

# PL-1000TN 10G OTN Transponder

## 6x10G OTN multi-protocol multi-rate OTN transponders, with total capacity of 60G

### Features Overview

- 6 independent ITU G.Sup43 standard-based multi-rate 8/10G OTN transponders
- Supported clients:
  - 10Gb/40Gb Ethernet
  - 8G/10G Fibre Channel (FC)
  - STM-64/OC-192
  - OTU2/2e
- Three FEC types: ITU G.709 GFEC, G.975.1 EFEC I.4 and UFEC I.7 for enhanced performance
- Supports full C-band tunable DWDM on line side optics
- Supports multi-rate client interfaces over a common OTN infrastructure
- 1+1 facility and optical switch line protection
- Comprehensive performance monitoring and full OTN managed layer
- Optional integrated EDFAs, DCM, mux/demux and optical switch modules
- Remote management with in-band GCC or out-of-band optical supervisory channel (OSC)
- Cost-effective 1U platform with low power consumption, ideal for customer located equipment (CLE)
- Supports standard MSA pluggable modules:
  - SFP+ (client)
  - XFP (uplink)
- Dual AC or DC pluggable power supply and pluggable fan unit
- Operates on single or dual fiber networks

### Multi-protocol 10G OTN Transponders

The PL-1000TN holds up to 6 multi-protocol transponders for mapping 8G/10G services over OTU2/2e/2f OTN. It is a highly integrated solution for unified transport of different protocols over a common optical transport layer.



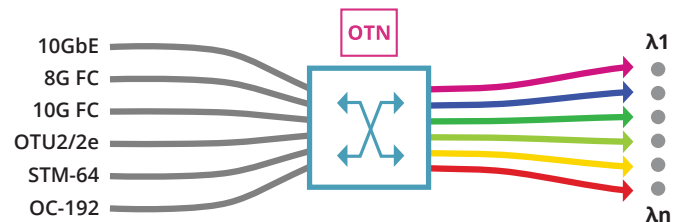
### Main Benefits

- Long haul connectivity for up to 52dB using a single 1U device
- Smallest integrated transport solution of its kind, saving rack space
- Enhanced forward error correction
- Reduces backbone cost by cutting the number of regenerators

### Integrated 1U OTU2 Transponder

The PL-1000TN meets market demands for low power consumption and rack space savings, reducing the overall solution CAPEX and OPEX.

The device provides the entire optical solution in a 1U, integrating EDFAs, mux/demux and DCM with the OTN transponders.



PL-1000TN Multi-rate Transponder Diagram

### Recommended applications:

- Building efficient DWDM OTN transport solutions for enterprises over common OTN long distance optical network
- Building a robust packet optical network infrastructure
- Multi-rate OTN transponder for ROADM-based applications
- CPE device for end-to-end managed services over carrier backbone
- Upgrading SONET/SDH backbones to OTN backbones
- OTU2e OTN regenerator



Low power consumption

1U

1U rack mount



Multi operation modes

## Technical Specifications

### System

**Transport Network Medium:** Access/metro CWDM, DWDM or dark fiber / long distance optical fiber networks / OTN backbone networks

**Protection:** 1+1 facility

### Product Configurations

**Transparent OTU2 Transponder:**

- **Non-protected:** Up to 6 independent client signals mapped into corresponding OTU2 line protocols
- **1+1 protected:** Up to 3 dual independent client signals mapped into corresponding 10G OTU2/2e/2f line protocols

**EDFA:** Up to two EDFA modules

**Mux/Demux:** Up to two mux/demux modules

**Optical Switch:** 1+1 facility protection <50Ms switch time optical module

### Optical Amplifier

**Output Power:** 14, 17, 20 or 23dBm

**Input Power:** -36dBm up to 16dBm

**Gain:** 8dB to 22dB

**Operating Modes:**

- Automatic Gain Control (AGC)
- Automatic Power Control (APC)

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

### Mux/Demux

**Channels:** 4/8 CWDM or DWDM channels

**Spacing:** 50/100GHz (for DWDM)

### Line (Uplink)

**Protocols:**

- OTU2 (10.709)
- OTU2e (11.095) as per G.Sup43
- OTU2f (11.317)

**FEC Types:** G.709 GFEC (RS), G.975.1 EFEC I.4, G.975.1 UFEC I.7

**Optical Interface:**

- Up to 6 pluggable XFP transceivers
- DWDM, tunable DWDM
- CWDM

### Client Service

**Client Protocols:**

- 10G/40G LAN (10.3125G/4x10.3125G)
- 8G/10G FC (8.5G/10.518)
- STM-64/OC-192 (9.953)
- OTU2

**Optical Interface:**

- Up to 6 pluggable SFP+ transceivers
- 850nm multimode
- 1310nm single mode

### Network Management

**Management Ports:**

- RJ-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

**Management Protocols:**

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

**NMS:**

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

**OAM:**

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

**Performance Monitoring:**

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

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

**Software Upgrade:** Hitless traffic – dual image

### Power Supply

**AC/DC:** 90 to 246 VAC, 50/60 Hz, -36 to -60 VDC, 70W 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

### Physical Dimensions

**1U:**

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

**Weight:** 5.5kg / 12.1lb (max)

**Mounting:** 19", ETSI and 23"

### Configuration

**License-based:** 4, 6 transponders

### Approvals & Standards

- CE, FCC, RoHS, REACH
- NEBS ready