

Manuel d'utilisation

Board : 
Révision : 1
Date : 02/04/2018

User Manual

The flight controller YupiF7 was designed with high quality components. Nonetheless, the recommendations of this user manual must be followed for a proper installation.

Caution : The following recommendations must be followed to avoid damages to your device or other equipments. Safety cautions must also be followed to avoid injury to yourself or others.



- Never invert polarity, that could cause irreversible damages to the board or other equipments.
- Always make an electrical shortcut test before plugging a supply voltage. That can be done with a multimeter between the supply pads (+Battery, 5V and 3,3V) and the ground pads.
- All tests and setup before flight must be done without props.
- The iron temperature must not exceed 250°C. Higher temperatures can cause damage to the board.
- Do not use YupiF7 for unintended applications such as commercial aerial photography.

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YupiF7 installation

Wiring the supply voltage to the board

The YupiF7 flight controller has input voltage 6-26v (2-6S lipo). Connect main power lead to pins marked on Figure 1. **The capacitor delivered with the board can be soldered between the + and – pads to filter electrical noises. Be careful to solder this capacitor with the correct polarity.**

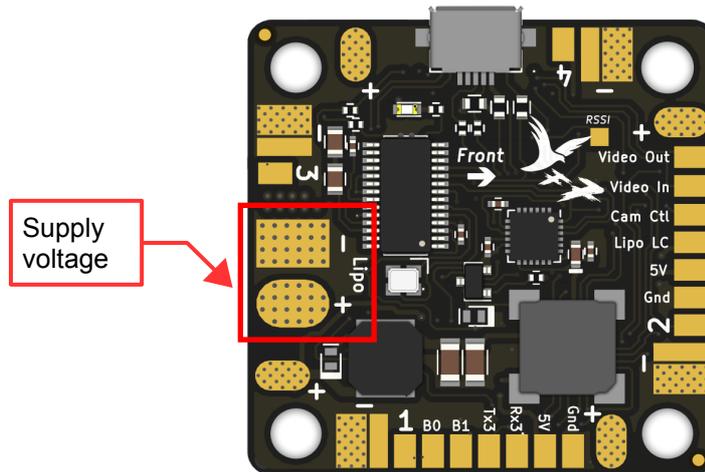


Figure 1 - Input voltage YupiF7

ESC supply voltage (PDB)

ESC can be wired directly to the YupiF7 on the + and – pads, marked on the Figure 2.

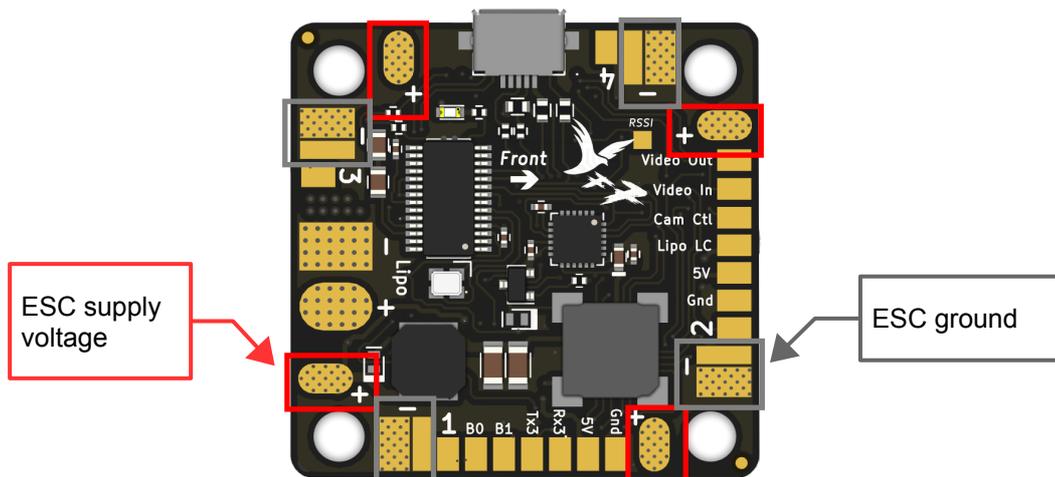


Figure 2 - ESC supply voltage

ESC signal wires

ESC signal wires have to be soldered to pads numbered from 1 to 4. The ground wire can be soldered to the « - » pads.

