



LiPo (Lithium Polymer) batteries are some of the most commonly used batteries in the small EV world. It's very important that you understand the ins and outs of a LiPO battery before usage.

Capacity (Ah or mAh)

Capacity of LiPO batteries is measured in Ah (Amp-Hours) or mAh (milli-Amp-Hours). The capacity tells you how much power your LiPO battery can hold. For example, our 20,000mAh (20Ah) Zye batteries can output 20,000 milliamps in 1 hour until they are completely drained. If you ride a board with one of these batteries with a load of 40 amps, then you can expect to fly for 30 minutes ($20\text{Ah} \div 40\text{A} = 0.5$ hours) before completely discharging your battery.

Discharge Rate (C)

Discharge rate tells you the maximum current (in amps) that you can safely draw from the LiPO. The formula for deriving Amps from C is simple: $\text{Max Amps} = \text{Capacity} \times \text{C}$ rating. With a 20Ah 25C Zye battery, this means that our max amperage draw is 500A. Going over this limit will permanently damage the battery.

Voltage (V) and Cell Count (S)

Voltage is measured in Volts, and is commonly written directly on the battery shell. Some LiPOs will not label the voltage and instead label the battery with Cell Count (S). Finding cell count from voltage and voltage from cell count is very simple with LiPOs. For example, our Zye battery is labelled as 22.2V. Nominal cell voltage is 3.7V/cell in a LiPO, so all we need to do is divide to find that our battery is 6S ($22.2V/3.7V = 6$). To find voltage from S count, simply reverse that calculation ($6S \times 3.7V = 22.2V$).

Power and Balance Connectors

The power and balance connectors in any LiPO must be treated very carefully - shorting either of these can result in hazardous conditions and will permanently damage your battery. The power connector is the main charge and discharge circuit from the battery, and will be connected to all components that you may wish to power with the battery. The balance connector tells your charger the voltage of each individual cell, allowing the charger to safely balance out your battery at the end of each charging cycle. Both the power and balance connectors must be correctly attached to the charger in order to safely charge.