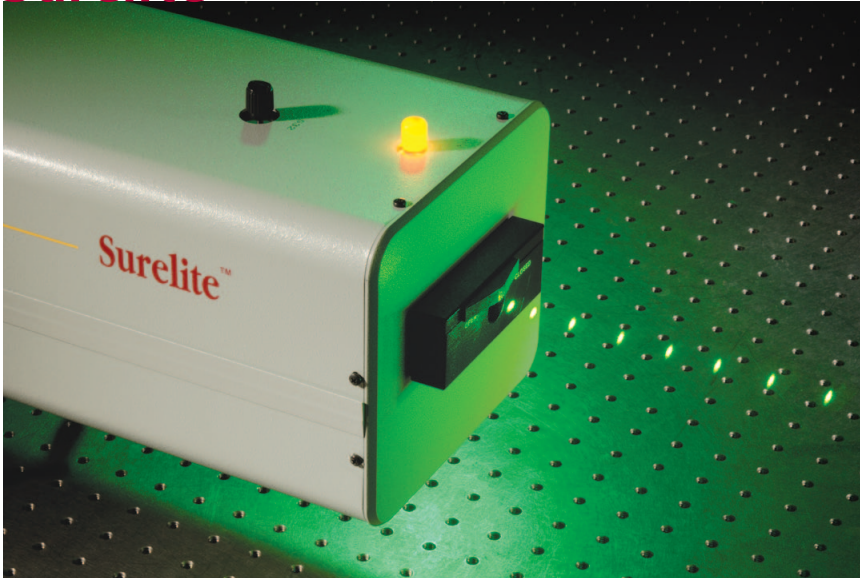


**Surelite™**



## Surelite

Surelite is the most imitated Nd:YAG laser design in the industry. Surelite lasers provide proven high performance and reliability at a very reasonable price. Over 5,000 Surelites are in operation throughout the world today in Scientific, Industrial and Medical applications. Surelites are being used for remote sensing, spectroscopic analysis, Particle Image Velocimetry (PIV), machining, marking, and biological investigations. Excellent beam quality and unsurpassed output energies make Surelite the perfect choice for pumping OPOs, dye lasers and Ti:sapphire lasers.

The Surelite I, II and III all feature a simple and efficient single rod oscillator design. The Gaussian mirror-coupled resonator is optimally mode filled for maximum energy extraction. A unique rod design, proprietary Q-switch technology and Continuum's diffuse reflector technology all contribute to the Surelite's efficiency and high performance.

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*

*213 nm option available*

# Surelite Specifications

| Description                                | SL I-10                | SL I-20             | SL I-30            | SL II-10             | SL II-20            | SL III-10            |
|--|------------------------|---------------------|--------------------|----------------------|---------------------|----------------------|
| Repetition Rate (Hz)                       | 10                     | 20                  | 30                 | 10                   | 20                  | 10                   |
| <b>Energy (mJ)</b>                         |                        |                     |                    |                      |                     |                      |
| 1064 nm                                    | 450                    | 420                 | 380                | 650                  | 550                 | 850                  |
| 532 <sup>1</sup> nm                        | 200                    | 160                 | 130                | 300                  | 250                 | 425                  |
| 355 nm                                     | 65/100 <sup>2</sup>    | 60/100 <sup>2</sup> | 25/70 <sup>2</sup> | 100/160 <sup>2</sup> | 70/120 <sup>2</sup> | 165/225 <sup>2</sup> |
| 266 nm                                     | 60                     | 45                  | 30                 | 80                   | 60                  | 100                  |
| <b>Pulsewidth<sup>3</sup> (nsec)</b>       |                        |                     |                    |                      |                     |                      |
| 1064 nm                                    | 4-7                    | 4-7                 | 4-7                | 4-7                  | 4-7                 | 4-6                  |
| 532 nm                                     | 4-6                    | 4-6                 | 4-6                | 4-6                  | 4-6                 | 3-5                  |
| 355 nm                                     | 4-6                    | 4-6                 | 4-6                | 4-6                  | 4-6                 | 3-5                  |
| 266 nm                                     | 4-6                    | 4-6                 | 4-6                | 4-6                  | 4-6                 | 3-5                  |
| <b>Linewidth (cm<sup>-1</sup>)</b>         |                        |                     |                    |                      |                     |                      |
| Standard                                   | 1                      | 1                   | 1                  | 1                    | 1                   | 1                    |
| Divergence <sup>4</sup> (mrad)             | 0.5                    | 0.5                 | 0.5                | 0.5                  | 0.5                 | 0.5                  |
| Beam Pointing Stability (±μrad)            | 30                     | 50                  | 70                 | 30                   | 50                  | 50                   |
| Beam Diameter (mm)                         | 6                      | 6                   | 6                  | 7                    | 7                   | 9.5                  |
| Jitter <sup>5</sup> (±ns)                  | 0.5                    | 0.5                 | 0.5                | 0.5                  | 0.5                 | 0.5                  |
| <b>Energy Stability<sup>6</sup> (±%)</b>   |                        |                     |                    |                      |                     |                      |
| 1064 nm                                    | 2.5;0.8                | 2.5;0.8             | 2.5;0.8            | 2.5;0.8              | 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              | 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              | 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              | 7.0;2.3             | 7.0;2.3              |
| <b>Power Drift<sup>7</sup> (±%)</b>        |                        |                     |                    |                      |                     |                      |
| 1064 nm                                    | 3.0                    | 3.0                 | 3.0                | 3.0                  | 3.0                 | 3.0                  |
| 532 nm                                     | 5.0                    | 5.0                 | 5.0                | 6.0                  | 6.0                 | 5.0                  |
| 355 nm                                     | 5.0                    | 5.0                 | 5.0                | 6.0                  | 6.0                 | 5.0                  |
| 266 nm                                     | 8.0                    | 8.0                 | 8.0                | 8.0                  | 8.0                 | 8.0                  |
| <b>Beam Spatial Profile<sup>8</sup></b>    |                        |                     |                    |                      |                     |                      |
| Near Field (<1M)                           | 0.70                   | 0.70                | 0.65               | 0.70                 | 0.65                | 0.70                 |
| Far Field (∞)                              | 0.95                   | 0.95                | 0.90               | 0.95                 | 0.90                | 0.95                 |
| <b>Deviation from Gaussian<sup>9</sup></b> |                        |                     |                    |                      |                     |                      |
| Near Field (<1M)                           | 30                     | 30                  | 35                 | 30                   | 35                  | 30                   |
| <b>Polarization</b>                        |                        |                     |                    |                      |                     |                      |
| 1064, 355, 266 nm                          | ----- Horizontal ----- |                     |                    |                      |                     |                      |
| 532 nm                                     | ----- Vertical -----   |                     |                    |                      |                     |                      |

