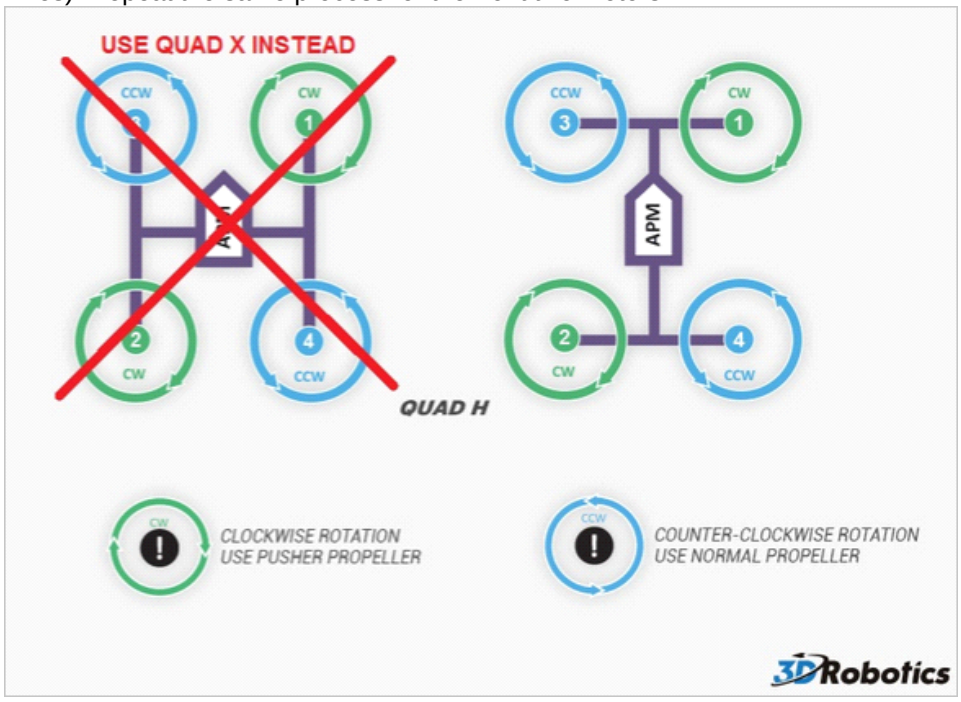
Pixhawk with 3.3.2 firmware

teisipäev, 16. veebruar 2016 16:57

Manual: How to config:

http://ardupilot.org/copter/
http://3drobotics.com/wp-content/uploads/2014/03/pixhawk-manual-rev7.pdf
http://ardupilot.org/copter/docs/checklist.html

Frametype: H
For an H-Frame quadcopter use the option to set the frame type to '3' in the Advanced Parameter Tab.
To apply the H-frame configuration, swap the left rear and right rear props and reverse the motor direction for each of those motors (by swapping any two motor wires). Repeat the same process for the front two motors.



Failsafes

http://plane.ardupilot.com/wiki/arduplane-setup/apms-failsafe-function/
FS_BATT_ENABLE: Land
FS_GPS_ENABLE: Althold
FS_GCS_ENABLE: Disabled
FS_THR_ENABLE: Land
FS_THR_VALUE: 925

How it works. Your RC transmitter outputs a PWM signal that is captured by your receiver and relayed to the autopilot. Each channel on your transmitter has a PWM range usually between 1100 – 1900 with 1500 being its neutral position. When you start your radio calibration on the mission planner, all your values will be at 1500. By moving your sticks, knobs and switches you will set your PWM range for each channel. The autopilot monitors your throttle channel and if it notices a drop lower than THR_FS_VALUE (Default is 950) it will go into failsafe mode. FS_THR_VALUE: 925

Connection

Telemetry baud is 57600!

