

High-Repetition-Rate Lasers



FLINT-FL1

From 10 to 100 MHz repetition rate

Down to 50 fs pulse duration

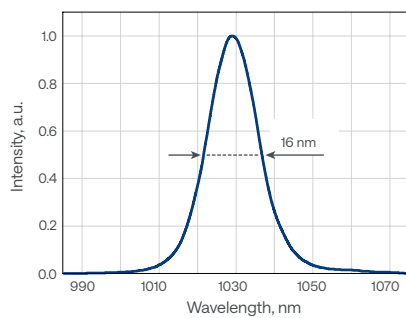
High-power models, up to 20 W

High-energy energy models, up to 0.6 μJ

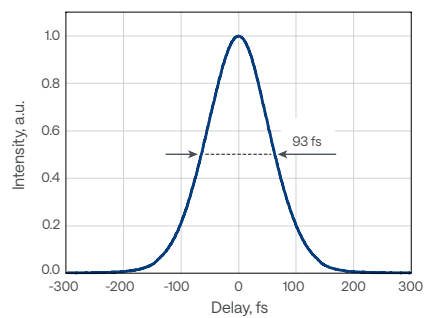
Industrial-grade design for high output stability

CEP stabilization or repetition rate locking

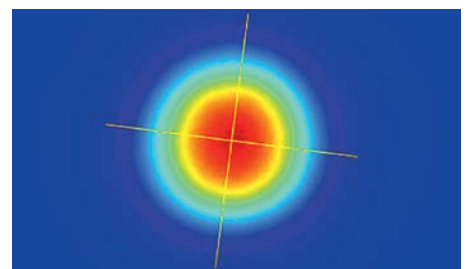
FLINT-FL1
Typical spectrum



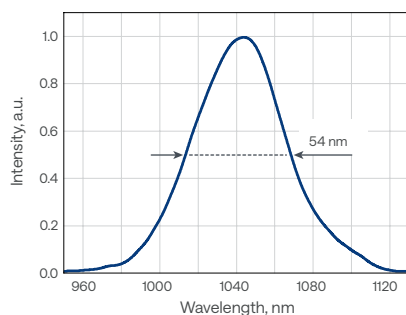
FLINT-FL1
Typical pulse duration



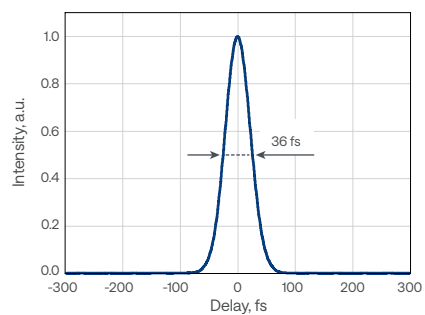
FLINT-FL1
Typical beam profile



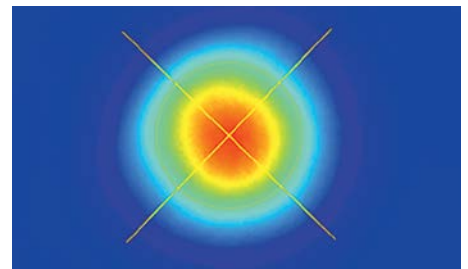
FLINT-FL2-SP
Typical spectrum



FLINT-FL2-SP
Typical pulse duration



FLINT-FL2-SP
Typical beam profile



Specifications

Model	FL1			FL2-SP			FL2		
Key feature	CEP	RRL	Compact	Short pulse			High power and high energy		
Pulse duration	< 100 fs		< 120 fs	< 50 fs			< 120 fs	< 170 fs ¹⁾	
Repetition rate	60 – 100 MHz ²⁾			11 MHz	40 MHz	76 MHz	11 MHz	40 MHz	76 MHz
Maximum output power	0.5 W	1 W	8 W	5 W			7 W	20 W	
Maximum pulse energy	6.5 nJ ³⁾	13 nJ ³⁾	105 nJ ³⁾	440 nJ	125 nJ	65 nJ	0.6 μJ	0.5 μJ	0.26 μJ
Center wavelength	1035 ± 10 nm			1035 ± 10 nm			1030 ± 10 nm		
Polarization	Linear, horizontal								
Beam quality, M ²	< 1.2			< 1.3			< 1.2		
Beam pointing stability	< 10 μrad/°C								
Pulse-to-pulse energy stability, 24 h ⁴⁾	< 0.5%								
Long-term power stability, 100 h ⁴⁾	< 0.5%								
Integrated 2H generator ⁵⁾	n/a						Optional; conversion efficiency > 30% ⁶⁾		
External 2H, 3H, or 4H generator ⁵⁾	Optional; refer to HIRO for FLINT								
Integrated attenuator	n/a			Included					

