

Datasheet

LDP300

All Optics CWDM/DWDM LambdaDriver



LDP300 a 3-slot CWDM/DWDM Lambda Driver

Overview

The LDP300, all-optics CWDM/DWDM series is a 3-slots chassis providing a simple, yet extremely flexible and efficient way to deploy data and storage services. The combination of colored Ethernet/ Fibre Channel and CWDM/DWDM technologies allows for the design of a highly available multi-service network. It extends existing fiber-based infrastructure transparently over a broadband network and optimizes the use of fiber investment. LDP300 is an innovative "pay-as-you-grow" modular solution for all-optics communications. The all-optics technology is paving the way for optical transmission by minimizing the need for electric power and additional expensive Optical-Electrical-Optical (O-E-O) conversions.

The LDP300 solution is an all-optics WDM solution that supports optical networking for high-speed data

communication and storage area networking in broadband applications. The CWDM/DWDM optical wavelengths can be configured in point-to-point, ring or hybrid mesh topologies.

The all-optics CWDM/DWDM solution LDP300, which combines MRV's DWDM/CWDM GBICs/SFPs, currently includes the following components:

- Optical Add/Drop Multiplexers (CWDM/DWDM OADMs)
- Optical Multiplexer/Demultiplexer (CWDM/DWDM MUX/DMUX)
- LDP300 3-slot all-optical chassis

Building blocks details:

CWDM/DWDM Optical Add/Drop Multiplexer (CWDM/DWDM OADM) is a scalable, all-optics "add" and "drop" multiplexer/demultiplexer. OADMs are wavelength-specific, and are set to any number of channels from one to four. As an option, using 2 CWDM/DWDM OADMs

at each node in a Ring configuration can provide a redundant architecture.

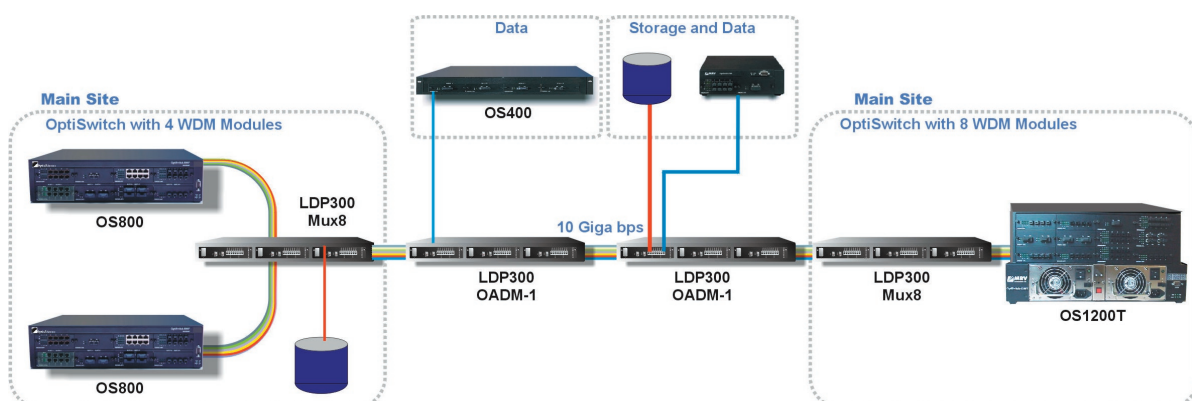
CWDM/DWDM Optical Multiplexer/Demultiplexer (CWDM/DWDM Mux/DeMux) multiplexes and demultiplexes four, eight or sixteen CWDM/DWDM wavelength channels. This approach enables linear ADM or point-to-point links to be created.

LDP300 all-optical chassis

The all-optics 3-slot chassis is a one U rack designed for a standard 19-inch rack with a built-in modular architecture that can handle up to three CWDM/DWDM OADMs or Mux/DeMux (of eight wavelengths or one Mux/DeMux of 16 wavelengths plus one eight wavelengths OADM/ Mux/DeMux).

Network Architecture Samples

1. **Point-to-Point (PtP)** is a scalable design that enables the delivery of multi gigabit and fibre-channel traffic in a "pay-as-you-grow" model between buildings, data centers or disaster recovery (DR) centers, with the possibility of Add/Drop services along the way.



