# Lithium Polymer (LiPo) Battery Warnings

**• Never charge a lithium polymer battery with a charger designed for NiCd, NiMH, or any other type of battery chemistry. Use ONLY a charger designed for LIPO batteries. Failure to do so may cause a fire, which may result in personal injury and property damage.**

• Battery charging/discharging and observation should occur in an isolated safe location outside of any building or vehicle and away from any combustible material. The middle of a cement driveway is a good example of a safe location. Never charge/discharge the battery inside a house, garage, building, warehouse or vehicle.

• It is solely the user's responsibility to assure that the charger used in the charging/discharging process works properly. ONLY charge LiPo batteries with a good quality Lithium Polymer balanced charger. Failure to do so may cause a fire, which may result in a personal injury or property damage.

•Inspect the battery before the charging/discharging and storage process. Check for damages, leaks, broken connectors, and puffiness. Check the battery voltage. Normal voltage should be approximately between 3.3v-4.2v per cell. If the voltage is significantly less than the normal voltage (less than 3.3v per cell), do not charge/discharge the pack.

• The charging rate should not exceed 1C (one times the capacity of the battery, for example: charge an 800mAh battery at or below 0.8A, charge a 3000mAh battery at or below 3A). Higher charging rate may damage the battery and result in fire.

• Charge/discharge each battery pack individually. Set the cell count, charging current, and voltage on the charger for the charging/discharging process correctly.

• Do not over charge/discharge the battery; doing so will damage the battery. Do not discharge a battery pack to a level below 3.3V per cell.

**• Do not leave a LiPo battery unattended during the charging/discharging process. During the charging/discharging process, users should monitor the process constantly and react to any potential problems that may occur.**

**• Always place the battery in a fireproof container alone when charging/discharging. The middle of a cement driveway is a good example of a safe location. Do not charge/discharge a battery inside a house, garage, vehicle, building or near any combustible material.**

**• Always store the battery in a fireproof container alone Do not store a battery near any combustible material.**

•Do not continue to use a damaged battery. Recycle any damaged batteries to a certified battery recycling facility as soon as possible.

• Allow battery to cool down to normal temperature before recharging. Never exceed 140 degrees F during the charging/discharging process.

• Short circuiting the battery can cause fires. If you accidentally short a battery, you should place the battery in a safe area for observation for approximately one hour.

• Never modify the battery by yourself. If you need to cut the terminal wires, soldering connectors, please consult an experienced user before operation.

• Use the battery with care and avoid puncture to the battery. Puncturing a LiPo battery can cause fire.

• Store batteries at room temperature between 40 to 70 degrees F. Never store battery pack inside your vehicle if the internal temperature exceeds 120 degrees F. If storing for a period of time(more than a week), batteries should be stored at 3.8V to 3.9V per cell.

• Never expose batteries under direct sunlight or heat for an extended period of time. Exposing batteries at a temperature greater than 140 degrees for an extended period of time (more than 20 minutes) can damage the battery and cause a possible fire.

• Inspect batteries if crashed. Crashed batteries should be placed in a safe area for observation for at least one hour.

• Do not allow LiPo cells to overheat at any time. Cells which reach greater than 140 degrees F will usually become damaged and will catch fire.

• Do not use batteries that lose 20% of their capacity.

• Do not expose LiPo cell to water or moisture at any time.

• Do not assemble LiPo cells or pre-assembled packs together with other LiPo cells or packs.

• Always store LiPo battery in a secure location away from children.

• Always remove the LiPo battery if your model is involved in any kind of crash. Carefully inspect the battery and connectors for even the smallest damage. CAUTION: cells may be hot!

• Do not allow the electrolyte to get into your eyes or on your skin. Wash affected areas immediately if you come into contact with the electrolyte substance. Do not alter or modify connectors or wires of a LiPo battery pack.

• Do not have contact with a leaky/damaged battery directly.

