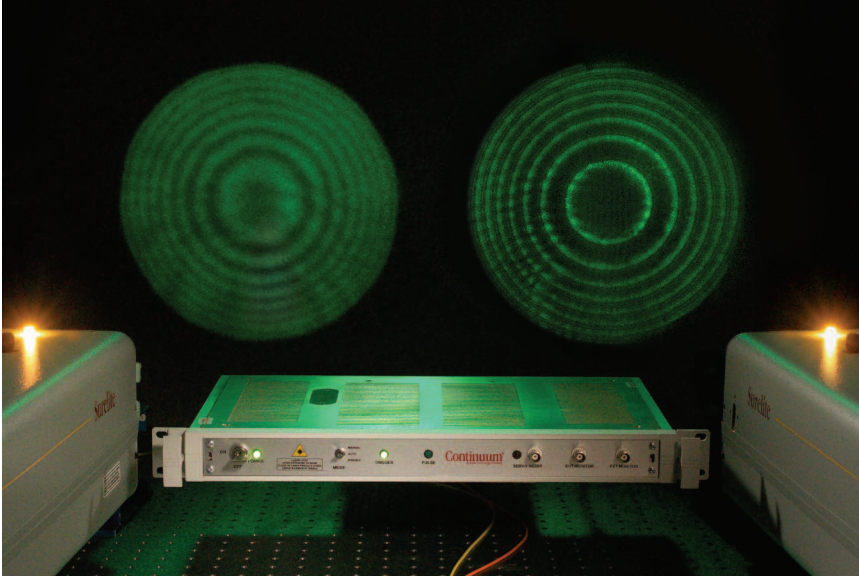
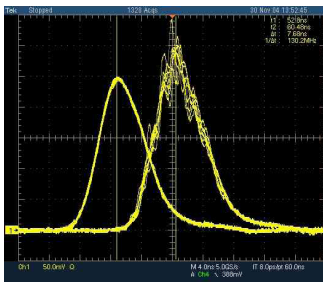


## Seeded Surelite™

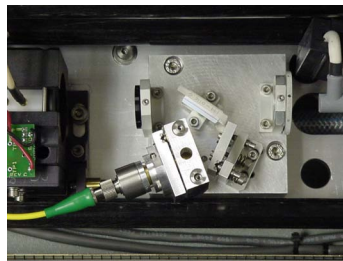


### Seeded Surelite

The injection seeder system for the Surelite Family produces ultra-narrow single longitudinal mode (SLM) outputs with a smooth temporal profile. Seeding is accomplished by injecting a seed beam from a single mode cw diode pumped fiber laser into the Surelite oscillator. Continuum pioneered the commercial introduction of this technique and holds the patent on its use with radially variable reflectivity resonator optics\*. Important applications that require narrow linewidth include pumping narrow linewidth tunable systems, holography, and Doppler LIDAR.



Temporal Profile -  
Seeded vs. Unseeded



Injection Seeder Configuration

High Energy Nd:YAG  
High Energy Nd:YAG  
High Energy Nd:YAG  
High Energy Nd:YAG

*RS-232 or TTL interface  
for remote or local operation*

*Water to air heat exchanger  
eliminates the need for  
external water cooling*

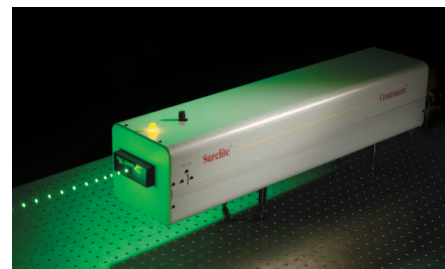
*Gaussian optics incorporated  
to provide low divergence and  
high spatial uniformity in beam*

*Graphite resonator structure  
ensures long-term thermal  
and mechanical stability*

*\*U.S. Patent # 4,918,704*

# Seeded Surelite Specifications

Description	SL I-10	SL I-20	SL II-10	SL III-10
Repetition Rate (Hz)	10	20	10	10
Energy <sup>1</sup> (mJ)				
1064 nm	360	335	520	675
532 nm	160 <sup>2</sup>	125 <sup>2</sup>	240 <sup>2</sup>	340 <sup>2</sup>
355 nm	50/80 <sup>3</sup>	48/80 <sup>3</sup>	80/125 <sup>3</sup>	130/180 <sup>3</sup>
266 nm	48	35	65	80
Pulsewidth <sup>4</sup> (nsec)				
1064 nm	5-7	5-7	5-7	4-6
532 nm	4-6	4-6	4-6	3-5
355 nm	4-6	4-6	4-6	3-5
266 nm	4-6	4-6	4-6	3-5
Linewidth (cm <sup>-1</sup> )				
Standard	1	1	1	1
Injection Seeded	0.005	0.005	0.005	0.005
Divergence <sup>5</sup> (mrad)	0.5	0.5	0.5	0.5
Beam Pointing Stability (±μrad)	30	50	30	50
Beam Diameter (mm)	6	6	7	9.5
Jitter <sup>6</sup> (±ns)	1	1	1	1
Energy Stability <sup>7</sup> (±%)				
1064 nm	2.0;0.7	2.0;0.7	2.5;0.8	2.5;0.8
532 nm	3.5;1.2	3.5;1.2	3.5;1.2	3.5;1.2
355 nm	4.0;1.3	4.0;1.3	4.0;1.3	4.0;1.3
266 nm	7.0;2.3	7.0;2.3	7.0;2.3	7.0;2.3
Power Drift <sup>8</sup> (±%)				
1064 nm	3.0	3.0	3.0	3.0
532 nm	3.0	3.0	6.0	6.0
355 nm	3.0	3.0	6.0	6.0
266 nm	6.0	6.0	8.0	8.0
Beam Spatial Profile <sup>9</sup>				
Near Field (<1M)	0.70	0.70	0.70	0.70
Far Field (∞)	0.95	0.95	0.95	0.95
Deviation from Gaussian <sup>10</sup>				
Near Field (<1M)	30	30	30	30



