



## Precautions and Warnings for use and Handling of Lithium Polymer Battery

In order to have optimal performance and maximum safety, the user should read the following instructions and take precautions carefully before using the Lithium Polymer (Li-Po) batteries.

### 1. Charging

- 1) Charging current should not be more than the maximum current specified in the Product Specification (normally 0.5C – 1.0C or lower). Charging with higher current may damage the cell or even lead to safety problem, e.g. overheating or leakage.
- 2) Charging voltage should not be more than the maximum voltage specified in the Product Specification (4.2V/cell). 4.25V.
- 3) Never charge the battery in series and be sure that each single cell has a separated charging circuit with a maximum charging voltage of 4.25V; otherwise, the battery may be overcharged, and lead to fire or explosion. The user is fully responsible for the result of misusing the battery.
- 4) Charging temperature: The cell should be charged within the temperature range specified in the Product Specification. Stop charging it immediately when the surface temperature of the battery is over 50°C.
- 5) Reverse charging: Please make sure the polarities of cells are connected properly before charging the battery. Reverse charging is strictly prohibited. Reverse charging will deteriorate the charging / discharging and safety characteristics of the cell, or even lead to fire or explosion.

### 2. Discharging

**Discharging current:** The cell shall be discharged at the current no more than the maximum discharge current specified in the Product Specification. Over current discharging may damage the battery and cause over-heat.

**Operation temperature:** use the battery within the temperature range specified in the Product Specification. Stop using it when temperature is over 70 °C.

**Over-discharging:** Over-discharging will deteriorate the cell's performance and characteristics. Do not over-discharge a battery below 2.75V/cell.

### 3. Storage

If you intend to keep the battery for 3 months or longer, it is strongly recommended that the battery should be stored under the environment with temperature 10-25° C, low humidity and without corrosive gas. The battery should be charged every six months to ensure that each cell's storage voltage is 3.6-3.9V.

### 4. Lithium Polymer - Do's

- Use a correctly specified Lithium Polymer charger (mandatory).
- Double-check that your multi-function charger is set in Li-Po mode (extremely important).
- Ensure that your charger has a clean power supply such as a car battery that is not itself on charge.
- Set the charger to the total series cell count "s" of your pack (or packs if charging in series).
- Read the battery label to confirm the cell count for charging shown e.g. "charge as 3 cells".
- Handle and transport the battery carefully to avoid piercing, deformation or short circuit with other objects.
- Disconnect batteries fully from ESC's with BEC to prevent slow over-discharge.
- Ensure that connectors are insulated correctly to prevent short circuit happening in use or storage.
- Check that batteries are physically and electrically undamaged before charging or discharging.

### 5. Lithium Polymer - Don'ts

- Don't allow charging to continue above 4.25V per "s" series cell (definition of overcharging).
- Don't confuse the total number of actual cells in a pack (e.g. 6 for 3s2p) with the series cell count (3 for 3s2p).
- Don't set the charge current limit above 1C unless you have special equipment available and the process is fully supervised. 1C = 3.2Amps for a 3200mAh pack, 0.83Amps for an 830mAh pack and so on. Choose an available charger setting at or below the 1C value for your pack.
- Don't charge dissimilar or un-matched packs in series or with any difference in cell type, cell capacity, pack capacity or charge state (+/-0.03V per cell). If you have any doubt, charge separately.
- Don't permit your pack to be discharged below 3.0V per cell (hint: Use monitor and timer or a Lithium-safe ESC (for plane / heli), land immediately in case of noticeable power drop, over-discharge = overheating/damage).
- Don't expose batteries to intense heat or elevated temperature.
- Don't charge any pack containing one or more damaged or swollen cells.
- Don't continue charging if any part of the pack is getting warm (Li-Po packs should not be heated up during charging).
- Don't charge a pack at sub-zero temperatures; pack swelling has been known to happen at -10 Degrees Celsius.
- Don't charge any pack that is under-voltage after recovery (under 3.0V per series cell).
- Don't charge batteries unattended, always remain alert and monitor the charging process.

### 6. Others

- The aluminum packing foil is very soft that it will be easily left scratches. Please do not hit the cell with any sharp edge parts.
- Don't fall, hit or bend the battery. It may cause fire or explosion.
- Battery short-circuit is strictly prohibited as it may damage the battery seriously.
- Don't disassemble the battery as it may cause fire or explosion.
- Don't dispose of the battery in fire as it may cause explosion.
- Don't immerse the battery into water or any other liquids.
- Don't charge the battery in a car.
- Don't shake or extrude the battery when moving it from the battery compartment.

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