



mosquitoo*X Mini DPSS Lasers

Versatility. Flexibility. Reliability.

The second generation of mosquitoo X mini DPSS lasers are designed to deliver exceptional performance in a compact footprint. The innovative system architecture provides a nearly diffraction limited beam with short pulse widths and superior pulse-to-pulse stability even at high repetition rates. The compact, conduction cooled laser head and the field proven

InnoLas Laser Control (ILC) interface allows easiest integration and make this laser a rugged tool with exceptional performance and reliability. Our clean room production and the use of highest quality components ensures consistent quality and longest laser lifetimes.

Applications

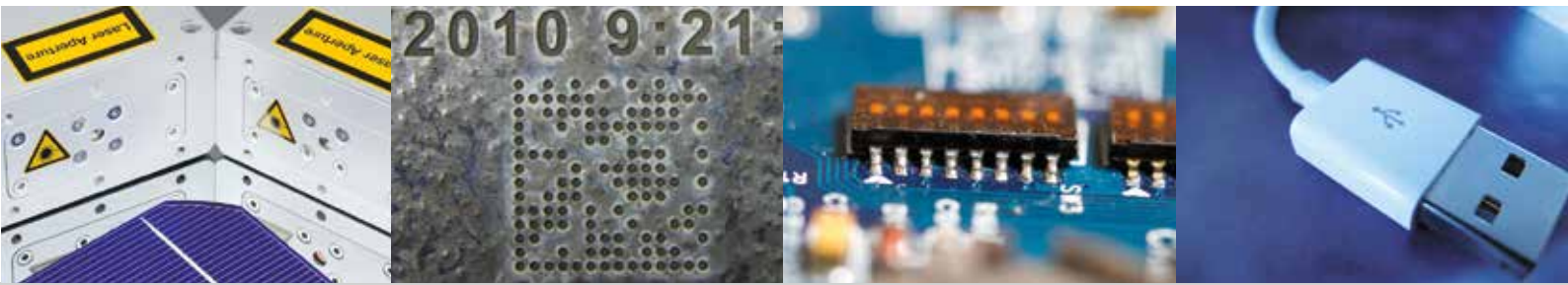
- * Photovoltaic Manufacturing
- * LED Chip and PCB Marking
- * Stereo Lithography
- * Semiconductor Manufacturing
- * Resistor Trimming

Features

- * Short pulse widths of <math><10\text{ ns}</math>
- * Rugged design for hands-off operation
- * Contact cooling
- * Small footprint
- * Long life pump diode

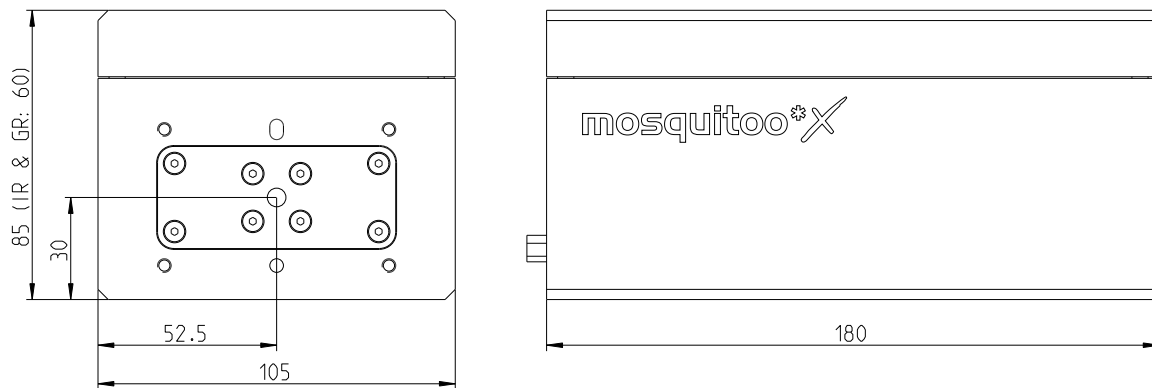


(i) Pulse widths as short as 6 ns and pulse peak powers above 10 kW open new possibilities in laser material processing applications. Processes which previously required cost intensive high power lasers can now be accomplished with the compact and conduction cooled mosquitoo X laser.

