Fiber Optic Isolation Devices & Waveguide Filters
About Fiberplex Technologies

At Fiberplex Technologies, we create solutions that feel as if they’ve been custom engineered – top to bottom. We offer a range of products to handle all your exacting communications needs – application-specific to mission-critical.

Speculative engineering has its place, but when it comes to real solutions for your data/communications challenges, our industry-specific engineering gets the job done right.

For moving and controlling massive amounts of audio, video, telco or other data, in even the most demanding environments such as SCIF and Tempest, you can trust Fiberplex to provide the most secure, efficient, cost-effective and elegant solutions every time.

Fiberplex:

Precision-engineered fiber-optic hardware solutions that address all of your most pressing problems such as:

• Transparent, Low Jitter Clock and Data Transmission
• Secure Communications
• Noise Immunity and Containment
• Long Haul Connectivity

FOI Design Concept

The design concept for the modular FOI (Fiber Optic Isolation) product line is to offer information security, long-haul connectivity and customized solutions using Fiberplex products and engineering support. Fiber-optics is an ideal medium for transporting various signals from inside a containment area to the outside world. Optical fibers are particularly well suited because the fiber, as well as the typical protective jackets, are non conductive and hence will not conduct CE radiation to the outside. Fiberplex manufactures a wide array of fiber optic isolation devices for almost all imaginable signal types. Our core product line includes media converters, data converters, isolators, multiplexers, distribution amplifiers and patented fiber-optic waveguides. Most of our products are designed for use in fiber-optic data networks, although we also offer products that provide stand alone solutions.

Information Security

Virtually all institutions have reason to protect their data and communications from being intercepted, tampered with or stolen. Fiberplex’s FOI products serve to provide secure containment as well as shielding from CE radiation, which can contaminate encrypted signals. Our patented off-the-shelf waveguide filters (U.S. pat. 4,849,723) are designed to be fiber-optic friendly. Many Fiberplex products incorporate a proprietary current modulation filter (U.S. pat. 7,161,415) that effectively eliminates CE radiation.

Long Haul Connectivity

Fiberplex’s unique FOI isolators/media converters are designed for situations requiring transport and multiplexing of Metro Ethernet, Telecommunications and Serial Data. Also available is our new FOM (Fiber Optic Multiplexing) Series for high-density applications.

Partner Assisted Design

Fiberplex has always worked closely with our customers in determining specific product requirements as well as systems design. Our engineering & business focus is based upon transparency. Transparency in terms of design & technical operation, implementation and usage, and supply chain / vendor relations.
FOI Modules can be categorized by the following Groups:

**Serial Data Communications**
Complete interfaces for data, clock, and controls. These modules also allow interface conversion across a fiber link allowing two dissimilar interfaces (i.e. RS232 / RS530) to communicate with one another. All of these modules correct for clock and data alignment when using send timing. All modules are transparent to clock and data.

**Digital Data Circuits**
For miscellaneous data, clock and signaling
This group of FOI modules allows interface conversion across a fiber link. One example would be to interface between an RS232 circuit and a balanced RS422 circuit.

**Telecom**
T1, E1, analog phones, digital phones, ISDN
This group contains various FOI modules to handle single or multiple lines on a fiber link.

**Audio and Video**
Composite video, RGB Hi-Def, audio for alarm announcements
These modules are available in versions containing RS170 composite video alone, video and audio, and video, audio and PTZ.

**PC and Consumer Electronic Communications**
Ethernet, Firewire and USB.
These include multiport switches in addition to single links.

**Control, Measurement and Monitoring**
Relay signaling, analog voltage, intrusion alarm, HVAC control.

All FOI modules can be used for SCIF applications.
Common applications for the FOI series of product are as follows:

**Serial Data Communications**
For connecting encryption devices to a modem or a terminal to an encryption device.

**Telecom**
Secure phone to PBX circuit and ring-down capability.

**Audio/Video**
Security camera to monitor, Paging systems, Fire alarm announcements.

**Control, Measurement and Monitoring**
Monitoring of miscellaneous relay contacts such as intrusion alarms, isolation of HVAC controls.
Other Products

Fiberplex also manufactures the FOM product line which offers maximum flexibility in design and applications where maximum density is required. Virtually any application can be addressed through our extensive FOM line.

Secondly, our “LightViper” line of fiber optic transport products addresses the challenges in professional audio applications including live sound, broadcast production, remote recording and fixed installation use.

Please contact us at 301-604-0100 or go to www.fiberplex.com for complete information on these products.

FOI Applications

Fiberplex products address the class of communications that require something more than commodity level modems and LAN components. They are used when data security is paramount; when data must be kept confidential as well as when data must be protected from outside disturbances. Our communications products extend distance and improve interoperability between protocols. Fiberplex products also help worldwide communications systems operate together.

Distant Communications

Fiberplex Cable Driver/Receiver products extend copper media communication links beyond 1 kilometer. Fiber-optic Isolators convert electrical signals to lightwave for communication up to 2 kilometers (multimode) or greater than 20 km (singlemode) on fiber-optic cables. The noise immunity of fiber is especially valuable on long cable runs.

Secure Communications

When data security is crucial, such as in TEMPEST and SCIF applications, electronic devices are shielded to contain their RFI emissions and avoid unauthorized access to the data. Fiberplex products can be used to make data, video and telephone connections across the shield barrier without compromising its shielding integrity. Fiberplex waveguides provide a shield penetration for non-conductive fiber-optic cables that inhibits RFI leakage. Fiberplex Isolators convert electrical signals to optical format for emission-free communications outside the shielded area. And our power line filters reduce RFI leakage on power lines.

Buffered Communications

Fiberplex Elastic Data Buffers provide dynamic storage for synchronous data systems that have slightly differing data clocks. One example is data from a satellite where Doppler shift is introduced by orbit dynamics. Another example is where there is a small difference between the clock frequency of two nodes in a communication link. Buffer size is determined by the cyclic rate of Doppler shift for the satellite example. It is determined by the continuous transmission time period that is to be accommodated in the case of different clock rates.

Noise-free Communications

Just as they do not emit RFI, fiber-optic cables are not disturbed by energy radiated from other sources such as heavy machinery, transmitters and even lightning. Fiber-optic cables are immune to both electrical and magnetic fields.

Synchronized Communications

The ultimate control of synchronous communications is synchronization of all clocks to a common source. A Fiberplex Timing Distribution System accepts clock input from a precision source such as a Cesium beam oscillator or GPS receiver and synthesizes all clock frequencies required in the network. When used with a satellite-based precision clock source such as GPS, the addition of an Elastic Data Buffer will eliminate Doppler shift effects on network timing.

Compatible Communications

Fiberplex Interface Converters accomplish electrical and mechanical connection between electronic devices with incompatible interfaces. They provide transparent communications between formats such as RS-232, RS-422, V.35 and MIL-STDs.