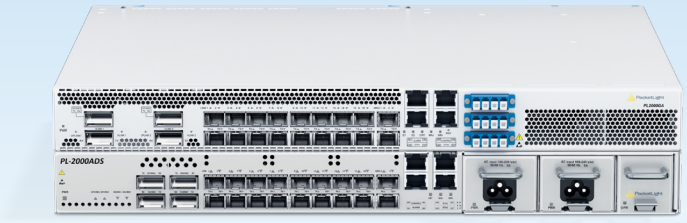


PL-2000GA / PL-2000ADS 2x100G Muxponder/ADM for Short Haul Networks

Multi-protocol multi-rate transport solution for short haul networks, with Layer-1 encryption

Features Overview

- Supports multiple, user-configurable, operation modes: muxponder, transponder, and ADM
- **Supported services:**
  - 10GbE/40GbE/100GbE
  - 8G/16G/32G Fibre Channel
  - STM-64/OC-192
  - OTU2/OTU2e/OTU4
  - 12G-SDI
- Forward error correction (FEC) - GFEC, SCFEC
- Layer-1 GCM-AES-256 encryption
- Low latency muxponder/transponder/ADM
- Comprehensive line and service performance monitoring
- Flexible OTN cross connect
- OTN SNCP 1+1 service protection for ring applications
- Remote management with in-band or out-of-band OSC
- Remote management and fiber monitoring with OSC OTDR SFP
- **Supports standard MSA pluggable:**
  - SFP+ (8G/10G/16G/32G FC client)
  - SFP28 (32G FC client)
  - QSFP+ (40GbE client)
  - QSFP28 (100GbE client)
  - QSFP28 (100GbE uplink)
  - QSFP28-DCO (100GbE uplink) - PL-2000GA
- Dual AC/DC pluggable power supply and pluggable fan unit

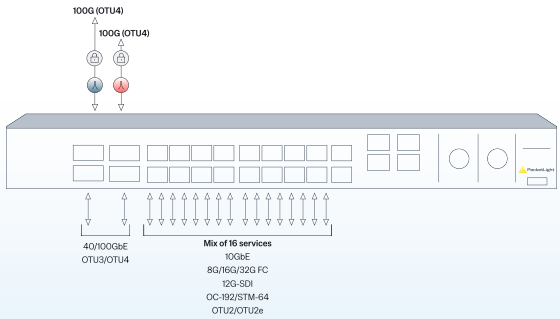
Muxponder/ADM Capabilities

The PL-2000GA and PL-2000ADS provide modular and cost-effective transport of up to 200G by aggregating multiple services into dual 100G OTU4 uplinks, using flexible cross connect matrix. These low power consumption devices save rack space, reducing overall CAPEX and OPEX, and enabling to easily and cost-effectively increase capacity of short haul networks.

Main Benefits

- Simple deployment and management
- Small footprint with very low power consumption
- Embedded GCM-AES-256 encryption for all protocols
- Encryption feeder in front of any third party OTU4 interface
- Available in front-to-back or side-to-side airflow platforms

Diagram of the PL-2000GA
Multiple Client Services Aggregated into Dual 100G OTU4 Uplinks



Security and Encryption for all Services

The PL-2000GA and PL-2000ADS are a cost-effective solution for short haul and access networks, incorporating GCM-AES-256 Layer-1 encryption with QKD support. The unit can also function as a standalone encryption machine for any mix of the featured client services.

Recommended applications

- Last mile access/aggregation CPE for 10/40/100GbE managed services
- Short haul enterprise and campus networks
- Dynamic add/drop of services in ring and linear add/drop topologies
- Feeder solution to third party OTU4 transponder card
- Layer-1 encryption solution for 10/40/100GbE services
- High bandwidth connectivity for data center and cloud computing

Technical Specifications

Product Configurations

Muxponder:
Aggregation of up to 20 multi-service, multi-rate, multi-protocol client interfaces: Ethernet, Fibre Channel, SONET/SDH, and OTN into 2xOTU4 uplinks

Dual 100G Transponder:
2x100GbE mapped into 2xOTU4 uplinks

100G Transponder and 10x10G Muxponder:
100GbE mapped into one OTU4 uplink and up to 10 multi-service 10GbE clients aggregated into a second OTU4 uplink

