

Quasi-Continuous Wave (CW) UV Laser

Xcyte Series



- 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

The JDS Uniphase 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). 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. 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. 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).

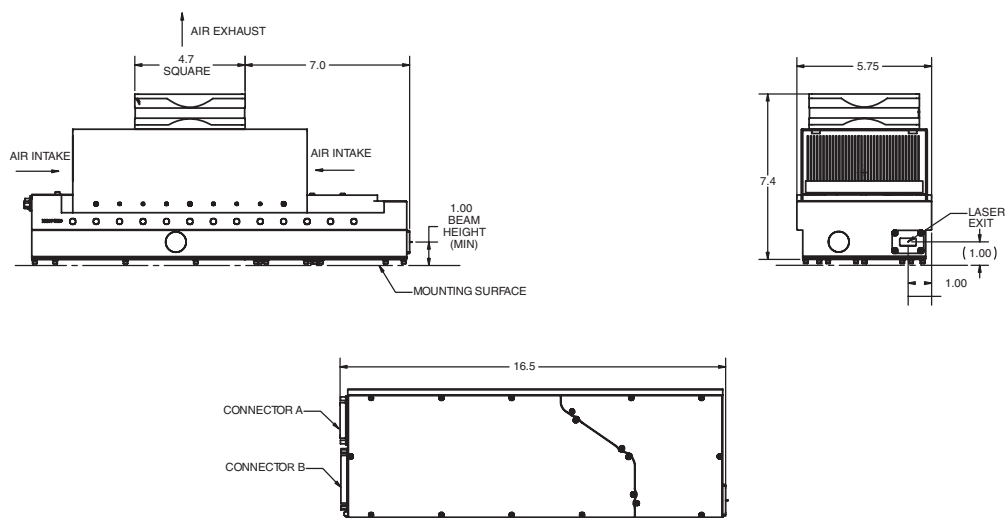
The Xcyte lasers are operating in systems with high reliability in industrial environments ranging from biomedical to rapid prototyping.



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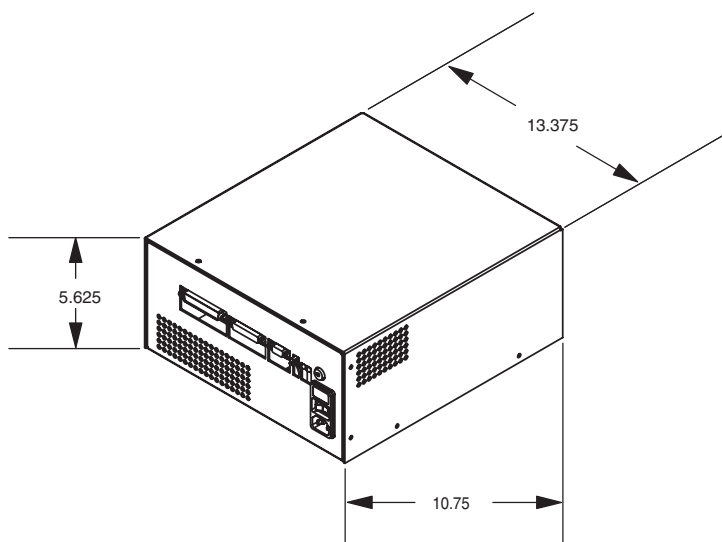
Xcyte Laser Head

(Specifications in inches unless otherwise noted.)



Power Supply

(Specifications in inches unless otherwise noted.)





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Laser Head Specifications ¹

Parameter	CY-SM20	CY-SM60	CY-SM100	CY-SM150
Wavelength	355 nm			
Spectral purity	>99%			
Repetition rate	100±10 MHz			
Pulse width, IR	>10 ps			
Average output power ²				
Initial ³	20±2 mW	60±6 mW	100±10 mW	150±15 mW
Lifetime	20±4 mW	60±12 mW	100±20 mW	150±30 mW
Power stability, over 8 hours ⁴	< ±1%			
Amplitude noise, 10 Hz to 1 MHz ⁵	<1% rms			
Waist diameter ⁶	0.9±0.2 mm			
Waist asymmetry	<15%			
Pointing stability ⁷	<20 µrad/°C			
Beam quality	$M^2 < 1.2 (3\sigma)$			
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, laser operational variability, and measurement uncertainty. Unless otherwise noted, specifications are given at the 3 σ 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.
3. Applies to the first 500 hours of operation.
4. 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.
5. rms value, 3 σ does not apply.
6. Refers to the radial beam parameters.
7. 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. Applies to 20/60/100 mW only.



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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)

Input and Ambient

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 JDS Uniphase account manager or JDS Uniphase directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide or via e-mail at sales@jdsu.com.

Sample: CY-SM20-M1

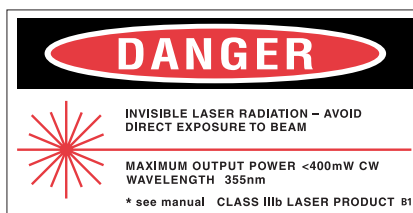
Product Code	Description
CY-SM20-M1	20 mW laser head, power supply, umbilicals, cables
CY-SM60	60 mW laser head, power supply, umbilicals, cables
CY-SM100	100 mW laser head, power supply, umbilicals, cables
CY-SM150	150 mW laser head, power supply, umbilicals, cables



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Compliance with Regulatory Requirements

The 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.



Warranty

JDS Uniphase diode-pumped Xcyte series laser systems are warranted to be free of defects in materials and workmanship for thirteen months from the date of shipment.

Patent Information

The Xcyte laser systems are manufactured under several US patents including 4455657, 4578793, 4731787, 4734912, 4739507, 4749842, 4752931, 4764933, 4797896, 4809291, 4827485, 4829532, 4909612, 4947402, 4998255, 5027361, 5076678, 5103487, 5130995, 5226051, 5237584, 5299222, 5329539, 5420878, 5546222, 5615043, 5640405, 5757831, 5768302, 5774488, 5787102, 5850407, 5867324, 5982790, 6009110. Additional patents pending.

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