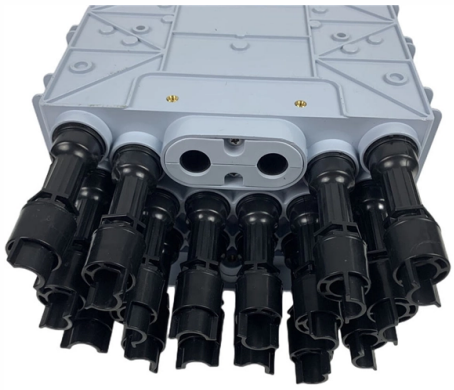
Composite Optical Cable Aviation Connector



Overview

The result was military fiber optic cables that were easy to deploy and performed under the harshest of conditions.

Key Takeaways

Composite optical connectors for aviation include ARINC 801, MIL-DTL-38999 derivatives, and high-density composite rectangular connectors designed for rugged, high-speed aerospace applications.Key Connector Models and Types

Amphenol Aerospace offers a broad range of high-speed and fiber optic connectors suitable for aviation, including:

• ARINC 801 connectors for fiber optic termini, supporting single-mode and multi-mode fibers.

• MIL-PRF-29504 termini for high-reliability fiber optic connections.

• Composite rectangular connectors such as the 1900Elio and 1900SIM series, which provide high-density optical termini in lightweight, weight-saving composite housings. These connectors are designed for aerospace applications requiring durability, EMI shielding, and high-speed data transmission .

• High-speed contacts including Quadrax, Differential Twinax, Triax, and Coax, which can be integrated with fiber optic termini for hybrid assemblies . Glenair provides military and aerospace-grade fiber optic connectors and assemblies:

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• MIL-DTL-38999 Type and MIL-DTL-83526 GFOCA Type connectors adapted for fiber optics.

• ARINC 801 genderless size #16 and high-density size #18 termini, offering low insertion loss and high alignment precision.

• Composite solutions with lightweight housings, backshells, and fiber media protection conduits for harsh environments, including high vibration and temperature extremes . Acal BFi (formerly OFS) supplies specialized avionics fiber optic cables and connectors:

• FlightLinx® for commercial aircraft, compliant with ARINC 802.

• FlightGuide® for military aircraft, featuring high-performance carbon/silicone coatings.

• µLinx® for unmanned systems, providing high strength and lightweight design.

• Avioptics® with HCS® technology for crimp and cleave termination of connectors .
Features and Applications
• Composite materials reduce weight while maintaining mechanical strength and EMI protection.

• High-density optical termini allow multiple fiber channels in compact connectors, ideal for avionics and inflight entertainment systems.

• Ruggedized designs ensure reliability under vibration, shock, temperature extremes, and chemical exposure.

• Hybrid assemblies combine fiber optic and high-speed copper contacts for integrated data and power transmission. These connectors are widely used in commercial and military aircraft, urban air mobility platforms, and unmanned aerial systems, providing reliable high-speed data transfer and long-term durability in harsh aviation environments .

Article Content

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A military high-speed connector is a connector – typically a circular, rectangular, or board-to

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This connector is designed for harsh environment applications across multiple markets, such as ground

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ptic cable for 10Gb+ avionic element in-house, from low-loss simplex, duplex, and multi-line fiber optic cables, to precision termini,

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The MHC-II connector paired with deployable composite cable provides a compact copper/fiber solution allowing for one connection

Exploring Aerospace Fiber Cables and Their Applications

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The global market for fiber optic cables for aerospace and military applications is expected to grow from

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Delivering Specialist Military Aerospace Cables & Connector Solutions An electrical wiring interconnect system (EWIS) for military

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Composite Fiber Cable

Power+™ composite indoor/outdoor extended– reach cables are the solution for applications where remote power and network

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The result was military fiber optic cables that were easy to deploy and performed under the harshest of conditions. The strength of

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We''re powering the journey toward more electric aircraft with an expanding portfolio of electrical connectors, cables and backshells

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GIGAFLIGHT: Aircraft Cable & Mil-Spec Wiring, Connectors & Cable

GIGAFLIGHT manufactures & supplies electronic cables, connectors & assemblies for demanding applications including aviation,

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The global market for fiber optic cables for aerospace and military applications is expected to grow from $1.2 billion in 2021 to $1.5

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GIGAFLIGHT offers a variety of RF coaxial connectors designed to be paired with our coaxial cables. Like

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Engineered to increase the performance concerns composite insulations, Amphenol CIT''s

Composite Aerospace Wire & Cable

We have developed composite aerospace wire and insulated cables to combat the limitations associated with Polyimide and XL

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