

Battery Modification for DJI Phantom 3 FAQ

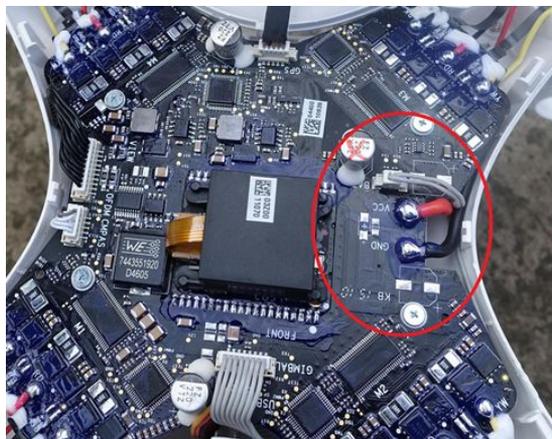
Introduction: We are going to assume you are familiar with the Phantom 3 quadcopter aircraft (whether it be standard, 4k, advanced or professional). In the following sections, we will share some of the basics on **how to add additional batteries to the Phantom 3 aircraft to extend your flight times.**

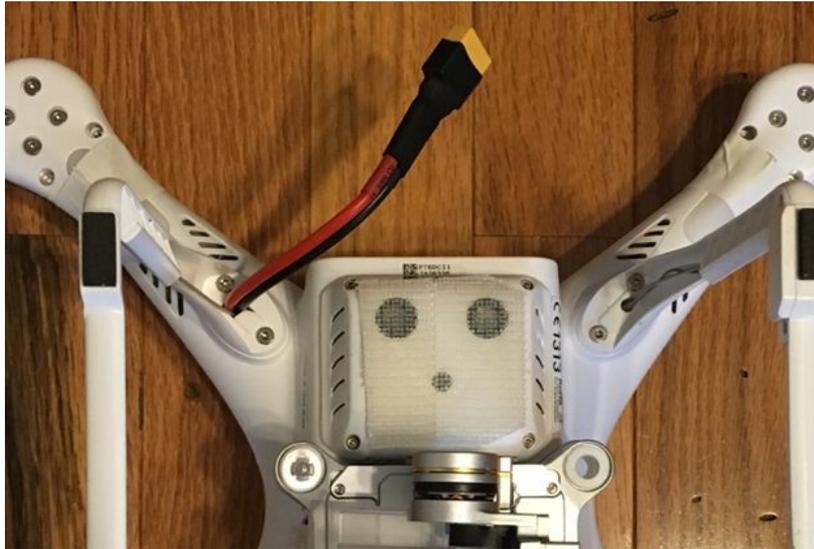
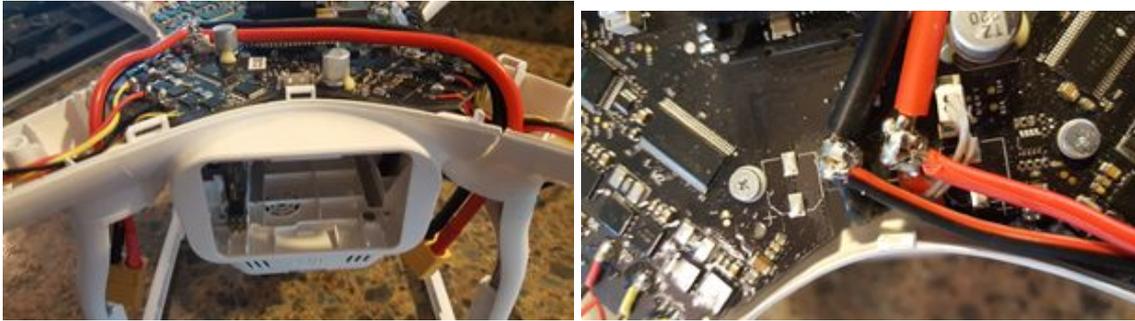


Rationale: The main reason for adding additional batteries to your Phantom 3 is to extend the time of flight available in the air. This could be to achieve longer flight distances, record more video, get to that special remote spot to take a sunset picture or just a failsafe to the stock battery.

Most of the methods involved include a way to piggy back an external / additional battery on-top of the already provided stock DJI battery. There are three primary methods to add external batteries to the phantom aircraft, each of these are intended to add a XT-60 “plug” to the aircraft which allows the piggybacking of the added battery.

