



YLPF-FlexO

Femtosecond Fiber Laser

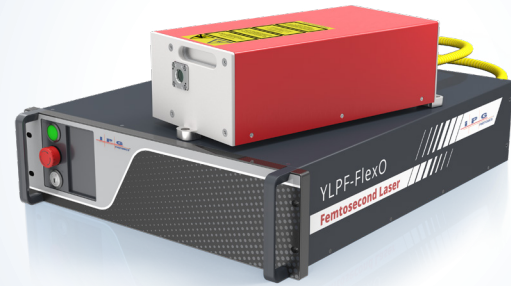
IPG Photonics' **NEW YLPF-FlexO** femtosecond lasers offer the user unprecedented flexibility in choosing parameters optimal for the application. The **YLPF-FlexO** laser provides ultrashort sub-50 fs, 50 nJ pulses at 11 MHz repetition rate. The **YLPF-FlexO** incorporates IPG's proprietary pulse shaping technology which provides the ability to choose a desired temporal pulse shape, from the shortest near-transform limited pulse to a variety of programmable shapes. Shaped time-domain profiles and pulse bursts within 3 ps time window can be created by the user via spectral phase and amplitude shaping. Negative chirp up to 15,000 fs² can be added to the output pulse, equivalent to pulse broadening up to 1 ps. The negative chirp can be used as pre-compensation of positive chirp of optical components in customer's pulse delivery line. The pulse shaping technology can be incorporated in a closed loop setup responding in real time, on the sub-second time scale, to input from external diagnostics.

The ability to select the optimal pulse shape and sequence combined with IPG's highly reliable fiber architecture makes these femtosecond lasers the perfect source for a wide range of scientific, biomedical, and advanced applications such as multiphoton microscopy, two-photon polymerization, laser-assisted crystallization or nucleation, photoporation and transfection in live cells, seeding amplifiers and pumping OPOs, etc.

Optional extensions such as harmonic generators, higher output pulse energies and powers as well as variable repetition rate, from a single pulse to 11 MHz, are planned.

NEW PRODUCT

Pulse Shaping Technology



Applications

- ▶ Scientific and Advanced Applications
- ▶ Analytical Chemistry
- ▶ Bio-imaging and Multiphoton Microscopy
- ▶ Terahertz Generation
- ▶ 3D Micro Printing
- ▶ Pumping OPOs
- ▶ Seeding Amplifiers



Features

- ▶ Pulse Duration from 40 fs
- ▶ Repetition Rate 11 MHz
- ▶ Output Power up to 1 W @ 1030 nm
- ▶ Environmentally Sealed
- ▶ Programmable Pulse Shape : Transform-limited or Shaped Pulse Forms on Demand
- ▶ Rugged Industrial Design, High Reliability, Long Lifetime

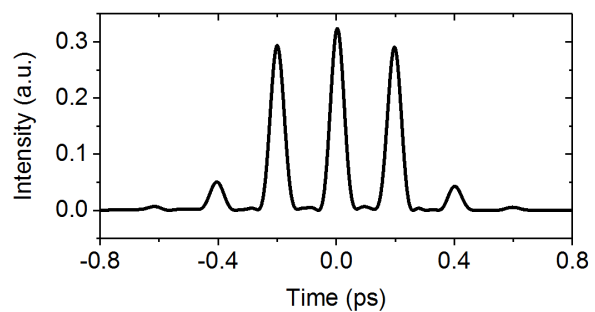
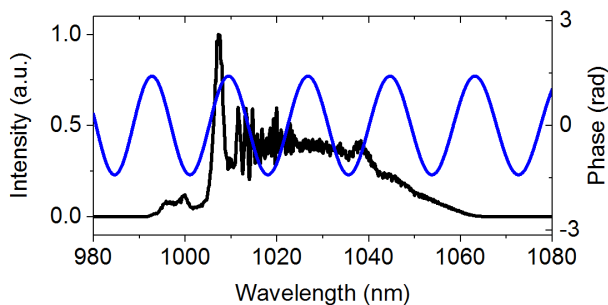
YLPF-FlexO

Femtosecond Fiber Laser

Optical Characteristics	YLPF - FlexO - 40	YLPF - FlexO - 100*
Mode of Operation	Pulsed	
Central Wavelength, nm	1030	
Max. Average Power, mW	>450	1000
Pulse Duration, fs	<60, Typ. 50	<50 typ. 40
Pulse Energy, nJ	>40	100
Repetition Rate, MHz	11	
Polarization	Linear (100:1)	
Beam Mode Quality, M ²	<1.3, typ. 1.1	
Beam Diameter, mm	3	
Warm-up Time, min	Up to 10	

*Preliminary specifications

General Characteristics	
Console Dimensions (W × D × H), mm	448 × 580 × 132
Optical Head Dimensions (W × D × H), mm	178 × 359 × 115
Console Weight, kg	26
Optical Head Weight, kg	<7
Total Weight, kg	<33
Supply Voltage, VAC	Single phase, 110-240, 50-60 Hz



Generation of pulse bursts via phase shaping: a sinusoidal phase mask is applied to create a pulse sequence. The time period can be tuned by adjusting the phase modulation frequency.

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MAX. AVERAGE OUTPUT POWER: 2 W
 MAX. PEAK OUTPUT POWER: 4 MW
 PULSE DURATION: 30 fs - 20 ps
 PULSE REPETITION RATE: <=15 MHz
 WAVELENGTH RANGE: 900-1200 nm

DANGER - INVISIBLE LASER RADIATION AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION CLASS 4 LASER PRODUCT
 IEC 60825-1:2014

The Power to Transform®