

- Ultra-compact
- High Reliability
- High Stability
- High Efficiency
- CW & Pulsed
- UV Visible IR
- TEM₀₀ & SLM
- Low Noise
- Fast Warm-up
- Mass Production
- Low Cost
- Turnkey Systems

ULTRA-COMPACT DIODE-PUMPED CRYSTAL LASER MANUFACTURER

CrystaLaser, founded in 1995, is a leading manufacturer of ultra-compact diode-pumped solid-state (DPSS) laser systems and accessories. Located in Reno, Nevada, with more than 7500 sq. ft. of manufacturing space, **CrystaLaser** designs and produces pulsed and continuous wave (CW) DPSS lasers in ultraviolet, visible and near infrared wavelengths for scientists, engineers and original equipment manufacturers around the world.

GROUND-BREAKING TECHNOLOGY AND INNOVATION

The diode-pumped crystal lasers including Nd:YAG, Nd:YVO₄, Nd:YLF and Yb:YAG lasers are based on our proprietary coupled-cavity laser technology. This globally-patented technology allows our blue, green, yellow, red and infrared lasers to operate in a single longitudinal mode (SLM) and TEM₀₀ mode with low amplitude noise and increased laser output in an ultra-compact housing with very low power consumption.

CrystaLaser's diode-pumped solid-state lasers are highly reliable, highly stable, extremely efficient and have excellent laser beam quality. We take great pride in the performance of our laser systems. It is no wonder that diode-pumped crystal lasers are rapidly replacing gas lasers and other lasers in a broad range of applications, including data storage, holography, printing, fluorescence, seed lasers, interferometers, optical communication, biomedical diagnostics, flow cytometry, DNA sequencing, laser trapping, materials processing, laser entertainment and optical alignment as well as scientific research. CrystaLaser is committed to supplying the most reliable, most stable, most efficient and best performing ultra-compact solid-state crystal lasers to our customers. CrystaLaser has the technology, the experience, the products and the people to help you succeed.

CrystaLaser offers true CW lasers, quasi-CW lasers and Q-switched pulsed lasers in wavelengths ranging from ultraviolet, blue, green, yellow, red to infrared with output powers from 1 mW to over 3 W. In addition to the lasers listed below with wide wavelength selection, higher power or customized laser system can be developed and provided to meet each customer's specific requirements.

CW LASERS

Wavelength (nm)	375	405	430	442	473	490	523	527	532	542	555	561	593	638	657	660
Maximum Output (mW)	8	150	15	45	200	10	300	300	500	200	200	200	100	30	200	200
Wavelength (nm)	671	690	785	808	946	980	1030	1047	1053	1064	1122	1313	1319	1342	1444	1555
Maximum Output (mW)	200	30	1000	5000	500	1000	200	2000	2000	3000	1000	1000	1000	1000	500	1000

Q-SWITCHED LASERS

Wavelength (nm)	262	263	266	349	351	355	440	447	473	523	527	532	555	561	657	660
Max Average Power (mW)	50	50	50	150	150	150	50	50	50	1000	1000	1000	500	500	500	500
Wavelength (nm)	671	750 - 980		946	1047	1053	1064	1122	1313	1319	1338	1342	1444			
Max Average Power (mW)	500	100		500	1500	1500	2000	500	1000	1000	1000	1000	500			

WARRANTY

All CW lasers are warranted to be free of defects in materials and workmanship for 12 months from the date of shipment.

Q-switched lasers are warranted to be free of defects in materials and workmanship for 6 months from the date of shipment.

Extended up to 4-year warranty program option available.

All specifications are subject to change without notice due to our continuous product improvement.

