

General Description

The 6S Battery Cell Monitor & Balancer is a precision instrument that ensures multi-cell batteries are maintained in an optimal state, improving system reliability and prolonging battery life.



Figure 1 – 6S Battery Cell Monitor & Balancer

The 6S Battery Cell Monitor & Balancer does exactly as its name suggests: it monitors cells within a 6S battery, and it balances those cells if and when they require it.

Usage

The Battery Balancer plugs directly into the balance connector present on most Lithium-based batteries. In many cases, this is the only connection required. A pair of indicator lights on the front panel give a “go / no go” indication of the battery's state of balance and state of charge. More detailed battery information is available via the CAN bus.

The Battery Balancer can be used in two ways:

- As a hand-held battery verification tool, or
- Installed in a UAV, either with or without interfacing to the vehicle's CAN bus.

Installation into a UAV confers a number of operational advantages:

- Batteries do not need to be removed periodically to check for balance.
- Battery status is available instantly, either directly from the front-panel LEDs, or remotely from the telemetry data sent on the CAN bus.
- Batteries are maintained in a state of balance, improving flight-readiness.

Features

- Transforms a “dumb” battery into a smart (self-balancing) battery.
- Supports multiple battery chemistries – LiPo, LiS and LiFe.
- Supports 4S, 5S and 6S batteries.
- Galvanically isolated CAN interface, allowing stacking (for series connected batteries).
- Battery temperature monitoring with suitable external sensor.
- User-friendly configuration software.
- Rich variety of balancing control options.
- Seamless integration with 250W PMU.
- Weight: 45g.
- Dimensions: 80 x 35 x 11.5mm.

Specifications in brief

Electrical:

Battery chemistries	LiPo, LiS, LiFe
Battery voltage	26.4 VDC (max.)
Battery cell count	4S, 5S or 6S
Battery temperature sensor	10k NTC (external)
Balancing current	0.45 Amps (max.)
Voltage measurement accuracy	±3 mV (typ.)
Power dissipation	2 Watts (max.)
Visual indicators	Balance (red/green), charge (red/green)

Miscellaneous:

Environmental protection class	IP50
Operating temperature range	-40 to +85°C
Altitude rating	10,000m
Cooling	Passive conduction & convection
Enclosure	Lightweight custom-machined aluminium
Dimensions	80 x 35 x 11.5mm
Weight	45g
Connectors	JST XH (balance), JST GH (CAN x 2, Auxiliary), micro-USB (configuration)
Communications protocols	CAN (up to 1Mb/S), galvanically isolated