Photonic Solutions Ltd
Edinburgh
EH14 4AP
+44 131 664 8122
www.photonicsolutions.co.uk

LDL Enhanced Littrow External Cavity Diode Laser

The Santec LDL Enhanced Littrow External Cavity Diode Laser is our fourth-generation Littrow laser for advanced applications in atomic and quantum physics.
The LDL Enhanced offers a number of advantages relative to earlier designs and competing products in the market, providing a robust, stable, and vibrationally inert device. Grating rotation and vertical alignment are uncoupled, allowing simple tuning over the full diode wavelength range without realignment. Mode-hop-free scanning range of 60GHz. Durable design with long-life piezos, sapphire wear pads, ball-bearing pivot. Improved suppression of adjacent cavity modes to ensure single-mode operation. Hermetic seal to reduce sensitivity to air pressure changes. Beam alignment with laser centre regardless of wavelength. Dramatic improvements to ease of alignment and focus without opening the cavity allow inexpert users to quickly change laser diode. Wavelength options extend from 368 nm to 1620 nm and powers up to 300 mW extra-cavity.

Features

- Wavelengths from 368 to 1620 nm
- Vibrationally inert
- Wide tuning range
- Decoupled grating rotation and tilt
- Wide mode-hop free scan range
- Narrow linewidth
- Fastest piezo feedback on the market
- Precision alignment controls, including focus
- High bandwidth low latency current modulation
- Simple and fast diode replacement

Applications

- Laser cooling and trapping
- Bose-Einstein condensation
- Quantum optics: squeezed light
- Electromagnetic transparency and slow light
- Time and frequency standards
- Laser spectroscopy

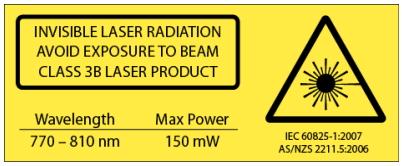
Littrow External Cavity Diode Laser

Specifications LDL Enhanced

Wavelength/frequency	
368nm to 1612nm	Up to 300 mW output power, diode dependent
Linewidth	Typically <200 kHz, diode dependent
Modulation	20 MHz bandwidth, AC or DC coupled, 20 ns latency RF bias tee option: >2.5 GHz bandwidth
Coarse tuning range	Up to 50 nm for single diode
Optical	
Beam diameter ($1/e^2$)	Typically 1 mm x 2 mm to 1.5 mm x 4 mm; diode-dependent
Polarisation	Linear 100:1 typical
Thermal	
TEC	±14.5 V 3.3 A *Q* = 23 W standard
Sensor	NTC 10 kΩ standard; AD590, 592 optional
Stability at base	±1 mK (controller dependent)
Cooling	Water cooling connections optional (usually not required)
Sweep/scan	
Scan range	Up to 100 GHz with extended range option, rate 4 Hz to 70 Hz
Mode-hop free scan	10 GHz to 100 GHz, diode dependent, with current feed-forward
Piezo	0 – 150 V, 2 to 5 µm
Cavity length	15 mm (10GHz FSR) approx.
Electronics	
Protection	Relay, cover interlock connection, reverse diode
Indicator	Laser ON/OFF (LED)
Modulation input	20 MHz bandwidth, AC or DC coupled, 20 ns latency RF bias tee option: >2.5 GHz bandwidth,
Connector	Santec DLC Diode Laser Controller (single cable connect)
Dimensions	
Dimensions	Laser: 58 x 55 x 31 mm (LxWxH) Compact chassis: 108 x 70 x 87 mm, 0.5 kg Extended chassis: 240 x 95 x 93 mm, 1.3 kg

Options

AR and non-AR diodes, Faraday isolators, compact and extended chassis, fibre coupling. Please contact Santec for further details.



Photonic Solutions Ltd
Edinburgh
EH14 4AP
+44 131 664 8122
www.photonicsolutions.co.uk

LDL-C-E/Ver.1.0 CODE-202606-TM-PP-CPY