

# Quasi-Continuous Wave (CW) UV Laser

Xcyte<sup>®</sup> Series



The Lumentum Xcyte series lasers offer the advantages of diode-pumped solid-state lasers in quasi-CW 355nm air-cooled format. The Xcyte series lasers provide near diffraction-limited beam profile, excellent stability, long lifetime and low amplitude noise in a compact, low cost of ownership (COO) package. These qualities make the Xcyte laser the ideal replacement for bulky and inefficient HeCd and argon lasers in varied applications such as flow cytometry, microstereolithography and semiconductor wafer inspection.

All Xcyte series lasers feature the rugged and efficient DCP "engine" platform and passive mode-locking based on a proven, robust Saturable Bragg Reflector (SBR). Passive mode locking with an SBR requires only a single semiconductor device that functions as one cavity mirror, making this technique simpler and more robust than other passive mode locking approaches. Directly coupling the pump light to the crystal means fewer optical surfaces between the diode and the lasing crystal, resulting in lower losses and enhanced efficiency. The high internal reflection of the side-pumped geometry ensures uniform pumping and gain for high mode quality. The high Pulse Repetition Frequency (PRF) of the Xcyte laser series (100 MHz) is sufficiently fast that it is seen as effectively CW in low bandwidth systems (i.e., systems with long response times).

Xcyte lasers provide industrial reliability for applications ranging from biomedical to rapid prototyping.

#### **Key Features**

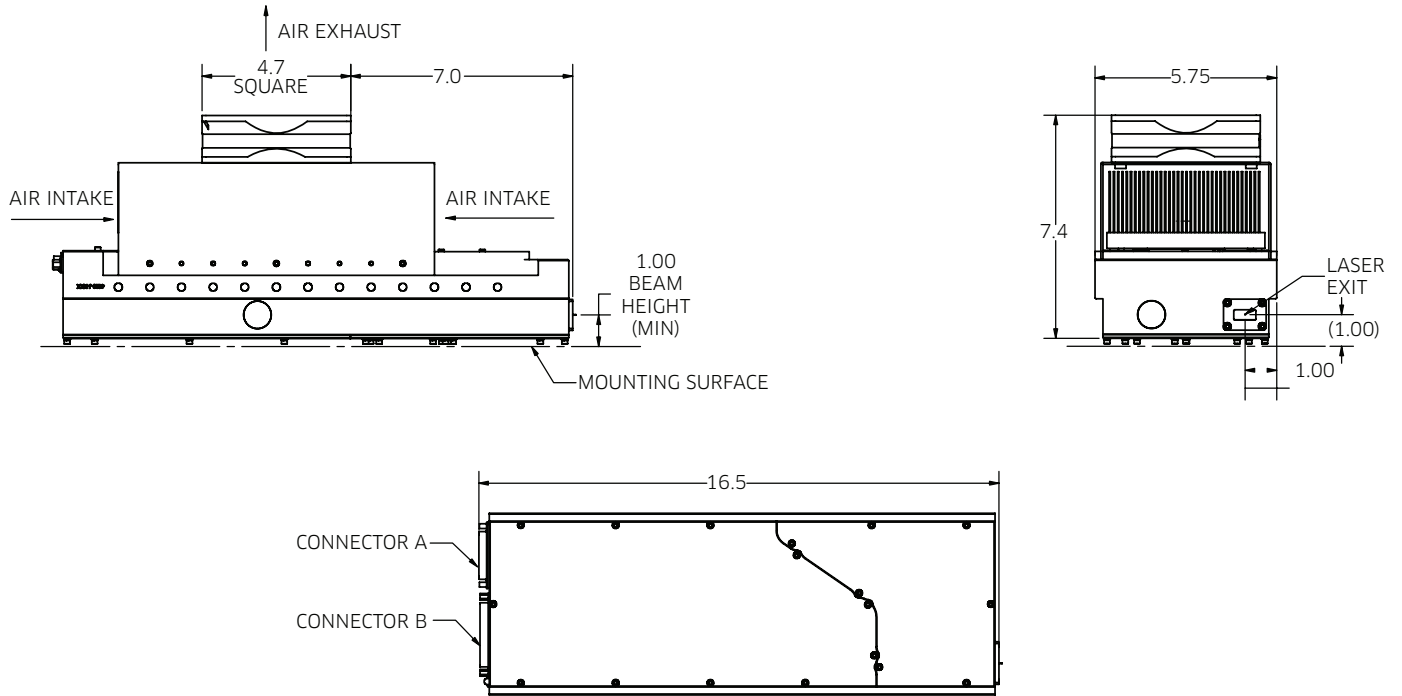
- 355 nm outputs available
- Quasi-CW UV output
- Field-proven Direct-Coupled Pump (DCP®)
- TEM00 mode quality
- Light-regulated output power level
- RS232-controllable
- Solid-state design
- Rugged industrial platform
- Compact