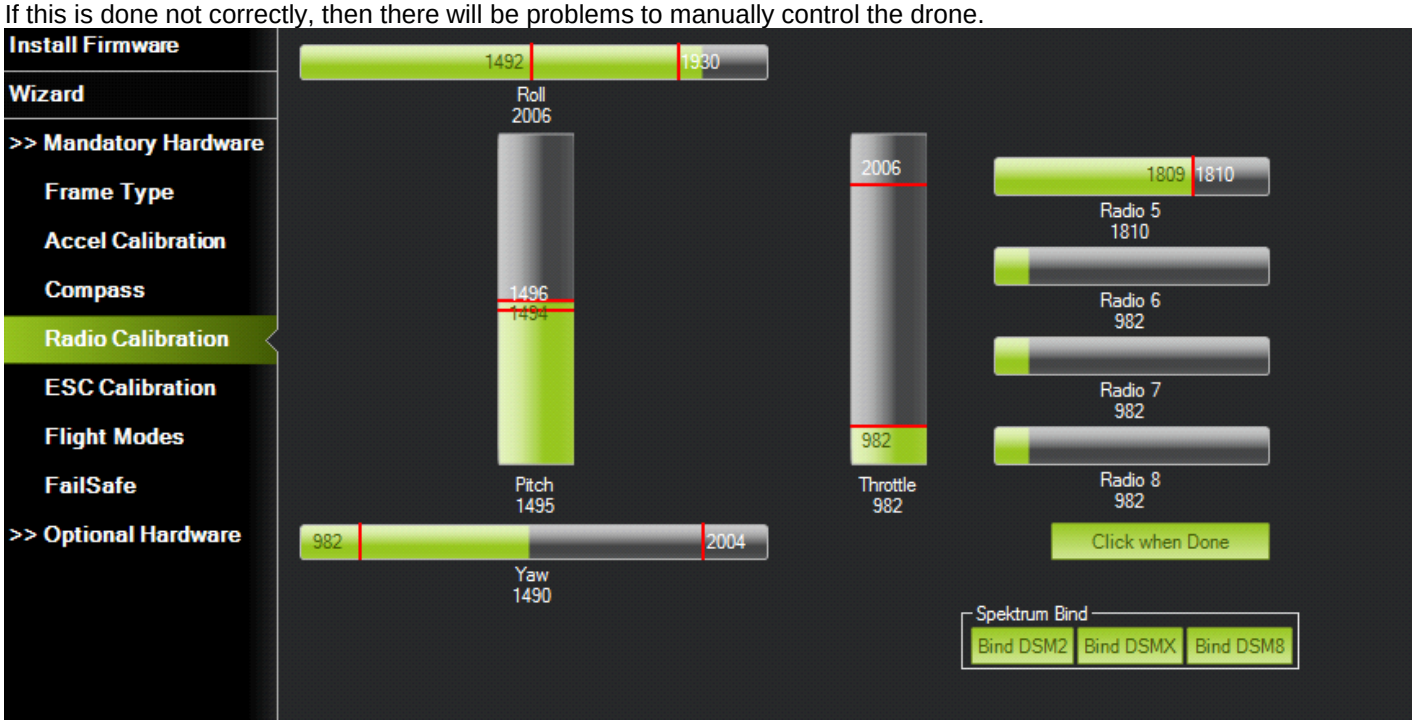
Calibration Routines

Mandatory Hardware - accelerometer calibration

Compass - Live Calibration.

Calibrates two compasses, do not forget to check which one is the main in the configuration.

