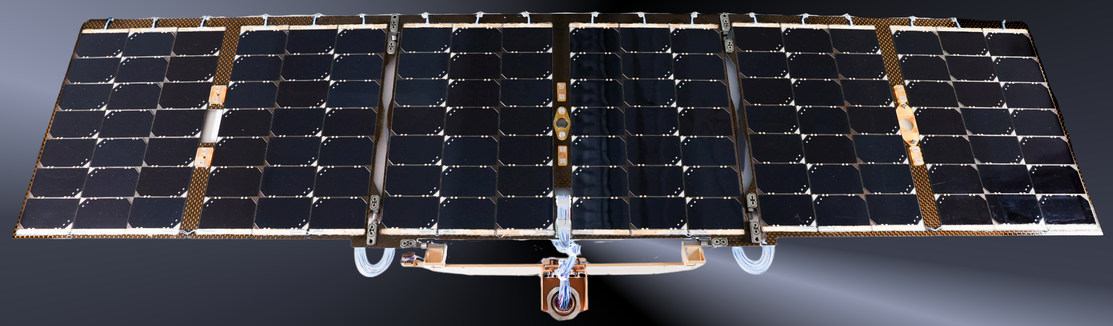
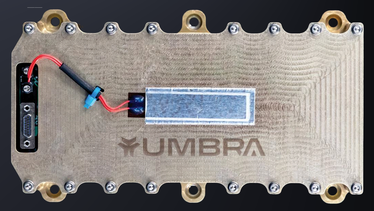
# POWER PACKAGE

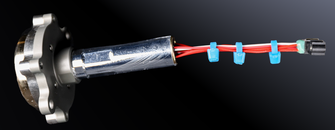
UMBRA

**THE UMBRA POWER PACKAGE** delivers a complete, integrated power solution for small satellites. Combining a high-efficiency, body-steered deployable solar array, high-density battery modules, and intelligent power management, it provides reliable power for demanding LEO missions. Flight-proven components, Falcon 9 heritage, and a compact design ensure mission success. Choose Umbra for a streamlined, high-performance power subsystem.

POWER EFFICIENCY | COMPACT FOOTPRINT | MORE THAN 5YR MISSION LIFE | LEO ENVIRONMENT | FLIGHT PROVEN





## GENERAL SPECIFICATIONS

| | |
|---|---|
| BUS VOLTAGE RANGE | 28 V ± 4V |
| BUS VOLTAGE NOMINAL | 28 V |
| PEAK POWER | **Single Array:** 120 W generation BOL<br>**Dual Array:** 240W generation BOL |
| AVERAGE POWER | N/A |
| ELECTRICAL INTERFACE | Power Umbilical<br>Inhibits<br>TT&C |
| DATA INTERFACE | RS-422 |
| INTENDED SPACE ENVIRONMENT | LEO |
| HERITAGE | In combination: Individual component designs flown on Umbra 1-10, combined and repackaged for customer product |
| DESIGN LIFE | 5+ Years |
| PRODUCTION | Assembled and tested in the USA |

## ENVIRONMENTAL SPECIFICATIONS

| | |
|---|---|
| RANDOM VIBE | Qualified to 14.16 gRMS profile enveloping GEVS, Falcon 9, SpaceX Rideshare, and Electron levels |
| SHOCK | Qualified to 1000g peak profile enveloping GEVS, Falcon 9, SpaceX Rideshare, and Electron levels |
| OPERATING TEMPERATURE | Solar Array & HDRMS: -50°C to 90°C |
| SURVIVAL TEMPERATURE | Solar Array & HDRMS: -60°C to 120°C |
| TOTAL IONIZING DOSE DESIGN CAPABILITY | Designed to withstand at least 30 krad TID |

## FEATURES

### EASY | GENERATION, STORAGE & MANAGEMENT

The Umbra Power Package provides a complete, pre-integrated power subsystem, combining solar power generation, high-density energy storage, and intelligent power management. This integrated approach simplifies procurement, reduces integration complexity, and optimizes system-level performance.

### COMPACT POWER | SIMPLE INTEGRATION

Featuring a high-efficiency, body-steered deployable (BSD) solar array and high-energy-density lithium-ion battery modules, the system delivers robust and reliable power. Body-steering removes the need for a solar array drive, while the batteries ensure continuous operation through eclipse and peak demand periods.

### FLIGHT-PROVEN | VALIDATED RELIABILITY

Successfully flown on Falcon 9 rideshare missions to LEO, the solar array, battery, and HDRM offer proven reliability. This flight heritage reduces mission risk and provides assurance of dependable performance in real-world space environments.

### LOW SWaP | REDUCE FOOTPRINT

Engineered for small satellite applications, the Power Package optimizes SWaP (Size, Weight, and Power) through its compact and lightweight design. The high stowage efficiency of the array and the high energy density of the batteries minimize the system's footprint, maximizing available payload volume.

## CONFIGURATIONS

| TYPE | DESCRIPTION & DETAILS | SPACE READY | LEAD TIME | COST |
|---|---|---|---|---|
| EDU | • Battery Modules: Not Space Rated<br>• Power Management Unit: Not Space Rated | No | 6-Week Lead Time | CONTACT |
| FLIGHT | • Default flight configuration (as described in this data sheet)<br>• Umbra Steered Deployable Solar Array-120: **1x**<br>• Umbra Battery Module-8S2P: **2x**<br>• Umbra Power Management Unit: **1x**<br>• Umbra Hold Down and Release Mechanism: **1x** | Yes | 18-Week Lead Time | CONTACT |

**DATA SHEET** V.2.0-2025.08.01
**PART** UMB-POW-PACK-01-5101H0001-1
VALID AS OF 08.01.2025

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