



B450AC Dual Power Balance Charger

OPERATING MANUAL



Please read the manual completely before use!



WARNING! Charging lithium-based rechargeable batteries poses a risk of FIRE! NEVER treat lithium-based batteries in the same manner as other battery types. NEVER leave lithium batteries unattended while being charged! ALWAYS charge lithium-based batteries in a fireproof location! Failure to follow all care and handling instructions contained in this manual could result in quick, severe, permanent damage to the batteries and all surroundings!! Follow all safety precautions when using such batteries, as listed on page 3 of this manual!

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SPECIFICATIONS

AC Input:	100-240V AC 50/60Hz
DC Input:	11-15V DC,built in lead with alligator clips
Protective Devices:	Reverse polarity and current overload protection
Case Size:	110×83×39mm
Weight:	230g

SPECIFICATIONS FOR EACH OUTPUT:

Battery Types:	1-10S NiCd/NiMH 1-4S LiPo/LiFe/Lilon 2-12V Pb
Charge Rate:	0.1-4.5A
Charge power:	45W max.
Battery Capacity range:	100-9900mAh(6000mAh Default)
Fast Charge Termination:	Peak detection for NiCd/NiMH,CC/CV for Lithiums
Fast Charge Safety Timer:	180minutes(Default)
NiCd/NiMH Peak Sensitivity:	8mV for NiCd,5mV for NiMH(Default)
Lithium Balancing Accuracy:	5mV per cell

SPECIAL FEATURES

- * Build-in AC power supply is great for portability
- * A DC power lead with alligator clips easily connects to many 12V DC power sources
- * Easy to read LCD shows battery voltage, charge current, time and capacity-each output
- * Push button controls and audible tones make for easy set up and control
- * Reverse polarity protection and over-current protection ensure operation safety

INPUT POWER

AC Input: For indoor use, the charger includes a built-in switching AC power supply that delivers power by connecting the AC power cord to a common 100-240AC outlet.

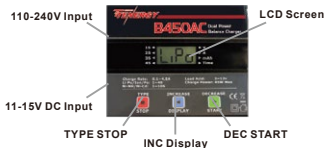
DC Input: This charger can be powered by a portable 12V DC power source. On the left side of the charger, connect the DC power cord's alligator clips directly to the output terminal. Always match the polarities (Red lead to red " + " terminal, Black lead to black " - " terminal). To utilize the charger's absolute maximum power capabilities, the DC power source must be capable of delivering at least 5 amps while maintaining 12V DC.



WARNING! Never accidentally touch positive (+) and negative (-) input connection together when connected to 12V DC power as it might result in permanent damage to power source and charger.

Always connect the charger first, then connect the battery to charge lead.

CONTROLS AND CONNECTIONS



TYPE/STOP Button: For selecting NiCd, NiMH, LiPo, LiFe and Li-Ion battery type, and the charge current rate.

Also for manually stopping charge.

INCREASE/DISPLAY: For selecting different data to be viewed on the LCD.

Also for increase values.

DECREASE/DISPLAY: For starting charge.

Also for decrease values.

Always connect the charger first. Then connect the battery to the charge lead. Always match polarities on the battery wires, charge leads and banana connector black connections to black(-), red connections to red (+).



BALANCE PORTS: To connect a balancing connector of lithium battery pack

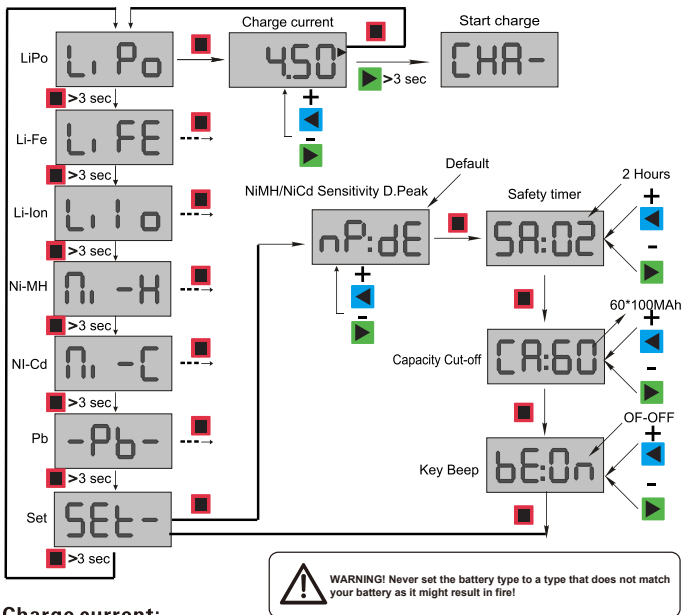
DETERMINING BATTERY TYPE AND SPECIFICATIONS

* **RATED VOLTAGE:** If not printed on the battery's label, consult your battery supplier or determine the proper pack voltage as follows (refer to the charts at right):

- a. NiMH and NiCd: number of cells \times 1.20.
- b. LiPo batteries: number of cells \times 3.70.
- c. Li-Ion batteries: number of cells \times 3.60.
- d. LiFe batteries (Life Source): number of cells \times 3.30.

