

A Powerful Optical Demarcation Device Combining Media Conversion with Carrier Grade Delivery of Transparent LAN Services.



Secure and Flexible Solution

- Preserves complete end-to-end fiber connection and data integrity via SNMP management
- All management traffic remains isolated from the remote LAN
- IEEE 802.1Q VLAN and 802.1p compliant
- Supports Q-in-Q and selectable EtherType

Features and Functionality

- Transparency feature allows VLAN non-VLAN traffic on same port
- Provides differential priority
- Offers bi-directional bandwidth settings
- Features powerful LinkLoss, FiberAlert and loopback functionality for troubleshooting

Minimizes Networking Costs

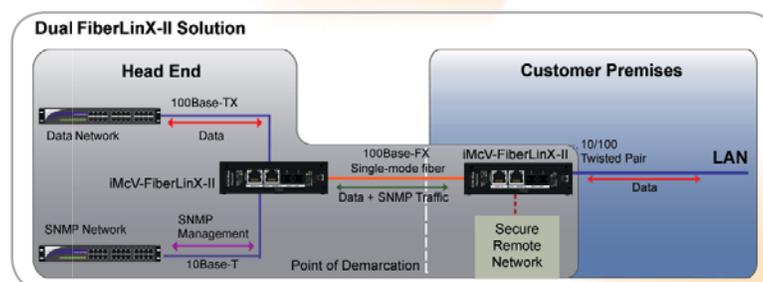
- Avoids unnecessary service calls
- Allows replacement of expensive optical switches with inexpensive copper switches

The FiberLinX-II connects a host/remote network over fiber optics, combining media conversion with an advanced feature set for network management and troubleshooting functions, including Extra-Tagging and selectable EtherType functionality.

FiberLinX-II allows for remote configuration and alerts administrators to any potential problems on the long-haul fiber run, provides vital information on link condition and reports data traffic statistics. In addition, it reduces the total cost of network equipment by functioning as a copper-to-fiber media converter, allowing deployment of lower cost copper switches at both ends of the fiber connection.

With the FiberLinX-II, administrators can observe the end-points, and the fiber link between them, as single management entities and not as separate elements. Host management traffic is not visible to the remote or customer network nor is access to the customer network required, guaranteeing end-to-end data integrity.

Application Example - Dual FiberLinX-II Solution



When used in pairs, a FiberLinX-II configured as a Host resides at the head-end while another FiberLinX-II, configured as a Remote, installs at the customer location, typically on the network edge where a customer network meets the service provider infrastructure. Via SNMP, FiberLinX-II monitors the entire link and ensures data integrity while remaining isolated and completely transparent to the customer LAN.

VLAN Functionality on FiberLinX-II

Service providers routinely use IEEE 802.1Q Virtual Local Area Network (VLAN) tagging to secure, separate and differentiate customer traffic. FiberLinX-II enables service providers to support multiple VLAN-based applications.

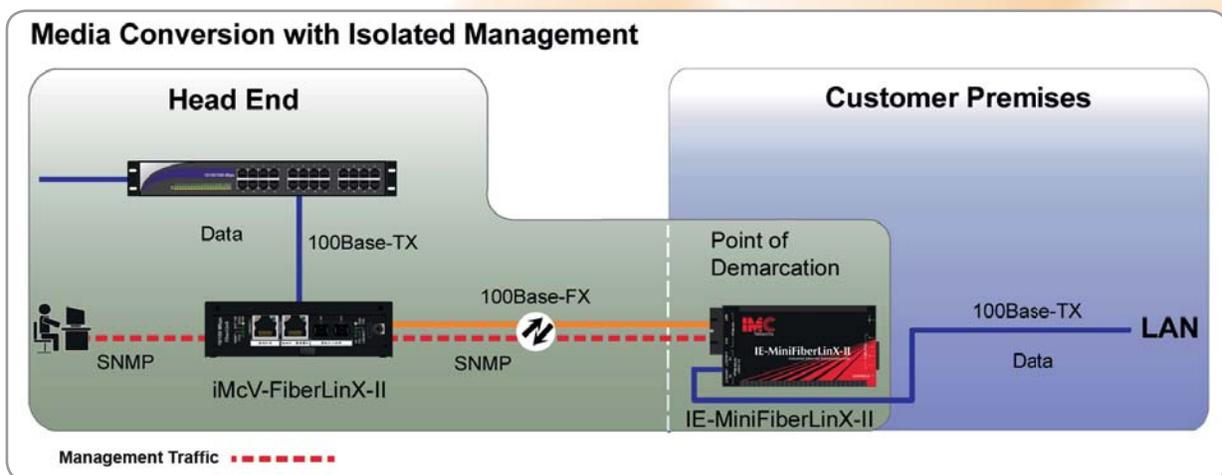
- IEEE 802.1Q VLAN compatible.
- Valid VLAN IDs are 1 to 4,094.
- Port-based VLAN tagging.
- Transparency Mode passes all data and respects the VLAN tag or lack thereof, i.e. allows a mixture of VLAN Tagged and Untagged traffic.
- Configure to support VLAN trunking; FiberLinX-II can filter up to 32 VLAN IDs for data, plus an additional ID for SNMP (Transparency Mode disabled).
- IEEE 802.1p provides a 2-tier queue for differential prioritization of inbound and outbound traffic. For example, VoIP applications can be assigned a higher priority than data traffic.