Uplink Characteristics

Bit Rate: 112Gbps (OTU4)

Optical Interface: 2xQSFP28

FEC Support: GFEC, SCFEC

Optical Reach:

- Up to 350km with DWDM - PL-2000GA
- Up to 40km with ER4 - PL-2000ADS

Optical Output Power:
2dBm to -2dBm - PL-2000ADS

Client Interfaces

Service type: 10GbE, 40GbE, 100GbE, 8G/16G/32G FC, STM-64/OC-192, OTU2, OTU2e, OTU3, OTU4, 12G-SDI

Optical Interface:

- **SFP+:** LR (1310nm), SR (850nm), ER (1550nm), ZR (1550nm), C/DWDM
- **SFP28:** LR (1310nm), SR (850nm)
- **QSFP+:** LR4 (1310nm), ER4 (1310nm), SR4 (850nm), LR PSM
- **QSFP28:** LR4 (1310nm), ER4 (1310nm), SR4 (850nm), CWDM4 (CWDM)
- **QSFP28-DCO:** DWDM - PL-2000GA
- **QSFP28:** DWDM - PL-2000ADS

Management:

- Web browser over HTTP/HTTPS,
- PacketLight LightWatchTM NMS/EMS, or third party NMS over SNMP
- REST, NETCONF
- CLI over RS-232 or CLI over Telnet/SSH

OAM:

- Facility loopback (client and line interfaces), PRBS, event log, external alarms (input and output)
- Automatic laser shut-down (ALS)

Network Management

Management Ports:

- 2xRJ-45 LAN port 10/100MBase-T
- 2xSFP MNG ports 100/1000MBase-X
- RJ-45 serial port
- RJ-45 external alarm port
- OTN in-band GCC channel

Protocols:

- SNMP
- v1/v2/v3 HTTP
- HTTPS
- Telnet
- SSH
- Syslog
- RADIUS
- TACACS+
- SNTP
- TFTP & FTP

Performance Monitoring:

- Layer-1 PM for all services
- Layer-2 PM for Ethernet
- OTN PM for uplinks
- Optical power Tx and Rx levels for all optical ports
- Egress PM for all services

Visual Indicators:
LED status indicators for: client and line ports, Management and LAN ports, system Critical/Major/Minor and Power Supply

Software Upgrade:
Hitless traffic – dual image

Power Supply

AC/DC:

- PL-2000GA: 100 to 240 VAC or -40 to -60 VDC, 50/60 Hz, 190W max
- PL-2000ADS: 100 to 240 VAC or -36 to -60 VDC, 50/60 Hz, 180W max

PSU Redundancy:
Single/dual feeding, hot swappable

Cooling Unit:
Hot swappable fan unit

Environmental

Operating Temperature:

- PL-2000GA: 0ºC to 45ºC (32ºF to 113ºF)
- PL-2000ADS: -5ºC to 50ºC (+23ºF to +122ºF)

Humidity: 5% to 85% RH

Air Flow:

- PL-2000GA: Front to back
- PL-2000ADS: Side to side

Dimensions

PL-2000GA:

- 1.77" (H) x 17.32" (W) x 13.78" (D)
- 45mm (H) x 440mm (W) x 350mm (D)

Weight: 7.3kg / 16lb (max)

Mounting: 19", 23", ETSI

PL-2000ADS:

- 1.77" (H) x 17.32" (W) x 11.22" (D)
- 45mm (H) x 440mm (W) x 285mm (D)

Weight: 5.9kg / 13lb (max)

Mounting: 19", 21", 23", ETSI

Encryption

Functionality:

- Full speed, transparent Layer-1 encryption for selected clients or for the OTU4 uplinks
- Supports QKD/PQC

Algorithms:

- Encryption/decryption: GCM-AES-256
- Key exchange: ECC Cofactor Diffie-Hellman with P-384 curve
- Message digest: SHA-384

Authentication:
Role-based user/password

Certifications:

PL-2000GA:

- FIPS 140-3 Level 2 certified
- Common Criteria EAL2 compliant
- CNSA Top Secret Suite B 2015 compliant

PL-2000ADS:

- FIPS 140-2 Level 2 certified
- Common Criteria EAL2 certified
- CNSA Top Secret Suite B 2015 compliant

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

Approvals & Standards

- CE, FCC, RoHS, REACH
- NEBS ready

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