ElectriFly™

PolyCharge™

Lithium-Polymer Charger

The PolyCharge™ Lithium-Polymer Battery Charger is great for simple, precise charging of lithium-polymer batteries for small electric aircraft at the flight line. Capable of charging 1 to 3 cell Li-Po batteries with three charge current rates of 250mA, 500mA and 1000mA, this small, lightweight charger is good for entry-level uses. **Do NOT attempt to use this charger with NiCd, NiMH or Lithium-Ion batteries as they are not compatible! Read this entire instruction sheet to learn about specific functions and features, and safety information. Damage resulting from misuse or modification of this charger will void your warranty.**

SPECIFICATIONS

Input voltage:	11-15V DC
Fuse type:	7.5A, Automotive blade type
Battery types, # cells:	1-3 lithium-polymer cells (3.6 - 11.1V Li-Po)
Fast charge current:	250, 500, 1000mA
Fast charge termination:	constant current / constant voltage
Status indicators:	hi-intensity blue LED, audible buzzer
Input connectors:	alligator clips
Output connectors:	red 2-pin connector
Case size:	2.2 x 0.9 x 3.5in [55 x 23 x 88mm]
Weight:	4.35oz. [123.3g]

SPECIAL FEATURES

- A very economical and simple way to charge Li-Po batteries
- Specifically designed for 1-3 cell lithium-polymer batteries only (not for Li-Ion)
- Great for customers with small electrics – park flyers, small-to-medium 3D airplanes or heli's
- Used the "constant current / constant voltage" charge method
- Automatically starts charge upon connection of battery
- 250, 500 and 1000mA selectable charge current
- High intensity blue status LED and audible buzzer indicator
- Warning indications for input voltage errors, output reverse polarity and open circuit errors
- Very small and lightweight for portability

IMPORTANT PRECAUTIONS

- Charge only lithium-polymer (Li-Po) rechargeable batteries. Do NOT attempt to charge other types of rechargeable batteries as permanent damage to the battery and charger could result.
- **Do not leave the charger unattended while charging. Disconnect the battery and remove input power from charger immediately if it becomes hot!!** Allow the charger to cool down before reconnecting.
- **Disconnect the battery from the charger immediately if the battery begins to swell or smoke!!**
- Do not use automotive type battery chargers to power the charger.
- Do not allow water, moisture or foreign objects into the charger.
- Do not block the air intake holes, which could cause the charger to overheat.
- Do not attempt to use batteries with more cells or total voltage than listed in the specifications.
- Do not place the charger or any battery on a flammable surface or near a combustible material while in use. Do not charge or discharge on a carpet, cluttered workbench, paper, plastic, vinyl, leather, and wood, inside an R/C model or full-sized automobile!
- Always disconnect from input power when not in use.
- Do not overcharge batteries as permanent damage could result. Do not use a charge current rate which exceeds the safe level of the battery. Do not attempt to charge a battery if it is swollen or hot.
- Keep out of reach of children.

LITHIUM-POLYMER BATTERY SAFETY AND HANDLING INSTRUCTIONS

IMPORTANT!! Lithium-polymer batteries are a revolutionary new rechargeable battery technology for electric R/C flight, offering a variety of significant advantages over NiCd, NiMH and Li-Ion batteries. It is very important to have a good understanding of the operating characteristics of Li-Po batteries – especially their exact rated voltage and maximum acceptable charge current. Always read the specifications printed on the label of your Li-Po battery prior to use, and read this instruction sheet in its entirety.

WARNING! Lithium-Polymer batteries are ENTIRELY DIFFERENT than NiCd and NiMH batteries and must be handled differently as well!! Great Planes will not be held responsible for any and all incidental damages and bodily harm that may result from improper use of ElectriFly™ brand lithium-polymer batteries. Failure to follow the care and handling instructions can quickly result in severe, permanent damage to the batteries and its surroundings and even start a **FIRE!**

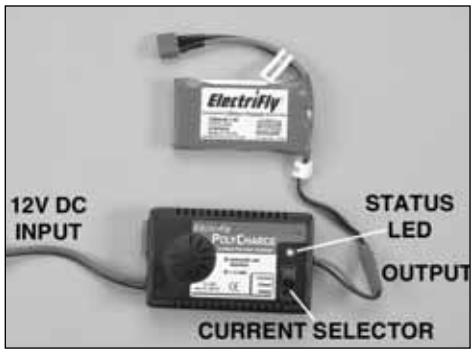
IMMEDIATELY remove a Li-Po battery from a model if it is involved in a crash in any way. Carefully inspect the battery for even the smallest of dents, cracks, splits, punctures or damage to the wiring and connectors. **CAUTION!** Cells may be hot! DO NOT allow the battery's internal electrolyte to get in the eyes or on skin – wash affected areas immediately if they come in contact with the electrolyte. A Li-Po battery might not appear to be damaged after a crash, but it could smolder over a short amount of time and suddenly catch fire unexpectedly. If in doubt, place the battery in a Fireproof location indefinitely.

