

POLATIS® SERIES 6000n

Network Optical Matrix Switch

Single-mode network optical switch from 16×16 to 192×192 ports



Series 6000n 48×48 Switch



Series 6000n 192×192 Switch

The POLATIS Series 6000n Network Optical Switch is a high-performance, fully non-blocking all-optical matrix switch available in sizes from 16x16 up to 192x192. 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 for Software-Defined Networks (SDNs) via embedded NETCONF and RESTCONF control interfaces, the Series 6000n enables extremely low latency for time-critical traffic required for new virtual cloud services in hybrid packet-optical data centers.

KEY FEATURES

- Non-blocking matrix switch sizes from 16×16 to 192×192
- Available in symmetric N×N and N×CC any-to-any port configurations; asymmetric M×N configurations on request
- Fully bidirectional optics
- Protocol and bit-rate agnostic up to 400 Gbs and beyond
- Switch and hold dark fiber connections
- SDN enabled with NETCONF and RESTCONF command interfaces
- Carrier-class interfaces with SNMP, TL1 and SCPI control languages
- Built-in user-friendly secure web GUI interface
- Supports secure user access protocols
- Optional Optical Power Monitoring (OPMs) with user configurable optical power alarms
- Optional Automated Protection Switching (APS) based on loss or degradation in optical signal power
- High reliability distributed architecture
- Eco-friendly low power consumption
- Dual redundant power and network interface cards

DirectLight® technology

POLATIS Series 6000n switches use POLATIS patented, highly reliable piezoelectric DirectLight® beam-steering technology that sets the industry standard for lowest optical loss and highest optical performance. POLATIS DirectLight® technology allows true dark fiber switching where the connections can be made and held without light being present on the fiber. This allows operators to pre-provision paths as well as perform intelligent network monitoring. POLATIS DirectLight® can also switch bi-directional optical signals for PON, FTTx and other types of transmission systems.

SDN enabled

POLATIS switches can be easily deployed in an SDN platform using NETCONF or RESTCONF interfaces, enabling network operators to monitor and dynamically reconfigure the network in real time to quickly respond to changing network conditions. The SDN and other control interfaces allow for seamless integration with higher-level network management systems and test equipment controllers. This added level of flexibility increases equipment utilization and lowers overall costs while increasing network availability. In addition, POLATIS also offers SNMP, TL1, and SCPI command languages and a user-friendly secure web browser GUI interface that can be used to provision, monitor, and control the switch.

Switch matrix size options

The POLATIS Series 6000n is available in sizes from 16×16 up to 192×192 in symmetric (N×N) and single-sided customer-configurable (N×CC) switch matrices, to meet a broad range of network applications. Asymmetric (M×N) configurations are available on request. Switch sizes up to 48×48 can be accommodated in a 1 RU chassis.

Carrier-class reliability

The POLATIS Series 6000n switch has carrier-class reliability. The switch has a distributed architecture that eliminates the possibility of any single point of failure disabling it and includes dual, hot-swap power supplies and network interface cards.

Optional power monitors and optical taps

POLATIS Series 6000n switches include options for integrated optical power monitoring (OPMs) on every connection. These are ideal for identifying signal degradation or loss, as well as for testing applications. POLATIS switches can also be easily configured to provide fully automated multilevel protection switching using a combination of power monitoring, threshold alarm indicators and fast switching.

