

B14-M45/M90

14V Modular SmallSat Battery

OVERVIEW

Ibeos' 45-Watt-hour, 14-Volt lithium-ion battery module is a radiation tolerant, fault tolerant, and ISS compliant energy storage system. The aluminum and PEEK packaging is rigid, thermally conductive, and enables flexible mechanical and thermal spacecraft interfacing. A thermistor and polyimide thermofoil heater allow for thermal control. Radiation tolerant battery interface electronics (BIE) provide a remove-before-flight inhibit in addition to over-voltage, over-current, and under-voltage protection. The chassis design enables mechanical integration with a second module to achieve a 90-Watt-hour capacity. The individually protected/inhibited battery modules can be connected in parallel to achieve a desired capacity and charge/discharge current. This battery module is designed for turn-key integration with the Ibeos 150-Watt CubeSat EPS.

45-WATT-HOUR BATTERY MODULE



90-WATT-HOUR TWO-MODULE ASSEMBLY



SPECIFICATIONS (SINGLE MODULE)

Dimensions	94.5 x 84.1 x 23.1 mm
Mass (B14-M45)	< 375 g
Capacity	45 Whr
Maximum Discharge Rate	6.5 A
Recommended Charge Rate	1.6 A
Typical Operating Voltage	13.2 V to 16.8 V
Operating Cell Temperature, Charge	10 to 45 °C
Operating Cell Temperature, Discharge	0 to 45 °C
Heater Power @ 16V	8 W
Single Event Effects	Operate through: LET > 37 Survive: LET > 55
Total Ionizing Dose	30 kRad (Si)



KEY FEATURES

PACKAGING

- Side or bottom mounting
- Aluminum chassis and PEEK cell capture plates
- External aluminum surfaces treated with MIL-DTL-5541 Type II, Class 3 chem film
- Polyimide thermofoil heater

BUILT-IN PROTECTION

- Over-voltage, under-voltage
- Over-current charge and discharge
- Remove-before-flight inhibit
- Positive temperature coefficient (PTC) overcurrent protection at each cell

MODULARITY & SCALABILITY

- Designed for mechanical/thermal integration with a second module
- Modules can be connected in parallel to meet energy storage, charge/discharge current, or redundancy requirements

ELECTRICAL INTERFACE

- 21-Pin Micro-D connector
- Connections for
 - Protected power
 - Cell voltage sense
 - Heater
 - 10k NTC thermistor (potted on a central cell)