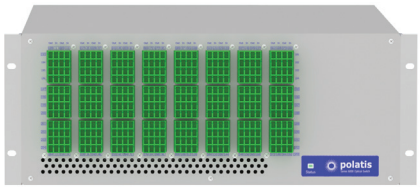
POLATIS® SERIES 6000s
Secure Optical Matrix Switch

Single-mode secure optical switch from 4×4 to 192×192 ports


6000s-Ultra 32×32 Optical Switch


Series 6000s 192×192 Optical Switch

The POLATIS Series 6000s Secure optical switch is a high-performance, fully non-blocking all-optical switch available in sizes from 4×4 to 192×192. It is designed to meet the highest performance, security and reliability needs of mission critical applications with exceptionally low optical loss, compact size, ultra-low power requirements and fast switching speeds. With support for Software-Defined Networks (SDNs) via embedded NETCONF and RESTCONF control interfaces, the Series 6000s 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 Networking and QKD.

KEY FEATURES

- Non-blocking matrix switch sizes from 4×4 to 192×192
- Available in symmetric N×N, asymmetric M×N and N×CC any-to-any port configurations
- 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 RADIUS 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
- Optional Variable Optical Attenuation (VOA) on every switch connection
- Ultra-stable performance – ideal for RF over fiber switching
- Programmable port shutter for fiber break simulation
- Mission-critical reliability and built for rugged environments
- Eco-friendly low power consumption
- Dual redundant power and network interface cards

DirectLight® technology

POLATIS Series 6000s 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 switch intermittent and variable-power test signals, over lit or dark fiber.

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 6000s switch is available in matrix sizes from 4×4 to 192×192 in symmetric (N×N), asymmetric (M×N) and single-sided customer-configurable (NxCC) switch matrices with any-to-any port connectivity. Switch sizes up to 32×32 can be accommodated in a 1 RU chassis.

Mission critical reliability

The POLATIS Series 6000s 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.

Optional power monitors and optical taps

POLATIS Series 6000s switches include options for integrated Optical Power Monitors (OPMs) and optical taps on every connection. These integrated features are ideal for network monitoring, data mirroring and intrusion detection, as well 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. Switches can be customized to incorporate a wide variety of passive and active components to suit individual customer needs.

POLATIS 6000s Ultra

POLATIS 6000s Series switches up to 96×96 matrix size are designated “Ultra” owing to their ultra-high optical performance with <1.0 dB maximum insertion loss on sizes up to 32×32 and <1.2 dB maximum on sizes up to 96×96.

HUBER+SUHNER

BENEFITS OF POLATIS SWITCHING

- Low optical loss reduces the need for extra optical amplification and enables novel architectures
- Superior optical specifications enable operation at line rates to 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 secure optical networks with Software-Defined Networking
- Impairment-free routing of sensitive optical signals
- Intelligence collection and analysis
- Cybersecurity 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

Sales support: +1 844 POLATIS (765.2847)

North American Headquarters

HUBER+SUHNER Polatis
213 Burlington Road
Suite 123
Bedford, MA 01730
U.S.A.

For all enquiries:
+1 781 275 5080 phone
+1 844 POLATIS toll free
+1 781 275 5081 facsimile
info.polatis@hubersuhner.com

European Headquarters

HUBER+SUHNER Polatis Ltd.
332/2 Cambridge
Science Park
Cambridge CB4 OWN
United Kingdom

For all enquiries:
+44 1223 424200 phone
+44 1223 472015 facsimile
info.polatis@hubersuhner.com

Follow us on Twitter @polatisnetworks

Copyright © 2022 HUBER+SUHNER Polatis. All rights reserved.
All information in this document is provided for informational purposes only and is subject to change without notice.
HUBER+SUHNER Polatis assumes no liability for actions taken based on information contained herein.

www.polatis.com

Rev. 6000s.022022.001

Performance Parameters	POLATIS 6000s Specifications		
Matrix Switch Sizes (NxN)[1]	4×4 to 32×32	48×48 to 96×96	144×144 to 192×192
Typical Insertion Loss[2]	0.5 dB	0.6 dB	0.9 dB
Maximum Insertion Loss[2]	1.0 dB	1.2 dB	1.9 dB
Maximum Insertion Loss with single OPM[2]	1.3 dB	1.5 dB	2.2 dB
Maximum Insertion Loss with two OPMs[2]	1.6 dB	1.8 dB	2.5 dB
Loss Repeatability[3]	+/-0.05 dB	+/-0.05 dB	+/-0.1 dB
Connection Stability[3]	+/-0.05 dB	+/-0.05 dB	+/-0.1 dB
	For all switches		
Operating Wavelength Range	1260-1675 nm		
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		
Wavelength Dependent Loss (WDL)	<0.3 dB (C+L Band)		
Polarization Dependent Loss (PDL)	<0.1 dB (C+L Bands) <0.3 dB with optional OPM (C+L Band)		
Crosstalk	<-55 dB		
Optional Optical Power Monitoring (OPM)	Calibrated wavelength range 1290-1330 nm and 1450-1640 nm Dynamic range -40 dBm to +22 dBm (Dynamic range for extended temperature is -30 dBm to +22 dBm) Accuracy +/-0.5 dBm		
Optical Input Power Range	Dark to +24 dBm		
Switch Lifetime	>10^9 Cycles		
Operating Temperature (Normal)	+5°C to +40°C <85 % RH non-condensing		
Operating Temperature (Extended)	0°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 6000s Specifications
Fiber Type	Single-mode
Single Fiber Connector Types	LC or LC-HD, SC and E-2000 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, SCPI & Secure User-Friendly Web GUI
User Interfaces	RJ45 Dual Redundant Hot-Swap Gigabit Ethernet
Craft Interface	RS232 Serial and USB
Secure User Access Protocols	RADIUS AAA (EAP-TTLS, PAP)
Power options	Hot-Swap Dual Redundant 100-240 VAC 50/60 Hz Hot-Swap Dual Redundant -48 VDC
Power Consumption	25–75W

Fiber Connector

Switch Chassis Height[4,5]	6000s	6000s	6000s
Fiber Connector	up to 48×48	up to 144×144	up to 192×192
MTP or LC-HD (High Density LC)	1RU	3RU	4RU
LC	2RU	4RU	6RU
SC or E-2000	3RU	6RU	8RU

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

1. Asymmetric M×N switches and single-sided N×CC customer-configurable switches with any-to-any port connectivity are also 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 6000 switches
5. Series 6000 switches with optional optical power meters may have larger switch chassis height