

Datasheet

Optical Cross Connect

OCC 96



Applications

- Test and development labs
- Interoperability, validation and network simulation
- Customer Support Environments
- Data Center and cloud computing networks

Highlights

- Non-blocking matrix switch
- Transparency
 - Fast switching time
 - Low insertion loss
- Protocol and bit-rate independent
- Supports 40G and 100G connectivity
- Low optical loss
- Fast switching times of <10ms
- Protocol and data rate agnostic

Overview

The Optical Cross Connect 96 (OCC 96) is a high-performance, fully non-blocking, all-optical matrix switch. 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. The OCC 96 is protocol and speed independent, and it provides a platform to support existing technologies such as 10 Gbps as well as a solution for emerging technologies including 40 Gbps and 100 Gbps transport.

Network Bandwidth Requirements

Network equipment manufacturers, carriers and data centers encounter many challenges in keeping up with the explosion of bandwidth-hungry applications such as mobile computing and cloud computing. These manufacturers continue to develop high-speed transport equipment capable of increased bandwidth to support carriers and service providers as they roll out new services based on next generation networks such as 4G LTE networks and WiMax.

The Effect on Test and Development Labs

The test lab plays an important role in a manufacturer's or service provider's organization. Whether it's new product or service development, software verification, interoperability validation, pre-sales or post-sales support, the efficiency of any test lab greatly affects any organization's bottom line. Bringing new products or services to market faster and solving problems more quickly provides an important competitive advantage. Minimizing expenditures and maximizing resources and equipment benefits are critical to efficiency and eventually to profitability.

Today's test labs are moving toward automation with sophisticated software, but physical connectivity of equipment remains a laborious manual process. Forward-looking architecture to support current 10 Gbps applications while ensuring compatibility with emerging 40 Gbps and 100 Gbps technologies is essential.

System Architectural Advantages

The OCC 96 switches data at the optical level, so it is not rate-limited by an electronic matrix as in OEO physical layer switches. Active collimators with piezo-electric architecture allow system deployment in a wide range of applications requiring the highest level of optical transport capabilities and characteristics.

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Switching data at an optical level rather than traditionally converting optical to electrical and back to optical, eliminates any interference with the signal itself. The technology preserves key aspects of the source, including frequency, waveform, signal dispersion and signal timing. This OCC system transparency provides the efficiencies and flexibility of a physical layer switch for test lab and network environments. The OCC 96 features a switching time of less than 10 ms, which is short enough to switch even time-sensitive network protocols such as SONET without inducing any disturbances or losses.

The MRV Advantage

The OCC is ideal for use in any testing environment to increase productivity and reduce capital and operational expenses. Sharing expensive test sets and test bed infrastructure among many users minimizes equipment inventories needed to support the test workload. Storing and recalling frequently used topologies, scripting configurations, and automating tests increases lab productivity. Eliminating manipulation of optical cables minimizes the effects of cable wear and fiber contamination on test results, which produces more accurate tests and fewer re-tests. Tests such as cable breaks or port failover simulation, multicasting test patterns at wire speed, and simulating long-haul cable scenarios are easily accomplished using the flexible mapping configurations of the OCC.

Advanced Network Management and User Interface

MRV provides a complete portfolio of management options to fit any application. The management includes a robust, industry-standard command line interface (CLI) and an on-board SNMP agent. Common scripting languages or the on-board scripting API can further increase test velocity. PathFinder, a java-based graphical user interface (GUI) is included, which provides a graphical interface for all ports and allows port mapping with a point-and-click interface.

Optical Specifications	
Typical Insertion Loss	1.5 dB
Maximum Insertion Loss	2.0 dB
Loss Repeatability	± 0.1 dB
Dark Fiber Switching	Yes
Bi-Directional Optics	Yes
Maximum Switching Time	< 30 ms
Polarization Dependent Loss (PDL)	< 0.25 dB
Crosstalk	< -50 dB
Operating Wavelength Range	1270 - 1675 nm
Wavelength Dependent Loss (WDL)	< 0.5 dB (C + L Band)
Return Loss ¹	> 50 dB
Maximum Optical Input Power	27 dBm
Single Mode Fiber, Connector	LC Connectors

¹ Measured with APC connectors

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Physical Specifications	
Operating Temperature	+10°C to 40°C (32°F to 122°F)
Operating Relative Humidity	< 85% (non-condensing)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Storage Relative Humidity	< 40% (non-condensing)
Cooling Air	25 mm (1") clearance from external chassis vents
Weight	Including one AC power supply 26.8 kg (59 lbs)
	Including one DC power supply 26.1 kg (57.5 lbs)
Dimensions	438 mm (W) x 559 mm (D) x 221 mm (H) (17.25" x 22" x 8.7") [5U]
Max Total Power	55 W
Regulatory Compliances	FCC Part 15, Class A; IC, Class A; EMC Directive: Emission (Class A) and Immunity; LVD Directive: Electrical Safety; CE Marking; TUV CUE Mark (Canada, USA, EU); RoHS 5/6 Compliant; WEEE Directive: Wheelie Bin Mark; RoHS 2 Directive, China RoHS; REACH Directive SVHC

Ordering Information	
OCC0096ALUSN00A	96 port Optical Cross Connect with LC connectors, single AC power supply and network management module
OCC0096ALUSN00D	96 port Optical Cross Connect with LC connectors, single DC power supply and network management module
NC316-144RPSAC*	Redundant AC Power Supply
NC316-144RPSDC*	Redundant DC Power Supply

* Cannot mix AC and DC power supply in one chassis.

MRV operates worldwide sales and service offices across four continents.

Contact us at info@mrv.com

MRV Communications

Corporate Headquarters

300 Apollo Drive

Chelmsford, MA 01824

<http://www.mrv.com>



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