

## Prisma Optical Media Converters FiberLinX-II Modules

### Remotely Managed Optical Access

Prisma® 1310/1550 nm and CWDM FiberLinX-II modules are field-proven in Optical Ethernet, FTTx, and campus area network applications worldwide.

Service providers who offer customers Transparent LAN services must be able to remotely manage customer premises equipment (CPE) while keeping management traffic and customer data traffic completely separated. Designed to meet the needs of these service providers and administrators of enterprise campus networks, Prisma FiberLinX modules provision point-to-point fiber optic connections and provide a management tool for monitoring the entire link between two locations.

The Prisma FiberLinX modules connect two remote networks over fiber and allow administrators to observe both endpoints and the fiber link between them not as separate elements, but as a single management entity. Host management traffic is not visible to the remote or customer network. Access to the customer network is not required, allowing end-to-end data integrity.

Prisma FiberLinX modules allow for remote configuration, and alert administrators to any potential problems on the long-haul fiber run. These modules also provide vital information on link condition and report data traffic statistics. Additionally, these modules help reduce the total cost of network equipment by functioning as a copper-to-fiber media converter, allowing the use of lower-cost copper switches at both ends of the fiber connection.

**Figure 1.** Prisma FiberLinX-II Optical Media Converter Module



## Features

- All management traffic remains isolated from the remote LAN
- 802.1Q and 802.1p compatible - installs in a wide variety of VLAN and non-VLAN environments
- Provides differential priority and bidirectional bandwidth control
- Remotely configure settings (initial settings only on CWDM models)
- Manage and monitor fiber traffic between switches or routers and receive vital system health information and notification should problems occur
- Minimizes cost of building and operating networks
  - Avoid unnecessary service calls
  - Deploy less expensive copper switches at both ends
- Includes graphical user interface (GUI)-based PrismaView SNMP management application software
- Includes 3 Loopback Testing modes
- Includes broadcast storm protection
- SNMP V2c compatible
- Auto MDI-II/MDI-X on data and external management transmit ports

## Description

Offering outstanding flexibility, Prisma FiberLinX modules include one 1000 Mbps fiber port (10 wavelengths available on CWDM models), one 10/100/1000 twisted pair data port, and an additional 10/100/1000 twisted pair data port for management. Twisted pair ports auto-negotiate or can be manually set for 10, 100, or 1000 Mbps, and half or full duplex. The Prisma FiberLinX module VLAN functionality is extremely versatile, allowing installation in virtually any environment. Prisma FiberLinX modules support a full range of VLAN IDs, and offer a 2-tier queue for differential prioritization. Available as a module for installation in any Prisma MediaCenter chassis or Prisma MediaCPE chassis, Prisma FiberLinX includes the FiberAlert feature for troubleshooting, as well as bidirectional bandwidth control.

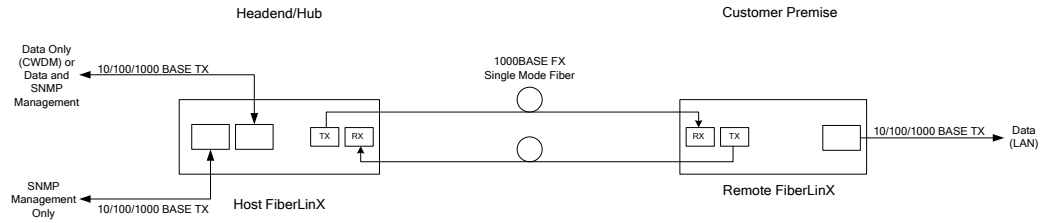
Prisma FiberLinX modules are easy to configure with GUI-based PrismaView SNMP management application software. PrismaView provides operational and system health information, and the ability to control various functions of Prisma FiberLinX modules. SNMP traps alert administrators to potential network failures, reduce administrative overhead, and increase network integrity and uptime. Information reported from Prisma FiberLinX modules via SNMP services includes LAN packets received and transmitted, errors, and port status (see Prisma MIB Specifications). This allows network administrators to keep networks running in peak condition. PrismaView is available in several versions, and can also function as a snap-in module for Hewlett-Packard OpenView Network Node Manager. Contact us for assistance in selecting the right version of PrismaView for your operating system.

Models are also available with SFP ports, allowing users to easily accommodate changing fiber requirements. Simply install a new SFP module rather than replace an entire FiberLinX module.