## Notes

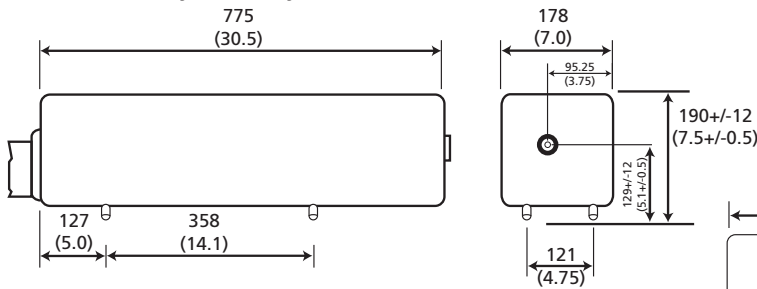
1. Energy is in seeded mode only.
2. With Type II doubler
3. High Energy UV option with Type I doubler
4. Full width, half maximum
5. Full angle for 86% of energy
6. With respect to external trigger
7. The first value represents shot-to-shot for 99.9% of pulses, the second value represents RMS.
8. Average for 8 hours with ΔT room <±3 °C
9. A least squares fit to a Gaussian profile. A perfect fit would have a coefficient of 1
10. Maximum deviation at beam center (±%)

All specifications at 1064 nm unless otherwise noted.  
As a part of our continuous improvement program, all specifications are subject to change without notice.

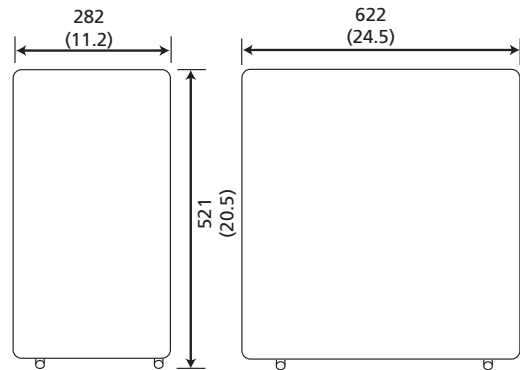
# Seeded Surelite System Requirements

Size	Optical Head (LxWxH)	775 x 178 x 190 mm (30.5 x 7.0 x 7.5")
	Optical Head, OEM version	635 x 178 x 190 mm (25" 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)
	Optical Head, OEM version	16 kg (36 lbs)
	Power Supply	44 kg (96 lbs)
	Seeder Supply	4.5 kg (10 lbs)
Water		closed loop water to air heat exchanger: external cooling water not required (1 gallon deionized water)
Electrical Service		208 - 240 VAC, single $\phi$ , 10 A
		208 V, single $\phi$ , 10 A
Room Temperature		18 to 30° C / 65 to 87° F
Umbilical Length		3.18 m (10.4 ft)

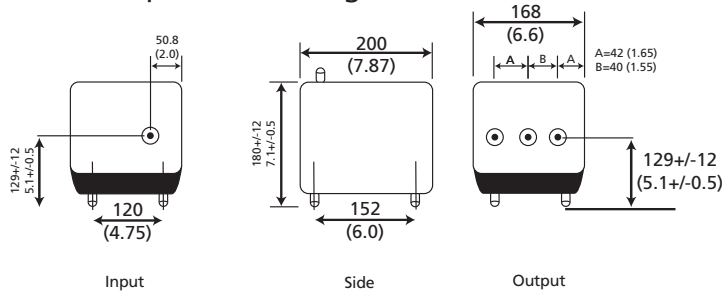
## Seeded Surelite Physical Layout All dimensions are in mm (inches)



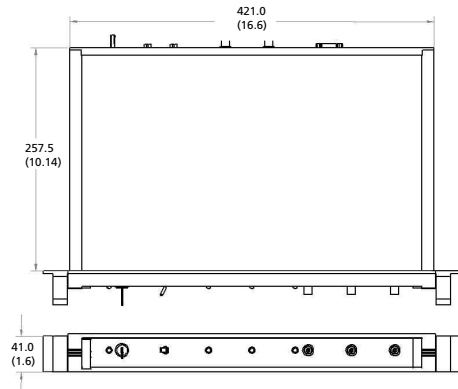
## Surelite Power Supply



## Surelite Separation Package



## Seeder Physical Layout



Continuum  
 140 Baytech Drive, San Jose, CA  
 Tel (408) 727-3240  
[www.continuumlasers.com](http://www.continuumlasers.com)

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