

AIOF3_BRUSHED Flight Control Board Built-in OSD DSM2/X Receiver

The AIOF3_BRUSHED flight controller is a Highly integrated F3 flight controller both for Indoor FPV flight and outdoor FPV.

The flight controller integrate OSD and Receiver, run Betaflight firmware. It's amazing, you only just get ready your VTX and camera, it's simple to DIY a whole FPV racing Quadcopter with brushed motor .

1. Specification:

Brand Name: Eachine

Size: 38mm*19mm

Weight: 3g

Processor: STM32 F303 MCU

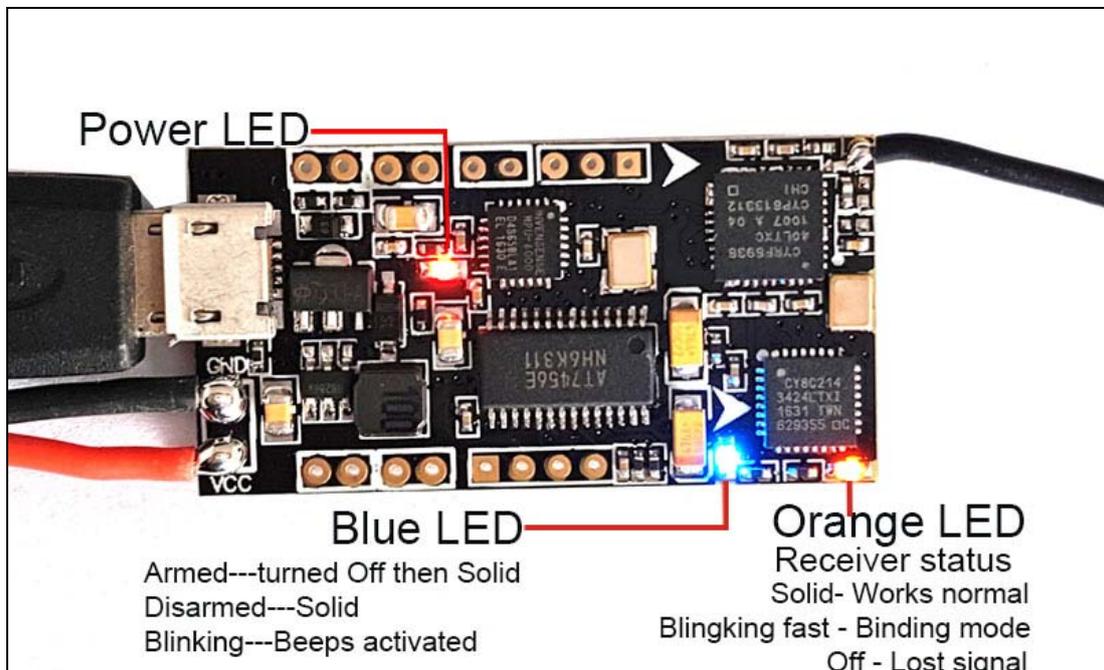
Sensor: SPI Sensor MPU6000

Target: Omnibus

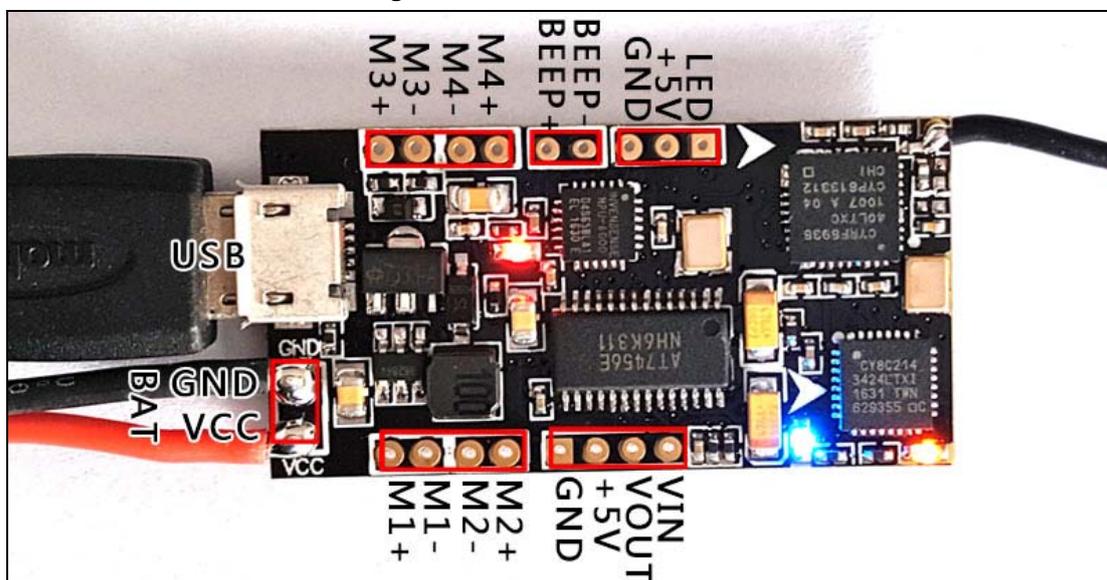
Firmware Version: Betaflight 3.0.1

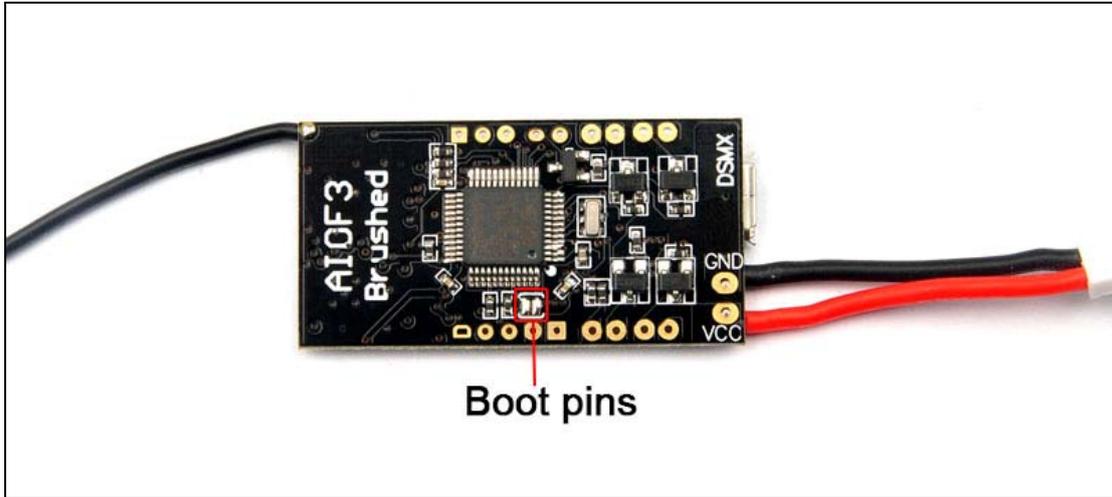
Receiver: DSM2/DSMX Compatible satellite receiver

2. Connector and LED Definition:



3. Installation and Connection diagram:





