PureSpectrum™

MNL–MULTI-CHANNEL NARROW LINEWIDTH LASER SYSTEM

The PureSpectrum™– MNL Multi-channel Narrow Linewidth Semiconductor Laser System has been developed for multi-channel optical sensor applications.

The PureSpectrum™– MNL ruggedized chassis is a fully integrated system comprising up to 10 laser modules, a control module and a power supply.

The PureSpectrum™– MNL's low-phase-noise characteristics are made possible through the use of state-of-the-art freqency noise control technology.

This allows for significant reduction of the optical linewidth of a DFB laser diode while preseerving the benefits of the semiconductor laser.

Features

- Unrivalled vibration immunity
- Linewidth <5 kHz
- Output power up to 80 mW
- Low phase noise and long coherence length
- Based on the proven reliability of DFB semiconductor lasers
- 10 channels in a compact 19 in. x 2U chassis

Applications

- Multi-channel optical seismic sensing in oil & gas exploitation (4C-OBS, in-well, towed array)
- Structural health monitoring (Brillouin sensing)
- Perimeter and submarine detection, vibration signature
- Substitute for Nd:YAG lasers or single-frequency fiber lasers

TeraXion

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PureSpectrum™ MNL – MULTI-CHANNEL NARROW LINEWIDTH LASER SYSTEM

Optical Parameters

	Units	Specifications
Wavelength	nm	1525—1565 / 1565—1625 (ITU grid)
Linewidth [1]	kHz	5
Output power [2]	mW	1525—1565: 40, 60 & 80 1565—1625: 20
Frequency noise [3]	Hz^2/Hz	< $1x10^b$ (5 Hz – 1 kHz) < $5x10^3$ (1 kHz – 100 kHz)
Relative intensity noise	dBc/Hz	< -130 (1 kHz - 10 kHz) < -140 (10 kHz - 1 MHz) < -150 (1 MHz - 1 GHz)
Frequency stability	Allan Std Dev	< $5x10^{-10}$ @ 1 s, < $5x10^{-9}$ @ 100 s
Frequency Tuning Range	GHz	± 5
Frequency Tuning Resolution	MHz	30
Frequency Tuning Method	Command through Ethernet port	
Frequency Modulation Amplitude [4]	GHz	± 2.5
Frequency Modulation Bandwidth [4]	MHz	Up to 1
Output Type		CW
Polarization Extinction Ratio	dB	> 17
Output Connector		FC/APC
Optical Fiber	Panda Polarization Maintaining, slow axis aligned to key	

Computer Interface

Interface	Ethernet
Connector	RJ45
PC-Side Software	TeraXion PureSpectrum Labview ™[5] Control Panel
Functions	Laser bias current setting Laser temperature setting Locking enable / disable Laser frequency setting Laser status

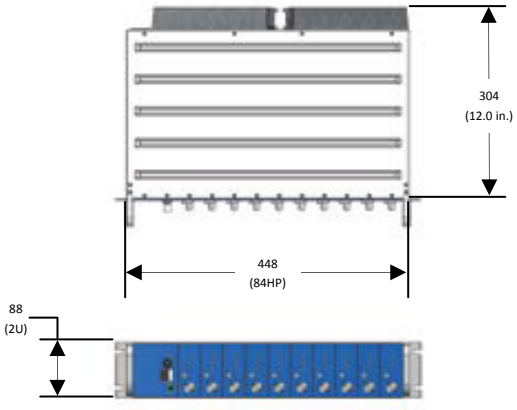
Mechanical Parameters

Operating Temperature	- 5ºC to + 55ºC
Storage Temperature	- 40ºC to + 85ºC
Packaging (H x W x L)	88 x 304 x 448 mmm
Laser Modules Per Chassis	Up to 10 (field replacable)

Electrical Parameters

Power Supply	90-131/180-234 VAC, 47-63 Hz, <16 A @ 115 VAC, <32 A @ 230 VAC

Outline diagram



PS-MNL-XXXX.XX-YY

(XXXX.XX): Wavelength nm, up to 10 wavelengths

(YY): Output power (mW), up to 10 units, refer to Output Power specification

Typical specifications are typical and may vary depending upon user's requirements.

Center wavelength to be user specified within the stated ranges. Nominal wavelength tolerance at rated power and 25°C internal temperature is typically ± 1 nm and can be temperature-tuned to the specific wavelength

(1): Typical, measured at 1 ms

(2): Maximum output power subject to DFB laser diode availability

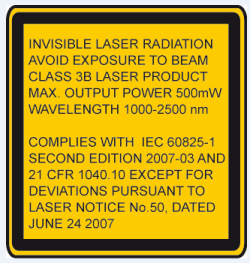
(3): Specification valid for modules having center wavelength between 1525 and 1565 nm

(4): One modulation input common for all 10 laser modules. Modulation input operates when frequency locking is disabled

(5): LabView is a registered trademark of National Instruments

(6): Up to 10 laser modules per chassis. Specify central wavelength and power for each output

Laser safety information



Ordering information[6]

For orders, questions, specific requirements or to learn more about TeraXion's products, contact us at

info@teraxion.com

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