

Interpreting the Status Module LED and tones

This LED pattern...	Means this...
Repeating single flash	Brown out; possible loose connection
Repeating double flash	One cell has reached 4.2V; charging stops

This tone...	Means this...
Startup song	Power applied
Repeating single tone	Brown out; possible loose connection
Repeating double tones when charging	One cell has reached 4.2V; charging stops

BalancePro HD 6s CPM specifications

Maximum charge current	≤1C for the connected pack or 10A, whichever is lower
Dimensions	2.20" (including BalancePro HD connector) x 1.75" x 0.68"
Weight	1.4oz (40g)

FMA limited warranty for power management components

FMA, Inc. warrants this product to be free of manufacturing defects for the term of 90 days from the date of purchase. Should any defects covered by this warranty occur, the product shall be repaired or replaced with a unit of equal performance by FMA or an authorized FMA service station.

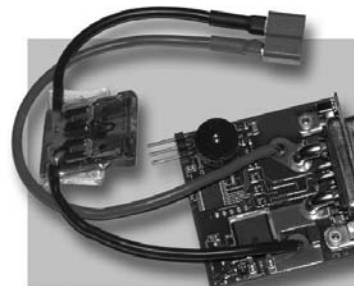
Limits and exclusions

This warranty may be enforced only by the original purchaser, who uses this product in its original condition as purchased, in strict accordance with the product's instructions. Units returned for warranty service to an FMA service center will be accepted for service when shipped postpaid, with a copy of the original sales receipt or warranty registration form, to the service station designated by FMA.

This warranty does not apply to:

- Consequential or incidental losses resulting from the use of this product.
- Damage resulting from accident, misuse, abuse, neglect, electrical surges, reversed polarity on connectors, lightning or other acts of God.
- Damage from failure to follow instructions supplied with the product.
- Damage occurring during shipment of the product either to the customer or from the customer for service (claims must be presented to the carrier).
- Damage resulting from repair, adjustment, or any alteration of the product by anyone other than an authorized FMA technician.
- Installation or removal charges, or damage caused by improper installation or removal.

Call (301) 668-7614 for more information about service and warranty repairs.



BalancePro HD 6s Charge Protection Module

Model SV6S-CPM
for BalancePro HD Unitized LiPo Battery Packs



About the BalancePro HD 6s Charge Protection Module

The BalancePro HD 6s Charge Protection Module (CPM) protects FMA BalancePro HD Unitized Battery Packs from overcharging during charging from a non-BalancePro HD charger. BalancePro HD Packs have special connectors that enable the BalancePro HD 6s CPM (as well as BalancePro HD 6s Discharge Protection Modules and BalancePro HD Chargers) to monitor the voltage of individual cells within the pack.

During charging, the BalancePro HD 6s CPM monitors cell voltages and disconnects the charge current when the first cell reaches 4.2V. This extends pack life by preventing overcharging.

Note: If you are charging a BalancePro HD pack with the BalancePro HD Charger, you don't need to use a BalancePro HD 6s CPM. The BalancePro HD Charger monitors each cell and cuts charge voltage at the appropriate level.

Features

- Works with any standard LiPo charger.
- Handles up to a 6s BalancePro HD Pack.
- Two BalancePro HD 6s CPMs can be daisy-chained to handle up to 12 cells in series.
- Connects to charger through Deans Ultra connector.
- Integrated LED and speaker provide status information.

Precautions

- Follow all instructions in this manual to assure safe operation.
- Before charging through a BalancePro HD 6s CPM, allow packs to cool for one hour. During discharge, inner cells become hotter than outer cells. If a pack is charged when hot, cells will be damaged because their different temperatures result in different charge rates.
- Always watch LiPo packs while they are charging. Never leave LiPo packs unsupervised during charging.
- Follow all LiPo charging precautions, as listed in the warning sheet provided with FMA LiPo packs, including charging packs in a fireproof container and monitoring the entire charging operation.

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Charging a BalancePro HD Pack with the BalancePro HD 6s CPM

When the BalancePro HD 6s CPM is connected between a LiPo charger and a BalancePro HD Pack, the BalancePro HD 6s CPM monitors each cell's voltage and cuts off charge current to the pack when the first cell reaches 4.2V. Although the BalancePro HD 6s CPM cannot balance individual cells (as the BalancePro HD Charger does), it does protect against overcharging individual cells. This capability—not available in standard LiPo chargers—helps maintain pack performance and life expectancy.

When charging at a 1C or lower rate, you can leave the pack connected in the aircraft or remove it.

CAUTION: Never exceed a 1C charge rate when charging a BalancePro HD Pack with the BalancePro HD 6s CPM.

CAUTION: A BalancePro HD Pack can be charged at up to 3C (20 minutes to 90% capacity) **only** with a BalancePro HD Charger. The pack will become warm during charging at rates >1C. Do not charge the pack at >1C when it is in the aircraft, or when it is on or near any flammable material.

To charge:

1. **Allow pack to cool.**
2. Plug the BalancePro HD Pack into the BalancePro HD 6s CPM (as shown at right).
3. Plug the LiPo charger into the BalancePro HD 6s CPM's Charge Connector.
4. Charge according to instructions provided with the charger.

