

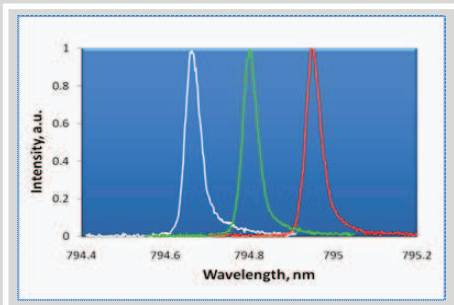
Tunable Ultra-Narrow Band Diode Laser For Spin Exchange Optical Pumping (SEOP)

Product Description

This laser system has been developed for Spin-Exchange Optical Pumping (SEOP) applications that require high power within the extremely narrow absorption resonance of Rubidium (Rb) vapor. It incorporates a unique proprietary volume Bragg grating design enabling ultra-narrow laser linewidth. The complete laser system consists of a laser head, capable of delivering 30 to 70 W in a linearly polarized collimated light beam at 795 nm, a laser driver unit that also contains a chiller for water cooling, as well as an intuitive software interface. Fiber delivery with single fibers or fiber bundles and combiners is optional.

Product Features

- Unprecedented Ultra-Narrow Linewidth of <30 GHz at High Power
- High Pumping Efficiency of Rubidium with Low Gas Pressure for Highest Spin Exchange Rates
- Systems available for D1 and D2 transitions of Rb and Cs
- Tunable range >150 pm for Perfect Wavelength Matching
- Operational Wavelength Stability Within 2.5 GHz
- Minimum Thermal Load on Gas Cell
- Increased Electrical Efficiency



The SEOP laser is tunable more than 150 pm with constant output power

Specifications

Wavelength: ~ 794.7 nm in air (also available: 780, 811, 852 nm)
Spectral linewidth, FWHM: < 20 GHz (down to 10 GHz)
Tuning range: 0.15 nm
Spectral stability: ± 2.5 GHz over 4 hours of operation
Amplitude stability: $\pm 0.5\%$ over 4 hours of operation
Operating temperature: 15°C to 35°C (Non-condensing)
Storage temperature: 10°C to 50°C (Non-condensing)
Mode of temperature control: PID (Proportional Integral Derivative)
Nominal Output power: 30 - 70 W
Laser beam delivery: Optical fibers
Output fiber core diameter: 600 μm
Numerical aperture NA: 0.22
Length of each fiber: ~ 4 m or ~ 10 m

Weight & Dimensions

Size of the single Laser Head module: 55 mm \times 150 mm \times 40 mm
Size of two Laser Head modules on Cold-Plate: 150 \times 150 \times 60 mm
Weight, approx.: 3.5 kg (Two Laser Head modules on Cold-Plate)
Shipping Weight: ~ 60 kg including chiller, electronics rack and LD power supply
Laser System includes: Two 795 nm Laser Head modules; electronics rack with power supplies and TEC controllers; AR-coated high power fiber cable; GUI and control software; chiller; cables
*Specifications are subject to change without notice



Photograph of a dual-head SEOP laser at 795 nm. Each head is rated for 35 W with linewidth < 40 pm



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