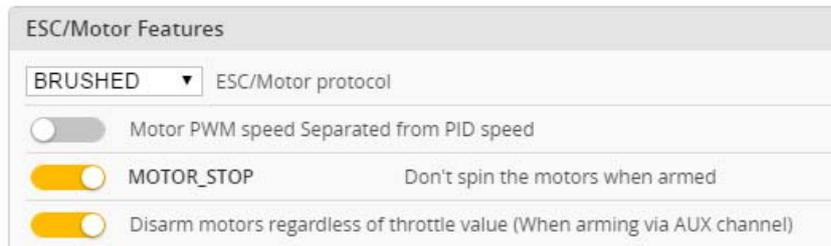
4. Betaflight configuration:

All the configuration was set up before shipping, if you need to flash firmware and select "Full chip erase", you should reconfigure for the AIOF3 Flight controller board according to the bellowing diagram.

 After you flashed firmware and do the "Full chip erase" option, Please remove the propeller from the motor and plug your battery ,otherwise it maybe can't connected to the Betaflight configurator.

Reconfigure steps:

Go to Configure Tab and set ESC/Motor protocol to BRUSHED



*This step is in order to avoid motor auto-spinning when connect the battery

1. Ports and receiver mode sets like the bellowing diagram: Enable Serial_RX for UART3 and Set Receiver mode RX_SERIAL ,Select SPEKTRUM1024 for DSM2 Radio and Select SPEKTRUM2048 for DSMX Radio in Betaflight Configurator.

