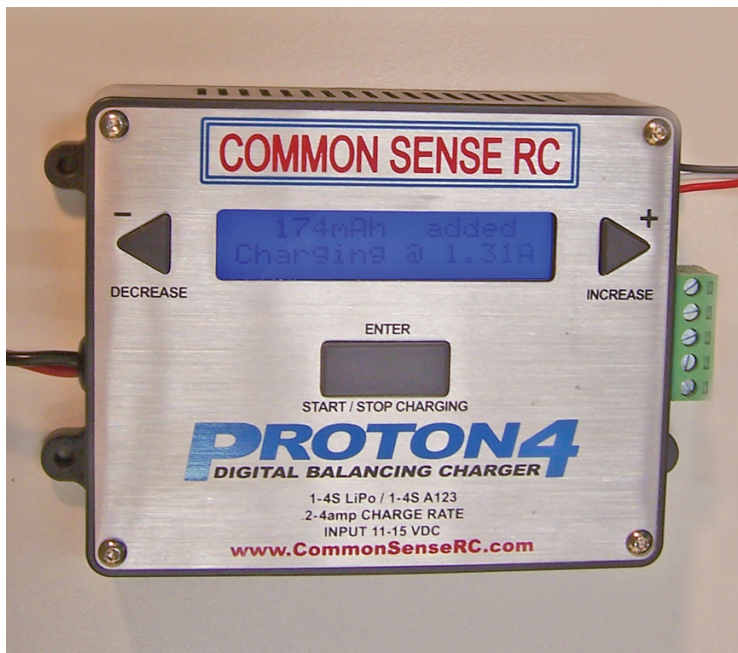


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Proton 4 - Operation Manual

Balance Charger for Lipo (Lithium Polymer)
and A123 (LiFe) Batteries

Warning: Lithium Polymer batteries are potentially dangerous, and improper use can result in fire, damage to property, personal injury, or even death. Follow all instructions included with this charger and any battery packs you attempt to charge.

If, during the charging process, you see anything that isn't explicitly described in the instructions or causes concern, please stop the charging process immediately and contact us:

Phone: (866) 405-8811

Email: support@CommonSenseRC.com

Specifications

Input Voltage	11V~15V DC
Circuit Power	68 watts max
No. of Lipo Cells	1S-4S
No. of A123 Cells	1-4 cells
Charge Rate	0.1A to 4.0A

A. Charging your 1 - 4 Cell Battery Pack

1.Connect the Proton 4's DC input cables to an available power source, making sure that no battery packs are connected to the charger. The power input must be rated between 11V-15V. For full operation of the charger, a power supply capable of at least 8 Amps working current and 80 watts output is required. However, a power supply rated for 5 Amps and 60 Watts minimum is sufficient only in certain circumstances. A 5 Amp/60 watt power supply can only be used with Lipo (Lithium Polymer) or A123 batteries that have 2 or 3 cells wired in series. Do not use a 5A/60W power supply when charging batteries with 4 cells wired in series.

2.The charger will not function unless the input power is at least 11V. When the charger powers up, the LCD will display "Common Sense RC, Max 4S Lipo". After a few seconds, the display will change to "Battery Type" (Lipo [Lithium Polymer] or A123).

3.Check your battery's connector type. If you are using a Common Sense RC V2 pack you can skip to instruction #3. If you are using a pack with a balance connector that is not Common Sense RC/E Flite/Align-type, you may need to use an adapter cord or the included Pins2CSRC adapter. A wide selection of adapters is available from your local Common Sense RC dealer or at www.CommonSenseRC.com.

(continued)

A. Charging your 1 - 4 Cell Battery Pack (cont'd)

4. Check the polarity of your pack. Ensure that the wiring matches that of the charger (see Figure 5 for an example). If the polarity of your pack is reversed, when you press the "START" button on the charger, you'll get an error message saying "BATTERY REVERSE CONNECTION". If you need to switch your polarity, you'll need to use a CSRC Polarity Reversing Cable (PRAC-24).

5. Plug your connector into the appropriate slot on the charger. Again, make sure your polarity is correct and that you're plugged into the appropriate slot for the number of cells in your pack.

6. Select your battery type by highlighting either "Lipo" or "A123" and pressing ENTER. The highlighted battery type is the one that is flashing on and off.

7. Enter your battery's mAh (capacity, or "CAP"), by pressing the DECREASE (left) or INCREASE (right) buttons, then pressing ENTER. This should match the mAh rating on your battery's label. Follow the same process to set the number of cells wired in series ("S") in your battery pack. For example, with an 11.1V (3S) 2000mAh Lipo (Lithium Polymer) battery pack, you'll set the Proton 4 to "CAP:2000mAh" and "S:3S".

8. Follow the same process from Step 6 to set your desired charge rate (“RATE”) and charge percentage (“CHG”). Charge rate should not exceed 1C for most Lipo (Lithium Polymer) batteries. 1C is equal to the capacity (mAh) of the battery pack you will be charging. For example, with a 1000mAh pack, 1C = 1A. With a 2100mAh pack, 1C = 2.1A, and so on. However, Common Sense RC Lipo (Lithium Polymer) packs can be charged at up to a 2C rate, effectively cutting your charge time in half. The charge percentage determines the state of charge of your pack at the end of charging. A setting of 50%, for instance, will result in a battery that is essentially half charged.