#### **Applications**

- Flow cytometry
- Microstereolithography
- Semiconductor wafer inspection

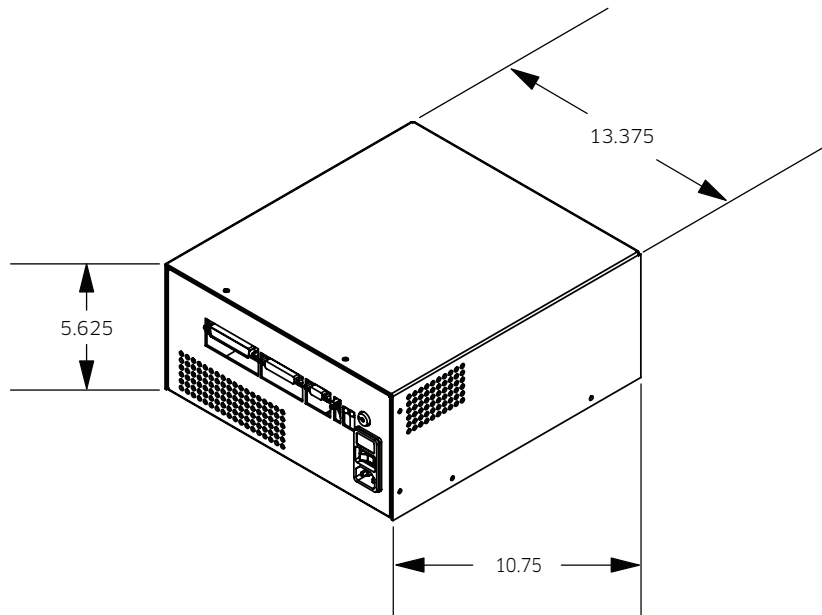
### Xcyte Laser Head

(Specifications in inches unless otherwise noted.)



### Power Supply

(Specifications in inches unless otherwise noted.)



### Laser Head Specifications<sup>1</sup>

Parameter	CY-SM20-M1	CY-SM60	CY-SM100	CY-SM150
Wavelength	355 nm			
Spectral purity	>99%			
Repetition rate (nominal)	100 MHz			
Pulse width, IR	>10 ps			
Average output power <sup>2</sup> (nominal)	20 mW	60 mW	100 mW	150 mW
Power stability, over 8 hours <sup>3</sup>	< ±1%			
Amplitude noise, 10 Hz to 1 MHz <sup>4</sup>	<1% rms			
Waist diameter <sup>5</sup> (nominal)	0.9 mm			
Waist asymmetry	<15%			
Pointing stability <sup>6</sup>	<20 μrad/°C			
Beam quality	M <sup>2</sup> <1.2 (3σ)			
Beam pointing, relative to bezel normal	<±8 mrad			
Polarization	>100:1, horizontal			
Warm-up time				
From cold start	<30 minutes			
From standby	<15 minutes			
Dimension (W x H x L)	5.75 x 7.4 x 16.5 inches (14.5 x 18.7 x 41.9 cm)			
Weight	24 lbs (10.88 kg)			

1. Specification level includes manufacturing variability and measurement uncertainty. Unless otherwise noted, specifications are given at the 3σ level.
2. Averaged over 1 minute; measured after >1 hour run time from start. Power level is fixed. Assumes steady-state temperature within the operating ambient temperature range. Does not include lifetime variability due to possible characteristic photomonitor drift.
3. Averaged over 10 seconds with 1 second sample interval; measured after >1 hour run time from start. Assumes steady-state temperature within the operating ambient temperature range.
4. rms value, 3σ does not apply.
5. Refers to the radial beam parameters.
6. Measure after >1 hour run time from start. Measured value is peak to peak excursion divided by total temperature excursion of operating temperature range, for temperature rate of change <1°C/minute.

### Power Supply Specifications

Parameter	Specification
User interface	On-off switch RS-232 CDRH interlock
Weight	15 lbs (6.8 kg)
Dimension (W x H x L)	10.75 x 5.625 x 13.375 inches (27.3 x 14.3 x 34.0 cm)
<b>Input and Ambient</b>	
Input power, voltage	100 to 240 V AC
Input power, frequency	50 to 60 Hz
Input power, maximum	750 W
Operating ambient temperature	15 to 35°C
Relative humidity, non-condensing	10 to 90%

### Ordering Information

For more information on this or other products and their availability, please contact your local Lumentum account manager or Lumentum directly at [customer.service@lumentum.com](mailto:customer.service@lumentum.com).

Product Code	Description
CY-SM20-M1	20 mW laser head, power supply, umbilicals, cables
CY-SM60	60 mW laser head, power supply, umbilicals, cables
CY-SM100	100 mW laser head, power supply, umbilicals, cables
CY-SM150	150 mW laser head, power supply, umbilicals, cables

### Compliance with Regulatory Requirements

Xcyte 20/60/100 mW lasers are Class IIIb lasers as defined by the Federal Register 21 CFR 1040.10 Laser Safety Standard. The Standard requires that certain performance features and laser safety labels be provided on the product. EMC Declaration of Conformity. UL Mark.



Xcyte Class IIIb



### Warranty

Lumentum Xcyte products are warranted to be free of defects in material and workmanship for twelve months from the date of shipment.

### Patent Information

The products described in this data sheet are based on Lumentum Intellectual Property which includes more than 1,800 United States and foreign registered patents. These patents are relevant to an extensive set of products and/or technology applications including Lumentum's laser products and associated technologies. For further information contact the Lumentum Legal Department.

Xcyte 150mW lasers are Class IV lasers as defined by the Federal Register 21 CFR 1040.10 Laser Safety Standard. The Standard requires that certain performance features and laser safety labels be provided on the product. EMC Declaration of Conformity. UL Mark.



Xcyte Class IV



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