• Do not charge/discharge battery out of recommended temperature range (Charge: 32 to 110 degrees F; Discharge: 32 to 140 Degrees F )

• During the charging/discharging process, if at any time you witness a battery starting to balloon or swell up, discontinue the charging/discharging process immediately. Disconnect the battery and place it in a safe observation area for approximately one hour. Continuing to charge a battery that has begun to swell will result in fire.

**By purchasing and using this battery, the buyer and user assumes all risks associated with this product. If you do not agree with these conditions, do not proceed to use the battery. You must read the above safety instructions and warnings before charging/discharging your batteries. Manufacturers, distributors, and retailers assume no liability for failure to comply with the warning and safety guidelines.**

**This product is for experienced adult remote control users only. It is not recommended for children under the age of 18. All minors should be accompanied by an adult when operating a Li-Po battery. This product requires proper operating knowledge to avoid any accidents. Failure to take caution when operating this product may result in serious injury or property damage. It is the owner's responsibility to operate this product in a safe manner. Manufacturers and its distributors are not responsible for any bodily injury(s) and/or property damage that may occur from the use of or caused by this product.**

# Lithium Battery Operation Guideline and Safety Instruction

- **Operating lithium polymer batteries is dangerous; user must follow proper usage guidelines to operate. Failure to do so will cause a fire, which may result in serious personal injury and property damage.**
- **By purchasing this battery, the buyer and user assumes all risks associated with this product. If you do not agree with these conditions, please return the battery immediately before use.**
- **Product warranty is limited to original defects in material and workmanship. Warranty does not cover collateral damage. Misuse, abuse, incorrect charging and other inappropriate use of this product are not covered under warranty.**
- **Must keep Li-Ion & Polymer battery pack away from children and minors.**
- **Do not charge/discharge, use a battery inside house, garage, building, warehouse, or vehicle under any circumstances.**

**Before charging/discharging:**

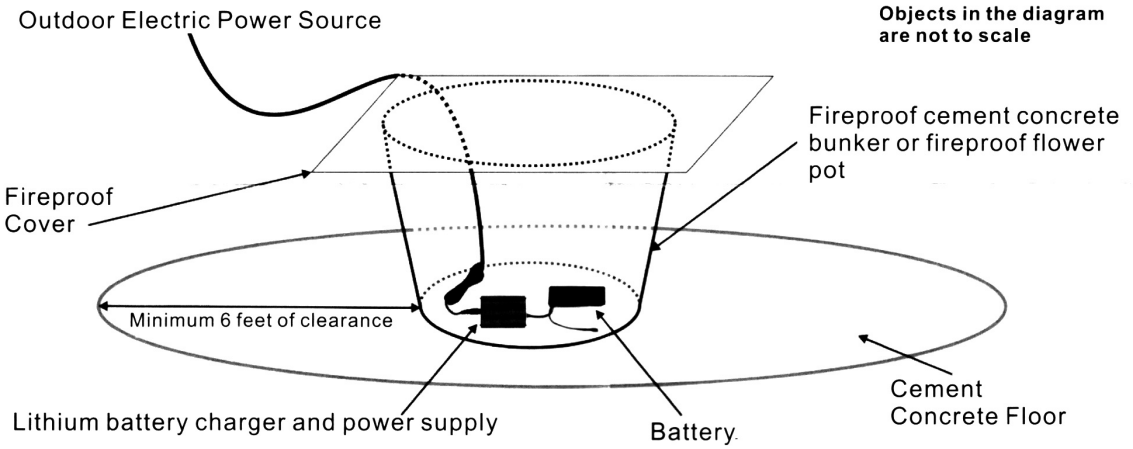
- Inspect the battery for any damages. Do not charge a damaged battery.
- Inspect the battery for swelling. Do not charge a swellen battery.
- Inspect the battery for possible battery fluid leaks. Do not charge a leaking battery.
- Inspect the voltage for each battery cell. If the cell voltage is significantly lower than the normal voltage (3.3v per cell) or the voltage of each cell is significantly different, the battery may be in a defective condition. Do not charge the battery.
- Wire lead shorts can cause a fire. Never make a wrong polarity connection when charging and discharging battery packs. Always double check the polarity of the batteries connectors.
- **Use ONLY charger designed for Lithium Polymer/Li-ion battery. Do not use a NiMH or NiCd charger. If the charger can support different battery types, Be absolutely sure to select the Lithium Polymer battery type on the charger. Failure to do so may cause a fire, which may result in personal injury and property damage.**
- Verify that the lithium polymer charger is in good condition. A poor quality charger can be dangerous. It is solely your responsibility to assure that the charge you use works properly. Always monitor the charging process to assure batteries are being charged properly. Failure to do so may result in a fire.
- Battery charging/discharging and observation should occur in an isolated safe location outside of any building or vehicle and away from any combustible material. The middle of a cement driveway is a good example of a safe location. Never charge/discharge the battery inside the house, garage, building, warehouse, or vehicle under any circumstances.