BENEFITS OF POLATIS SWITCHING

- Low optical loss reduces the need for extra optical amplification and enables novel architectures
- Superior optical specifications enable operation at 400 Gbs and beyond
- NETCONF and RESTCONF interfaces enable faster deployment of new control applications
- Bi-directional, all-band transmission with minimal signal impairment provides truly transparent connections
- Fast switching times enable efficient provisioning and protection switching
- Dark-fiber switching enables preprovisioning and use with intermittent signals
- Low power usage and compact physical size fits into applications other switches cannot

APPLICATIONS

- Fast automatic provisioning and protection switching in optical networks with Software-Defined Networking
- Cage-to-cage provisioning in data centers
- Data center interconnects
- Network traffic and performance monitoring
- Cybersecurity monitoring
- Infrastructure as a Service (IaaS) automation and orchestration
- Video content creation and broadcasting
- High performance computing
- Disaggregation

For installation and technical support

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Performance Parameters	POLATIS 6000n Specifications
Matrix Switch Sizes (N×N) ¹	16×16 to 192×192
Typical Insertion Loss ²	1.0 dB
Maximum Insertion Loss ²	2.0 dB
Maximum Insertion Loss with single OPM ²	2.5 dB
Loss Repeatability ³	+/-0.1 dB
Connection Stability ³	+/-0.1 dB
Operating Wavelength Range	1260-1675 nm 1260-1650 nm with optional OPMs
Return Loss (with APC connectors)	>50 dB
Max Switching Time	25 ms
Data Latency through a switch connection	25 ns
Dark Fiber Switching	Yes
Bi-Direction Optics	Yes
Polarization Dependent Loss (PDL)	<0.1 dB (C+L Bands) <0.3 dB with optional OPM (C+L Band)
Crosstalk	<-50 dB
Wavelength Dependent Loss (WDL)	<0.3 dB (C+L Band)
Optional Optical Power Monitoring (OPM)	Dynamic range -25 dBm to +20 dBm Accuracy +/-1.0 dBm
Optical Input Power Range	Dark to +24 dBm
Switch Lifetime	>10 ⁹ Cycles
Operating Temperature	+5 °C to +40 °C <85 % RH non-condensing
Storage Temperature	-40 °C to +70 °C <40 % RH non-condensing

Electrical and Mechanical	POLATIS 6000n Specifications
Fiber Type	Single-mode
Single Fiber Connector Types	LC or LC-HD Connectors Angled (APC) or Ultra (UPC) connector types available
Array Connector Types	MTP-8 or MTP-12 Elite Array Connectors
Control Languages	NETCONF, RESTCONF, SNMP, TL1 and SCPI Secure User-Friendly Web GUI
User Interfaces	RJ45 Dual Redundant Hot-Swap Gigabit Ethernet
Craft Interface	RS232 Serial
Secure User Access Protocols	RADIUS AAA (EAP-TTLS, PAP), LDAP
Power options	Hot-Swap Dual Redundant 100-240 VAC 50/60 Hz Hot-Swap Dual Redundant -48 VDC
Power Consumption	25-75W

Switch Chassis Height⁴

Maximum matrix size per RU – no OPMs					
Connector	1RU	2RU	3RU	4RU	6RU
LC	32×32	48×48	96×96	144×144	192×192
LC-HD	48×48	n/a	144×144	192×192	n/a
MTP	48×48	n/a	144×144	192×192	n/a
Maximum matrix size per RU – 1 side OPMs					
Connector	1RU	2RU	3RU	4RU	6RU
LC	32×32	48×48	96×96	144×144	192×192
LC-HD	48×48	n/a	144×144	n/a	192×192
MTP	48×48	n/a	144×144	192×192	n/a
Maximum matrix size per RU – 2 side OPMs					
Connector	1RU	2RU	3RU	4RU	6RU
LC	32×32	48×48	64×64	144×144	192×192
LC-HD	48×48	n/a	64×64	144×144	192×192
MTP	48×48	n/a	64×64	144×144	192×192

All parameters are measured excluding connectors at 1550 nm and 20 °C with an unpolarized source after thermal equalization unless otherwise noted.

1. Single-sided N×C customer-configurable switches with any-to-any port connectivity are also available. Asymmetric M×N switches available on request.
2. Measured using the 3 patch-cord method as defined in ANSI/TIA/EIA-526-7-1998
3. Stability and repeatability are measured at maximum transmission
4. The switch chassis width is 19" and the depth is 22" for all Series 6000 switches