PHYSICAL DIMENSIONS

Laser head (L × W × H)	448.27 × 206 × 115.44 mm	542 × 322 × 146 mm
Power supply and chiller rack (L × W × H)	642 × 553 × 540 mm	642 × 553 × 673 mm
Chiller	Different options available. Contact sales@lightcon.com	

ENVIRONMENTAL AND UTILITY REQUIREMENTS

Operating temperature	15 – 30 °C (air conditioning recommended)	
Relative humidity	< 80% (non-condensing)	
Electrical requirements	100 V AC, 7 A – 240 V AC, 3 A; 50 – 60 Hz	100 V AC, 12 A – 240 V AC, 5 A; 50 – 60 Hz
Rated power	200 W	
Power consumption	Laser	100 W
	Chiller	600 W
		150 W
		1000 W

¹⁾ For 20 W output power, lower power models, 8 W and 12 W, available upon request.

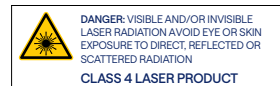
²⁾ Standard repetition rate is 76 MHz; custom repetition rate can be factory preset from the given range.

³⁾ Depends on the repetition rate. Values are given for 76 MHz.

⁴⁾ With enabled power-lock, under stable. Expressed as NRMSD (normalized root mean squared deviation).

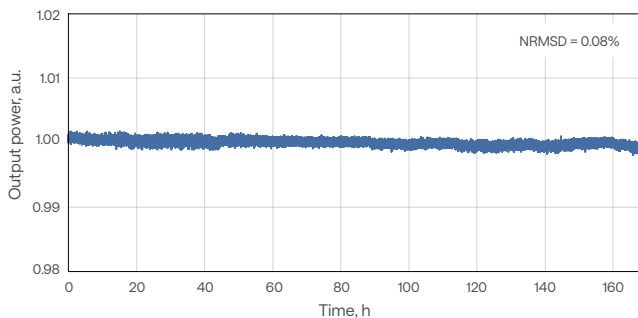
⁵⁾ For external 2H, or even 3H and 4H generation, refer to HIRO for FLINT.

⁶⁾ Conversion efficiency specified at maximum power.

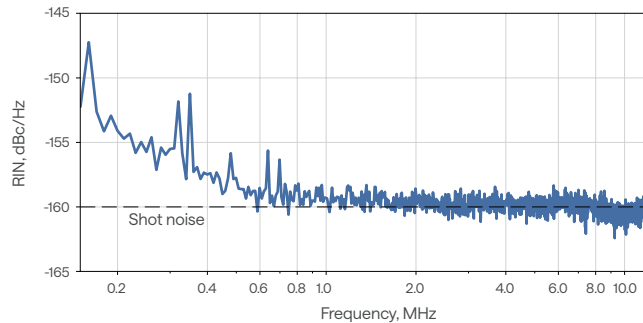


Stability

FLINT-FL2 (20W) output power stability under harsh environmental conditions over 7 days



FLINT oscillator relative intensity noise (RIN), shot-noise limited at -160 dBc/Hz above 1 MHz



Automated Second Harmonic Generator



FLINT-FL2 with integrated HG

515 nm output

Automated harmonic selection

Integrated into the system

Industrial-grade design

Specifications

Model	FL1	FL2-SP	FL2			
Available harmonic	Refer to HIRO		2H			
Pump repetition rate			11 MHz	40 MHz	76 MHz	
Maximum pump power			7 W	20 W		
Center wavelength			515 ± 10 nm			
Conversion efficiency ¹⁾			> 30%			
Polarization			Linear, horizontal			

¹⁾ Conversion efficiency specified at maximum power.

