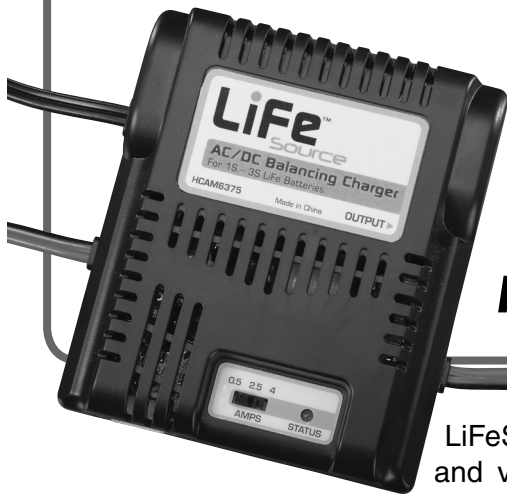


**HOBBIKO®**

**LiFe**  
Source™



## AC/DC BALANCING CHARGER INSTRUCTIONS

The LiFeSource AC/DC Balancing Charger is a great option for charging LiFeSource brand lithium-iron phosphate rechargeable batteries. Inexpensive and very simple to operate, the LiFeSource charger uses a customized cc/cv charge method with voltages specifically set for LiFe batteries. Capable of operating from 110V AC or 12V DC input sources, this very small and lightweight charger is great for use at home or in the field. A built-in balancing function ensures all cells are charged to optimum voltage every time.



**It is strongly recommended to completely read this manual before use! Damage resulting from misuse or modification will void your warranty.**

**1**

### SPECIFICATIONS

AC input:	110V AC 60Hz, U.S. type AC connector
DC input:	11-15V DC, built-in lead with alligator clips*
Output power:	AC 15W DC 40W
Battery types:	1-3S LiFe Packs (3.3-9.9V)
Battery capacity range:	up to 5000mAh
Fast charge current:	0.5, 2.5, 4.0A**
Fast charge termination:	cc/cv, based on nominal voltage 3.3V per cell
Fast charge safety timer:	90 minutes
Controls:	auto-start, switchable current selector
LED indicator:	red
Audible indicator:	charge completion
Output connections:	built-in lead with Deans® Ultra Plug® male connector built-in radio battery connection
Lithium balancing connector:	ElectriFly™ type 3S connection (2S adapter included)
Lithium balancing accuracy:	8mV per cell
Lithium max. node current:	100mA
Protective devices:	solid-state reverse polarity and current overload
Case size:	4.1 x 3.5 x 1.1" (104 x 90 x 29mm)
Weight:	9.17 oz. (260g)

*\*Increase input to 13.0V DC minimum for 3S packs*

*\*\*Do not use 4A setting with AC input. Max. charge current for 3S pack on AC input = ~1.6A*

**2**

### SPECIAL FEATURES

- A very small and light AC power supply is built-in and great for portability.
- A DC power lead with alligator clips easily connects to many 12V DC power sources for use away from home.
- Three charge current selections for versatility and use with various sized batteries.
- An auto-start function with status LED and audible tones make setup and use simple.
- A built-in radio jack for connecting batteries having Futaba® J or universal type receiver connectors.
- A built-in 3S balancing connector with 2S adapter included.
- Solid-state reverse polarity and current overload safety devices ensure trouble-free operation and long duration.

### 3

## IMPORTANT PRECAUTIONS



**Disconnect the battery and remove input power from the charger immediately if the charger becomes hot!!**

- Do not attempt to charge any battery types other than LiFe as permanent damage to the battery and charger could result.
- 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 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 leave the charger unattended while in use.
- Do not place the charger or battery on flammable surfaces or near combustible materials while in use such as carpet, cluttered workbench, paper, plastic, vinyl, leather, and wood, inside an R/C model or full sized automobile!
- Do not overcharge batteries as permanent damage could result. Do not use a charge current that exceeds the safe level of the battery.
- Do not connect the charger's AC and DC input connectors to any power source at the same time.
- Allow the charger or battery to cool down before reconnecting.
- Always disconnect from power source when not in use.

