



iMcV-Giga-FiberLinX-II

Operation Manual



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This equipment has been tested and found to comply with the limits for a Class B computing device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

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I - About the iMcV-Giga-FiberLinX-II

Overview

The iMcV-Giga-FiberLinX-II™ allows network operators to deploy managed Ethernet services, with a full range of remote management, traffic monitoring, and alarm reporting features. This unit converts 1000 Mbps fiber to 10/100/1000 Mbps copper. In addition, a range of fiber connectors (SC, ST, or SFP) and a variety of wavelengths, supporting higher density CWDM and single-strand fiber operation are available.

The iMcV-Giga-FiberLinX-II supports two main configuration modes: Standalone or Host/Remote. When using Host/Remote, the Remote modules can be fully managed without an IP address using a secure management channel (when the SNMP module is installed in the same chassis). In either mode, the network operator can choose to assign an IP address to the Host or Standalone module. Or, if using a local iMediaChassis managed chassis, all local and remotely connected iMcV-Giga-FiberLinX-II modules can be managed using the single IP address of the chassis. This not only preserves IP addresses and reduces configuration complexity, but management traffic traveling on the non-IP based transmission channel is kept isolated from customer traffic, enhancing network security.

The iMcV-Giga-FiberLinX-II offers the following features:

- Securely separates the SNMP management network from the data network
- IEEE 802.1Q VLAN Tagging
- Q-in-Q VLAN Extra-Tagging
- Remote traffic monitoring
- Remote automatic alarms
- Bandwidth limiting
- FiberAlert (loss return)
- FX and TX LinkLoss (loss pass-through)
- Loopback testing
- Autonegotiation
- Selective Advertising
- AutoCross

The iMcV-Giga-FiberLinX-II module is a double-slot, chassis-mounted module.

Compatible chassis include the following:

- iMediaChassis series
- MediaChassis series

Port Interfaces

Every iMcV-Giga-FiberLinX-II includes the following port:

- A 10/100/1000 twisted pair port (EXT MGMT) for management

One of the following uplink ports:

- One fixed 1000 Mbps Fiber port
- A SFP port capable of receiving a gigabit fiber optic SFP module or a gigabit twisted pair (RJ-45) SFP module

And one of the following DATA ports:

- A 10/100/1000 twisted pair (RJ-45) port
- A SFP port capable of receiving a gigabit fiber optic SFP module or a gigabit twisted pair (RJ-45) SFP module

In addition, a DB-9 port is available for management through a serial port connection. Refer to Serial Port Pinout on page [51](#) for more information.

You can easily configure the iMcV-Giga-FiberLinX-II by using either the serial craft port connection, through SNMP management application such as iView² or a Telnet session.

Serial Craft Port Connection

The RS-232 serial connection through the DB-9 connector on the module provides access to the iMcV-Giga-FiberLinX-II module configuration screens. The configuration screens are also accessible from a Telnet connection.

iView² Management Software

iView² is the IMC Networks management software designed specifically for the IMC Networks “iMcV” family of modules. It features a graphical user interface (GUI) and gives network managers the ability to monitor and control the manageable IMC Networks products.

iView² is available in several versions and can also function as a snap-in module for HP OpenView™ Network Node Manager. For assistance in selecting the right version of iView² for your operating system, please visit:

<http://www.imcnetworks.com/products/iview2.cfm>

iView² supports the following platforms:

Windows™ 98 • Windows NT • Windows 2000 • Windows XP • Windows Vista

In addition, there are Java versions of iView² for other Java capable operating systems such as Linux.

iConfig Utility

iConfig is a configuration utility in iView² that lets you quickly and easily complete the initial SNMP configuration for IMC Networks’ SNMP-manageable devices. With iConfig you can set the IP address, set the Subnet Mask and Default Gateway, define the Community Strings, and define SNMP Traps. iConfig can also be used to upload new versions of unit software.

iConfig offers an authorized IP address system and access restriction to MIB groups supported by the IMC Networks manageable devices. These extra layers of security are purely optional and do not effect SNMP compatibility in any way.

Default Username/Password

The default user ID and password for both iConfig and Telnet are the following:

- User–**admin**
- Password–**admin**

Refer to (P) - Password Protection/Changing Passwords on page [15](#) for information about setting or changing passwords.

NOTE
<i>It is the responsibility of the network administrator to store and maintain the password lists.</i>

About Dynamic Host Control Protocol (DHCP)

The iMcV-Giga-FiberLinX-II module includes a Dynamic Host Control Protocol (DHCP) client. By default, the DHCP client is disabled. When a DHCP server is enabled on the network, the DHCP client will initiate a dialogue with the server during the boot up sequence. The server will then issue an IP address, Default Gateway address and Subnet mask to the module. After the new IP address is received, the iMcV-Giga-FiberLinX-II will reboot with the new IP address.

When a DHCP server is not on the network, ensure that DHCP is disabled and use iConfig or serial configuration to manually set the IP addresses (refer to the *Serial Configuration/Telnet Session* section for DHCP Enable/Disable information).

If an IP address is already assigned to the device, and DHCP is then enabled, that original IP address is saved. When DHCP is disabled, the saved IP address will be reinstated and the device will reboot.

II - LED Operation

The following are iMcV-Giga-FiberLinX-II diagnostic LEDs. In this example, the functions for a 1x9 fiber port version (SC fiber) are shown below.

NOTE

In the SFP/SFP version the LNK/ACT and FDX/COL LEDs replace EXT 1000 and DATA 1000 for the top SFP, which does not have built-in LEDs like the RJ-45 DATA port. In addition, the copper SFP LNK/ACT LED glows green (does not flicker).

Port LEDs

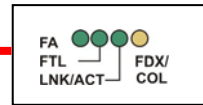
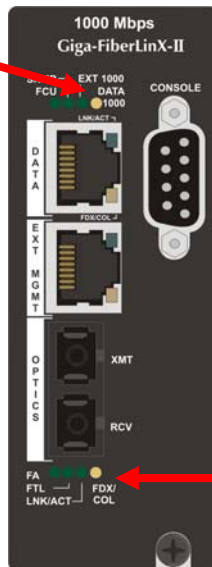
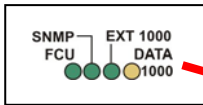


FDX/COL:

- Glows yellow when port is operating in Full-Duplex.
- Blinks yellow when collisions occur on port.

LNK/ACT:

- Glows green when link is established on port.
- Blinks green during data activity on port.



Diagnostic LEDs

FCU (Far CPU Up):

- **Host:** Glows green when far end is detected.
- **Remote:** Glows green for Remote units.
- **Standalone:** LED remains OFF.

SNMP:

Glows green with SNMP activity.

EXT 1000:

Glows green when EXT MGMT port is operating at 1000 Mbps.

DATA 1000:

Glows yellow when DATA port is operating at 1000 Mbps.

Optics Port LEDs

FA: Glows green when FiberAlert is enabled.

FTL (Far TX Link):

- **Host:** Glows green when a link is established on remote (far-end) DATA port.
- **Remote:** Glows green when unit is configured as Remote.
- **Standalone:** LED remains OFF.

LNK/ACT (Link/Activity):

- Glows green when link is established on port.
- Blinks green during data activity on port.

FDX/COL (Full Duplex/Collision):

- Glows yellow when port is operating in Full-Duplex.
- Blinks yellow when collisions occur on port.

III - Hardware Configuration

Before installing the module in a chassis, there are two features that must be selected using the DIP switches. These selections are:

- Enable or disable management on each port (DIP switches 1, 2, and 3)
- Configure the module as a standalone, a host, or a remote (DIP switches 7 and 8)

DIP Switch Settings

Before installing the iMcV-Giga-FiberLinX-II, use the DIP switches to set the hardware-configurable features. The DIP switches are located on switch SW1 on the iMcV-Giga-FiberLinX-II card. Refer to the diagram and table for switch settings and available features.



Switch	Function	Default Setting
1	Management on EXT MGMT port	ON
2	Management on DATA port	OFF
3	Management on OPTICS or UPLINK port	OFF
4	Factory use - Do not change	---
5	Factory use - Do not change	---
6	Factory use - Do not change	---
7	Remote Module	OFF
8	Host Module	OFF
9	Factory use - Do not change	---
0	Factory use - Do not change	---

Host/Remote and Standalone Units

The iMcV-Giga-FiberLinX-II can be used as a Host, Remote, or Standalone unit. Refer to the *Application Examples* section for examples.

When two iMcV-Giga-FiberLinX-II units are used as a pair, configure one as a Host unit (DIP switch 8 = ON) and the other as a Remote unit (DIP switch 7 = ON). As a host unit, the iMcV-Giga-FiberLinX-II requests management information from the attached remote unit. It then displays that information, along with its own, when

queried by SNMP. As a Remote unit, the iMcV-Giga-FiberLinX-II will respond to requests for management information from an attached Host unit.

The iMcV-Giga-FiberLinX-II default configuration is as a Standalone unit (DIP switches 7 and 8 = OFF).

Management

Although the iMcV-Giga-FiberLinX-II provides a twisted pair port solely for management (EXT MGMT), you can configure iMcV-Giga-FiberLinX-II to accept IP-based management traffic from any of its three ports. You can enable management on more than one port, or you can disable management on all of the ports, if desired. These switches limit only IP-based management. Host-to- Remote management is IP-less and is never blocked from the fiber port. Serial port management of the Host unit is always available on the DB-9 port regardless of the DIP switch settings.

In addition to defining which ports are used to manage the iMcV-Giga-FiberLinX-II units, the management DIP switch settings also define what ports the flow of the network provider's Management Domain traffic can take through the unit. By configuring a unique Management Domain, a Host/Remote pair of units can extend a secure-management LAN to a remote location to manage other equipment at the remote site.

IV - Installation Instructions

Each iMcV-Giga-FiberLinX-II module requires two slots in an iMediaChassis or MediaChassis. To install the module in a chassis, remove the blank faceplates covering the slots where you want to install the module. Then slide the module into the chassis card guides until the module is seated securely in the connector. Secure the module to the chassis by tightening the captive screw.

The iMcV-Giga-FiberLinX-II module includes on-board SNMP logic. A chassis other than an iMediaChassis series cannot manage an iMcV-Giga-FiberLinX-II, so the iMcV-Giga-FiberLinX-II must be managed independently.

When installed in an iMediaChassis, you can manage the iMcV-Giga-FiberLinX-II module from the chassis by using the Unified Management Agent (UMA). Refer to http://www.imcnetworks.com/Products/Unified_Management_Agent.cfm for more information about using UMA with iConfig, iMediaChassis and iMcV-Giga-FiberLinX-II.

iMcV-Giga-FiberLinX-II modules not managed by UMA must have an IP address assigned to them after installation before they can be managed. Refer to (I) - Assigning IP Information on page [15](#) for more information.

Small Form-Factor Pluggable Ports (SFP)

iMcV-Giga-FiberLinX-II modules are available with one or two optional SFP port(s). You must use a 1000 Mbps speed SFP for fiber connections or any gigabit copper SFP (1000 Mbps or 10/100/100 Mbps). In addition, many SFPs, including those from IMC Networks, feature enhanced diagnostics capabilities with a Digital Diagnostics Monitoring Interface (DDMI). DDMI statistics provide real-time access to transceiver operating parameters such as voltage, temperature, laser bias current, and both transmitted and received optical power. DDMI information can be accessed in iView² by clicking **Tables > SFP Info**.

NOTE
<i>iMcV-Giga-FiberLinX-II has been tested with the IMC Networks SFP modules. You can install any MSA-compliant SFP module. However, IMC Networks does not guarantee the functionality of non-IMC Networks SFP modules due to possible non-conformity with MSA design standards.</i>

V - Software Configuration

The following sections describe the features you can configure. Refer to the iView² online help for iMcV-Giga-FiberLinX-II module configuration information.

Assigning IP Information

When the iMcV-Giga-FiberLinX-II is installed in an iMediaChassis, you can use UMA to manage your iMcV-Giga-FiberLinX-II without an IP address (refer to the iView² online help for more information on UMA). When the iMcV-Giga-FiberLinX-II is not installed in an iMediaChassis, SNMP-management is not accessible until the iMcV-Giga-FiberLinX-II IP information (e.g., IP address, subnet mask, etc.) is configured (using iConfig, a serial port DB-9 connection, or DHCP). After assigning iMcV-Giga-FiberLinX-II an IP address, you can use iView² or another SNMP-compatible Network Management System (NMS) to remotely configure, monitor and manage the iMcV-Giga-FiberLinX-II.

Autonegotiation, Duplex Mode, and Speed

The DATA port (non-SFP version) and EXT MGMT port on the iMcV-Giga-FiberLinX-II module autonegotiate for speed and duplex mode. This module also provides the option of selectively advertising or forcing the speed and duplex mode. Refer to Port Configuration on page [19](#) for more information.

