Prisma Optical Media Converters
Gigabit FiberLinX-II Modules

Remotely Managed Optical Access

Prisma® 1310/1550 nm Gigabit and CWDM Gigabit 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 of 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. 1310/1550 nm Gigabit FiberLinX-II Module (Left) and CWDM Gigabit FiberLinX-II Module (Right)

Features

- All management traffic remains isolated from the remote or customer premise LAN
- Installs in a wide variety of VLAN and non-VLAN environments
  - 802.1Q compatible (all models)
  - 802.1p compatible (1310/1550 nm Gigabit models only)
- Provides differential priority for higher QOS assignable to mission critical traffic
- Provides bidirectional bandwidth control (1310/1550 nm Gigabit models only)
- Remotely configure settings (initial settings only on CWDM Gigabit 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
- VLAN-tagging and Q-in-Q (double-tagging) segregates customer traffic

Description

Offering outstanding flexibility, Prisma FiberLinX modules include one1000 Mbps fiber port (10 wavelengths available on CWDM Gigabit 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, with half or full duplex mode selectable on 1310/1550 nm Gigabit models. 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 suitable Prisma MediaCPE chassis (dual slot chassis required for CWDM Gigabit models), 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 Gigabit 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)

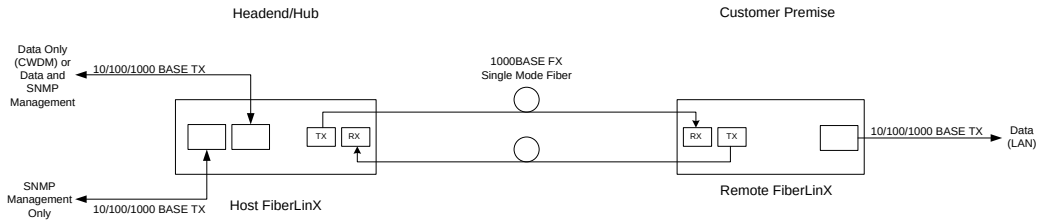
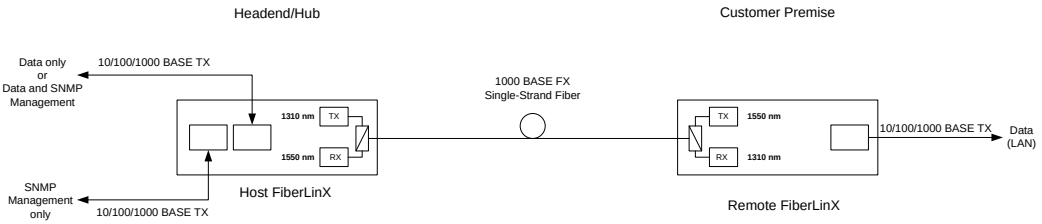


Figure 3. Single-Strand Fiber Block Diagram (1310/1550 nm Models Only)



Product Specifications

Table 1. Optical Specifications

Specification	Value
Prisma FiberLinX TX/SX-MM850	
Tx wavelength	850 nm
Average distance	300 m
Tx optical input range	-10 to -4 dBm
Rx optical input range	0 to -17 dBm
Prisma FiberLinX TX/LX-SM1310	
Tx wavelength	1310 nm
Average distance	10 km
Tx optical input range	-9 to -3 dBm
Rx optical input range	-3 to -20 dBm
Prisma FiberLinX TX/LX-SM1310/PLUS	
Tx wavelength	1310 nm
Average distance	40 km
Tx optical input range	-3 to +2 dBm
Rx optical input range	-3 to -26 dBm
Prisma FiberLinX TX/LX-SM1550/LONG	
Tx wavelength	1550 nm
Average distance	70 km
Tx optical input range	0 to +5 dBm
Rx optical input range	0 to -23 dBm
Prisma FiberLinX TX/SSLX-SM1310 (single-strand fiber)	
Tx wavelength	1310 or 1550 nm
Average distance	10 km
Tx optical input range	-5 to -12 dBm
Rx optical input range	0 to -21 dBm
Prisma FiberLinX TX/SSLX-SM1550 (single-strand fiber)	
Tx wavelength	1550 or 1310 nm
Average distance	10 km
Tx optical input range	-5 to -12 dBm
Rx optical input range	-3 to -33 dBm
Prisma FiberLinX TX/SSLX-SM1310/PLUS (single-strand fiber)	
Tx wavelength	1310 or 1550 nm
Average distance	40 km
Tx optical input range	0 to -3 dBm
Rx optical input range	0 to -21 dBm
Prisma FiberLinX TX/SSLX-SM1550/PLUS (single-strand fiber)	
Tx wavelength	1550 or 1310 nm
Average distance	40 km
Tx optical input range	0 to -3 dBm
Rx optical input range	0 to -21 dBm

Prisma FiberLinX/CWDM, TX/FX (all)	
Tx wavelength	20 nm
Average distance	Nominal ±6 nm
Tx optical input range	0 to +5 dBm
Rx optical input range	0 to -24 dBm

Table 2. Electrical Specifications

Specification	Value
1310/1550 nm Gigabit Models	
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
CWDM Gigabit Models	
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
Local console port	DB-9, RS-232 connector
Standards compliance	IEEE 802.1Q VLAN, 802.1p, and 802.3x flow control
Bandwidth control	Dynamic bandwidth control (244 kb/s at 1 GHz line rate) via GUI-based management software
Cut through latency	< 15 µs for 2 Media Converters back-to-back, 64 byte frame size, 100% line utilization, bidirectional traffic