### 4

## GLOSSARY OF TERMS

**Amps (A):** The unit of measure for charge current.

**Milli-amps (mA):** A unit of measure for current, being amps (A) multiplied by 1000 and listed as "mA". So 2.5A is the same as 2500mA (2.5 x 1000). To convert mA to amps, divide the mA number by 1000. So 25mA is the same as 0.025A (25 divided by 1000).

**Capacity and milli-amp hours (mAh):** The amount of energy a battery can store is called its capacity, which is defined as how much current a battery can supply constantly over one hour of time. Most hobby batteries are rated for capacity in "mAh" or milli-amp hours. A 200mAh battery can deliver 200mA of current for one hour (200mA x 1hr = 200mAh). A 1900mAh battery can deliver 1900mA (1.9A) of current for one hour (1900mA x 1hr = 1900mAh), etc.

**"C" rating:** Capacity is also referred to as the "C" rating. Some battery suppliers recommend charge currents based on the battery's "C" rating. A battery's "1C" current is the same number as the battery's rated capacity number, but noted in mA or amps. An 1100mAh battery has a 1C current value of 1100mA, and a 3C current value of (3 x 1100mA) 3300mA or 3.3A. The 1C current value for a 3200mAh battery would be 3200mA (3.2A), etc.

### 5

## INPUT POWER

**AC Input:** For indoor use, this charger includes a built-in switching AC power supply that delivers power by connecting the AC power cord to a common 110V AC outlet. The AC power supply has a maximum power limitation that limits charge current to 2 amps maximum. Maximum charge current for 3S packs might be limited to approximately 1.6A.

**DC Input:** This charger can be powered by a portable 12V DC power source for use at the field. Connect the DC power cord's alligator clips directly to the output terminals on the 12V DC power source. Always match polarities (red lead to red "+" terminal, black lead to black "-" terminal). To utilize the charger's absolute maximum power capabilities the DC power source must be capable of delivering at least 6 amps while maintaining 12 volts DC. **Larger 3S LiFe batteries will charge more completely if the DC input voltage applied to the input is greater than 13V, otherwise an error indication might show.**