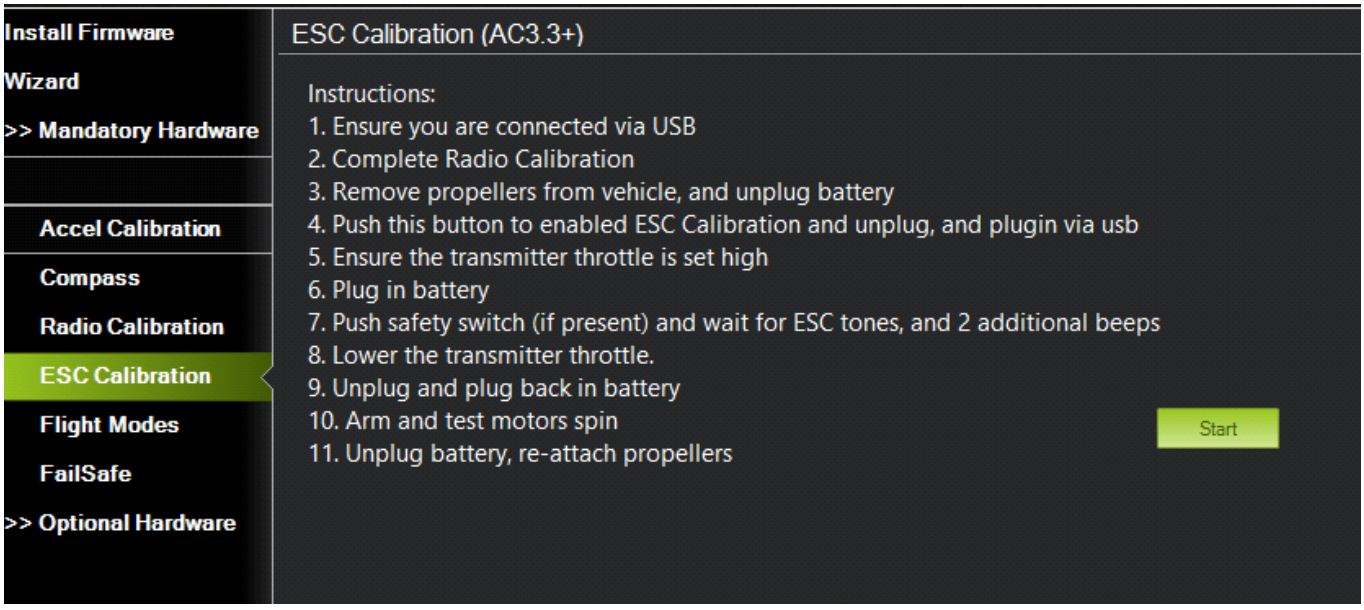
Radio Calibration.
Minimum and Maximum value signals from the RC Radio Transmitter.
Check the mappings - so the correct output would correspond the actual parameter.
If this is done not correctly, then there will be problems to manually control the drone.



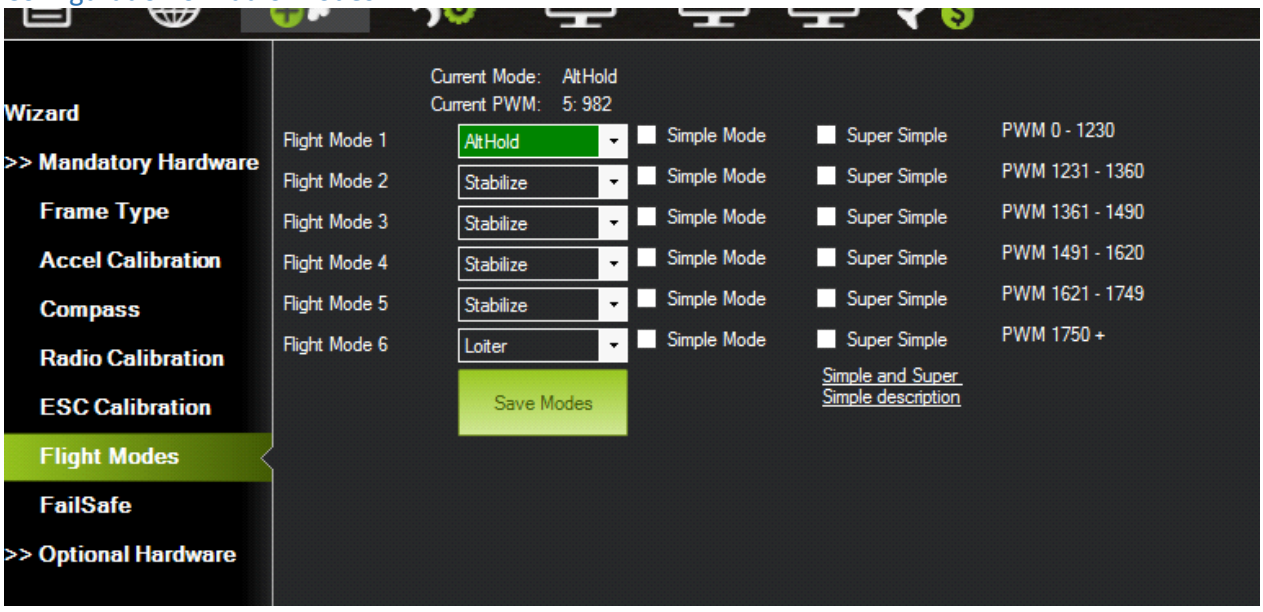
ESC calibration - All propellers must be taken off!

