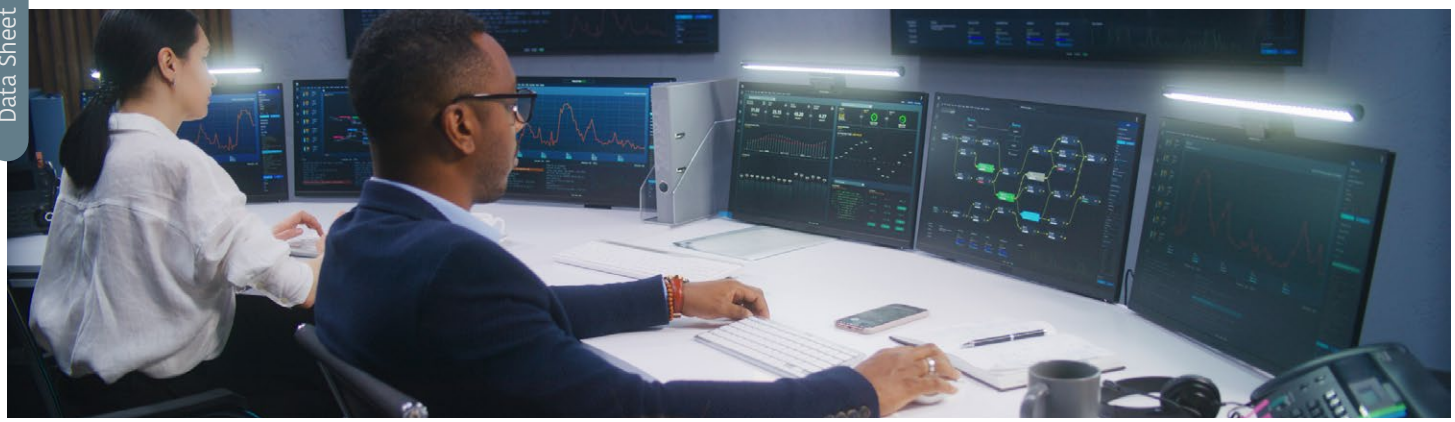
Data Sheet



Revolutionize Your FTTB Network with XENOptics' Robotic Fiber Management Solutions

XENOptics' new Multi-dwelling Smart Optical Switch (MSOS) is a state-of-the-art remote robotic fiber optic switch designed to transform manual optical patching into a fully automated, remote-managed process.

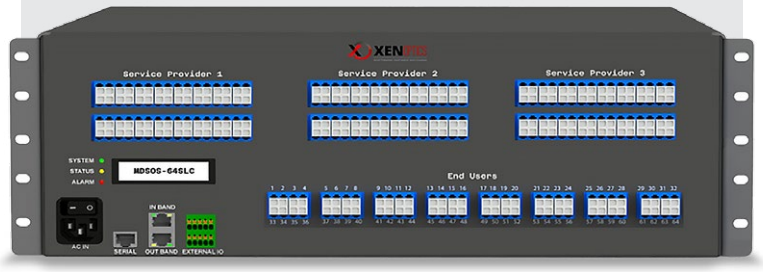
Engineered for Fiber-to-the-building (FTTB) networks, this solution eliminates costly, time-intensive manual operations while enhancing network reliability and flexibility.

APPLICATIONS

- Fiber To The Building (FTTB)
- Multi-Tenant/Dwelling Units (MDU) distribution
- GPON Fiber To The Home (FTTH)

MSOS KEY BENEFITS FOR FTTB OPERATORS:

- **Remote and Rapid Service Provisioning:** Configure or switch service providers for any tenant within 50 seconds.
- **Cost Reduction:** Eliminate on-site technician visits for service activation or troubleshooting, reducing operational expenditures.
- **Centralized Remote Operation Management:** Once the MDSOS is installed, all fiber reconfiguration, monitoring, troubleshooting and maintenance operations are carried out remotely from a centralized Network Operation Center (NOC)
- **Error Mitigation:** Automated switching ensures precise execution, minimizing downtime and costly errors.
- **Comprehensive Traffic Protection:** Patent-pending passive 3D optical switching topology ensures seamless service delivery, even during power outages or field maintenance operations.

