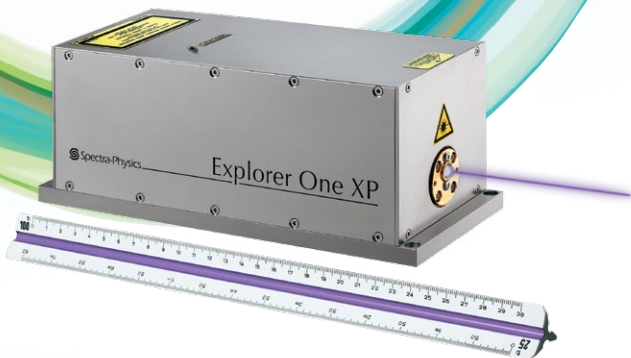


Explorer® One™ XP

532 nm AND 355 nm DPSS LASERS

The Explorer One XP Advantage

- Exceeding 2 W at 355 nm and 5 W at 532 nm
- Unique It's in the Box™ design – at least 7x smaller than any competitive product
- Lightweight – only 3 kg; air-cooled design
- Short pulse width and high peak power – ideal for marking applications
- Gaussian beam with typical $M^2 < 1.1$
- Outstanding pulse energy stability of $< 3\%$
- Single pulse energy measurements up to 500 kHz



The Spectra-Physics Explorer® One™ XP - available at both 532 nm and 355 nm - is the world's first compact all-in-one laser that combines the laser head and power supply into a single package that fits into the palm of your hand. With the industry's smallest footprint, light 3 kg weight, air-cooled design and rugged construction, the Explorer One XP laser is simple to integrate into machine tools and is ideal for use on a moving gantry.

The Explorer One XP laser models are available in the UV at 355 nm and in the green at 532 nm. The Explorer One XP 355 delivers an average power of 2 W at 80 kHz and the Explorer One XP 532 provides an average power of more than 5 W at 80 kHz.

The Explorer One XP laser delivers exceptional performance including short pulse width for minimum heat affected zone, unmatched pulse-to-pulse stability and superior beam quality. It operates across a wide repetition rate range from single shot up to 500 kHz. With its short laser resonator cavity, Explorer One XP lasers produce high peak powers that in some materials can outperform higher average power lasers. The superior mode quality ($M^2 < 1.1$ typical) over the full repetition-rate range leads to improved spatial resolution and larger depth-of-focus. The Spectra-Physics patented intra-cavity design enables efficient conversion to the green and UV, resulting in the highest pulse-to-pulse stability for consistent processing and higher yields.

Based on the proven Explorer architecture, the Explorer One XP laser is rugged and highly reliable for demanding 24/7 applications. All optical components are soldered in place to ensure exceptional ruggedness and durability in harsh operating environments. No solder flux is used, thereby minimizing organic contaminants that can degrade laser performance. Explorer One XP lasers are tested to endure bare product shock and vibration with accelerations of up to 100 g's.

For ease of use, the Explorer One XP series is equipped with the E-Pulse™ feature, offering constant pulse energy which is ideal for applications with varying repetition rates. Additionally, the system can be operated using TTL and analog control signals. Real-time pulse energy values are available on the integrated Analog Port. For applications that rely on the synchronization of multiple lasers, the Explorer One XP offers a dedicated port to operate multiple lasers synchronously or with precisely separated laser pulses.

With its tiny footprint, ease of integration, exceptional performance, rugged and reliable construction and versatile features, the Explorer One XP lasers are the ultimate, air-cooled DPSS solution.

Applications

532 nm Applications

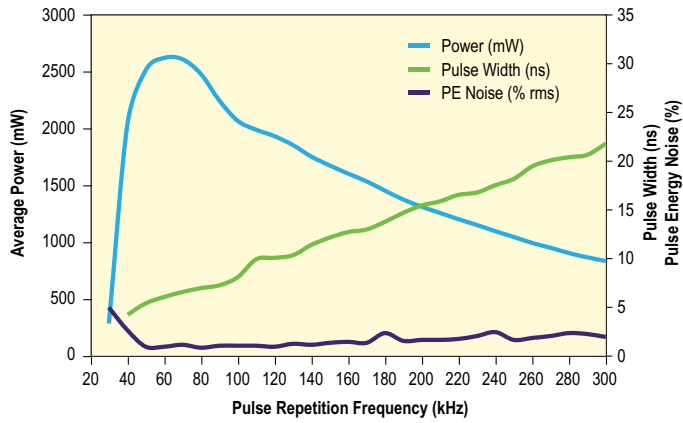
- Thin film photovoltaic manufacturing
- Marking - Stainless steel and other metals, HDPE, semiconductor wafers and LED chips
- Resistor trimming
- Micromachining

