

***iConverter* 2FXM2 Plug-in Module QUICK START GUIDE**

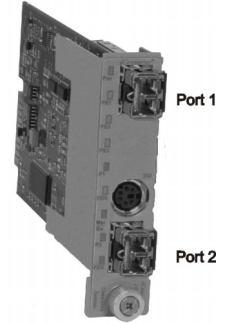
The Omnitron *iConverter*[®] 2FXM2 Network Interface Device (NID) with integrated management provides Fast Ethernet (100BASE-FX) fiber-to-fiber media conversion.

The 2FXM2 conforms to Ethernet in the First Mile (EFM) fiber standards to support Fiber-to-the-X (FTTX) Metropolitan and Enterprise LAN networks. Built-in Operation, Administration and Maintenance (OAM) functionality enables the 2FXM2 to operate as a managed demarcation point at the customer premises and network edge, offering service provisioning functions, such as Quality of Service and Bandwidth Control (rate-limiting) capabilities.

The 2FXM2 module can be managed using Omnitron's *NetOutlook*[™] SNMP Management Software, 3rd Party SNMP-Client, Telnet or the Command Line Interface (CLI).

For more information, including the complete User Manual on the 2FXM2 Plug-in module, access Omnitron's documentation download web page to view all relevant documents:

<http://www.omnitron-systems.com/downloads.php>



```
Management Options iConverter, Serial Agent
Network Management
1: Chassis and Module Management
2: Set Module Name Preferences
Management Module Preferences
3: IP and Control Preferences
4: SNMP Preferences
5: Abandon Preference Changes
6: Save Preference Changes
7: Restore Factory Defaults
8: Restart Management Module
9: Other Networking Features
Management Module Maintenance
10: Firmware Update
11: Set Date/Time

IP Address = 192.168.1.220
Chassis Number = 1

Enter Choice, <H>elp, E<x>it >
```

Figure D: Command Line Interface Menu Options

The CLI interface allows for the detailed configuration of the module. It is recommended to configure the module with an IP address associated with the attached network. Also, SNMP trap host address should be configured if the module is managed with an SNMP-based Management System. See the 2FXM2 User Manual for complete information.

4) VERIFY OPERATION

Once the module has been installed and configured per steps 1 - 3, verify the module is operational by viewing the LED indicators.

The Power LED indicates the module is receiving power from the chassis.

The Fiber Optic link LEDs indicate the fiber optic connections have been established. Verify the Link Mode selection is set to Link Segment (LS). Until a stable link is established, leave the Link Mode configured for LS. After a Link presence is established, the Link Mode selection can be modified.

| LED Function "Legend" | Color | Off State | On / Blinking State |
|---|-------|------------------------------------|---|
| Power "Pwr" | Green | No power | On: Module has power |
| Power Supply Status #X | Green | Chassis Power Supply not installed | On: Power available from installed Power Supply #X Blinking: No power available from installed Power Supply #X |
| Port 1 Fiber Link Activity "P1" | Green | No Fiber Link | On: Fiber link is active Blinking: Fiber Data Activity |
| Port 1 Half/Full Duplex "FDX" | Green | Half-Duplex | On: Full-Duplex |
| Chassis Management Master/Slave "Msr/Slv" | Green | Chassis Slave Mode | On: Chassis Master Blinking: Operating in OAM Mode |
| Port 2 Fiber Link Activity "P2" | Green | No Fiber Link | On: Fiber link is active Blinking: Fiber Data Activity |
| Port 2 Half/Full Duplex "FDX" | Green | Half-Duplex | On: Full-Duplex |

Figure E: LED Indicators

INSTALLATION PROCEDURE

- 1) Configure DIP-Switches
- 2) Install Module in Chassis and Connect Cables
- 3) Configure Module via Command Line Interface
- 4) Verify Operation

1) CONFIGURE DIP-SWITCHES

DIP-SWITCH BANK 1

SW1 - PAUSE ENABLE

When the Pause Enable DIP-switch is in the LEFT "Off" position (factory default), the 2FXM2 disables the fiber ports' ability to send and receive Pause frames during network congestion. Setting this DIP-switch to the RIGHT "On" position, enables the 2FXM2 to receive Pause frames from its link partner. This enables the 2FXM2 to stop transmitting traffic to its link partner and store incoming frames from the other port in the internal buffer until the congestion clears. If the internal buffer of the 2FXM2 becomes congested, it will transmit a Pause frame to its link partner.

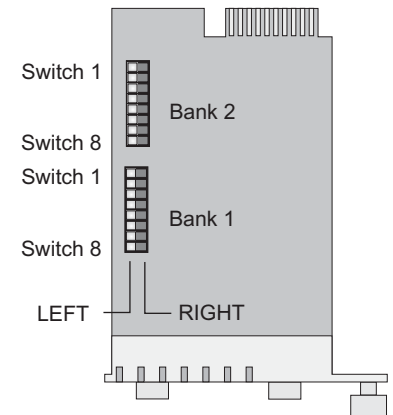


Figure A: DIP-Switch Locations

SW2 - FIBER PORT 1 FULL/HALF DUPLEX

Setting this DIP-switch to Half-Duplex "HDX" facilitates a connection that supports Half-Duplex. Setting this DIP-switch to Full-Duplex "FDX" facilitates a connection that

supports Full-Duplex operation.

SW3, SW4 - RESERVED

These DIP-switches are for factory use only and must always remain in the LEFT (factory default) position.

SW5 - FIBER PORT 2 FULL/HALF DUPLEX

Setting this DIP-switch to Half-Duplex “HDX” facilitates a connection that supports Half-Duplex. Setting this DIP-switch to Full-Duplex “FDX” facilitates a connection that supports Full-Duplex operation.

