

Datasheet

LambdaDriver® Chassis - DWDM/CWDM Platform



IBM System Storage Proven

LD

Brocade Fabric Aware

Features

- Flexible and Scalable modular architecture
- CWDM and DWDM on one system
- Multi-protocol support
- Scalable design up to 160 protected services per ring
- Data rates of up to 10 Gbps
- Redundant power supply
- NEBS certified

Overview

The LambdaDriver® Optical Transport System is a CWDM/DWDM Optical networking platform providing multifunctional modular solution for Metro, Regional and Long haul data centric networks.

The Lambda Driver system is capable of carrying all types of services at rates ranging from 8 Mbps to 10Gbps.

The modular architecture and compact size of the system provides unmatched configuration flexibility and scalability. Topologies such as Point-to-Point, Linear add-drop, Ring and Star are easily implemented.

Several schemes of redundancy such as Y-cabbling, 1+1 trunk backup are supported at the service access level and at the trunk level.

All the supported modules are Hot-swappable enabling non-disrupting maintenance and service of the system.

Extensive management capability completes the LambdaDriver® Optical Transport System's definition as a high end WDM platform. Remote in-band access is available through any SNMP-enabled Network Management System (NMS). MRV Communications' own MegaVision Pro NMS provides a complete GUI and End-to-End Service Monitoring feature for all LambdaDriver® products.

The LD chassis comes in three ranges for low, medium and high density services coverage. Nominated as LD400/LD800/LD1600 these are 19-inch rack mountable chassis with modular architecture hosting different types of modules such as Transponders, Mux/DeMux or OADM modules and being capable of supporting up to 160 DWDM wavelengths.

Two types of WDM modules are defined for the LD platform:

- "Short slot" modules are defined for usage in the LD400/LD800 Chassis or in the LD1600 "short slot" mechanical section
- "Long slot" modules are double length modules normally used in the LD1600 or other chassis supporting "long slot" modules

All modules are hot-swappable and slot independent (except the management modules).

All chassis versions support redundant and hot-swappable AC wide range Power supplies and industry standard DC power supplies. AC and DC power supplies can be mixed on the same chassis.

Additionally, the LD chassis range includes a set of units that provide solutions for designs requiring passive devices only.

LD1600 is 11.5U high with 2 reserved slots for 2 management cards (main + redundant) and 22 general slots for transponders, OADMs, Mux, etc.

LD800 is a 160W operational load chassis, 4.5U high with 1 reserved slot for Management and 11 general slots for LD800 size modules (transponders OADMs, Mux, etc.)

LD800P is a high power capacity chassis - 220W operational load - 4.5U high with 1 reserved slot for Management and 11 general slots for LD800 size modules (transponders OADMs, Mux, etc.)

Note: LD800 and LD800P power supplies are not interchangeable.

LD400 is 2U high with 1 reserve slot for Management and 5 general slots for LD800 size modules (transponders OADMs Muxes etc.)

LPD300 is a 3-slot one U non-powered chassis designed for a standard 19-inch rack with that can handle up to three CWDM/ DWDM OADMs or Mux/DeMux.

LambdaDriver Modules

- 8, 16, 32 and 40 channels CWDM/DWDM Multiplexers and Demultiplexers
- 1 to 8 channels CWDM/DWDM OADM (Optical Add/Drop Multiplexer)
- ROADM – 40 channels reconfigurable OADM
- Optical Amplifiers – EDFA and RAMAN
- Transponders – SFP interface at the Access ports and Trunk ports.
- TDM Sub-rate Muxponders – FE, GE, ESCON, FC, OCx/STMx
- Protection (1+1) and OSC –Optical Service Channel

Enterprise markets:

- Fast Ethernet 125 Mbps
- Gigabit Ethernet 1.25 Mbps
- Fiber Distributed Data Interface FDDI (125 Mbps)
- 10 Gigabit Ethernet

Carrier markets:

- SONET/SDH/ATM OC-1 to OC-192 and STM-1 to STM-64

Storage markets:

- . Fibre channel: 133 Mbps, 266 Mbps, 531 Mbps, 1.062 Gbps, 2.125 Gbps, 4.25Gbps, 10 Gbps
- . FICON (IBM Proprietary): 1.0625 Gbps, FICON Express 2.125 Gbps, 4.25Gbps
- . ESCON: 200 Mbps
- . ETR/CLO (IBM Proprietary): 16 Mbps

Video markets:

- . SDI "D1 video", 270 Mbps
- . DV6000 2.38 Gbps
- . HDTV 1.483/1.4835 Gbps

Environmental

Operating Temperature	0 to 45°C
Storage Temperature	-10 to 70°C
Relative Humidity	85% maximum, non-condensing
Dimensions (W x H x D)	LD1600: Height: 11.5 U Size (W x D x H) 445.5 x 299 x 510.4 mm (17.54x 11.77 x 20.09 inch) LD800/LD800P: Height: 4.5 U Size (W x D x H) 445.5 x 267 x 199.2 mm (17.54 x 10.51 x 7.84 inch) LD400: Height: 2 U Size (W x D x H) 443 x 328.2 x 88.01 mm (17.44 x 12.92 x 3.47 inch)
Weight	LD400: 4.500 kg (9.92 lb) LD800/LD800P: 8.600 kg (18.16 lb) LD1600: 16.700 kg (36.42 lb)

Technical Specifications

Mounting	19-inch rack mount - EIA RS-310C standard
Power Input Voltage	AC: 90 - 240 V, 50 - 60 Hz DC: 36 - 72 V
Power Consumption (Max. Chassis Capacity)	LD400: 70 W max LD400L: 150 W LD800: 160 W max LD800P: 220 W max LD1600: 400 W max.
Standard Compliance	Safety, EMC; UL - 1950; CSA - 22.2 No. 950; FCC part 15 Class A; CE - 89/336/EEC, 73/23/EEC
Capacity	LD400 - 5 slots LD400L - 3 slots LD800/LD800P - 11 slots LD1600 - 22 slots

Ordering Information

Product	Description
LD1600 Platform	
LD1600	Lambda Driver-1600, 16 "short slots" and 6 "Long slots" Chassis without power supply
LD1600RN	Lambda Driver-1600, 16 "short slots" and 6 "Long slots" NEBS Certified Chassis without power supply
EM1600-PS/AC	AC power supply for the LD1600 (90-240V AC)
EM1600-PS/DC	DC power supply for the LD1600 - (48V DC)
LD800 Platform	
LD800/AC	Lambda Driver-800, 11 "short slots" Chassis with single AC power supply (90-240V AC)
LD800/DC	Lambda Driver-800, 11 "short slots" Chassis with single DC power supply (48V DC)
LD800/2AC	Lambda Driver-800, 11 "short slots" Chassis with dual power AC supply (90-240V AC)
LD800/2DC	Lambda Driver-800, 11 "short slots" Chassis with dual power DC supply (48V DC)
EM800-PS/AC	Redundant power supply for the LD800/AC (90-240V AC)
EM800-PS/DC	Redundant power supply for the LD800/DC (48V DC)
LD800P/AC	Lambda Driver-800, 11 "short slots" Chassis with high power single AC power supply (90-240V AC)
LD800P/DC	Lambda Driver-800, 11 "short slots" Chassis with high power single DC power supply (48V DC)
LD800P/2AC	Lambda Driver-800, 11 "short slots" Chassis with high power dual AC power supply (90-240V AC)
LD800P/2DC	Lambda Driver-800, 11 "short slots" Chassis with high power dual DC power supply (48V DC)
EM800P-PS/AC	High power redundant power supply for the LD800/AC (90-240V AC)
EM800P-PS/DC	High power redundant power supply for the LD800/DC (48V DC)
LD400 Platform	
LD400/AC	Lambda Driver-400, 5 "short slots" Chassis for WDM with single AC power supply (90-240V AC)
LD400/DC	Lambda Driver-400, 5 "short slots" Chassis for WDM with single DC power supply (48V DC)
LD400RN/DC	Lambda Driver-400, NEBS certified, 5 "short slots" Chassis with single DC power supply (48V DC).
LD400L/AC	Lambda Driver-400, 2 "long" and one "short" slots Chassis for WDM with single AC power supply (90-240V AC).
LD400L/DC	Lambda Driver-400, 2 "long" and one "short" slots Chassis for WDM with single DC power supply (48V DC).
LD400/2AC	Lambda Driver-400, 5 "short slots" Chassis for WDM with dual power AC supply (90-240V AC)
LD400/2DC	Lambda Driver-400, 5 "short slots" Chassis for WDM with dual power DC supply (48V DC)
LD400RN/2DC	Lambda Driver-400, NEBS certified, 5 "short slots" Chassis with single DC power supply (48V DC).
LD400L/2AC	Lambda Driver-400, 2 "long" and one "short" slots Chassis for WDM with dual AC power supply (90-240V AC).
LD400L/2DC	Lambda Driver-400, 2 "long" and one "short" slots Chassis for WDM with dual DC power supply (48V DC).
EM400-PS/AC	Redundant power supply for the LD400/AC (90-240V AC)
EM400-PS/DC	Redundant power supply for the LD400/DC (48V DC)
Passive Chassis	
LDP300	3 slot passive unit for OADM's
LDP300L	One "long" and one "short" slots passive unit for OADM's
LDP100	1 slot passive unit for OADM's