**Charging/discharging the battery:**

- Li-Ion and Polymer battery packs may explode and cause a fire if misused or defective. We require that all LI-ion battery consumers to be professional and have the capability to handle emergencies.
- **Do not leave battery unattended during the charging/discharging process. During the charging/discharging process, user should monitor the process constantly and react to potential problem that may occur.**
- In case of emergency, discontinue the process immediately, disconnect the battery, place it in a safe area, and observe it for approximately one hour. This may cause the battery to leak and the reaction with air may cause the chemicals to ignite, resulting in a fire. A safe area should be outside of any building or vehicle and away from any combustible materials. A battery can still ignite even after one hour.
- **Do not charge batteries packs in series. Charge each battery pack individually. Failure to do so may result in incorrect battery recognition and charging functions. Overcharging may occur and cause a fire.**
- Check cell voltage after the first charge.
  For example: 1-Cell: 4.2V (4.15 to 4.22) 2-Cell: 8.4V (8.32 to 8.44)
  3-Cell: 12.6V (12.48 to 12.66) 4-Cell: 16.8V (16.64 to 16.88)
- Do not discharge battery to a level below 3V per cell under load.
- **Do not damage the battery cell. Puncture of cells may cause a fire.**
- Operating Charging Temperature: 32 to 110 degree F; Discharge: 32 to 130 degree F
- Let battery cool down to an ambient temperature before charging/discharging.
- During charging/discharging, and handling of batteries, do not exceed 140 degree F.

- You must select the charge rate current that does not to exceed 1C (one times the capacity of the battery). A higher setting may cause a fire. The below chart is calculated at 1 x capacity of the pack.
  For Example: 2000 mAh: Charge below 2.0 Amps
  3000 mAh: Charge below 3.0 Amps
- **Selecting cell count, voltage and current other that the one printed on the battery (always confirm the label is correct), can cause a fire.**
- Put the battery in a fireproof container and charge it in an isolated area away from other flammable materials. Always have a fire extinguisher for emergency use. If at any time you witness a battery starting to balloon, swell up, smoke, and discontinue the charging process immediately.
- **Please use the following diagram as reference to setup the charging station. Failure to do so will cause a fire, which may result in serious personal injury and property damage.**
  - Use a fireproof cement concrete bunker or fireproof material flower pot as the charging container.
  - Put the charging container on a cement concrete floor.
  - The horizontal clearance radius for the charging container should be at least **6** feet.
  - The vertical clearance for the charging container should be at least 10 feet.
  - Cover the charging container with a fireproof material cover
  - Monitor the charging process for the whole time. Do not charge the battery unattended.
  - In case of fire, disconnect from the electrical power source immediately.
  - Do not put any combustible materials near the charging area