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Application examples: Utilities Application

The Problem: High cost of dark fiber to connect utilities main locations (e.g. railways, petrochemical pipes...) and storage areas

The Solution: Packages up to 16 channels for multi-gigabit and storage onto a single pair of dark fiber; using Point-to-Point Gigabit links directly connected to MRV's colored GBIC, to transport data, video, and voice traffic, colored GBICs for Optics, with ADD/DROP at each sub-location.

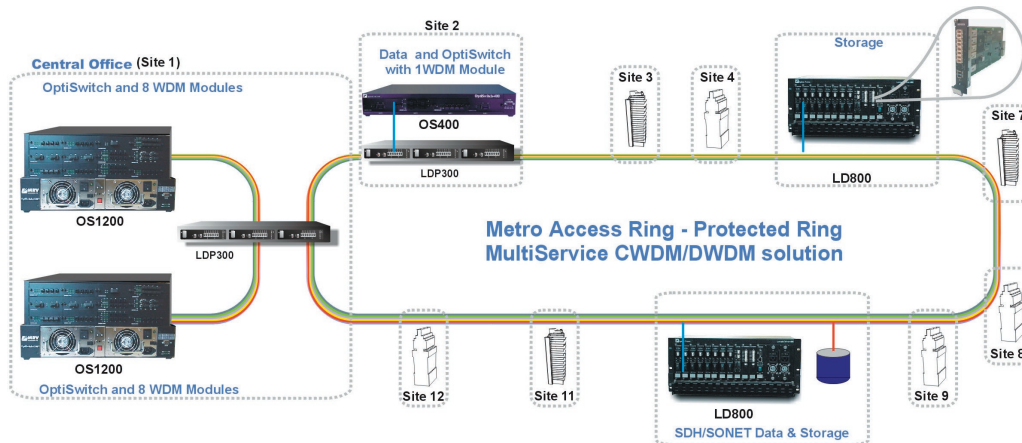
Hub and Spoke is designed for interconnectivity between a central site and multiple remote sites. The design usually connects Mux/DeMux at the central with OADM drops in the ring. Protection from fiber cuts in the ring is achieved by using dual fiber ring and two OADM at each location. Each location uses two optical paths for each service for fiber cut protection.

Hybrid (Ethernet, SDH/SONET and SAN services) Metro Access Application

The Problem: Carrier to Carrier Gigabit Ethernet SDH/SONET and Storage services to customers in the metro area

The Solution: Use hybrid solution: LDP300 to drop Gigabit services combined with the Lambda-Driver to drop SAN and SDH/SONET based services.

Ring – Hybrid Mesh is a combination of both Hub and Spoke and PtP application. The solution enables robust services without the need for expensive network infrastructure upgrades. It provides more flexibility and it can fit into existing network design.



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xWDM OADM - Technical Specifications

Physical Dimensions (width x depth x height)	Height: 1 U 43.67 x 440 x 258 mm 1.718x17.322x10.157 In Plug-in module size link.				
Connectors					
Network Side	2 dual LC				
Equipment Side	2 dual LC				
Cabling	Single-mode fiber, 9 µm				
Environmental Specifications					
Operating Temperature	32° to 140° F (0° to 60° C)				
Storage Temperature	-40° to 185° F (-40° to 85° C)				
Maximum Insertion Loss (CWDM/DWDM)					
TX Equipment to RX Network (add)	OADM-1	OADM-2	OADM-3	OADM-4	OADM-8
RX Equipment to TX Network (drop)	1.3	2.1			4.1
Pass Through (network to network)	1.3	1.3	1.3	1.3	1.3
	1.3	2.1	2.9	3.7	6.9
Optical Wavelengths CWDM (Wavelengths from 1310 to 1450 need special fiber or short distances)	1310 nm; 1330 nm; 1350 nm; 1370 nm; 1390 nm; 141 nm; 1430 nm; 1450 nm; 1470 nm; 1490 nm; 1510 nm; 1530 nm; 1550 nm; 1570 nm; 1590 nm; 1610 nm				
Optical Wavelengths - DWDM	DWDM Wavelength Grid ITU G692				

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Optical Multiplexer Specifications