9. Select “YES” at the “READY TO CHARGE” prompt to begin charging and balancing, or select “CANCEL” if you’ve made a mistake during the setup process. To stop the charging process at any point, press the “START/STOP CHARGING” button. You can confirm that charging has stopped by making sure that the charge timer is no longer advancing.

10. Once your battery is completely charged, the LCD will show “CHARGE END”.

B. Reading Your Proton 4 during the Charging Process

The Proton 4 cycles through three data screens which change automatically every 10 seconds. These screens can also be changed manually using the DECREASE (left) or INCREASE (right) buttons.

1. The first data screen (*Figure 1*) shows the total charge time elapsed so far, the input voltage and the “Fuel” reading. The Fuel reading is a calculation of the battery’s state of charge and is closely related to the Charge % mentioned in Section A, Step 7. A Fuel reading of 96% means that the battery is approximately 96% charged.



Figure 1

2.The second data screen (*Figure 2*) shows the voltages of the battery's individual cells. You should see the same number of readings on this screen as there are cells wired in series in your battery pack.

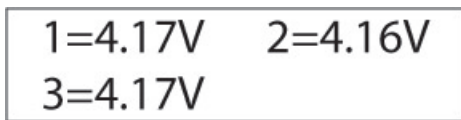


Figure 2

3.The third data screen (*Figure 3*) shows the mAh the have been supplied to the pack thus far, as well as the charge rate in Amps.

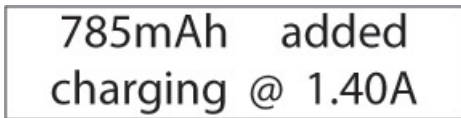


Figure 3

C. Warning Messages & Important Safety Issues

1.The number of cells charging as indicated in the LCD display should always match the number of cells wired in series in your pack. If not, stop charging immediately.

2.Only charge Lipo (Lithium Polymer) or A123 batteries. Attempting to charge batteries of other chemistries may result in damage to the battery or charger.

3.An error message of “OUT CIRCUIT PROBLEM” will be displayed if your settings don’t match the number of cells wired in series in your battery pack.

4.An error message of “BATTERY REVERSE CONNECTION” will be displayed if your battery is connected with its polarity aligned incorrectly.

5.For Lipo (Lithium Polymer) batteries, if the voltage of any cell is below 2.5 Volts, the Proton 4 will charge the entire battery pack at a 100mAh rate. If the cell of lowest voltage in the pack is between 2.5V and 3.2V, the Proton 4 will charge at a 500mA rate. For A123 batteries, if the voltage in any cell is below 2.0V, the entire battery pack will charge at 100mAh.

6. Do not attempt to charge battery packs with more than four cells wired in series.

7. You cannot change any settings while the Proton 4 is charging. To make any changes, you must STOP charging first by pressing the “START/STOP CHARGING” button. Pressing the “START/STOP CHARGING” button a second time will take you back to the mAh (capacity) and cell count setup screen mentioned in Section A, Step 7.

8. If your charger doesn't power up, check all cables leading from the charger to the power supply, making sure connections are secure and polarity is aligned correctly. The Proton 4 features reverse-polarity protection and will not power up if the cables leading from the charger to your power supply are connected with the polarity reversed.

D. Pins2CSRC Adapter

This adapter can be used to charge any pack that has 2.5mm pin spacing on the balance/charge connector. Packs such as Polyquest require that you reposition the wires so the conductors are on consecutive pins. To use the Pins2CSRC adapter cord, insert the wire leads of the adapter into the corresponding slots of the green Universal Adapter, making sure to match polarity, negative to negative as shown in Figure 4. Use the locking screws to lock the wires in place. Line up the pins on the adapter with the pins on your connector, again making sure to match polarity, negative to negative (black to black). The Pins2CSRC is designed to work with battery packs with up to four cells wired in series.

Figure 4

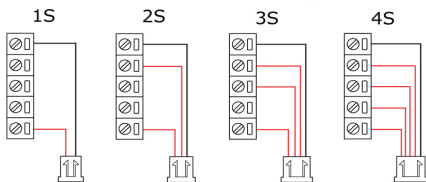
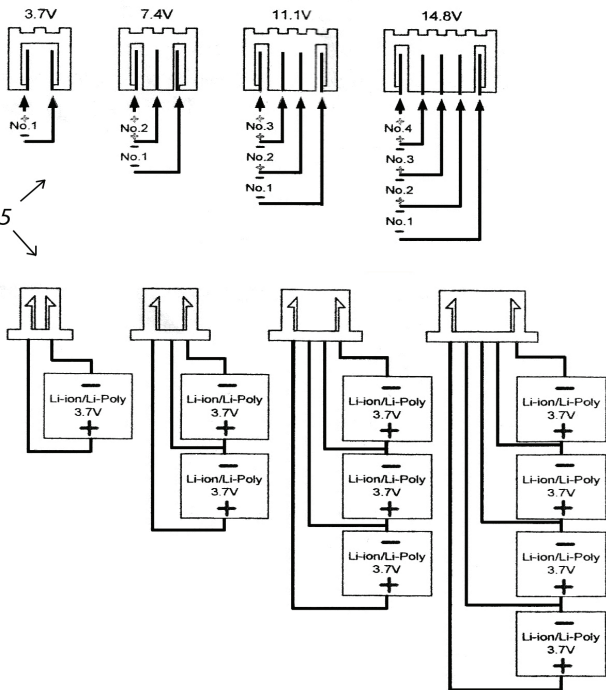


Figure 5



Common Sense RC
(866) 405-8811
support@CommonSenseRC.com
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