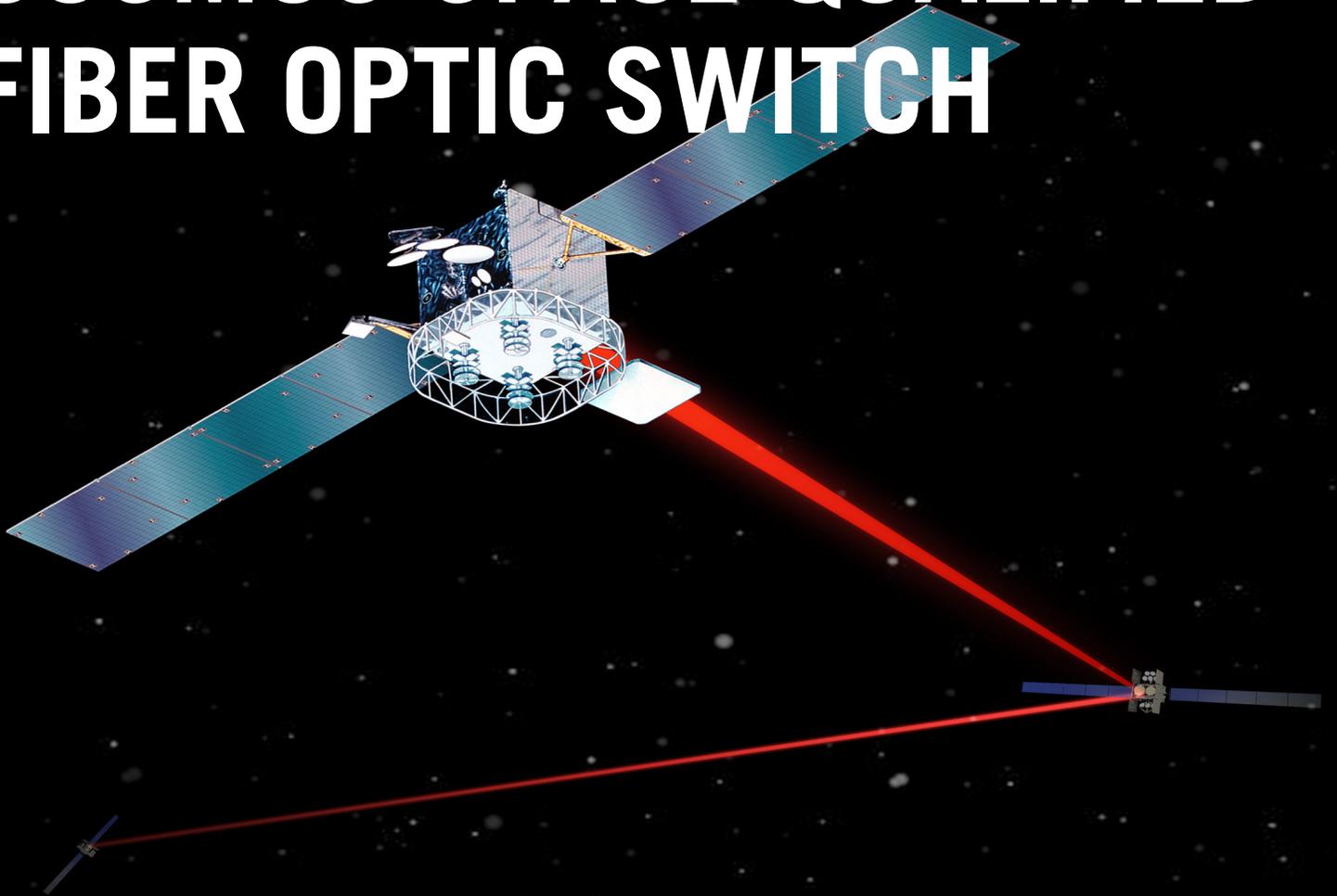


# COSMOS SPACE QUALIFIED FIBER OPTIC SWITCH



## **COSMOS**

SA Photonics' Compact Scalable Matrix Optical Switch (COSMOS) is the first ruggedized all optical switch designed for space. It can withstand a missile launch and operate reliably in a space environment.



**SA Photonics**

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# COMPACT SCALABLE MATRIX OPTICAL SWITCH (COSMOS)

The Compact Scalable Matrix Optical Switch (COSMOS) from SA Photonics is the first ruggedized all optical switch designed for space.

A key factor for success on today's battlefields is the ability to transmit and receive large amounts of data in real-time. To this end, the United States military has employed all optical switches that increase data bandwidth for military communications by eliminating the data bottleneck at the optical-to-electrical-to-optical (OEO) point. However, no optical switch has been made that can operate on a satellite, despite the critical role satellites play in military communications.

COSMOS was built with an OTS solid state switching mechanism that offers significant advantages over 3D MEMS systems, including low insertion loss drift over years of operation, latching, low power, and simple operation. From input to output, its switch speed and insertion loss are 15 msec and 1 dB, respectively. COSMOS also maintains reliability with minimal size, weight and power operation. All of its components are radiation hardened.

SA Photonics is a pioneer in the development and deployment of innovative photonics solutions for commercial and defense applications.

SPECIFICATION CHART	
Parameter	COSMOS Performance
Switch Speed (Input to Output)	< 15 msec
Insertion Loss (Input to Output)	< 1 dB
Switch Power Consumption Full Operation Power Consumption Steady State Power Consumption	0.7 W 0 W
Input Optical Power	27 dBm
Size	10.25 in. × 9.25 in. × 5.00 in.
Weight	8.5 lbs.
Switch Cycles	> 10 Million cycles
Proton and Gamma Radiation Testing	Complete
Vibration	19 G <sub>rms</sub>
Temperature Cycling	-34 to 71°C
Altitude	GEO Orbit Application