VLAN Tagging and Extra-Tagging

Support for IEEE 802.1Q Extra Tagging, also known as Q-in-Q, allows the FiberLinX-II to more effectively route network VLAN traffic. Extra tagging simplifies management and configuration efforts for service providers who have customers using a range of VLAN IDs for different applications. Routing guidelines and other traffic rules can be programmed based on the extra tag, rather than being programmed for all of the potentially hundreds of individual VLAN IDs. Also, since a service provider's customers control their own internal VLAN settings, the extra tag is needed to make sure there is no overlap of VLAN IDs among customers, and to prevent traffic from different customers from becoming mixed. The extra tag is removed once the traffic is routed to its correct destination, a process that is transparent to customers.

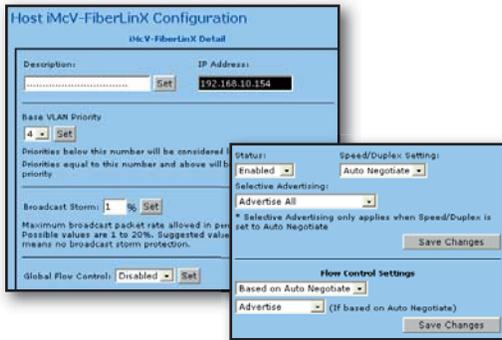
Application Example - Media Conversion with Isolated Management

The diagram below illustrates a FiberLinX-II deployment with an IE-MiniFiberLinX-II acting as the CPE at the customer demarcation point. The devices are configured so that management data is isolated from customer data, and does not pass through to the customer LAN, while common media conversion functionality is performed without interruption.



SNMP Management Made Easy

FiberLinX-II features an SNMP management agent for monitoring the status and activity on copper and fiber ports at the remote end. Perform initial setup of the unit and modifications in the field via: iView² SNMP application, Telnet/TFTP, or local serial connection.



- Enable features and change configuration settings from central office.
- Remote upgrades via Telnet/TFTP, serial port or iView².
- Monitor both units and the fiber in between.
- Receive real-time monitoring and statistics.
- Change bandwidth “on-the-fly” up to 100 Mbps in 32 kb increments.
- Create a secure management domain to isolate management domain broadcasts from TX Data ports on both units.
- User-definable unit/port descriptions and information.

Full-Featured FiberLinX-II

From a central location, network operators are able to receive real-time device and traffic statistics on the remote CPE or other devices connected to the remote management port, allocate bandwidth, turn services on or off, initiate loopback testing, change customer VLAN settings and adjust QoS policies assigned to different traffic types.

EtherType Control

The FiberLinX-II allows for the ability of setting a different EtherType on the extra tag in order to uniquely identify extra-tagged traffic. The available EtherType codes are 8100, 9100, and 9200.

Dedicated Management Port

The EXT MGMT port on the FiberLinX-II provides the ability to physically isolate the management domain from the data domain, allowing users to manage edge devices and beyond while protecting the management domain from unwanted access.

Troubleshooting Features

FiberAlert and LinkLoss along with LEDs assist in diagnosing potential problems on fiber optic networks. Additionally, RMON and IFSTAT statistics are available.

Last Gasp Trap

The Last Gasp Trap is an SNMP feature that allows the module to notify the network when the module has lost power.

Loopback Testing

Loops back all frames arriving on the fiber port (except for the device’s management traffic). When in Loopback mode, FiberLinX-II drops the link on the twisted pair port.

Supports the Unified Management Agent (UMA)

The Unified Management Agent (UMA) allows users to manage all FiberLinX-II modules installed in an IMC Networks iMediaChassis (and any connected remote modules) with a single IP address from a central location, conserving precious IP addresses. Additionally, UMA allows users to centrally manage and administer firmware upgrades over multiple devices, saving time.

Flexibility

Offering unparalleled flexibility, FiberLinX-II supports multiple fiber types including multi-mode and single-mode as well as single-strand fiber which can effectively double the capacity of installed fiber. The FiberLinX-II features:

- One 100 Mbps fiber data port
- One 10/100 twisted pair (RJ45) data port
- One additional 10/100 twisted pair port (EXT MGMT) for management (can also function as a serial port)

The DATA port on the FiberLinX-II provides auto-negotiation, automatic crossover detection, full or half duplex and selective advertising. Ports also feature Flow Control in Full Duplex Mode (FDX) and Back Pressure Flow Control.

Technical Specifications

Networking

General

- Preserves complete end-to-end fiber connection integrity
- Broadcast Storm Protection
- Supports Extra Tagging (Q-in-Q) and selectable EtherTypes
- Bi-directional bandwidth control
- Read/write IEEE 802.1Q VLAN-tags
- QoS: IEEE 802.1p-based packet prioritization (2 queues [high/low] with 8 levels of priority)
- Layer 2 packet switching, store and forward operation
- Forwarding rate: 14,880pps for 10 Mbps; 148,800pps for 100 Mbps;
- AutoCross for MDI-II/MDI-X
- Features Auto-Negotiation and Selective Advertising
- Supports Half and Full-Duplex operation
- MTU: Supports over-sized (Jumbo) packets up to 1916 bytes per packet

Security

- Password Control
- Multiple Access Levels: User Assigned Accounts & Access Levels

Management

- SNMP V1 and V2c compatible
- Includes GUI-based iView² software for remote management and upgrades
- Monitors far-end (remote) status without a physical presence or separate connection
- IEEE 802.3x Flow Control
- Includes DHCP and TFTP clients
- Supports Telnet
- Includes loopback test modes (MAC swap)
- Includes LinkLoss and FiberAlert
- Supports the Unified Management Agent (UMA)
- Includes status LEDs

Ethernet Types Supported

- IEEE 802.3i 10Base-T twisted pair
- IEEE 802.3u 100Base-TX twisted pair
- IEEE 802.3u 100Base-FX or SX fiber

Physical Specifications

RoHS Compliant

Regulatory Approvals

- FCC Class B
- UL/cUL
- CE

Fiber Types Supported

- 1300 nm multi-mode ST or SC [2km]
- 1310 nm single-mode/PLUS ST or SC [40 km]
- 1310 nm single-mode/LONG ST or SC [80 km]
- 1550 nm single-mode/LONG SC [100 km]
- Also available in single strand fiber configurations [20 to 60 km]

Connectors: RJ-45, and ST or SC

Shipping Weight: 4 ounces (113 grams)

Dimensions: standard single-slot chassis module

Environmental

- Humidity: 5 - 90% (non-condensing)
- Operating Temperature: 32° to 122°F (0° to 50°C)
- Storage Temperature: 13° to 158°F (-25° to 70°C)

Power Consumption: 580mA at 5V

Ordering Information

For each product listed below in the Ordering Information section, the DISTANCE represents an approximate fiber distance based on industry-standard fiber specifications and worst-case (connector loss, aged fiber, splices, etc.) installations. Substantially longer distances can typically be achieved. Actual distances may vary for each installation. For complete power budgets and information on calculating specific distances, visit www.imcnetworks.com/go/fcs or contact IMC Networks Fiber Consulting Services at 949-465-3000. Twisted pair distance is 100 meters.

PART #	DESCRIPTION	DISTANCE
856-14011	iMcV-FiberLinX-II, TX/FX-MM1300-ST	2 Km
856-14012	iMcV-FiberLinX-II, TX/FX-MM1300-SC	2 Km
856-14015	iMcV-FiberLinX-II, TX/FX-SM1310/PLUS-ST	40 Km
856-14016	iMcV-FiberLinX-II, TX/FX-SM1310/PLUS-SC	40 Km
856-14017	iMcV-FiberLinX-II, TX/FX-SM1310/LONG-ST	70 Km
856-14018	iMcV-FiberLinX-II, TX/FX-SM1310/LONG-SC	70 Km
856-14021	iMcV-FiberLinX-II, TX/FX-SM1550/LONG-SC	80 Km
856-14043*	iMcV-FiberLinX-II, TX/SSFX-SM1310-SC (1310xmt/1550rcv)	20 Km
856-14044*	iMcV-FiberLinX-II, TX/SSFX-SM1550-SC (1550xmt/1310rcv)	20 Km
856-14045*	iMcV-FiberLinX-II, TX/SSFX-SM1310/PLUS-SC (1310xmt/1550rcv)	40 Km
856-14046*	iMcV-FiberLinX-II, TX/SSFX-SM1550/PLUS-SC (1550xmt/1310rcv)	40 Km
856-14047*	iMcV-FiberLinX-II, TX/SSFX-SM1310/LONG-SC (1310xmt/1550rcv)	60 Km
856-14048*	iMcV-FiberLinX-II, TX/SSFX-SM1550/LONG-SC (1550xmt/1310rcv)	60 Km

*These products have single-strand fiber technology. Deploy in pairs, or connect to another compatible IMC Networks single-strand fiber product. For more information go to: www.imcnetworks.com/products/SSFX.cfm



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