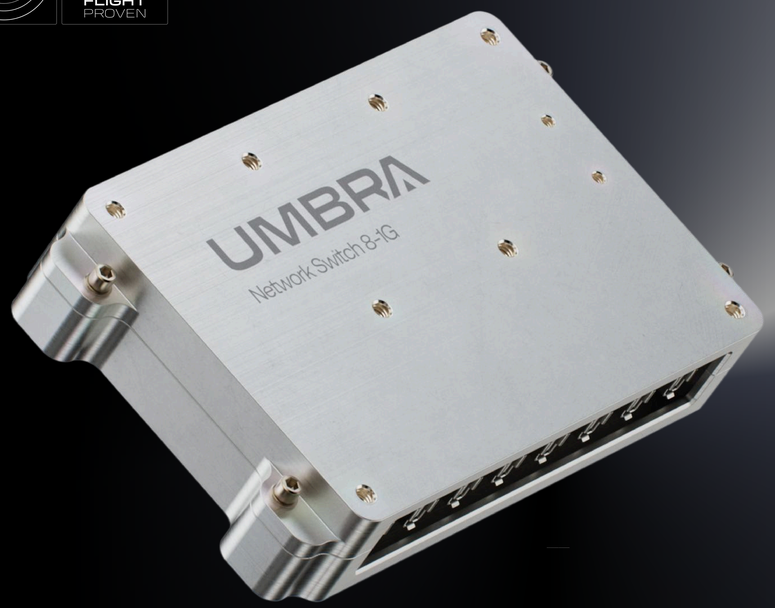
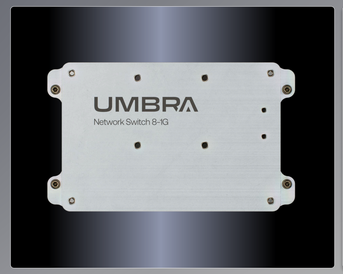
NETWORK SWITCH 8-1G

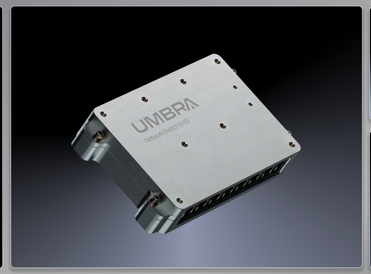
UMBRA

THE UMBRA NETWORK SWITCH 8-1G is a qualified ethernet device for communication between onboard modules in Low Earth Orbit (LEO). It provides mission-critical Gigabit Ethernet connectivity between 2 to 8 onboard modules, and is available in a plug-and-play unmanaged configuration, or in a managed configuration for more complex integrations. With testing tailored for Falcon 9 rideshare missions and multi-orbit compatibility, the Umbra Network Switch 8-1G offers dependable high-bandwidth intra-satellite communication, backed by rigorous testing.

RADIATION TOLERANT | MULTI ORBIT | FLIGHT PROVEN







FEATURES

SPACE-HARDENED | RADIATION TOLERANT

Built to withstand the extreme conditions of space, the Umbra Network Switch 8-1G features a ruggedized design and radiation-tolerant components. This design ensures dependable operation in harsh environments, including rigorous vibration, shock, and radiation exposure.

SPACE QUALIFIED | RUGGEDIZED INTERFACES

Umbra's successful history of delivering mission critical data has led to the design of the Umbra Network Switch 8-1G. Fully space qualified, this module allows your spacecraft systems to take advantage of modern ethernet performance in a simple to use, low SWaP package.

HIGH-BANDWIDTH | 8-PORT GIGABIT ETHERNET

The Umbra Network Switch 8-1G is equipped with eight ports of Gigabit Ethernet (1 Gbps); the switch delivers high-bandwidth data transfer capabilities for demanding intra-satellite communication needs. This design enables efficient communication between various onboard systems and payloads.

COMPATIBILITY | SIMPLE TO COMPLEX

Designed to create an ethernet-connected infrastructure within any small spacecraft seamlessly. The Umbra Network Switch is available in unmanaged configuration for single switches used in basic applications or in a managed configuration for complex installations utilizing multiple switches or inter-satellite connections.

GENERAL SPECIFICATIONS

MAX DIMENSIONS	5.84 in x 3.15 in x 0.97 in
MASS	< 300 grams
INPUT VOLTAGE NOMINAL	28 V
PEAK POWER	5.4 W (at 33 V, max traffic)
AVERAGE POWER	4.6 W (at 28 V)
ELECTRICAL INTERFACE	9-Socket Micro-D Connector
DATA INTERFACE	IX Type A Ethernet
INTENDED SPACE ENVIRONMENT	Multi-Orbit Capable
HERITAGE	Qualified and Flight Heritage on Umbra 11+
DESIGN LIFE	5+ Years
PRODUCTION	Assembled and tested in the USA
DATA RATE	Up to 1 Gbps
NUMBER OF PORTS	8
PROTOCOLS	10BASE-T, 100BASE-TX, 1000BASE-T

ENVIRONMENTAL SPECIFICATIONS

RANDOM VIBE	Qualified to 14.16 G_{rms} 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	-30°C to 65°C
SURVIVAL TEMPERATURE	-40°C to 85°C
EMI/EMC	• Component level radiated emissions • Electrical fast transient/ burst immunity • Power frequency magnetic field immunity testing
TOTAL IONIZING DOSE DESIGN CAPABILITY	Designed to withstand at least 30 krad TID

CONFIGURATIONS

TYPE	DESCRIPTION & DETAILS	SPACE READY	TYPICAL LEAD TIME	COST
EDU	Suitable for use in: • Software development • Hardware-in-the-Loop testbeds	No	4 Weeks	CONTACT
FLIGHT UNMANAGED	• Optional strain relief • Custom connector configurations available • Available now	Yes	< 8 Weeks	CONTACT
FLIGHT MANAGED	• Optional strain relief • Custom connector configurations available • Currently under development	Yes	< 8 Weeks	CONTACT

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