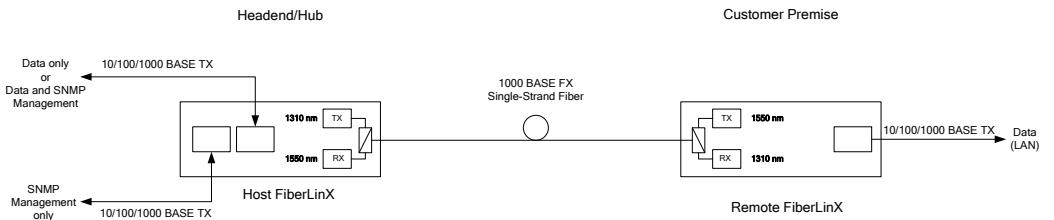
### Application

When used in pairs, a Prisma FiberLinX module configured as a Host resides at the headend, while another Prisma FiberLinX module configured as a Remote is installed at the remote customer location, typically on the network edge where the customer network meets the service provider infrastructure. Via SNMP, the Prisma FiberLinX solution monitors the entire link and provides data integrity while remaining isolated and completely transparent to the customer LAN. A Prisma FiberLinX module can be configured as a Standalone for a single-solution CPE application.

**Figure 2.** 2-Fiber Block Diagram (All Models)



**Figure 3.** Single-Strand Fiber Block Diagram (1310/1550 nm Models Only)



## Product Specifications

**Table 1.** Optical Specifications

| Specification   | Value           |
|---|-----------------|
| <b>Prisma FiberLinX TX/FX-MM1300</b>                              |                 |
| Tx wavelength   | 1300 nm         |
| Average distance  | 2 km            |
| Tx optical input range  | -20 to +14 dBm  |
| Rx optical input range  | -14 to -30 dBm  |
| <b>Prisma FiberLinX TX/FX-SM1310/PLUS</b>                         |                 |
| Tx wavelength   | 1310 nm         |
| Average distance  | 40 km           |
| Tx optical input range  | -15 to -8 dBm   |
| Rx optical input range  | -8 to +31 dBm   |
| <b>Prisma FiberLinX TX/FX-SM1310/LONG</b>                         |                 |
| Tx wavelength   | 1310 nm         |
| Average distance  | 80 km           |
| Tx optical input range  | -5 to 0 dBm     |
| Rx optical input range  | -2 to -34 dBm   |
| <b>Prisma FiberLinX TX/FX-SM1550/LONG</b>                         |                 |
| Tx wavelength   | 1550 nm         |
| Average distance  | 80 km           |
| Tx optical input range  | 0 to -5 dBm     |
| Rx optical input range  | -3 to -34 dBm   |
| <b>Prisma FiberLinX TX/SSFX-SM1310 (single-strand fiber)</b>      |                 |
| Tx wavelength   | 1310 or 1550 nm |
| Average distance  | 20 km           |
| Tx optical input range  | -7 to -15 dBm   |
| Rx optical input range  | -3 to -33 dBm   |
| <b>Prisma FiberLinX TX/SSFX-SM1550 (single-strand fiber)</b>      |                 |
| Tx wavelength   | 1550 or 1310 nm |
| Average distance  | 20 km           |
| Tx optical input range  | -7 to -15 dBm   |
| Rx optical input range  | -3 to -33 dBm   |
| <b>Prisma FiberLinX TX/SSFX-SM1310/PLUS (single-strand fiber)</b> |                 |
| Tx wavelength   | 1310 or 1550 nm |
| Average distance  | 40 km           |
| Tx optical input range  | -3 to -8 dBm    |
| Rx optical input range  | -3 to -33 dBm   |
| <b>Prisma FiberLinX TX/SSFX-SM1550/PLUS (single-strand fiber)</b> |                 |
| Tx wavelength   | 1550 or 1310 nm |
| Average distance  | 40 km           |
| Tx optical input range  | -3 to -8 dBm    |
| Rx optical input range  | -3 to -33 dBm   |

| Prisma FiberLinX/CWDM, TX/FX (all) |                    |
|------------------------------------|--------------------|
| Tx wavelength                      | 20 nm              |
| Average distance                   | Nominal $\pm 6$ nm |
| Tx optical input range             | -3 to +2 dBm       |
| Rx optical input range             | +2 to -36 dBm      |