For updated specifications and more information, please browse our web site

<http://www.crystalaser.com>

E-mail: sales@crystalaser.com

Please fill out [Information Request Form](#) on the web site to request further detail information



CW Green Lasers

GENERAL SPECIFICATIONS

Wavelengths	532 nm		
Laser version	Single longitudinal mode version	Low noise version	M version
Available output power (mW)	300, 250, 200, 150, 100, 50, 25, 10, 5	500, 400, 300, 200, 150, 100	75, 50, 25, 10, 5
Longitudinal mode	Single	Several	Several
Output noise, rms	< 0.5% (10 Hz - 20 MHz)	< 0.5% (10 Hz - 20 MHz)	2% (0 - 10 kHz), 20% at 300 kHz
Linewidth	< 10 ⁻⁵ nm	0.2 nm	0.2 nm
Coherence length	> 100 m	1 - 4 mm	1 - 4 mm
Frequency drift, at constant temp.	100 MHz over one hour		
Transverse mode	TEM ₀₀ , M ² < 1.1		
Beam diameter (1/e ²)	0.36 mm (2X, 3X, 5X or 10X laser beam expander options available)		
Beam divergence, full angle	2 mrad (can be reduced by beam expander)		
Beam pointing stability	< 0.02 mrad at constant temperature		
Polarization	Linear; Polarization ratio 50:1; > 100:1 option available		
Output power stability, rms	1% over 2 hours; Ultra-stable option, 0.5% or 0.25% over 24 hours		

CW Green Yellow Lasers

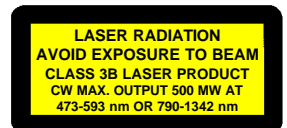
GENERAL SPECIFICATIONS

Wavelengths	561 nm, 523 nm, 527 nm, 542 nm, 555 nm, 593 nm	
Laser version	Single longitudinal mode version	M version
Available output power (mW)	100, 75, 50, 25, 10, 5	200, 150, 100, 75, 40, 25, 10, 5
Longitudinal mode	Single	Several
Output noise, rms	< 0.5% (10 Hz - 20 MHz)	2% (10 Hz - 10 kHz), ~20% (100 kHz to 1 MHz)
Linewidth	< 10 ⁻⁵ nm	0.2 nm, nominal
Coherence length	> 100 m	1- 4 mm
Transverse mode	TEM ₀₀ , M ² < 1.1	
Beam diameter (1/e ²)	0.36 mm (2X, 3X, 5X or 10X laser beam expander options available)	
Beam divergence, full angle	2 mrad (can be reduced by beam expander)	
Beam pointing stability	< 0.02 mrad at constant temperature	
Polarization	Linear; Polarization ratio 50:1; > 100:1 option available	
Output power stability, rms	2% over 2 hours; Ultra-stable option, 0.5% or 0.25% over 24 hours	

CW Blue Lasers

GENERAL SPECIFICATIONS

Wavelengths	473 nm	
Laser version	Single longitudinal mode version	M version
Available output power (mW)	25, 15, 10, 5, 2	200, 150, 100, 75, 50, 35, 25, 15, 10, 5, 2
Longitudinal mode	Single	Several
Output noise, rms	1% (10 Hz - 20 MHz)	2% (10 Hz - 10 kHz)
Linewidth	< 10 ⁻⁵ nm	0.1 nm
Coherence length	> 100 m	1 - 5 mm
Transverse mode	TEM ₀₀ , M ² < 1.2	
Beam diameter (1/e ²)	0.36 mm (2X, 3X, 5X or 10X laser beam expander options available)	
Beam divergence, full angle	2 mrad (can be reduced by beam expander)	
Beam pointing stability	< 0.02 mrad at constant temperature	
Polarization	Linear; Polarization ratio 50:1; > 100:1 option available	
Output power stability, rms	2% over 2 hours; Ultra-stable option, 0.5% or 0.25% over 24 hours	