AutoCross Feature for Twisted Pair Connection

All twisted pair ports on the iMcV-Giga-FiberLinX-II include AutoCross, a feature that automatically selects between a crossover workstation and a straight-through connection depending on the connected device. Refer to Port Configuration on page [19](#) for more information.

Autonegotiation

The iMcV-Giga-FiberLinX-II ships from the factory with autonegotiation enabled on the twisted-pair and fiber ports. In this mode, the ports negotiate for speed and duplex. Refer to Port Configuration on page [19](#) for more information.

Forcing the Speed and Duplex Mode

You can manually set the twisted-pair ports on the iMcV-Giga-FiberLinX-II for 10 Mbps or 100 Mbps operation at Half- or Full-Duplex (i.e., 10 Mbps FDX, 10 Mbps HDX, 100 Mbps FDX, etc.). The OPTICS port operates at 1000 FDX. The FX port options are either FX AN or FX Force Mode. Refer to Port Configuration on page [19](#) for more information.

Selective Advertising

Selective Advertising, when used in combination with autonegotiation, advertises only the configured speed and duplex mode for the twisted pair port. If a specific speed and/or duplex mode are desired, IMC Networks recommends using Selective

Advertising, rather than Force Mode, when connecting to devices that only use autonegotiation. Refer to Port Configuration on page 19 for more information.

Bandwidth Control

Link Speed (Mbps)	Speed Increments (Kbps)
10	4.88
100	48.8
1000	244

The iMcV-Giga-FiberLinX-II includes bi-directional bandwidth control in increments of 244 Kbps per second at gigabit speed (configurable via iView²). This allows you to independently set the bandwidth limit from the

DATA Port to the OPTICS (or UPLINK) Port and vice versa in a single iMcV-Giga-FiberLinX-II application. In a dual iMcV-Giga-FiberLinX-II application you can set it from the Host unit to the Remote unit and vice versa (i.e., the bandwidth on the DATA ports on both the Host and Remote modules can be limited independently).

Note

Management packets do not have priority over data packets.

FX/TX LinkLoss and FiberAlert

During normal operation, link integrity pulses are transmitted by all point-to-point Ethernet devices. When an iMcV-Giga-FiberLinX-II receives valid link pulses, it knows the device to which it is connected is up, and the copper or fiber cable coming from that device is intact. The appropriate “LNK” (link) LED is lit to indicate this. For troubleshooting information using the LinkLoss and FiberAlert features of the iMcV-Giga-FiberLinX-II modules, refer to *Troubleshooting* at the end of this manual.

** WARNING **

The FiberAlert and LinkLoss features cause data interruptions designed to alert remote sites of line failures. These data interruptions can be misinterpreted as module failures when these features are enabled. Enable these features only when the resulting data interruptions and causes are well understood.

FX LinkLoss

FX LinkLoss is a link integrity monitoring feature that forwards fiber link faults to the RJ-45 DATA port to indicate that a fiber link fault has occurred.

TX LinkLoss

TX LinkLoss is a link integrity monitoring feature that forwards an RJ-45 link fault to the fiber connected device to indicate that a link fault has occurred.

FiberAlert

FiberAlert minimizes the problems associated with the loss of one strand of fiber. Normally when a single strand of fiber is lost, the transmitting side of the connection is unaware that there is a fault. FiberAlert returns faults back on the fiber they came in on.

Using LinkLoss and FiberAlert

In a typical central site to remote site media conversion, it is recommended that you enable the LinkLoss and FiberAlert features as indicated in the following:

FiberAlert and LinkLoss			
Feature	Enabled	Fault Location	Port affected
FiberAlert	Remote Side Only	Fiber	Fiber
TX LinkLoss	Remote Side (or both)	Twisted Pair	Fiber
FX LinkLoss	Host Side (or both)	Fiber	Twisted Pair

**** WARNING ****

Do not enable FiberAlert on both modules when using iMcV-Giga-FiberLinX-II in pairs. This will cause them to lock up when a fault occurs on the fiber. Only enable FiberAlert on the remote module.

Link Fault Pass-Through

Link Fault Pass-Through (LFPT) is a troubleshooting feature that combines TX and FX LinkLoss from both the local and remote iMcV-Giga-FiberLinX-II modules. LFPT is enabled by turning on both FX and TX LinkLoss on both modules. This feature allows either end of the conversion to detect a link fault occurring at the other end of the media conversion chain:

- A cable fault occurs on the remote twisted pair.
- TX LinkLoss detects the fault and disables the OPTICS (or UPLINK) port.
- FX LinkLoss detects the fiber loss and disables the DATA port.

The link fault is passed through the media conversion and is observed at each end. It acts just like it would if the devices were directly connected.

NOTE
<i>FiberAlert can also be added to the remote side of the pair to further assist in locating a fault.</i>

Loopback Testing on Remote or Standalone

The following functions are available during loopback testing. During loopback testing, management traffic entering the uplink port is still capable of managing the device.

Address Swap

A Layer 2 Ethernet switch will discard all received packets with the same MAC address as sent packets. To avoid this issue the Loopback feature can swap the source and destination MAC addresses on the looped data.

Address Swap and Clear Multicast Bit

In addition to swapping the source and destination MAC addresses on the looped data, the Loopback feature can also be set to clear the multicast bit. This allows the looped data to avoid being blocked by any multicast settings.

No Learning on OPTICS and DATA Ports

The Loopback feature can be set to disable address learning on the OPTICS (or UPLINK) and DATA ports, allowing the loopback to be performed without interference from MAC address filtering functions. This is a function on the HOST unit. Set the REMOTE unit for Loopback then set the HOST to disable learning so Loopback frames pass from the OPTICS port to the DATA port.

VI - Using Telnet

You must assign the iMcV-Giga-FiberLinX-II an IP address before using a Telnet session (this is not necessary when you are using UMA). Refer to the *Assigning IP Information* section for more information. All of the configurations that you can perform from the serial port can also be performed using a Telnet session. You can only use one Telnet session at a time.

The three levels for Telnet account access are:

- **User**—view status, change own password, and reboot.
- **Operator**—all User privileges mentioned above, plus ability to change settings.
- **Administrator**—operator privileges mentioned above, plus ability to add/delete accounts and reinitialize the unit to default settings (cleandb).

Serial Configuration/Telnet Session

The following sections describe serial configuration (including VLAN configuration), Telnet session configuration, and DHCP configuration.

NOTE
Some screens may show TX and FX for the port titles where TX = DATA port and FX = OPTICS (or UPLINK) port.

Serial Port (EXT MGMT)

NOTE
The serial port is always set to Administrator level. Your password for Telnet sessions is the password that you set and use in iConfig. Refer to iConfig on page 3 for more information.

Basic Device Configuration

After running through an initial self test, the prompt: "Press <Enter> for Device Configuration" displays. Press **Enter** to open the Main Configuration screen:

```

Saved Values. <These values will be active after reboot>
IP Address      - 10.10.10.10
Subnet Mask     - 255.0.0.0           DHCP is not active
Default Gateway - 000.000.000.000
Server IP Addr - 000.000.000.000
New PROM File  - filename

Current Values. <These values are in use now>
IP Address      - 10.10.10.10
Subnet Mask     - 255.0.0.0
Default Gateway - 000.000.000.000
Server IP Addr - 000.000.000.000
New PROM File  - filename

Community String: public   Access: r/w

Press I to enter new saved parameter values. Press P to change Password.
Press T to enter new Trap Destination. Press K to remove ALL Trap Destinations.
Press C to enter new Community String. Press U to remove ALL Community Strings.
Press E to End session. Type REBOOT to reboot unit. Press D for DHCP On/Off.
Press SpaceBar for additional commands.
```

This screen contains the following information and options:

Saved and Current Values

Saved values display the changes made during the current session and current values display the values currently in use:

- IP Address (IP address of SNMP agent)
- Subnet Mask (mask to define IP subnet to which agent is connected)
- Default Gateway (default router for IP traffic outside of the subnet)
- Server IP Address (TFTP server)
- New PROM File (TFTP new file name)

Commands List

I = enter new **Saved Parameter Values**

P = change the **Password***

T = enter new **Trap Destinations**

K = remove **All Trap Destinations**

C = create **SNMP Community Strings**

U = delete **All SNMP Community Strings**

E = **End** the session*

REBOOT = Allows you to **Reboot** the unit (may result in short data loss)

D = Allows you to enable or disable **DHCP**

Space Bar = Opens the device specific configuration options screen.

* Individuals with User-level rights can view only port status and port settings, change their password, end a session, and reboot the unit.

NOTE

After making any modifications to the Saved Values, reboot the unit for your changes to take effect. To reboot, type the word reboot at the prompt on the Main Configuration screen.

(I) - Assigning IP Information

Press **I** to modify the Saved Parameter Values (i.e., assign the IP address and subnet mask). You will be prompted to enter the IP address and subnet mask for the connected device. Press **Enter** after each entry. You can also assign a default gateway to allow the unit to be visible beyond the local network (press **Enter** to skip). If a gateway is not defined, the unit is visible only from the local network, not through the routers. When finished, press **Enter**, then type **reboot** for the changes to take effect. The Current Values on the Main Configuration screen are updated to match the Saved Values.

(P) - Password Protection/Changing Passwords

Passwords have the following requirements:

- The password must be between 1 and 8 characters long
- The password consists of a combination of any ASCII characters except spaces
- Passwords are case sensitive

You can password protect the serial port by pressing **P** in the Main Configuration screen. You will be prompted to enter a password. Enter your password (do not use spaces), and then press **Enter**. You will then be prompted for your password whenever you log on. To remove password protection, select **P** and instead of entering a password, press **Enter**.

Passwords are a way to make the management of the IMC Networks devices secure. It is your responsibility to store and maintain the password lists. If the passwords are lost, neither you nor IMC Networks has a way to "decode" it. Refer to the iView² iConfig online help for more password information.

If the serial password is forgotten, you must contact tech support for assistance in resetting the password. If the iConfig username and password are forgotten, you can launch a console session through the serial port, and type the command, **cleandb**. If both the serial and the iConfig passwords are forgotten, you must contact technical support.

(T) - Assigning SNMP Trap Destinations

Traps are sent by the manageable device to a management PC when a certain event takes place. To enter a trap destination, press **T**. At the prompt, "Enter a New IP Address," type the IP address of the destination device, and then press **Enter**. Next, type the name of the **community string** (that the destination device has been configured to accept) and press **Enter**. Select whether the trap is for SNMP version **1** or **2c** and press **Enter**. This function enables all of the device traps. When you want to selectively activate and de-activate traps, use iConfig to configure your device.

Supported traps include: Link Down, Link Up, Cold Start, Warm Start, and Authentication Failure.

When deployed in pairs, iMcV-Giga-FiberLinX-II also supports the following traps:

- Remote Unit Lost
- Remote Unit Found
- Far End TX Link Up
- Far End TX Link Down
- Remote Unit Cold Start
- Remote Unit Warm Start

(K) - Removing All SNMP Trap Destinations

To remove all trap destinations, press **K**. You will then be prompted, "Are you sure you want to delete all trap destinations?" Press **Y** to continue, press **N** to abort. Press **Enter** to finish.

This function will delete all trap destinations. If you want to be able to selectively delete trap destinations or select the type of trap reported or not reported, use iConfig to configure your device.

(C) - Creating SNMP Community Strings

The default community string is named "public" and has read/write access. It is recommended that you create custom community strings (with read-only access for general use and another with read/write access for the administrator) and test them before deleting "public." To create a new community string, go to the main configuration screen and press **C**. Enter the name of the new community (up to 16 characters, no spaces) and press **Enter**. Next, type one of the following to assign the community string's access rights:

- **R** = read-only access
- **W** = read/write access
- **Enter** = abort

(U) - Deleting All SNMP Community Strings

To delete all community strings and start over, press **U**. You will then be prompted, "Are you sure you want to delete all community strings?" Press **Y** to proceed, **N** to abort. Press **Enter** to finish.

This function will delete all community strings. If you want to be able to selectively delete community strings, use iConfig to configure your device.

(E) - Ending Your Session

Ensure you press **E** to end the session before disconnecting the serial cable. This will stop the continuous stream of data that is sent to the serial port.

(REBOOT) – Reboot Device

By typing **REBOOT**, the device will restart, which will result in a temporary loss of operation of the unit while it re-initializes.

(D) – Enabling DHCP

By pressing **D**, a screen displays allowing you to enable or disable DHCP for the device. By default, the DHCP client is disabled.

