

Femtosecond Optical Parametric Amplifier STAR001



2023 V1

For customized projects please Contact us:

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The femtosecond optical parametric amplifier-STAR001, based on a stable optical and mechanical design, offers flexible, tunable femtosecond laser pulse output, covering a wavelength range from ultraviolet (as short as 210nm) to mid-infrared (up to 10 μ m).

The femtosecond optical parametric amplifier-STAR001 is compatible with market-standard fiber and solid-state Yb ultrafast lasers, accepting pump energies ranging from 10 μ J to 2mJ, and compatible with pulse widths from 100fs to 1.5ps. Without the need for complex manual adjustments, users can accurately tune to the desired central wavelength with a single click, and comprehensive customization options are available to meet customer needs.

Features

- Tuning Range Of 210nm-16 μ m
- Compatible With Up To 2mJ Of Pump Energy
- Up to >9% Conversion Efficiency
- High Output Stability
- CEP Stability Option
- Integrated Electromechanical Design



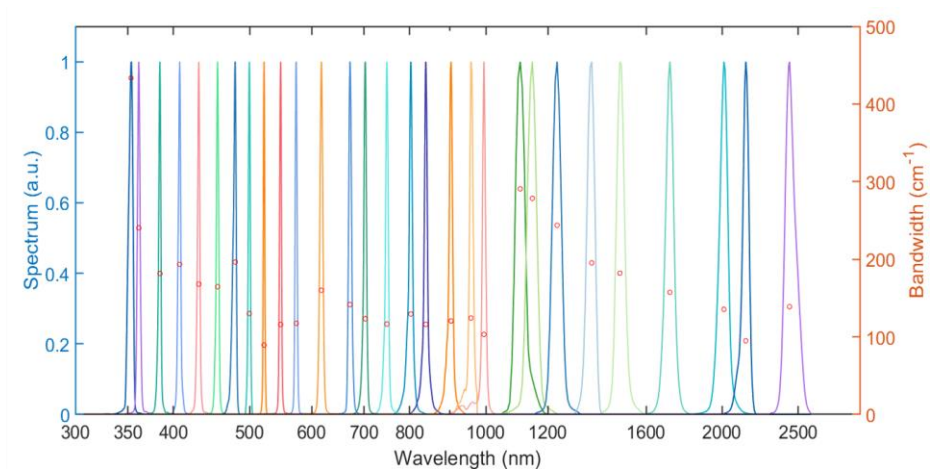
Applications

- Transient Absorption Spectroscopy
- Nonlinear Optics
- Two-Dimensional Infrared Spectroscopy
- Fluorescence Spectroscopy
- Sum Frequency Generation Spectroscopy
- Stimulated Raman Scattering
- High Harmonic Generation and X-ray Light Sources
- Attosecond Science

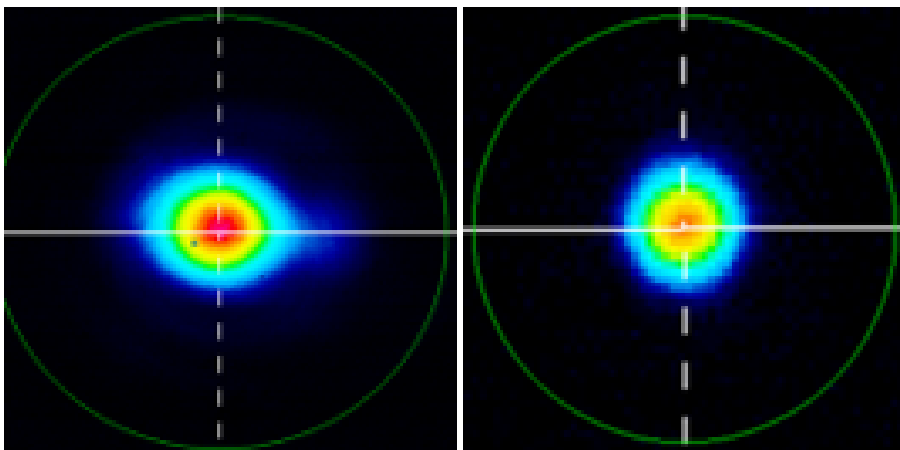
Specifications

Module	STAR001	STAR001-HP	STAR001-HE
Tuning Range	650–1030nm (Signal light)		
	1030– 2600nm (Idler light)		
Maximum Pump Power	40W	60W	
Pump Pulse Energy	10-40uJ	40-500uJ	500-2000uJ
Peak Conversion Efficiency	>4.5%(Signal)	> 9% (Signal)	> 9% (Signal)
	> 2% (Idler)	> 4% (Idler)	> 4% (Idler)
Pulse Width	120~250fs		
Spectral Bandwidth	100cm-1-150cm-1		
Long-term Power Stability	< 2% RMS@ 750 nm		
Pulse Energy Stability	< 2% RMS@ 750 nm		
Polarization	Linear polarization		
Expandable Options			
	Wavelength Tuning Range	Peak Conversion Efficiency	
Second Harmonic Generation Module	325-650nm	≥2.4%	
Third Harmonic Generation Module	210-325nm	≥0.8%	
Mid-infrared Extension Module	2500-10000nm	>3%@3000nm	

