Laser Diodes

RIO
REDFERN INTEGRATED OPTICS INC.

LASER COMPONENTS

LIGHT THAT MAKES PERFECT SENSE™

January 2012

RIO Optical Phase Lock Loop System with Tunable Frequency Offset

RIO's Optical Phase Locked Loop (OPLL) System is based on the proven performance of RIO's PLANEX™ product series, along with integrated high-speed phase lock loop electronics for easy setup, operation and diagnostics.

In addition to unrivaled reliability and performance, the PLANEX laser-based system provides exceptional value and ease-of-use with up to 5mW output power, very low RIN, ultra low phase noise and narrow linewidth, excellent wavelength stability, fast tuning and a user-selectable frequency offset tuning functionality.

The OPLL's 19" 2U rackmount system was designed with the customer's need in mind: user-friendly, highly integrated and turn-key operation. 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 a Graphical User Interface (GUI) and a USB connection.

The OPLL's total integrated solution ideally position this system 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, LIDAR and other precision metrology applications.

KEY FEATURES

- Single longitudinal mode
- Ultra low phase noise and RIN
- Two laser outputs with specified wavelengths
- Narrow linewidth (< 15 kHz), long coherence length
- 1528-1565nm, ITU-T DWDM wavelength or custom
- Selectable frequency offset locking and monitoring
- Monitoring ports for optical signal, RF beat frequency and PLL lock signal
- Fast wavelength tunability
- PM output fiber
- Higher output power (optional)
- Two operational modes: step tuning and sweep
- 2U 19" rackmount - digital controller

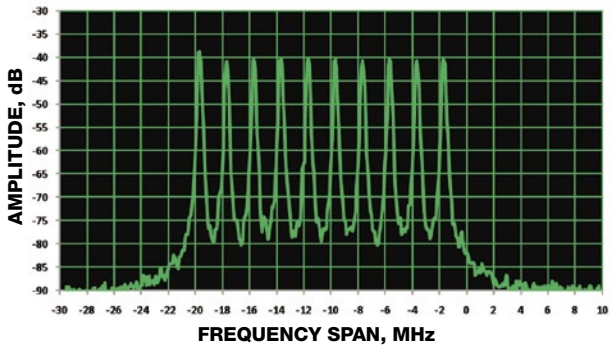
APPLICATIONS

- Brillouin (BODTA/BOTDR)
- Distributed Temperature and Strain (DTSS)
- Tunable heterodyne source
- LIDAR and remote sensing
- Testing of high speed optical receivers
- Metrology
- RF and microwave photonics

Performance Highlights

PARAMETER	VALUE	UNITS
Output Power: Ports L1 & L2	up to 5	mW
L1 (port 1) wavelength	1528-1565	nm
L2 (port 2) wavelength	λ_1 + offset	nm
Spectral linewidth (Lorentzian)	< 15	kHz
Frequency locking range	8-14	GHz
Continuous locking tuning range	1	GHz
Reference locking frequency difference	11	GHz
Frequency step tuning via GUI	Up to 10	MHz

ESA Max Hold Spectrum, OPLL Offset Tuning 11 to 11.02 GHz with 2 MHz Step



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