# DJI Phantom 3/4 laser altimeter installation

Before we begin, there are some important warnings…

**WARNING**
Modifying the DJI will void any warranties and could damage the
aircraft. Only perform these modifications if you have adequate
technical skills to
perform the modifications.

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About the information included:

>I have included a tutorial video on how to install the power feed
from the DJI battery. (By no means my best work but should provide the
necessary information!!)
This allows the laser to power from the aircraft and will
automatically start when the aircraft powers up. This saves weight and
the risk of a separate power supply going flat. If you feel at all
uncomfortable disassembling your aircraft, then use an external USB
power bank or small LiPo battery. Please find the video tutorial here
https://vimeo.com/451298704

There are three folders containing ;

| Folder | Description |
| ------ | ------ |
| 3D Printer Files | STL's for printing the mounting frame |
| Arduino Code | Arduino code and libraries for the sensors. I have included the instructions from Steve Dawson & Hamish Bowman's (Departments of Marine Science and Geology, University of Otago, Dunedin New Zealand) This is all their work and code and I have just included this as a reference |

| Assembly | Some assembly images and references. We have been using modified SF11C laser settings with good results over the water. Information on these settings are included in the assembly folder |


**Making Photogrammetry measurements:**
Because the laser altimeter is measuring a hypotenuse length, you need to calculate the vertical distance with a basic trig function. This can be done in excel.
Once this is done, KC Bierlich, Walter Torres and Clara Bird have developed some amazing tools for making the measurements in MorhhometriX and Collatrix for collating the data outputs.
https://github.com/wingtorres/morphometrix
https://github.com/cbirdferrer/collatrix