

MRV'S Gigabit Multimode Fiber Extension Solutions

A few years ago, a typical LAN worked at 4 to 16 Mbps rates while network backbones were commonly based on FDDI and delivered 100 Mbps bandwidth. Financial institutions, military facilities, and universities used *Multimode Fiber* as the main media for the horizontal run between buildings, and for the vertical run in high-rise buildings. *Multimode Fiber* optic cables were typically laid in 2 km increments since that was the distance defined for FDDI, Token Ring and Fast Ethernet, when using that media.

With migration to *Gigabit Ethernet* multi-service networks, much of the *Multimode Fiber* already in place cannot be used due to the effects of dispersion, which limits the transmission of this protocol to 550 meters. Network administrators want to provide value-added, high-speed services, yet rewiring an entire facility can be cost-prohibitive. This meant that network administrators looking to upgrade their network to *Gigabit* levels were forced to install new Singlemode fiber, and to abandon their *Multimode Fiber*, or relegate its use to slower protocols. This process can be costly in terms of both time and money.

MRV Communications offers various solutions for extending the distance of Gigabit Ethernet over multimode fiber, thereby avoiding the cost, complications and lead times associated with the installation of new fiber. It also enables reaching the goal of providing a modern Gigabit-speed service as well as to comply with the flexibility demands of a next generation service enable network with Gigabit speeds on top of the existing 2 km Multimode based networks.

The Fiber Driver™ MC series and OptiSwitch™ Gigabit Multimode Extenders apply unique technology that allows the transmission of high-speed signals over Multimode fibers to distances much longer than the standard. This allows the use of high-speed backbone protocols over fiber that was originally used for FDDI.

The products are interoperable with all standard Gigabit Ethernet, Fiber Channel, and FICON equipment. The Gigabit Multimode Extenders carry Gigabit links on existing Multimode fiber (FDDI graded) to distances of up to 2 km.

Following is the description and ordering information of the various solutions:

Fiber Driver™ Gigabit Multimode Extenders

EM316FC/MX	Fibre Channel MM (DSC) to Extended Multimode Fiber (DSC) 0-2km
EM316FI/MX	FICON MM (DSC) to Extended Multimode Fiber (DSC) 0-2km
EM316G/MX	Gigabit Ethernet SX (DSC) to Extended Multimode Fiber (850nm;DSC; 500m/2km)
EM316GC/MX	1000Base-TX(RJ45) to Gigabit Ethernet Extended MM (1310nm;DSC) 0-2km
EM316O48/S1MX	OC48 Single mode S1(1310nm; DSC) to Extended Multimode Fiber (1310nm; DSC) 0-2km

FiberDriver™ MC series Gigabit Multimode Extenders

MC102G/SX/LX	SX (850nm) to LX (1310nm up to 2km) Multimode GE/FC Repeater
MC102G/LX/S1	LX (SM, 1310nm, 0-6km,DSC) to LX (MM, 1310nm up to 2Km) GE/FC repeater

OptiSwitch™ GNX Modules

EM2003-1GE/MX	Single port Gigabit 1000Base-LX Uplink for the OptiSwitch Family (MM, 1310nm, 0-2KM, DSC)
EM2004-1GE/MX	Single port Gigabit 1000Base-LX Uplink with L3 support for the OptiSwitch Family (MM, 1310nm, 0-2Km, DSC)

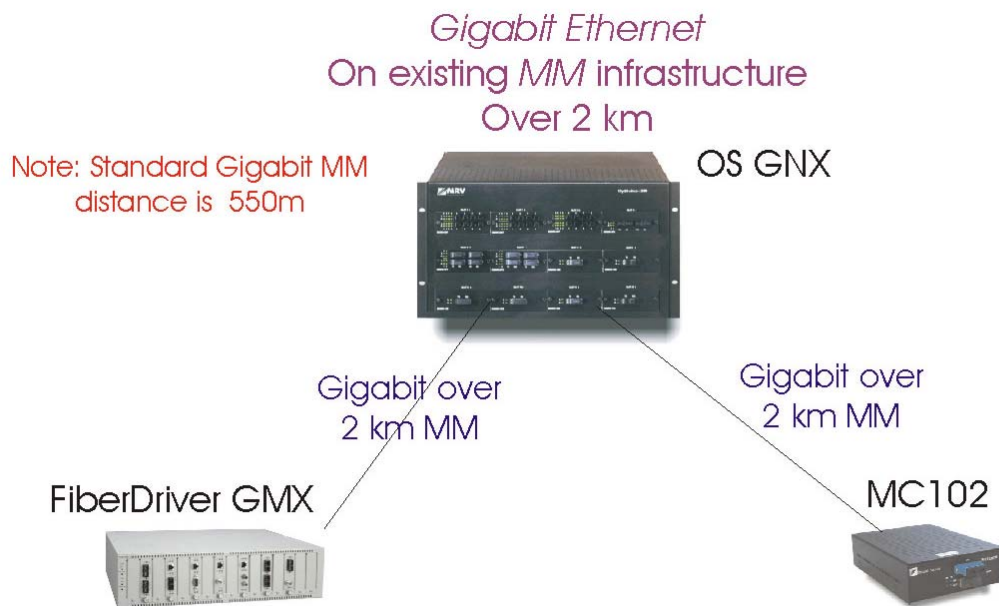


Fig. 1 - MRV'S Gigabit Multimode Fiber Extension Solutions, Including Fiber Driver GMX, OptiSwitch and Media Converter MC102

Products Outline

1. Switching Modular and Managed GMX Solution – The OptiSwitch™ GNX

The **OptiSwitch™** product line is a unique integration of **Ethernet multi-layer integrated modular** systems, **QoS** and carrier circuit switches, with its choice of five **managed** chassis (hosting from one to 24 expansion slots or ports) and over 50 different module types. It is an exclusive combination of hardware features with Ethernet pricing and simplicity of operation.

The OptiSwitch™ GNX solution applies a unique technology that allows the transmission of high-speed signals over *Multimode Fibers* to distances longer than 2 km, provides fiber optic MM backbone solutions and enables QoS based applications such as Voice, Video and Data solutions over the existing MM fiber infrastructure.

2. Layer 1 Modular and Managed GMX Solution – The FiberDriver™ GMX

The Fiber Driver Gigabit Multimode Extenders offer **Layer 1 Modular** and **Managed** solutions that are interoperable with all standard Gigabit Ethernet, Fibre Channel, and FICON equipment. The Gigabit Multimode Extenders carry Gigabit links on existing MM fiber (FDDI graded) to distances of up to 2 km (and, depending on the quality of the fiber, they can provide links of up to 6 km). It includes **Gigabit Ethernet Multimode Extender** that extends the transmission of Gigabit Ethernet over existing MM, **Fibre Channel Gigabit Multimode Extender** that increases the transmission distances of Gigabit Fibre Channel over MM fiber and the **FICON Gigabit Multimode Extender** that increases the transmission distances of Gigabit FICON over MM fiber.

3. Layer 1 unmanaged GMX Solution – The MC102 GM

The unmanaged Layer 1 solution is part of the MC102 series. The MC102 Gigabit Multimode Extenders offer solutions that are interoperable with all standard Gigabit Ethernet or Fiber Channel products and is known as the best **Price/Performance** GMX solution in the market.

The MC102 solution includes Gigabit Ethernet/Fiber Channel Singlemode to Multimode or Multimode to Multimode Extenders.

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