Note: If charging terminates early, reduce charger current. If the problem continues, or if flight durations become shorter and shorter, consider upgrading to a BalancePro HD 6s Charger.

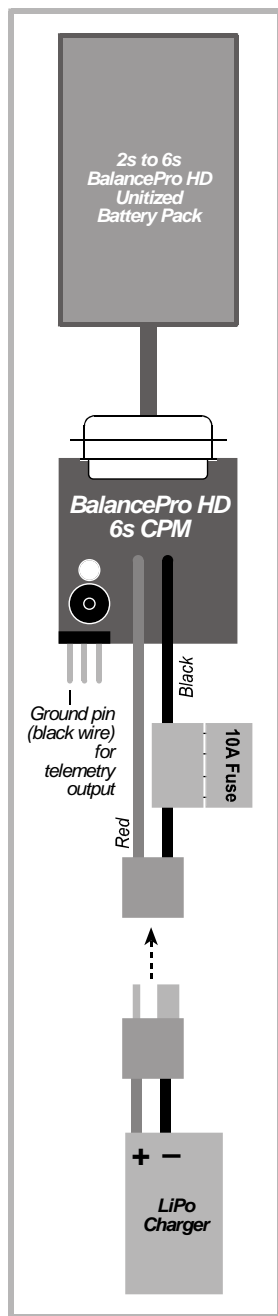
5. When charging is complete, disconnect the pack from the BalancePro HD 6s CPM.

Note: Leaving a pack connected to the CPM will slowly discharge the pack.

Tip: Store BalancePro HD Packs (and all LiPo batteries) at about ½ charge. LiPo chemistry has a very low self-discharge rate, and LiPo batteries do not need periodic recharging as NiCd and NiMH batteries do.

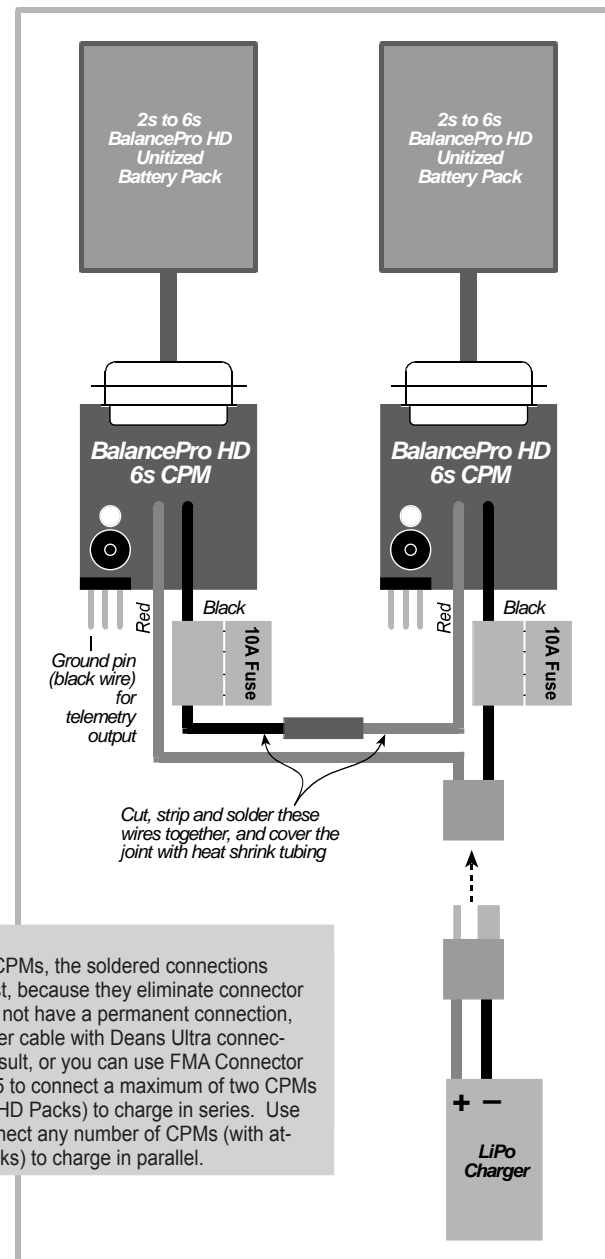
Replacing the fuse

The BalancePro HD 6s CPM's power input is protected by a standard miniature automotive fuse. If the fuse blows, replace it with a 10A fuse (available at auto supply stores).



Charging two BalancePro HD Packs at the same time

You can connect a maximum of two BalancePro HD 6s CPMs in series to simultaneously charge two BalancePro HD Packs. Your LiPo charger must output a voltage equal to the sum of the packs. For example, if you are charging a 4s pack and a 6s pack, your charger must be able to charge a 10s pack (about 42 volts output).



Wiring alternatives

When connecting multiple CPMs, the soldered connections shown on this page are best, because they eliminate connector resistances. If you'd rather not have a permanent connection, you can construct an adapter cable with Deans Ultra connectors to achieve the same result, or you can use FMA Connector Modules. Use a CMS-HC-5 to connect a maximum of two CPMs (with attached BalancePro HD Packs) to charge in series. Use CMP-HC-5 modules to connect any number of CPMs (with attached BalancePro HD Packs) to charge in parallel.