LDL External Cavity Diode Laser

The MOGLabs LDL Littrow External Cavity Diode Laser is a research quality laser for advanced applications in atomic and quantum physics.

All springs – including flexures – have been removed to create 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.

When used with a MOGLabs Diode Laser Controller, mode-hop-free scanning range of up to 40GHz and linewidth below 100 kHz can be achieved, with a broad range of AR coated and less expensive uncoated diode. Diode replacement and re-alignment are easily accomplished by the end-user. Wavelength options extend from 370nm to 1612nm, and powers up to 200mW extra-cavity.

Features

- Vibrationally inert
- Passive stability
- Wide tuning range
- Decoupled grating rotation and tilt
- Wide mode-hop free scan range
- Narrow linewidth
- Fast piezo feedback
- Precision alignment controls
- High bandwidth low latency modulation
- Diode protection circuit and relay
- Low frequency noise

Applications

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

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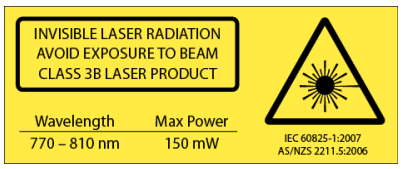
Specifications LDL

Wavelength/frequency	
370nm to 1612nm	Up to 200mW output power, diode dependent
Linewidth	Typically <200kHz, diode dependent
Modulation	20MHz bandwidth, AC or DC coupled, 20ns latency RF bias tee option: >2.5GHz bandwidth
Coarse tuning range	Up to 50nm for single diode
Optical	
Beam diameter ($1/e^2$)	Typically 1mm x 2mm to 1.5mm x 4mm; diode-dependent
Polarisation	Linear 100:1 typical
Thermal	
TEC	±14.5V 3.3A *Q* = 23W standard
Sensor	NTC 10kΩ standard; AD590, 592 optional
Stability at base	±1mK (controller dependent)
Cooling	Water cooling connections optional (usually not required)
Sweep/scan	
Scan range	Up to 50 GHz; with MOGLabs controller, rate 4Hz to 70Hz
Mode-hop free scan	10 GHz to 40GHz, uncoated diode, with current feed-forward
Piezo	0 – 120V or 0 – 150V, 2 to 5µm
Cavity length	1 – 3cm (5 – 15 GHz FSR) approx.
Electronics	
Protection	Relay, cover interlock connection, reverse diode
Indicator	Laser ON/OFF (LED)
Modulation input	20MHz bandwidth, AC or DC coupled, 20ns latency RF bias tee option: >2.5GHz bandwidth, 16MHz – 2.5GHz (lower cutoff optional)
Connector	MOGLabs DLC Diode Laser Controller (single cable connect)
Dimensions	
Dimensions	105 x90 x90mm (LxWxH), 1kg

Options

Faraday isolator; fibre coupled; modulation low-frequency cutoff.
Please contact MOGLabs for further details.



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