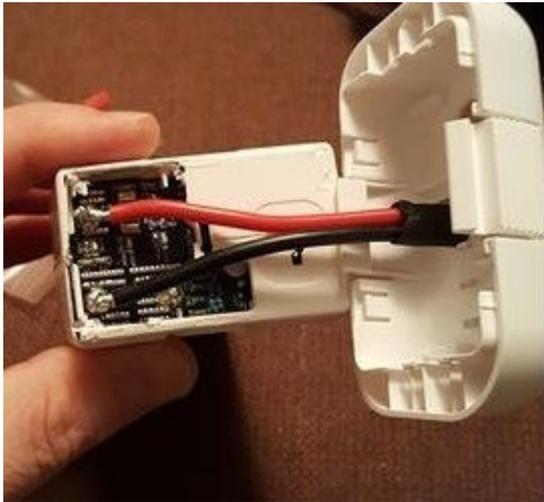
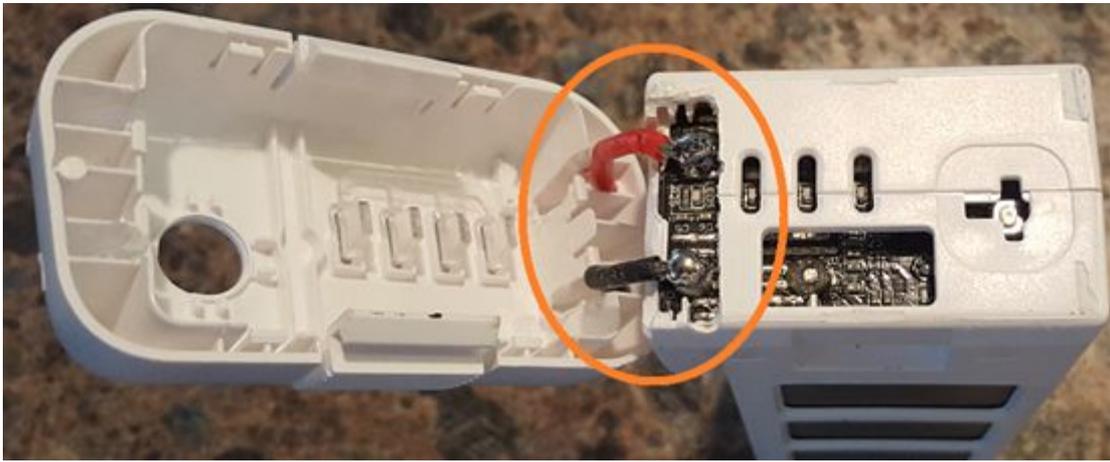
Direct Power Modification: This is a modification to the phantom 3 by opening the body of the aircraft and soldering a power connector on top of the power leads going into the mainboard of the DJI aircraft. Such as below:





Some hobbyists will install one power line, some will do two lines. The power line can be from 12-20g in size and needs to have XT60 female connectors at the end. The main benefit of this method is that you do not need to modify the batteries directly and can add multiple plugs.

DJI battery modification: This is a modification to the phantom 3 battery by opening the body of the top of the battery and soldering a power lead with an XT60 connector onto the circuit board of the battery. This is soldered to the un-switched power spots available. Some vendors sell pre-modded DJI batteries, or provide this service for a small cost. It is also an easy DIY, you will need cut off (using a dremel) part of the plastic covering these spots. Once that is done, you need to drill one / two small holes in the battery top for the power lead to fit into to the outside, and then solder on the power lead.



