

RIVO MULTITRADE OPTICAL SYSTEMS

Airborne Fiber Optic Cable Connector



Overview

Fiber Optic Connectors, Termini, Cable Assemblies, Precision-engineered QPL and commercial fiber optic contacts, or termini (M29504/04, M29504/05, AirBorn.

Key Takeaways

Airborne fiber optic cable connectors are rugged, high-speed interconnects designed for aerospace, defense, and space applications, offering EMI protection, long-distance data transmission, and environmental resilience.

Airborne fiber optic connectors are engineered to maintain high data integrity and reliability in harsh environments, including extreme temperatures, vibration, radiation, and outgassing conditions typical of aerospace and defense systems. These connectors are often integrated into active optical cable assemblies that convert electrical signals to optical signals for high-speed transmission over long distances, while minimizing weight and size compared to traditional copper cables (Molex AirBorn FOCuS).

Key Features

- **High Data Rates:** AirBorn FOCuS Active Optical Cables support up to 14 Gbps per lane, with four lanes providing up to 50 Gbps aggregate bandwidth.
- **Ruggedization:** Connectors and cables are vibration-resistant, radiation-hardened, and environmentally sealed, suitable for space-rated and airborne applications.
- **EMI Protection:** Optical transmission inherently resists electromagnetic interference, and shielded connector housings further enhance compatibility in high-EMI environments.

- **Interchangeability:** Many systems, such as AirBorn FOCuS, allow copper and fiber cables to share the same pinout, simplifying design and maintenance .

- **Factory Termination:** Cables are pre-terminated and sealed, reducing the risk of contamination and eliminating the need for field fiber termination or cleaning .

Connector Types and Standards

- **Military and Aerospace Standards:** Common connectors include MIL-DTL-38999, MIL-DTL-83526 (GFOCA), MIL-PRF-28876, and ARINC 801, providing high-density, low-loss, and reliable termini for airborne systems .

- **Genderless and Rear-Release Termini:** Many airborne connectors, such as NGCON and Glenair SuperNine® series, feature genderless or rear-release termini for easier installation and maintenance in confined spaces .

- **Board-Level and Panel-Mount Options:** Connectors are available in board-mount, right-angle, and panel-mount configurations, allowing flexible integration into avionics and spacecraft systems .

Applications

Airborne fiber optic connectors are used in:

- Military aircraft and UAVs for high-speed sensor and communication links.
- Spacecraft and satellites, where radiation resistance and outgassing compliance are critical.
- C4ISR systems requiring high-bandwidth, low-latency data transmission.
- Industrial and commercial aviation, benefiting from reduced weight and EMI immunity .

Advantages Over Traditional Copper or Fiber

- **Weight and Size Reduction:** Active optical cables are lighter and smaller than equivalent copper assemblies.

- **Ease of Installation:** Factory-terminated and sealed connectors reduce field maintenance.

- **High Reliability:** Optical transmission avoids EMI issues and maintains signal integrity over longer distances.

- **Design Flexibility:** Interchangeable copper/fiber pinouts allow system designers to adapt to different cable lengths and performance requirements without redesigning connectors . Airborne fiber optic cable connectors are essential for mission-critical airborne and space systems, providing a combination of high-speed data transfer, environmental resilience, and simplified installation that traditional copper or standard fiber solutions cannot match.

Article Content

Fiber Optic Connectors | ITT Cannon

From aircraft cockpits to pylons on military helicopters and transported applications, our in-house capabilities allow us to design and

MILITARY SOLUTIONS

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

AirBorn's AOC Capabilities

Space-Rated & Rugged Active Optical Cables Our FOCuS® brand active optical cable technology embodies a fully-qualified, Space

Space-rated active optical cables | Lightwave Online

AirBorn's Space-rated Active Optical Cable (SAOC) offers space and aerospace engineers all the benefits of fiber

The Use of Fibre Optic Technology in Aerospace

Early Commercial Applications of Fibre Optic Technology in Aerospace 1993 - G-ASYD BAC 1-11 Control Technology Project (CTP)

Active Optical Connectors & Cables

The Time Is NOW: Active Optical Connectors & Assemblies We engineered these fiber cable assemblies with Space, Military,

FIBER OPTICS

Why Choose Fiber Optics? Fiber optic interconnect solutions are ideally suited for high speed, high reliability, EMI/RFI immune,

Airborne internet access through submarine optical fiber cables

These cables can be utilized as high-speed Internet backbone for wireless Internet access to the aircraft. Dedicated ships stationed

The Ultimate Guide to Splicing of Fiber: Techniques and Tips

Looking to understand fiber splicing? It's the process of joining two fiber optic cables using techniques such as fusion

FIBER OPTICS

Fiber optic interconnect solutions are ideally suited for high speed, high reliability, EMI/RFI immune, digital data transmission in harsh

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