SOLAR ARRAY

UMBRA

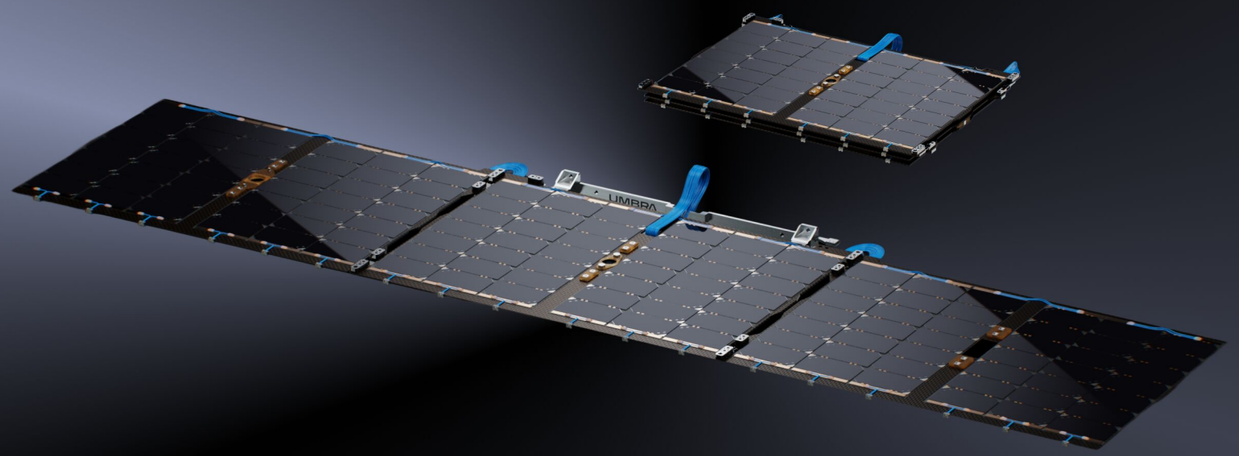
THE UMBRA BODY STEERED DEPLOYABLE SOLAR ARRAY delivers more than 120W of reliable power in a compact, flight-proven design for small satellites. Optimized for body-steering in Low Earth Orbit (LEO), this tri-fold array features high dynamic stability and redundant, premium triple-junction solar cells. Validated on Falcon 9 and designed for seamless integration within the Umbra Integrated System, this solar array provides a dependable, high-performance power generation solution.

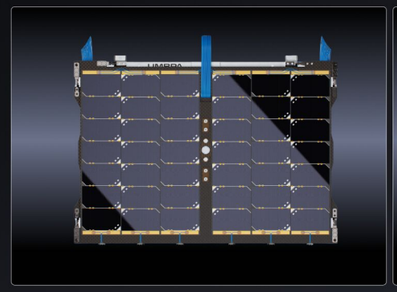
120W+ MULTI-UNIT CAPACITY

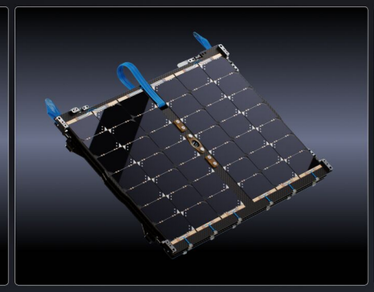
MORE THAN 5YR MISSION LIFE

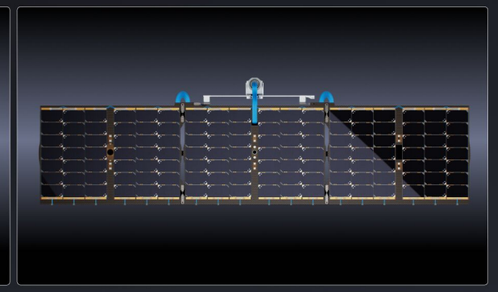
HIGH STOW COMPACTION

LEO ENVIRONMENT









GENERAL SPECIFICATIONS

MAX DIMENSIONS STOWED	12.87 in x 12.95 in x 2.90 in
MAX DIMENSIONS DEPLOYED	40 in x 13 in x 10 in
MASS	2.5 kg
PEAK POWER	120W generation BOL (at 28°C, AM0)
ELECTRICAL INTERFACE	Single MIL-38999 Connector
HERITAGE	Design flown on Umbra 1 - 12
VOC	BOL: 38.2 V (at 28°C) EOL: 37.4 V (at 28°C, 5-year estimate)
VMP	BOL: 34.0 V (at 28°C) EOL: 33.0 V (at 28°C, 5-year estimate)
IMP	BOL: 9 Strings @ 445 mA = 4 total
PRODUCTION	Assembled and tested in the USA

ENVIRONMENTAL SPECIFICATIONS

RANDOM VIBE	Qualified to 14.16 G_{rms} profile enveloping GEVS, Falcon 9, SpaceX Rideshare, and Electron levels
SHOCK	Qualified to 600g peak profile enveloping attenuated GEVS, Falcon 9, SpaceX Rideshare, and Electron levels
OPERATING TEMPERATURE	-50°C to 90°C
SURVIVAL TEMPERATURE	-60°C to 120°C
TOTAL IONIZING DOSE DESIGN CAPABILITY	Designed to withstand at least 30 krad TID

FEATURES

COMPACT POWER | HIGH EFFICIENCY

The Umbra Solar Array generates 120W of peak power (BOL) from a compact, tri-fold design. This high power density, combined with premium triple-junction solar cells, maximizes energy generation while minimizing stowed volume, crucial for small satellite applications.

BODY-STEERING OPTIMIZED DESIGN

Specifically engineered for body-steering, this array eliminates the need for complex, dedicated pointing mechanisms. This design simplifies spacecraft design, reduces weight and power consumption, and enhances overall mission efficiency for agile small satellites.

FLIGHT-PROVEN | VALIDATED RELIABILITY

Validated through successful deployments, the Umbra Solar Array offers proven reliability and performance in real-world space environments. This flight heritage, combined with its compatibility with the Umbra HDRM, provides mission-ready confidence and minimizes risk.

BUILT TO ENDURE | ROBUST & REDUNDANT

The Umbra Solar Array is built for long-term operation, featuring multiple layers of redundancy in the photovoltaic design, premium triple-junction cells with bypass diodes, and robust construction. Space-rated materials, rigorous testing exceeding industry standards, and customizable coverglass options ensure lasting performance in the harsh LEO environment.

CONFIGURATIONS

TYPE	DESCRIPTION & DETAILS	SPACE READY	TYPICAL LEAD TIME	COST
EDU	• Deployable panels only, for use in structural/thermal model builds • Cells not included • Single & Double Available	No	< 4 Weeks	CONTACT
FLIGHT	• Acceptance tested • Multiple arrays can be used on the same spacecraft, or integrated into the UMBRA POWER PACKAGE	Yes	**Single Wing:** < 12 Weeks **Double Wing:** < 16 Weeks	CONTACT
CUSTOM	Umbra Space Systems offers custom modifications. Please contact.	Inquire	Inquire	CONTACT

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