Table 3. Configuration and Monitoring

Specification	Value
Software Configuration (All Models Except Where Noted)	
Prisma MIB – Parameters can be monitored only	• Link Status of Ports • Port Type • Fiber Type • SNMP Port (Host/Remote) • SNMP Agent IP Address (Host/Remote/Single) • Link Partner • 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)
Prisma MIB – Parameters can be configured and monitored	• User-Definable Name of Product • User-Definable ID/Name of Each Port • Enable/Disable Ports • Enable/Disable FiberAlert (not available on single-strand fiber versions) • Set Duplex Mode for Fiber Ports • Set Auto-Negotiation/Speed for Twisted Pair Ports • Specify the Management Port • Dynamic Bandwidth Control (32 kbps increments - 1310/1550 nm Gigabit models only)
MIB-II (RFC 1213) – Parameters can be monitored only	• Packets Transmitted • Packets Received • Octets (bytes) Transmitted • Octets (bytes) Received • Plus All Standard MIB II Objects

Transmission Dot 3 (RFC 1643) - Parameters can be monitored only	• Alignment Errors • Single Collision Frames • Multiple Collision Frames • SQE Test Errors • Deferred Transmissions • Late Collisions • Excessive Collisions • Carrier Sense Errors • Frame Too Long • Internal MAC Transmit Errors • Internal MAC Receive Errors
Hardware Configuration (1310/1550 nm Gigabit Models Only)	
Parameters must be set via hardware DIP switch	• Set Port for SNMP Management Traffic • Set Mode of Operation

Ordering Information

Table 4. Ordering Information

Prisma 1310/1550 nm Gigabit FiberLinX Dual Strand Modules	Part Number
Prisma FiberLinX, TX/SX-MM850-SC/UPC (300 m)	4009506
Prisma FiberLinX, TX/LX-SM1310-SC/UPC (10 km)	4009507
Prisma FiberLinX, TX/LX-SM1310/PLUS-SC/UPC (40 km)	4009508
Prisma FiberLinX, TX/LX-SM1550/LONG-SC/UPC (70 km)	4009509
Prisma 1310/1550 nm Gigabit FiberLinX Single Strand Modules	**Part Number**
Prisma FiberLinX, TX/SSLX-SM1310-SC/UPC (10 km)	4009510
Prisma FiberLinX, TX/SSLX-SM1550-SC/UPC (10 km)	4009511
Prisma FiberLinX, TX/SSLX-SM1310/PLUS-SC/UPC (40 km)	4009512
Prisma FiberLinX, TX/SSLX-SM1550/PLUS-SC/UPC (40 km)	4009513
Prisma CWDM Gigabit FiberLinX Modules – SC/APC	**Part Number**
Prisma FiberLinX/CWDM, TX/FX-SM1430-SC/APC (80 km)	4009465
Prisma FiberLinX/CWDM, TX/FX-SM1450-SC/APC (80 km)	4009466
Prisma FiberLinX/CWDM, TX/FX-SM1470-SC/APC (80 km)	4009467
Prisma FiberLinX/CWDM, TX/FX-SM1490-SC/APC (80 km)	4009468
Prisma FiberLinX/CWDM, TX/FX-SM1510-SC/APC (80 km)	4009469
Prisma FiberLinX/CWDM, TX/FX-SM1530-SC/APC (80 km)	4009470
Prisma FiberLinX/CWDM, TX/FX-SM1550-SC/APC (80 km)	4009471
Prisma FiberLinX/CWDM, TX/FX-SM1570-SC/APC (80 km)	4009472
Prisma FiberLinX/CWDM, TX/FX-SM1590-SC/APC (80 km)	4009473
Prisma FiberLinX/CWDM, TX/FX-SM1610-SC/APC (80 km)	4009474
Prisma CWDM Gigabit FiberLinX Modules – SC/UPC	**Part Number**
Prisma FiberLinX/CWDM, TX/FX-SM1430-SC/UPC (80 km)	1002925
Prisma FiberLinX/CWDM, TX/FX-SM1450-SC/UPC (80 km)	1002926
Prisma FiberLinX/CWDM, TX/FX-SM1470-SC/UPC (80 km)	1002927
Prisma FiberLinX/CWDM, TX/FX-SM1490-SC/UPC (80 km)	1002928
Prisma FiberLinX/CWDM, TX/FX-SM1510-SC/UPC (80 km)	1002929
Prisma FiberLinX/CWDM, TX/FX-SM1530-SC/UPC (80 km)	1002930
Prisma FiberLinX/CWDM, TX/FX-SM1550-SC/UPC (80 km)	1002931
Prisma FiberLinX/CWDM, TX/FX-SM1570-SC/UPC (80 km)	1002932

Prisma FiberLinX/CWDM, TX/FX-SM1590-SC/UPC (80 km)	1002933
Prisma FiberLinX/CWDM, TX/FX-SM1610-SC/UPC (80 km)	1002934
Prisma Gigabit FiberLinX SFP Modules	**Part Number**
Prisma FiberLinX, TX/SFP (one SFP/1250 module)	4016384
Prisma FiberLinX, TX/SFP (two SFP/1250 module)	4016385

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 #7018302, *Prisma Optical Media Converters FiberLinX-II Modules*.

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