

WARNING: You must read these safety instructions and warnings before using or charging your batteries.

- **Lithium Polymer batteries are volatile.** Failure to read and follow these instructions may result in fire, personal injury and damage to property.
- **EM Distribution** assumes no liability for failures to comply with these warnings and safety guidelines.
- **By purchasing this battery, the buyer assumes all risks associated with this product. If you do not agree with these conditions, return the battery immediately before use.**

Initial Inspection and Installation of Battery Connector

- 5 Before use, inspect the battery for any signs of puffiness, swelling, or other damage. Do not use a damaged pack. Using a damaged pack may result in fire, personal injury and damage to property.

- 5 EM Lithium Polymer battery packs are not supplied with a battery connector. It is the buyer's responsibility to select a battery connector that is rated for the application the battery is intended to be used in.

- 5 Before installing the connector, check the voltage of the pack using a digital voltmeter. All new packs ship at approximately 3.8V to 3.9V per cell. For example: a 3s pack should read between 11.4V and 11.7V. If the voltage is significantly less for your pack than specified above, do not attempt to charge or use the pack; contact EM distribution or your dealer directly as soon as possible.

- 5 When installing the battery connector extreme care should be taken to avoid shorting the battery. It is highly recommended the factory installed insulation on the battery leads remain in place until the battery connector is soldered in place.

- 5 If the battery is accidentally shorted it should be removed to an isolated area clear of any flammable material and observed for a minimum of 30 minutes. The battery should be disposed of if there is any sign of puffiness, swelling, venting of heat. Failure to do so may result in fire, personal injury and damage to property.

- 5 If you are unfamiliar with soldering large gage wire is highly recommended that you seek the advice and/or help of someone with experience.

- 5 One battery lead at a time; remove the insulation, tin the lead with solder and solder the lead to the battery connector. Certain types of battery connectors require the connection be insulated after the lead is soldered to the connector. In these cases a short (10-15mm length of heat shrink tubing should be slid over the battery lead before the lead is soldered to the connector. The second battery lead should be connected only after the first lead is soldered and insulated.

Charging Guidelines and Warnings

- 5 EM Lithium Polymer batteries are not fully charged as you receive them. They contain approximately 50% of a full charge.
- 5 Before charging, make a visual inspection of the battery. Check for any damaged leads, connectors, broken/cracked shrink covering, puffiness or other irregularities.
- 5 EM Lithium Polymer batteries should only be charged using Lithium Polymer specific chargers that incorporate active cell balancers. Do not use a NiCad or NiMh charger. Some battery chargers on the market have the ability to auto-detect the number of cells in a pack. It is solely the responsibility of the user to assure that the charger used works properly and the number of cells is set correctly. Failure to do so may result in fire, personal injury and damage to property.
- 5 Never charge batteries unattended. When charging any battery you should always remain in constant observation to monitor the charging process. Failure to do so may result in fire, personal injury and damage to property.
- 5 Do not charge a puffed, swelled, or otherwise damaged battery. Stop the charge process any time you detect the battery starting to puff or swell. Charging a damaged battery may result in fire, personal injury and damage to property.
- 5 Do not use any battery that has bent, warped, torn, or otherwise damaged as a result of a crash. If the battery has been crashed it should be removed to an isolated area clear of any flammable material and observed for a minimum of 30 minutes even if it appears to be undamaged. The battery should be disposed of if there is any sign of puffiness, swelling, venting of heat. Failure to do so may result in fire, personal injury and damage to property.
- 5 After use, always allow the pack to cool to ambient temperature before re-charging.
- 5 Always check the pack voltage after each use before re-charging. Do not attempt to charge any pack if the unloaded individual cell voltages are less than 3.3V. For example: Do not charge a 3s pack if below 9.9V

Charge rates

- 5 EM Lithium Polymer battery packs are approved for charge rates up to and including 2C when charged using appropriate chargers. For example: a 2200Mah pack can be charged at a rate of 4.4 amps.
- 5 It is highly recommended that the initial 6 charge cycles not exceed a 1C charge rate.
- 5 Charging in excess of 2C will void all warranties.

Initial use/Pack Break In

- 5 For maximum cyclic life and performance it is highly recommended that new packs be broken in by discharging at no more than a 3-5C average rate for the first 6 cycles. The maximum pack discharge for these first 6 cycles should be 50% of the packs nominal capacity or no less than 3.85V per cell (11.55V for a 3s pack).
- 5 Maximum charge rate should not exceed 1C during break in..
- 5 Monitor the pack temperature closely. Do not exceed 120° F during break in.
- 5 Do not be tempted to skip the break in cycles. Skipping the break in will result in shortened pack life and less than optimal performance.

Storage

- 5 EM Lithium Polymer battery packs should be stored at room temperature between 40°F and 70°F for best results.
- 5 If storing longer than one week; batteries must be stored at 3.8V to 3.9V per cell (approximately 50% charged).
- 5 When transporting or temporarily storing in a vehicle the temperature should not be less than 20°F or greater than 150°F.
- 5 Storing Lithium Polymer batteries at temperatures greater than 170°F for extended periods of time (more than 2 hours) may cause damage to battery and may result in fire, personal injury and damage to property.

Tips for long life and maximum performance from your EM Lithium Polymer battery pack

- 5 Read the information in this document
- 5 High temps and over discharging are very hard on Lithium Polymer battery packs. These two conditions will drastically reduce the life of your packs.
- 5 Do not allow the pack to exceed 140°F during operation. 120°F is better. Do not expose battery packs to direct sunlight (heat) for extended periods.
- 5 Mount the pack in an area where airflow can be directed over the pack. If the pack is running hot, take the time to make adjustment to ensure good airflow.
- 5 Do not over discharge the pack. Lithium Polymer packs should not be discharged lower than 3V per cell under load. Your ESC should be set for the proper cut off voltage. For example: 9.0V cut off for a 3S pack.
- 5 It is highly recommended that you do not discharge greater than 80% of the packs nominal capacity. For example: A 2200 Mah pack should not be discharged more than 1760 Mah.
- 5 Use a timer. Do not rely on the low voltage cutoff on your ESC. Doing so will result in over discharging the pack. Time your flights starting with a short 2-4 minute flight and then re-charge the pack. This will provide you with the discharge rate data needed to determine how long you can safely fly. Re-check this anytime you make a change to the setup. For example: changing prop size on a plane or gearing on a helicopter.
- 5 Do not exceed the maximum C rating for the pack. Use a Wattmeter or data logger to determine how much current (Amps) your setup is capable of pulling. If you find you are exceeding the maximum C rating you will need to change something. This could be installing a smaller prop, re-gearing, or using a larger or higher C rated pack.

Battery Life and Disposal

- 5 Batteries that are puffed, swelled, punctured or otherwise damaged should be removed from service.
- 5 Batteries that have lost 20% or greater of their nominal capacity should also be removed from service.
- 5 Batteries should be safely discharged before disposal.
- 5 Please check with your local waste disposal authorities before disposing of any Lithium Polymer battery pack.