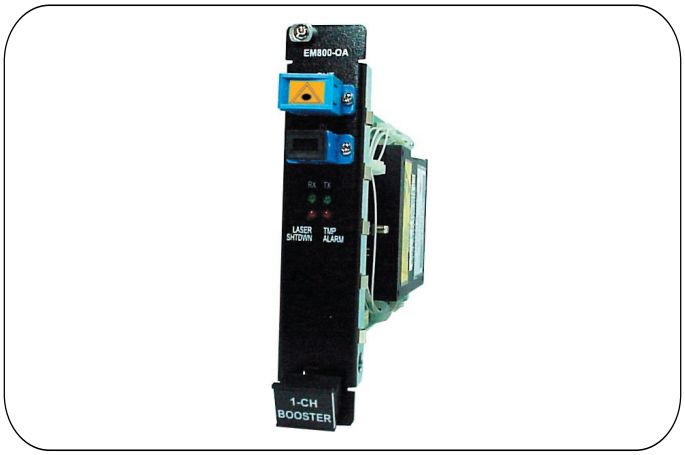
FIBER ACCESS SOLUTIONS

Datasheet

Optical Amplifier - LambdaDriver® Module



Optical Amplifier module

Features

- Booster, In line and Pre-Amplifier
- +18dBm maximum output power
- Protocol and bandwidth transparent
- Gain flatness (with GFF) less than 1.0 dB
- Noise figure typically less than 5 dB
- Optical power monitoring
- Front panel status LEDs
- Fast transient suppression time

  Automatic Laser Shutdown (ALS)

Applications

- DWDM networks
- Single-channel amplification

LambdaDriver® Optical Amplifier modules are a family of low-noise Erbium-Doped Fiber Amplifiers (EDFA) ideal for Metro and Long-Haul Dense Wavelength Division Multiplexing (DWDM) as well as Single Wavelength applications. The optical design, coupled with sophisticated control circuitry, allows these Optical Amplifiers to provide constant gain even with wavelengths being added or dropped in the network. Any fluctuations caused by wavelengths addition/removal can be handled by its ultra-fast transient suppression.

When paired with the **LambdaDriver®** Element Management Module (EM800-MNG), full monitoring and configuration capabilities are supported with a local RS-232 interface and Ethernet/Fast Ethernet interfaces for remote network monitoring using Telnet and SNMP. Using MRV's MegaVision Web® NMS provides remote control reducing the costly need for many infield service calls.

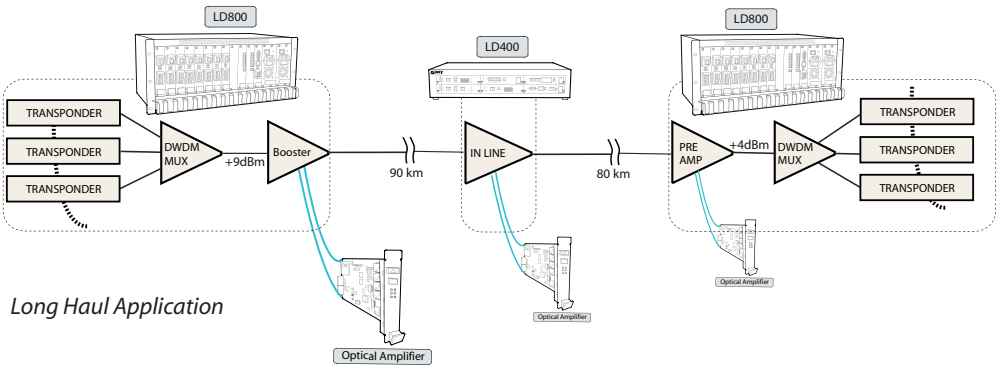
The modules allow monitoring of input and output power levels (real dBm values), temperature and signal gain.
The modules can be operated in two modes: automatic gain control or automatic power control. These operating modes and their respective parameter settings are factory pre-configured but can be changed by MRV authorized personnel.

In AGC mode, the module maintains constant gain for each channel according to the Gain parameter setting, as long as the total output power does not exceed the maximum rated value (+18 dBm). This mode is factory pre-configured for multi-channel applications.
In APC mode, the module maintains the output total power constant at the pre-defined Output Power settings. This mode is factory pre-configured for Single channel applications.
There are 3 types of OAs: Booster, In-Line and Pre-Amplifier. The main difference between these modules is the Input power level that dictates the application of the specific module and the Gain values. For example, Booster is usually used at the beginning of the line and therefore Input levels above 0 dBm and Gain between 6 to 15 dB (according to the number of channels) should be expected. On the other hand, Pre-Amplifier Input level is very weak (down to –32 dBm/channel) because it is positioned at the end of the line and therefore high gain (about 25 dB) should be expected.

