



ECD004 External Cavity Diode Laser



The MOGLabs External Cavity Diode Laser offers research quality at a teaching-lab price.

The ECD004 is robust and stable. When used with a MOGLabs Diode Laser Controller, mode-hop-free scanning range of up to 40GHz and linewidth below 100kHz can be achieved using a low-cost *uncoated* 780 nm consumer diode. Diode replacement and re-alignment are easily accomplished by the end-user. Wavelength options extend from 370nm to 1064nm, and powers up to 250mW extra-cavity. Other wavelengths by request.

ECD004 is shown above with MOGLabs DLC Diode Laser Controller.

Features

- Wide mode-hop free scan range
- Narrow linewidth
- Fast piezo feedback
- Precision alignment controls
- Microwave RF modulation input
- Diode protection circuit and relay
- Low frequency noise
- High feedback bandwidth
- Use with MOGLabs Controller or your electronics

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

External Cavity Diode Laser

Specifications ECD004

Wavelength/frequency	
370nm to 1064nm	Up to 250mW output power, diode dependent
Linewidth	Typically <200kHz, diode dependent
Modulation	10MHz bandwidth, AC or DC coupled RF bias tee option: >2.5GHz bandwidth
Coarse tuning range	±5nm for single diode
Optical	
Beam diameter (1/e ²)	Typically 1mm x 2mm to 1.5mm x 4mm; diode-dependent
Polarisation	Vertical linear 100:1 typical (standard diode)
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, 3 to 5µm
Cavity length	1 – 3cm (5 – 15 GHz FSR) approx.
Electronics	
Protection	Relay, cover interlock connection, reverse diode
Indicator	Laser ON/OFF (LED)
RF input	16MHz – 2.5GHz bias tee (lower cutoff optional)
Connector	MOGLabs DLC Diode Laser Controller (single cable connect)
Dimensions	
Dimensions	105 x 90 x 90mm (LxWxH), 1kg
Options	

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