CW Infrared Lasers

GENERAL SPECIFICATIONS

Wavelengths	1064 nm		1053 nm		1047 nm		1313 nm		1319 / 946 nm		1342 nm	
L: Low noise S: SLM	L	S	L	S	L	S	L	S	L	S	L	S
Maximum CW output power (mW)	3000	1000	2000	300	2000	300	1000	150	1000	150	1500	200
Available output power	3 W, 2.5 W, 2 W, 1.5 W, 1 W, 700 mW, 500 mW, 300 mW, 100 mW, 50 mW, 10 mW etc.											
Beam diameter (1/e ²)	0.45 mm (beam expander option available)						0.5 mm (beam expander option available)					
Beam divergence, full angle	3.6 mrad (can be reduced by beam expander)						4.2 mrad (can be reduced by beam expander)					
Plane of polarization	Horizontal		Vertical		Horizontal		Vertical		Vertical		Horizontal	
Polarization ratio	> 100:1											
Transverse mode	TEM ₀₀ , M ² < 1.1											
Wavefront distortion	< λ/10											
Beam pointing stability	< 0.02 mrad at constant temperature											
Output noise (rms, 10 Hz - 1 MHz)	< 0.5%											
Output power stability, rms	< 1% over 2 hours, < 2% over 24 hours; Ultra-stable option 0.5% or 0.25% over 24 hours											
Longitudinal mode	S version: single longitudinal mode						L version: multiple longitudinal modes					
Linewidth	< 10 ⁻⁵ nm, instantaneous linewidth 10 kHz						0.3 nm, nominal; Option < 0.1 nm or < 1 cm ⁻¹					
Coherence length	> 300 m						1 - 5 mm					

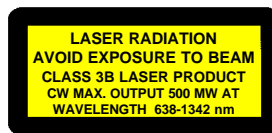
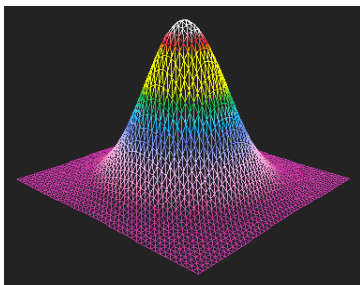
CW Red Lasers

GENERAL SPECIFICATIONS

Wavelengths	657 nm, 660 nm, 671 nm	
Laser version	Single longitudinal mode version	M version
Available output power	250 mW, 200 mW, 150 mW, 100 mW	400 mW, 300 mW, 200 mW, 150 mW, 100 mW
Longitudinal mode	Single	Several
Output noise, rms	< 0.5% (10 Hz - 20 MHz)	2% (10 Hz - 10 kHz)
Linewidth	< 10 ⁻⁵ nm, coherence length > 100 m	< 0.15 nm, nominal
Transverse mode	TEM ₀₀ , M ² < 1.1	
Beam diameter (1/e ²)	0.36 mm (2X, 3X, 5X or 10X laser beam expander options available)	
Beam divergence, full angle	2 mrad (can be reduced by beam expander)	
Beam pointing stability	< 0.02 mrad at constant temperature	
Polarization	Linear; Polarization ratio 50:1; > 100:1 option available	
Output power stability, rms	2% over 2 hours; Ultra-stable option 0.5% or 0.25% over 24 hours	

DPSS CW LASERS MECHANICAL, ELECTRICAL AND ENVIRONMENTAL SPECIFICATIONS

Size and weight of laser head	LxWxH, 12x3x3 cm ³ with a fixed 6 mm thick base plate, 0.3 kg; High power lasers: 18.5x7x3.6 cm ³ , 0.5 kg
Size and weight of power supply	DxWxH, AC: 14x15x5 cm ³ (5"x6"x2"), 0.6 kg (1.4 lb); DC: 12.7x8.5x3.5 cm ³ (5"x3.3"x1.4"), 0.2 kg (0.5 lb)
Operating temperature	5 °C to 35 °C
Warm-up time	< 1 minute
Operating voltage	90 - 250 VAC or 9 - 25 VDC option
Power consumption	10 - 25 W, typically 12 W
Expected life-time	> 10,000 hours



Compact Red Lasers

GENERAL SPECIFICATIONS

Wavelengths (+/- 3 nm)	638 nm	658 nm	690 nm	785 nm	808 nm
Maximum CW output power	30 mW	100 mW	30 mW	80 mW	120 mW
Transverse mode	TEM ₀₀ , M ² < 1.2				
Beam diameter (1/e ²)	1 mm, nominal				
Beam divergence, full angle	1 mrad, nominal				
Output power stability, rms	1% over 24 hours				
Beam point stability	0.02 mrad at constant temperature				
Polarization	Linear; Polarization ratio >100:1				
Noise (rms, 10 Hz - 20 MHz)	< 0.5%				
Longitudinal mode	Several longitudinal modes; Single longitudinal mode version with > 5 m coherence length option available				
Warm-up time	30 seconds				
Operation temperature	10 °C to 40 °C				
Operation voltage	90 - 250 VAC or 12 VDC option; Typical power consumption 6 W				
Dimensions of laser head*	L x W x H, 12 x 3 x 3 cm ³ (4.7" x 1.2" x 1.2") with a fixed 6 mm thick base plate				
Dimensions of power supply	D x W x H, AC: 14 x 15 x 5 cm ³ (5.5" x 6" x 2"); DC: 12.7 x 8.5 x 3.5 cm ³ (5" x 3.3" x 1.4")				