## Charging/Discharging Safety Setup




**Using the battery:**

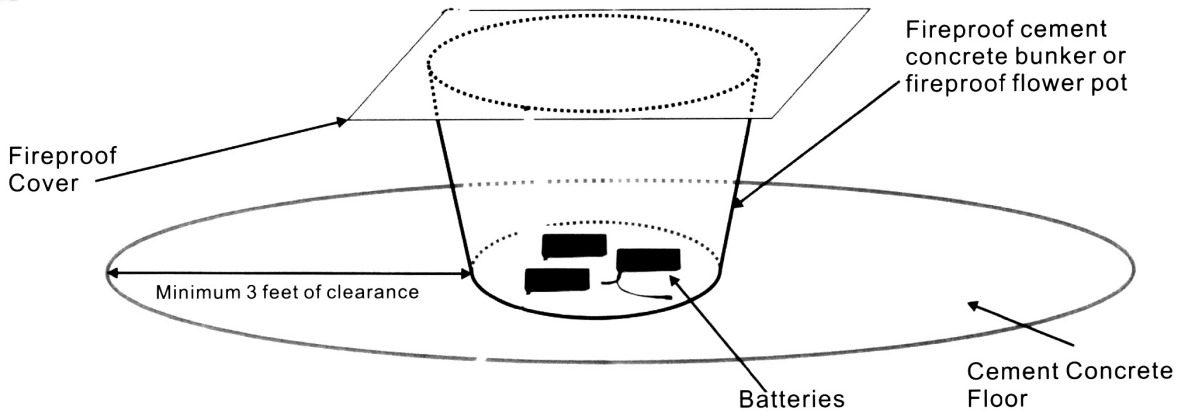
- **Do not use a battery inside house, garage, building, warehouse, or vehicle under any circumstances.**
- Inspect the battery for any damages. Do not use a damaged battery.
- Inspect the battery for swelling. Do not use a swollen battery.
- Inspect the battery for possible battery fluid leaks. Do not use a leaking battery
- Inspect the voltage for each battery cell. If the cell voltage is significantly lower than the normal voltage (3.3v per cell) or voltage the voltage of each cell is significantly different, the battery may be in a defective condition. Do not charge the battery.
- Make sure the wire connection polarity is correct; do not short circuit the battery.
- In the event of a crash due to bad shipment or other reason, you must remove battery for observation and place in a safe open area away from any combustible material for approximately one hour.
- If for any reason you need to cut the terminal wires, it will be necessary to cut each wire separately, ensuring the wires do not touch each other or a short may occur, potentially causing a fire.
- To solder a connector: Be careful not to short the wire lead. If you accidentally cause the battery to short, place it in a safe open space and observe the battery for approximately one hour. A battery may swell or even possibly catch fire after a period of time.
- Never drop the batteries.
- Place battery in protection case to prevent accidental damage.

- In case of emergency, discontinue the process immediately, disconnect the battery, place it in a safe area, and observe it for approximately one hour. This may cause the battery to leak and the reaction with air may cause the chemicals to ignite, resulting in a fire. A safe area should be outside of any building or vehicle and away from any combustible materials. A battery can still ignite even after one hour.

**Storing the battery:**

- Constantly check the condition of the battery inside the storage container at least once a week. Do not leave the battery unattended for a long period of time.
- Do not put any combustible materials near the storage container.
- Verify the battery is in good condition before storage.
- The storage area should be clean, cool (not exceeding 85 Degrees F ), dry, and ventilated. Store battery at room temperature between 40 and 80 degrees F for best results.
- Do not expose battery pack to direct sunlight (heat) for extended periods.
- When transporting or temporarily storing in a vehicle, temperature range should be greater than 20 degrees F but no more than 140 degrees F. Storing battery at temperatures greater than 140 degrees F for extended periods of time (more than 2 hours) may cause damage to battery and possible fire.
- Charge the battery every 2 months to keep it fresh if you don't use it.
- Never store a battery pack inside your car in high temperatures, since high temperatures could cause the battery to ignite a fire.
- **Please use the following diagram as reference to setup the storing station. Failure to do so will cause a fire, which may result in serious personal injury and property damage.**
  - Use a fireproof cement concrete bunker or fireproof material flower pot as the storage container.
  - Put the storage container on a cement concrete floor.
  - The horizontal clearance radius for the storage container should be at least 3 feet.
  - The vertical clearance for the storage container should be at least 10 feet.
  - Cover the storage container with a fireproof material cover.

## Storage Safety Setup




**Objects in the above diagram are not to scale**