



Polaris 300

INDUSTRIAL Q-SWITCHED DPSS LASER



Polaris-300 laser head with on-board Thermal Management System

The Polaris-300 is an air-cooled 100Hz diode pumped Nd:YAG laser with four-wavelength output capability.

Polaris-300 extends ESI/NWR's portfolio of FPD repair lasers with a targeted OEM product specifically designed to meet the needs for emerging LCD manufacturing technologies. Polaris-300 also enables applications for medical device manufacturing, laser ablation, laser annealing and high energy spectroscopy.

Polaris-300 requires no water cooling and comes integrated with a cleanroom compatible fan. It offers industry-leading energy stability and beam uniformity with its proprietary diode-pumped laser architecture. The laser can be configured in multiple wavelengths for optimal flexibility.

2010 NWR/ESI document No. PL300 Rev 4. All specifications are subject to change.

Features

- Compact DPSS laser head.
- Quad-lite and Tri-lite (1064, 532, 355 and 266 nm) configurations available with user-selectable wavelengths.
- Flat-top superGaussian beam in all 4 wavelengths.
- Selectable repetition rates from single shot to 100 Hz.
- 100% air-cooled operation.
- Built-in motorized optical attenuator.
- Automatic Power Stabilization (APS) for excellent energy stability.
- Industry-leading diode lifetime and reliability.
- External triggering option for dynamic variation of repetition rate.
- Rack-mountable power supply with RS232 serial port.
- "Smart" laser head design allows interchangeability for any head and power supply units.
- Standard 5 m Umbilical (Gantry) Cable.

Benefits

- 3rd and 4th harmonics for advanced production techniques.
- Precision cutting.
- Fast throughput.
- Easy to maintain and operate.
- Ease of use, rapid integration.
- Low cost of ownership.
- Low maintenance.
- Functional umbilical length with long extensions available for gantry use.
- More power, greater flexibility.





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Laser Specifications ¹

Repetition Rate (Hz)	Single shot -100	
Energy ² (mJ)	1064 nm	≥ 15.0
	532 nm	≥ 10.0
	355 nm	≥ 3.0
	266 nm	≥ 2.0
Energy Stability ³ (%)	1064 nm	≤ 6%
	532 nm	≤ 6%
	355 nm	≤ 10%
	266 nm	≤ 10%
Pulse Width ⁴ (ns)	< 12ns	
Beam Pointing (μrad)	< 250	
Divergence (mrad)	< 9	
Polarization directions from IR to UV ⁵	HHVV	
Polarization Ratio	> 100:1	
Warm up time	< 15 min	

Notes:

1. Specification listed is for a Quad-lite or Tri-lite configuration with user-selectable wavelengths. Beam blended Tri-lite output (1064/532/355 nm or 1064/532/266 nm) is also available
2. Energy per pulse measured at 100 Hz operation
3. Energy Stability is expressed as 100% of shots, peak-to-peak, 2000 shots continuous
4. Pulse width (FWHM) @ 1064 nm
5. H for Horizontal, V for Vertical, other options available.

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VISIBLE AND INVISIBLE
LASER RADIATION. AVOID
DIRECT OR SCATTERED RADIATION.
Wavelength 1064 nm / 150 mJ / 7 ns
Wavelength 532 nm / 100 mJ / 6 ns
Wavelength 355 nm / 50 mJ / 5 ns
Wavelength 266 nm / 30 mJ / 5 ns
CLASS 4 LASER PRODUCT

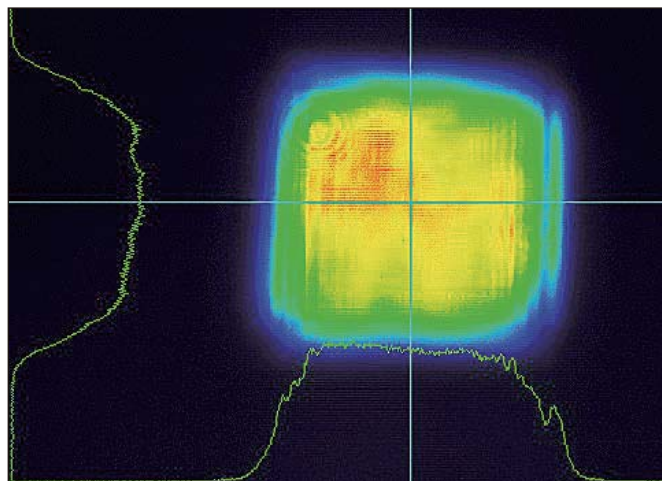
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Beam Profile in 1064nm



- Flat-top beam for larger usable portion.
- Higher small-area energy density.
- Beam size and profiles consistent across wavelengths

Physical Characteristics

	Laser Head	Power Supply
Depth	14.25" (362 mm)	18" (457mm)
Width	5.50" (140 mm)	19" (483 mm)
Height	6.33" (161 mm)	3.5" (89 mm)
Weight	23.1 lbs. (10.5 kg)	13 lbs. (5.9 kg)

Operating Requirements

Temperature	20 to 250° C (68 to 770° F)
Relative Humidity	20 to 80% non-condensing
Voltage	100—120/240 VAC (laser), 50/60 Hz
Power Consumption	< 300 watts

