## PL-1000IL DWDM EDFA Amplification Solutions

# Versatile, cost-effective 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
- 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

#### Long Distance and Attenuation 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.



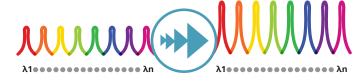
#### **Main Benefits**

- 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 Fiber

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 EDFA has 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.



PL-1000IL Integrated Amplification Solution

#### **Recommended 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

### **Technical Specifications**

#### **System**

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

Transport Network Medium: Metro

DWDM / dark fiber

Software Upgrade: Dual image, hitless

swap

#### **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, TACACS+, SNTP

Management: Web browser over HTTP/ HTTPS, PacketLight LlghtWatch™ 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

