PL-1000TE 8 x 10G Transponder

Multi-rate multi-protocol transponders, supporting Layer-1 encryption

Features Overview

- Multi-rate and multi-protocol mix of 8 transponders, configurable from 622M up to 40G
- Supported services:
  GbE, 10GbE, 40GbE, 2G/4G/8G/10G/16G FC, STM-4/OC-12, STM-16/OC-48, STM-64/OC-192, HD-SDI, 3G-SDI (PAL and NTSC), SD-SDI
- Low latency connectivity, ideal for data center interconnect applications
- Encryption algorythm: GCM- AES-256 Layer-1 data encryption. Periodical Diffie Hellman key exchange. Complies with NIST FIPS-140-2 and CNSA Top Secret Suite B 2015 requirements
- Supported Layer-1 Encryption services:
  GbE/10Gb/40Gb Ethernet
- Remote management and topology discovery for the optical network
- Remote management and fiber monitoring with OSC OTDR SFP
- Pluggable SFP/SFP+ interfaces for both service and WDM channels
- Supports full C-band tunable DWDM on the line side (SFP+)
- Optional integrated EDFAs, mux/demux, DCM and optical switch
- Supports 1+1 facility protection
- Bi-directional performance monitoring
- Dual AC or DC pluggable power supply and pluggable fan unit
- Supports single and dual fiber networks

Low Latency 1G-16G WDM Transponder

The PL-1000TE/PL-1000TE Crypto is a CWDM/DWDM solution for connecting two data centers or back up sites. The device is an advanced, all-in-one optical transport solution, supporting up to 8 transponders with a flexible mix of industry-standard-protocols. The product integrates a rich and cost-effective feature set with low power consumption.

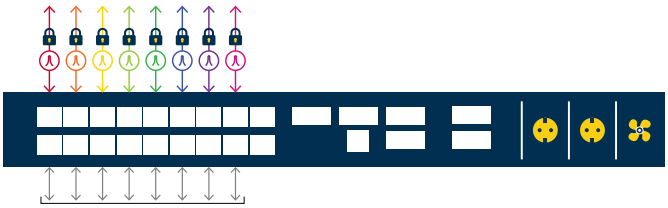
The PL-1000TE Crypto supports innovative Layer-1 optical encryption capability for 1G/10G/40G Ethernet LAN and 4G/8G/16G FC storage services.

Main Benefits

- **Flexible mix of services provides transparent migration capability from <10G to 10G services with no downtime**
- **Layer-1 encryption prevents disclosure of information to unauthorized parties with 100% throughput**
- **Maximum flexibility and scalability**

Standards-based Layer-1 Encryption

The PL-1000TE/PL-1000TE Crypto allows easy upgrade or expansion of the required services by simply adding pluggable optic modules (SFP/SFP+) into the available slots or by implementing PacketLight's multi-chassis stackable solution. This architecture provides true scalability at a minimum cost.



PL-1000TE Diagram - Multi-rate Transponder Layer-1 Encryption

Recommended Applications

- High capacity, low latency, secure data center interconnect (DCI)
- Efficient connectivity for campus, ISP and enterprise networks
- Upgrade of existing WDM networks to support 10/40Gb Ethernet and 16G FC services
- Trading applications and synchronous data center replication requiring low latency
- Distance extension for 40G data networks up to 120km

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Technical Specifications

System

Topology: Point-to-point, ring, linear ADM, dual or single fiber

Transport Network Medium: Metro CWDM, DWDM and dark fiber

Encryption

Algorithm: GCM-AES-256

Key Management: ECC Cofactor Diffie-Hellman with P-384 curve

Message Authentication: SHA-384

Crypto Services:

- Data: GbE/10G/40G Ethernet
- Storage: 4G/8G/10G/16G FC

Note: For specific countries, models that include Layer-1 GCM-AES-256 based encryption will be marked with the suffix C.

