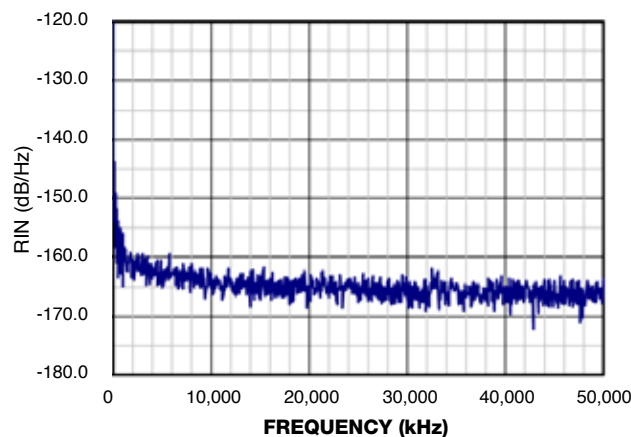
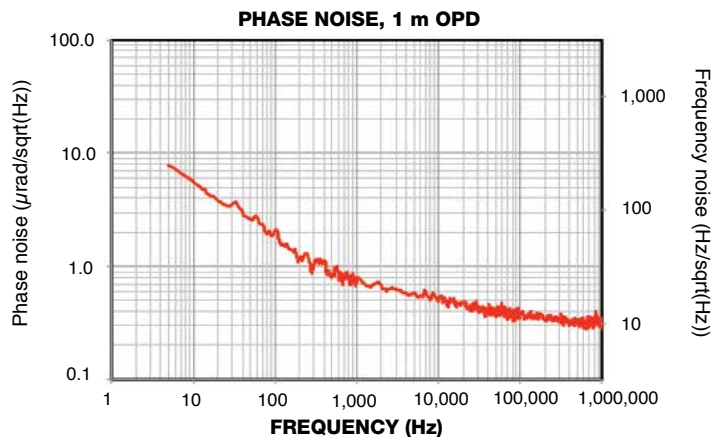


## RIO GRANDE High Power Narrow Linewidth & Low Phase Noise Laser Module

The RIO Grande high power laser module builds upon the proven performance of RIO's game-changing ORION™ product series. In addition to the ORION's unrivaled reliability and robustness, along with the integration of a high performance and low noise EDFA, the RIO Grande laser modules provide superior value with up to 2W output power, very low RIN, ultra low phase noise and narrow linewidth, exceptional wavelength stability and insensitivity to vibration.

The RIO Grande'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 and LIDAR systems. External monitoring and control can be achieved via a RS-232 standard interface.

The RIO Grande'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
- 1545nm-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
- -10 to 70°C operating case temperature
- Compact & rugged OEM design
- RoHS Compliant

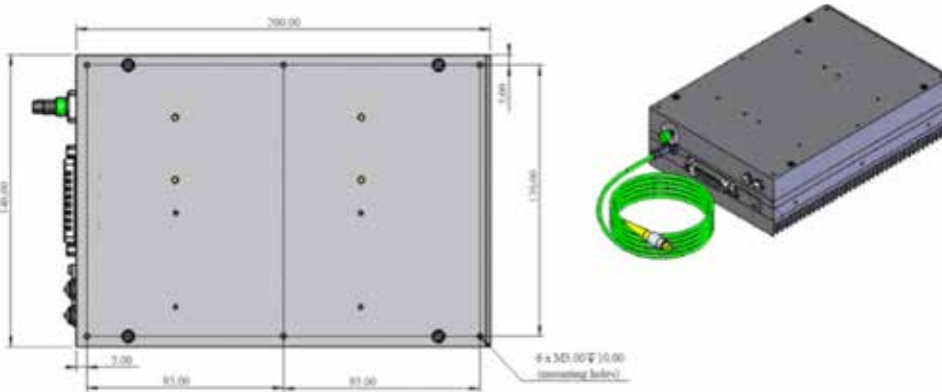
## Performance Highlights

PARAMETER	VALUE	UNITS
Output Power	up to 2	W
Relative Intensity Noise (0.8 – 50 MHz)	< -155	dB/Hz
Optical S/N ratio	> 55	dB
Output power adjustment range	10-100	%
Power stability (rms)	< 1	%
Operating case temperature range	-10 to 70	°C
Power dissipation	< 25	W

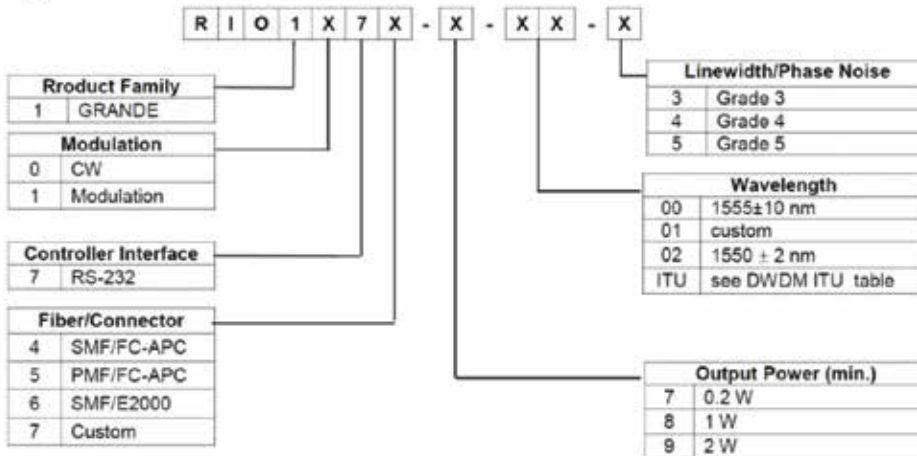
PARAMETER	Grade 3	Grade 4	Grade 5	UNIT
Spectral Linewidth (Lorentzian)	≤5	≤2	≤1	kHz
Phase Noise Typical @ 200 Hz	8	4	2	μrad/rt-Hz 1 m OPD

## Mechanical Diagram

Units: mm



## Ordering Information



### Laser Safety Information

The ORION RIO GRANDE is classified as FDA/CDRH Class IV 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



For ordering or technical information contact  
**REDFERN INTEGRATED OPTICS**  
 3350 Scott Blvd Bldg 1 | Santa Clara CA 95054 | USA

P 408 970 3500 x 310  
 F 408 970 3200  
 sales@rio-lasers.com