**Table 2.** Electrical Specifications

| Specification                | Value  |
|------------------------------|--|
| <b>1310/1550 nm Models</b>   |  |
| Twisted pair data port       | IEEE 802.3 10Base-T/100Base-TX for data; RJ-45 connector; half or full duplex operation  |
| Fiber data port              | IEEE 802.3 100Base-FX for data; SC or ST connectors; half or full duplex operation   |
| Twisted pair management port | IEEE 802.3 10Base-T/100Base-TX for management; RJ-45 connector; half or full duplex operation; can also function as a serial port      |
| Standards compliance         | IEEE 802.1Q VLAN, 802.1p, and 802.3x flow control  |
| <b>CWDM Models</b>           |  |
| Twisted pair data port       | IEEE 802.3 10Base-T/100Base-TX/1000 for data; RJ-45 connector, half or full duplex operation   |
| Fiber data port              | IEEE 802.3 1000Base-FX for data; SC connectors, half or full duplex operation  |
| Twisted pair management port | IEEE 802.3 10Base-T/100Base-TX/1000 for management; RJ-45 connector, half or full duplex operation; can also function as a serial port |
| Standards compliance         | IEEE 802.1Q VLAN, 802.1p, and 802.3x flow control  |
| Bandwidth control            | Dynamic bandwidth control (32 Kbps increments) via GUI-based management software   |
| Cut through latency          | < 15 $\mu$ s for 2 Media Converters back-to-back, 64 byte frame size, 100% line utilization, bidirectional traffic                     |

**Table 3.** Configuration and Monitoring

| Specification   | Value  |
|---|--|
| <b>Software Configuration (All Models Except Where Noted)</b> |  |
| Prisma MIB – Parameters can be monitored only                 | <ul style="list-style-type: none"> <li>• Link Status of Ports</li> <li>• Port Type</li> <li>• Fiber Type</li> <li>• SNMP Port (Host/Remote)</li> <li>• SNMP Agent IP Address (Host/Remote/Single)</li> <li>• Link Partner</li> <li>• Traps (Cold Start, Warm Start, Link Up, Link Down, Authentication Failure, Remote Unit Lost, Remote Unit Back Online, Far End TX Link On, and Far End TX Link Off)</li> </ul>   |
| Prisma MIB – Parameters can be configured and monitored       | <ul style="list-style-type: none"> <li>• User-Definable Name of Product</li> <li>• User-Definable ID/Name of Each Port</li> <li>• Enable/Disable Ports</li> <li>• Enable/Disable FiberAlert (not available on single-strand fiber versions)</li> <li>• Set Duplex Mode for Fiber Ports</li> <li>• Set Auto-Negotiation/Speed for Twisted Pair Ports</li> <li>• Specify the Management Port</li> <li>• Dynamic Bandwidth Control (32 kbps increments - 1310/1550 nm models only)</li> </ul> |
| MIB-II (RFC 1213) – Parameters can be monitored only          | <ul style="list-style-type: none"> <li>• Packets Transmitted</li> <li>• Packets Received</li> <li>• Octets (bytes) Transmitted</li> <li>• Octets (bytes) Received</li> <li>• Plus All Standard MIB II Objects</li> </ul>   |

|  |   |
|--|---|
| Transmission Dot 3 (RFC 1643) - Parameters can be monitored only | <ul style="list-style-type: none"> <li>• Alignment Errors</li> <li>• Single Collision Frames</li> <li>• Multiple Collision Frames</li> <li>• SQE Test Errors</li> <li>• Deferred Transmissions</li> <li>• Late Collisions</li> <li>• Excessive Collisions</li> <li>• Carrier Sense Errors</li> <li>• Frame Too Long</li> <li>• Internal MAC Transmit Errors</li> <li>• Internal MAC Receive Errors</li> </ul> |
| <b>Hardware Configuration (1310/1550 nm Models Only)</b>         |   |
| Parameters must be set via hardware DIP switch                   | <ul style="list-style-type: none"> <li>• Set Port for SNMP Management Traffic</li> <li>• Set Mode of Operation</li> </ul>   |