(Space Bar)—Commands List

The iMcV-Giga-FiberLinX-II also includes several device-specific options. To access these options, press the **space bar** from the Main Configuration screen, type the command name of the action you want to perform (as shown below) and press **Enter**.

Command	Description
cleandb	Reboot With Clean Database
download	File Download
ifstats	Display Port Statistics
rmstats	Display Port RMON Statistics
version	Show Firmware Version
reboot	Reboot Unit
security	Configure Non-Standard Network Settings
port	Display And Change Port Settings
config	Set mode of operation
accounts	Add or Delete Username/Password Accounts
sysdescr	Change System Descriptions
unit	Display And Change Unit Settings
bw	Display And Change Bandwidth Settings
sfstats	Display SFP DDMI Info
->	Press RETURN To Go Back To Main Screen.

Command	Description	See Page
cleandb	Allows Reboot of the unit with a clean database.	18
download	Downloads firmware from Server IP address using TFTP.	18

Command	Description	See Page
ifstats	Displays interface statistics.	
rmstats	Displays RMON statistics.	
version	Displays the firmware and hardware version information.	
reboot	Reboots the unit.	
security	Allows non-standard network configuration.	
port	Display/configure port status values.	19
config	Configure VLAN and Transparent modes of operation.	20
accounts	Add/delete Username/Password accounts.	13
sysdescr	Enter the MIB-II system description information.	
unit	Display and change unit settings.	26
bw	Display and change bandwidth settings.	27
Sfpstats	Display SFP diagnostics (SFP versions only).	

Clean Database—cleandb

There are two levels of cleandb: The first level resets the Telnet/iConfig password and all of the SNMP database values. The second level additionally resets the IP address, IP Subnet, Gateway, VLAN settings, CLI command settings, serial port password, and security settings.

Downloading Files—download

The iMcV-Giga-FiberLinX-II allows you to download firmware from a central server by using TFTP. To download firmware by using either a serial connection or a Telnet session, do the following:

1. In the Main Configuration screen, enter the **TFTP server IP Address** and the name of the **PROM** file you want to download (case sensitive).
2. Reboot the unit to make these settings current.
3. Press the **Space Bar** from the Command List section in the Main Configuration screen. The Device-Specific Options screen displays.
4. Type **download**, and then press **Enter**. The Download a File screen displays with the IP Address of the TFTP server and the name of the file you want to download. Confirm that the server IP address and the filename are correct.
5. Press **Enter**. The release notes are displayed. Use the space bar to page through the notes.
6. When you reach the end of the notes, press **Y** to start downloading the file.

7. The download progress displays and ends with a successful download message or with an error message.
8. Press **Q** or **F4** to return to the Device-Specific Options screen.

When the iMcV-Giga-FiberLinX-II is installed in a managed chassis, you have the option of using UMA to update the firmware (refer to the iView² online help for more information on using UMA with iConfig, iMediaChassis and iMcV-Giga-FiberLinX-II).

Port Configuration—port

The iMcV-Giga-FiberLinX-II allows you to view port status and configure some port features from a serial connection or a Telnet session. In the Commands List, type **port**, and then press **Enter** to access the Port Status/Control screen.

In the Port Status Values area of this screen you can view the link status, link lost counter, duplex status, and port speed.

----- Port Status Values -----			
	Optics	Data	EXT Mgmt
Link Status	Up	Up	Down
Link Lost Cntr	0	0	0
Duplex Status	Full	Full	Half
Port Speed	1000 Mbits	1000 Mbits	1000 Mbits
----- Port Control Settings -----			
		Data	EXT Mgmt
Port Enable		Enabled	Enabled
Admin Status		Up	Up
Port Speed Ctrl		Autoneg.	Autoneg.
Advertise Ctrl		Advert All	Advert All
Advertise FlowC		Adv Flow	Adv Flow
Force FlowCtrl	Erc FlowCt	Flow Auto	Flow Auto
Unit FlowControl	Ena. FlowC		

Use Arrow Keys To Move Cursor. Press Space Bar To Change Value.
Press RETURN To Set New Value. Press Q Or F4 To Exit

Copper SFP settings in the Optics column may be different. In the Port Control Settings area of the Port screen you can set the following:

Port Enable—Allows you to enable or disable the port. Both Port Enable and Admin Status must be enabled (enabled and up) to enable the port. This setting can be disabled from iView².

Admin Status—Allows you to enable (Up) or disable (Down) the port. Both Port Enable and Admin Status must be enabled (enabled and up) to enable the port. This setting can be disabled from MIB-II compatible software.

Port Speed Ctrl—Allows you to set the port for autonegotiation or to force one of the following speeds:

- 10/100/1000 Mbps Half-Duplex
- 10/100/1000 Mbps Full-Duplex

Advertise Ctrl—Selective advertising is used in combination with autonegotiation to advertise your selected speed and duplex mode for the DATA and EXT MGMT ports. This allows you to advertise all speeds and duplex modes. You must enable autonegotiation for selective advertising to work.

NOTE

If a specific speed and/or duplex mode are desired, IMC Networks recommends using selective advertising, instead of force mode (FO), when connecting to devices that can only autonegotiate. For the FO uplink versions, the port is always force flow control 1000 FDX and cannot be changed.

Advertise FlowC and Force FlowCtrl—the following are Advertise Control features. In Port Control Settings, enable Unit FlowControl, and then configure each port individually. Press the **space bar** to toggle to the function you want to enable:

Functionality	Advertise FlowC	Force FlowCtrl
Autonegotiation and Flow Control	Adv Flow	Flow Auto
Autonegotiation without Flow Control	Adv No Flow	N/A
Flow Control with Force Port Speed (port speed control)	Adv Flow	Frc FlowCt

All RJ-45 ports feature Flow Control in Full-Duplex and Back Pressure Flow control in Half-Duplex. Back Pressure Flow Control is a hardware based flow control that forces collisions on the line to limit bandwidth.

Unit FlowControl—enable or disable Flow Control for the unit. Before configuring each port individually, enable this global function.

Mode Configuration—config

The iMcV-Giga-FiberLinX-II can be configured to allow several combinations of VLAN tagging and management. This manual refers to the most useful combinations as *modes*. The applications of these modes are described in detail in the *Application Examples* section.

- Default (for initial setup purposes only)
- Transparent (Untagged Management, Tagged Management, Extra Tagging (Q-in-Q))
- VLAN Defined (Port VLAN, VLAN Filtering)

NOTE

Default mode is the factory default and is provided as a starting point from which to configure the iMcV-Giga-FiberLinX-II modules. This mode does not provide full management isolation and is not recommended for normal use.

This section describes the Telnet/serial port screens and fields available for configuring the iMcV-Giga-FiberLinX-II modes.

The iMcV-Giga-FiberLinX-II modes are configured using the **config** command from the Device-Specific Options screen. This opens the Transparent Mode screen or the VLAN Mode screen depending on the current configuration.

Transparent Mode

The Transparent Mode screen is displayed when the iMcV-Giga-FiberLinX-II module is configured in Default mode or Transparent mode.

Transparent Mode - with either (not both) Data and Optics Mgmt DIP switches set to on, all traffic passes between Optics and Data ports EXCEPT what has been defined as the Management Domain. The Management Domain can either be defined as untagged traffic or traffic with a specified VLAN ID.

In Transparent Mode with BOTH Optics and Data Mgmt DIP switches set to off, all traffic passes between the Optics and Data ports.

Default Mode - the unit passes only Untagged Packets.

The unit is currently in Default Mode.

Enter Y for Transparent Mode, N for no Transparent Mode or <enter> to move to other options [Y]

Transparent Mode Setup Screen

After entering **Y** in the Transparent Mode screen, the Transparent Mode Setup screen displays:

Transparent Mode - with either (not both) Data and Optics Mgmt DIP switches set to on, all traffic passes between Optics and Data port EXCEPT what has been defined as the Management Domain. The Management Domain can either be defined as untagged traffic or traffic with a specified VLAN ID.

Default Mode - the unit passes only Untagged Packets.

The unit is currently in Default Mode.

Enter Y for Transparent Mode, N for no Transparent Mode or <Enter> to move to other options [Y]

The mode has changed, a reboot is necessary after all changes have been completed. Enter S or F3 to exit with saving, Q or F4 to exit without saving. You may press any other key to proceed to the VLAN screen.

Note: If the units are configured in a Host/Remote configuration,
enabling transparent is an option. Standalone units do support
Transparent mode.

In this screen you can set the Extra Tag Mode.

Transparent Mode Setup

This parameter allows you to use all untagged data as the management domain by entering **N**, or allows you to define a VLAN ID tag for the management domain by entering **Y**. When you enter **Y**, this field expands to display the Management Tag field and the Management Priority field.

```
TRANSPARENT MODE SETUP
Is a VLAN tag required on Management packets? [ Y ]
  The Management Tag is [ 7 ]
  Management Priority is [ 0 ]

Are VLAN Tags required on the EXT Port?          [ N ]

Do you want to enter the Extra Tag mode? Enter Y for Extra Tagging.
Enter N if you do not want Extra Tags [ N ]

Type S or F3 to save the new information
Type Q of F4 to quit and cancel changes
```

WARNING

If the device is currently managed on any port other than the EXT MGMT port, do not leave the Management Tag field defined as zero (0). This will disable management traffic on the iMcV-Giga-FiberLinX-II. You must enter a VLAN ID between 1 and 4094 (excluding the VLAN ID used for the Extra Tag).

Transparent with Extra-Tagging

This parameter allows you to add a VLAN ID tag to all traffic (tagged or untagged) arriving on the DATA port by entering **Y**. This ID can optionally be kept or removed when leaving the DATA port. If you choose to keep the tag, the unit passes only frames with this tag. When you enter **Y**, this field expands to display the Data Tag, Data Priority, and Leave Tags on Data Port.

```
TRANSPARENT MODE SETUP
Is a VLAN tag required on Management packets? [ N ]

Do you want to enter the Extra Tag mode? Enter Y for Extra Tagging.
Enter N if you do not want Extra Tags [ Y ]
  The Data Tag is      [ 20 ]
  Data Priority is     [ 7 ]

Are Extra Tags left on the Data Port?          [ N ]

Are VLAN Tags required on the EXT Port?          [ N ]

Type S or F3 to save the new information
Type Q of F4 to quit and cancel changes

Reboot is required for any change to take affect.
```

Transparent with VLAN Tag on EXT MGMT Port

This parameter allows you to restrict the EXT MGMT port to only accept data tagged with the management VLAN ID by entering **Y**.

```

TRANSPARENT MODE SETUP
Is a VLAN tag required on Management packets? [ Y ]
The Management Tag is [ 7 ]
Management Priority is [ 0 ]
Are VLAN Tags required on the EXT Port?      [ N ]

Do you want to enter the Extra Tag mode? Enter Y for Extra Tagging.
Enter N if you do not want Extra Tags [ N ]

Type S or F3 to save the new information
Type Q of F4 to quit and cancel changes

Reboot is required for any change to take affect.

```

VLAN Mode Screen

When you enter **N** in the Transparent Mode Setup screen (page 22), the VLAN Mode screen displays:

```

Saved VLAN Values <Active after reboot>. Current VLAN Values <Active now>.

      VLAN IDs      Priorities      Tags
      Current  Saved  Current  Saved
Ports
Optics [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ N ] Data VLANs are used only
Data   [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ N ] if Tags are enabled on both
Management VLAN EXT Mgmt Tag the Optics and Data Ports.
SNMP   [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ N ]

Data Vlans <Optics <----> Data>
VLAN 1 [ 0 ] [ 0 ] VLAN 12 [ 0 ] [ 0 ] VLAN 23 [ 0 ] [ 0 ]
VLAN 2 [ 0 ] [ 0 ] VLAN 13 [ 0 ] [ 0 ] VLAN 24 [ 0 ] [ 0 ]
VLAN 3 [ 0 ] [ 0 ] VLAN 14 [ 0 ] [ 0 ] VLAN 25 [ 0 ] [ 0 ]
VLAN 4 [ 0 ] [ 0 ] VLAN 15 [ 0 ] [ 0 ] VLAN 26 [ 0 ] [ 0 ]
VLAN 5 [ 0 ] [ 0 ] VLAN 16 [ 0 ] [ 0 ] VLAN 27 [ 0 ] [ 0 ]
VLAN 6 [ 0 ] [ 0 ] VLAN 17 [ 0 ] [ 0 ] VLAN 28 [ 0 ] [ 0 ]
VLAN 7 [ 0 ] [ 0 ] VLAN 18 [ 0 ] [ 0 ] VLAN 29 [ 0 ] [ 0 ]
VLAN 8 [ 0 ] [ 0 ] VLAN 19 [ 0 ] [ 0 ] VLAN 30 [ 0 ] [ 0 ]
VLAN 9 [ 0 ] [ 0 ] VLAN 20 [ 0 ] [ 0 ] VLAN 31 [ 0 ] [ 0 ]
VLAN 10 [ 0 ] [ 0 ] VLAN 21 [ 0 ] [ 0 ] VLAN 32 [ 0 ] [ 0 ]
VLAN 11 [ 0 ] [ 0 ] VLAN 22 [ 0 ] [ 0 ]

Valid VLAN IDs are between 1 and 4094. Valid priorities are between 0 and 7.
Type S or F3 to save the changes. Type Q or F4 to quit and cancel changes.

