Prisma Optical Media Converters
EtherLinX/4 Module

Optical Ethernet Access Device

Offering a host of capabilities unique to an Ethernet-based CPE, the Prisma® EtherLinX/4 module is the price/performance market leader. The EtherLinX/4 module enables service providers to offer differentiated "Transparent LAN" services to multi-tenant building and business customers. Residing at the customer premises, the EtherLinX/4 module provides a VLAN-based Layer 2 entry point to the last mile fiber network, trunking, differentiating and separating customer traffic.

Figure 1. Prisma EtherLinX/4 Module

Featuring SNMP management, 802.1Q VLAN, multi-queue QoS, traffic prioritization, bandwidth control, and multicast pruning/snooping (using IGMP v1, v2), EtherLinX/4 is perfect for a wide range of Fiber-to-the-Home, Fiber-to-the-Curb, and Fiber-to-the-Business (collectively "FTTx") services, and is an ideal solution for delivering those Ethernet-based services to customers quickly and cost-effectively. EtherLinX/4 also features Telnet and serial configuration, and remote firmware upgrading via a TFTP server or PrismaView SNMP management application software. Designed with a small footprint, EtherLinX/4 facilitates easy installation inside the premises.

EtherLinX/4 includes one uplink port (either 100Base-FX fiber or 10/100 twisted pair), four 10/100 twisted pair Ethernet downlink ports (for connecting users/LANs), and an internal 100-240V ±10% AC power supply.

EtherLinX/4 is also available for single-strand fiber. As an 802.1Q VLAN compatible device, EtherLinX/4 accepts traffic containing VLAN tags on the Uplink port, and directs that traffic to the twisted pair downlink ports or to management based on VLAN ID. In addition to assigning 802.1Q VLAN-tags on a per-port basis, you can define a priority for each port and SNMP; traffic is divided into a hi/low level for packet prioritization in the queue.

EtherLinX/4 includes bidirectional bandwidth control, and supports IGMP multicast pruning that ensures only the necessary amount of IP multicast packets are bridged. Easily configure and manage EtherLinX/4 with the GUI-based PrismaView, or with any other SNMP application such as Hewlett Packard OpenView Network Node Manager. PrismaView allows for remote link enable/disable, software and device firmware updates as well as receiving all essential device traffic statistics via SNMP. PrismaView runs standalone on Windows NT/XP/2000, as a standalone Java Application for other operating systems, as a snap-in module for HP OpenView, as a Web Server running under IIS, or as a Java Web Servlet.

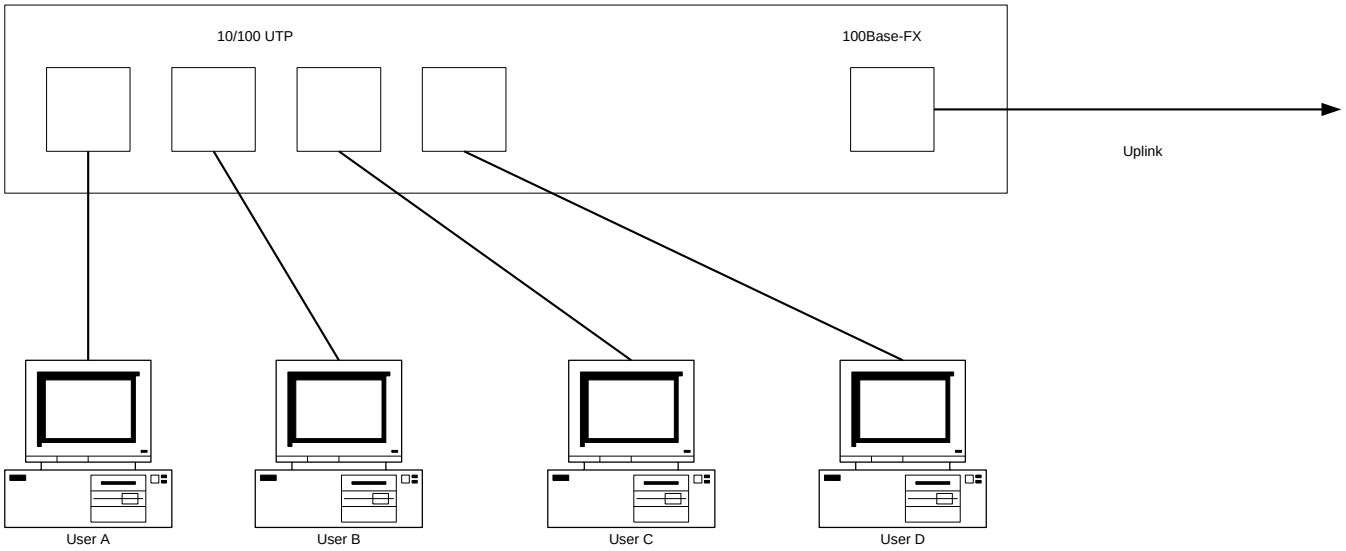
Features

- Read/write 802.1Q VLAN-tags on a per-port basis
- QoS – multi-queue packet prioritization
- Allows configuration via Telnet or serial port
- Remote management and upgrades
- Set bidirectional bandwidth control
- Supports IGMP multicast pruning
- Includes RMON statistics
- Lowers the cost of provisioning fiber services
- Optical demarcation and active switching
- SNMP-Manageable
- VLAN-tagging segregates customer traffic
- Managed through Uplink or Downlink
- Available for single-strand fiber

Application

For residential and commercial fiber services, install EtherLinX/4 inside the customer premises to provide a bridge between the customer and service provider networks. Fiber is run point-to-point.