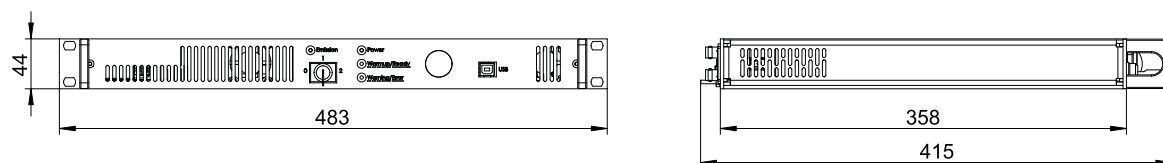


Technical Drawing

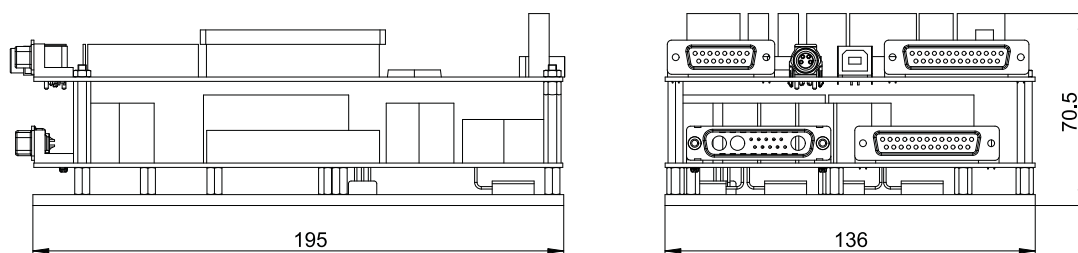
Laser Head



19" Power Supply



OEM Power Supply



Q-SWITCHED LASERS



Specifications

mosquitoo X 355

Model	355-1-V	355-0.3-V	355-0.3-Y
Laser Medium	Nd:YVO ₄	Nd:YVO ₄	Nd:YAG
Wavelength	355 nm	355 nm	355 nm
Nominal Power	1 W @ 50 kHz	0.3 W @ 50 kHz	0.3 W @ 10 kHz
Repetition Rate	Single Shot to 200 kHz	Single Shot to 200 kHz	Single Shot to 100 kHz
Pulse Width	< 12 ns @ 50 kHz	< 10 ns @ 50 kHz	< 13 ns @ 10 kHz
Pulse Energy	20 μJ @ 50 kHz	6 μJ @ 50 kHz	30 μJ @ 10 kHz
Peak Power	> 1.6 kW @ 50 kHz	> 0.6 kW @ 50 kHz	> 2.3 kW @ 10 kHz
Pulse-to-Pulse Stability	< 2%	< 4%	< 4%
Power Stability (rms, 8h)	< 2%	< 2%	< 2%
Spatial Mode	M ² < 1.3, TEM ₀₀	M ² < 1.3, TEM ₀₀	M ² < 1.3, TEM ₀₀
Nominal Beam Diameter (at waist)	0.2 mm	0.2 mm	0.2 mm
Nominal Waist Location (from output)	-164 mm	-164 mm	-164 mm
Beam Divergence (full angle)	2.9 mrad	2.9 mrad	2.9 mrad
Nominal Beam Diameter (at output)	0.5 mm	0.5 mm	0.5 mm
Polarization	Vertical, > 100:1	Vertical, > 100:1	Vertical, > 100:1
Circularity	> 85%	> 85%	> 85%
Warm-up Time	< 10 min	< 10 min	< 10 min
Operating Voltage	115-230 VAC ± 10%, 50-60 Hz, single phase, 24 VDC on request	115-230 VAC ± 10%, 50-60 Hz, single phase, 24 VDC on request	115-230 VAC ± 10%, 50-60 Hz, single phase, 24 VDC on request
Laser Power Consumption	< 170 W	< 150 W	< 150 W
Cooling	Contact, < 100 W, 40 °C Maximum Base Temperature	Contact, < 80 W, 40 °C Maximum Base Temperature	Contact, < 80 W, 40 °C Maximum Base Temperature
Ambient Temperature	15-35 °C (59-95 °F), non-condensing	15-35 °C (59-95 °F), non-condensing	15-35 °C (59-95 °F), non-condensing
External Control	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control
Dimensions Laser Head (L x W x H)	180 x 105 x 85 mm (7.09 x 4.13 x 3.35 in.)	180 x 105 x 85 mm (7.09 x 4.13 x 3.35 in.)	180 x 105 x 85 mm (7.09 x 4.13 x 3.35 in.)
Dimensions Power Supply (L x W x H)	358 x 447 x 44 mm (14.09 x 17.6 x 1.73 in.) 19" system, 1 RU high	358 x 447 x 44 mm (14.09 x 17.6 x 1.73 in.) 19" system, 1 RU high	358 x 447 x 44 mm (14.09 x 17.6 x 1.73 in.) 19" system, 1 RU high
Weight Laser Head	1.7 kg (3.7 lbs.)	1.5 kg (3.3 lbs.)	1.5 kg (3.3 lbs.)
Weight Power Supply	6 kg (13.2 lbs.)	6 kg (13.2 lbs.)	6 kg (13.2 lbs.)