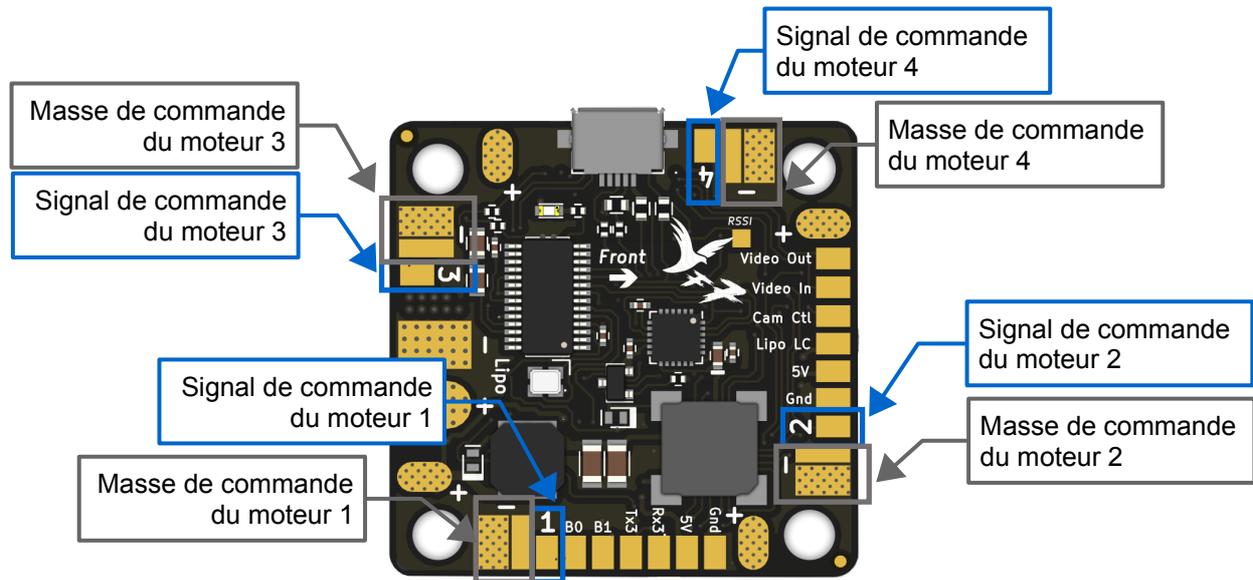


Figure 3 - ESC signal wires

Radio Rx signal wire (Rx)

5V receivers (Rx) can be supplied with the « 5V-Rx » pad, 3,3V receivers (Rx) can be supplied with the 3,3V pad and ground wires can be connected to the « Gnd » pad, marked on the Figure 4.

Depending on the chosen communication protocol, wiring must be done as followed :

- PPM protocol : PPM output of the Rx to the « PPM » pad
- Sbus protocol : Sbus output of the Rx to the « Rx6 » pad
- Crossfire protocol : CRSF Tx to « Rx6 » and CRSF Rx to « Tx6 »
- Spektrum : Serial output of the « Tx6 » pad

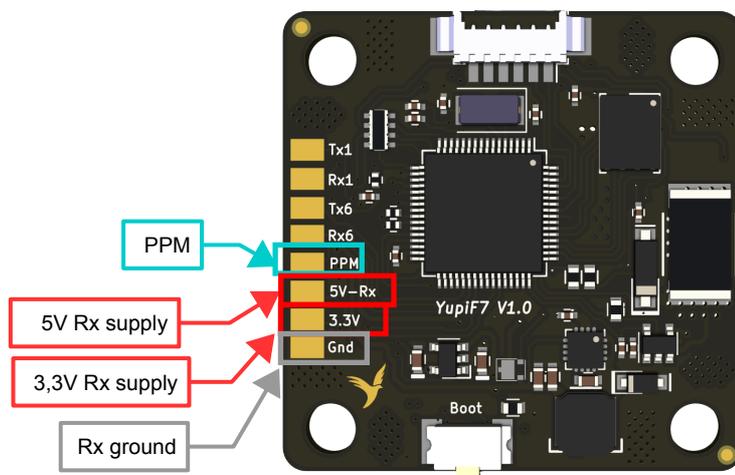


Figure 4 - Rx wiring

Integrated beeper

The YupiF7 board is equipped with an integrated beeper. This beeper drive is very specific and already integrated to Cleanflight and is forks (Betaflight, Inav, Butterfly...).

