

Surelite™ EX

High Energy Nd:YAG

Surelite EX is designed to be the ultimate pump source for OPOs and Ti:Sapphire systems.

With an optimized laser cavity, Surelite EX provides a uniform distribution of energy across the beam profile while minimizing hot spots and modulation. This optimal beam quality allows for maximum energy conversion in OPOs and Ti:Sapphire systems making Surelite EX the ideal choice for these applications.

To satisfy the most stringent requirements, Amplitude offers a seeded version of the Surelite EX producing smoother repeatable temporal pulse shape and much narrower linewidth for better conversion efficiency in OPOs.

The Surelite has been updated with the new Surelite Remote Harmonic operation for first and second stage harmonic automation. Controlled from a simple intuitive GUI, the option allows for hands free adjustment of the Surelite harmonics.



Applications

Industry:

- > Material sorting (recycling)
- > Weld inspection
- > Cleaning
- > LIBS

Science:

- > LIDAR
- > Thomson Scattering
- > Laser Thermal Annealing
- > Pump Source
- > LIF, PLIF, LIBS

Medical:

- > Skin Surfacing
- > Tattoo Removal
- > Pump Source
- > Medical device manufacturing

Key Features

- > RS-232 or TTL interface for remote or local operation
- > Water to air heat exchanger eliminates the need for external water cooling
- > Gaussian optics incorporated to provide low divergence and high spatial uniformity in beam
- > Graphite resonator structure ensures long-term thermal and mechanical stability
- > 213 nm option available
- > HEO for maximum 532 nm output
- > Optional motorized harmonics.



Specifications

	Surelite Seeded	Surelite unseeded
Repetition Rate (Hz)	10	
Energy (mJ)		
1064 nm	625	700
532 ¹ nm	300	375
532 HEO	425	475
355 ² nm	120/180	125/220
266 nm	70	90
Pulsewidth ³ (ns)		
1064 nm	4 - 6	
532 nm	3 - 5	
355 nm	3 - 5	
266 nm	3 - 5	
Linewidth (cm-1)	0.005	1
Divergence ⁴ (mrad)	0.5	
Beam Pointing Stability ($\pm\mu\text{rad}$)	50	
Beam Diameter (mm)	9.5	
Jitter ⁵ ($\pm\text{ns}$)	1	0.5
Energy Stability ⁶ ($\pm\%$)		
1064 nm	2.5 ; 0.8	
532 nm	3.5 ; 1.2	
355 nm	4.0 ; 1.3	
266 nm	7.0 ; 2.3	
Power Drift ⁷ ($\pm\%$)		
1064 nm	3.0	3.0
532 nm	6.0	5.0
355 nm	6.0	5.0
266 nm	8.0	8.0

¹ Using Type II doubler

² First # with Type II doubler
Second # with Type I doubler

³ FWHM full width half max

⁴ Full angle for 86% (1/e²)

⁵ With respect to external trigger

⁶ The first value represents shot-to-shot for 99.9% of pulses,
the second value represents RMS

⁷ Average for 8 hours with $\Delta T \pm 3^\circ\text{C}$

All specifications at 1064 nm unless otherwise noted.

Dimensions

Optical Head (LxWxH)	775 x 178 x 190 mm (30.5 x 7.0 x 7.5")
Power Supply (LxWxH)	622 x 282 x 508 mm (24.5" x 11.2" x 20.0")
Seeder Supply (LxWxH)	257 x 421 x 41 mm (10.1" x 16.6" x 1.6")

Weight

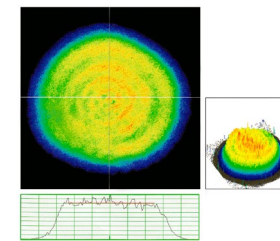
Optical Head	24 kg (52 lbs)
Power Supply	44 kg (96 lbs)
Seeder Supply	4.5 kg (10 lbs)

Water

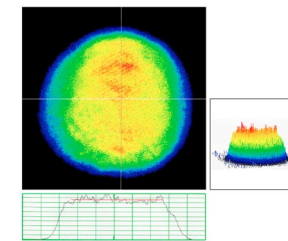
Closed loop water to air heat exchanger (1 gallon deionized water);
external cooling water not required.