Intermediate powers available from 1 mW to 120 mW. Smaller size laser head and power supply available for quantity orders.

Other beam divergences and beam size, e.g., 2.5 mm beam size with 0.4 mrad beam divergence, are available on request.

*New DC version laser has a **built-in power supply** inside the laser head which keeps the same dimensions of 3 x 3 x 12 cm as the above.

Compact Violet-Blue Lasers

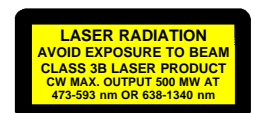
GENERAL SPECIFICATIONS

Wavelengths (+/- 5 nm)	405 nm (max. 180 mW), 442 nm (max. 45 mW), and 375 nm (max. 8 mW)
CW output power	50 mW, 40 mW, 25 mW, 20 mW, 15 mW, 10 mW, 5 mW
Polarization	Vertical polarization; Polarization ratio >100:1
Transverse mode	TEM ₀₀ , M ² < 1.2
Beam diameter (1/e ²)	1.1 mm, nominal
Beam divergence, full angle	0.5 mrad, nominal
Output power stability, rms	1% over 24 hours
Beam point stability	0.02 mrad at constant temperature
Noise (rms, 10 Hz - 20 MHz)	< 0.5%
Longitudinal mode	Several longitudinal modes; Single longitudinal mode version with > 5 m coherence length option available
Warm-up time	30 seconds
Operation temperature	10 °C to 40 °C
Operation voltage	90 - 250 VAC or 12 VDC option; Typical power consumption 6 W
Dimensions of laser head*	L x W x H, 12 x 3 x 3 cm ³ (4.7" x 1.2" x 1.2") with a fixed 6 mm thick base plate
Dimensions of power supply	D x W x H, AC: 14 x 15 x 5 cm ³ (5.5" x 6" x 2"); DC: 12.7 x 8.5 x 3.5 cm ³ (5" x 3.3" x 1.4")

*New DC version laser has a **built-in power supply** inside the laser head which keeps the same dimensions of 3 x 3 x 12 cm as the above.

Model No.	Samples			
S version	L version	M version	Average output power	Wavelength
BCL-010-473-S		BCL-010-473	10 mW	473 nm
GCL-050-561-S		GCL-050-561	50 mW	561 nm
GCL-200-S	GCL-200-L	GCL-200-M	200 mW	532 nm
GCL-050-523-S		GCL-050-523	50 mW	523 nm
RCL-100-671-S		RCL-100-671	100 mW	671 nm
IRCL-500-1064-S	IRCL-500-1064		500 mW	1064 nm
IRCL-300-1342-S	IRCL-300-1342		300 mW	1342 nm

S version: Single longitudinal mode version
L version: Low noise version
M version: M version, TEM₀₀ mode



Q-Switched Green Lasers

GENERAL SPECIFICATIONS

Wavelengths	532 nm	527 nm	523 nm	542 nm, 555 nm, 561 nm available
Max. average output power	1000 mW	1000 mW	1000 mW	
Pulse energy* at 1 kHz	0.2 mJ	0.35 mJ	0.35 mJ	Laser pulse energy is optimized at 1 kHz repetition rate
Available average output power	1 W, 500 mW, 200 mW, 100 mW, 50 mW standard version; Customized 1.5 W and 2 W laser available			
Pulse width	Typically 10 - 25 ns, varies from power and repetition rate, 7 - 100 ns option available			
Repetition rate	1 kHz to 100 kHz internal adjustable, 0 Hz to 400 kHz by external trigger			
Transverse beam mode	TEM ₀₀ , M ² < 1.2, typically M ² < 1.1			
Beam diameter (1/e ²)	0.3 mm			
Beam divergence, full angle	3 - 4 mrad			
Longitudinal mode	Several longitudinal modes; Single longitudinal mode with long coherence length option available			
Polarization	Linear; Polarization ratio 100:1			
Beam pointing stability	< 0.02 mrad at constant temperature			
Pulse-to-pulse energy stability, rms	1% - 3%			
Power stability, rms	3% after warm-up			