355 nm Applications

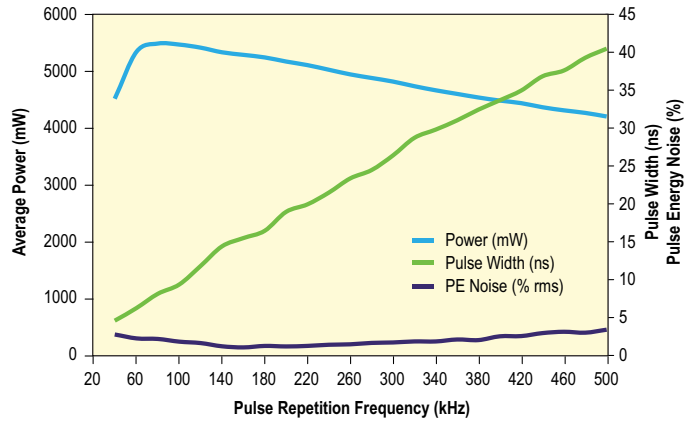
- Stereolithography
- Marking - Opaque and translucent plastics, medical packaging, glass and inside glass
- ITO/TCO patterning
- Thin film solid state battery processing
- PCB drilling and structuring
- Micromachining

Explorer[®] One[™] XP

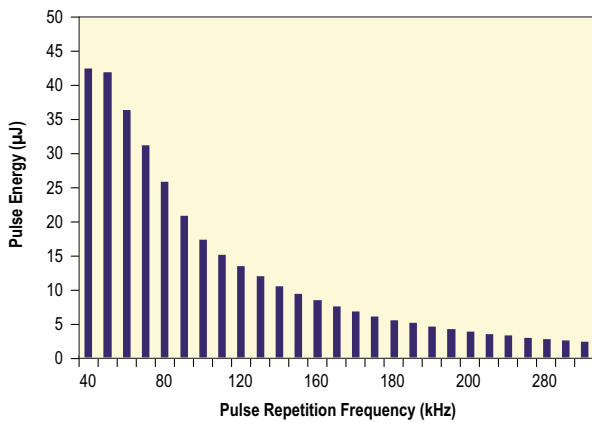
Explorer One XP 355-2 Typical Performance¹



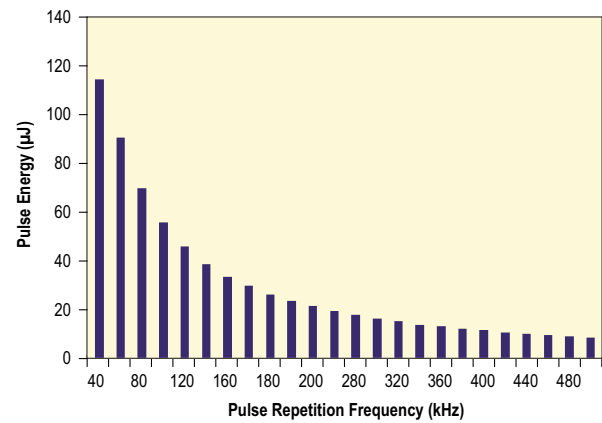
Explorer One XP 532-5 Typical Performance¹



Explorer One XP 355-2 Typical Pulse Energy¹



Explorer One XP 532-5 Typical Pulse Energy¹



1. Typically measured performance; not a guaranteed or warranted specification.

Explorer[®] One[™] XP

Specifications^{5, 7}

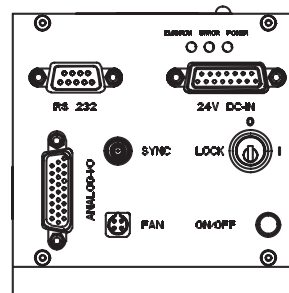
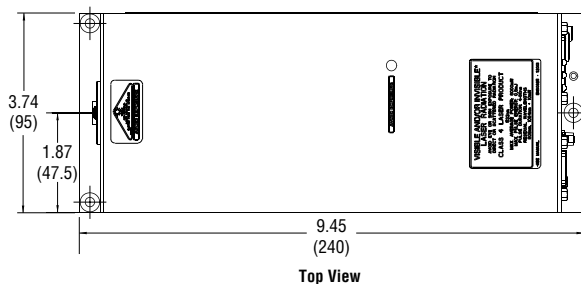
	Explorer One XP 532-5	Explorer One XP 355-2
Output Characteristics		
Wavelength	532 nm	355
Gain Medium	Nd:YVO ₄	Nd:YVO ₄
Pulse Energy	63 μJ @ 80 kHz	25 μJ @ 80 kHz
Output Power	5 W @ 80 kHz	2 W @ 80 kHz
Pulse Width (FWHM) ²	<12 ns @ 80 kHz	<10 ns @ 80 kHz
Pulse Energy Noise (rms) ²		<3%
Long Term Stability (rms)		<±2%
Repetition Rate Range	Single shot to 500 kHz ³	Single shot to 300 kHz ³
Beam Ellipticity ²		1 ±0.1
Beam Characteristics²		
Spatial Mode		M ² <1.3, TEM ₀₀
Beam Diameter, at waist (1/e ²)	0.18 mm ±0.027 mm	0.155 ±0.035 mm
Beam Divergence, full angle (1/e ²)	3.9 ±0.8 mrad	3.1 ±0.7 mrad
Operating Conditions		
Warm-up Time (cold start to >95% full power)		<10 min
Polarization Ratio	>100:1 (horizontal)	>100:1 (vertical)
Operating Voltage		24 VDC ±2 V
Maximum Inrush Current		<9 A
Maximum Power Consumption		<150 W
Typical Power Consumption		<100 W
Laser Head Thermal Heat Dissipation		<150 W
Operating Temperature		
Laser Head ⁴	18–40°C (relative humidity <80%; dew point <20°C)	
Storage Temperature Range	-20 to 60°C (<90% relative humidity, non-condensing)	
Physical Characteristics		
Dimensions	9.45 x 3.74 x 3.7 in (240 x 95 x 94 mm)	
Beam Height	35 mm	34.1 mm
Weight	6.84 lb (3.1 kg)	
Static Alignment Tolerance		
Beam Position	<±0.3 mm	
Beam Angle	<±1 mrad	