Test Data

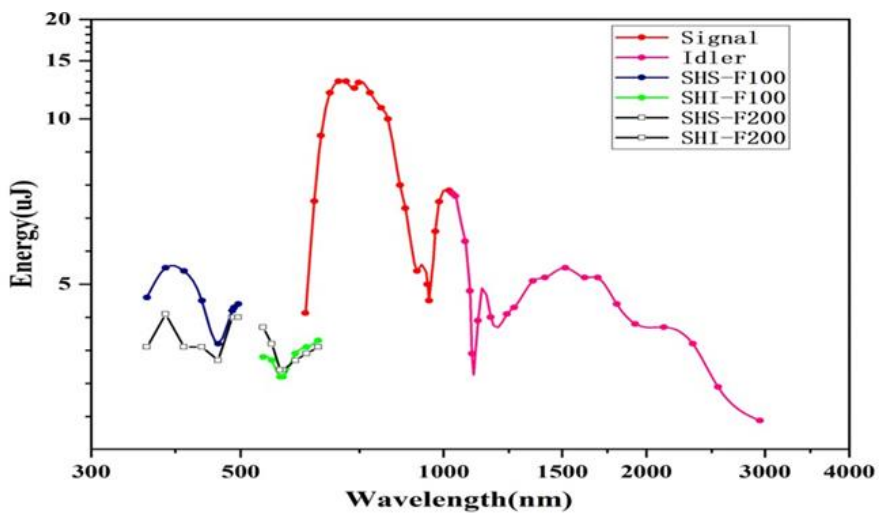


Spectral bandwidth recorded during AURORA actual machine debugging

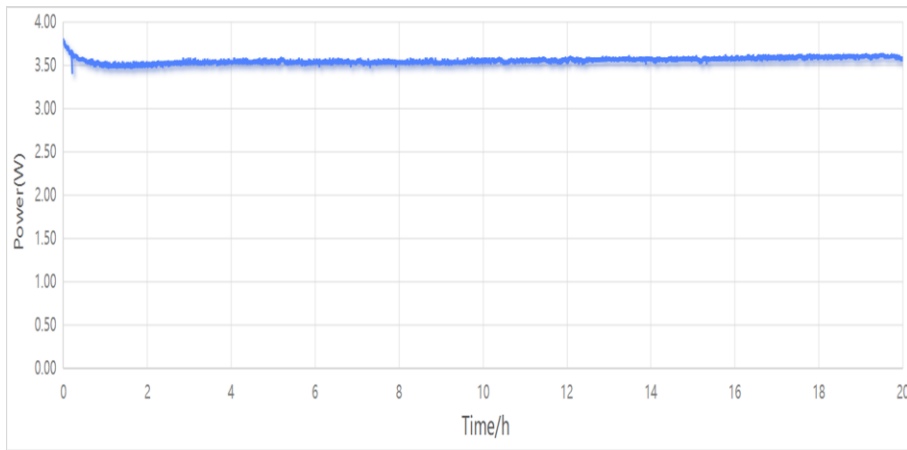


Near-field spot

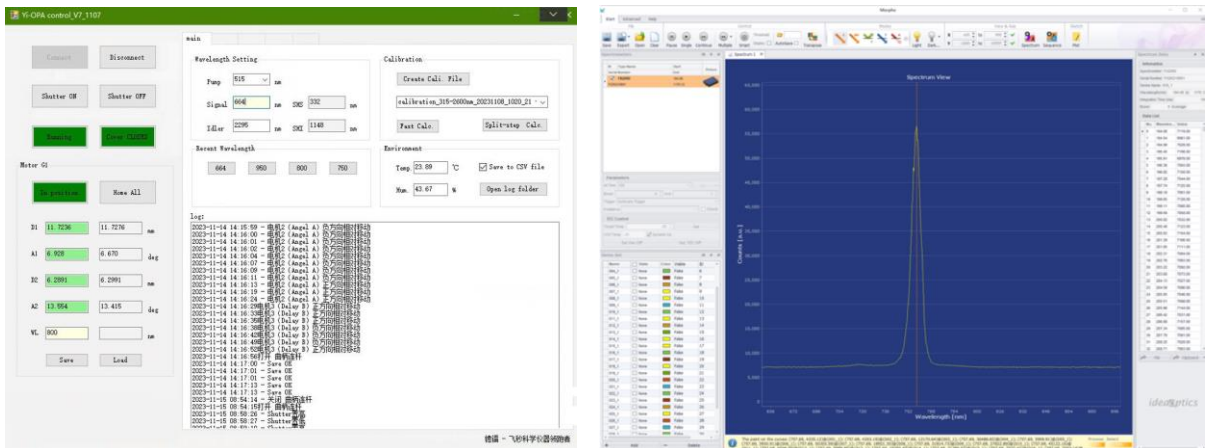
Far-field spot



210uJ Pumped OPA+SHG Module Output Energy Curve



Power Stability (*Measured with a 50W/50μJ/1030nm/300fs laser as the pump source for 20 hours)



STAR001 software interface (wavelength tuning accuracy up to ± 1 nm)

Mechanical Drawings