UARTs of the board

The YupiF7 board has 6 available serial ports :

- **VCP** (Virtual Com Port) : This port is only used for MSP protocol to communicate with a computer (USB port)
- **UART1** : this port can be used through the « Rx1 » et « Tx1 » pads
- **UART3** : cthis port can be used through the « Rx3 » et « Tx3 » pads
- **UART5** : this port can be used through the « Rx5 » et « Tx5 » pads on the Molex plug
- **UART6** : this port can be used through the « Rx6 » et « Tx6 » pads
- **Softserial 1** : this port can activated with the configurator and be used through the B0 (Rx) and B1 (Tx) pads

The OSD is integrated to the YupiF7 board and doesn't use UART ports.

This serial ports are marked on the Figure 5.

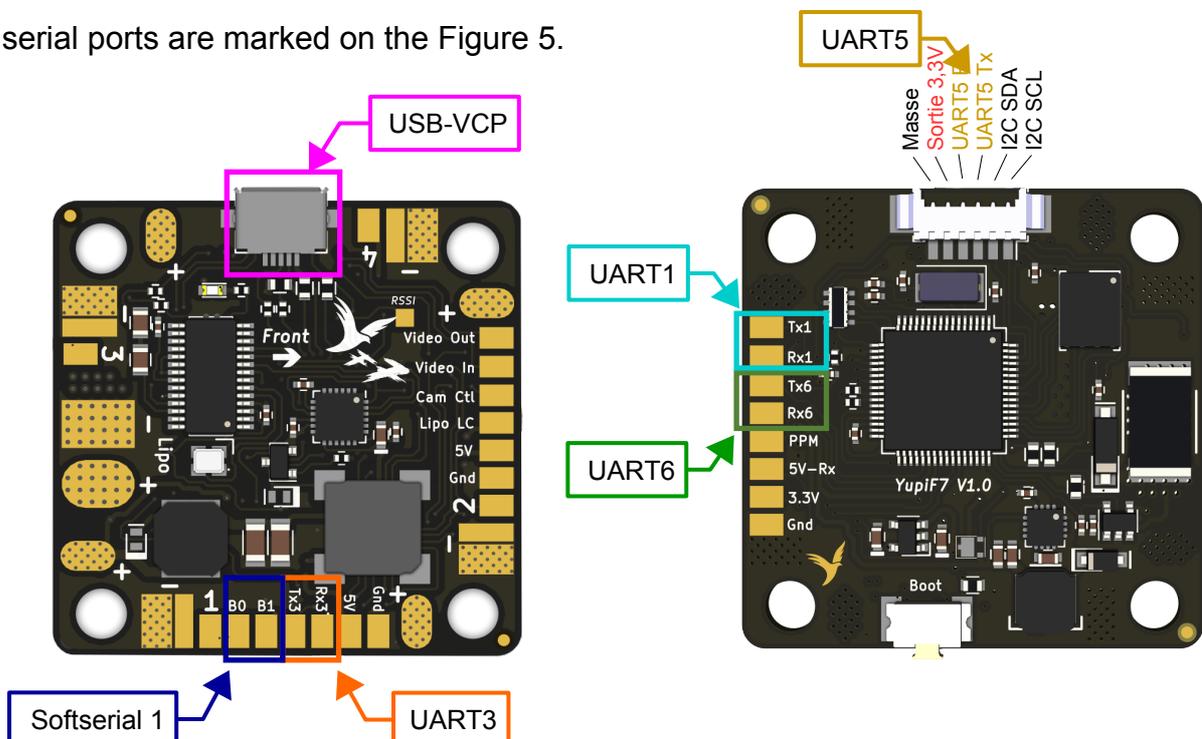


Figure 5 - Serial ports

Multicolor LED WS281x

The YupiF7 can drive RGB LEDs with a WS2811 control IC. The signal wire of this LED has to be wired to the « B1 » pad, as shown on the Figure 6.

This feature must also be activated in the configurator.

