MAGNETORQUER 6

UMBRA

THE UMBRA MAGNETORQUER 6 is engineered for precise, reliable attitude control in demanding small satellite missions. Leveraging space-proven heritage and Umbra's commitment to quality, this compact torque rod delivers at least 6 Am² dipole moment in a minimal form factor. The Umbra Magnetorquer 6 boasts high torque per required spacecraft volume, dependable attitude control, and rigorous qualification testing. Designed for seamless integration, the Umbra Magnetorquer 6 will be ready for your mission right out of the box.

SIMPLE BUILD
SIMPLE INTEGRATION

LEO
ENVIRONMENT

MULTIPLE
MOUNTING OPTIONS

GENERAL SPECIFICATIONS

MAX DIMENSIONS	5.100" x 1.440" x 0.875"
MASS	300 g
INPUT VOLTAGE RANGE	12 V ± 0.5 V for > 6 Am2 performance
INPUT VOLTAGE NOMINAL	Electromagnetics designed for 12 V
PEAK POWER	4.24 W
ELECTRICAL INTERFACE	Keyed 2 pin circular connector
INTENDED SPACE ENVIRONMENT	LEO
HERITAGE	Acceptance tested. First flight in Q4-2025
DESIGN LIFE	5+ Years
PRODUCTION	Assembled and tested in the USA
MATERIALS COMPLIANCE	ASTM E595

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	-40°C to 80°C
SURVIVAL TEMPERATURE	-40°C to 100°C
TOTAL IONIZING DOSE DESIGN CAPABILITY	Designed to withstand at least 30 krad TID

CONFIGURATIONS

TYPE	DESCRIPTION & DETAILS	SPACE READY	LEAD TIME	COST
SIM	Does not generate magnetic moment; suitable for software development testbeds	No	4-Week Lead Time	CONTACT
EDU	Suitable for hardware-in-the-loop testbeds	No	4-Week Lead Time	CONTACT
FLIGHT	Acceptance tested	Yes	7-Week Lead Time	CONTACT

FEATURES

SIMPLE DESIGN | SIMPLE INTEGRATION

Designed for ease of integration with any GNC system, the Magnetorquer 6 can be installed in its lightest configuration using Umbra's 4-point mounting pattern or can be adapted to any other bolt pattern with the available mounting tray. The 2-pin connection is easily integrated into any GNC system. Contact us for more information about Umbra's fully integrated GNC solution.

COMPACT POWER | HIGH TORQUE DENSITY

The Umbra Magnetorquer 6 delivers a powerful 6 Am² dipole moment in a remarkably compact and lightweight form factor. This high torque density maximizes control authority while minimizing mass and volume, optimizing your satellite's payload capacity and maneuverability.

SEAMLESS INTEGRATION | OPERATIONALLY READY

The Umbra Magnetorquer 6 features a highly compact design, thoughtful connector placement for tight packaging, and an integrated mounting bracket for flexible installation options. This meticulous design simplifies physical integration into SWaP-constrained small satellite platforms, reducing assembly time and complexity.

PRECISION ENGINEERING | BUILT-TO-LAST

The Umbra Magnetorquer 6 is built for the demanding space environment, utilizing space-rated materials with low outgassing properties (compliant with ASTM E595). It undergoes rigorous testing, ensuring exceptional reliability and long-term performance in orbit.

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