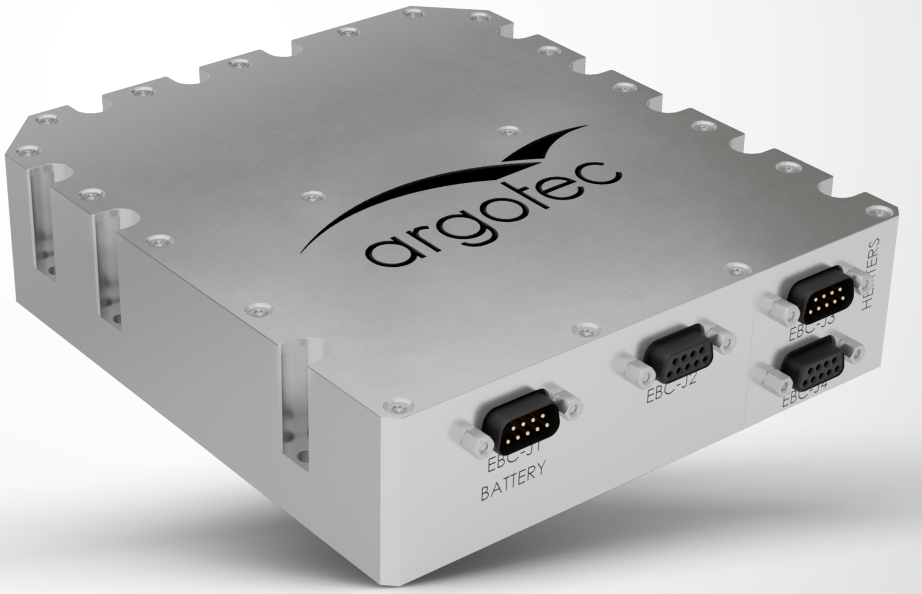
ARGOTEC PRODUCTS
DATA SHEET

EBC

Rad-Hard External Battery Charger for Microsatellites

EBC automates battery management for microsatellites during long cruise phases to remote locations (e.g., Moon, Mars, asteroids).

It allows easy and safe integration with a mothercraft, guaranteeing fault-isolation, embedding battery charge regulation, and offloading thermal control in both survival and operative (during charge) conditions.



ALLOWED TO SEAMLESSLY INTERFACE LICIACUBE (first smallsat mission to an asteroid) WITH NASA DART

EBC was part of the historic DART-LICIACube mission to the Didymos asteroid system. The EBC, installed directly on LICIACube dispenser, was routinely used for the 10-month-long cruise to perform battery health checks and for thermal management of the CubeSat battery pack.

Before deploying LICIACube, the EBC performed the pre-deployment charge needed to ensure a 100% SoC before commencing operations.

EMBEDS BATTERY CHARGE REGULATION AND THERMAL CONTROL (2× heater lines)

EBC includes two isolated, rad-hard DCDC converters used to directly interface an unregulated bus and provide a properly regulated voltage to the battery pack.

End-of-charge is managed autonomously by fault-tolerant dedicated circuitry. The EBC also embeds two heater power lines able to operate with two different temperature profiles, e.g., matching survival and operative ranges.

FAULT-TOLERANT, RAD-HARD DESIGN

EBC is designed to be ready for integration with flagship probes without posing a threat to the mission assurance of either the carrier or the piggyback payload. All critical circuits are redundant, ensuring the overall architecture is fault-tolerant.

The usage of rad-hard EEE parts and an extensive qualification campaign, including EMC characteristics, guarantee performance over a wide environmental envelope.

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ARGOTEC PRODUCTS | DATA SHEET

EBC

Rad-Hard External Battery Charger for Micro-Satellites

TECHNICAL SPECIFICATION

INPUT RATINGS	1× Battery: 22–34 V, 20 W 2× Heater: 22–34 V, 75 W
BATTERY RATINGS	Up to 30 V Nominal charge power: 15 W
HEATER RATINGS	2× up to 34 V 75 W
TELEMETRY CHANNELS	Internal voltage and temperature telemetries External voltage and temperature telemetries passthrough
BATTERY LEAKAGE CURRENT	Less than 20 nA
MASS	1.3 kg
VOLUME	173 × 157 × 42 mm
CONNECTORS TYPE	Space Grade D-SUB Connectors
TID RATING & SEL ON-SET THRESHOLD	TID_{th} 100 krad SEL immune up to 75 MeV*cm²/mg
QUALIFICATION	TRL 9

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SPACE FOR AMBITIONS