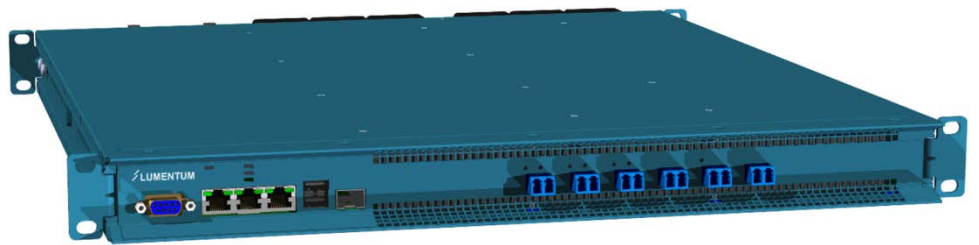


New Terminal Amplifier
Whitebox



The Terminal Amplifier Whitebox and its associated Mux/Demux form the endpoint of a transport system link.

The Terminal Amplifier Whitebox combines all necessary functions from a traditional node into a single 1RU element that is easy to deploy and easy to manage.

Optional features, including an optical channel monitor and automatic line protection systems, can be specified when ordering.

Key Features

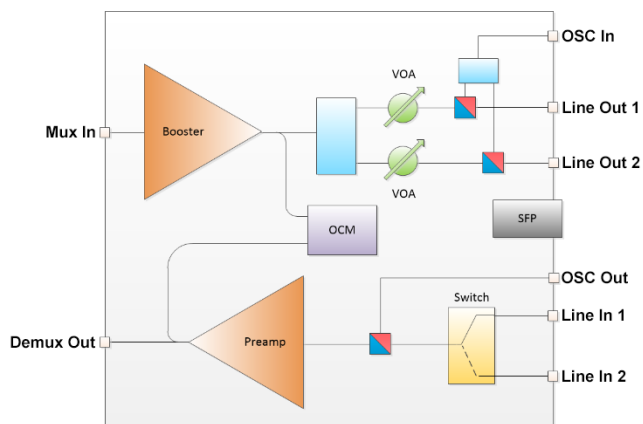
The fully configured product contains:

- Two high power variable gain EDFAs
- Booster EDFA output VOA for automatic span padding
- OSC termination
- Optical channel monitor on each EDFA output
- Automatic line protection system

Compliance

- FCC Part 15 (Class A)
- FDA 21 CFR 1040.10, CDRH Laser Notice 50 (IEC Class 1M) except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007
- IEC 60825-1 Laser Safety, Class 1M
- UL 60950 3rd Edition, December 2000
- CAN/CSA-C22.2 No. 950-95
- RoHS 6/6

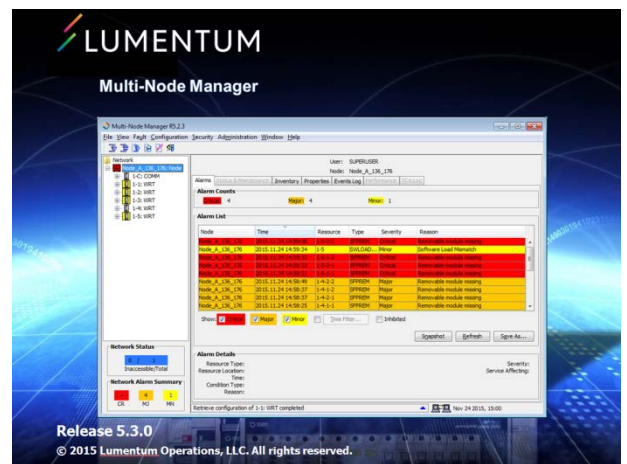
Terminal Amplifier Schematic



Network Management Integration

Lumentum's Terminal Amplifier Whitebox is a NETCONF-enabled device, designed for ease of integration with third party SDN controllers. Highlights of the NETCONF management interface are as follows:

- Secure connection layer – support for NETCONF over SSH
- RADIUS client support for SSH authentication and user accounting
- SFTP client support for file transfers, including firmware upgrades.
- Simplified configuration commands support immediate writes to the running-config.
- URL capability support for saving and restoring configuration data from http and file schemes
- Validation capability is provided to test and validate configurations before applying them.



