

Powerlite™ DLS Plus

High Energy Nd:YAG

The Powerlite DLS Plus Series is an ideal solution when higher levels of green energy are required for the pumping of Ti:Sapphire laser systems.

High energy, high repetition rate Ti:Sapphire systems are using multiplexed standard lasers as the amplifier pump source. When more energy is required, more lasers are needed.

At 2 J and 2.5 J at 532 nm, the Powerlite DLS Plus Series is the industry leader in terms of energy and beam quality.

For dollars per joule, the Powerlite DLS Plus Series lasers make economic sense.



Applications

Industry:

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

Science:

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

Medical:

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

Key Features

- > Distributed intelligence power supply architecture.
- > Rack mounted and modular components for easier maintenance and service
- > New cooling group with active digital control for accurate temperature monitoring and improved thermal management
- > LabView drivers available



Specifications

	Plus	Plus 2 J	Plus 2.5 J
Repetition Rate (Hz)		10	
Energy (mj)			
1064 nm	3000	-	-
532 ¹ nm	1500	2000	2500
355 ² nm	800	NA	NA
266 nm	160	NA	NA
Pulsewidth ³ (ns)			
1064 nm	6-9	-	-
532 nm	5-8	5-8	6-8
355 nm	4-7	NA	NA
266 nm	4-6	NA	NA
Linewidth ⁴ (cm-1)			
Standard		1	
Injection Seeded, SLM		0.003	
Divergence ⁵ (mrad)		0.45	
Beam Pointing Stability ⁶ (±μrad)		30	
Beam Diameter (mm)		12	
Jitter ⁷ (±ns)			
Unseeded		0.5	
Seeded		1.0	
Energy Stability ⁸ (±%)			
1064 nm	2.5;0.8	-	-
532 nm	3.0;1.0	3.0;1.0	
355 nm	4.0;1.3	NA	
266 nm	8.0;2.6	NA	
Power Drift ⁹ (±%)			
1064 nm	3.0	-	-
532 nm	6.0	6.0	
355 nm	6.0	NA	
266 nm	8.0	NA	

¹ Using Type II doubler

² Using Type I doubler

³ FWHM full width half max

⁴ FWHM (1cm⁻¹ = 30 GHz)

⁵ Full angle for 86% (1/e²)

⁶ 99.9% shots will be <±30 μrad with ΔT_{room} <±3°C

⁷ With respect to external trigger

⁸ The first value represents shot-to-shot for 99.9% of pulses,

the second value represents RMS

⁹ Average for 8 hours with ΔT±3°C

All specifications at 1064 nm unless otherwise noted.

Dimensions

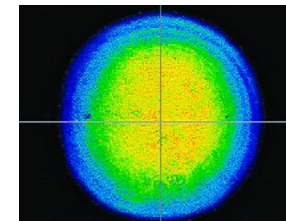
Optical Head (L x W x H)	1189.2 x 457.2 x 298.4 mm (46.82" x 18" x 11.75")
Power Supply (L x W x H)	714.5 x 621 x 679.4 mm (28.13" x 24.46" x 26.75")

Water

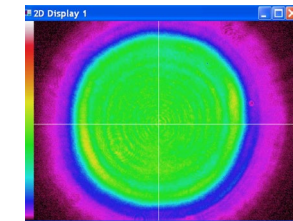
Service	1-2 GPM (gallons/minute) at 10 - 40 PSI pressure drop
Temperature	<22° C / 70° F (higher flow rate for higher temperature)

Others

Electrical Service	200 - 240 VAC, single Φ, 50/60 Hz
Room Temperature	18 to 30° C / 65 to 87° F
Umbilical Length	5 m (16.4 ft)



Powerlite DLS Plus 2J Beam Quality - 2J at 532 nm



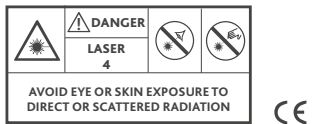
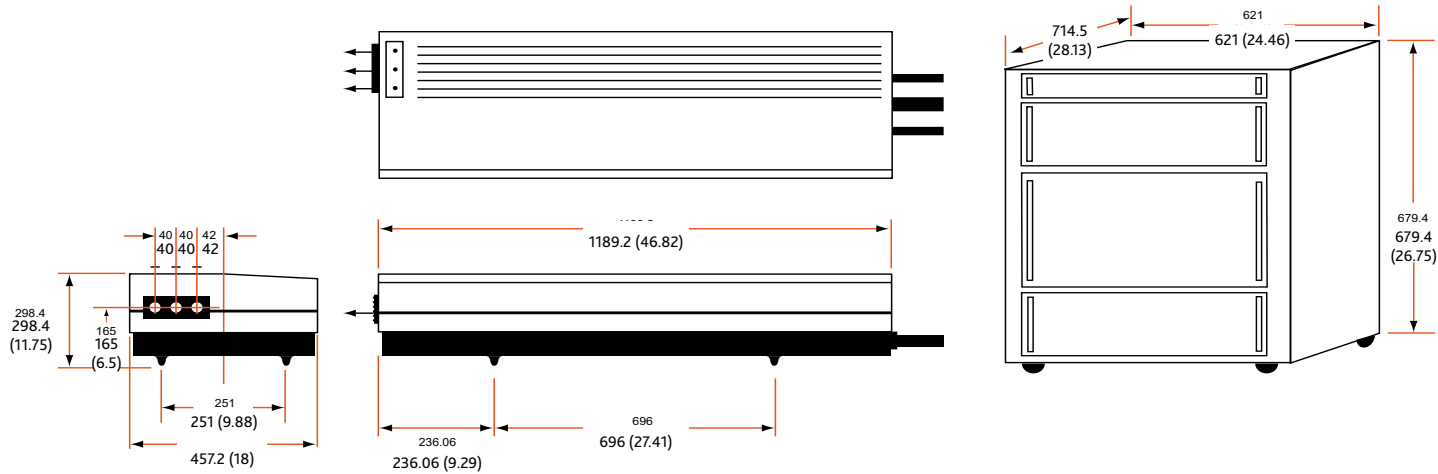
Powerlite DLS Plus 2.5 J Beam Quality - 2.5 J at 532 nm

Specifications

	Plus	Plus 2 J	Plus 2.5 J
Beam Spatial Profile (Fit to Gaussian) ¹⁰ Horizontal Near Field (<1m) Far Field (∞)		0.7 0.95	
Max Deviation from fitted Gaussian ¹¹ ($\pm\%$) Near Field (<1m)		40	
Service Requirements 208-240 VAC, single Φ Water GPM at 10-40 PSI	21A 1-2		30A 1-2
Polarization 1064 nm 532 nm 355 nm 266 nm		Horizontal Vertical Horizontal Horizontal	

¹⁰ A least squares fit to a Gaussian profile. A perfect fit would have a coefficient of 1.
¹¹ Within FWHM points near field at 1 meter.

Powerlite DLS Plus Physical Layout



Powerlite™ DLS Plus

Energy Through Efficiency



Amplitude