SEDI-ATI develops a range of ruggedized solutions for the space industry

SEDI-ATI by Fiber Optics Group uses its expertise and know-how to develop a range of fiber components and assemblies dedicated to space applications.

For several decades, SEDI-ATI has been supporting the defense and aerospace sectors, where reliability is an absolute imperative. As recognized specialist in fiber-optic solutions for harsh and extreme environments, SEDI-ATI has used its expertise and know-how to create this compact and robust range that can withstand the most extreme conditions, such as mechanical shocks and vibrations, vacuum, and dynamic temperature variations.

The « space » range is composed of the 1x2 multimode coupler **CP-X**, the multimode multiplexer **CP-MXS**, the simplex 1.8 mm **LTCX** cable, and the connectors **FCXtreme®** and **NANOXtreme®**.

Ruggedized components

Examples of applications: The CP-X coupler can be used to split a laser signal into multiple channels toward different sensors. The CP-MXS multiplexer can be used to monitor the integrity of an opto-pyrotechnic line and to allow the laser-triggered detonation of an explosive charge (to separate the boosters of a launcher for instance).

CP-X and CP-MXS accept 50/125 µm or 62.5/125 µm graded index fibers, Low OH 105/125 µm step index fibers, as well as their acrylate high-temperature and radiation-resistant versions. They operate over a wide wavelength range (532-1625 nm) and are compatible with all types of optical connectors.

Cable for space

LTCX-1.8 mm cable has a loose tube structure. It is made of non-outgassing materials: a polymer tubing, a braid of Kevlar, and an ETFE coating. Kevlar plays a major role in the cable's tensile strength. This cable absorbs expansion differentials

caused by temperature variations. It is recommended for preserving the integrity of optical fiber in aerospace environments.

Specialty connectors

The FCXtreme® connector is an FC connector, more compact than standard FC connectors (length: 31 mm and OD < 10 mm). It has been qualified to be functional in shock and vibration conditions, and also under dynamic temperature variations from -55 °C to +125 °C, without affecting its performance. Ongoing space qualification.

The NANOXtreme® is a miniature optical connector (22.6 or 28 mm, depending on the version) designed for defense, aeronautics and space applications where high levels of performance, compact dimensions, and low weight are critical. The connector exists in 2 versions: with or without a mounting flange. Space qualification project is in progress.

SEDI-ATI is currently in the process of complying with the EN9100 standard.

A propos de SEDI-ATI by Fiber Optics Group

SEDI-ATI is a French company founded in 1951. In 2023, it became a subsidiary of the FOG (Fiber Optics Group), an international organization committed to innovation and sustainability in the field of fiber optic assemblies. SEDI-ATI designs, develops, and manufactures fiber optic components and assemblies, such as multi-fiber assemblies, hermetic feedthroughs, and optical couplers. More specifically, we design reinforced components for vacuum, pressure, or cryogenic applications according to specifications. SEDI-ATI specializes in the complex and extreme environments of the defense, aeronautics, space, nuclear, and geophysics markets.

More information

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