```

In this screen you can set the following parameters:

- Default Mode
- Port VLAN on OPTICS (or UPLINK) port
- Port VLAN on DATA port
- Port VLAN Filter
- Management VLAN (available with all selections by default)

Default Mode

In the Tags column of both the Optics row and Data row, type **N** for Default mode.

```

Saved VLAN Values <Active after reboot>. Current VLAN Values <Active now>.

      VLAN IDs      Priorities      Tags
      Current  Saved  Current  Saved
Ports
Optics [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ N ] Data VLANs are used only
Data   [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ N ] if Tags are enabled on both
Management VLAN EXT Mgmt Tag the Optics and Data Ports.
SNMP   [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ N ]

```

No VLANs are defined allowing only untagged packets to pass through the unit.

Port VLAN on OPTICS (or UPLINK) port

This parameter allows you to restrict traffic to a single VLAN ID tag for the OPTICS (or UPLINK) port by entering **Y** in the Tags column of the Optics row. In the VLAN IDs - Saved column of the Data row, enter the VLAN ID tag to be used (in this example, 13). This VLAN ID will be added to all untagged traffic entering the DATA port and removed from all traffic leaving the DATA port.

```

Saved VLAN Values <Active after reboot>. Current VLAN Values <Active now>.

      VLAN IDs          Priorities          Tags
      Current   Saved   Current   Saved
Ports
Optics [0 ] [ 0 ] [0 ] [0 ] [ Y ] Data VLANs are used only
Data   [0 ] [13 ] [0 ] [0 ] [ N ] if Tags are enabled on both
Management VLAN
SNMP   [0 ] [0 ] [0 ] [0 ] [ N ] the Optics and Data Ports.
EXT Mgmt Tag
      [ N ]

Data VLANs <Optics <----> Data>
VLAN 1 [0 ] [0 ] VLAN 12 [0 ] [0 ] VLAN 23 [0 ] [0 ]
VLAN 2 [0 ] [0 ] VLAN 13 [0 ] [0 ] VLAN 24 [0 ] [0 ]
VLAN 3 [0 ] [0 ] VLAN 14 [0 ] [0 ] VLAN 25 [0 ] [0 ]
VLAN 4 [0 ] [0 ] VLAN 15 [0 ] [0 ] VLAN 26 [0 ] [0 ]
VLAN 5 [0 ] [0 ] VLAN 16 [0 ] [0 ] VLAN 27 [0 ] [0 ]
VLAN 6 [0 ] [0 ] VLAN 17 [0 ] [0 ] VLAN 28 [0 ] [0 ]
VLAN 7 [0 ] [0 ] VLAN 18 [0 ] [0 ] VLAN 29 [0 ] [0 ]
VLAN 8 [0 ] [0 ] VLAN 19 [0 ] [0 ] VLAN 30 [0 ] [0 ]
VLAN 9 [0 ] [0 ] VLAN 20 [0 ] [0 ] VLAN 31 [0 ] [0 ]
VLAN 10 [0 ] [0 ] VLAN 21 [0 ] [0 ] VLAN 32 [0 ] [0 ]
VLAN 11 [0 ] [0 ] VLAN 22 [0 ] [0 ]

Valid VLAN IDs are between 1 and 4094. Valid priorities are between 0 and 7.
Type S or F3 to save the changes. Type Q or F4 to quit and cancel changes.
  
```

Port VLAN on DATA Port

Restrict traffic to a single VLAN ID tag for the DATA port by entering **Y** in the Tags column of the Data row. In the VLAN IDs-Saved column of the Optics row, enter the **VLAN ID tag** to use (in this example, 13). The VLAN ID will be added to all untagged traffic entering the OPTICS (or UPLINK) port and removed from all traffic leaving the OPTICS (or UPLINK) port.

```

Saved VLAN Values <Active after reboot>. Current VLAN Values <Active now>.

      VLAN IDs          Priorities          Tags
      Current   Saved   Current   Saved
Ports
Optics [0 ] [13 ] [0 ] [0 ] [ N ] Data VLANs are used only
Data   [0 ] [0 ] [0 ] [0 ] [ Y ] if Tags are enabled on both
Management VLAN
SNMP   [0 ] [0 ] [0 ] [0 ] [ N ] the Optics and Data Ports.
EXT Mgmt Tag
      [ N ]

Data VLANs <Optics <----> Data>
VLAN 1 [0 ] [0 ] VLAN 12 [0 ] [0 ] VLAN 23 [0 ] [0 ]
VLAN 2 [0 ] [0 ] VLAN 13 [0 ] [0 ] VLAN 24 [0 ] [0 ]
  
```

Port VLAN Filter

Use the Port VLAN filter to pass traffic with up to 32 separate VLAN IDs between the OPTICS (or UPLINK) port and the DATA port. To enable the Data VLANS fields, you

must enter **Y** in the Tags column for both the Optics row and Data row. Enter up to **32** VLAN IDs in the Data VLANs fields, plus **one** for SNMP.

Saved VLAN Values <Active after reboot>. Current VLAN Values <Active now>.

Ports	VLAN IDs		Priorities		Tags	
	Current	Saved	Current	Saved		
Optics	[0]	[0]	[0]	[0]	[Y]	Data VLANs are used only if Tags are enabled on both the Optics and Data Ports.
Data	[0]	[0]	[0]	[0]	[Y]	
Management VLAN					EXT Mgmt Tag	
SNMP	[0]	[0]	[0]	[0]	[N]	

Data VLANs	<Optics <----> Data>
VLAN 1	[0] [900] [0] [911] [0] [922]
VLAN 2	[0] [901] [0] [912] [0] [923]
VLAN 3	[0] [902] [0] [913] [0] [924]
VLAN 4	[0] [903] [0] [914] [0] [925]
VLAN 5	[0] [904] [0] [915] [0] [926]
VLAN 6	[0] [905] [0] [916] [0] [927]
VLAN 7	[0] [906] [0] [917] [0] [928]
VLAN 8	[0] [907] [0] [918] [0] [909]
VLAN 9	[0] [908] [0] [919] [0] [930]
VLAN 10	[0] [909] [0] [920] [0] [931]
VLAN 11	[0] [910] [0] [921] [0] [932]

Valid VLAN IDs are between 1 and 4094. Valid priorities are between 0 and 7. Type S or F3 to save the changes. Type Q or F4 to quit and cancel changes.

Management VLAN and EXT MGMT Tag

This selection is available for all VLAN modes except for the default mode. Configure a VLAN ID for management traffic by entering an ID in the VLAN IDs – Saved column of the **SNMP** row (in this example, 200).

The EXT MGMT tag parameter provides the option of adding the defined Management VLAN ID to all untagged traffic entering the EXT MGMT port (EXT Mgmt Tag = N) or restricting the EXT MGMT port to pass only traffic bearing this VLAN ID (EXT Mgmt Tag = Y)

Saved VLAN Values <Active after reboot>. Current VLAN Values <Active now>.

Ports	VLAN IDs		Priorities		Tags	
	Current	Saved	Current	Saved		
Optics	[0]	[0]	[0]	[0]	[Y]	Data VLANs are used only if Tags are enabled on both the Optics and Data Ports.
Data	[13]	[13]	[0]	[0]	[Y]	
Management VLAN					EXT Mgmt Tag	
SNMP	[0]	[200]	[0]	[0]	[N]	

*****WARNING*****

If the device is currently managed on any port other than the EXT MGMT port, do not leave the Management Tag field defined as zero (0). This will disable management traffic on the iMcV-Giga-FiberLinX-II. You must enter a VLAN ID between 1 and 4094 (excluding the VLAN IDs used for the Port VLAN or for the Data VLANs).

Unit Configuration—unit

The iMcV-Giga-FiberLinX-II allows you to view unit status as well as configure some unit features by using a serial connection or a Telnet session. In the Main

Configuration screen, press the space bar, type **unit**, and press **Enter** to open the Unit Control Settings screen. In this screen you can view the unit FlowControl, FiberAlert/LinkLoss, Loopback, Maximum Frame Size, and 802.1p Base Priority (logging-in as a User in a Telnet session allows you to view these settings but prevents you from changing the settings).

```
----- Unit Control Settings -----
Unit FlowControl      Disable FlowControl Globally
Unit FiberAlert       TXLinkLoss Plus FXLinkLoss Enabled
Unit LoopBack         No LoopBack, Normal Traffic Mode
Unit Max FrameSize    1526
802.1p Base Pri       Base Priority                4
Boot Trap Deploy, Seconds  0
Use Arrow Keys To Move Cursor. Press Space Bar To Change Value.
Press RETURN To Set New Value. Type Q or F4 to Exit.
```

Unit FlowControl—This allows you to enable/disable Flow Control functionality on the unit. You must enable this to use Flow Control on any port. The settings include the following:

- Disable FlowControl Globally
- Enable FlowControl If Port Allows

Unit FiberAlert—This allows you to enable/disable FiberAlert and LinkLoss functionality on the unit. The settings include:

- No FiberAlert Or LinkLoss Enabled
- FXLinkLoss Only, Enabled
- TXLinkLoss Only, Enabled
- FiberAlert Plus FXLinkLoss Enabled
- FiberAlert Plus TXLinkLoss Enabled
- TXLinkLoss Plus FXLinkLoss Enabled
- TXLinkLoss + FXLinkLoss + FiberAlert Enabled
- FiberAlert Only

Unit LoopBack—enable/disable Loopback functionality on the unit. The settings include the following:

- No LoopBack, Normal Traffic Mode
- LoopBack Enabled
- LoopBack, Src/Dest Address Swap
- LoopBack, Address Swap, Clear Multicast bit
- No Learning on OPTICS (or UPLINK) or DATA Ports

Unit Max FrameSz—enter the maximum frame size on the unit by using the number keys. The valid values are 1518 to 12196.

802.1p Base Pri—set the threshold between low and high priority on the unit. For example, when the Base VLAN Priority is set to 4, priority settings of 0 through 3 are low priority and settings of 4 through 7 are high priority. When the Base VLAN Priority is set to 3, priority settings of 0 through 2 are low priority and priority settings of 3 through 7 are high priority.

Boot Trap Delay, Seconds—set the number of seconds before a Warm Start trap is sent by the agent. For example, 0.

Bandwidth Configuration—bw

The iMcV-Giga-FiberLinX-II allows you to view bandwidth status and to configure bandwidth from a serial connection or a Telnet session. In the Main Configuration screen, press the **space bar**, type **bw** and, then press **Enter** to access the Bandwidth Control Settings screen:

```
----- Bandwidth Control Settings -----
                                         Optics Port   Data Port
RX Bandwidth Limit, 0 For None          0             0
TX Bandwidth Limit, 0 For None          0             0
Unit RateControl Enable/Disable         Disable

Use Arrow Keys To Move Cursor. Press Space Bar To Change Value.
Press RETURN To Set New Value. Press Q or F4 to Exit.
```

This screen includes the following parameters:

- Receive Bandwidth Limit (policing)
- Transmit Bandwidth Limit (shaping)
- Unit Rate Control

RX Bandwidth Limit—allows you to set the receive bandwidth limit (up to 1000 Mbps) for both the DATA port and OPTICS (or UPLINK) port. Entering a setting of either 0 or 1000000000 will result in a limit of 1000 Mbps. When the received data reaches the set limit in a one second interval, the unit stops receiving data. If flow control is enabled, then flow control begins prior to reaching the set limit.

TX Bandwidth Limit—allows you to set the transmit bandwidth limit (up to 1000 Mbps) for both the DATA and OPTICS (or UPLINK) ports. Entering a setting of either 0 or 1000000000 will result in a limit of 1000 Mbps. When the transmit data reaches the set limit in a one second interval, the unit stops transmitting data, but will continue to receive until all the internal buffers are filled. If flow control is enabled, then flow control begins before all the buffers are filled.

NOTE
<i>It is not recommended to set both the RX and TX Bandwidth limits at the same time.</i>

Unit RateControl Enable/Disable—enable or disable the bandwidth limiting feature on this unit.