INPUT POWER

The PolyCharge Li-Po Battery Charger only accepts DC input power which could come from a power supply or 12V automotive battery. Do not attempt to apply more than 15V to the input, as permanent damage to the charger could result and void the warranty. Applying less than 11V to the inputs will not be sufficient power to allow the charger to work properly. Securely connect the charger's red alligator clip to the positive (+) terminal on the power source, and the black alligator clip to the negative (-) terminal. It's best to use a clean DC power source whose output is filtered to remove unwanted electrical noise. To achieve maximum potential, the power source must be capable of delivering at least 2.0 amps of current while maintaining 12 volts DC. Disconnect the charger when not in use.

WARNING! Make sure the charger's positive (+) and negative (-) input connections are never accidentally shorted together when connected to 12V DC power. Failure to do so could result in permanent damage to the power source and the charger.

BATTERY CONNECTION AND CHARGER CONTROLS



Input Power and Connector: Connect the charger to the desired power source using the alligator clips on the input lead as described above. There is no on/off power switch on this charger. Therefore, once connected to input power the charger is active and in "idle mode," ready to be connected to a battery. The bright blue LED will flash once every 3 seconds and the buzzer will beep briefly to indicate that power is applied.

Output Connector: The PolyCharge Li-Po Battery Charger is equipped with a red 2-pin battery connector on the output. Securely connect the battery to be charged to the output connector. Pay special attention to ensure that the desired battery polarities are the same as the charger. The battery's positive (+) battery lead (red) connects to the charger's red wire, and the battery's negative lead connects to the charger's black wire. It is highly recommended to use pre-assembled battery leads to avoid possible erroneous operation as a result of using poor quality connections.

WARNING! Do not short the battery connections, as permanent damage to the battery and/or the charger could result and void your warranty.

Controls: The PolyCharge Li-Po Battery Charger includes one charge current selection switch which determines how much current should be delivered to the battery during charge. Again, there is no on/off power switch. And, there is no button or

switch which begins the charge process (as soon as a battery is connected to the charger's output, the charge process begins automatically).

CHARGING BATTERIES

This charger is capable of charging batteries containing from 1 to 3 Li-Po cells which are wired *in series*. Check your battery's label or supplier to fully understand the configuration of your battery.

IMPORTANT!! ALWAYS charge a Li-Po battery in a location that is fireproof, which could be a container made of metal (such as an ammunition box) or ceramic tile. Always monitor the area with a smoke or fire alarm, and have an "ABC type" fire extinguisher available at all times. NEVER leave the battery unattended while being charged!

To charge a battery:

1. Set the charger's current adjustment switch to the appropriate setting to match the battery. Consult your battery supplier if there is any question as to what is the appropriate setting for your battery. It is highly recommended NOT TO EXCEED a "1C" charge current setting for your battery. "1C" equals the rated capacity of the battery. So, a 1200mAh battery should not be charged at a current greater than (1200mAh x 1) 1200mA. A 650mAh battery should not be charged at a current in excess of (650mAh x 1) 650mA, and so on. **Never attempt to charge batteries at excessive rates, as permanent damage could result to the battery, charger and the surrounding area!**

Charge Current Setting	Smallest Size Battery
250mA	250mA
500mA	500mA
1000mA	1000mA

2. The PolyCharge can charge Li-Po packs consisting of 1, 2 or 3 cells wired in series. However, it is not necessary to set the battery's voltage on this charger as it will be identified automatically. (The charger's intelligent circuitry can automatically detect the number of cells connected to the output by monitoring the slope of the battery's increasing voltage during the initial stages of charge.)

3. Connect the battery to the charger. The quick charge process will start automatically, as indicated by the blue LED illuminating and the buzzer will emit one tone. There is no button to press to start charge.