Figure 2. Block Diagram



Product Specifications

Table 1. Optical Specifications

Prisma EtherLinX/4 TX/FX-MM1300	**Value**
Tx Wavelength	1300 nm
Avg. Distance	2 km
Tx optical output range	-20 to -14 dBm
Rx optical input range	-14 to -30 dBm
Prisma EtherLinX/4 TX/FX-SM1310/PLUS	**Value**
Tx Wavelength	1310 nm
Avg. Distance	40 km
Tx optical output range	-15 to -8 dBm
Rx optical input range	-8 to -31 dBm
Prisma EtherLinX/4 TX/FX-SM1310/LONG	**Value**
Tx Wavelength	1310 nm
Avg. Distance	80 km
Tx optical output range	-5 to 0 dBm
Rx optical input range	-2 to -34 dBm
Prisma EtherLinX/4 TX/FX-SM1550/LONG	**Value**
Tx Wavelength	1550 nm
Avg. Distance	110 km
Tx optical output range	0 to -5 dBm
Rx optical input range	-3 to -34 dBm
Prisma EtherLinX/4 TX/SSFX-SM1310 (single-strand fiber)	**Value**
Tx / Rx Wavelength	1310 / 1550 nm
Avg. Distance	20 km
Tx optical output range	-7 to -15 dBm
Rx optical input range	-3 to -33 dBm
Prisma EtherLinX/4 TX/SSFX-SM1550 (single-strand fiber)	**Value**
Tx / Rx Wavelength	1550 / 1310 nm
Avg. Distance	20 km
Tx optical output range	-7 to -15 dBm
Rx optical input range	-3 to -33 dBm
Prisma EtherLinX/4 TX/SSFX-SM1310/PLUS (single-strand fiber)	**Value**
Tx / Rx Wavelength	1310 / 1550 nm
Avg. Distance	40 km
Tx optical output range	-3 to -8 dBm
Rx optical input range	-3 to -33 dBm
Prisma EtherLinX/4 TX/SSFX-SM1550/PLUS (single-strand fiber)	**Value**
Tx / Rx Wavelength	1550 / 1310 nm
Avg. Distance	40 km
Tx optical output range	-3 to -8 dBm
Rx optical input range	-3 to -33 dBm
Prisma EtherLinX/4, CWDM, TX/FX	**Value**
Wavelength Spacing	20 nm
Tx Wavelength	nominal ± 6 nm
Tx optical output range	-3 to +2 dBm
Rx optical input range	+2 to -36 dBm

Table 2. Technical Specifications

Technical Specifications	Value
Standards Compliance & Feature Highlights	• IEEE 802.3 Ethernet 10Base-T • IEEE 802.3u 100Base-TX and 100Base-FX • IEEE 802.1Q and 802.1p VLAN (full-range 1 to 4,094) • Accepts VLAN traffic on Uplink port (if VLAN is enabled) • Define 1 VLAN for each Downlink port and 1 for SNMP • QoS– 802.1p-based packets prioritization • (2 queues [high/low] with 8 levels of prioritization) • Define 802.1p priority for each port • Layer 2 packet switching, store and forward operation • 1024 MAC addresses • Supports IGMP multicast pruning/snooping (v1/v2) • Supports configuration via Telnet • Supports serial configuration • Remote firmware upgrades • Supports over-sized packets up to 1536 bytes • Automatic MDI/MDI-X for plug-and-play operation • Up to full wire speed on all ports (except downlink, which also functions as a serial port)
Network Interfaces	• Four (AE/4) 10/100 Mb/s Ethernet downlink ports • (For serial configuration, use supplied RJ-45 to DB9 adapter on specified downlink port) • One 100 Mb/s fiber or 10/100 copper Uplink • 1300 nm multi-mode, 1310 nm or 1550 nm single-mode fiber, or single-strand fiber
Dimensions (W x D x H)	4.75 in. x 7.25 in. x 1.5 in. (12.07 cm x 18.42 cm x 3.81 cm)
Shipping Weight	1.6 lbs. (0.7 kg)
Environmental	Operating Temperature: 32 to 122°F (0 to 50°C) Storage Temperature: 22 to 160°F (-6 to 71°C) Humidity: 5 - 95% (non-condensing)
Regulatory Approvals	FCC Class B, UL, CSA, CE