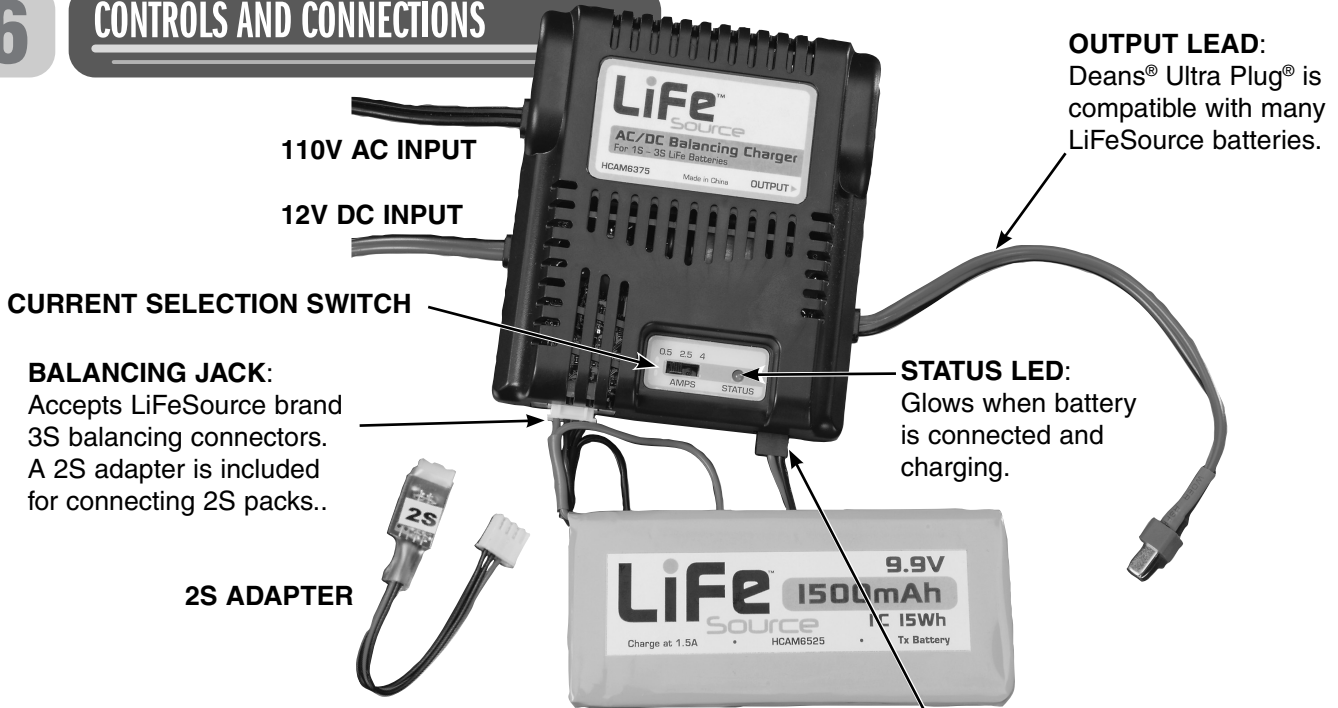


**WARNING! Never accidentally short together the positive (+) and negative (-) input connections when connected to 12V DC power. Failure to do so could result in permanent damage to the power source and the charger. Do not attempt to connect the charger to AC and DC inputs at the same time.**

The charger will be on at all times when connected to input power. Disconnect the charger from input power when not in use.

# 6

## CONTROLS AND CONNECTIONS



**OUTPUT LEAD:** Deans® Ultra Plug® is compatible with many LiFeSource batteries.

**110V AC INPUT**

**12V DC INPUT**

**CURRENT SELECTION SWITCH**

**BALANCING JACK:**

Accepts LiFeSource brand 3S balancing connectors. A 2S adapter is included for connecting 2S packs..

**2S ADAPTER**

**STATUS LED:**

Glowes when battery is connected and charging.

**RADIO BATTERY JACK:** Is compatible with Futaba-J and universal type battery connectors. Some LiFeSource packs include a universal radio connector. If charging a battery through the Deans plug on the output lead, the voltage of that battery can be monitored with a separate digital voltmeter through this radio jack.



**WARNING!** Do NOT attempt to charge one battery through the main output lead, and another through the jack on the front edge of the charger at the same time!! Doing so might permanently damage the charger.

# 7

## DETERMINING BATTERY SPECIFICATIONS

Always read your battery's label and/or instruction sheet before use. Check to determine how many cells it contains or its nominal rated voltage. The chart at right is a quick reference for determining this information.

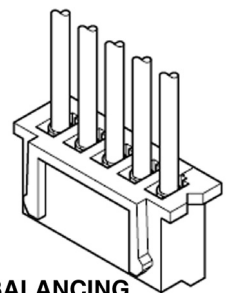
LIFE VOLTAGE CHART	
Number of Cells	Rated Nominal Voltage
1S	3.3V
2S	6.6V
3S	9.9V

# 8

## STARTING CHARGE

1. Connect the charger to either AC or DC input power.
2. A tone will sound, and the charger's green LED will flash very slowly (once every four seconds) as a reminder that power is applied to the charger, and it is now ready for use.
3. Select a charge current with the AMPS switch. Refer to the chart at right for recommendations. Do not exceed the maximum rated charge current for the battery.
4. **START CHARGE** - Connect the battery to the charger:
  - A. If the 3S battery includes a balancing lead similar to as shown at right, connect it directly to the balancing jack on the charger. If using a 2S LiFe pack, connect the battery's balancing lead to the supplied 2S adapter, and the adapter to the charger's balancing jack.
  - B. Connect the battery's main lead to the charger. For batteries having a Deans Ultra plug, connect it directly to the Deans connector on the charger. For batteries that ONLY have a universal Rx connector, connect it directly to the Rx jack on the front edge of the charger. Make sure the battery's black wire is on the right when inserting the radio connector into the radio jack.

