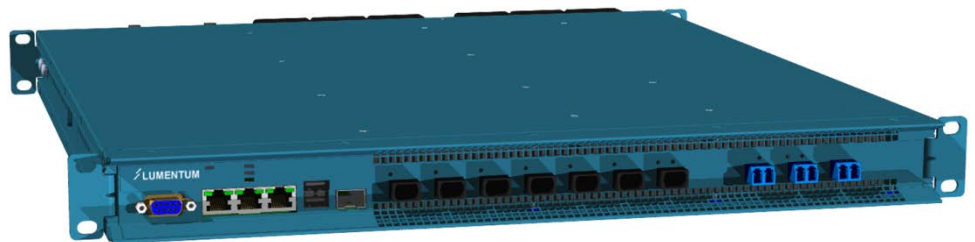


*New* ROADM  
Whitebox



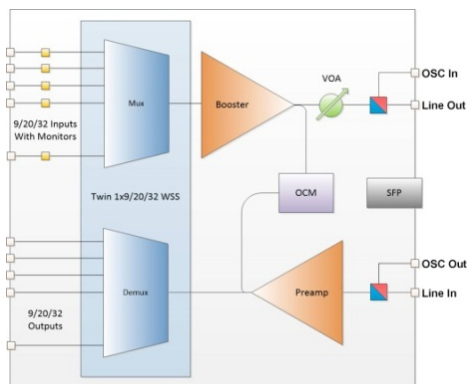
# The ROADM Whitebox provides all necessary functions of a degree; build a multi-degree ROADM node to suit your needs.

Build an N-degree ROADM node by utilizing N ROADM Whiteboxes.

The ROADM Whitebox WSS supports the TrueFlex function with 6.25 GHz bandwidth setting granularity.

Line Amplifier EDFAs with state of the art switchable gain models provide larger dynamic range with dramatically better NF performance than traditional variable gain EDFAs. Gain operation range can be selected dynamically while the EDFA is out of service.

## ROADM Schematic



## Key Features

Each ROADM Whitebox unit contains:

- High power variable gain Pre-Amp and Booster EDFAs
- Twin 1x9/1x20/1x32 WSS for Express and Add/Drop fan-out
- OCM for channel monitoring
- OSC Termination with Additional support for 3<sup>rd</sup> party OSC
- Power monitoring on ports

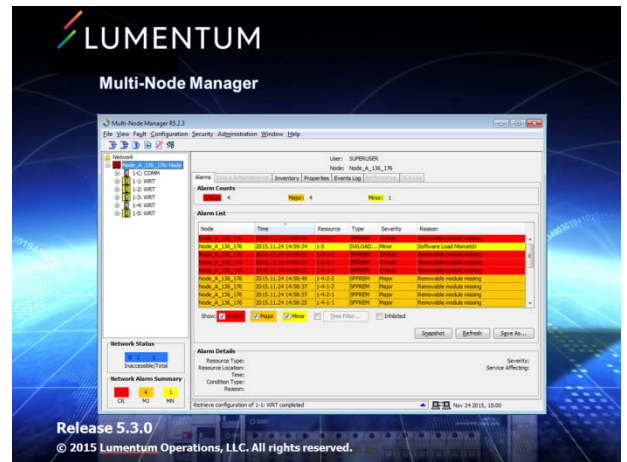
## Compliance

- 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

## Network Management Integration

Lumentum's ROADM 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;
- 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"> <li>• 3 LEDs for chassis status summary</li> <li>• 1 LED for chassis identification</li> <li>• Per ports status LEDs for all optical inputs and active outputs</li> </ul>		
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: <65W in normal operation	Maximum: 100W	
Cooling	Field replaceable fan unit, located at rear	Airflow front-to-back	

## Optical Specifications - EDFAs

Parameter	Specification	
Channels	Up to 96	
Gain Ranges <sup>1</sup>	5 to 15dB, 18dB extended	13 to 25dB, 28dB extended
	<b>Minimum</b>	<b>Maximum</b>
Output Power		22.5 dBm
Input Power Range	-34.5 dBm	+18 dBm
<b>Transient Performance<sup>1</sup></b>		
Gain Over/Undershoot		0.5dB
Gain Offset		+/- 1dB
Settling Time		3ms

1 Each gain range supports extended operation of 3dB under negative tilt to support stretched spans

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

## WSS Specifications

Parameter	Specification
Flex Spectrum Slice Width	6.25 Ghz
Min to Max settable channel BW	25 GHz to 4800 GHz (super-channel)
WSS Options	Twin 1x9/1x20/ 1x32
WSS Dynamic Range	15 dB
Channel Grid	from 196'100 Ghz (1528.77nm) to 191'300 Ghz (1567.13nm)
Attenuation Target Setting time	Single Channel 800ms, All channels 1500ms
Switch State Setting Time	Single channel 1200ms, All channels 2400ms

## OCM Specifications

Parameter	Specification
Channel Power Range	-15 to +6dBm
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

## OSC Specifications

Parameter	Specification
Wavelength	1510 CWDM
Line Rate	GbE, 100MbE
Reach	Up to 25dB span, varies with installed pluggable
Pluggable Type	SFP, SFP+
Customer OSC Overlay Wavelength <sup>2</sup>	1611 CWDM

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

## Software & Management Specifications

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

## Environmental Specifications

Parameter	Specifications	
	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 ROADM 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)

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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.