VII - Application Overview

Before using iMcV-Giga-FiberLinX-II in your network, decide the following:

- Will iMcV-Giga-FiberLinX-II units be located at only one or at both ends of the fiber?
- How do you want to manage the iMcV-Giga-FiberLinX-II units?
- Will you define VLAN IDs?

How many iMcV-Giga-FiberLinX-II units will you use?

- Two for Host/Remote applications—allows IP-less management providing greater security (only with an SNMP management module)
- One for a single unit application—requires an assigned IP address for management

How do you want to manage iMcV-Giga-FiberLinX-II?

You can manage iMcV-Giga-FiberLinX-II through any of its three ports (and any combination thereof) or from the chassis. Using only the EXT MGMT port or UMA provides the highest level of security. If management must be through either the DATA port or UPLINK port, then a unique VLAN tag is recommended to maintain security.

Will you define VLAN IDs?

When you want to use VLAN traffic with specific tags on any/all of the DATA ports, you will need to disable Transparency and define VLAN IDs (refer to *VLAN Configuration* section). When you want to use both VLAN tagged, untagged, or double-tagged traffic, enable Transparency. When you want to use only untagged traffic, set the unit to Default mode.

VIII - Application Examples

The following are application examples of the different VLAN configuration modes available using the iMcV-Giga-FiberLinX-II. If you require assistance configuring an application, email IMC Networks Technical Support at techsupport@imcnetworks.com.

The application modes include the following:

- Default
- Transparent with Untagged Management
- Transparent with Tagged Management
- Transparent with Extra Tagging (Q-in-Q)
- Port VLAN
- Port VLAN Filter

NOTE
<i>When configuring VLAN IDs, remember that you can use any VLAN ID between 1 and 4,094. The VLAN IDs used in the following applications are for example purposes only.</i>

Default

Default mode passes only untagged data between the DATA port and the OPTICS (or UPLINK) port. This mode is the factory default and is provided as a starting point from which to configure the iMcV-Giga-FiberLinX-II modules. It is not intended as a mode for normal use.

NOTE
<i>Default Mode does not provide any management traffic protection and is not recommended for normal use.</i>

Transparent with Untagged Management

Transparent with Untagged Management mode passes tagged traffic between the DATA port and the OPTICS (or UPLINK) port and allows untagged traffic to be considered management domain traffic (untagged).

To configure this mode, do the following:

1. Set the management DIP switch ON for the ports using management (in this example it is the OPTICS (or UPLINK) port: 3 = ON). To enable External Management (EXT MGMT), set DIP Switch 1 to ON. (otherwise, leave DIP Switch 1 in the OFF position (default from factory) to disable EXT MGMT)
2. Set Transparent Mode to allow both tagged data and untagged management traffic to pass:
 - a. In the Main Configuration screen, press the space bar and type **config**. The Configuration Screen displays:

```
Transparent Mode - with either (not both) Data and Optics Mgmt dipswitches
set to on, all traffic passes between Optics and Data port EXCEPT what has
been defined as the Management Domain. The Management Domain can either be
defined as untagged traffic or traffic with a specified VLAN ID.

In Transparent Mode with BOTH Optics and Data Mgmt dipswitches set to off,
all traffic passes between the Optics and Data Ports.

Default Mode - the unit passes only Untagged Packets.

The unit is currently in Default Mode.

Enter Y for Transparent Mode, N for no Transparent Mode or <enter> to
move to other options [ Y ]
```

- b. Enter **Y** in the Transparent Mode field and press any key (except S or Q) to open the Transparent Mode Setup screen.

```
TRANSPARENT MODE SETUP
Is a VLAN tag required on Management packets? [ N ]

Do you want to enter the Extra Tag mode? Enter Y for Extra Tagging.
Enter N if you do not want Extra Tags [ N ]

Are VLAN Tags required on the EXT Port? [ N ]

Type S or F3 to save the new information
Type Q of F4 to quit and cancel changes

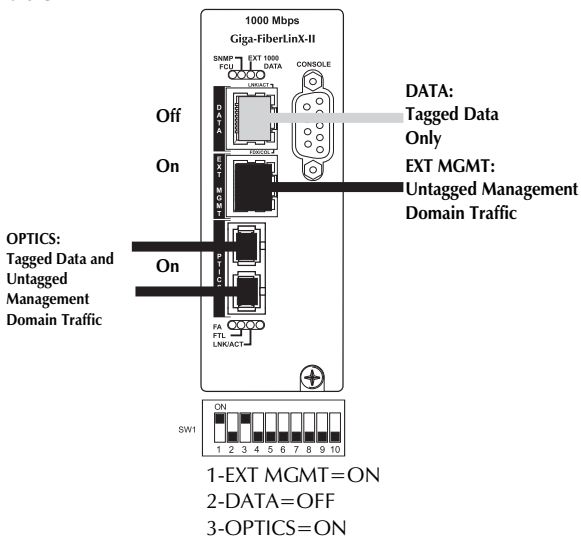
Reboot is required for any change to take affect.
```

- c. Press **S** or **F3** to save without setting any transparent mode options. This will set all untagged traffic as management (**Is a VLAN tag required on Management packets? [N]**).
- d. Type **reboot**. In this mode tagged and untagged data can pass from the OPTICS and DATA ports. If the EXT MGMT DIP switches are enabled, untagged packets are allowed access to management.

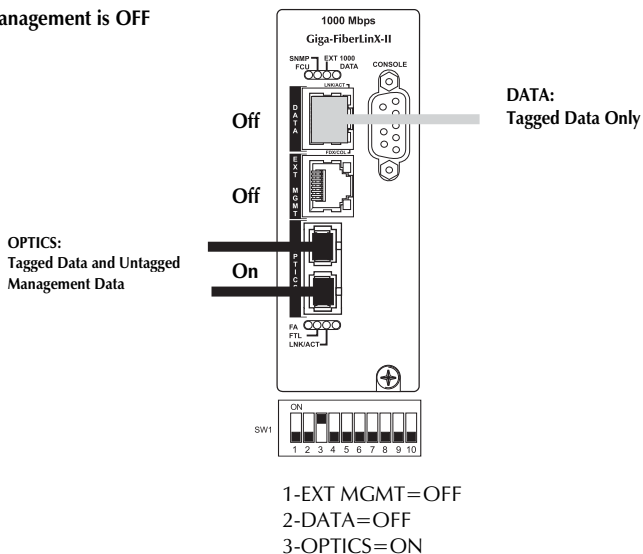
NOTE

The flow of management domain traffic is defined by the DIP switches. For example, if the management DIP switches are on the OPTICS and DATA ports, management domain traffic is allowed to flow through those ports.

External Management is ON



External Management is OFF



Transparent with Tagged Management

Transparent with Tagged Management mode passes both tagged and untagged traffic between the DATA port and the OPTICS (or UPLINK) port. By using a VLAN Tag you can isolate and route the management path in the module. This method can be used with or without continuing the management path down the EXT MGMT port.

To configure this mode, do the following:

1. Set the management DIP switch ON for the ports using management (in this example it is the OPTICS (or UPLINK) 3 = ON and EXT MGMT 1 = ON).
2. Set Transparent Mode to allow both tagged and untagged traffic to pass:
 - a. In the Main Configuration screen, press the space bar and type **config**. The Configuration screen displays:

```
Transparent Mode - with either (not both) Data and Optics Mgmt DIP switches
set to on, all traffic passes between Optics and Data port EXCEPT what has
been defined as the Management Domain. The Management Domain can either be
defined as untagged traffic or traffic with a specified VLAN ID.

In Transparent Mode with BOTH Optics and Data Mgmt dipswitches set to off,
all traffic passes between the Optics and Data Ports.

Default Mode - the unit passes only Untagged Packets.

The unit is currently in Default Mode.

Enter Y for Transparent Mode, N for no Transparent Mode or <enter> to
move to other options [ Y ]
```

- b. Enter **Y** in the Transparent Mode field and press any key (except S or Q) to open the Transparent Mode Setup screen.

```
Transparent Mode - with either (not both) Data and Optics Mgmt DIP switches
set to on, all traffic passes between Optics and Data port EXCEPT what has
been defined as the Management Domain. The Management Domain can either be
defined as untagged traffic or traffic with a specified VLAN ID.

Default Mode - the unit passes only Untagged Packets.

The unit is currently in Default Mode.

Enter Y for Transparent Mode, N for no Transparent Mode or <Enter> to move to
other options [Y]

The mode has changed, a reboot is necessary after all changes have been
completed. Enter S or F3 to exit with saving, Q or F4 to exit without saving.
You may press any other key to proceed to the VLAN screen.

*****
Note: If the units are configured in a Host/Remote configuration,
enabling Transparent is an option. Standalone units do support
Transparent mode.
*****
```

- c. Enter **Y** in the **Is a VLAN tag required on Management packets?** field. The screen displays the management tag fields:

```
Is a VLAN tag required on Management packets? [ Y ]
The Management Tag is [ 0 ]
Management Priority is [ 0 ]
```

d. Enter the management tag (VLAN ID) and the priority (optional).

```
Is a VLAN tag required on Management packets? [ Y ]
The Management Tag is [ 7 ]
Management Priority is [ 0 ]
```

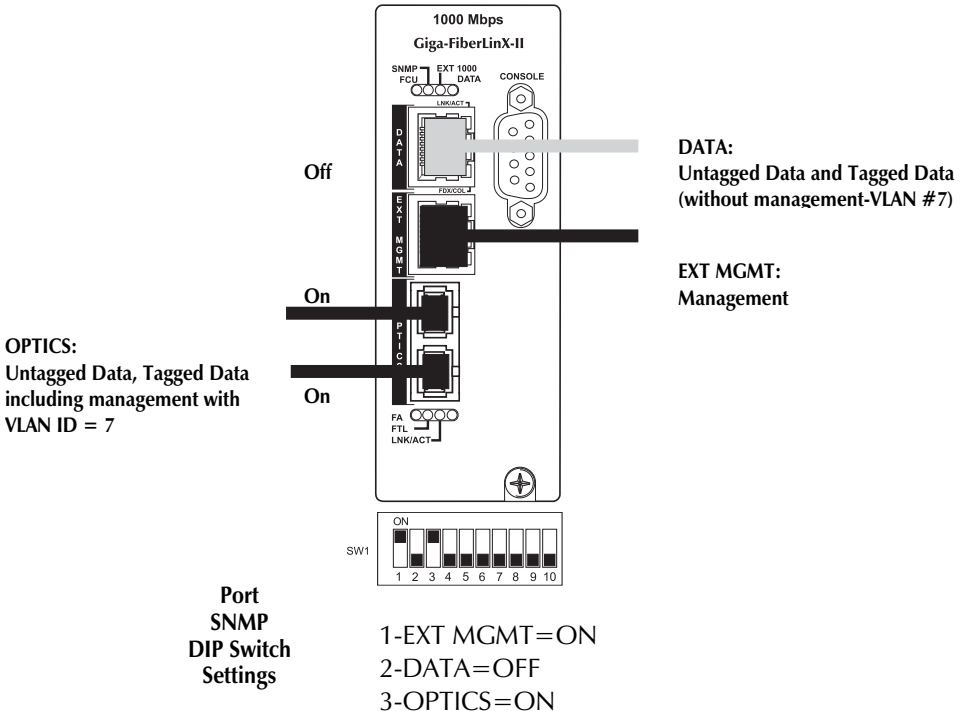
e. Ensure the **Are VLAN Tags required on the EXT Port?** field is set to N.

```
Are VLAN Tags required on the EXT Port? [ N ]
```

f. Press **S** or **F3** to save the settings. This will set all traffic with VLAN ID 7 as management.

g. Type **reboot**.

Now the iMcV-Giga-FiberLinX-II is configured to pass all data between the OPTICS (UPLINK) and DATA ports, except data tagged with VLAN ID 7. All data tagged with VLAN ID 7 is considered management traffic and passes from the OPTICS (UPLINK) port to the EXT MGMT port only. The iMcV-Giga-FiberLinX-II is configured to receive untagged data from the twisted pair EXT MGMT port and add the VLAN ID 7 before sending it out of the OPTICS (or UPLINK) port. In this mode the EXT MGMT port provides a secure link to the management port at the other end of the fiber line.



Transparent with Extra Tagging (Q-in-Q)

Transparent with Extra Tagging mode can add an extra tag to data received on the DATA port. By using Extra Tagging in a Host/Remote iMcV-Giga-FiberLinX-II pair, all data received on the Remote iMcV-Giga-FiberLinX-II DATA port can be extra-tagged and sent out of the Host iMcV-Giga-FiberLinX-II DATA port with a unique tag for identification in the Host cloud. In the reverse direction the extra tag is removed before sending the data out of the Remote iMcV-Giga-FiberLinX-II DATA port.

