Prisma Optical Media Converters
T1/E1/J1 Telco Converters With Remote Management

Description

Prisma® T1/E1/J1 Media Converter products are physical layer devices that convert twisted pair to fiber optics and operate at switch-selectable protocol rates of T1 (1.544), E1 (2.048) and the Japanese J1 (1.544). Prisma T1/E1/J1 products offer more fiber choices and distances because they are engineered to industry standard 8B/10B PHY encoding. Modules are available in single-mode and multi mode fiber, and can extend distances up to 80 km.

Available with remote management via the fiber port, Prisma T1/E1/J1 products enable network managers to conduct loopback testing and monitor and manage units located up to 80 km away at a remote location. Cisco management technology functions transparently to the frame format, so customers do not experience overhead or loss of a data channel typically associated with remote management or SNMP polling. Customer traffic is always at the full bit rate of 1.544 Mbps or 2.048 Mbps.

Figure 1. Prisma T1/E1/J1 Media Converters

Troubleshooting is easy with Prisma T1/E1/J1 products that include a line integrity test feature, three modes of operation for loopback testing (local loopback, remote loopback, and analog loopback), and the Transmit Data Source diagnostic feature. The Transmit Data Source feature sends specific patterns of data (transmit all unframed ones; transmit a pattern of zeros and ones; and transmit a Pseudo Random Bit Sequence [PRBS]) to determine problems with the cable. All test modes can be configured remotely via PrismaView SNMP software, or locally by manually setting DIP switches on the units.

In addition, Prisma T1/E1/J1 includes an internal elastic buffer to remove jitter from transmitted data, and a mechanism for testing line integrity. Prisma T1/E1/J1 modular media converters install in any Prisma MediaCenter chassis or in an unmanaged MediaCPE.* To double the fiber capacity, choose a single-strand fiber version of the Prisma T1/E1/J1 media converter.

* When installed in a Prisma MediaCPE chassis, Prisma T1/E1/J1 modules are only SNMP-manageable and software configurable if connected to a Prisma T1/E1/J1 module that is installed in a managed Prisma MediaCenter chassis. Some features may not be software configurable on a remote unit.

Features

- Switch Selectable Protocol
  - Operates at T1 (1.544), E1 (2.048), and J1 (1.544) protocols
- Remote management
  - Conduct loopback tests, monitor/manage units via GUI-Based PrismaView
  - Full bit rate for customer traffic
- Supports more fiber choices
  - Available for multi-mode or single-mode fiber
  - Single-strand fiber versions
  - Supports very long fiber distances
- Eases Troubleshooting
  - Three loopback testing modes plus SNMP management and LEDs assist in diagnosing problems on fiber optic networks

Typical Application

Prisma T1/E1/J1 media converters allow the user to link two PBXs, CSUs, or routers and extend the distance between the two over fiber.
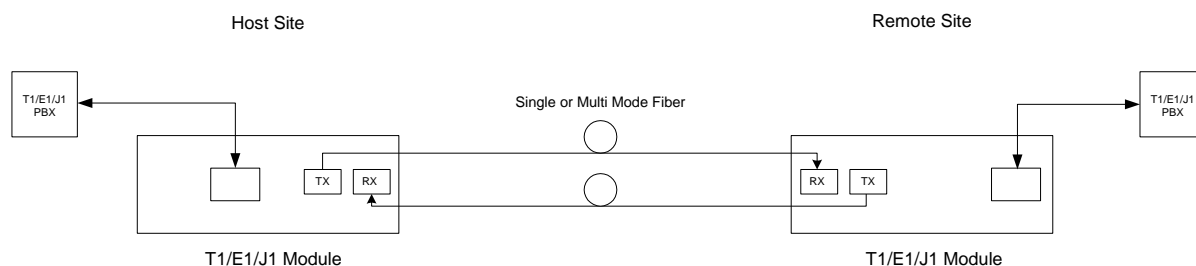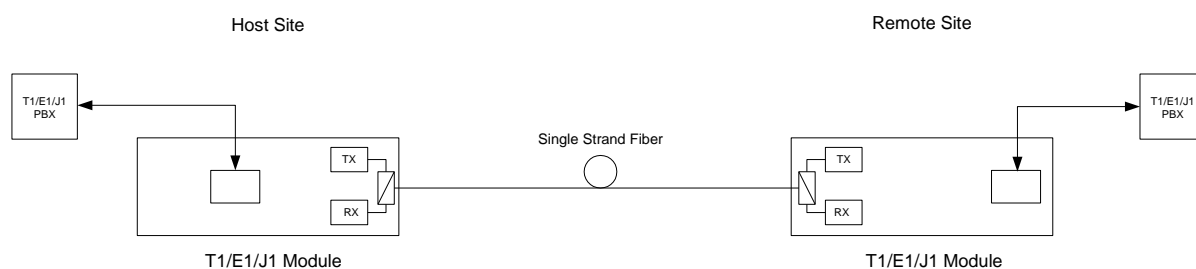
Figure 2. Two-Fiber Block Diagram

Figure 3. Single-Strand Fiber Block Diagram

SNMP Management

Prisma T1/E1/J1 modules are easy to configure and manage with the GUI-based PrismaView SNMP management application software or with any other SNMP application. PrismaView runs standalone on Windows NT4/2000/XP, or as a plug-in to HP OpenView on Windows or Solaris. For users of Windows 98 and other operating systems, a Java version is also available. Features and functionality are configurable via the software and/or hardware DIP switch settings.