## Ordering Information

**Table 4.** Ordering Information

| <b>Prisma 1310/1550 nm FiberLinX Dual Strand Modules</b>   | <b>Part Number</b> |
|--|--------------------|
| Prisma FiberLinX, TX/FX-MM1300-ST (2 km)                   | 4004988            |
| Prisma FiberLinX, TX/FX-MM1300-SC (2 km)                   | 4004989            |
| Prisma FiberLinX, TX/FX-SM1310/PLUS-ST (40 km)             | 4004990            |
| Prisma FiberLinX, TX/FX-SM1310/PLUS-SC (40 km)             | 4004991            |
| Prisma FiberLinX, TX/FX-SM1310/LONG-ST (80 km)             | 4004992            |
| Prisma FiberLinX, TX/FX-SM1310/LONG-SC (80 km)             | 4004993            |
| Prisma FiberLinX, TX/FX-SM1550/LONG-SC (80 km)             | 4004994            |
| <b>Prisma 1310/1550 nm FiberLinX Single Strand Modules</b> | <b>Part Number</b> |
| Prisma FiberLinX, TX/SSFx-SM1310-SC (10 km)                | 4004995            |
| Prisma FiberLinX, TX/SSFx-SM1550-SC (10 km)                | 4004996            |
| Prisma FiberLinX, TX/SSFx-SM1310/PLUS-SC (40 km)           | 4004997            |
| Prisma FiberLinX, TX/SSFx-SM1550/PLUS-SC (40 km)           | 4004998            |
| <b>Prisma CWDM FiberLinX Modules – SC/APC</b>              | <b>Part Number</b> |
| Prisma FiberLinX/CWDM, TX/FX-SM1430-SC/APC (80 km)         | 4005074            |
| Prisma FiberLinX/CWDM, TX/FX-SM1450-SC/APC (80 km)         | 4005075            |
| Prisma FiberLinX/CWDM, TX/FX-SM1470-SC/APC (80 km)         | 4004886            |
| Prisma FiberLinX/CWDM, TX/FX-SM1490-SC/APC (80 km)         | 4004887            |
| Prisma FiberLinX/CWDM, TX/FX-SM1510-SC/APC (80 km)         | 4004888            |
| Prisma FiberLinX/CWDM, TX/FX-SM1530-SC/APC (80 km)         | 4004889            |
| Prisma FiberLinX/CWDM, TX/FX-SM1550-SC/APC (80 km)         | 4004890            |
| Prisma FiberLinX/CWDM, TX/FX-SM1570-SC/APC (80 km)         | 4004891            |
| Prisma FiberLinX/CWDM, TX/FX-SM1590-SC/APC (80 km)         | 4004892            |
| Prisma FiberLinX/CWDM, TX/FX-SM1610-SC/APC (80 km)         | 4004893            |

| Prisma CWDM FiberLinX Modules – SC/UPC             | Part Number |
|--|-------------|
| Prisma FiberLinX/CWDM, TX/FX-SM1430-SC/UPC (80 km) | 4005938     |
| Prisma FiberLinX/CWDM, TX/FX-SM1450-SC/UPC (80 km) | 4005950     |
| Prisma FiberLinX/CWDM, TX/FX-SM1470-SC/UPC (80 km) | 4005942     |
| Prisma FiberLinX/CWDM, TX/FX-SM1490-SC/UPC (80 km) | 4005943     |
| Prisma FiberLinX/CWDM, TX/FX-SM1510-SC/UPC (80 km) | 4005944     |
| Prisma FiberLinX/CWDM, TX/FX-SM1530-SC/UPC (80 km) | 4005945     |
| Prisma FiberLinX/CWDM, TX/FX-SM1550-SC/UPC (80 km) | 4005946     |
| Prisma FiberLinX/CWDM, TX/FX-SM1570-SC/UPC (80 km) | 4005947     |
| Prisma FiberLinX/CWDM, TX/FX-SM1590-SC/UPC (80 km) | 4005948     |
| Prisma FiberLinX/CWDM, TX/FX-SM1610-SC/UPC (80 km) | 4005949     |

### For More Information

For Prisma MediaCenter and Prisma MediaCPE Chassis specifications and ordering information, see data sheet #7001716, *Prisma Optical Media Converters – Prisma MediaCenter Chassis*.

For information on other Prisma FiberLinX products, see datasheet #7018301, *Prisma Optical Media Converters Gigabit FiberLinX-II Modules*.



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