



Off the Shelf | Bradford Avionics System

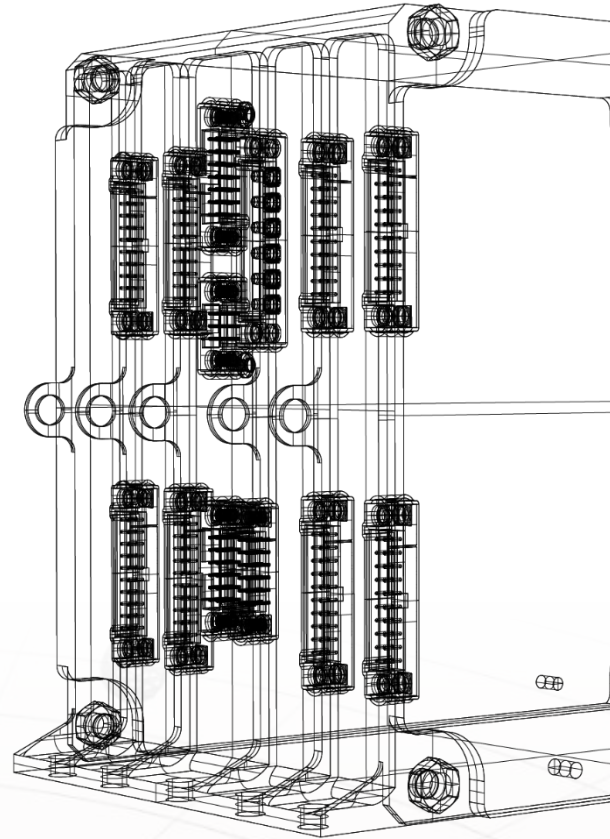
SUPERNOVA PCDU

Bradford's **SUPERNOVA** is a complete modular power management system, scaling power, outputs and features, making it the best solution for a wide variety of mission profiles and spacecraft designs.

The needs for high reliability, low mass and long lifetime are met by Supernova. It is built to be single-failure-tolerant leading to increased resilience against single events and other type of failures.

Supernova also performs best-in-class on the power to size and weight metric for a wide range of power configurations. All of this makes it the ideal candidate for deep space, high delta-v but also weight-, size- and reliability- sensitive LEO missions

As part of Bradford's integrated system (BASIS), it can be included as a key element in a larger avionics unit that can provide power management, communications, RTUs and more – all while allowing your mission to skip the risk and effort of integrating disparate systems.



MAIN FEATURES

Scalable Power

300 W to 1.5 kW of power throughput handled with 95% efficiency

Protected LCLs up to 10A

Regulate & unregulated loads including retriggerables

Designed for small satellites, landers and rovers

50 → 500 kg

Built Tough

Designed to avoid critical single failure points & redundancy available throughout

Mass & Cost Efficient

Only buy & fly the modules you need for your specific mission!

Short Lead Times

< 6 months from configuration to delivery

BASIS of your satellite

Seamless HW & SW integration with Bradford OBCs, PDHS, radios and RTUs

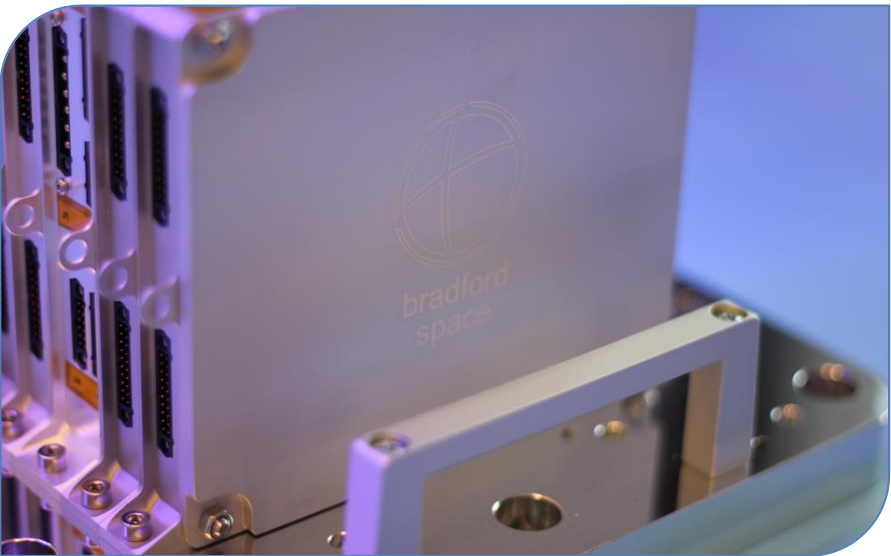
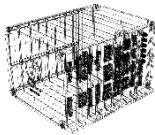
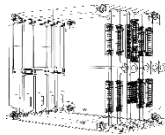
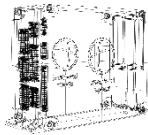
HERITAGE

