

# PL-1000IL

## DWDM Amplification Solutions



Versatile, cost-effective, 1U platform with single, dual or quad DWDM amplifiers

### Features Overview

- Up to 4 amplifier modules in a 1U chassis
- Supports up to 96 wavelengths
- Supports AGC and APC operation modes
- Embedded OSC for remote management and topology detection
- Optional optical switch for facility protection
- Integrated single/dual DCM for long distance 10G amplified links
- Supports single and dual fiber operation
- Supports optional up to 16 channel mux/demu
- Offers several EDFA types:
  - Booster
  - Inline
  - Pre-amplifiers
  - Midstage
- Offers several Raman types:
  - Counter-propagating Raman,
  - Co-propagating Raman
  - Hybrid Raman-EDFA.
- Low power consumption
- Built-in eye safety mechanism
- Monitoring on the input and output power and user configurable gain
- Dual AC or DC pluggable power supply and fan unit

### For Long Distances and Attenuations in the Network

The PL-1000IL is designed to cost-effectively extend the optical link power budget for building long distance DWDM solutions. It provides amplification for a range of optical solutions, from single wavelength, up to the full C-band, and incorporates several types of low-noise Erbium-doped fiber amplifiers (EDFAs): booster, inline, and pre-amplifier, and Raman amplifier.

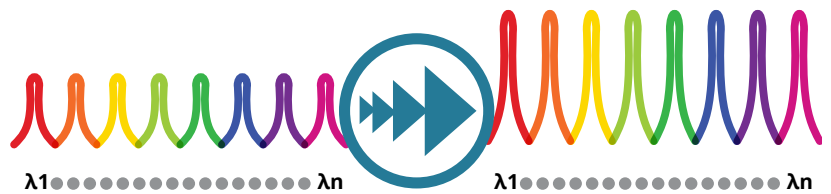
### Main Benefits

- Fully managed via dedicated integrated OSC
- Full remote monitoring on the input and output power, and user-configurable gain
- Eye safety feature - automatically shuts down the EDFA in case of fiber interruption
- Fully integrated solution including mux/demux, amplifier, and DCM
- Integrates with PacketLight management platforms and transponder/muxponder products

### Flexibility in Services over the Same Fibre

The PL-1000IL is fully managed, configured and monitored remotely as part of the network, via optical supervisory channel (OSC). The device supports AGC and APC operation modes. The EDFA gain is controlled, adjusted and monitored by the user, and APC operating mode allows to maintain constant output power.

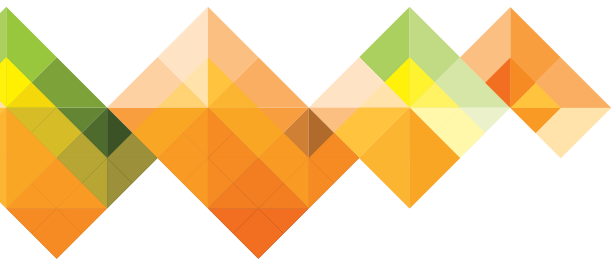
The EDFAs have high optical signal to noise ratio (OSNR), enabling to cascade several EDFAs to form an amplified OTN link over long distances, without the need for regenerators.



Integrated Amplification Solution

### Recommended for the following applications:

- Extending the optical link power budget to meet distance and attenuation requirements of DWDM networks
- Upgrading the optical link budget to support 10G/40G/100G services
- Reducing the number of regenerators and sites along the fiber
- Overcoming high loss in old fiber infrastructure
- Facility protection for fiber redundancy solutions
- Inline, edge and unidirectional mid-stage applications



Low power consumption



1U rack mount



Multi operation modes

## Technical Specifications

### System

**Topology:** Point-to-point, ring, linear ADM, inline, edge or midstage

**Transport Network Medium:** Metro DWDM / dark fiber

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

### Booster

**Output Power:** Up to 23dBm

**Input Power:** -24dBm up to 16dBm

**Gain:** 8dB to 22dB

### Inline

**Output Power:** Up to 23dBm

**Input Power:** -24dBm up to 13dBm

**Gain:** 5dB to 22dB

### Pre-amplifier

**Output Power:** Up to 14dBm

**Input Power:** -36dBm up to 15dBm

**Gain:** 20dB

### Midstage

**Output Power:** 8dBm per channel

**Input Power:** -36dBm up to 15dBm

**Total Output Power:** up to 23dBm

**Gain:** up to 40dB

### General

**Gain Flatness:** +/-1dB

**Noise Figure:** 4-6dB

**PMD:** 0.3ps

**PDL:** 0.3 dB

### Operating Modes:

- Automatic gain control (AGC)
- Automatic power control (APC)

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

### Optional Optical Switch

**Switching Time:** <50ms

**Max Input Power:** 27dBm

**Insertion Loss Transmit Side:** 3.8dB

**Receive side:** 1.2dB

### Network Management

#### Management Ports:

- RJ45 10/100MBase-T
- 2xSFP 100Base-X
- RS-232 serial port
- DB9 alarm port
- 8xSFP 100Base-X MC ports

**Protocols:** SNMP, HTTP, HTTPS, Telnet, SSH, Syslog, RADIUS, SNTF

**Management:** Web browser over HTTP/HTTPS, PacketLight LightWatch™ EMS or third party EMS over SNMP, CLI over RS-232 or CLI over Telnet/SSH

**OAM:** Input/output power monitoring event logger and alarms

**Management Channel:** 2 x optical supervisory channel (OSC)

**Visual Indicators:** LED status indicators for EDFA ports, power and system

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

### DCM

**DCM Type :** Tunable DCM or fixed DCM

**Fibre Type:** G.652

**Fibre Span:** 20-200km

**Max insertion loss:** <3dB

**Standard:** ITU G.671

### Power Supply

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

**PSU Redundancy:** Single/dual feeding, hot swappable

**Cooling Unit:** Hot swappable fan unit

### 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"

### Environmental

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

**Humidity:** 5% to 85% RH

### Approvals & Standards

- CE, FCC, RoHS, REACH
- NEBS ready