WARNING! It is normal for batteries to become slightly warm during charge. Disconnect batteries from the charger IMMEDIATELY if they become very warm or hot or begin to swell at any time! Li-Po cells which reach greater than 140°F [60°C] can and USUALLY WILL become damaged physically and could possibly catch FIRE!! Always provide adequate ventilation around Li-Po batteries while being charged. If a battery heats excessively or swells, place the battery in a fireproof location and let it rest for 30 minutes.

4. If it is necessary or desirable to stop the charge process after it has already begun, simply disconnect the battery from the charger, at which time the charger will return to idle mode.

5. When the battery is fully charged, the blue LED will blink twice per second, and the tone will beep for 15 seconds. This charger does NOT include a trickle charge function, as it is unnecessary to trickle charge Li-Po batteries. Remove the battery from the charger at this time.

ERROR INDICATOR CHART

Error No.	Error Condition	LED Flashes	Error Status
1	Input volts exceed 11~15V range	1	Blue LED will flash dependent on the error condition at intervals of 3 seconds. Simultaneously, tones will sound twice per second. When the battery is disconnected in Error mode, the charger reverts back to idle mode.
2	Battery connected backwards	2	
3	Voltage error	3	
4	In case of circuit error	4	

SAFETY FEATURES

The PolyCharge Li-Po Charger will emit visual and audible indications to warn if problems exist when attempting to charge a battery (refer to the ***"Error Indicator Chart"*** above). While a battery is being charged, if the LED flashes and the buzzer continually emits an audible tone it is an indication that either:

A. The input voltage to the charger is below 11V or 15V DC. Re-check the input voltage and make sure it meets specifications.

B. The battery somehow has become disconnected from the charger while it was in the charge process.

C. The battery was accidentally connected to the output connector in reverse polarity.

In any case, re-check to make sure the battery is connected to the output connector properly as explained above. Check to make sure the charge lead is making good contact with the charger's output connector, and with the battery to be charged, and that proper polarity is being observed.

SOLID-STATE CURRENT OVERLOAD AND REVERSE POLARITY PROTECTION

The PolyCharge Li-Po Battery Charger uses solid-state and fused circuitry to protect against potential damage which could be caused by short-circuit or reverse polarity conditions.

Reverse Input Polarity: If input power to the charger is connected in reverse polarity, the charger will be protected from damage by blowing the external 7.5A fuse. Re-check all input connections and the power source to ensure the proper power and polarities are observed.

Current Overload: If for some reason a short circuit condition exists on the input or output, the 7.5A spade (auto) fuse located on the left side of the charger might blow. In this case, make sure the charger is disconnected from the power supply, BEFORE attempting to remove the fuse. Remove and inspect the fuse. If the fuse is blown, replace with another fuse of the exact same rating.

TROUBLESHOOTING GUIDE

PROBLEM: Charger doesn't recognize battery.
CAUSES AND CURES:
1) Battery may be connected backwards. Connect battery leads properly.
2) Defective cell in the pack. Replace battery pack or cell.

PROBLEM: Battery voltage low after charge (below 4.2V per cell).
CAUSES AND CURES:
1) Battery connected in reverse. Connect battery leads properly.
2) Defective battery needs to be replaced.

PROBLEM: LED, buzzer or controls do not function properly.
CAUSES AND CURES:
1) Battery possibly connected backwards. Connect battery leads properly.
2) Fuse is blown or missing. Replace fuse with correct type or contact ***Hobby Services*** for further details.

1-YEAR WARRANTY – *USA and Canada Only

Great Planes® warrants this product to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase. During that period, Great Planes will, at its option, repair or replace without service charge any product deemed defective due to those causes. You will be required to provide proof of purchase (invoice or receipt). This warranty does not cover damage caused by abuse, misuse, alteration or accident. If there is damage stemming from these causes within the stated warranty period, Great Planes will, at its option, repair or replace it for a service charge not greater than 50% of its then current retail list price. Be sure to include your daytime telephone number in case we need to contact you about your repair. This warranty gives you specific rights. You may also have other rights, which vary from state to state.

For service on your Great Planes product, warranty or non-warranty, send it post-paid and insured to:

HOBBY SERVICES
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(217) 398-0007
E-mail: *hobbyservices@hobbico.com*

*For warranty and service information if purchased outside the USA or Canada, see the additional warranty information insert (if applicable) or ask your retailer for more information.

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