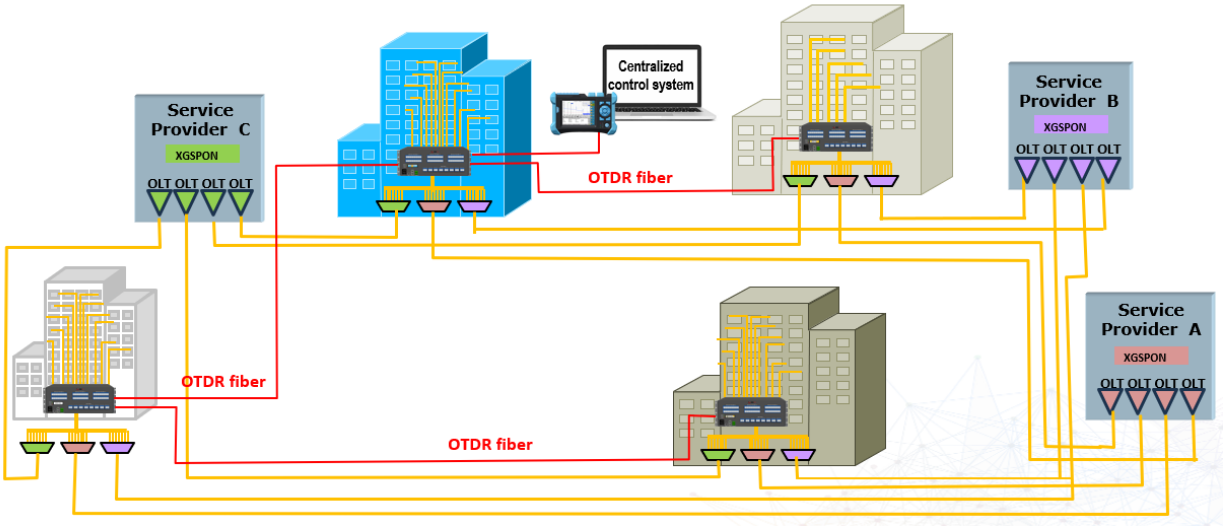


▲*MSOS*

MSOS DESIGNED FOR FTTB IN OPEN ACCESS NETWORKS

With growing demand for fiber connections and the rise of open-access regulatory frameworks, the MSOS directly addresses the challenges of supporting open access with multiple Service Providers (SPs) for multi-tenant buildings.

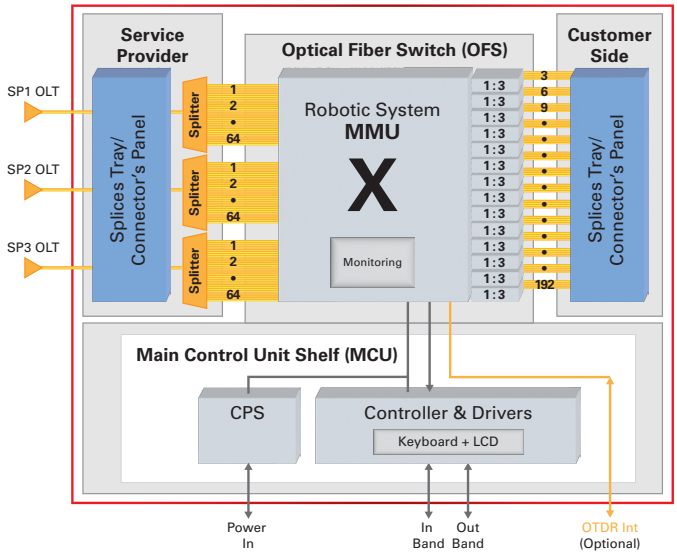
- **Support for 64 Tenants and Up to 3 SPs:** Seamlessly manage connectivity for up to 64 apartments, connecting to up to 3 SPs.
- **Integrated GPON optical splitter modules:** Simplifies deployment in GPON networks for faster and more efficient installations.
- **Remote Troubleshooting and Monitoring:** Integrated OTDR support enables network-wide fiber health diagnostics from the Network Operation Center (NOC) without dispatching technicians.



▲ *Figure 2: The MSOS deployment in a typical FTTB Open Access Network*

MSOS PRODUCT ARCHITECTURE

GPON optical splitters are fully integrated into the MSOS platform. This provides maximum efficiency, optimizes space utilization, and ensures reliable connectivity. Using this integrated GPON splitters allows a single OLT connection to be passively distributed to multiple downstream ports, significantly reducing input fiber count while maintaining scalable service delivery.



▲ *Figure 3: MSOS building blocks*

Optical Fiber Switch (OFS)

The OFS introduces advanced remote, non-blocking switching capabilities utilizing a unique 64 to 3 optical matrix and a single Main Manipulator Unit (MMU). The MMU's precise robotic manipulator connects or disconnects internal fiber connectors within the matrix. Its 3D-OS robotic system integrates active switching with a passive latching mechanism. This ensures automated provisioning while maintaining uninterrupted traffic flow during power outages or field maintenance operations. The passive latching mechanism guarantees the continuity of all provisioned services in case of power loss.

Main Control Unit (MCU)

The MCU serves as the central controller for all switching elements, providing real-time monitoring of cross-connections and network performance. It also communicates data and alarms to the central network management system and manages monitoring systems such as dust extraction.

The MCU supports both in-band and out-band communications with multiple interface options, including SSH, Restful API, and SNMP.

ENHANCED NETWORK MANAGEMENT

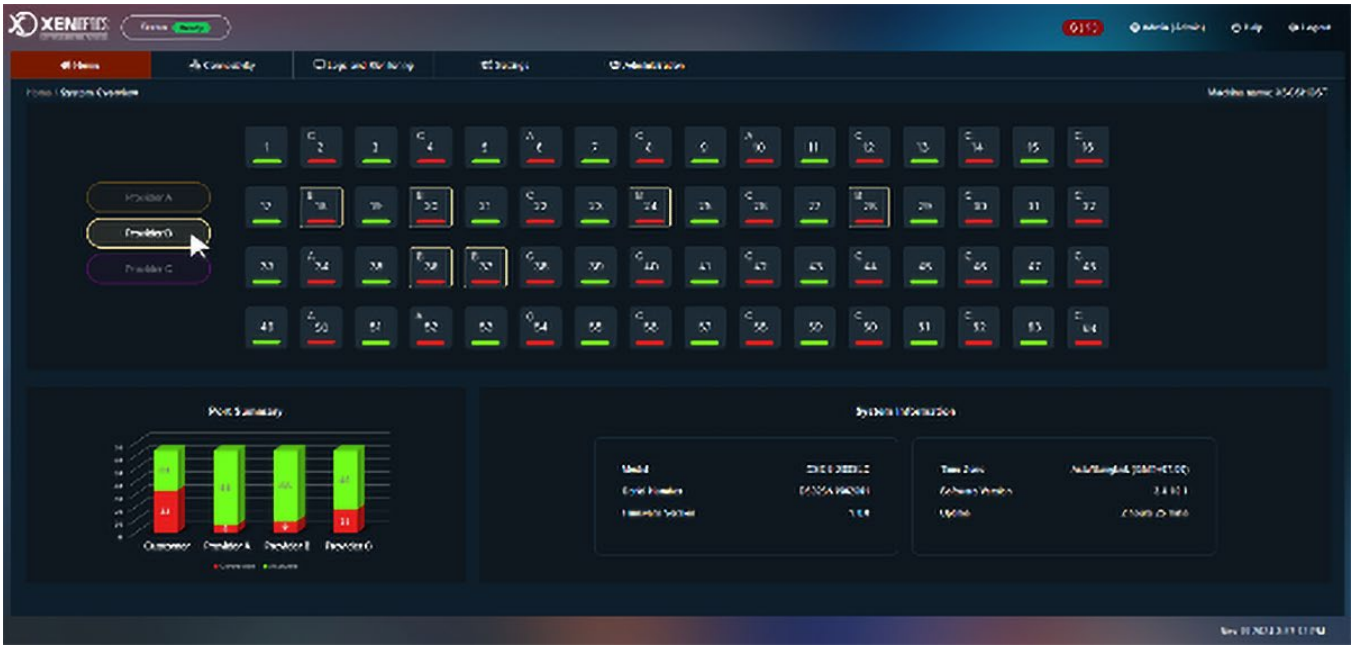
Web Graphical User Interface: Displays a simple and intuitive interface for controlling all SOS platforms from standard desktop browsers and mobile IOS/Android devices.

Local Terminal Management: Provides a simple interface to a dumb terminal with a command line interface that is primarily used in installation and maintenance modes by technicians during unit servicing.

Element Management System (EMS): Offers an overall system view, topology connectivity and provisioning of the overall fiber infrastructure, system by system, interfaced through the equipment using Restful API and SNMP interface.

Network Management System (NMS): Provides full network view and supports end-to-end operations using Restful API and SNMP interfaces.

In Open Access FTTB network, the MSOS is the ultimate tool to reduce operational costs, streamline operations and deliver a superior end-user timely experience.



▲ *Web based Graphical User Interface of the EMS*

SPECIFICATIONS

PARAMETER	UNIT	MIN	TYP	MAX
Optical Characteristics				
Operating Range	**nm**	**1260**		**1630**
Insertion Loss (connectorized version)	dB		0.6	1.0
Insertion Loss Repeatability	dB		0.06	0.1
Crosstalk	dB			-70
Return Loss (UPC/ APC)	dB			-55 / -65
PDL	dB			0.15
PMD	psec			0.1
Input Power	dBm			25
Switching Time	Sec		24	40
Power Requirements				
Input Voltage	V_{AC}		110-220	
Input Voltage (optional)	V_{DC}	-40		-75
Power Consumption (switching Operation)	W			50
Power Consumption (standby)	W			6
Power Consumption (sleep mode for OSP)	W	0.1		0.5
Environmental Conditions				
Temperature Range (Transport)	^{0}C	-40		+70
Relative Humidity	%	10		95
Reliability				
Service Lifetime	Years	20		
DIMENSIONS				
MDSOS 64x3 (mm) (3RU)	**Height:** 133	**Width:** 444		**Depth:** 480
Weight	10 Kg			

MSOS FAMILY INTERFACES	
Serial	RS-232 interface for local or maintenance operation
In Band	RJ45 for Standard SNMP interfaces into XENOptics' Element/Network Manager the whole network. HTTP, HTTPS, SNMPv2/v3, SSH, NTP and Restful API
Out of Bend	RJ45 for Standard SNMP interfaces to be connected and managed by higher SW layers.
External Alarm	**6 ports:** 4 x dry contact inputs, 2 dry contact outputs (normally closed).
Optical Port Status	• 2 x 36 Standard LC Simplex UPC/ APC adaptors, or • 2 x 36 Standard LC Duplex UPC adaptors • Single mode (optional multi-mode) fibers
OTDR in	(Optional) connecting the OTDR beam directed via the unit
OTDR out	(Optional) to connect in chain additional MDSOS units.

Applicable Standards	
Environmental	ETSI 300019 CLASS 3.2
EU Environmental	ETS-300 019
US Environmental	NEBS 3, GR-63-CORE
EMC	EN 55022 CLASS B, IEC 1000-4-2-6
Safety	EN 60950, IEC 825-1; IEC 825-2, GR-1089-CORE
ESD	IEC-61000-4-2

Specifications based on prototype versions, subject to change at GA release.

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SOFTWARE DEFINED PATCHING

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