

Surelite™ PIV

High Energy Nd:YAG

The Surelite PIV system is based on our proven Q-switch Nd:YAG technology. The system features a compact turn-key design providing 100's of mJ in each pulse at 532 nm.

The system offers excellent beam quality, long term stability and increased overall reliability. The ease of operation and safety features, as well as long lifetime, make the Amplitude PIV system an excellent choice for your dual pulse application.

Two lasers are built on a single compact platform, providing symmetrical output beam at 532 nm, that consists of two pulses with equivalent energy, beam uniformity and polarization. Temporal separation can be varied from <10 nsec to >100 µsec to measure most flow distributions.



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

Features

- > Safety Interlocks to ensure correct water flow, level, and temperature
- > No need for an external water hook-up, the system is completely self-contained
- > A built-in TTL interface for convenient external control
- > A decoupled kinematic mounted resonator structure ensures long-term thermal and mechanical stability

Specifications

	SL I PIV	SL II PIV	SL III PIV
Repetition Rate (Hz)	10/15	10	
Energy ¹ (per oscillator, mJ)			
1064 nm	450/400	650	825
532 nm	200	270	380
Pulsewidth ² (nsec)			
1064 nm	4 - 7		4 - 6
532 nm	4 - 6		3 - 5
Linewidth (cm-1)	1		
Divergence ³ (mrad)	0.5		
Beam Pointing Stability ($\pm\mu$ rad)	100		
Beam Diameter (mm)	6	7	9.5
Jitter ⁴ (\pm ns)	0.5		
Energy Stability ⁵ (\pm %)			
1064 nm	2.5;0.8		
532 nm	3.5;1.2		
Power Drift ⁶ (\pm %)			
1064 nm	3.0		
532 nm	5.0		
Beam Spatial Profile (fit to Gaussian) ⁷			
Near Field (<1M)	0.7		
Far Field (∞)	0.95		
Max. deviation from Gaussian ⁸ (\pm %)			
Near Field (<1M)	30		

¹ Higher energy option available for Surelite PIV and higher energy and/or repetition rate available with Powerlite Series.

² Full width half max

³ Full angle for 86% (1/e²) of energy

⁴ With respect to external trigger

⁵ The first value represents shot-to-shot for 99.9% of pulses, the second value represents RMS

⁶ Average for 8 hours

⁷ A least squares fit to Gaussian profile
A perfect fit would have a coefficient of 1

⁸ At beam center

All specifications at 1064 nm unless otherwise noted.

Dimensions

Optical Head (LxWxH)	996.9 x 457 x 298.4 mm (39.25 x 18 x 11.75")
Power Supply (LxWxH)	622 x 282 x 521 mm (24.5" x 11.2" x 20.5")

Weight

Optical Head	78.2 kg (172 lbs)
Power Supply (2)	44 kg (96 lbs) each of two

Water

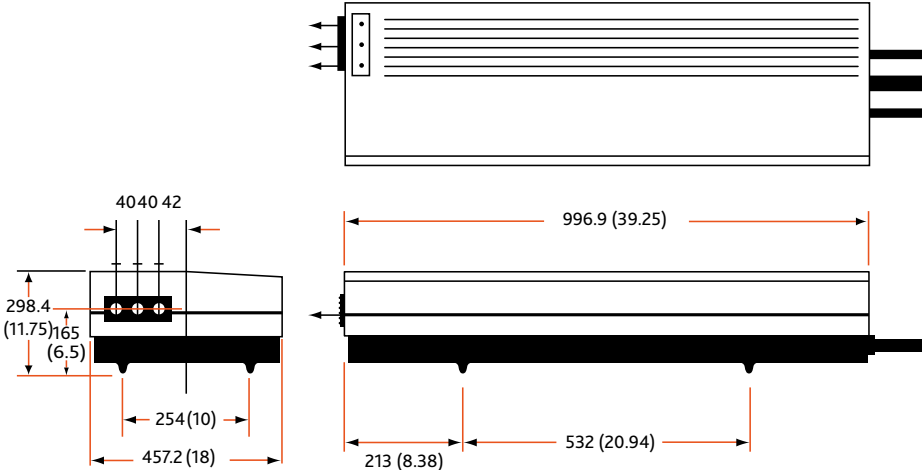
Closed loop water to air heat exchanger: external cooling water not required (10 oz. deionized water per PS)

Others

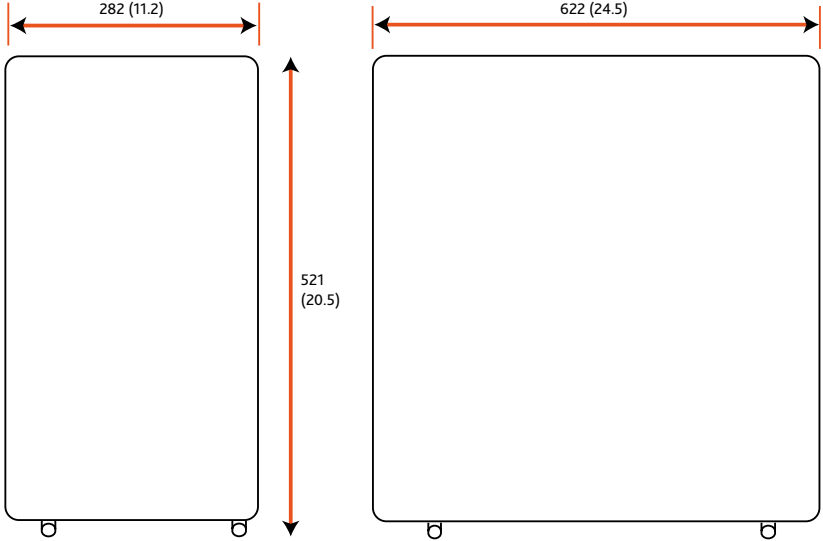
Electrical Service	200 - 240 VAC, single Φ , 10 A; 50/60 Hz for each power supply
Room Temperature	18 to 30° C / 65 to 87° F
Umbilical Length	3.18 m (10.4 ft)

Surelite PIV Physical Layout

All dimensions are in mm (inches)



Surelite PIV Power Supply (one of two)
System includes two power supplies



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Amplitude