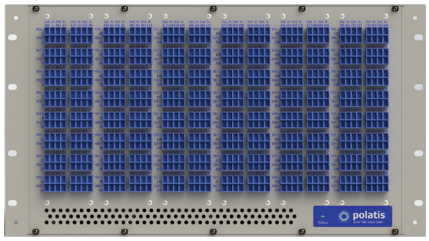
POLATIS® SERIES 7000s
Secure Optical Matrix Switch

Single-mode secure optical switch up to 384x384 ports



The POLATIS Series 7000s Secure Optical Switch is the largest capacity, highest density, highest performance and most reliable non-blocking all-optical matrix switch in the industry. Available in sizes up to 384×384, the Series 7000s all-optical circuit switch is designed to meet the most demanding government and defense applications with exceptionally low optical loss, compact size, and fast switching speeds. With support for Software-Defined Networks (SDNs), the Series 7000s enables extremely low latency and highly secure connectivity for mission-critical applications. Its exceptionally low optical loss and low latency also make it particularly suitable for Quantum Network testbeds and QKD.

KEY FEATURES

- Non-blocking matrix sizes up to 384×384
- Available in symmetric N×N, asymmetric M×N and single-side N×CC (customer configurable - any-to-any) port configurations
- Industry leading low insertion loss and superior optical specifications
- Transparent 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 control interfaces
- Configurable interface options with SNMP, TL1, and SCPI control languages
- Built-in user-friendly Web GUI interface
- Supports RADIUS secure user access protocols
- Seamlessly interfaces with infrastructure automation and orchestration solutions
- Optional optical power monitoring and variable optical attenuation (VOA) on every connection
- Exceptional optical stability and repeatability
- Programmable port shutter for fiber break simulation
- High reliability distributed architecture
- Eco-friendly low power consumption
- Built for rugged environments with mission-grade reliability
- Optional extended environmental storage/operating conditions

DirectLight® technology

Series 7000s optical switches use patented, highly reliable piezoelectric POLATIS 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 over lit or dark fiber, switch intermittent and variable-power signals and perform intelligent network test and monitoring. POLATIS DirectLight® technology can also switch bi-directional optical test 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. 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 7000s is available in matrix sizes up to 384×384 in a variety of configurations, including symmetric (N×N), asymmetric (M×N) and single-sided customer- configurable (N×CC) switch matrices, to meet a broad range of network applications. Switch matrix sizes can also be optimised for individual applications.

Mission critical reliability

The POLATIS Series 7000s switch has carrier-class reliability for mission critical applications. The switch has a highly resilient 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. The SDN and other control interfaces allow for seamless integration with higher-level network management systems and test equipment controllers.

Optional power monitors and optical taps

POLATIS Series 7000s switches include options for integrated optical power monitoring or optical taps on every connection. These integrated features are ideal for network monitoring, data mirroring and intrusion detection, as well as for testing applications. The power monitoring can also be used to provide Variable Optical Attenuation (VOA) on every connection to manage signal levels and protect sensitive analysis equipment. 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. Systems can also be customized to incorporate a wide variety of passive and active components.

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Rev. 7000s.022022.001

BENEFITS OF POLATIS SWITCHING

- Low optical loss reduces the need for extra optical amplification and enables novel architectures with minimal system impact
- Superior optical specification enables DWDM operation at 400Gbs and beyond
- SDN NETCONF and RESTCONF interfaces enable faster deployment of new network orchestration solutions
- Bi-directional, all-band transmission with minimal signal impairment provides truly transparent connections
- Fast switching times enable efficient provisioning and protection services
- Dark-fiber switching enables preprovisioning and use with intermittent signals

APPLICATIONS

- Secure all-optical networks with Software-Defined Networking
- Impairment-free routing of sensitive optical signals
- Intelligence collection and analysis
- Cyber security systems and network monitoring
- RF over Fiber distribution
- Satellite ground station networks
- Video signal distribution
- Quantum technology test beds
- QKD

For installation and technical support

Technical support: +1 844 POLATIS (765.2847)

For sales inquiries

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Performance Parameters	POLATIS® 7000s Specifications
Maximum Matrix Switch Size[1]	Up to 384×384 and 384×CC
Typical Insertion Loss[2,3]	1.5 dB
Maximum Insertion Loss[2,3]	2.5 dB
Maximum Insertion Loss with single OPM[2,3]	2.8 dB
Maximum Insertion Loss with two OPMs[2,3]	3.1 dB
Loss Repeatability	+/-0.1 dB
Connection Stability	+/-0.1 dB
Dark Fiber Switching	Yes
Bi-Direction Optics	Yes
Switching Time	50 ms for a single connection
Polarization Dependent Loss (PDL)	<0.1 dB (C+L Bands) <0.3 dB with optional OPMs (C+L Band)
Crosstalk	<-50 dB
Operating Wavelength Range	1260-1675 nm
Wavelength Dependent Loss (WDL)	<0.3 dB (C+L Band)
Return Loss (with APC connectors)	>50 dB
Data Latency through a switch connection	75 ns
Optional Optical Power Monitoring (OPM)	Dynamic range -40 dBm to +24 dBm Accuracy +/-0.5 dBm
Optical Input Power Range	Dark to +27 dBm
Switch Lifetime	>10^9 Cycles
Operating Temperature (Normal)	+5 °C to +40 °C <85 % RH non-condensing
Operating Temperature (Extended)	-5 °C to +55 °C <90 % RH non-condensing
Storage Temperature (Normal)	-40 °C to +70 °C <40 % RH non-condensing
Storage Temperature (Extended)	-40 °C to +70 °C <95 % RH non-condensing

Electrical and Mechanical	POLATIS® 7000s Specifications
Fiber Type	Single-mode
Single Fiber Connector Types	LC or LC-HD Connectors Angled (APC) or Ultra (UPC) polish connectors
Array Connector Types	MTP-8 or MTP-12 Elite Array Connectors
Control Languages	NETCONF. RESTCONF, SNMP, TL1, SCPI & Secure User-Friendly Web GUI
User Interfaces	RJ45 Dual redundant Hot-Swap Gigabit Ethernet
Craft Interface	RS232 Serial and USB
Secure user access protocol	RADIUS AAA (EAP-TTLS, PAP)
Power options	Hot Swappable Dual Redundant 100-240 VAC 50/60 Hz Hot Swappable Dual Redundant -48 VDC
Power Consumption	140 W standard switch 180 W with optional OPMs

Fiber Connector	POLATIS® 7000s	POLATIS® 7000s
Optical Connector Type	Up to Matrix Size 320×320	Matrix Size 360×360 and 384×384
MTP	6RU	6RU
LC-HD (High Density LC)	6RU	6RU
LC	6RU	8RU

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

1. Asymmetric MxN and single-sided NxCC sizes available
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 7000 switches

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Rev. 7000s.022022.001