Table 3. Configuration and Monitoring

Software Configuration and/or Monitoring Via:	
Prisma MIB	• Traps (Cold Start, Warm Start, Link Up,Link Down, Authentication Failure) • Link Status of Ports • Port Type • Fiber Type (if applicable) • User-Definable Name of Product • User-Definable ID/Name for Ports • Enable/Disable Ports • Enable/Disable FiberAlert* • Set for Auto-Negotiation/Selective Adverting • Force speed and Duplex Mode for twisted pair ports
MIB-II (RFC 1213)	• Packets Transmitted • Packets Received • Octets (bytes) Transmitted • Octets (bytes) Received • Unicast Packets Transmitted • Unicast Packets Received • Non-Unicast Packets Transmitted • Non-Unicast Packets Received • Errors Received • Plus All Standard MIB II Objects
RMON Statistics	• Drop Events • Total Bytes • Total Packets • Broadcast Packets • Multicast Packets • CRC Align Errors • Undersize Packets • Oversize Packets • Fragments • Jabbers • Collisions • Distribution of Frame Size
Transmission Dot 3 (RFC1643)	• Alignment Errors • Single Collision Frames • CRC Errors • SQE Test Errors • Late Collisions • Frame Too Long • Excessive Collisions • Deferred Transmissions • Multiple Collision Frames

* Available on FiberLinX units with fiber Uplink ports.

Ordering Information

The Prisma EtherLinX/4 modules listed below install in any Prisma MediaCenter or Prisma MediaCPE chassis.

Table 4. Ordering Information

Prisma FiberLinX TX/FX Modules	**Part Number**
Prisma EtherLinX/4, TX/FX-MM1300-SC/UPC [2 km]	4008610
Prisma EtherLinX/4, TX/FX-SM1310/PLUS-SC/UPC [40 km]	4008570
Prisma EtherLinX/4, TX/FX-SM1310/LONG-SC/UPC [80 km]	4008571
Prisma EtherLinX/4, TX/FX-SM1550/LONG-SC/UPC [110 km]	4008572
Prisma FiberLinX TX/SSFX Modules *(single-strand fiber)*	
Prisma EtherLinX/4, TX/SSFX-SM1310-SC/UPC [20 km]	4008574
Prisma EtherLinX/4, TX/SSFX-SM1550-SC/UPC [20 km]	4008578
Prisma EtherLinX/4, TX/SSFX-SM1310/PLUS-SC/UPC [40 km]	4008584
Prisma EtherLinX/4, TX/SSFX-SM1550/PLUS-SC/UPC [40 km]	4008585
Prisma EtherLinX/4 Modules for CWDM – SC/UPC	**Part Number**
Prisma EtherLinX/4, CWDM, TX/FX-SM1430-SC/UPC [80 km]	4008596
Prisma EtherLinX/4, CWDM, TX/FX-SM1450-SC/UPC [80 km]	4008597
Prisma EtherLinX/4, CWDM, TX/FX-SM1470-SC/UPC [80 km]	4008598
Prisma EtherLinX/4, CWDM, TX/FX-SM1490-SC/UPC [80 km]	4008599
Prisma EtherLinX/4, CWDM, TX/FX-SM1510-SC/UPC [80 km]	4008600
Prisma EtherLinX/4, CWDM, TX/FX-SM1530-SC/UPC [80 km]	4008601
Prisma EtherLinX/4, CWDM, TX/FX-SM1550-SC/UPC [80 km]	4008602
Prisma EtherLinX/4, CWDM, TX/FX-SM1570-SC/UPC [80 km]	4008603
Prisma EtherLinX/4, CWDM, TX/FX-SM1590-SC/UPC [80 km]	4008604
Prisma EtherLinX/4, CWDM, TX/FX-SM1610-SC/UPC [80 km]	4008605
Prisma EtherLinX/4 Modules for CWDM – SC/APC	**Part Number**
Prisma EtherLinX/4, CWDM, TX/FX-SM1430-SC/APC [80 km]	4008586
Prisma EtherLinX/4, CWDM, TX/FX-SM1450-SC/APC [80 km]	4008587
Prisma EtherLinX/4, CWDM, TX/FX-SM1470-SC/APC [80 km]	4008588
Prisma EtherLinX/4, CWDM, TX/FX-SM1490-SC/APC [80 km]	4008589
Prisma EtherLinX/4, CWDM, TX/FX-SM1510-SC/APC [80 km]	4008590
Prisma EtherLinX/4, CWDM, TX/FX-SM1530-SC/APC [80 km]	4008591
Prisma EtherLinX/4, CWDM, TX/FX-SM1550-SC/APC [80 km]	4008592
Prisma EtherLinX/4, CWDM, TX/FX-SM1570-SC/APC [80 km]	4008593
Prisma EtherLinX/4, CWDM, TX/FX-SM1590-SC/APC [80 km]	4008594
Prisma EtherLinX/4, CWDM, TX/FX-SM1610-SC/APC [80 km]	4008595

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

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