



# PL-1000RO

Next Generation WSS ROADM

Advanced Integrated ROADM platform providing flexible Wavelength Add Drop, Automatic Power Balancing and Amplification for next generation DWDM Network Infrastructure

## FEATURE OVERVIEW

**Flexible wavelengths Add/Drop**

**Automatic Optical Power Equalization**

**Directionless, Colorless architecture**

**Supports up to 96 C-Band channels**

**Up to 8-degree ROADM**

**Supporting Mesh, Ring and Linear add/drop topologies**

**Flexible channel spacing 50GHz/100GHz**

**Optical Power Level Monitoring for all channels**

**Supports 8 channel internal DWDM Mux/Demux**

**Supports optional embedded EDFA Booster/Preamplifier**

**Ready for 40Gbps and 100Gbps transmission format**

**Embedded Optical Supervisory Channel for remote management**

**Dual AC or DC pluggable Power Supply and pluggable FAN Unit**

**A-Z provisioning and service management using PacketLight's LightWatch<sup>(TM)</sup> NMS**

## PL-1000RO Reconfigurable Optical Add-Drop Multiplexer (ROADM)

ROADM based network architecture simplifies configuration and management of complex DWDM network infrastructure. It offers highly flexible wavelength routing capabilities suitable for mesh, ring, linear add/drop, core and edge DWDM network topologies.

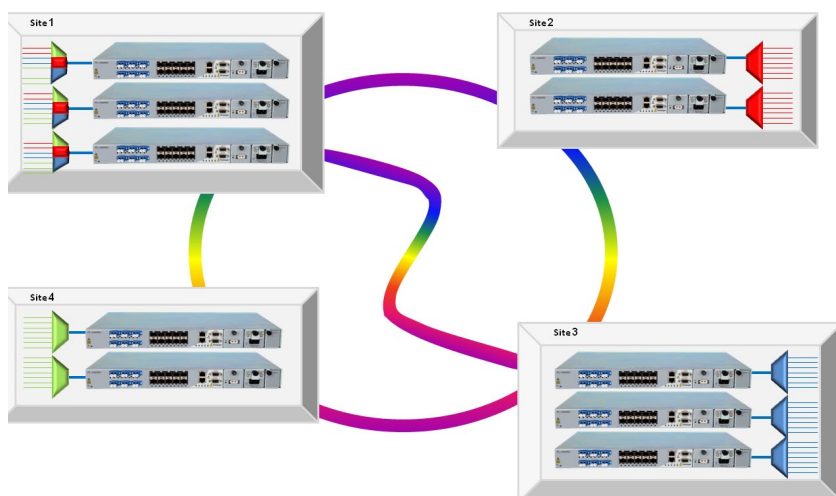
PacketLight's PL-1000RO offers the ROADM functionality based on the most advanced next generation WSS (Wavelength Selective Switch) technology.

PacketLight colorless, directionless, contentionless and gridless ROADM architecture that provides high flexibility for mesh and ring networks.

The user configures the PL-1000RO dynamically to add/drop selected wavelengths at any node in the network and seamlessly change the network node capacity as needed. In addition, it automatically maintains the equalization and power balance of the added and bypass wavelengths. The PL-1000RO also integrates optional EDFA for amplifying the wavelengths thus delivering effective long distance DWDM solutions.

PL-1000RO simplifies network management and reduces operation costs (OPEX) by allowing deployment of new wavelengths remotely. PL-1000RO fully integrates with PacketLight's WDM product line.

The PL-1000RO can be managed by any third party NMS system or with PacketLight's EMS.