1. Due to our continuous product improvement program, specifications may change without notice.
2. Specified at nominal power/energy and repetition rate (see power/energy specifications).
3. Range from single shot to 20 kHz accessible with E-Pulse feature only when triggered internally.
4. Housing temperature at base.

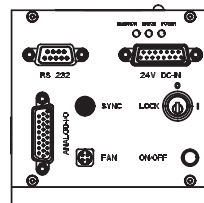
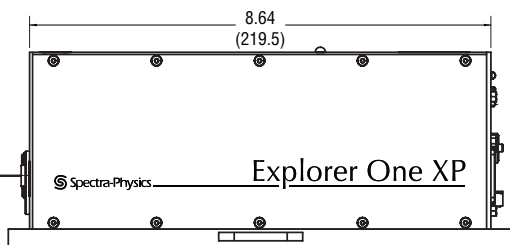
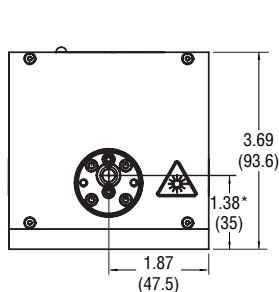
Explorer® One™ XP

Explorer One XP Dimensions

Back Panel Interface



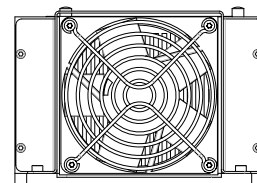
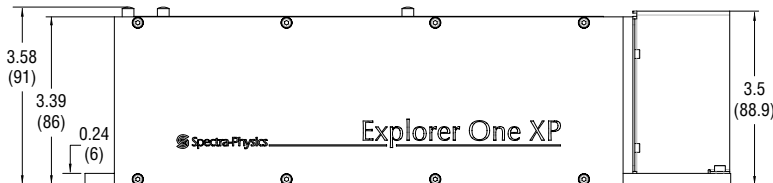
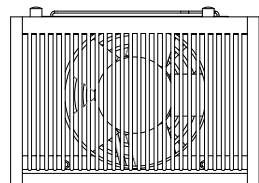
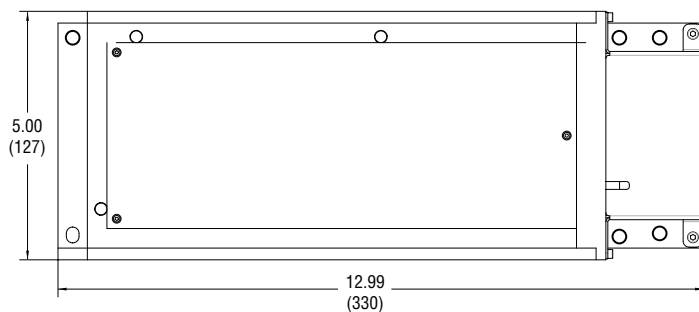
Laser Interface 24 VDC
Input On/Off Switch
Key Switch
Status LEDs
Serial Interface
Analog Interface
Fan Connector
Synchronization Input



Dimensions in inch (mm)

* Beam height varies for different models. Please see specifications.

Explorer One XP With Optional Heatsink



Dimensions in inch (mm)



www.spectra-physics.com

3635 Peterson Way, Santa Clara, CA 95054, USA
PHONE: 1-800-775-5273 1-408-980-4300 FAX: 1-408-980-6921 EMAIL: sales@spectra-physics.com

Belgium	+32-(0)800-11 257	belgium@newport.com	Korea	+82-31-8069-2401	korea@spectra-physics.com
China	+86-10-6267-0065	info@spectra-physics.com.cn	Netherlands	+31-(0)30 6592111	netherlands@newport.com
France	+33-(0)1-60-91-68-68	france@newport.com	Singapore	+65-6664-0040	sales.sg@newport.com
Germany / Austria / Switzerland	+49-(0)6151-708-0	germany@newport.com	Taiwan	+886 -(0)2-2508-4977	sales@newport.com.tw
Japan	+81-3-3794-5511	spectra-physics@splasers.co.jp	United Kingdom	+44-1235-432-710	uk@newport.com