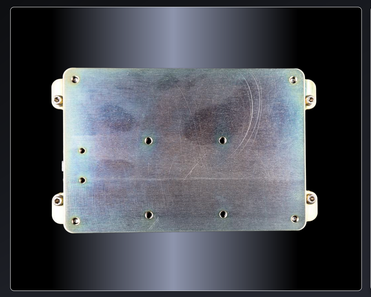
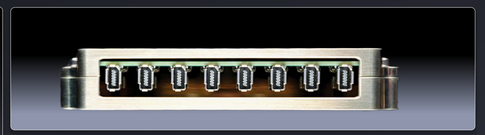
NETWORK SWITCH 8-1G

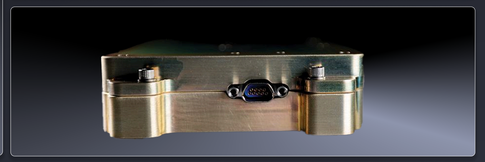
UMBRA

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







GENERAL SPECIFICATIONS

MAX DIMENSIONS	5.26 in x 3.16 in x 9.20 in
MASS	< 0.3 kg
INPUT VOLTAGE RANGE	5 – 60 V
INPUT VOLTAGE NOMINAL	28 V ± 5 V
PEAK POWER	4.6 W
AVERAGE POWER	3 W (Typical)
ELECTRICAL INTERFACE	9-Socket Micro-D Connector
DATA INTERFACE	IX8 Type A Ethernet
INTENDED SPACE ENVIRONMENT	Multi-Orbit Capable
HERITAGE	Acceptance tested. First flight Q4-2025.
DESIGN LIFE	5+ Years
PRODUCTION	Assembled and tested in the USA
DATA RATE	1 Gbps
NUMBER OF PORTS	8
PROTOCOLS	10BASE-T, 100BASE-TX, 1000BASE-T

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	-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	LEAD TIME	COST
EDU	Suitable for use in: • Software development • Hardware-in-the-Loop testbeds	No	4-Week Lead Time	CONTACT
FLIGHT UNMANAGED	• Optional strain relief • Custom connector configurations available • Available now	Yes	7-Week Lead Time	CONTACT
FLIGHT MANAGED	• Optional strain relief • Custom connector configurations available • Currently under development	Yes	7-Week Lead Time	CONTACT

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.

DATA SHEET V.2.0-2025.08.01
PART UMB-NETSWIT-8-1G-5091H0001-1
VALID AS OF 08.01.2025

UMBRA
https://umbra.space/space-systems
space.systems@umbra.space