Product Specifications

Table 1.   General Specifications

Description	Value
Supported Protocols	1.544 Mbps T1 (ANSI T1.403) 2.048 Mbps E1 (G.703) 1.544 Mbps J1
Supported Fiber	50/125µm or 62.5/125µm multi-mode 9/125µm single-mode
Connector Types	RJ-48 and SC
LEDs	Copper: • Loopback • No Link • PBEO Fiber: • NRZ • Remote Management • No Link • Symbol Error
Switch Selectable Configurations	• Protocol (T1/E1/J1) • Jitter Attenuation • Remote Management • Receive Equalizer Gain Limit* • NRZ* • Line Build Out • Loopback* (local, remote, analog) • Line Termination • MDI/MDIX • Internal Linear Gain Boost • Line Encoding* Transmit all unframed ones, Alternating ones and zeros, Pseudo Random Bit Sequence*

* Also configurable via software.

Table 2. Optical Specifications

Prisma T1/E1/J1 TP/SSFiber-SM1310-SC/UPC (single strand fiber)	Value
Tx Wavelength	1310 nm
Avg. Distance	20 km
Tx optical output range	-15 to -7 dBm
Rx optical input range	-33 to -3 dBm
Prisma T1/E1/J1 TP/SSFiber-SM1550-SC/UPC (single strand fiber)	**Value**
Tx Wavelength	1550 nm
Avg. Distance	20 km
Tx optical output range	-15 to -7 dBm
Rx optical input range	-33 to -3 dBm
Prisma T1/E1/J1 TP/SSFiber-SM1310/PLUS-SC/UPC (single strand fiber)	**Value**
Tx Wavelength	1310 nm
Avg. Distance	40 km
Tx optical output range	-8 to -3 dBm
Rx optical input range	-33 to -3 dBm
Prisma T1/E1/J1 TP/SSFiber-SM1550/PLUS-SC/UPC (single strand fiber)	**Value**
Tx Wavelength	1550 nm
Avg. Distance	40 km
Tx optical output range	-8 to -3 dBm
Rx optical input range	-33 to -3 dBm
Prisma T1/E1/J1 TP/Fiber-MM1300-SC/UPC	**Value**
Tx Wavelength	1300 nm
Avg. Distance	2 km
Tx optical output range	-20 to -14 dBm
Rx optical input range	-30 to -14 dBm
Prisma T1/E1/J1 TP/Fiber-SM1310/PLUS-SC/UPC	**Value**
Tx Wavelength	1310 nm
Avg. Distance	40 km
Tx optical output range	-15 to -8 dBm
Rx optical input range	-31 to -8 dBm
Prisma T1/E1/J1 TP/Fiber-SM1310/LONG-SC/UPC	**Value**
Tx Wavelength	1310 nm
Avg. Distance	80 km
Tx optical output range	-5 to 0 dBm
Rx optical input range	-34 to -2 dBm
Prisma T1/E1/J1 TP/Fiber-SM1550/LONG-SC/UPC	**Value**
Tx Wavelength	1550 nm
Avg. Distance	80 km
Tx optical output range	-5 to 0 dBm
Rx optical input range	-34 to -3 dBm

Ordering Information

The approximate average fiber distance for each Prisma T1/E1/J1 product is listed below in the Ordering Information section after the product name. The distance in km is designated by the number in the brackets [XX]. Distances are based on factory testing; actual installation distances may vary. Prisma T1/E1/J1 products must be used in pairs.

Table 3.   Ordering Information

Single-Strand Fiber	Part Number
Prisma FiberLinX, T1/E1/J1, TP/SSFiber-SM1310-SC/UPC [20km]	4006154
Prisma FiberLinX, T1/E1/J1, TP/SSFiber-SM1550-SC/UPC [20km]	4006155
Prisma FiberLinX, T1/E1/J1, TP/SSFiber-SM1310/PLUS-SC/UPC [40km]	4006157
Prisma FiberLinX, T1/E1/J1, TP/SSFiber-SM1550/PLUS-SC/UPC [40km]	4006156
Dual Fiber	**Part Number**
Prisma FiberLinX, T1/E1/J1, TP/Fiber-MM1300-SC/UPC [2km]	1002870
Prisma FiberLinX, T1/E1/J1, TP/Fiber-SM1310/PLUS-SC/UPC [40km]	1002869
Prisma FiberLinX, T1/E1/J1, TP/Fiber-SM1310/LONG-SC/UPC [80km]	1002868
Prisma FiberLinX, T1/E1/J1, TP/Fiber-SM1550/LONG-SC/UPC [80km]	1002867

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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