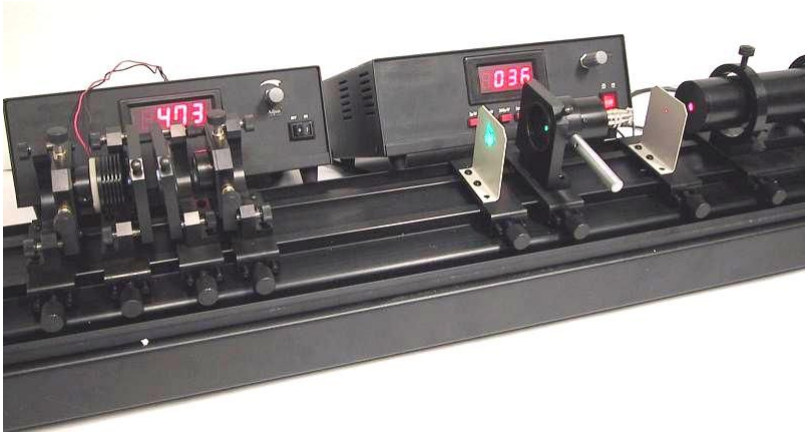
LEOI-50

Diode-Pumped Solid-State Laser Demonstrator



Description

LEOI-50 is designed for teaching nonlinear optical experiments at universities and colleges. It can help students understand the theory of a diode-pumped solid-state (DPSS) laser with frequency doubling technique. A solid-state laser with Nd: YVO4 as the gain material, which is pumped by a semiconductor laser at 808 nm, emits infrared light at 1.064 μm. By incorporating a KTP crystal into the laser cavity to generate frequency-doubled green light, it is possible to observe frequency doubling phenomenon, and measure frequency doubling efficiency, phase matching angle and other basic parameters.

Feathure

Laser diode output: <500 mW at 808 nm

Variable pumping current

Detailed instruction manual

Including He-Ne alignment laser and optical power meter

Specification

Semiconductor Laser	
CW Output Power	≤500 mW

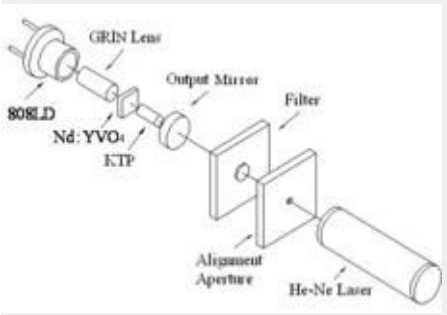
Polarization	TE
Center Wavelength	808 ± 10 nm
Operation Temperature Range	10 ~ 40 °C
Diode Laser Current Controller	0 ~ 500 mA
Nd: YVO_4 Crystal	
Nd Doping Concentration	0.1 ~ 3 atm%
Dimension	3×3×1 mm
Flatness	< λ/10 @632.8 nm
Coating	AR@1064 nm, R<0.1% HT@808 nm, T>90%
KTP Crystal	
Transmissive Wavelength Range	0.35 ~ 4.5 μm
Electro-Optic Coefficient	r_{33}=36 pm/V
Dimension	2×2×5 mm
Output Mirror	
Diameter	Φ 6 mm
Radius of Curvature	50 mm
He-Ne Alignment Laser	≤1 mW @632.8 nm
IR Viewing Card	Spectral response range: 0.7 ~ 1.6 μm
Optical Power Meter	2 μW ~ 200 mW, 6 scales

Part list

Description	Qty
Optical Rail (LEPO-54)	1
Two Axis Adjustment Holder (LEPO-22)	2
Four Axis Adjustment Holder (LEPO-25)	2
He-Ne Laser Holder (LEPO-20)	1
808 nm Semiconductor Laser	1
632.8 nm He-Ne Alignment Laser (LLL-2A)	1
KTP Crystal	1
Nd: YVO_4 Crystal	1
Output Mirror	1
Optical Filter	1
Alignment Aperture (Light Target)	1

Optical Power Meter	1
Power Cord	2
IR Viewing Card	1
User's Manual	1

Examplies:



Schematic of diode laser pumping

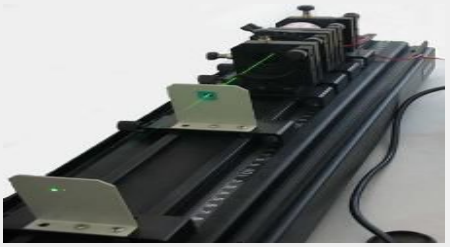
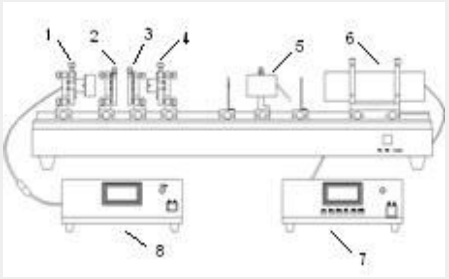


Photo of experimental setup



1. Laser diode
2. Nd:YVO4 crystal
3. KTP crystal
4. Output mirror
5. Detector head
6. He-Ne laser
7. Optical power meter
8. Laser driver

Schematic of experimental configuration