The Polatis Series 1000n Network Optical Switch is a high-performance, fully non-blocking all-optical 32x32 matrix switch. It is designed to meet the highest performance and reliability needs of the most demanding applications with exceptionally low optical loss, compact size, low power requirements and fast switching speeds. With support of Software-Defined Networks (SDNs) via an embedded OpenFlow control interface, the Series 1000n enables extremely low latency for time-critical traffic required for new virtual cloud services in hybrid packet-optical data centers. The Series 1000n is based on Polatis' patented DirectLight® optical switching technology that has been proven in the most challenging data center, telecom and defense applications and is also used by major network equipment manufacturers to automate the testing of optical components and subsystems. Its' compact size coupled with very low power consumption make it space efficient while also being environmentally friendly.

**KEY FEATURES**

- Non-blocking 4x4 to 32x32 matrix switch
- SDN enabled with OpenFlow command interface
- Ultra-low insertion loss and superior optical specifications
- Available in symmetric NxN and asymmetric MxN configurations
- Able to switch and hold dark fiber connections
- Fully bidirectional optics
- Protocol and bit-rate agnostic up to 100Gbs and beyond
- Optional optical power monitoring
- User configurable optical power alarms
- Carrier-class interfaces with OpenFlow, SNMP, TL1 and SCPI command languages
- High reliability distributed architecture
- Built-in user friendly web GUI interface
- Eco-friendly with very low power consumption

**DIRECTLIGHT BEAM-STEERING**

The Series 1000n 32x32 switch uses Polatis' patented, highly reliable piezoelectric DirectLight beam-steering technology that sets the industry standard for lowest optical loss and highest optical performance. Polatis' beamsteering technology can be switched without light being present on the fiber. This allows operators to pre-provision paths, as well as perform intelligent network monitoring and test, over lit or dark fiber. The Polatis DirectLight technology can also switch bi-directional optical signals for PON, FTTx and other types of transmission systems.

**CARRIER-CLASS RELIABILITY AND INTERFACES**

The Polatis Series 1000n switch has carrier-class reliability with full NEBS Level 3+ certification and dual hotswap power supplies. In addition, the switch software can be easily upgraded in the field without affecting in-service switch operations. OpenFlow, SNMP, TL1 and SCPI command languages allow for seamless integration with higher-level network management systems or test equipment controllers. Each switch also has a user-friendly secure HTML web browser GUI interface that can be used to provision, monitor and control the switch.

**OPTIONAL POWER MONITORS AND OPTICAL TAPS**

The Polatis Series 1000n switches include options for integrated optical power monitoring or optical monitoring taps on every connection. In addition, the switch can be equipped with a programmable variable optical attenuation on each connection where the switch optical output power level can be attenuated or held at a fixed value. These integrated features are ideal for network monitoring, data mirroring and intrusion detection, as well as for built-in fault isolation. Polatis switches can be easily configured to provide fully automated, multilevel protection switching using a combination of power monitoring, threshold alarm indicators and fast switching. Switches can also be customized to incorporate a wide variety of passive optical components to suit individual customer needs.
WEB GUI AND NETWORK MANAGEMENT

With dynamic remote connection management via a secure web GUI with support for SNMP and TL1, the Polatis series 1000n simplifies and automates management. It increases flexibility, significantly reduces operating costs and seamlessly interworks with higher lever network management systems.

ECO-FRIENDLY NETWORKING

The Polatis series 1000n has achieved a Verizon’s Telecommunication Equipment Energy Efficiency Ratings (TEEER) of more than 10, or at least 1,000 times more energy efficient than the industry average, enabling network operators to significantly reduce their carbon footprints.

### Performance Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Matrix Size</th>
<th>Matrix Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Insertion Loss</td>
<td>0.8dB</td>
<td>0.8dB</td>
</tr>
<tr>
<td>Maximum Insertion Loss</td>
<td>1.3dB</td>
<td>1.7dB</td>
</tr>
<tr>
<td>Maximum Insertion Loss with a single OPM</td>
<td>1.6dB</td>
<td>2.0dB</td>
</tr>
<tr>
<td>Maximum Insertion Loss with two OPMs</td>
<td>1.9dB</td>
<td>2.3dB</td>
</tr>
<tr>
<td>Polarization Dependent Loss (PDL)</td>
<td>&lt;0.1dB (C+L Bands)</td>
<td>&lt;0.3dB (C+L Bands)</td>
</tr>
</tbody>
</table>

For all switch sizes:

- Crosstalk: <50dB
- Loss Repeatability: +/-0.15dB
- Connection Stability: +/-0.1dB
- Dark Fiber Switching: Yes
- Bi-Direction Optics: Yes
- Max Switching Time: 25ms
- Operating Wavelength Range: 1280-1675nm
- Wavelength Dependent Loss (WDL) <3 dB (C+L Band) Max
- Return Loss (with APC connectors): >50dB

### Electrical and Mechanical

- Fiber Type: Single Mode
- Single Fiber Connector Types: LC, SC or Diamond E-2000 Connectors
- Array Connector Types: MTP-8 or MTP-12 Elite Array Connectors
- Control Languages: OpenFlow, SNMP, TL1, SCP/T & HTML
- User Interfaces: RJ45 Ethernet 10/100 Base T
- Craft Interface: RS232 Serial
- Power options: Single 100-240 VAC 50/60 Hz

### Fiber Connector and Options

- Switch Dimensions (HxWxD):
  - LC or MTP: 4x4 to 16x16, 20x20 to 32x32
  - SC or Diamond E-2000: 4x4 to 8x8, 12x12 to 16x16, 20x20 to 32x32