Identifier	Data	Logging	Telemetry	RX	GPS
USB VCP	<input checked="" type="checkbox"/> MSP 115200	<input type="checkbox"/> Blackbox 115200	Disabled AUTO	<input type="checkbox"/> Serial RX	<input type="checkbox"/> 57600
UART1	<input checked="" type="checkbox"/> MSP 115200	<input type="checkbox"/> Blackbox 115200	Disabled AUTO	<input type="checkbox"/> Serial RX	<input type="checkbox"/> 57600
UART2	<input type="checkbox"/> MSP 115200	<input type="checkbox"/> Blackbox 115200	Disabled AUTO	<input type="checkbox"/> Serial RX	<input type="checkbox"/> 57600
UART3	<input type="checkbox"/> MSP 115200	<input type="checkbox"/> Blackbox 115200	Disabled AUTO	<input checked="" type="checkbox"/> Serial RX	<input type="checkbox"/> 57600

Receiver Mode

- RX_PPM PPM RX input
- RX_SERIAL Serial-based receiver (SPEKSAT, SBUS, SUMD)
- RX_PARALLEL_PWM PWM RX input (one wire per channel)
- RX_MSP MSP RX input (control via MSP port)

Serial Receiver Provider

Note: Remember to configure a Serial Port (via Ports tab) and choose a Serial Receiver Provider when using RX_SERIAL feature.

SPEKTRUM1024

SPEKTRUM2048

SBUS

SUMD

2. Binding Procedure:

- 1) Connect AIOF3_BRUSHED DSMX Version board to computer and open Betaflight configurator, From CLI tab type: "set spektrum_sat_bind = 9" for DSMX or "set spektrum_sat_bind = 5" from DSM2
- 2) Type "save" and after Flight controller reboot remove USB cable (=Power off the board)
- 3) Wait a sec and reconnect the USB cable. After cold start satellite led(Orange color LED) should start blinking and transmitter should be turned on while pressing the bind button
- 4) After binding satellite led should be solid. Connect Betaflight and use receiver tab to test that satellite is working correctly.
- 5) Final step is to go to CLI tab and type "set spektrum_sat_bind = 0" and then type "save". This must be done so that satellite doesn't go back to binding mode when the flight controller is repowered again.

3. The default receiver channel map is TAER1234, please ensure your transmitter is matched with it, otherwise it can't be armed.

Channel Map	RSSI Channel
TAER1234 ▼	Disabled ▼

4. The Default Arm/Disarm switch is AUX1(Channel 5), for most of Spektrum radio the default channel 5 is Gear switch and you can also customize it with Betaflight Configurator.

Modes
WIKI

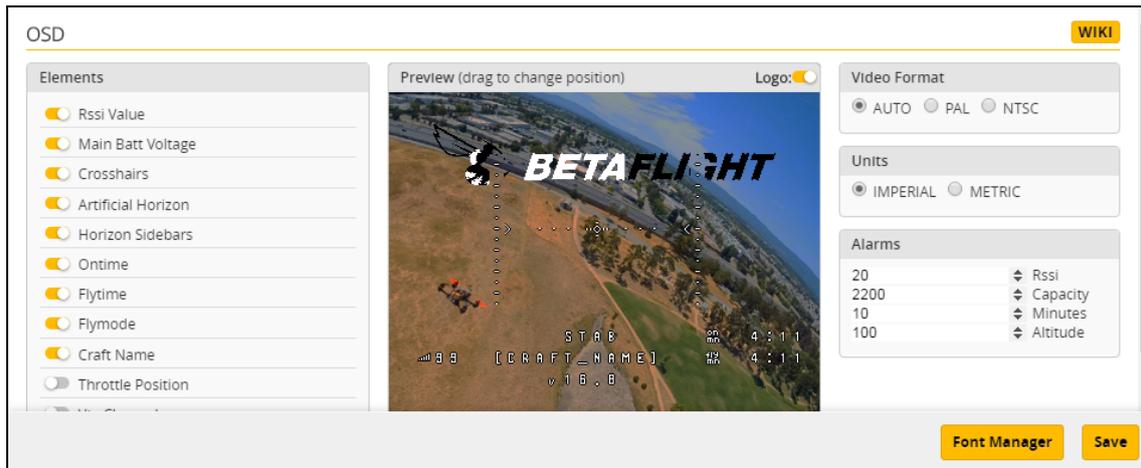
Use ranges to define the switches on your transmitter and corresponding mode assignments. A receiver channel that gives a reading between a range min/max will activate the mode. Remember to save your settings using the Save button.