Do the following to set the Extra Tag Mode on both iMcV-Giga-FiberLinX-II modules:

1. In the Main Configuration screen, press the **space bar** and type **config**. The Configuration screen displays:

```
Transparent Mode - with either (not both) Data and Optics Mgmt DIP switches
set to on, all traffic passes between Optics and Data port EXCEPT what has
been defined as the Management Domain. The Management Domain can either be
defined as untagged traffic or traffic with a specified VLAN ID.

In Transparent Mode with BOTH Optics and Data Mgmt DIP switches set to off,
all traffic passes between the Optics and Data Ports.

Default Mode - the unit passes only Untagged Packets.

The unit is currently in Default Mode.

Enter Y for Transparent Mode, N for no Transparent Mode or <enter> to
move to other options [ Y ]
```

2. In the Transparent Mode field, type **Y** and press any **key** (except S or Q) to open the Transparent Mode Setup screen.

```
Transparent Mode - with either (not both) Data and Optics Mgmt DIP switches
set to on, all traffic passes between Optics and Data port EXCEPT what has
been defined as the Management Domain. The Management Domain can either be
defined as untagged traffic or traffic with a specified VLAN ID.

Default Mode - the unit passes only Untagged Packets.

The unit is currently in Default Mode.

Enter Y for Transparent Mode, N for no Transparent Mode or <Enter> to move to
other options [Y]

The mode has changed, a reboot is necessary after all changes have been
completed. Enter S or F3 to exit with saving, Q or F4 to exit without saving.
You may press any other key to proceed to the VLAN screen.

*****
Note: If the units are configured in a Host/Remote configuration,
enabling Transparent is an option. Standalone units do support
Transparent mode.
*****
```

3. Enter **Y** in the **Do you want to enter the Extra Tag mode?** field. The screen expands to displays the Extra Tag mode fields:

```
Do you want to enter the Extra Tag mode? Enter Y for Extra Tagging.
Enter N if you do not want Extra Tags [ Y ]
The Data Tag is [ 0 ]
Data Priority is [ 0 ]
Are Extra Tags left on the Data Port? [ N ]
```

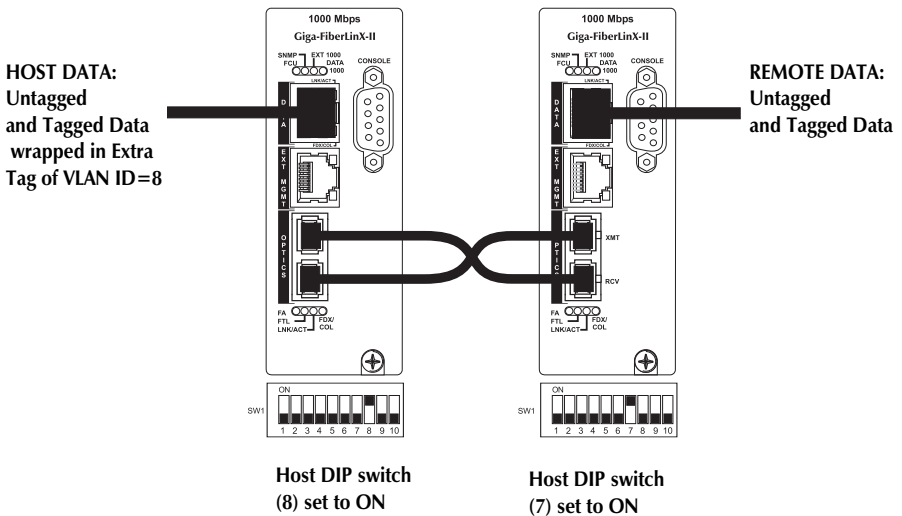
Enter the extra tag **VLAN ID** (for example, 8) and the Priority (optional). These values must be identical on both iMcV-Giga-FiberLinX-II modules.

```

The Data Tag is      [ 8 ]
Data Priority is     [ 0 ]
Are Extra Tags left on the Data Port?      [ N ]
  
```

4. On the Host iMcV-Giga-FiberLinX-II module, enter **Y** in the Are Extra Tags left on the Data Port? field to accept only the Extra Tag VLAN ID on the DATA port. On the Remote iMcV-Giga-FiberLinX-II module, enter **N** to have the Extra Tag VLAN ID added to incoming and removed from outgoing data on the DATA port.
5. Press **S** or **F3** to save the settings.
6. Type **reboot**. Repeat steps for second module.

Now the iMcV-Giga-FiberLinX-II Host/Remote pair are configured to pass only VLAN ID 8 data from the Host iMcV-Giga-FiberLinX-II to the Remote iMcV-Giga-FiberLinX-II. VLAN ID 8 tag is removed before sending the data out of the Remote DATA port. The Extra Tag VLAN ID 8 is added to all data received on the Remote DATA port before being sent to the Host iMcV-Giga-FiberLinX-II where the VLAN ID 8 tag remains on the data leaving the Host DATA port.



Management is provided through the chassis only.

Port VLAN

The Port VLAN mode allows you to configure the iMcV-Giga-FiberLinX-II to accept only data tagged with one specific VLAN ID. This mode can be configured for either the OPTICS (or UPLINK) port or the DATA port.

VLAN on DATA Port-Configuration

To configure this mode, perform the following:

1. In the Main Configuration screen, press the **space bar** and type **config**. The Configuration screen displays:

```
Transparent Mode - with either (not both) Data and Optics Mgmt dipswitches
set to on, all traffic passes between Optics and Data port EXCEPT what has
been defined as the Management Domain. The Management Domain can either be
defined as untagged traffic or traffic with a specified VLAN ID.

In Transparent Mode with BOTH Optics and Data Mgmt dipswitches set to off,
all traffic passes between the Optics and Data Ports.

Default Mode - the unit passes only Untagged Packets.

The unit is currently in Default Mode.

Enter Y for Transparent Mode, N for no Transparent Mode or <enter> to
move to other options [ N ]
```

2. Enter **N** in the Transparent Mode field and press any key (except S or Q) to open the VLAN screen:

```
Saved VLAN Values <Active after reboot>. Current VLAN Values <Active now>.

          VLAN IDs          Priorities          Tags
        Current  Saved    Current  Saved
Ports
Optics [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ N ] Data VLANs are used only
Data   [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ N ] if Tags are enabled on both
Management VLAN          EXT Mgmt Tag the Optics and Data Ports.
SNMP   [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ N ]

Data VLANs <Optics <----> Data>
VLAN 1 [ 0 ] [ 0 ] VLAN 12 [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ]
VLAN 2 [ 0 ] [ 0 ] VLAN 13 [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ]
VLAN 3 [ 0 ] [ 0 ] VLAN 14 [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ]
VLAN 4 [ 0 ] [ 0 ] VLAN 15 [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ]
VLAN 5 [ 0 ] [ 0 ] VLAN 16 [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ]
VLAN 6 [ 0 ] [ 0 ] VLAN 17 [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ]
VLAN 7 [ 0 ] [ 0 ] VLAN 18 [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ]
VLAN 8 [ 0 ] [ 0 ] VLAN 19 [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ]
VLAN 9 [ 0 ] [ 0 ] VLAN 20 [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ]
VLAN 10 [ 0 ] [ 0 ] VLAN 21 [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ]
VLAN 11 [ 0 ] [ 0 ] VLAN 22 [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ 0 ]
Valid VLAN IDs are between 1 and 4094. Valid priorities are between 0 and 7.
Type S or F3 to save the changes. Type Q or F4 to quit and cancel changes.
```

3. Enter **Y** in the Tags column of the Data row and **N** in the Optics row. Enter a VLAN ID in the VLAN IDs Current column of the OPTICS row (for example, 13).

```
          VLAN IDs          Priorities          Tags
        Current  Saved    Current  Saved
Ports
Optics [ 0 ] [ 13 ] [ 0 ] [ 0 ] [ N ] Data VLANs are used only
Data   [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ Y ] if Tags are enabled on both
the Optics and Data Ports.
```

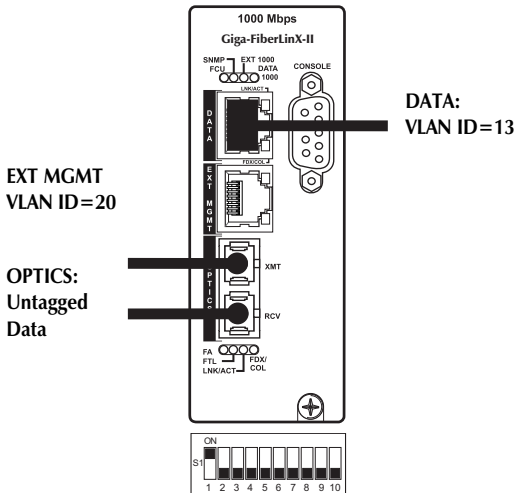

In the SNMP field, type **Y**.

Ports	VLAN IDs		Priorities		Tags		Data VLANs are used only if Tags are enabled on both the Optics and Data Ports.
	Current	Saved	Current	Saved			
Optics	[0]	[13]	[0]	[0]	[N]	[Y]	
Data	[0]	[0]	[0]	[0]	[Y]	[Y]	
Management VLAN.....	EXT Mgmt Tag						
SNMP....	[0]	[20]	[0]	[0]	[Y]	[Y]	

- Press **S** or **F3** to save the settings.
- Type **reboot**.

Now the iMcV-Giga-FiberLinX-II is configured to pass only VLAN ID 13 from the DATA port to the OPTICS (or UPLINK) port. Untagged packets arriving at the OPTICS (or UPLINK) port (Tags = N) receive a tag (VLAN ID = 13) before being sent out of the DATA port. The VLAN ID number used for a port must be different than the number used for the Management VLAN ID tag (VLAN ID=20). The EXT MGMT must have VLAN=20.

If **Y** is entered in the EXT MGMT Tag field, the VLAN ID for this port is the value in the Management VLAN field. In this case, define a VLAN ID in the Management VLAN field. If the unit is managed through the EXT MGMT port using untagged frames, the Management VLAN does not need to be defined.



- 1-EXT MGMT=ON
- 2-DATA=OFF
- 3-OPTICS=OFF

VLAN on OPTIC Port-Configuration

To configure this mode, do the following:

- In the Main Configuration screen, press the **space bar** and type **config**. The Configuration screen displays:

Transparent Mode - with either (not both) Data and Optics Mgmt dipswitches set to on, all traffic passes between Optics and Data port EXCEPT what has been defined as the Management Domain. The Management Domain can either be defined as untagged traffic or traffic with a specified VLAN ID.

In Transparent Mode with BOTH Optics and Data Mgmt dipswitches set to off, all traffic passes between the Optics and Data Ports.

Default Mode - the unit passes only Untagged Packets.

The unit is currently in Default Mode.

Enter Y for Transparent Mode, N for no Transparent Mode or <enter> to move to other options [N]

- Enter **N** in the Transparent Mode field and press any key (except S or Q) to open the VLAN screen:

Saved VLAN Values <Active after reboot>. Current VLAN Values <Active now>.

Ports	VLAN IDs		Priorities		Tags		Data VLANs are used only if Tags are enabled on both the Optics and Data Ports.
	Current	Saved	Current	Saved			
Optics	[0]	[0]	[0]	[0]	[N]	[N]	
Data	[0]	[0]	[0]	[0]	[N]	[N]	
Management VLAN					EXT	Mgmt Tag	
SNMP	[0]	[0]	[0]	[0]	[N]	[N]	

Data VLANs <Optics <----> Data>

VLAN 1	[0]	[0]	VLAN 12	[0]	[0]	VLAN 23	[0]	[0]
VLAN 2	[0]	[0]	VLAN 13	[0]	[0]	VLAN 24	[0]	[0]
VLAN 3	[0]	[0]	VLAN 14	[0]	[0]	VLAN 25	[0]	[0]
VLAN 4	[0]	[0]	VLAN 15	[0]	[0]	VLAN 26	[0]	[0]
VLAN 5	[0]	[0]	VLAN 16	[0]	[0]	VLAN 27	[0]	[0]
VLAN 6	[0]	[0]	VLAN 17	[0]	[0]	VLAN 28	[0]	[0]
VLAN 7	[0]	[0]	VLAN 18	[0]	[0]	VLAN 29	[0]	[0]
VLAN 8	[0]	[0]	VLAN 19	[0]	[0]	VLAN 30	[0]	[0]
VLAN 9	[0]	[0]	VLAN 20	[0]	[0]	VLAN 31	[0]	[0]
VLAN 10	[0]	[0]	VLAN 21	[0]	[0]	VLAN 32	[0]	[0]
VLAN 11	[0]	[0]	VLAN 22	[0]	[0]			

Valid VLAN IDs are between 1 and 4094. Valid priorities are between 0 and 7. Type S or F3 to save the changes. Type Q or F4 to quit and cancel changes.