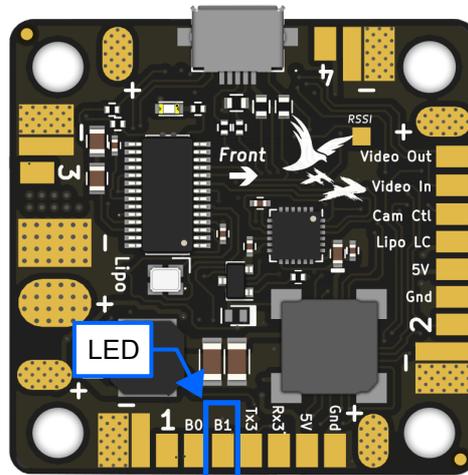


Figure 6 - LED WS2811 and WS2812 wiring

5V and Lipo filtered outputs

The pads marked on the Figure 7 are power supplies. They can be used to supply other electrical equipments, like GPS, camera, video transmitter, LEDs... The Lipo LC is the Lipo voltage filter with an LC filter. The Lipo LC and 5V outputs can supply up to 2A. The 3.3V output can supply up to 500mA.

All the « Gnd » pads are the common ground of the board. Grounds of other equipments should be wired to these pads.

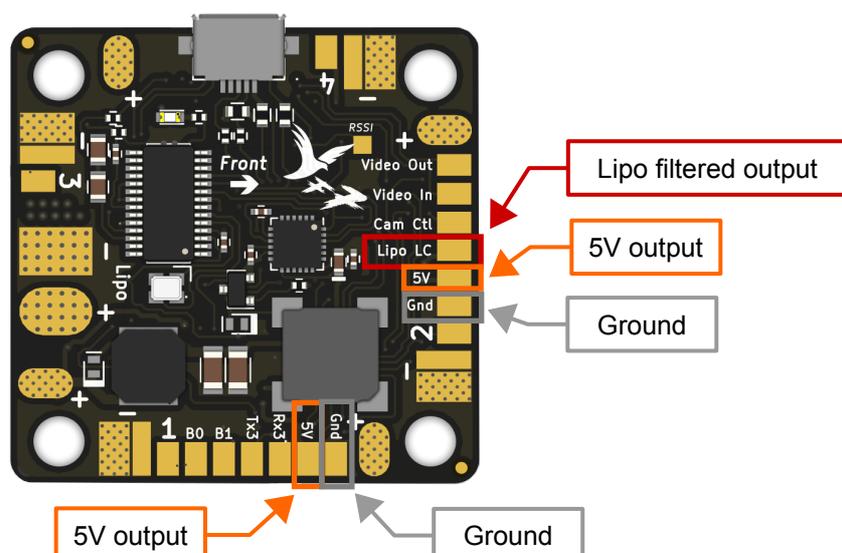


Figure 7 - Supply output voltage

OSD (On Screen Display)

The YupiF7 board has an integrated OSD IC. This feature can be activated in the configurator. The video output of the camera must be wired to « Video In » and the video input of the video transmitter (Vtx) must be wired to « Video Out ».

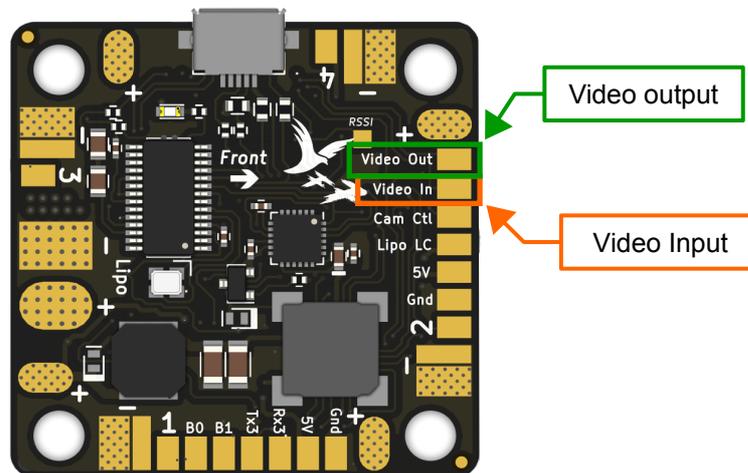


Figure 8 - OSD wiring

A CMS menu is available with Cleanflight forks (Betaflight, Inav and Butterflight). The following stick combination must be made to enter in this menu.