Product Options

Transponder: 850/1310nm to C/DWDM, 3R

Mux/Demux: 2x4 / 1x8 wavelengths

Amplifier: 1/2 EDFA (booster/pre-amp)

DCM: Up to 200km

Optical Switch: 1+1 facility protection

CWDM Link

Wavelength: ITU-T G.694.2 1270-1610nm, 20nm spacing

DWDM Link

Wavelength: ITU-T G.694.1 channels 15-60, 100GHz spacing, optional tunable SFP+ with 50GHz spacing

OSC: 1490nm, 1510nm

Optical Reach: 400km for 1.25Gbps, 200km for 2.66Gbps, 80km for 4.25/8.5/10Gbps, 40km for 16G FC

Optical Output Power:

- Sub-10G: 0dBm (min) to +4dBm (max)
- 8G/10G: -1dBm (min) to +2dBm (max)

Sensitivity:

- Up to 2.66Gbps: -28dBm APD
- 4G/8G/10G: -24dBm APD, -14dBm PIN

Optical Monitoring: Tx & Rx power

Link Attenuation: <4dB (mux + demux)

Service Side

Interface Rates: 1.25G to 10.51875G

Optical Interface: 850nm, 1310nm, 1550nm

Non Crypto Services: 1G/2G/4G/8G/10G/16G FC, 1G/10G LAN, STM-4/OC-12, STM-16 /OC-48, STM-64/ OC-192, CPRI 1-7, Video HD-SDI, 3G-SDI

Copper Services: 1000MBase-T

Amplifier

Applications: Booster, pre-amp

Output Power: Booster: +17dBm, +20dBm, 23dBm, pre-amp: +14dBm

Input Power: Booster: -24 to +16dBm, pre-amp: -36dBm up to 0dBm

Gain: Booster: +8dB to +22dB, pre-amp: +20dB

Operating Modes: Automatic gain control (AGC), automatic power control (APC)

Eye Safety: Automatic laser power reduction upon fiber cut or disconnection

Network Management

Management Ports:

- RJ-45 LAN port 10/100MBase-T
- 2xSFP MNG ports 100/1000MBase-X
- RS-232 serial port
- DB9 external alarm port

Management Protocols:

- SNMP, HTTP, HTTPS, CLI over RS-232 or CLI over Telnet/SSH, Syslog, RADIUS, TACACS+, SNTP, RSTP, TFTP and FTP

NMS:

- PacketLight LightWatch™ NMS, or third party NMS over SNMP

OAM: Facility loopback (client and line interfaces), PRBS, event logger, alarms, ALS

Performance Monitoring: Layer-1 PM for all services, Layer-2 PM for Ethernet, optical power Tx, Rx levels for all optical ports , 1G & 10G

Visual Indicators: LED: client and line ports, Management and LAN ports, amplifier/s, system Critical/Major/Minor and Power Supply

Software Upgrade: Hitless traffic – dual image

Optical Switch

Topology: Protected point-to-point

Switching time: Less than 50ms

Signal WL: C-band and L-band

Max input power: 27dBm

Insertion loss: Transmit side 3.8dB, Receive side 1.2dB

Power Supply and Fans

AC/DC:
100 to 240 VAC, 50/60Hz,
-38 to -60 VDC, 120W max

PSU Redundancy: Single/dual feeding, hot swappable

Cooling Unit: Hot swappable fan unit

Environmental

Operating Temperature: -5°C to 50°C (+23°F to +122°F) operational

Humidity: 5% to 85% RH

Size:

Size:

- 1.77" (H) x 17.32" (W) x 9.05" (D)
- 45mm (H) x 440mm (W) x 230mm (D)

Weight: 7kg / 15.4lb (max)

Mounting: 19", 23" and ETSI

Approvals & Standards

- CE, FCC, RoHS, REACH
- NEBS ready
- CNSA Top Secret Suite B 2015 copmliant

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