1) Turn on the transmitter and set the Throttle to maximum (channel 3) - Drone must not be connected to the battery nor the USB port.
2) Connect the battery to the Drone - wait until green-red led starts blinking
3) Disconnect the battery
4) Connect the battery and push (hold) ARM button. You will hear ESC's doing a long beep
5) You must head two beeps from ESCs - the maximum value from the radio is saved
6) On the transmitter - lower the Throttle to minimum. And hear one long beep

from ESCs



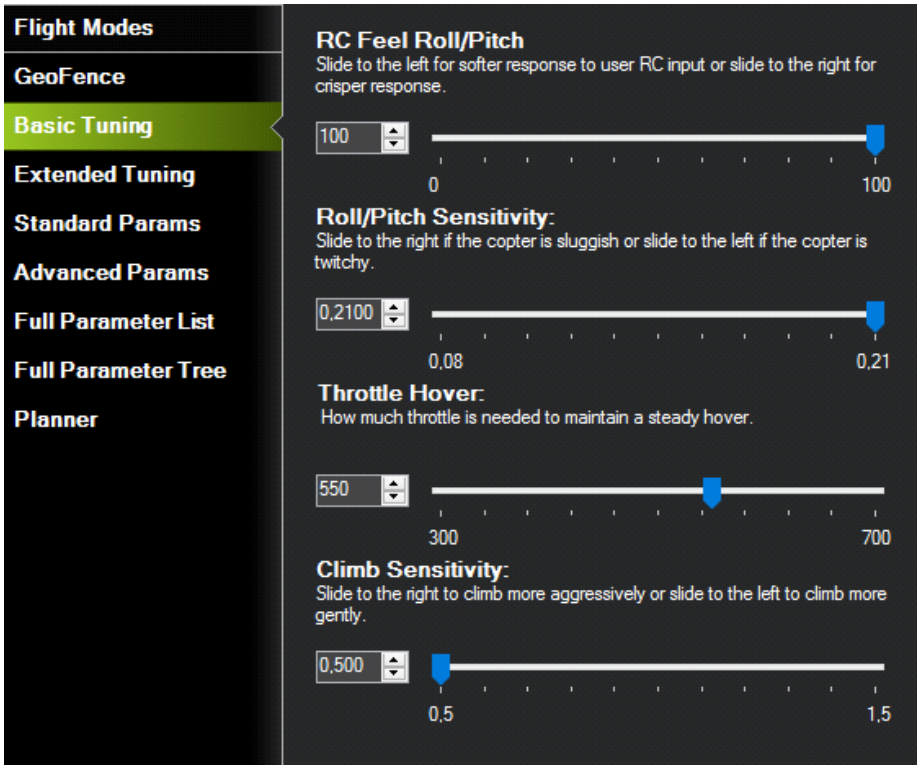
Configuration of Radio Modes



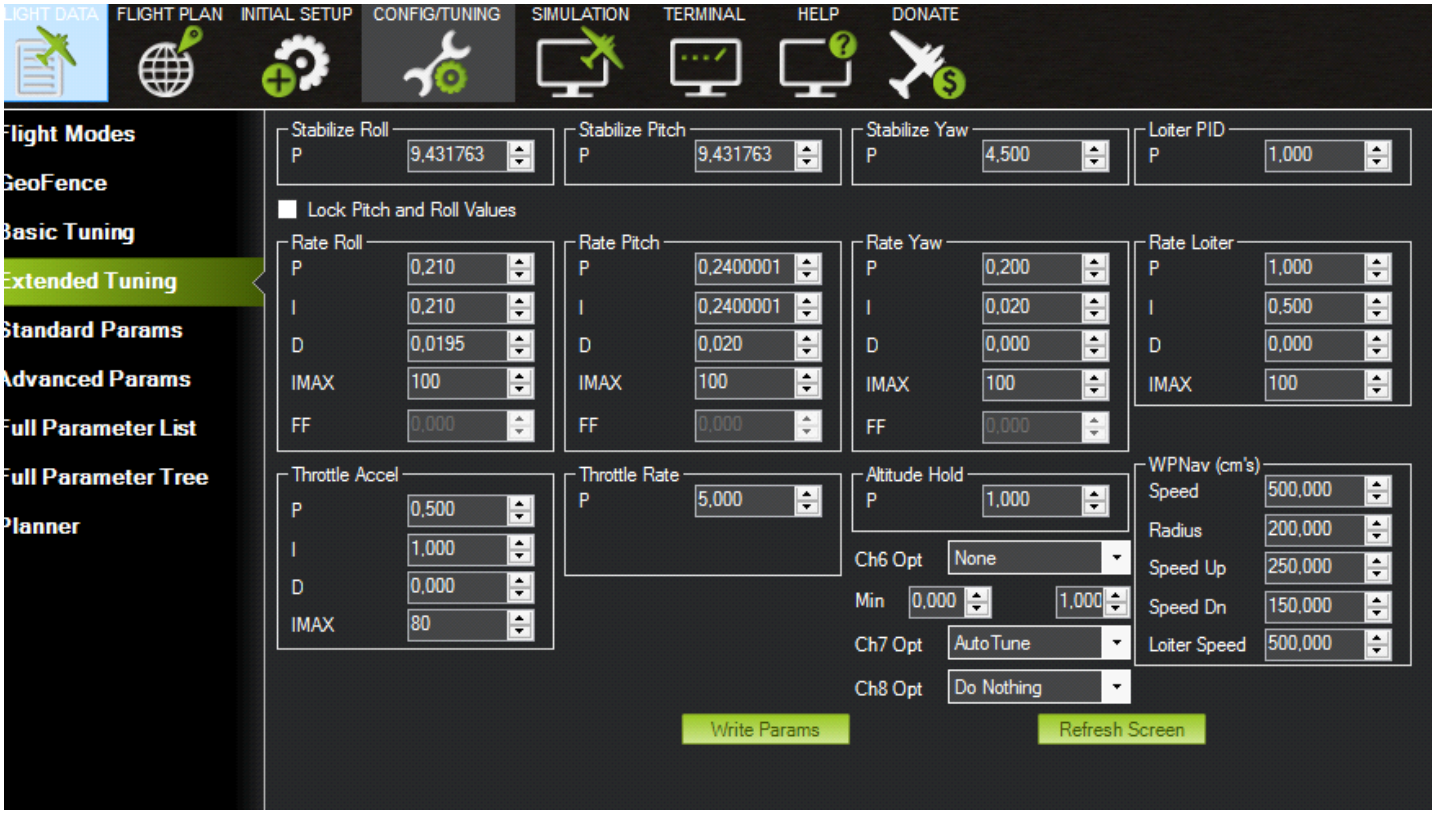
Failsafes

Throttle Hover

If there are problems with hovering power, then please refer to the manual!
Throttle mid: http://copter.ardupilot.com/wiki/ac_throttlemid/



PID Values



Autotune Settings

Our channel 7 button is has three values.
When Autotune has been done, then You can thest the new values. If everything is OK, land and disarm - then new PID values will be saved. From 3.3.2, the Autotune can me one of the flight modes - and tune can be set for one or all axis. Refer to manual.

GPS Failsafe tuning

COMPASS_LEARN = 1
http://copter.ardupilot.com/wiki/ac_compasssetupupadvanced/
COMPASS_PRIMARY = 1 -- must be

GPSTYPE: http://copter.ardupilot.com/wiki/common-installing-3dr-ublox-gps-compass-module/
COMPASS_ORIENT: Check the orientation on your Drone
THR_MID = 520 - Check which value is the most suitable.
GPS Glitches: http://copter.ardupilot.com/wiki/gps-failsafe-glitch-protection/
LOGS diagnose: http://copter.ardupilot.com/wiki/common-diagnosing-problems-using-logs/