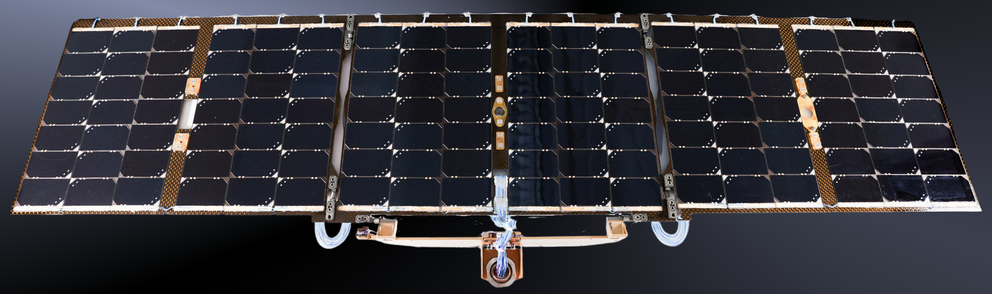
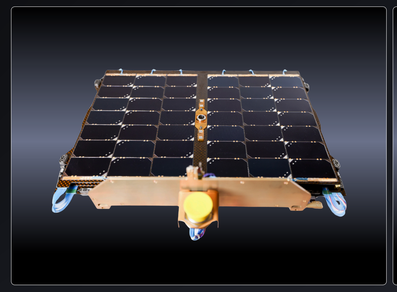
SOLAR ARRAY

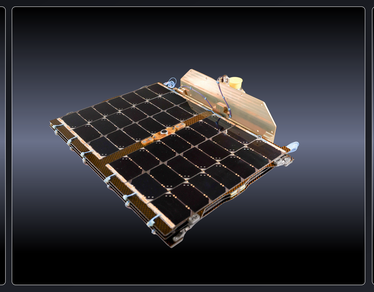
UMBRA

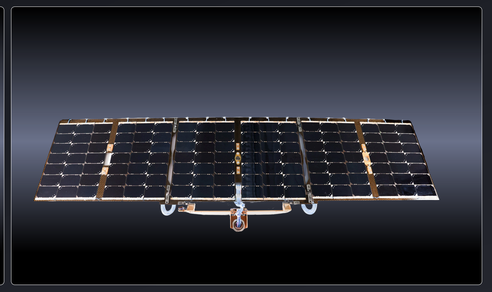
THE UMBRA BODY STEERED DEPLOYABLE SOLAR ARRAY delivers 120W+ of reliable power in a compact, flight-proven design for small satellites. Optimized for body-steering in Low Earth Orbit (LEO), this tri-fold array features high dynamic stability and redundant, premium triple-junction solar cells. Validated 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" x 12.95" x 2.90"
MAX DIMENSIONS DEPLOYED	40" x 13" x 10"
MASS	2.5 kg
PEAK POWER	120W generation BOL
ELECTRICAL INTERFACE	Single MIL-38999 Connector
HERITAGE	Design flown on Umbra 1 - 10
VOC	BOL: 38.08 V EOL: 35.80 V
VMP	BOL: 22.68 V EOL: 31.66 V
IMP	BOL: 2.3 A
PMP (TOTAL ARRAY)	120W
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 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	LEAD TIME	COST
EDU	• Deployable panels only, for use in structural/thermal model builds • Cells not included • Single & Double Available	No	4-Week Lead Time For both Single & Double	CONTACT
FLIGHT	• Acceptance tested • Multiple arrays can be used on the same spacecraft, or integrated into the UMBRA POWER PACKAGE	Yes	**Single:** 12-Week Lead Time **Double:** 16-Week Lead Time	CONTACT
CUSTOM	Umbra Space Systems offers custom modifications. Please contact.	Inquire	Inquire	CONTACT

DATA SHEET V.2.0-2025.08.01
PART UMB-SOLARARRAY-120-5081H0001-1
VALID AS OF 08.01.2025

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