## TECHNICAL SPECIFICATIONS

| 2 Degree ROADM Parameter | Min   | Max   | Units    | Notes                                   |
|--------------------------|-------|-------|----------|-----------------------------------------|
| Insertion Loss           | 10    | 11    | dB       | All Ports                               |
| Loss Uniformity          |       | 1.5   | dB       | All Ports                               |
| Channel Range            | 191.3 | 196.0 | THz      | Full C-band, 1529.55 to 1567.13 nm      |
| Channel Count            |       | 48/96 | Channels | 50/100 GHz spacing ITU Grid (Ch13-CH60) |
| PMD                      | -0.2  | 0.2   | ps/nm    | In passband                             |
| Switch Speed             | 0.001 | 100   | ms       |                                         |
| VOA Range                | 0     | 15    | dB       |                                         |

| 4 Degree ROADM Parameter | Min   | Max   | Units    | Notes                                   |
|--------------------------|-------|-------|----------|-----------------------------------------|
| Insertion Loss           | 13    | 14    | dB       | All Ports                               |
| Loss Uniformity          |       | 1.5   | dB       | All Ports                               |
| Channel Range            | 191.3 | 196.0 | THz      | Full C-band, 1529.55 to 1567.13 nm      |
| Channel Count            |       | 48/96 | Channels | 50/100 GHz spacing ITU Grid (Ch13-CH60) |
| PMD                      | -0.2  | 0.2   | ps/nm    | In passband                             |
| Switch Speed             | 0.001 | 100   | ms       |                                         |
| VOA Range                | 0     | 15    | dB       |                                         |

### Full C-Band Amplifier

|                 |                                                                    |
|-----------------|--------------------------------------------------------------------|
| Output Power    | 14dBm to 23dBm                                                     |
| Input Power     | -36dBm up to +16dBm                                                |
| Gain            | 5dB to 38dB                                                        |
| Operating Modes | AGC (Automatic Gain Control),<br>APC (Automatic Power Control)     |
| Eye Safety      | Automatic laser power reduction upon<br>fiber cut or disconnection |

### Physical Dimensions

|          |                                                                               |
|----------|-------------------------------------------------------------------------------|
| Size     | 1.77" (1 RU) (H) x 17.32"(W) x 9.05"(D)<br>45 mm (H) x 440mm (W) x 230 mm (D) |
| Weight   | 8Kg (Max)                                                                     |
| Mounting | 19", ETSI and 23"                                                             |

### Environmental

|                       |                                                   |
|-----------------------|---------------------------------------------------|
| Operating Temperature | -5° C to 50° C (+23° F to +122° F)<br>Operational |
| Humidity              | 5% to 85% RHI                                     |

### DCM

|                    |                          |
|--------------------|--------------------------|
| DCM Type           | Tunable DCM or Fixed DCM |
| Fiber Span         | 20-100Km                 |
| Max insertion loss | <5dB                     |
| Standard           | ITU G.671                |

### Network Management

|                        |                                                                                                                                                                                                                                        |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Management Ports       | <ul style="list-style-type: none"> <li>• 2 RJ-45 LAN port 10/100Mbase-T</li> <li>• 2x SFP MNG ports 100/1000MBase-X</li> <li>• 8x SFP MNG ports 100MBase-X</li> <li>• RS-232 Serial port</li> <li>• DB9 External Alarm port</li> </ul> |
| Management Protocols   | SNMP, HTTP, HTTPS, Telnet, SSH, Syslog, RADIUS, SNTP, TFTP and FTP                                                                                                                                                                     |
| Management             | Web browser over HTTP/HTTPS, LightWatch PacketLight NMS/EMS, or 3rd party EMS NMS over SNMP, CLI over RS-232 or CLI over Telnet/SSH                                                                                                    |
| Performance Monitoring | Layer 1 PM for all Wavelengths, OCM for Input and Output directions                                                                                                                                                                    |
| Visual Indicators      | LED status indicators for:<br>Management and LAN ports,<br>Amplifier/s, System Critical/Major/<br>Minor<br>and Power Supply                                                                                                            |
| Software Upgrade       | Traffic Hitless – dual image                                                                                                                                                                                                           |

### Power Supply

|                |                                      |
|----------------|--------------------------------------|
| AC/DC          | 90 to 246VAC, -36 to -72VDC, 60W max |
| PSU Redundancy | Single/Dual feeding, Hot Swappable   |
| Cooling Unit   | Hot Swappable Fan Unit               |

### Approvals & Standards

CE, FCC, RoHS, REACH  
NEBS Compliant, ISO-9001