Physical Dimensions	Plug-in module size		
Connectors	Network Side - LC Equipment Side - MU		
Cabling	Single-mode fiber, 9 µm		
Environmental Specifications			
Operating Temperature	32° to 140° F (0° to 60° C)		
Storage Temperature	-40° to 185°F (-40° to 85°C)		
Wavelength Usage	Uni-directional		
Multiplexer Maximum Insertion Loss CWDM/DWDM	MUX4	MUX8	MUX16
	1.6	3	5.4
DeMultiplexer Maximum Insertion Loss CWDM/DWDM	MUX4	MUX8	MUX16
	2.1	3.3	5.7

LDP300 All optics CWDM/DWDM chassis, standard 19-inch chassis that can host up to three slots of CWDM/DWDM OADM modules or Mux/DeMux plug-in modules

Ordering Information

OADM modules	
ADDxx***	1 wavelengths DWDM OADM module for LD800
ADCxx***	1 wavelengths CWDM OADM module for LD800
ADDxx/yy***	2 wavelengths DWDM OADM module for LD800
ADCxx/yy***	2 wavelengths CWDM OADM module for LD800
ADDxx/yy/zz***	3 wavelengths DWDM OADM module for LD800
ADCxx/yy/zz***	3 wavelengths CWDM OADM module for LD800
ADDxx/yy/zz/ww***	4 wavelengths DWDM OADM module for LD800
ADCxx/yy/zz/ww***	4 wavelengths CWDM OADM module for LD800
CWDM Mux/DeMux modules	
EM1600-MUX16C	16 wavelengths CWDM Multiplexer module for LD1600
EM1600-DMUX16C	16 wavelengths CWDM Demultiplexer module for LD1600
EM800-MUX8/CW	8 wavelengths CWDM Multiplexer module for LD800
EM800-DMUX8/CW	8 wavelengths CWDM Demultiplexer module for LD800
EM800-MUX4R/CW	4 wavelengths (1550-1610nm) CWDM Multiplexer module for LD800
EM800-DMUX4R/CW	4 wavelengths (1550-1610nm) CWDM Demultiplexer module for LD800
EM800-MUX4B/CW	4 wavelengths (1470-1530nm) CWDM Multiplexer module for LD800
EM800-DMUX4B/CW	4 wavelengths (1470-1530nm) CWDM Demultiplexer module for LD800
DWDM Mux/DeMux modules	
EM1600-MUX32R	32 100G spacing wavelengths DWDM Multiplexer module for LD1600 (Red Band)
EM1600-DMUX32R	32 100G spacing wavelengths DWDM Demultiplexer module for LD1600 (Red Band)
EM1600-MUX32B	32 100G spacing wavelengths DWDM Multiplexer module for LD1600 with band splitter (Blue band)
EM1600-DMUX32B	32 100G spacing wavelengths DWDM Demultiplexer module for LD1600 with band splitter (Blue band)
EM1600-MUX24R	24 100G spacing wavelengths DWDM Multiplexer module for LD1600 (Red band)
EM1600-DMUX24R	24 100G spacing wavelengths DWDM Demultiplexer module for LD1600 (Red band)
EM1600-MUX16	16 wavelengths DWDM Multiplexer module for LD1600
EM1600-DMUX16	16 wavelengths DWDM Demultiplexer module for LD1600
EM1600-MUX16R	16 100G spacing RED wavelengths DWDM Multiplexer module for LD1600 (Red Band)
EM1600-DMUX16R	16 100G spacing RED wavelengths DWDM Demultiplexer module for LD1600 (Red Band)
EM1600-MUX16B	16 100G spacing Blue wavelengths DWDM Multiplexer module for LD1600 (Blue Band)
EM1600-DMUX16B	16 100G spacing Blue wavelengths DWDM Demultiplexer module for LD1600 (Blue Band)
EM800-MUX8B	8 wavelengths (#45 - #59) DWDM Multiplexer module for LD800
EM800-DMUX8B	8 wavelengths (#45 - #59) DWDM Demultiplexer module for LD800
EM800-MUX8R	8 wavelengths (#21 - #35) DWDM Multiplexer module for LD800
EM800-DMUX8R	8 wavelengths (#21 - #35) DWDM Demultiplexer module for LD800
CWDM Mux/DeMux modules for Multimode fiber operation	
EM800-DMUX8/CM	8 wavelengths CWDM MM Demultiplexer module for LD800
EM800-DMUX4/CM	4 wavelengths CWDM MM Demultiplexer module for LD800

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