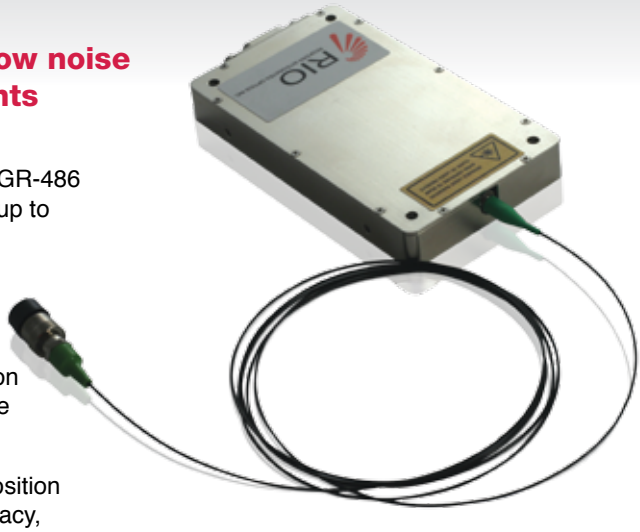
RIO
REDFERN INTEGRATED OPTICS INC.

LIGHT THAT MAKES PERFECT SENSE™

RIO ORION™ Laser Module

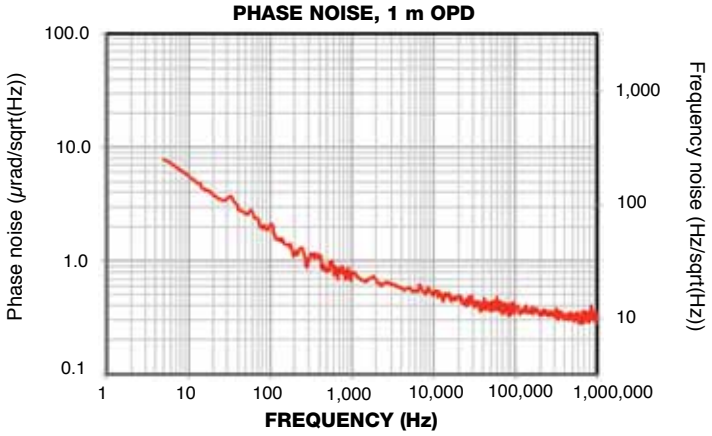
A compact and industry-proven OEM narrow linewidth low noise source designed for 24/7 operation in harsh environments

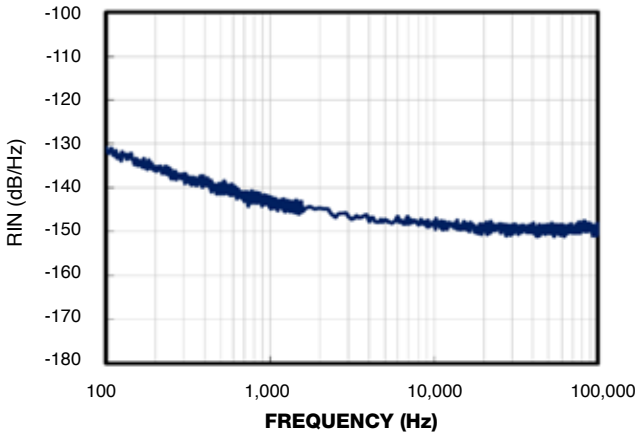


The ORION™ laser module builds upon the proven performance of RIO's game-changing **PLANEX™** product series. In addition to unrivaled reliability (Telcordia GR-486 qualified) and robustness, the ORION laser modules provide superior value with up to 20mW output power, very low RIN, ultra low phase noise and narrow linewidth, exceptional wavelength stability and insensitivity to vibration.

The ORION's packaging was designed with the customer's need in mind: highly integrated, small form factor and self-contained module. This optical solution is positioned for reducing the development cycle time and allow for simple integration into advanced fiber optic sensing systems. External monitoring and control can be achieved via SPI, RS-232 or RS-485 standard interfaces.

The ORION's higher output power, low noise and ultra narrow linewidth ideally position this semiconductor optical solution for multiple applications where absolute accuracy, lifetime reliability over demanding field conditions, and high resolution are vital, such as remote sensing, distributed temperature, strain, or acoustic fiber optic monitoring, high resolution spectroscopy, LIDAR and other precision metrology applications.





KEY FEATURES

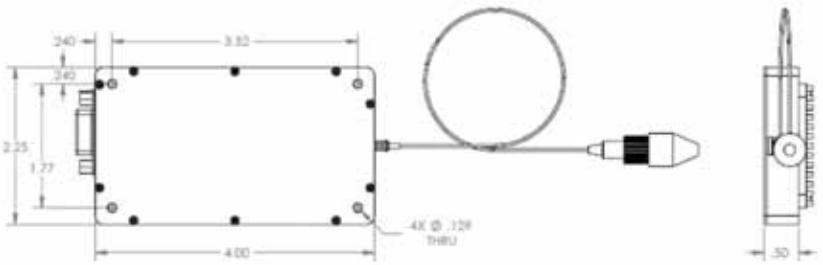
- Single longitudinal mode
- Ultra low phase noise & RIN
- Low sensitivity to vibration & acoustic noise
- Narrow linewidth (< 1 kHz), long coherence length
- 1530nm-1565nm, ITU-T DWDM wavelength or custom
- Guaranteed mode hop free operation over life & temperature
- Wavelength tunability
- Unrivaled wavelength stability over life & temperature
- Excellent SMSR
- SMF or PMF pigtail options
- CW, modulated and pulsed operations
- 0-70°C operating case temperature
- Telcordia GR-468 Qualified
- RoHS Compliant

Performance Highlights

PARAMETER	MIN	MAX	UNIT
Output Power	10	20	mW
Center Wavelength (ITU grid)	1530	1565	nm
Thermal wavelength tuning range	30		pm
Relative Intensity Noise		-140	dB/Hz
Polarization Extinction Ratio	20		dB
Modulation bandwidth	DC	100	kHz
Direct frequency modulation range, at 10kHz	200		MHz
Operating temperature range	0	+ 70	˚C
Optical Isolation	40		dB

PARAMETER	Grade 1	Grade 3	Grade 4	Grade 5	UNIT
Spectral Linewidth (Lorentzian)	≤15	≤5	≤2	≤1	kHz
Phase Noise Typical @ 200 Hz	22	8	4	2	µrad/rt-Hz 1 m OPD

Mechanical Diagram
Units: Inch



Ordering Information

R	I	O	0	X	X	X	-	X	-	X	X	-	X

Modulation	
0	CW
1	Modulation

Controller Interface	
8	SPI
7	RS-232
6	RS-485

Fiber/Connector	
4	SMF/FC-APC
5	PM/FC-APC

Phase Noise / Linewidth	
1	Grade 1
3	Grade 3
4	Grade 4
5	Grade 5 *

Wavelength	
00	1550 ± 10 nm
01	Custom
02	1550 ± 2 nm
ITU	DWDM ITU channel

Output Power (min.)	
2	Custom
3	10 mW
5	20 mW

* Grade 5: 10 mW output power version only

Laser Safety Information
The ORION Laser Module is classified as FDA/CDRH Class IIIb laser products per CDRH, 21 CFR 1040 laser safety requirements.

APPLICATIONS

- Acoustic and seismic sensing
- Defense and security
- Oil & Gas – exploration and production
- LIDAR and remote sensing
- Interferometric fiber optic sensing
- Metrology
- RF and microwave photonics
- Coherent communication

Oil & Gas

Wind

Security

Infrastructure

Metrology

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