Frequency quadrupled Fiber Ultraviolet Laser

The product description

Erbium group offers high power, single-frequency tunable UV lasers from 250 to 400 nm, for applications in quantum sciences such as cold atoms, ultra-cold molecules, single-photon excitation of Rydberg atom and frequency standard. UV laser is obtained by combining an all-fiber amplifier seeded with an ultra-narrow linewidth laser, a single-pass frequency-doubling unit with PPLN crystal and a cascaded enhancement resonant cavity. These lasers has the characteristics of narrow linewidth, linear polarization and tunable. After active power control, the output power RMS of the laser is less than 1.0% within 3 hours.

Key Features:

- Simple structure single pass frequency doubling
- High efficiency external cavity resonance frequency doubling
- High output power
- low intensity noise
- narrow linewidth

Applications:

- Single photon Rydberg excitation of Rubidium atom (297 nm)
- Beryllium ion cooling (313 nm)
- Grating writing (390 nm)
- Calcium ion optical clock (397 nm)
- Ytterbium atom cooling (399 nm)

Typical Applications											
FL-SSHG	Be+	Hg	He	OPO	K	Rb	Be+	Sr	Lithography	Ga	laser cooling of ytterbium atoms
Wavelength (nm)	235	253	260	266	286	297	313	319	390	397	399
Power (mW)	0.1-1	50	50	50	300	300	500	500	3000	1000	1500

TThe 1050nm and 1550nm lasers with narrow linewidth are used as seed sources respectively. After amplification by single frequency fiber, the two lasers generate 626 nm laser with narrow linewidth and high power utilizing the periodically polarized crystal SFG. By cascading an efficient external resonant cavity, the wavelength of the laser is converted to ultraviolet band at 313 nm. Compared with cascading two resonant cavities with diode laser and tapered amplifier, our product has more compact and stable structure, larger output power of laser.

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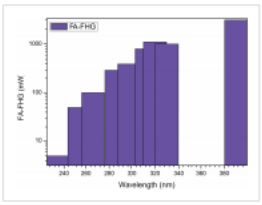
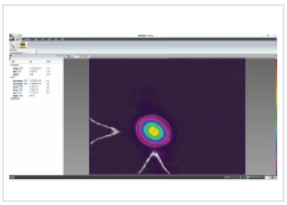
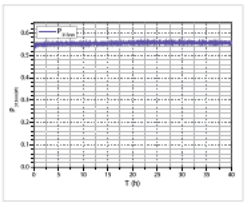


Wavelength-Power



Typical Beam Profile



Power Stability Test

Technical indicators

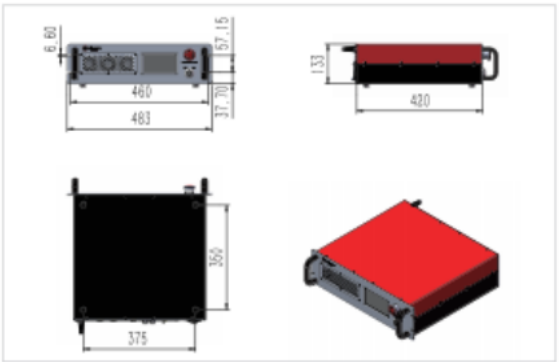
Model	EFL-FHG-XX-YY-ZZ[1]					
Wavelength[2], nm	253-280	280-307	307-325	385-399	399-420	420-500
Output Power[3] , mW	>50	>300	>500	>3000	1000-200	>1000
Linewidth, kHz	< 40	< 400	< 40	< 10	< 40	< 50
Tuning Range , nm	0.15	1.5	0.15			
Mode-Hopping Range, GHz Free	800	80	600			
Beam Quality	TEM_{00} , M^2 <1.3					
PER, dB	>20					
RMS Power Stability, %	<1.0 %@3hrs					
Power Range	10%-100%					
Cooling	Air Cooling/Water Cooling					

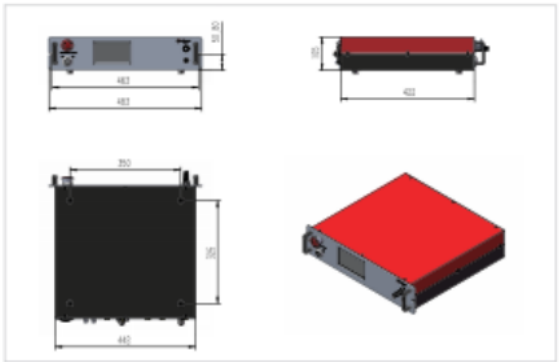
1: XX：Central Wavelength，YY: Maximum Output Power, ZZ: Operation Mode

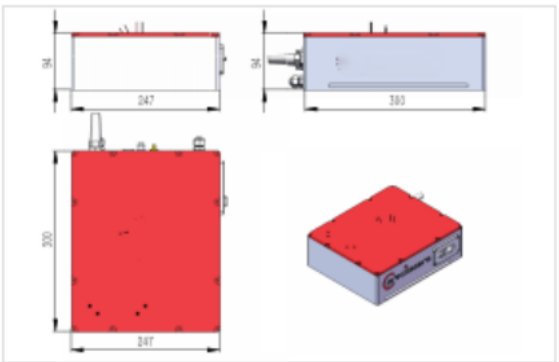
2: Center wavelength can be customized

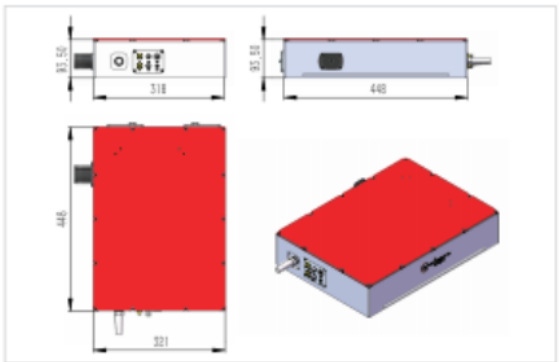
3: Power can be customized

Structure size









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