ARM	<div style="display: flex; align-items: center;"> <div style="border: 1px solid #ccc; padding: 2px; margin-right: 5px;">AUX 1 ▼</div> <div style="flex-grow: 1;"> <div style="border: 1px solid #ccc; height: 20px; position: relative;"> <div style="background-color: #ffcc00; width: 80%; position: absolute; top: -1px; left: -1px;"></div> <div style="position: absolute; top: -1px; left: 50%; transform: translate(-50%, -50%); width: 20px; height: 20px; border: 1px solid #ccc;"></div> </div> </div> <div style="margin-left: 5px; font-size: 10px;"> Min: 1300 Max: 2100 </div> </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="background-color: #f0f0f0; padding: 2px 5px; font-size: 8px; margin-right: 5px;">Add Range</div> <div style="flex-grow: 1; border-bottom: 1px solid #ccc; position: relative;"> <div style="position: absolute; top: -1px; left: 0; right: 0; border: 1px solid #ccc;"> <div style="background-color: #ffcc00; width: 100%; position: absolute; top: -1px; left: -1px;"></div> <div style="position: absolute; top: -1px; left: 50%; transform: translate(-50%, -50%); width: 20px; height: 20px; border: 1px solid #ccc;"></div> </div> </div> <div style="margin-left: 5px; font-size: 10px;"> 900 1000 1200 1400 1500 1600 1800 2000 2100 </div> </div>
AIR MODE	<div style="display: flex; align-items: center;"> <div style="border: 1px solid #ccc; padding: 2px; margin-right: 5px;">AUX 2 ▼</div> <div style="flex-grow: 1;"> <div style="border: 1px solid #ccc; height: 20px; position: relative;"> <div style="background-color: #ffcc00; width: 60%; position: absolute; top: -1px; left: -1px;"></div> <div style="position: absolute; top: -1px; left: 50%; transform: translate(-50%, -50%); width: 20px; height: 20px; border: 1px solid #ccc;"></div> </div> </div> <div style="margin-left: 5px; font-size: 10px;"> Min: 1300 Max: 1600 </div> </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="background-color: #f0f0f0; padding: 2px 5px; font-size: 8px; margin-right: 5px;">Add Range</div> <div style="flex-grow: 1; border-bottom: 1px solid #ccc; position: relative;"> <div style="position: absolute; top: -1px; left: 0; right: 0; border: 1px solid #ccc;"> <div style="background-color: #ffcc00; width: 100%; position: absolute; top: -1px; left: -1px;"></div> <div style="position: absolute; top: -1px; left: 50%; transform: translate(-50%, -50%); width: 20px; height: 20px; border: 1px solid #ccc;"></div> </div> </div> <div style="margin-left: 5px; font-size: 10px;"> 900 1000 1200 1400 1500 1600 1800 2000 2100 </div> </div>
ANGLE	<div style="display: flex; align-items: center;"> <div style="border: 1px solid #ccc; padding: 2px; margin-right: 5px;">AUX 2 ▼</div> <div style="flex-grow: 1;"> <div style="border: 1px solid #ccc; height: 20px; position: relative;"> <div style="background-color: #ffcc00; width: 80%; position: absolute; top: -1px; left: -1px;"></div> <div style="position: absolute; top: -1px; left: 50%; transform: translate(-50%, -50%); width: 20px; height: 20px; border: 1px solid #ccc;"></div> </div> </div> </div>

5. Toggle the AUX1 Switch and the blue LED on the board will first turning off and get be solid soon, this indicate the motor was armed. Be careful and enjoy your flight now!

5. OSD configuration:

Connect the AIOF3 board to the computer , open Betaflight Configurator , move to the OSD option



Craft Name set in configuration option