Q-Switched UV Lasers

GENERAL SPECIFICATIONS

Wavelengths	355 nm	351 nm	349 nm	266 nm	262 nm
Max. average output power	100 mW	100 mW	100 mW	50 mW	50 mW
Pulse energy* at 1 kHz rep. rate	25 μJ	50 μJ	50 μJ	15 μJ	25 μJ
Available average output power	150 mW, 100 mW, 50 mW, 25 mW, 10 mW			50 mW, 30 mW, 20 mW, 10 mW, 5 mW	
Beam diameter (1/e ²)	0.2 mm			0.15 x 0.3 mm	
Beam divergence, full angle	3 - 4 mrad			2 - 6 mrad	
Transverse beam mode	TEM ₀₀ , M ² < 1.3; Typically M ² < 1.1, for 349, 351 and 355 nm; Elliptical beam for 262 and 266 nm				
Pulse width	Typically 10 - 15 ns, varies from power and repetition rate, 5 - 100 ns option available				
Repetition rate	1 kHz to 100 kHz internal adjustable, 0 Hz to 200 kHz by external trigger				
Longitudinal mode	Multiple longitudinal modes; Narrow linewidth with long coherence length option available				
Beam pointing stability	< 0.02 mrad at constant temperature				
Polarization	Linear; Polarization ratio 100:1				
Power stability, rms	5% after warm-up				

Q-Switched Blue Lasers

GENERAL SPECIFICATIONS

Wavelengths	440 nm, 447 nm, 473 nm
Max. average output power at optimal repetition rate	50 mW 50 mW, 25 mW standard version and high power customized laser available
Pulse energy	Laser output power and pulse energy can be optimized upon request at required repetition rate
Pulse width	Typically 15 - 35 ns, varies from power and repetition rate, 7 - 100 ns option available
Repetition rate	1 kHz to 100 kHz internal adjustable, 0 Hz to 200 kHz by external trigger
Transverse beam mode	TEM ₀₀ , M ² < 1.2, typically M ² < 1.1
Longitudinal mode	Several longitudinal mode; Narrow linewidth with long coherence length option available
Beam diameter (1/e ²)	0.2 mm
Beam divergence, full angle	3 - 4 mrad
Polarization	Linear; Polarization ratio 100:1
Beam pointing stability	< 0.02 mrad at constant temperature

Timing jitter: Trigger to laser pulse output timing jitter of +/- 3 ns is available for all the Q-switched lasers

* Laser output power and pulse energy can be optimized at required repetition rate upon request



Q-Switched Infrared Lasers

GENERAL SPECIFICATIONS

Wavelengths	1064 nm	1053 nm	1047 nm	946, 1122, 1313, 1319, 1338, 1342, 1357 and 1444 nm available
Max. average output power	1500 mW	1500 mW	1500 mW	Laser materials: Nd:YAG, Nd:YVO ₄ and Nd:YLF crystals
Max. pulse energy* at 1 kHz	0.24 mJ	0.46 mJ	0.46 mJ	Laser is optimized at 1 kHz repetition rate
Available average output power	1.5 W, 1 W, 500 mW, 200 mW and 100 mW standard version; Customized 2 W and 3 W laser available			
Pulse width	Typically 15 - 30 ns, varies from power and repetition rate, 7 - 100 ns option available			
Repetition rate	1 kHz to 100 kHz internal adjustable, 0 Hz to 500 kHz by external trigger			
Transverse beam mode	TEM ₀₀ , M ² < 1.2, typically M ² < 1.1			
Beam diameter (1/e ²)	0.5 mm			
Beam divergence, full angle	3 - 4 mrad			
Longitudinal mode	Several longitudinal modes; Single longitudinal mode with long coherence length option available			
Polarization	Linear; Polarization ratio 100:1			
Beam pointing stability	< 0.02 mrad at constant temperature			
Pulse-to-pulse energy stability, rms	1% - 3%			
Power stability, rms	3% after warm-up			