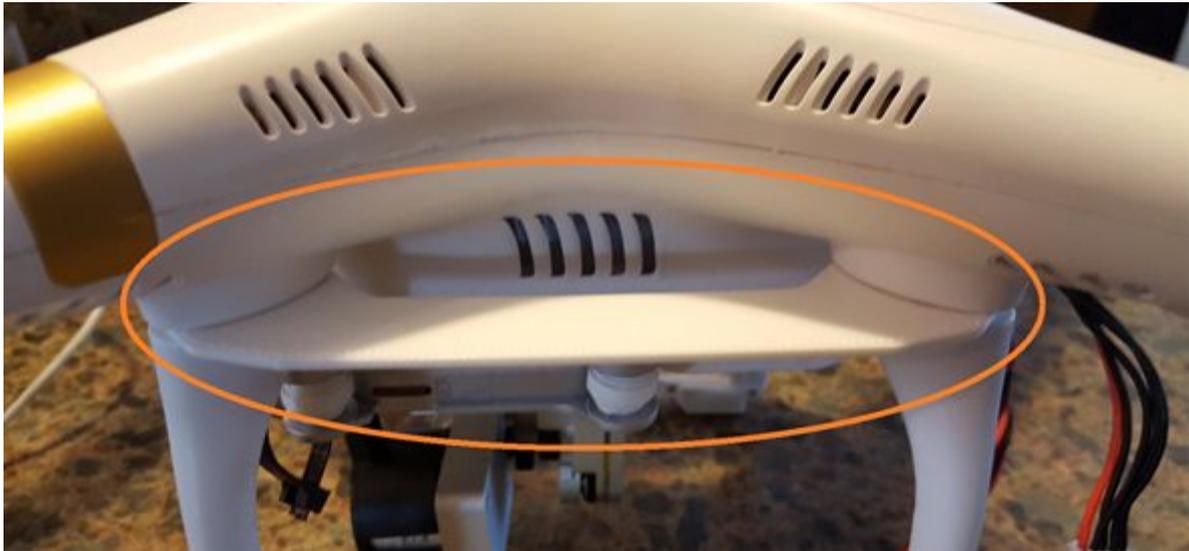


DJI Phantom Power clip add-on: These are a newer invention, being offered by DBSMods and UAVMods in the UK (pics below credit to both parties). This is a clip which slips into the stock battery with an XT60 connector soldered into it with metal lines connecting to the battery. It allows adding an external battery to the aircraft without modifying the aircraft itself, or the battery.



Once you have figured out how to connect your additional batteries, you will need to find a method to secure them to your aircraft. There are two prominent methods:

Battery Trays / Battery Wings: Battery trays or battery wings are shelves you attach to the aircraft with the intention of securing the external batteries to. In most cases you will secure the trays to the landing gear of the aircraft. You want to do this as high to the top of the landing gear as possible, one for aerodynamics and also to not interfere with the compass (which is located in one landing gear).





Secure under the VPS: This method is usually used when flying with one, single larger sized battery. You secure the battery under the VPS of the aircraft. Some use dual lock by 3M, some use industrial strength Velcro and some use straps, as shown below. Dual lock is recommended, but make sure its secure no matter what you use!



Types of batteries

You will also need to decide on the type of battery you want to install, and the above method of securing may vary depending on this. There are a few types, we will start with single vs split vs dual battery. You can either run one large battery, two smaller batteries, or one larger battery, which has been split.

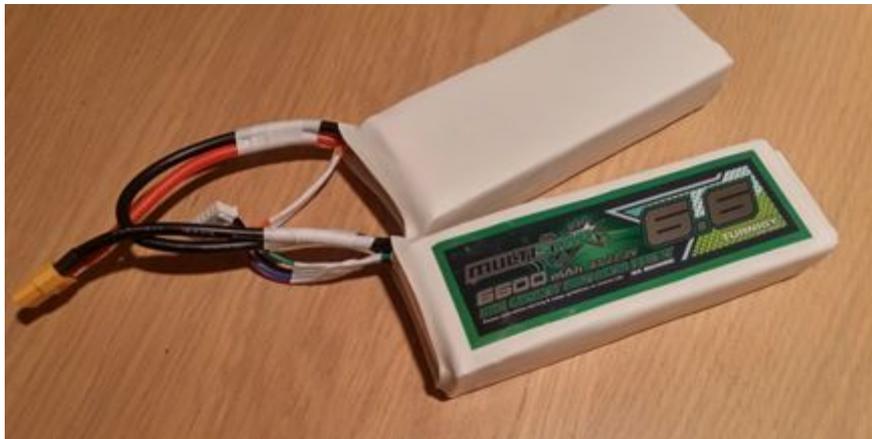
Single big battery: These batteries are usually 3400mah+ and are 400g+ in weight. They will most likely be installed under the VPS. Some examples include the Multistar 5200 and Multistar 6600.



Dual small battery: This is where you would take two smaller batteries and add them together using an adapter for the two. This would usually be 2x1800mah, 2x2300mah or 2x2800 mah. Common examples are Turnigy Zippy Compact 1800, Venom Fly 2300 or Maxamps 2800. Note, if you use two at a time, you will need an adapter.



Split big battery: This is where a single big battery (usually Multistar 5200 or 6600) are split into a pair of battery packs, to fit on the battery trays on the landing gear. Such as below:



Adapters

Y Adapter: There are two main adapters, the first is the Y. This is a longer wire which breaks two connections into one.



XT60 Dual Adapter: This adapter does not include the wire, is more hard wired of just some male/female xt60 plugs. This is usually the less heavy option.



Battery Types: No matter what battery you get, make sure it is a 4S battery and has a discharge rating >15c

LiPo Batteries: Lithium Polymer Batteries, rated 14.8v and come in many different mah. They can be charged to 16.8v and are reliable batteries.



LiHV Batteries: Lithium High Voltage Batteries, rated 15.2v and come in many different mah. They can be charged to 17.4v and are reliable batteries which give an additional power level to the aircraft.



Weight: Weight is an important factor when it comes to adding external batteries and maximizing flight times. There comes a point of diminishing returns for weight added compared to the mah gained. Most hobbyists try to remain at <600g with camera and <800g without the camera.