- Enter **Y** in the Tags column of the Optics row and enter a VLAN ID in the VLAN IDs Current column of the Data row (for example, 13).

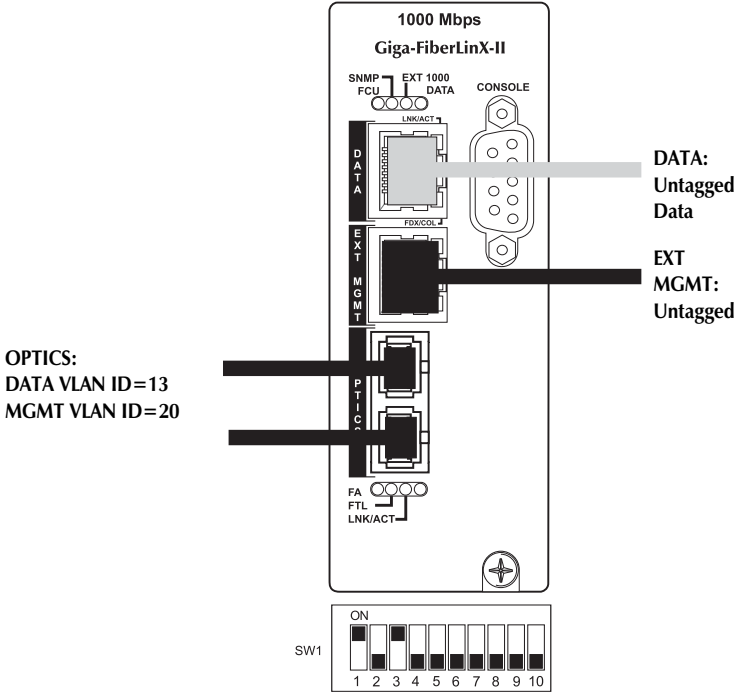
Ports	VLAN IDs		Priorities		Tags		Data VLANs are used only if Tags are enabled on both the Optics and Data Ports.
	Current	Saved	Current	Saved			
Optics	[0]	[0]	[0]	[0]	[Y]	[N]	
Data	[0]	[13]	[0]	[0]	[N]	[N]	

- Enter a VLAN ID in the **Management VLAN IDs** field.

Ports	VLAN IDs		Priorities		Tags		Data VLANs are used only if Tags are enabled on both the Optics and Data Ports.
	Current	Saved	Current	Saved			
Optics	[0]	[13]	[0]	[0]	[N]	[N]	
Data	[0]	[0]	[0]	[0]	[Y]	[Y]	
Management VLAN.....					EXT	Mgmt Tag	
SNMP....	[0]	[20]	[0]	[0]	[N]	[N]	

5. Press **S** or **F3** to save the settings.
6. Type **reboot**.

The iMcV-Giga-FiberLinX-II is now configured to pass only VLAN ID 13 from the OPTICS (or UPLINK) port to the DATA port. Untagged packets arriving at the DATA port (Tags = N) receive a tag (VLAN ID = 13) before being sent out of the OPTICS (or UPLINK) port. The VLAN ID number used for a port must be different than the number used for the Management VLAN ID.



- 1-EXT MGMT=ON
- 2-DATA=OFF
- 3-OPTICS=ON

Management of a host unit through the external port requires an IP address on the host unit. A remote unit connected over the fiber link is managed through the local unit using internal IP-less communication. If direct IP management of remote units is required, then DIP switch #3 must be ON and the remote must have an IP address.

Port VLAN Filter

The VLAN filter mode allows you to isolate a segment of the network to only accept data using some or all of the 32 available VLAN IDs.

To configure this mode, do the following:

1. In the Main Configuration screen, press the space bar and type **config**. The Configuration screen displays:

```
Transparent Mode - with either (not both) Data and Optics Mgmt dipswitches
set to on, all traffic passes between Optics and Data port EXCEPT what has
been defined as the Management Domain. The Management Domain can either be
defined as untagged traffic or traffic with a specified VLAN ID.

In Transparent Mode with BOTH Optics and Data Mgmt dipswitches set to off,
all traffic passes between the Optics and Data Ports.

Default Mode - the unit passes only Untagged Packets.

The unit is currently in Default Mode.

Enter Y for Transparent Mode, N for no Transparent Mode or <enter> to
move to other options [ N ]
```

2. Enter **N** in the Transparent Mode field and press any key (except S or Q) to open the VLAN screen:

```
Saved VLAN Values <Active after reboot>. Current VLAN Values <Active now>.

      VLAN IDs      Priorities      Tags
      Current  Saved  Current  Saved
Ports
Optics [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ N ] Data VLANs are used only
Data   [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ N ] if Tags are enabled on both
Management VLAN
SNMP   [ 20 ] [ 0 ] [ 0 ] [ 0 ] [ N ] the Optics and Data Ports.
EXT Mgmt Tag

Data VLANs <Optics <----> Data>
VLAN 1 [ 0 ] [ 0 ] VLAN 12 [ 0 ] [ 0 ] [ 0 ] VLAN 23 [ 0 ] [ 0 ]
VLAN 2 [ 0 ] [ 0 ] VLAN 13 [ 0 ] [ 0 ] [ 0 ] VLAN 24 [ 0 ] [ 0 ]
VLAN 3 [ 0 ] [ 0 ] VLAN 14 [ 0 ] [ 0 ] [ 0 ] VLAN 25 [ 0 ] [ 0 ]
VLAN 4 [ 0 ] [ 0 ] VLAN 15 [ 0 ] [ 0 ] [ 0 ] VLAN 26 [ 0 ] [ 0 ]
VLAN 5 [ 0 ] [ 0 ] VLAN 16 [ 0 ] [ 0 ] [ 0 ] VLAN 27 [ 0 ] [ 0 ]
VLAN 6 [ 0 ] [ 0 ] VLAN 17 [ 0 ] [ 0 ] [ 0 ] VLAN 28 [ 0 ] [ 0 ]
VLAN 7 [ 0 ] [ 0 ] VLAN 18 [ 0 ] [ 0 ] [ 0 ] VLAN 29 [ 0 ] [ 0 ]
VLAN 8 [ 0 ] [ 0 ] VLAN 19 [ 0 ] [ 0 ] [ 0 ] VLAN 30 [ 0 ] [ 0 ]
VLAN 9 [ 0 ] [ 0 ] VLAN 20 [ 0 ] [ 0 ] [ 0 ] VLAN 31 [ 0 ] [ 0 ]
VLAN 10 [ 0 ] [ 0 ] VLAN 21 [ 0 ] [ 0 ] [ 0 ] VLAN 32 [ 0 ] [ 0 ]
VLAN 11 [ 0 ] [ 0 ] VLAN 22 [ 0 ] [ 0 ] [ 0 ]
Valid VLAN IDs are between 1 and 4094. Valid priorities are between 0 and 7.
Type S or F3 to save the changes. Type Q or F4 to quit and cancel changes.
```

3. Enter **Y** in the Tags column of both the Optics row and the Data row to enable Data VLANs.

```
      VLAN IDs      Priorities      Tags
      Current  Saved  Current  Saved
Ports
Optics [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ Y ] Data VLANs are used only
Data   [ 0 ] [ 0 ] [ 0 ] [ 0 ] [ Y ] if Tags are enabled on both
the Optics and Data Ports.
```

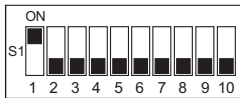
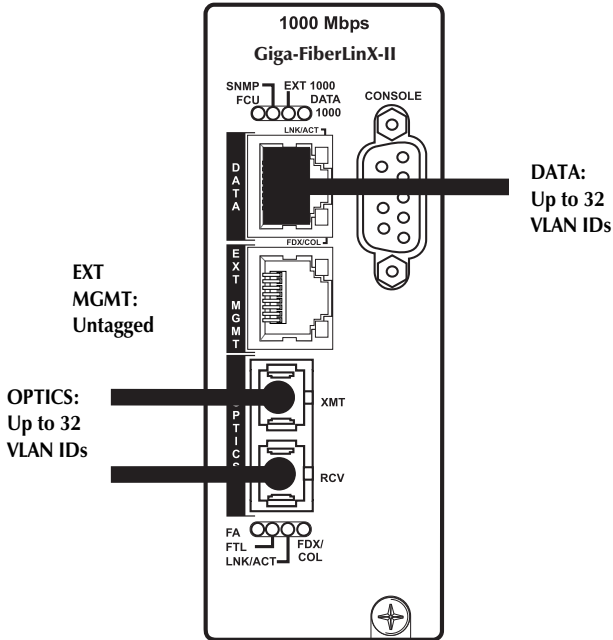
4. Enter a VLAN ID in the **Management VLAN IDs** field.

Enter up to **32** VLAN IDs in the Data VLANs rows. VLAN IDs can range from 1 to 4094. Only the VLANs in this list will pass through the unit.

Data VLANs		<Optics <----> Data>	
VLAN 1	[0]	[101]	VLAN 12 [0] [112] VLAN 23 [0] [123]
VLAN 2	[0]	[102]	VLAN 13 [0] [113] VLAN 24 [0] [124]
VLAN 3	[0]	[103]	VLAN 14 [0] [114] VLAN 25 [0] [125]
VLAN 4	[0]	[104]	VLAN 15 [0] [115] VLAN 26 [0] [126]
VLAN 5	[0]	[105]	VLAN 16 [0] [116] VLAN 27 [0] [127]
VLAN 6	[0]	[106]	VLAN 17 [0] [117] VLAN 28 [0] [128]
VLAN 7	[0]	[107]	VLAN 18 [0] [118] VLAN 29 [0] [129]
VLAN 8	[0]	[108]	VLAN 19 [0] [119] VLAN 30 [0] [130]
VLAN 9	[0]	[109]	VLAN 20 [0] [120] VLAN 31 [0] [131]
VLAN 10	[0]	[110]	VLAN 21 [0] [121] VLAN 32 [0] [132]
VLAN 11	[0]	[111]	VLAN 22 [0] [122]

5. Press **S** or **F3** to save the settings.
6. Type **reboot**.

Now the iMcV-Giga-FiberLinX-II is configured to pass only packets with tags containing the VLAN IDs defined in the Data VLANs table. VLAN ID numbers defined in this table must not be the same as the number used for the Management VLAN ID.



- 1-EXT MGMT=ON
- 2-DATA=OFF
- 3-OPTICS=OFF

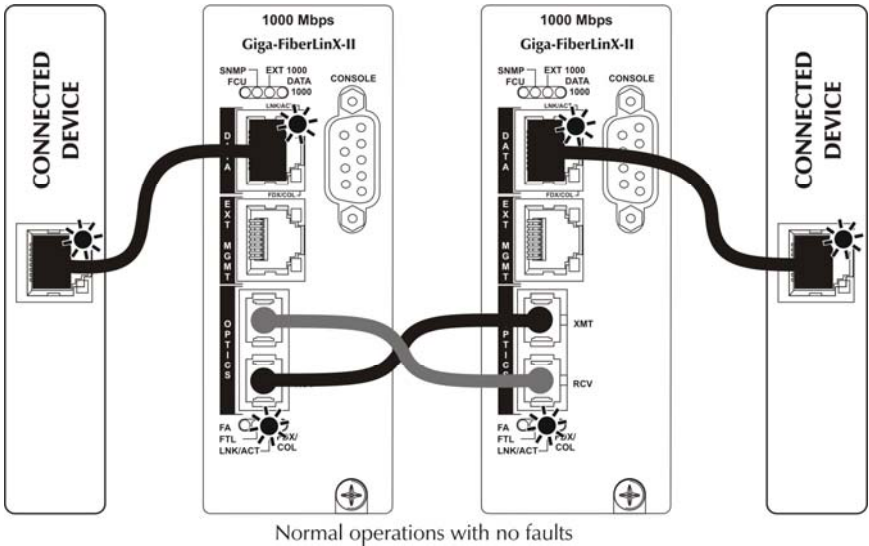
IX - Troubleshooting

- If two iMcV-Giga-FiberLinX-II Host/Remote units are not communicating properly, make sure one is a Host (DIP switch #8) and the other is a Remote (DIP switch #7). If the second unit is not configured as a Remote, it will be recognized as a Standalone unit and the Host and Remote units will not communicate with each other properly. Setting the OPTICS (or UPLINK) port management DIP switch #3 to the ON position on both modules will allow you to perform a simple ping test. This is possible only if pinging from the computer through the optics uplink port, which is highly unusual. You must enable the EXT or data switch and connect to the computer to ping either device.
- If you cannot establish a link on a twisted pair port, ensure the cable is in working order. If not, replace the cable (iMcV-Giga-FiberLinX-II includes AutoCross; you should detect a link regardless of the Cat5 E cable type).
- If you cannot establish a fiber link, ensure the fiber transceivers on iMcV-Giga-FiberLinX-II are not over/under driving the fiber receivers. For fiber specifications, refer to www.imcnetworks.com/support/fpblookup.cfm. Ensure the fiber mode and wavelength on both iMcV-Giga-FiberLinX-II units match (i.e., both are 1310 nm single-mode fiber).
- Ensure the port speeds on iMcV-Giga-FiberLinX-II match those on the end devices connected to iMcV-Giga-FiberLinX-II. IMC Networks recommends configuring all connected devices to autonegotiation, or if using Force mode, ensure speed and duplex settings match.
- If using single-strand fiber, ensure the pair of devices is compatible single-strand fiber devices. For example, an iMcV-Giga-FiberLinX-II TX/SSFX-SM1310-SC which transmits 1310 nm and receives 1550 nm must be connected to a device which transmits 1550 nm and receives 1310 nm.
- If using an iMcV-Giga-FiberLinX-II unit with an SFP port and it is not functioning properly or at all, ensure the installed SFP module is the correct speed (1000 Mbps).
- When using the FiberAlert feature, ensure that FiberAlert is enabled on only one unit when connecting two iMcV-Giga-FiberLinX-II units, or when connecting an iMcV-Giga-FiberLinX-II to another IMC Networks media converter which includes the FiberAlert feature.
- If management is not functioning properly, ensure that the DIP switch settings are accurate for the port you want to manage.

