



How To Select The Correct Brushless Power System For Your Project

Step 1: *Selecting the Motor*

First you need to know the estimated overall flying weight of the plane you are planning to build. If you are building from already made plans they will usually list the estimated All Up Weight or AUW. If you are building totally from scratch, try and find an already made plan to a plane that is fairly similar in shape, size, wingspan and building material to the one you want to build. You can use the weight of the similar plane to get a real rough estimate to start with. After you have built a few planes you pretty much develop a good sense of weight dynamics and will be able to estimate right out of your head.

So now you have your estimated weight of the plane. For this exercise lets say the estimated plane weight will be about 18 to 20 ounces. We usually like to make fairly high performance planes, so we always choose motors that are overrated for the target weight of the plane we are going to build. We usually look for a motor that will put out a thrust level of around 1 to 1.5 times the All Up Weight of the plane. For unlimited vertical flight we prefer it to be 1.5 or better. So in this instance we would need to pick a motor with about 20 to 30 ounces of thrust to get to that 1 to 1.5 power to weight ratio we mentioned above. For this example we will choose the Suppo BL-2212/6 2200kv Brushless Motor Rated at about 27 ounces of thrust with a 6x4 prop and 3S Lipo.

Now that you have selected the proper motor for the particular project, it is important to know the Max Amp Draw the motor will demand. You can usually find this information on the manufacturer's web site or the site you got the motor from.

Example:

Suppo BL-2212/6 2200kv Brushless Motor Rated at:

Max Efficiency @ 22amps

Max Amp Draw (28amps) for 60sec

Step 2: *Selecting the ESC*

Now that you know what amount of Amp Draw your motor will demand, you need to choose a properly sized ESC. You will need to select a Brushless ESC that has a slightly higher constant max amp draw rating than the motor's max amp draw. Most ESCs have an over amp shut down built into them to protect the ESC and motor from drawing too many amps. It is very important NOT to choose an ESC with too high an amp rating. An oversized ESC can allow too many amps to get through and as a result you could burn up your motor. (Unfortunately we learned this lesson the old fashion way, as I'm sure some of you have....LOL)

So for this example we would choose the following ESC to match the motor:

Suppo SP-30A ESC Rated at:

Max constant Amp draw (30amps)

(Now that you have the Motor and ESC selected Go to the post "[How to Find Your Lipo Battery's Maximum Constant Amp Draw](#)" for help on picking the proper Lipo Battery to power this system)