Q-Switched Red Lasers

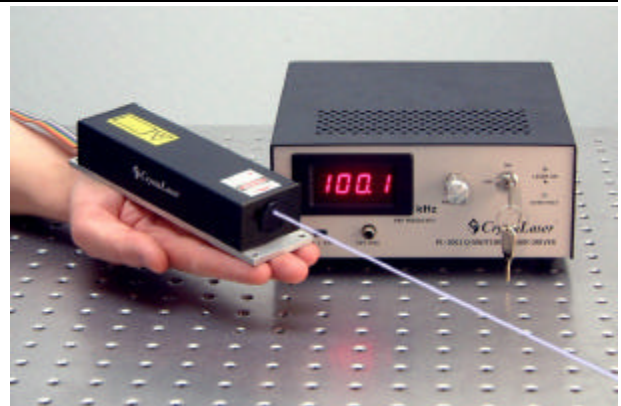
GENERAL SPECIFICATIONS

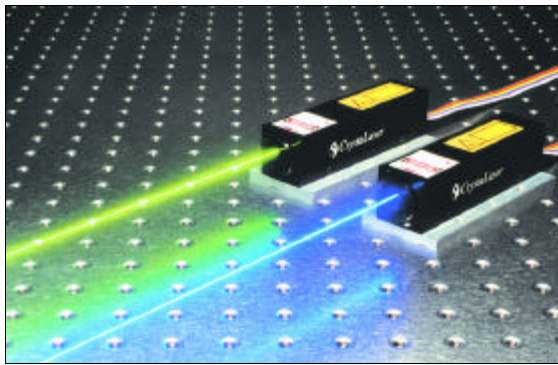
Wavelengths	657 nm	660 nm	671 nm
Max. average output power at optimal repetition rate	500 mW	500 mW	500 mW
Pulse energy	200 mW, 100 mW standard version available		
Pulse width	Laser output power and pulse energy can be optimized upon request at required repetition rate		
Pulse width	Typically 20 - 40 ns, varies from power and repetition rate, 10 - 100 ns option available		
Repetition rate	1 kHz to 100 kHz internal adjustable, 0 Hz to 200 kHz by external trigger		
Transverse beam mode	TEM ₀₀ , M ² < 1.2, typically M ² < 1.1		
Beam diameter (1/e ²)	0.3 mm		
Beam divergence, full angle	3 - 4 mrad		
Longitudinal mode	Several longitudinal modes; Single longitudinal mode with long coherence length option available		
Polarization	Linear; Polarization ratio 100:1		
Beam pointing stability	< 0.02 mrad at constant temperature		
Pulse-to-pulse energy stability, rms	3%		
Power stability, rms	3% after warm-up		

Q-SWITCHED LASERS MECHANICAL, ELECTRICAL AND ENVIRONMENTAL SPECIFICATIONS

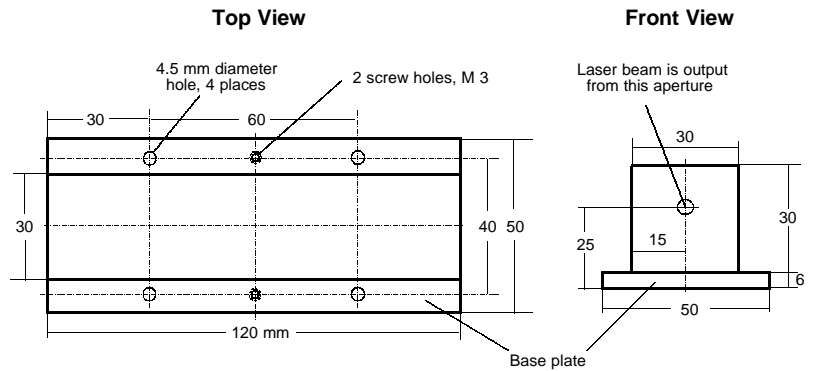
Size and weight of laser head	L x W x H, 18.5 x 5 x 3.6 cm ³ , 0.5 kg (1.1 lb); High power lasers: 18.5 x 7 x 3.6 cm ³ , 0.6 kg (1.4 lb)
Size and weight of power supply	D x W x H, 20 x 20 x 8 cm ³ (7.9" x 7.9" x 2.5"), 1.4 kg (3 lb)
Operating temperature	5 °C to 35 °C
Warm-up time	< 3 minutes
Operating voltage	90 - 250 VAC; 12 V DC or 24 VDC option available; Typically power consumption 40 W
Cooling	Laser head: conductive cooling; Power supply: air cooling
Expected life-time	> 10,000 hours