## Notes

1. With Type II doubler
2. High Energy UV option with Type I doubler
3. Full width, half maximum
4. Full angle for 86% of energy
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  $\Delta T_{\text{room}} < \pm 3$  °C
8. A least squares fit to a Gaussian profile. A perfect fit would have a coefficient of 1
9. Maximum deviation at beam center (±%)

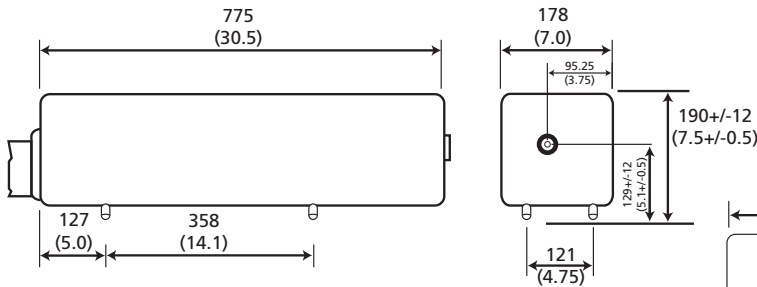
All specifications at 1064 nm unless otherwise noted.

As a part of our continuous improvement program, all specifications are subject to change without notice.

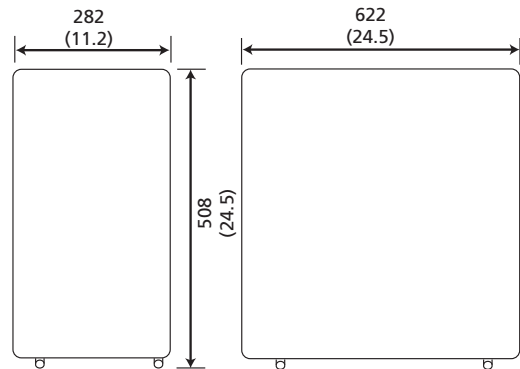
# Surelite System Requirements

|                    |                      |   |
|--------------------|----------------------|---|
| 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 508 mm (24.5" x 11.2" x 20.0")  |
| Weight             | Optical Head         | 24 kg (52 lbs)  |
|                    | Power Supply         | 44 kg (96 lbs)  |
| Water              |                      | closed loop water to air heat exchanger: external cooling water not required (1 gallon deionized water) |
| Electrical Service |                      | 200 - 240 VAC, single $\phi$ , 10 A, 50/60 Hz   |
| Room Temperature   |                      | 18 to 30° C / 65 to 87° F   |
| Umbilical Length   |                      | 3.18 m (10.4 ft)  |

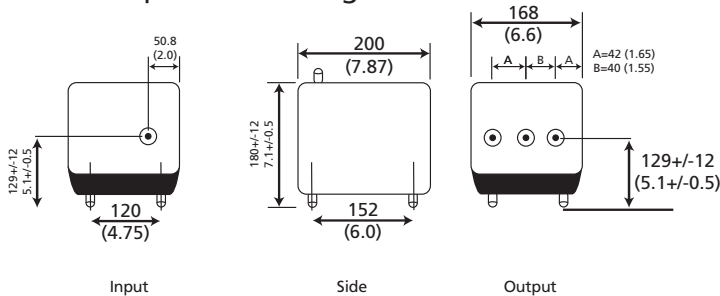
## Surelite Physical Layout All dimensions are in mm (inches)



## Surelite Power Supply



## Surelite Separation Package



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