Throttle middle – Yaw left – Pitch up



Figure 9 - CMS menu (mode 2)

OSD camera control

The YupiF7 has a specific output « Cam Ctl » to control the camera OSD. No other components are needed. The OSD control wire of the camera must only be soldered to the « Cam Ctl » pad.

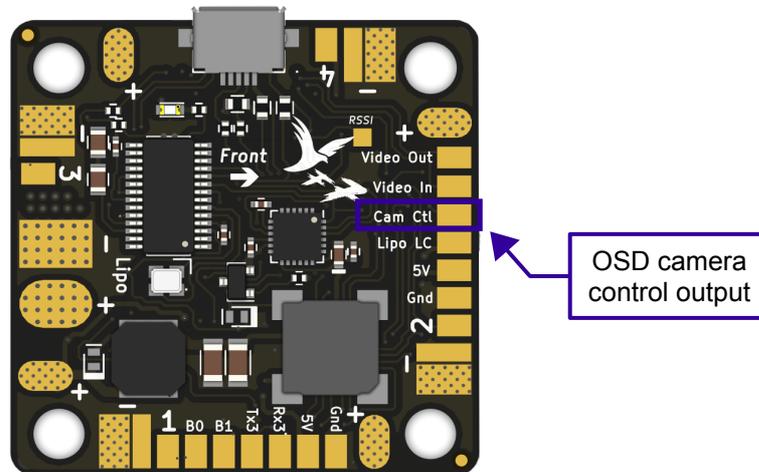


Figure 10 - OSD Camera control

To enter the OSD of the camera, the following stick combination must be done :

Throttle middle – Yaw right

The navigation into the menu can be done with Pitch and Roll, keeping the throttle to the middle. (mode 2).

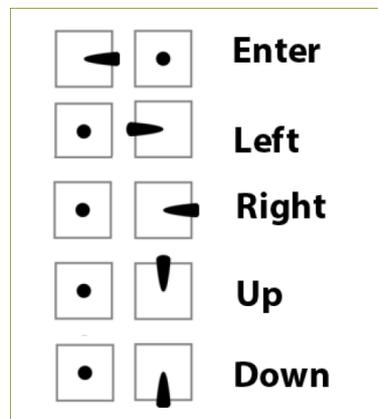


Figure 11 - OSD camera command (mode 2)

Depending on the camera, specific settings will be needed. Please visit the following webpages for more details :

<https://www.rcgroups.com/forums/showthread.php?2961216-Betaflight-Camera-Control-Compatibility-Reports>

[https://github.com/betaflight/betaflight/wiki/FPV-Camera-Control-\(Joystick-Emulation\)](https://github.com/betaflight/betaflight/wiki/FPV-Camera-Control-(Joystick-Emulation))

Extension plug

The YupiF7 has an extension plug for daughter boards, such as GPS, magnetometer or barometer.

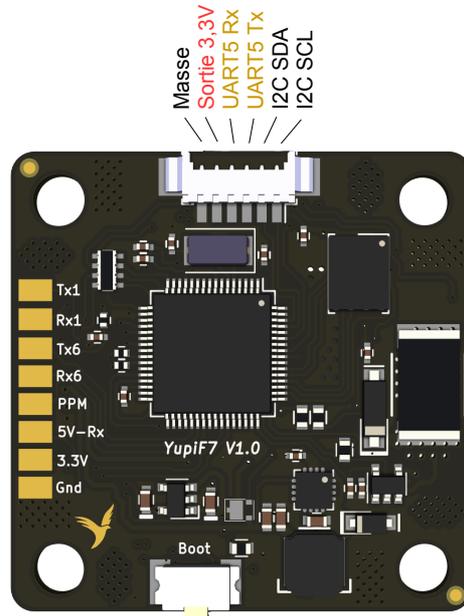


Figure 12 - Extension plug

Pads B0 and B1

The « B0 » and « B1 » pads can be used for different features. Please check the following table for more details :

	Pad B0	Pad B1	Activation
Softserial	X (Rx)	X (Tx)	Feature Softserial
LED type WS2811	X		Feature LED
PWM output	X	X	Remap
Entrée anamogique ADC	X	X	Remap
Extra motor	Motor 5	Motor 6	Mixer with 6 motors

Specific cautions for installation

The YupiF7 is equipped with the last generation Gyro for the best performances. This Gyro can be used at 32kHz rate. **To get the best performances, care must be taken to avoid any constrains on the board. The softmount must be allowed to decouple the board from the motors vibrations.**

The shunt resistor shunt below (Figure 13) is connected to the Lipo voltage. Care must be taken to avoid shortcuts trough other wires, components or the frame.