Model No.	Samples	Average output power
QUV-266-5	QUV-262-5	5 mW
QUV-355-25	QUV-349-25	25 mW
OG-532-200	OG-523-200	200 mW
QIR-1064-500	QIR-1047-500	500 mW

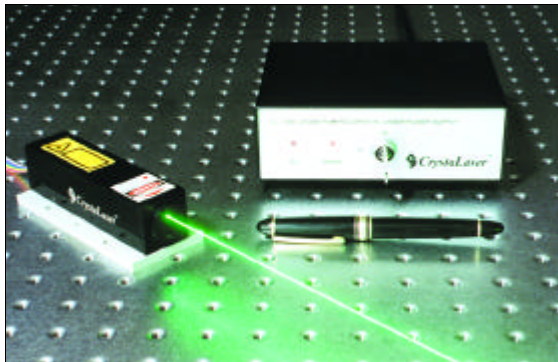




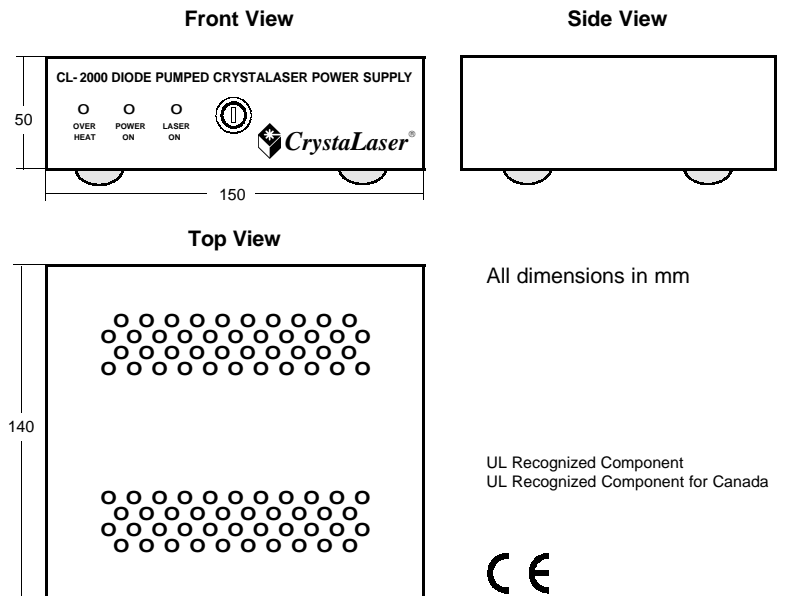
Dimensions of laser head for CW blue, green, yellow, red and infrared lasers



Note: 4 holes and 2 screw holes on base plate for mounting the laser head
 All dimensions in mm



Dimensions of universal AC input CL-2000 laser power supply for CW lasers are 15 x 14 x 5 cm³ (W x D x H)



New CL-2005 laser power supply features adjustable and displaying output power.
 The dimensions are 15 x 16 x 5 cm³ (W x D x H)

Customized Options

- Digital or Analog Modulation, RS-232 Control
- Fiber Coupling
- Ultra Stable option
- Beam Expander
- New CL-2005 Laser Power Supply, as shown left
- Customized Laser Systems
- Ultra-compact Ti:Sapphire Laser
- Single Mode Seed Laser