

LIGHT THAT MAKES PERFECT SENSE™

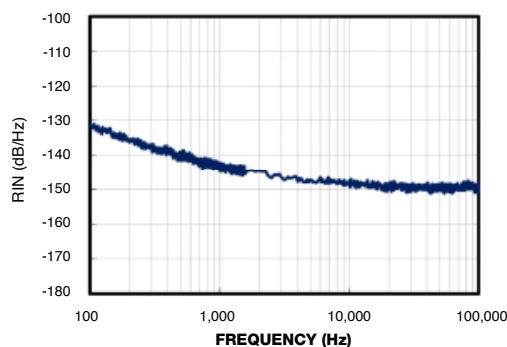
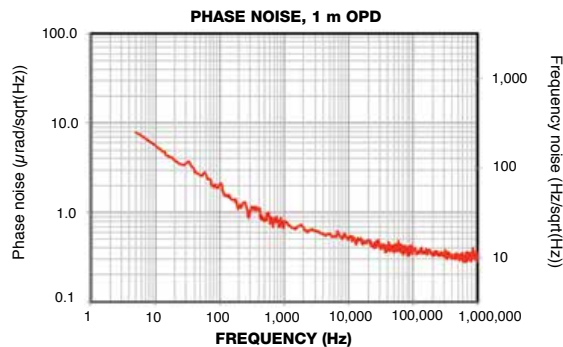
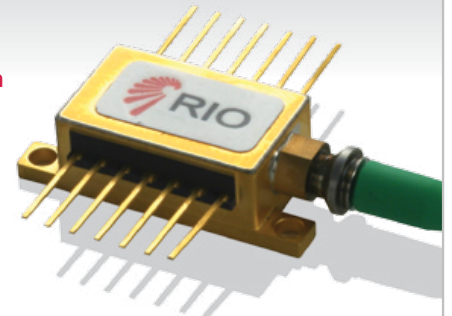
## RIO PLANEX™ External Cavity Laser

**A high performance narrow linewidth source capable of deployment in OEM applications suitable for volume production**

The PLANEX™ product series are high performance and industry-proven single frequency External Cavity Lasers (ECL) based on RIO's proprietary planar technology - **PLANEX™**. The PLANEX laser consists of a gain chip and a planar lightwave circuit (PLC) that includes a Bragg grating. The coupling of these components forms a cavity with significant benefits, with up to 20mW output power, very low RIN, ultra low phase noise and narrow linewidth, and very low wavelength sensitivity to bias current and temperature.

The PLANEX's industry-standard footprint, mounting pattern and electrical connections make it an easy drop-in replacement for existing systems, or upgrading in performance grades within the PLANEX family. RIO's PLANEX lasers are the next generation of optical solutions – combining the high performance of long cavity fiber lasers, with the low cost, simplicity and Telcordia GR-468-qualified reliability of semiconductor lasers.

The PLANEX'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

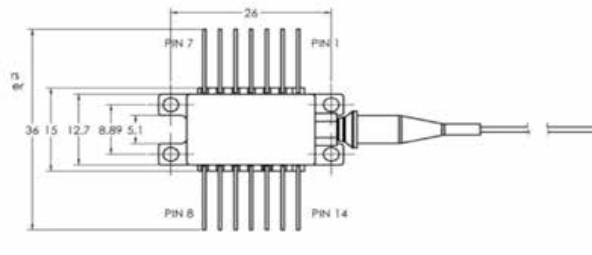
### Performance Highlights

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

### Mechanical Diagram

Units: mm



### Ordering Information

R I O 0 1 9 X - X - X X - X

| Fiber/Connector | Phase Noise / Linewidth |
|-----------------|-------------------------|
| 4 SMF/FC-APC    | 1 Grade 1               |
| 5 PMF/FC-APC    | 3 Grade 3               |
|                 | 4 Grade 4               |

| Output Power (min.) | Wavelength                         |
|---------------------|------------------------------------|
| 2 Custom            | 00 1550±10 nm                      |
| 3 10 mW             | 01 Custom                          |
| 5 20 mW             | 02 1550±2 nm                       |
|                     | ITU DWDM (100 GHz) ITU channel no. |



### Laser Safety Information

The ORION RIO PLANEX is classified as FDA/CDRH Class IIb 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

