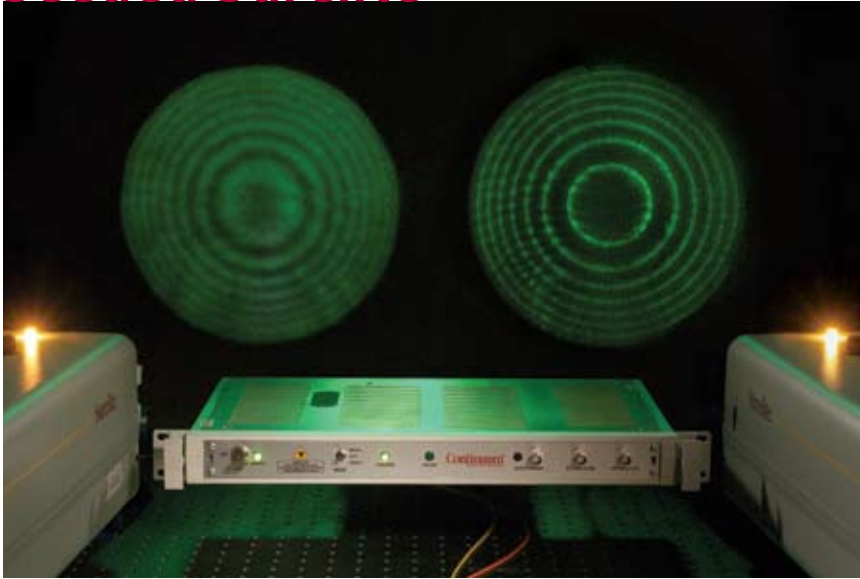
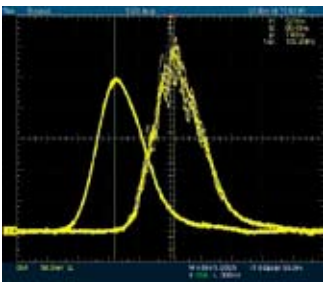


Seeded Surelite™



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



Seed Injection Optics

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*

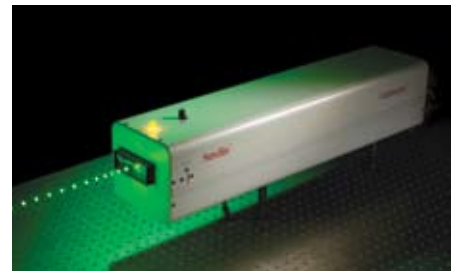
*Gaussian optics incorporated
to provide low divergence and
high spatial uniformity in beam*

*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 ¹ (mJ)				
1064 nm	360	335	520	675
532 nm	160 ²	125 ²	240 ²	340 ²
355 nm	50/80 ³	48/80 ³	80/125 ³	130/180 ³
266 nm	48	35	65	80
Pulsewidth ⁴ (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 ⁻¹)				
Standard	1	1	1	1
Injection Seeded	0.005	0.005	0.005	0.005
Divergence ⁵ (mrad)	0.5	0.5	0.5	0.5
Beam Pointing Stability (±μrad)	30	50	30	50
Rod Diameter (mm)	6	6	7	9.5
Jitter ⁶ (±ns)	1	1	1	1
Energy Stability ⁷ (±%)				
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 ⁸ (±%)				
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 ⁹				
Near Field (<1M)	0.70	0.70	0.70	0.70
Far Field (∞)	0.95	0.95	0.95	0.95
Deviation from Gaussian ¹⁰				
Near Field (<1M)	30	30	30	30
Polarization				
1064, 355, 266 nm	-----Horizontal-----			
532 nm	-----Vertical-----			



Notes

1. Energy is seeded mode only, unseeded energy may be reduced.
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 (±%)

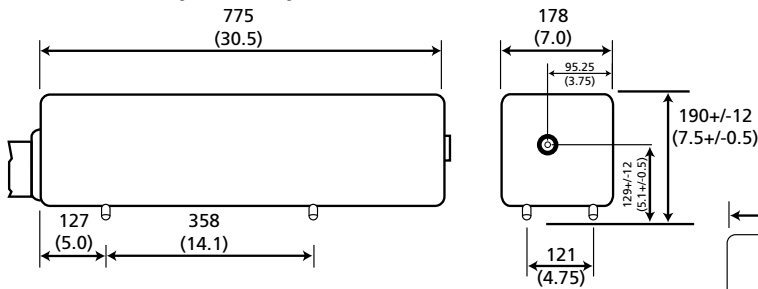
NOTE: Seeded Surelite is not available as an OPO pump option. See SL EX.

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

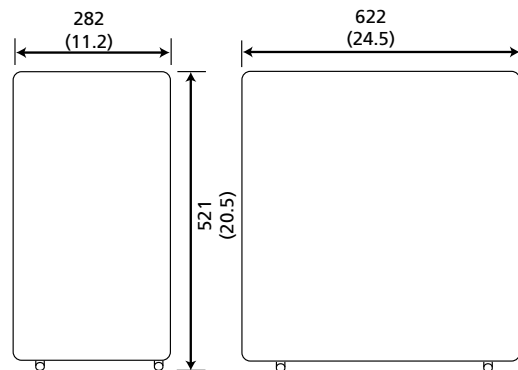
Seeded Surelite System Requirements

Size	Optical Head (LxWxH)	775 x 178 x 190 mm (30.5 x 7.0 x 7.5")
	Power Supply (LxWxH)	622 x 282 x 521 mm (24.5" x 11.2" x 20.5")
	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: external cooling water not required (1 gallon deionized water)
Electrical Service		208 - 240 VAC, single ϕ , 10 A
		208 V, single ϕ , 10 A
Room Temperature		18 to 30° C / 65 to 87° F
Umbilical Length		3.18 m (10.4 ft)

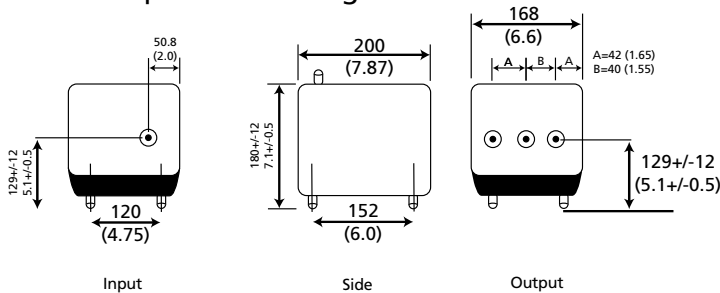
Seeded Surelite Physical Layout All dimensions are in mm (inches)



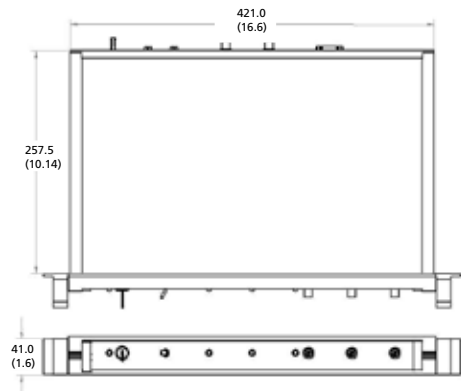
Surelite Power Supply



Surelite Separation Package



Seeder Physical Layout



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