# Pixhawk Power Problems

* Pixhawk does not function properly (reliably) while powered through USB hub.
* It seems like we’ve got it working now (12-12-14) but could still be an issue.

**Possible Faults**

* Pixhawk is not meant to be powered through usb port for flight. I can’t find examples of this online, but James Mack is powering his Pixhawk this way on the Flamewheel. Powering through usb is also listed as the third priority power method (used as backup to first 2 methods) on pixhawk documentation. [1]
* A ground cable from the ESCs needs to be connected to the main out pins on the pixhawk. Without this connected the signal sent from the ESC has no reference! This is one difference between the x8 and flamewheel setups because the esc signal lines are connected directly to the Pixhawk on the flamewheel. From Pixhawk documentation:

#### “Ground Connection

#### Check that the ground (black wire) of the ESC servo connector is connected to Pixhawk. IT IS UNSAFE TO FLY WITHOUT GROUND CONNECTED. This is because for every positive pulse (the ESC signal) there needs to be an adjacent ground return path for a clean signal shape.” [2]

* ESCs are missing valid minimum value or timing out. See last two points in source 2, troubleshooting section. [2]

**Proper setup:**

* Power pixhawk using main power plug on the top of pixhawk, coming from power module.
* Backup power to pixhawk through the red/black cables into one set of the Main Out pins on pixhawk. [1]
* Connect Odroid to pixhawk using FTDI cable from usb port on Odroid to the Telemetry 2 port on Pixhawk. Do not connect the power line on FTDI cable! [3]

**Sources**

1. <http://copter.ardupilot.com/wiki/common-pixhawk-overview/>
2. <https://pixhawk.org/users/actuators/pwm_escs_and_servos>
3. <http://dev.ardupilot.com/wiki/odroid-via-mavlink/>