- To restore the unit to factory default settings, use the cleandb function via the serial port (refer to the Device-Specific Options from the Command Line section for more information). This is especially helpful if you feel you have configured the module improperly. If restarting to factory defaults is necessary, IMC Networks recommends using this function on both units in Host/Remote applications, and then reconfiguring all settings.
- Ensure READ/WRITE Community Strings for iMcV-Giga-FiberLinX-II and iView² are the same.

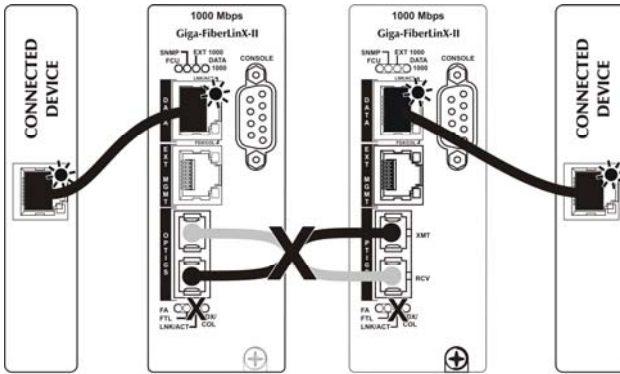
Troubleshooting LinkLoss/FiberAlert/Link Fault Pass-Through

The following diagrams show you how the different troubleshooting configurations for the iMcV-Giga-FiberLinX-II.



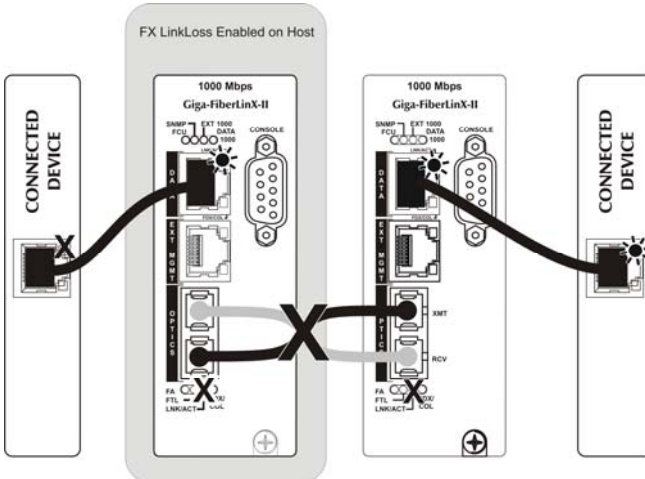
The iMcV-Giga-FiberLinX-II also sends out link pulses from its copper and fiber transmitters, but normally has no way of knowing whether the cable to the other device is intact and the link pulses are reaching the other end. The combination of FiberAlert and LinkLoss allows this information to be obtained, even when physical access to a remote device is not available.

FX LinkLoss



Cable fault without FX LinkLoss enabled

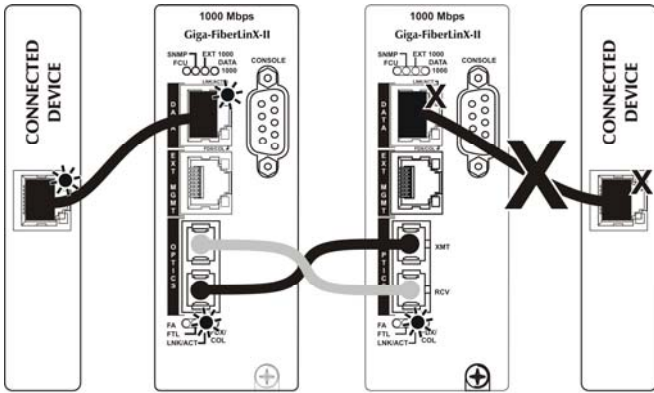
Normally when a fault occurs on the fiber segment of an iMcV-Giga-FiberLinX-II conversion, only the fiber port LEDs on the modules indicates a fault. None of the devices connected to the RJ-45 ports are aware of the fault.



Cable fault with FX LinkLoss enabled on host

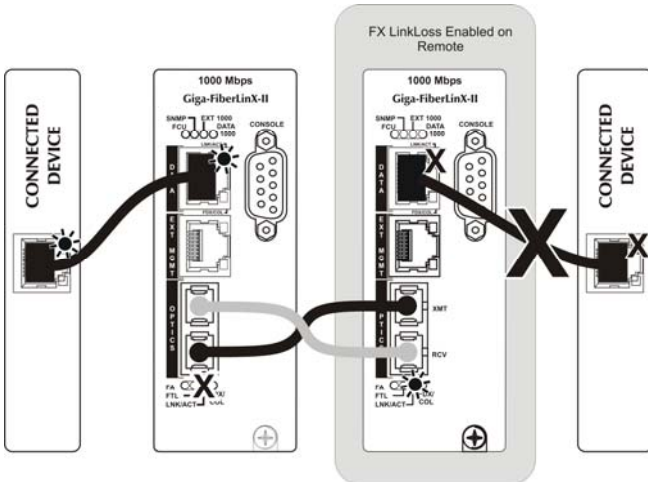
When FX LinkLoss is enabled on the iMcV-Giga-FiberLinX-II module, the fiber fault is forwarded to that module's RJ-45 connection. This turns off the link on the RJ-45 port which can then be detected by the connected device.

TX LinkLoss



Cable fault without TX LinkLoss enabled

When a fault occurs on a twisted pair segment joining a device to an iMcV-Giga-FiberLinX-II module, the link fault is not detected by the device connected to the iMcV-Giga-FiberLinX-II module by fiber.



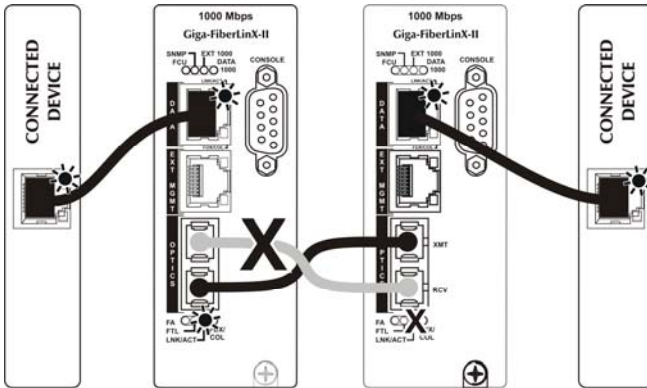
Cable fault with TX LinkLoss enabled on remote

When TX LinkLoss is enabled on the remote iMcV-Giga-FiberLinX-II module, a twisted pair fault turns off the fiber port transmitter. This allows the fiber-connected device to detect a link fault. When the fiber uplink port is set to AN, the LED is OFF.

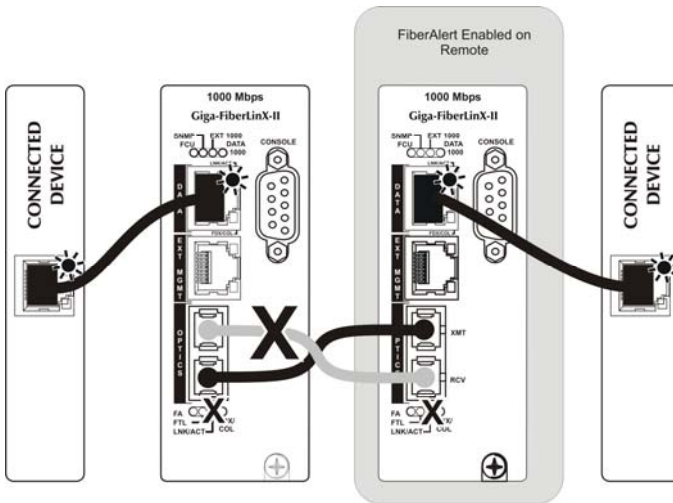
FiberAlert

WARNING

Do not enable FiberAlert at both ends. This can cause the fiber link to lock up.



Fiber without FA enabled



Fiber with FA enabled on remote

When FiberAlert is enabled on the remote module (preferred use), a fault on the receive side of the OPTICS (or UPLINK) port causes the transmitter side to turn off. This allows the fiber connected device to detect a fault in its transmission fiber.

IMC Networks Technical Support

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+32-16-550880 (Europe)

Fax: (949) 465-3020

E-Mail: techsupport@imcnetworks.com

Web: www.imcnetworks.com

Specifications

Power Consumption (Typical):

0.670 A @ 5 V

Operating Temperature:

32° to 122° F (0° to 50° C)

Storage Temperature:

0° to 160°F (-20° to 70° C)

Humidity:

5 to 95% (non-condensing); 0 to 10,000 ft. altitude

Dimensions:

Dual-Slot iMcV module

Standards/Compliance

- Read/write IEEE 802.1Q VLAN tags
- QoS IEEE 802.1p-based packet prioritization (2 queues [high/low] with 8 levels of priority)
- IEEE 802.3ab 1000Base-T twisted pair
- IEEE 802.3z 1000Base-X fiber
- IEEE 802.3x Flow Control
- IEEE 802.3i 10Base-T twisted pair
- IEEE 802.3u 100Base-TX twisted pair
- IEEE 802.3u 100Base-FX or SX fiber

Serial Port Pinout

The iMcV-Giga-FiberLinX-II features a serial port that uses an IBM-compatible DB-9 serial connector. To connect an iMcV-Giga-FiberLinX to your workstation, use a straight-through (pin-to-pin) cable.

If your workstation has a serial port using a connection not compatible with a DB-9 COM port, use the pin connection chart for reference in making a cable.

Ensure the cable length is less than 50 ft. (15.24 m). Plug one end of the cable into the DB-9 connector on the iMcV-Giga-FiberLinX and the other into the appropriate port on your workstation.

Set your workstation for VT-100 emulation. The serial port on the workstation should be set for:

- 38.4K baud
- 8 data bits
- 1 stop bit
- no parity
- no flow control



Pin Configuration Chart	
Pin	Signal
2	Transmit (Out)
3	Transmit (In)
5	Ground
1, 4, 6-9	Reserved

Notes

Notes

Notes

Safety Certifications

UL/CUL: Listed to Safety of Information Technology Equipment, including Electrical Business Equipment.

CE: The products described herein comply with the Council Directive on Electromagnetic Compatibility (89/336/EEC) and the Council Directive on Electrical Equipment Designed for use within Certain Voltage Limits (73/23/EEC). Certified to Safety of Information Technology Equipment, Including Electrical Business Equipment. For further details, contact IMC Networks.



**Class 1 Laser product, Luokan 1 Laserlaite,
Laser Klasse 1, Appareil A' Laser de Classe 1**

European Directive 2002/96/EC (WEEE) requires that any equipment that bears this symbol on product or packaging must not be disposed of with unsorted municipal waste. This symbol indicates that the equipment should be disposed of separately from regular household waste. It is the consumer's responsibility to dispose of this and all equipment so marked through designated collection facilities appointed by government or local authorities. Following these steps through proper disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about proper disposal, please contact local authorities, waste disposal services, or the point of purchase for this equipment.





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Document Number 56-80868-00 C0

October 2007

If the product's part number begins with an "8", it is compliant with the Restriction of Hazardous Substances (RoHS) directive.

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