LiPo, Li-Ion and LiFe Pack Voltages

Number of Cells	Nominal Voltage		
	LiFe	Li-Ion	LiPo
1 cell	3.3V	3.6V	3.7V
2 cells	6.6V	7.2V	7.4V
3 cells	9.9V	10.8V	11.1V
4 cells	13.2V	14.4V	14.8V
5 cells	16.5V	18.0V	18.5V



Charge current:

NiCd/NiMH Charge Current Recommendations

Battery's Rated Capacity	Charge Current Setting
750-1000mAh	0.8A
1000-1400mAh	1.5A
1500-2400mAh	3.0A
2500-5000mAh	4.5A

Lithium Charge Current Recommendations

Battery's Rated Capacity	Charge Current Setting
750-1200mAh	0.8A
1200-2200mAh	1.5A
2200-3500mAh	3.0A
3500-7500mAh	4.5A

DURING CHARGING

1S ◀ ▶ V
2S ◀ ▶ A
3S ◀ ▶ mAh
4S ◀ ▶ Time



Shows the actual voltage measured on the output.

1S ◀ ▶ V
2S ◀ ▶ A
3S ◀ ▶ mAh
4S ◀ ▶ Time




Shows the actual current being sent to the battery, in amps.

1S ◀ ▶ V
2S ◀ ▶ A
3S ◀ ▶ mAh
4S ◀ ▶ Time



Shows how much charge energy has been sent to the battery, in milli-amp hours.

1S ◀ ▶ V
2S ◀ ▶ A
3S ◀ ▶ mAh
4S ◀ ▶ Time



The number of time the battery has been charging.

To view individual cell voltage

Press  for more than 3 seconds to display

These screens are only shown for lithium based batteries.

1S ◀ ▶ V
2S ◀ ▶ A
3S ◀ ▶ mAh
4S ◀ ▶ Time



Shows actual voltage of Cell 1 on lithium battery.

1S ◀ ▶ V
2S ◀ ▶ A
3S ◀ ▶ mAh
4S ◀ ▶ Time



Shows actual voltage of Cell 2 on lithium battery.

1S ◀ ▶ V
2S ◀ ▶ A
3S ◀ ▶ mAh
4S ◀ ▶ Time



Shows actual voltage of Cell 3 on lithium battery.

1S ◀ ▶ V
2S ◀ ▶ A
3S ◀ ▶ mAh
4S ◀ ▶ Time



Shows actual voltage of lithium battery.

1S ◀ ▶ V
2S ◀ ▶ A
3S ◀ ▶ mAh
4S ◀ ▶ Time



Shows actual voltage of Cell 4 on lithium battery.

CHARGE COMPLETE

When the charger has determined the battery is full it will automatically stop charge and show "FULL" on the LCD. Audible tones will sound for about 10 seconds (pressing STOP while the tones are sounding will turn them off). Information regarding the finished charge can be recalled by pressing the "DISPLAY" button. Please refer to the flow chart on page 6 for the date that can be recalled.

ERROR MESSAGES AND TROUBLESHOOTING GUIDE

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

LCD ERROR MESSAGE AND SOLUTION

- "Err.1"** The DC input voltage is below 11.0V or exceeds 15V DC. Make sure the input voltage is within this range.
- "Err.2"** Connection disruption. Make sure a good connection exists between the battery and charger.
- "Err.3"** Reverse polarity. Re-connect the battery to charger's output with the proper polarity
- "Err.4"** The battery has been disconnected during charge. Re-establish a good physical connection between the battery and charger, and re-start charge.
- "Err.5"** Internal electronic interruption or malfunction has occurred. Restart the charger. If error message still shows up, please contact the manufacturer for further troubleshoot.
- "Err.6"** The charger has somehow fallen out of calibration.
- "Err.7"** Li-xx voltage detection error. The pack voltage cannot be read properly
- "Err.8"** Balance voltage error. When charging Li-xx with the balance cable connected to the charger, if balance cell voltage is more or less than acceptable voltage of each battery, this error should occur.
- "STOP"** 180-minute safety timer by default. You can restart the charge or disconnect the battery from the charger
- FULL** The battery is full.

CARE AND HANDLING OF NIMH BATTERIES

- *DO NOT allow batteries to overheat! Overheated batteries from the charger need to be cool down immediately.
- *DO NOT attempt to use the charger's lithium function with NiMH batteries.
- *Store NiMH packs with some voltage remaining on the cells (refer to battery supplier).
- *It is important to recharge NiMH batteries immediately prior to use, as they have a high self-discharge rate.

CARE AND HANDLING OF LiPo and LiFe BATTERIES



WARNING!! DO NOT try to charge lithium-polymer(LiPo) or LiFe cells in the same way as other battery types! Always read the instructions that are included with your lithium batteries carefully before use. Failure to follow these care and handling instructions can quickly result in severe, permanent damage to the batteries and their surroundings and even start a FIRE!

- * **ALWAYS** charge lithium batteries in a fireproof location, which could be a container made of metal or ceramic tile. Monitor the area with a smoke or fire alarm, and have a lithium approved fire extinguisher available at all times.
- * **ALWAYS** provide adequate ventilation around LiPo/LiFe batteries during charge, while in use, and during storage.
- * **NEVER** allow Lipo or LiFe cells to overheat at any time, as they can and usually will become physically damaged and could possibly EXPLODE or catch FIRE!! If a battery becomes overheated (over 140F, 60C), disconnect it from the charge IMMEDIATELY!
- * **NEVER** continue to charge LiPo or LiFe batteries if the charger fails to recognize full charge. LiPo and LiFe cells which swell or emit smoke may be in an overcharge condition and should be disconnected from the charger immediately.
- * **NEVER** set the charger's Lipo / LiFe battery voltage setting to a voltage that is HIGHER than the nominal rating of the battery itself, as such cells cannot handle overcharging in any way.
- * **NEVER** charge LiPo or LiFe batteries at currents greater than the maximum rated current as specified by the battery's manufacturer.
- * **NEVER** attempt to use the charger's NiMH functions for Lipo batteries.
- * **ALWAYS** keep lithium batteries away from children.