In addition, two other management interfaces are available:

- An intuitive Java-based GUI application for technician turn-up and debugging, and
- A simple command-line interface, which can equally be used to access all management features of the device.

Technology Differentiation

As the leading global ODM supplier of highly integrated optical products to Network Equipment Manufacturers (NEMs), Lumentum has R&D experience and manufacturing scalability that is unmatched among optical technology suppliers.

Lumentum's vertically integrated product portfolio of optical components and subassemblies allows us to optimize cost and density at the end product level.

Specifications

Chassis Features

Parameter	Specification		
Maximum Dimensions (H x W x D)	1.75 (1RU) x 17.4 x 23.6 in		4.45 x 44.19 x 60 cm
LEDs	<ul style="list-style-type: none"> • 3 LEDs for chassis status summary • 1 LED for chassis identification • Per ports status LEDs for all optical inputs and active outputs 		
Management LAN connectivity	10/100/1000BaseT Ethernet (RJ-45)		Also via OSC link
Local Access	10/100/1000BaseT Ethernet (RJ-45)	Serial (DB-9)	USB (to subtending passive equipment)
Power Entry	Dual, field-replaceable 120/240VAC power supplies located at rear		
Power Consumption	Typical: <75W in normal operation		Maximum: 140W
Cooling	Field replaceable fan unit, located at rear		Airflow front-to-back

Lumentum Terminal Amplifier Whitebox
Optical Specifications - EDFAs

Parameter	Specification	
	Minimum	Maximum
Channels		Up to 96
Booster		
Gain Range	6.5 dB	27 dB
Output Power		23dBm
Input Power Range	-24 dBm	+16.5 dBm
Output VOA Range	0 dB attenuation	15dB attenuation
Preamplifier		
Gain Range	11 dB	30.5 dB
Output Power		22dBm
Input Power Range	-33.5 dBm	+11 dBm
Transient Performance ¹		
Gain Over/Undershoot		0.5dB
Gain Offset		+/-1dB
Settling Time		3ms

1 Transient performance based on 20dB input drop event with 1ms duration

OCM Specifications

Parameter	Specification	
	Minimum	Maximum
Channel Power Range	-15 dBm	+6 dBm
Absolute Channel Power Accuracy	+/-1.2dB	
Relative Channel Power Accuracy	1.2dB	
Channel Power Repeatability	0.3dB	
Scanning Time	1s to scan both EDFA outputs	

Protection Switch System Specifications

Parameter	Specification	
	Typical	Maximum
IL Penalty	3.6dB	4.3dB
Line break detection time	10ms	
Switching Time	50ms	

OSC Specifications

Parameter	Specification
Wavelength	1510 CWDM
Line Rate	GbE, 100MbE
Reach	Up to 30dB span, varies with installed pluggable
Pluggable Type	SFP, SFP+
Customer OSC Overlay Wavelength ²	1611 CWDM

² Option to include additional set of OSC add/drop filters to support overlay of customer/3rd party OSC channel with external termination.

Software & Management Specifications

Parameter	Specification
Applications	<ul style="list-style-type: none"> NETCONF Server (Yang Model) CLI GUI (Commissioning & Maintenance)
User Authentication	SSH/RADIUS
Performance Metrics	Monitoring of key optical parameters <ul style="list-style-type: none"> Input, output powers EDFA operating points Channel powers with OCM option OSC statistics

Environmental Specifications

Parameter	Specification	
	Minimum	Maximum
Storage temperature	-40°C (-40°F)	85°C (185°F)
Operating ambient temperature	0°C (32°F)	40°C (104°F)
Relative humidity	5%	95%

Ordering

To order the Lumentum Terminal Amplifier Whitebox, or other Lumentum products, please contact Lumentum Customer Support, using the contact information on the back page of this datasheet.



North America

Toll Free: 844 810 LITE (5483)

Outside North America

Toll Free: 800 000 LITE (5483)

China

Toll Free: 400 120 LITE (5483)

© 2015 Lumentum Operations LLC

Product specifications and descriptions in this document are subject to change without notice.

Note: The appearance and placement of ports on the final product may not match those of the product image shown on the first page of this document.