

Section A (Flashing the board to get it running with Ardupilot)

1. Complete all wiring/soldering works (6 pins for GPS, 2 pins for battery input. Total 8 pins to be soldered)
2. Download [Betaflight Configurator](#) to your PC, install and run.
3. Ensure your SD card is NOT plugged in to the FC board. Plug your FC board via usb to your computer while pressing the mini "dfu mode" switch.
4. Download firmware from <https://firmware.ardupilot.org/Plane/stable-4.2.2/> and select the one with "bl.hex" that compatible with your board (board brand and models are listed on the website)
5. Select "Update Firmware" at the upper right. Select "Load Firmware [Local]" bottom left. Select the firmware file you downloaded above.
6. Toggle on "full chip erase". Click flash firmware. Within a minute or so, your firmware flashing will complete as shown by a green message bar. Close Betaflight Configurator.

Section B: Configuring your FC for use with Flight Coach

1. Download the parameters file from <https://www.flightcoach.org/ribbon/Params.param>
2. [Download Mission Planner](#) (MP). This is the software that lets you run Ardupilot to configure your FC board, which is necessary for Flightcoach.
3. Launch the MP app and plug your board to your PC/Laptop via usb, wait for the USB connect _and disconnect_ sounds from your PC and then click Connect. **Note you may have to try different Com port settings in the drop-down menu, and/or use serial port/USB emulation software to get this working**
4. Go to "Config" on the top menu and click Full Parameter Tree
5. Click "Load From File" (top right) and select the Param.param file (not the firmware!)
6. Click "Write Params". Wait for the "Parameters Successfully Saved" popup
7. Click disconnect and unplug your device from usb.
8. Plug your board via usb and connect again. Make sure that the lights on your board and GPS are flashing.

9. Go to "Setup" and click "Mandatory Hardware. If you don't see Mandatory Hardware your device is not connected.
10. Click Compass. Your compass will appear with "I2C box clicked and as external".
11. Click "Remove missing". After that, click disconnect and unplug your device from usb.
12. Bring your laptop and device outside into the open, not under any buildings or overhangs. Go to "Data" and click the "Preflight" tab (left middle) and wait for a minute or so. You should see "SAT" connections becoming GREEN and the count increasing.

Section C: Calibrating your Flight Controller.

1. Plug in connect your FC device to Mission Planner, go to "Config" and again open Full Parameter List
2. Scroll down and change "Arming_Require" from 0 to 1.
3. Click write Params (top right). Click OK, then click disconnect and unplug your device from usb.
4. Still outdoors, reconnect the FC device to Mission Planner.
5. Go to "Setup" and select "Mandatory Hardware".
6. Select "Accel Calibration". You will find three buttons; click the first and follow the prompts, rotating your flight controller device as directed once prompted. Pay attention to the "forward" mark (usually a small triangle) on the FC for orientation. "Left" means on the left edge, Right means on the Right edge, Nose Down is along the front edge, Nose Up is along the rear edge and On Back means to flip it over top down.
7. The other two require only a click. After that, click disconnect and unplug your device from usb.
8. Reconnect to Mission Planner. Go to Config, Full Parameter List, scroll down to "Arming_Require" and change from 1 to 0 and hit enter. Click Write Params, click disconnect and unplug your device from usb.
9. Reconnect to Mission Planner. Select Data (top left). Confirm that the Horizon display top left works as you would expect; blue sky up, green down, bank left and right, etc. If this is upside down, you'll need to re-configure your FC with the board opposite the way you did it the first time.

10. Plug an SD card to your board and run the board with a battery for a while. Take the SD card out and plug it to your PC and check if there is a .BIN file. If so, it means your board is logging. If not, you may have the SD card formatted incorrectly. Do not use NTFS.
 - SD/microSD card: FAT12/16 up to 2GB.
 - SDHC/microSDHC card: FAT32 2GB to 32GB.
 - SDXC/microSDXC card: exFAT 32GB to 2TB.

Wasn't that easy? Full credit for the process goes to [Rifat Kamisliogullari](#). I just added a few steps that were not clear to me, different or missing. Hope this is of value.