12

Modules Shipped

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SUPERNOVA PCDU



Single unit covering solar array power harvesting, battery charge voltage and current regulation as well as protected distribution of regulated and unregulated power to loads.

- Modular design for optimal, mission-specific performance.
- Best-in-class weight to power ratio optimized for high delta-v missions.
- High reliability and single failure tolerant architecture.
- Triple redundant CC, CV battery charge controller with controllable end-of-charge voltage for reduced battery fading.

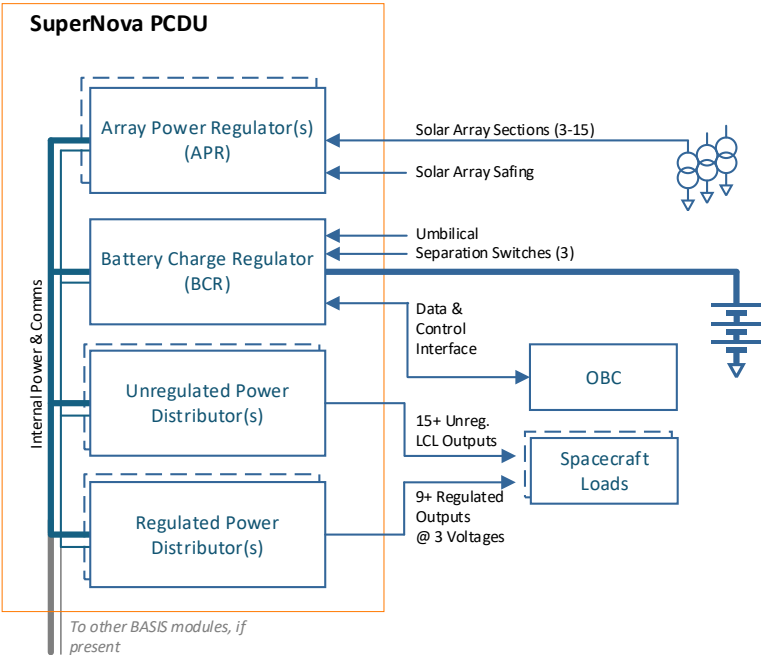
Supernova has been selected for a lunar surface mission

SPECIFICATION

Parameter	Specification	Parameter	Specification
Input Power Method	3 - 15 independent MPPT sections Step down (DET optional)	Temperature Operational	-30 to +60 °C
Input Power Ratings per section	V_{oc} < 80V I_{sc} < 3A P_{mpp} < 100W	Temperature Survival	-40 to +70 °C
Battery Current	50 A (charge & discharge)	Total Ionising Dose Resilience	> 30 kRad
EOCV	2 user-selectable values to optimise against battery fade on long missions	Orbital Lifetime	> 5 years in LEO & cislunar
UVLO	User-configurable limit & hysteresis		
User Interfaces	Dual RS-485 or CAN control Hardware pulse commands in		
Mass	850 g (baseline configuration)		
Size	141 x 90 x 68 mm (baseline configuration)		

Thruster Driver Module

Optional RTUs for direct interfacing with 1N, 5N and 22N monopropellant systems, providing valve and heater control, pressure and temperature telemetry, and latch management for 4 - 28 thruster systems.



CONFIGURE
YOURS
TODAY