CHARGE CURRENT RECOMMENDATIONS	
Battery's Rated Capacity	Charge Current Setting
200 – 500mAh	0.5A
550 – 2500mAh	2.5A
2550 – 6000mAh	4A



**BALANCING CONNECTOR**



**IMPORTANT!** For LiFeSource packs which have both Deans and universal connectors, do NOT connect both connectors to the charger at the same time. Connect only ONE such connector to the charger.

Once the battery is connected, the charger will beep and automatically detect the number of cells in the pack, and the green LED will flash once for each cell in the pack. Fast charge will start automatically. The green LED will turn on at this time. The cc/cv charge method will fully charge the battery.

5. When the battery has become fully charged, the red LED will flash once for each cell in the pack, with tones for 10 seconds to indicate that fast charge has ended. Low level balancing currents may be applied after fast charge ends, if needed, until the battery is disconnected. The battery is now ready for use and can be disconnected from the charger.

To manually stop charge at any time, disconnect the battery from the charger. The green LED will flash for 3 seconds and then return to ready mode.

A backup safety timer is built-in to automatically stop charge if the battery does not become fully charged in 90 minutes. If the amber LED begins flashing quickly (once per second), the safety timer has stopped charge. The battery might NOT be fully charged at this time. You could attempt to measure the voltage of the battery to determine if charge was actually received. Refer to the Troubleshooting Guide for more details.

## 9 HEAT VENTILATION

Vents are built into the case to allow hot air to escape to help keep the electronic circuitry cool. This helps to maintain accurate operation and maximize the lifespan of the charger itself. **CAUTION: Do not block the vent holes during operation, as it could cause the charger to overheat and possibly cause permanent damage.**

## 10 ERROR INDICATORS AND TROUBLESHOOTING GUIDE

Several safety features are included in this charger to protect itself, the battery, and the surroundings against certain unwanted conditions, as follows:

TROUBLESHOOTING CHART	
LED ACTION	PROBLEM AND SOLUTION
Amber flashes once per 3 seconds	90 minute safety timeout occurred. Charge current setting is too low for battery. Battery might have internal problem and require replacement.
Amber flashes twice per 3 seconds	The battery is connected backwards. Reverse connections.
Amber flashes 3 times per 3 seconds	The voltage on the input is out of the 11-15V range. Check the voltage on the input, and adjust as necessary. If using DC input and charging a 3S pack, increase input to 13-15V DC.
Amber flashes 4 times per 3 seconds	The voltage of the pack or any cell is unacceptable. Ensure the battery pack is not out of balance before calling Product Support.
Battery connected but no LED	Charger not properly connected to input power or to battery. Re-check all connections and wiring. Or internal problem exists in charger or battery – contact Hobby Services.
Battery voltage low after charge is completed	Make sure charge current selection isn't too low for battery. Battery may be defective or out of balance and require replacement. Make sure the charger's backup safety timer hasn't expired before full charge ended.

## 11 5-YEAR LIMITED WARRANTY\*USA & CANADA ONLY

Hobbico warrants this product to be free from defects in materials and workmanship for a period of five (5) years from the date of purchase. During that period, Hobbico 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, Hobbico 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 LiFeSource product, warranty or non-warranty, send it post-paid and insured to:

HOBBY SERVICES  
3002 N. Apollo Drive Suite 1  
Champaign, IL 61822  
(217) 398-0007  
hobbyservices@hobbico.com  
www.lifeforcebatteries.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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