



Femtosecond Yb Oscillators

FEATURES

- < 40 fs pulse duration
- Up to 260 nJ pulse energy
- Up to 20 W output power
- 76 MHz repetition rate
- No amplified spontaneous emission
- Industrial-grade design
- Optional automated second harmonic generator
- Optional CEP stabilization
- Optional repetition rate locking to an external source



FLINT-FL2

FLINT oscillators are based on an Yb crystal pumped by a high-brightness laser diodes. Generation of femtosecond pulses is provided by Kerr lens mode-locking. Once started, mode-locking remains stable over a long period and is immune

to minor mechanical impact. Oscillator cavity length can be adjusted using an optional piezo actuator. FLINT oscillators can also be equipped with carrier-envelope phase (CEP) stabilization and repetition rate locking to an external source.

SPECIFICATIONS

Model	FL1-02	FL1-08	FL2-12	FL2-20	FL2-SP
Maximum output power	2 W	8 W	12 W	20 W	2 W ¹⁾
Pulse duration ²⁾	< 100 fs	< 120 fs	< 120 fs	< 170 fs	30 ... 50 fs ¹⁾
Maximum pulse energy ³⁾	26 nJ	105 nJ	157 nJ	260 nJ	26 nJ ¹⁾
Repetition rate	≈ 76 MHz ⁴⁾		≈ 76 MHz		≈ 76 MHz ⁵⁾
Center wavelength	1035 ⁶⁾ ± 10 nm	1030 ± 3 nm	1029 ± 3 nm	1026 ± 2 nm	1040 ± 10 nm
Pulse-to-pulse energy stability ⁷⁾	RMS deviation ⁸⁾ < 0.5% over 24 h				
Polarization	Linear, horizontal				
Beam quality	TEM ₀₀ ; M ² < 1.2				
Beam pointing stability	< 10 μrad/°C				
Internal 2H generator	n/a		Optional; conversion efficiency > 30%		
Internal attenuator	n/a		Yes		

PHYSICAL DIMENSIONS

Laser head (L × W × H)	430 × 195 × 114 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 & 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	100 W	150 W	
Power consumption (chiller)	200 W	800 W	200 W

¹⁾ Maximum output power and pulse energy depends on the chosen pulse duration, e.g., < 50 fs – 2 W, 26 nJ, < 40 fs – 1 W, 13 nJ.

²⁾ Assuming Gaussian pulse shape.

³⁾ Depends on repetition rate. Approximate values are given for 76 MHz repetition rate.

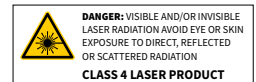
⁴⁾ Other repetition rates are available in the range from 60 to 100 MHz.

⁵⁾ Other repetition rates are available in the range from 70 to 80 MHz.

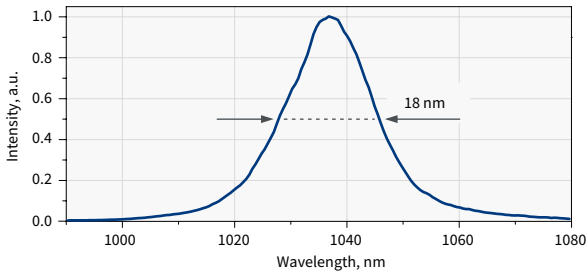
⁶⁾ Choice of a particular central wavelength with ±1 nm tolerance is available upon request.

⁷⁾ With enabled power-lock, under stable environment.

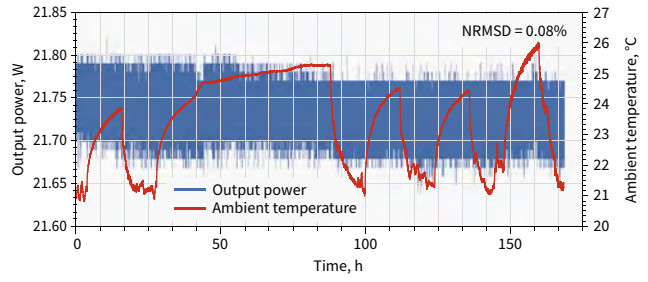
⁸⁾ Normalized to average pulse energy, NRMSD.



PERFORMANCE

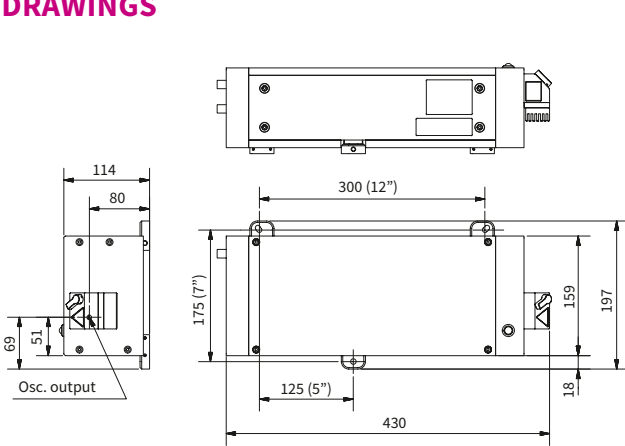


Typical FLINT optical spectrum

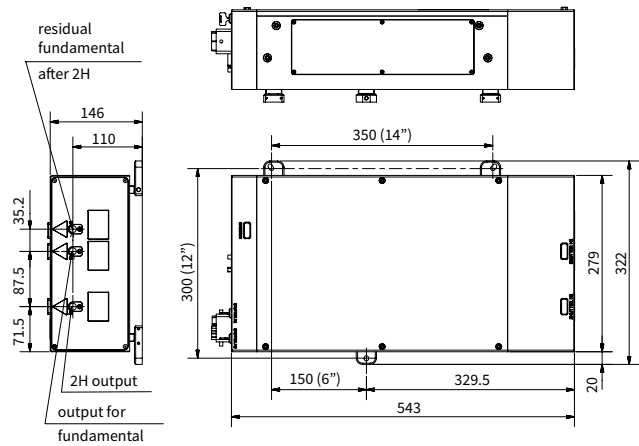


FLINT-FL2-20 (20 W) output power stability under harsh environmental conditions

DRAWINGS



FLINT-FL1 drawing



FLINT-FL2 drawing

**PHOTO
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