SW6, SW7, SW8 - LINK MODES

The module supports multiple link modes for fault detection and isolation. Link Segment should be used for the initial installation of the module. Once installed and operational, the link mode can be changed. For detailed information on the operation of the different Link Modes, download the application note “*iConverter* Link Modes” available on Omnitron’s web page:

<http://www.omnitron-systems.com/downloads.php>

| Switch | Left (Factory Default) | Right |
|--------|----------------------------------|----------------------------------|
| SW1 | Off: Pause Disable | PAUS: Pause Enable |
| SW2 | FDX: Fiber Port 1 Full-Duplex | HDX: Fiber Port 1 Half-Duplex |
| SW3 | Reserved | Reserved |
| SW4 | Reserved | Reserved |
| SW5 | FDX: Fiber Port 2 Full-Duplex | HDX: Fiber Port 2 Half-Duplex |
| SW6 | See Link Mode Selection | |
| SW7 | | |
| SW8 | | |
| | | |

| SW6 | SW7 | SW8 | Link Mode Selection |
|-------|-------|-------|---|
| Left | Left | Left | Link Segment (LS) (Factory Default) |
| Right | Left | Left | Link Propagate (LP) |
| Left | Right | Left | Remote Fault Detect + Link Segment (RFD + LS) |
| Right | Right | Left | Remote Fault Detect + Link Propagate (RFD + LP) |
| Left | Left | Right | Symmetrical Fault Detect (SFD) |
| Right | Left | Right | Asymmetrical Link Propagate P1 to P2 (ALP P1-P2) |
| Left | Right | Right | Asymmetrical Link Propagate P2 to P1 (ALP P2-P1) |
| Right | Right | Right | Asymmetrical RFD+ LP P1 to P2 |

Figure B: DIP-Switch Bank 1

DIP-SWITCH BANK 2

SW1, SW2 - BACKPLANE ENABLE

When the DIP-switch is in the LEFT “DS” position (factory default), the Backplane Port of the 2FXM2 is isolated from the chassis’ Ethernet Backplane. When the DIP-switch is in the RIGHT “EN” position, the Backplane Port is enabled. This allows Ethernet Backplane connectivity to an adjacent module via the chassis Backplane Link “A” or “B” depending on the switch setting.

| Switch | Left (Factory Default) | Right |
|-----------|---------------------------|-------------------------|
| SW1 | A-DS: Port A Disabled | A-EN: Port A Enabled |
| SW2 | B-DS: Port B Disabled | B-EN: Port B Enabled |
| SW3 | Reserved | Reserved |
| SW4 | M/SL: Auto Select | SL: Slave-Mode Only |
| SW5 - SW8 | Reserved | Reserved |

Figure C: DIP-Switch Bank 2

SW4 - MASTER/SLAVE

When the 2FXM2 module is installed in a chassis with an *iConverter* Network Management Module (NMM), set DIP-switch to the LEFT “M/SL” position (factory default). The assignment of mastership is automatically negotiated by the installed management modules. To designate the 2FXM2 module as the master of the chassis, set the DIP-switch to the LEFT “M/SL” position, and set the other installed management modules’ DIP-switches to the RIGHT “SL” position to enable Slave-Only mode.

SW5, SW6, SW7, SW8 - RESERVED

These DIP-switches are for factory use only and must always remain in the LEFT (factory default) position.

2) INSTALL MODULE IN CHASSIS AND CONNECT CABLES

a. Carefully slide the module into an open slot in the chassis. Align the module with the installation guides and ensure that the module is firmly seated against the backplane. Secure the module by fastening the front panel thumbscrew (push in and turn clockwise to tighten) to the chassis front. Verify the “Pwr” LED is ON (indicating the chassis is powered).

b. Insert the SFP Fiber transceivers into the Port 1 and Port 2 SFP receptacles on the 2FXM2.

NOTE: The release latch of the SFP Fiber transceiver must be in the closed position before insertion.

d. Connect an appropriate multimode or single-mode fiber cable to the SFP fiber ports of the installed module. It is important to ensure that the transmit (TX) is attached to the receive side of the device at the other end and the receive (RX) is attached to the transmit side. Single-fiber (SF) media converter models operate in pairs. The TX wavelength must match the RX wavelength at the other end and the RX wavelength must match the TX wavelength at the other end.

NOTE: In order to support Remote OAM Management Mode, Port 1 of the 2FXM2 must be connected to the Port 1 on the 2FXM2 or link partner.

3) CONFIGURE MODULE VIA COMMAND LINE INTERFACE

To access the Command Line Interface (CLI), connect the 2FXM2 RS-232 Console Port to the COM port of a computer equipped with terminal emulation software such as HyperTerminal. The Console Port (DCE) is a mini DIN-6 female connector which can be changed to a DB-9 connector with the included adapter. The 2FXM2 Console Port is a standard asynchronous serial interface.

Start HyperTerminal and select the correct COM Port in the HyperTerminal “Connect To:” window. Set the serial port to the following:

| | |
|-----------------------|--------|
| Bits Per Second | 57,600 |
| Stop Bits | 1 |
| Data Bits | 8 |
| Parity | NONE |
| Hardware Flow Control | NONE |

Once connected, press <ENTER> to bring up a command line prompt on the attached PC. A new 2FXM2 module does not have a password, and will skip the **Password Entry** screen and go straight to the **Management Options** screen. If a password has been set, the **Password Entry** screen will be displayed. Type the password and press <ENTER>, the 2FXM2 will respond with the **Management Options** screen: