AP-4240 Layer 1 Optical Path Exchange (OPX)

AllPath® OPX®

The Fiber Mountain AllPath Optical Path Exchange (OPX) product family provides any port-to-any port optical cross connect for point-to-point and point-to-multipoint applications, creating a virtual connectivity fabric of Programmable Light Paths which enables Connectivity Virtualization and Layer 1 SDN.

AP-4240 Features

- Ultra-low 5 nanosecond port-to-port latency
- Onboard multimode optics with 160 duplex ports (320 fibers terminating within fourteen 24-fiber MPO faceplate connectors
- Supports 10 Gbps and 40 Gbps connections, which can be reconfigured at will via software, providing automation of moves, adds and changes.
- Per port (MPO-24) cable presence detect.
- Insertion counter to track total number of cable inserts per front faceplate MPO-24 port.
- Supports multimode OM3 / OM4 cables.
- Multi-color LED at each MPO connector can be used for port verification, technical guidance, alarming, or be programmed under software control.
- Configured and monitored by AllPath Director or third-party SDN controllers, with support for RESTful API
- 1RU 19-inch rack-mountable enclosure

Technical Specifications

Electricity	
Voltage	100-240 VAC at 1.5A, 50/60 HZ
Max consumption	100W
Fuse	2A Timelag
Environmental	
Max operating temperature 40°C, no condensation	
Storage temperature -40°C to +85°C	
Humidity 5% to 95% non condensing	
Max altitude 2000 meters, no condensation	
Physical	
Weight	20.8 lbs
Shipping Weight	23.4 lbs
Dimensions	1.75” x 17.5” x 17.5”
Safety	
Optical transmitters designed for EN-60825 and CDRH eye safety compliance	
IEC 60825-1 Class 1 laser eye safety compliant	
Phyiscal Connectivity	
14 x MPO (Multi-fiber Push-On) faceplate connectors as defined by IEC-61754-7 an TIA-604-5-D. High performance for improved optical and mechanical characteristics over generic MPO connectors.	

Point to Multipoint functionality

AllPath The AP-4240 can also be configured for Point to Multipoint Connection functionality. Ideal for network tapping, this feature enables applications that require data received at a port to be replicated one or more times and sent to multiple unique output ports. Tap ports can be configured under software control, from the API interface or from Fiber Mountain's AllPath Director (APD). APD provides an advanced monitoring application to assist with complex tapping configurations in networked environments.

Orchestration - Layer 1 SDN

AllPath Director SDN orchestration software provides network-wide visibility, including discovery of AP-4240 OPX. Provisioning and monitoring applications are designed to take advantage of the total network view, so tasks such as provisioning end-to-end connectivity through a network of AP-4240 switches are easily performed via point & click workflows.

APD also provides documentation management with port labeling, port reservation, asset management and more. Security is improved with audit trails providing historical records of provisioning and monitoring changes. Security is also enhanced with the AP-4240's ability to detect the presence of cables inserted into front faceplate ports, as well as tracking the total number of inserts per port.

A graphical rendering of the layer 1 topology provides a network-wide topology view of the physical layer. Enhanced features such as Path Finder can find the destination point in the network for and selected source port. Port Finder can identify free ports for selected source and destination devices.

Crosspoint Switch
160x160 12.5Gbps Asynchronous Crosspoint Switch as the core switching circuitry for switching up to 160 input ports to 160 output ports.
Console Port - RJ45
Initial configuration will be via Linux CLI over the console port. Default console port configuration should be: 11500 baud, 8 data bits, no parity, 2 stop bits (9600 8N2) OR 1 stop bit
Regulatory & Certifications
UL 94 V-0 Vertical Burn Test for all plastic components
UL 1863 Communications-Circuit Accessories
UL / c-UL 60950-1 2nd edition
FCC Part 15 Class B
CISPR 22 Class B
EN 55022 Information Technology – Radio Disturbance Characteristics, Limits and Methods of measurement
EN 55024 Information technology equipment Immunity characteristics Limits and methods of measurement
IEC 61000-4-2 Electrostatic Discharge
IEC 61000-4-3 Radiated Immunity
IEC 61000-4-4 Fast Transients
IEC 61000-4-5 Surge Transients
IEC 61000-4-6 Conducted Immunity
IEC 61000-4-8 Power Frequency Magnetic Field
IEC 61000-4-11 Voltage Dips, Short Interruptions and Voltage Variations
Ethernet Management Ports
IEEE 802.3-2012 IEEE Standard for Ethernet
EC
Directive, 2004/108/EEC

Optical Specifications

Channel Insertion Loss			
Fiber Type	Max Distance	Max Channel Insertion Loss	Max Channel Connector
10G OM3	300 m	2.6 dB	1.5 dB
10G OM4	550 m	2.6 dB	1.5 dB
40G OM3	100 m	1.9 dB	1.5 dB
40G OM4	150 m	1.5 dB	1.0 dB

*Typical MPO connector insertion loss: <0.35 db

Optical Specifications
Compliant to IEEE 802.3-2012 Clauses 44–55 10GbE (100GBASE-SR) per lane.
Compliant to IEEE 802.3-2012 Clauses 80-88 40GbE (40GBASE-SR4) per lane.
Compliant to IEEE 802.3-2012 Clauses 80-88 100GbE (100GBASE-SR10) per lane.
Capable of supporting fiber connections up to 150 m at 10.3125 Gbps with OM4 4700 Hz km 50 um MMF
The optical transmitters are VCSEL arrays, and the optical receivers are PIN photodiode arrays.