Multi-channel (DWDM) amplifiers are equipped with Gain Flattering Filters (GFF) and provide flat gain response across entire C-band and input power range.
For single channel applications as well as RED band wavelengths (up to 8 channels) applications GFF cost is saved due to relatively flat gain across the RED band.

Optical Amplifier modules provide Automatic Power Shutdown, when input is below auto-shutdown threshold. Power Shutdown can be also forced through the management.

The compact, 1-slot **LambdaDriver Optical Amplifier modules** install into any of the LambdaDriver® chassis.
Each module provides visual indications of the front panel and can be operated without management as plug and play EDFA.
Besides DWDM networks application, LambdaDriver® EDFAs can be used in any Single channel application thus providing flexible means of extending an optical link by compensating for optical budget loss.



Long Haul Application

Technical Specifications

Optical Specifications

Parameter	Value			Units
	Minimum	Typical	Maximum	
Wavelength Range	1528		1563	nm
Maximum Output power				
Booster			+18	dBm
In-Line Multi-Channel			+17	
Single-Channel			+13	
Pre-Amplifier			+13	
Minimum Input power				dBm
Booster	-5			
In-Line	-20			
Pre-Amplifier	-32			
Pre-amplifier sensitivity per channel	-32			dBm/ch
Input/Output Isolation (Min)	30			dB
Signal Gain Buster		9		dB
In-line		20		
Pre-amp		20		
Gain Flatness at Specified Gain with GFF		+/-0.5	+/-1.0	dB
Signal- Noise Figure for Gain > 20 dB		5.0	5.5	dB
Optical Return Loss (at Input and Output ports)	25			dB
Polarization Mode Dispersion		0.3	0.5	dB
Polariziation Dependent Gain		+/-0.2	+/-0.5	dB
Transient Overshoot (10 dB Drop)		0.5	1.0	dB
Transient Suppression Time (10 dB Drop)			< 32	µs
Operating Temperature	15		45	ºC

Management

LEDs	WDM transmission laser status, Temperature status, Port reception status, Port transmission status
Monitoring	Input power, Output power, Gain, Temperature
Alarm	Input power, Output power, Temperature

Physical Specifications

Connectors	SC
Operating Temperature	0to 45 ºC
Storage Temperature	-10 to 70 ºC
Relative Humidity	85% maximum, non-condensing
Dimensions (W x H x D)	26.93 mm (1.06 in) x 130.7 mm (5.145 in) x 227.5 mm (8.956 in)
Weight:	570g (1.257Lb)

Ordering Information

EM800-OAIM	Optical In Line Amplifier with Mid-stage for the Lambda Driver 800 +17dbm
EM800-OAI	Optical In Line Amplifier for the LD 800 + 17dbm
EM800-OAP	Optical Pre-Amplifier for the LD800 + 17dbm
EM800-OAB	Optical Booster Amplifier for the LD800 + 18dbm
EM800-SOAIM	Single channel Optical in line Amplifier with mid-stage for the LD 800 output +13 dbm
EM800-SOAI	Single channel Optical in line Amplifier for the LD 800 output +13 dbm
EM800-SOAP	Single channel Optical Pre - Amplifier for the LD 800 output +13 dbm
EM800-SOAB	Single channel Optical Booster Amplifier for the LD 800 output +18 dbm
EM800-SOAB13	Single channel Optical Booster Amplifier for the LD 800 output +13 dbm
EM1600-OAIM	Optical In Line Amplifier with mid-stage for the LD1600
EM1600-OAI	Optical In Line Amplifier for the LD1600
EM1600-OAP	Optical Pre-Amplifier for the LD1600
EM1600-OAB	Optical Booster Amplifier for the LD1600
EM1600-SOAIM	Single channel Optical in line Amplifier with mid-stage for the LD1600 output + 13dbm
M1600-SOAI	Single channel Optical in line Amplifier for the LD1600 output + 13dbm
EM1600-SOAP	Single channel Optical Pre-Amplifier for the LD1600 + 13 dbm
EM1600-SOAB	Single channel Optical Bosster Amplifier for the LD1600 + 18 dbm output
EM1600-SOAB13	Single channel Optical Bosster Amplifier for the LD1600 + 13 dbm output