Others

Electrical Service	200 - 240 VAC, single ϕ , 10 A, 50/60 Hz
Room Temperature	18 to 30° C / 65 to 87° F
Umbilical Length	3.18 m (10.4 ft)



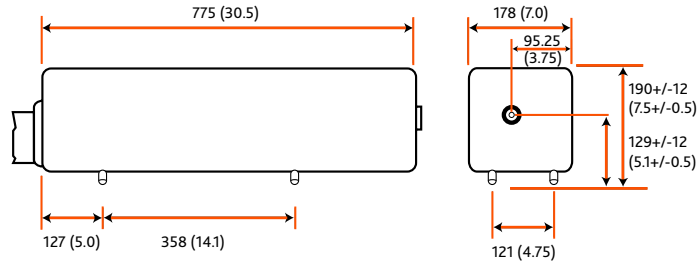
Beam Profile - Seeded Surelite EX



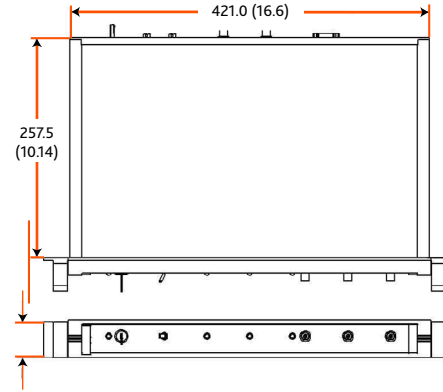
Beam Profile - Unseeded Surelite EX

Surelite EX Physical Layout

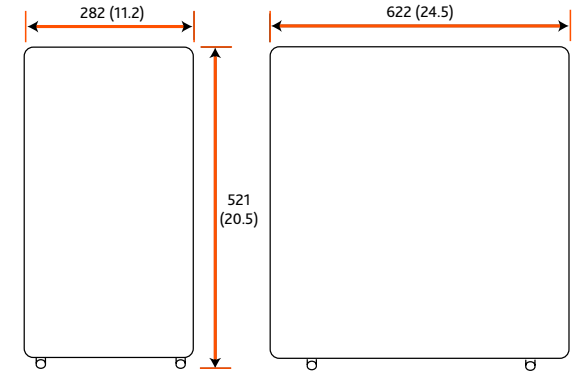
All dimensions are in mm (inches)



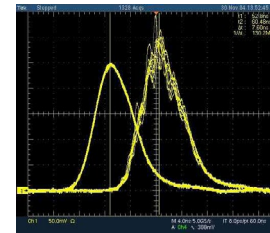
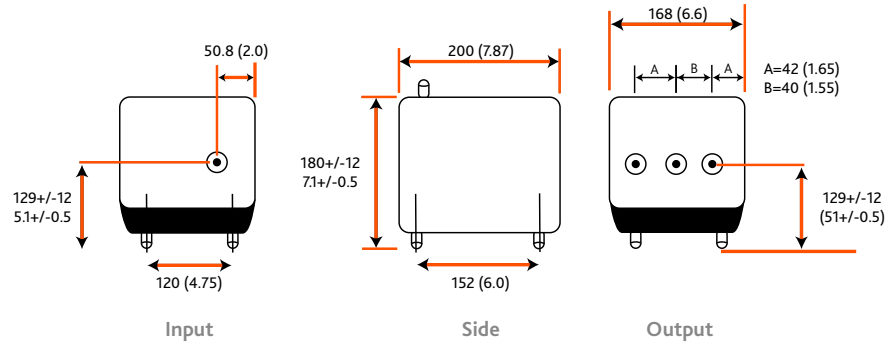
Seeder Physical Layout



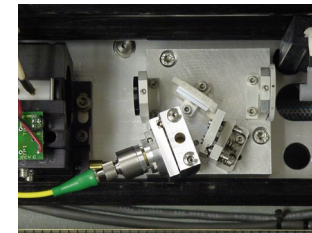
Surelite Power Supply



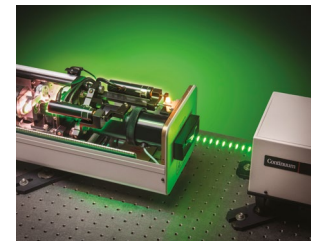
Surelite Separation Package



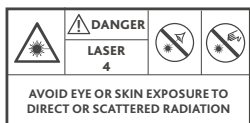
Temporal Profile - Seeded vs Unseeded



Injection Seeder Configuration



The new Surelite Remote Harmonic Operation option



AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION



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The ultimate pump source for OPOs and Ti:Sapphire systems.

