





### **FEATURES**

- Sub-80 fs without any additional pulse compressor
- 125 nJ pulse energy
- 10 W output power
- 76 MHz is standard
- Practically no amplified spontaneous emission
- Rugged, industrial grade mechanical design
- Automated harmonic generator (515 nm)
- Optional CEP stabilization
- Possibility to lock to external clock

The FLINT oscillator is based on Yb crystal end-pumping by high brightness laser diode module. Generation of femtosecond pulses is provided by Kerr lens mode-locking. Once started, mode-locking remains stable over a long period of time and is immune to minor mechanical impact. Piezo-actuator can be implemented in customized oscillators in order to control the cavity length. FLINT oscillator can also be equipped with Carrier Envelope Phase (CEP) stabilization system.

# **SPECIFICATIONS**

Model	FLINT 1.0	FLINT 2.0	FLINT 4.0	FLINT 6.0	FLINT 10	FLINT SP
Max. average power	> 1 W	> 2 W	> 4 W	> 6 W	> 10 W 1)	> 600 mW
Pulse duration (assuming Gaussian pulse shape)	< 80 fs		< 100 fs		< 120 fs	< 40 fs
Pulse energy	> 12 nJ	> 25 nJ	> 50 nJ	> 75 nJ	> 125 nJ	> 7 nJ
Repetition rate	$76\pm0.5\mathrm{MHz}^{2)}$					
Centre wavelength	$1035 \pm 10$ nm $^{3)}$					
Output pulse-to-pulse stability	< 0.5 % rms over 24 hours <sup>4)</sup>					
Polarization	Linear, horizontal					
Beam pointing stability	< 10 μrad/°C					
Beam quality	$TEM_{00}$ ; $M^2 < 1.2$					
Optional integrated 2H generator	Conversion efficiency > 30 % at 517 nm					
PHYSICAL DIMENSIONS						
Laser head (L $\times$ W $\times$ H)			430 × 195	× 114 mm		
Laser head with 2H (L $\times$ W $\times$ H)			442 × 270	× 114 mm		
Power supply and chiller rack (4HU, 19") (L × W × H)			640 × 520	× 420 mm		
Chiller (<100 W)			Differen	t options		
UTILITY REQUIREMENTS						
Electric		110 V	AC, 50 – 60 Hz, 2 A c	or 220 V AC, 50 – 60	Hz, 1 A	
Room temperature		15	–30°C (air condition	oning recommende	ed)	
Relative humidity			20-80 % (nor	n-condensing)		

<sup>&</sup>lt;sup>1)</sup> Higher powers are available. Please contact Light Conversion for more information.

 $<sup>^{\</sup>rm 2)}\,$  Other repetition rates are available in the range from 64 MHz to 84 MHz.

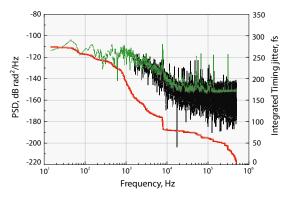
<sup>&</sup>lt;sup>3)</sup> The center wavelength can be specified with tolerance  $\pm 2$  nm for customized oscillators.

<sup>4)</sup> With enabled power-lock, under stable environment.

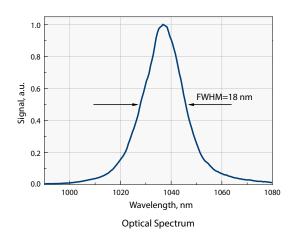


## LOCKING OF THE OPTICAL PULSE TO AN EXTERNAL SIGNAL

PHAROS oscillator can be equipped with piezo actuators for precise control of the cavity length.

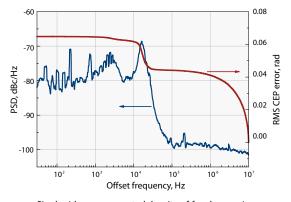


Timing jitter between oscillator pulse and external clock signal in 10~Hz - 500~kHz frequency range.



## **CARRIER ENVELOPE PHASE (CEP) STABILIZATION**

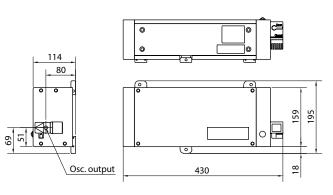
PHAROS oscillator can be equipped with nonlinear interferometer and feedback loop throughout the pump current of the laser diode bar for CEP stabilization. The figure on the right shows typical measurement of power spectrum density and integrated CEP phase error. The integrated phase error is in the frequency range from 50 Hz to 10 MHz is <70 mrad (in loop measurement).



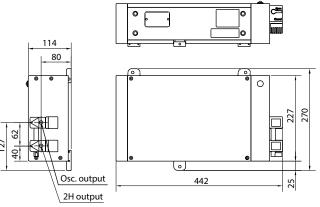
Single side power spectral density of  $f_{ceo}$  phase noise (in loop) and the integrated phase jitter.

### **OPTIONAL EQUIPMENT**

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**FLINT** dimensions



FLINT (with second harmonic generator) dimensions