD Code. (More OSD configuration options)
- Changed Retraction Parameter to act as transition (Helps better against bounce backs on higher rates with high setpoint weight)
- Fixed non working Bars for some boards
- Added second notch for gyro (set gyro\_notch1\_hz and set gyro\_notch2\_hz, also available in the new 1.8.3 configurator)
- Added configurable platform limit
- New (new) defaults: notch filters enabled by default)
- Added BEEBRAIN target

BetaflightGroup is a list of developers who are actively working to improve this open source project:

BorisB  
 Martin Bussen  
 Jason Blackman (blackmm)  
 Michael Keller (mkeller)  
 Nathan (nathanstol)  
 Anton Stalheim (KileAnton)  
 Albert Kravcov (skamans2)  
 Anders Hogland  
 Gary Keeble (MadmanK)  
 digitalentity

And many many others to all who contributed the code and still occasionally contributing!  
<https://github.com/betaflight/betaflight/graphs/contributors>

Flash Firmware Load Firmware [Online] Load Firmware [Local]