

**F**iber optic interconnect technologies deliver high data rate and high bandwidth performance in land, sea, air, space and C4ISR applications. Precision-engineered fiber optic contacts, or termini, are the key to delivering low data loss and reliable, repeatable performance over long distances in mission-critical applications. But the advantages of a connection system that can transmit the equivalent of 24,000 telephone calls simultaneously through fibers thinner than a human hair—and over longer distances than would ever be possible with copper media—go beyond their mind-boggling data transmission rate:

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## FIVE REASONS TO UPGRADE TO

# FIBER OPTICS

### 1 Reduced Size and Weight



- Compared to copper, optical fiber is relatively small in size and light in weight—a major advantage in interconnect systems servicing airborne avionics, and in-flight entertainment systems. As a practical matter, optical fiber is simply easier to install—especially in retrofit programs—because the smaller cable diameters can fit comfortably within the footprint or layout of existing electrical conduits and harnesses.
- This reduction in media size makes it possible to run multiple backup cables for critical electronic systems or devices. The ability to provide complete redundancy for all critical cabling is a major factor driving the use of fiber optics in mission-critical applications such as commercial and military aircraft—particularly for applications with long cable runs.

### 2 EMI Immunity

- Optical fiber is frequently applied in high-reliability applications due to its electromagnetic immunity. Since fiber optic media uses light to transmit signals, it is not subject to electromagnetic interference, radio frequency interference or voltage surges, and so provides greater transmission reliability—particularly in C4ISR applications and communication systems that depend on error-free performance.



### 3 Huge Bandwidth Over Long-Distances

- *Fiber can transmit a mind-boggling quantity of data with extremely good transmission quality over long distances: Up to 150 times the data carrying capacity of bulkier copper cable! And since most high-speed data protocols transmit digitally, optical media reduces translation errors and bottlenecks—particularly over longer cable run distances such as are found in Navy ships and ground-based shelter and vehicle applications.*



### 4 Spark/Arc Immunity



- *The total electrical isolation of fiber also makes it a safer, spark-free media for use in hazardous environments, such as aircraft fuel cells or other applications where volatile gasses might be present. As only light, not electricity, is being transmitted, there is no risk of a spark or short-circuit from a damaged cable. For this same reason there is no shock hazard or risk to users performing routine maintenance to interconnect cabling. As a result, fiber optic media is routinely specified for use in Class I, Division I (Ex) environments such as are found on Navy ships, commercial tankers and other enclosed environments where the risk of a spark/arc event is considered a severe safety hazard.*

### 5 Enhanced Security

- *Light pulses, unlike electrical signals, are almost impossible to intercept or monitor. Fiber optic media therefore enjoys total immunity from wiretapping. This characteristic is particularly valuable to the military services, banks and operators of secure networks. In addition to enhanced transmission security, fiber media itself is undetectable to metal or electromagnetic flux detection equipment.*