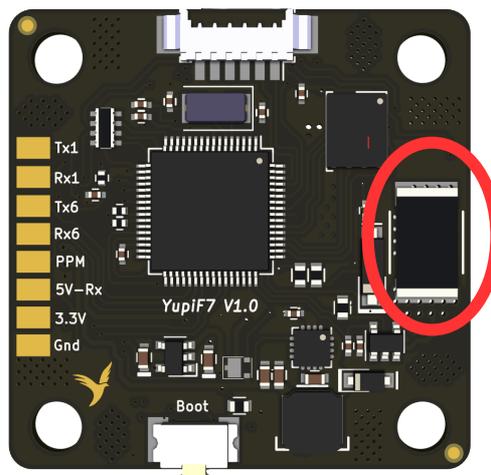


Figure 13 - Shunt resistor

Software update

The YUPIF7 board is equipped with a « Boot » button to enter into DFU mode while plugging the board to a supply voltage. This mode is out of betaflight and can be used if a problem occurred during software update.

When the board is in DFU mode, « DFU » must be written instead of the Serial port.

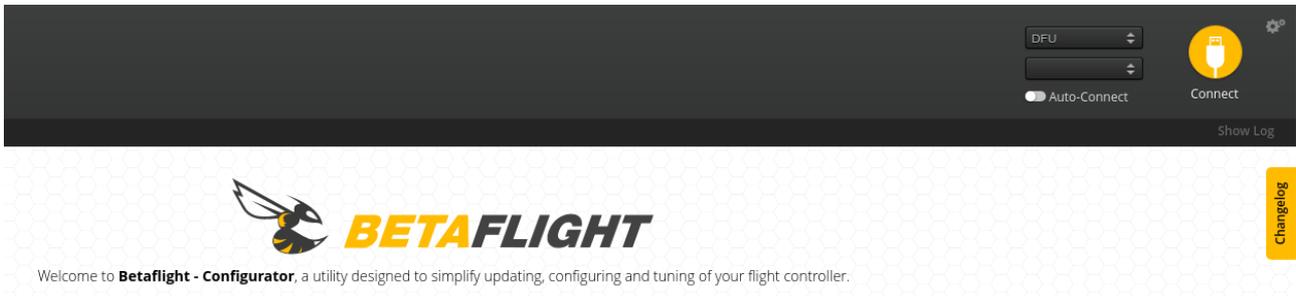


Figure 14: DFU mode

If « DFU » doesn't appear, DFU drivers must be reinstalled on the computer. Please check the following webpage for more details : <https://github.com/betaflight/betaflight/wiki>

This is possible to flash a new firmware in DFU mode. This can be done in the page « Firmware Flasher » of the configurator.

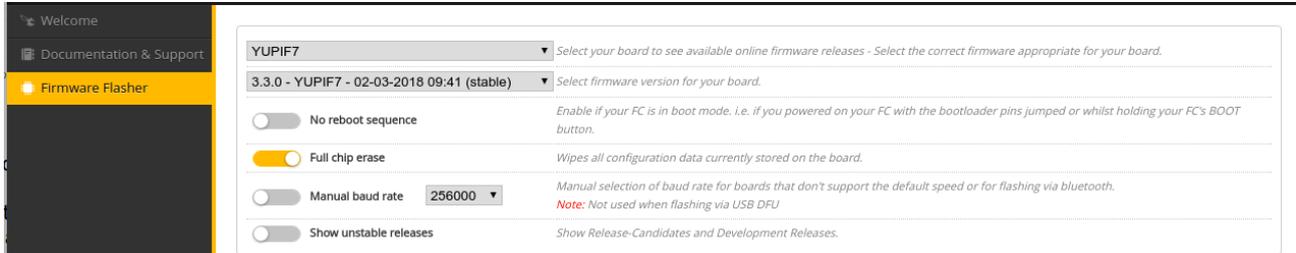


Figure 15: Firmware update