mosquito X 532

532-5-V	532-2-V	532-2-Y
Nd:YVO ₄	Nd:YVO ₄	Nd:YAG
532 nm	532 nm	532 nm
5 W @ 50 kHz	2 W @ 50 kHz	2 W @ 10 kHz
Single Shot to 200 kHz	Single Shot to 200 kHz	Single Shot to 100 kHz
< 12 ns @ 50 kHz	< 12 ns @ 50 kHz	< 15 ns @ 10 kHz
100 µJ @ 50 kHz	40 µJ @ 50 kHz	200 µJ @ 10 kHz
> 8.3 kW @ 50 kHz	> 3.3 kW @ 50 kHz	> 13.3 kW @ 10 kHz
< 2%	< 3%	< 3%
< 2%	< 2%	< 2%
M ² < 1.3, TEM ₀₀	M ² < 1.3, TEM ₀₀	M ² < 1.3, TEM ₀₀
0.3 mm	0.3 mm	0.3 mm
-164 mm	-164 mm	-164 mm
2.9 mrad	2.9 mrad	2.9 mrad
0.6 mm	0.6 mm	0.6 mm
Horizontal, > 100:1	Horizontal, > 100:1	Horizontal, > 100:1
> 85%	> 85%	> 85%
< 10 min	< 10 min	< 10 min
115-230 VAC ± 10%, 50-60 Hz, single phase, 24 VDC on request	115-230 VAC ± 10%, 50-60 Hz, single phase, 24 VDC on request	115-230 VAC ± 10%, 50-60 Hz, single phase, 24 VDC on request
< 170 W	< 150 W	< 150 W
Contact, < 100 W, 40 °C Maximum Base Temperature	Contact, < 80 W, 40 °C Maximum Base Temperature	Contact, < 80 W, 40 °C Maximum Base Temperature
15-35 °C (59-95 °F), non-condensing	15-35 °C (59-95 °F), non-condensing	15-35 °C (59-95 °F), non-condensing
RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control
180 x 105 x 60 mm (7.09 x 4.13 x 2.36 in.)	180 x 105 x 60 mm (7.09 x 4.13 x 2.36 in.)	180 x 105 x 60 mm (7.09 x 4.13 x 2.36 in.)
358 x 447 x 44 mm (14.09 x 17.6 x 1.73 in.) 19" system, 1 RU high	358 x 447 x 44 mm (14.09 x 17.6 x 1.73 in.) 19" system, 1 RU high	358 x 447 x 44 mm (14.09 x 17.6 x 1.73 in.) 19" system, 1 RU high
1.7 kg (3.7 lbs.)	1.5 kg (3.3 lbs.)	1.5 kg (3.3 lbs.)
12 kg (26.5 lbs.)	6 kg (13.2 lbs.)	6 kg (13.2 lbs.)

InnoLas follows a policy of continuous product improvement. All specifications are subject to change without notice. Rev. 3.1, 06/2015.
InnoLas Photonics GmbH is DIN EN ISO 9001 certified.



Specifications

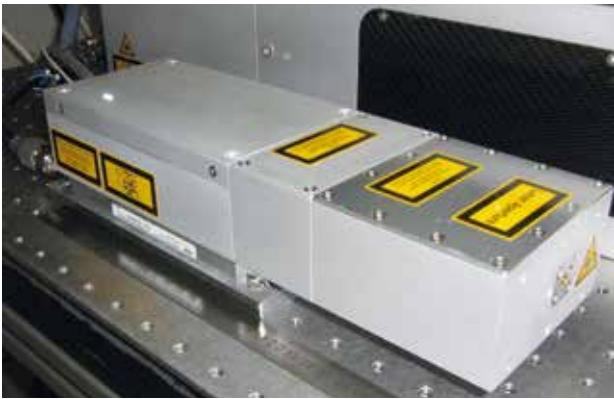
mosquito X 1064

Model	1064-6-V	1064-3-V
Laser Medium	Nd:YVO ₄	Nd:YVO ₄
Wavelength	1064 nm	1064 nm
Nominal Power	6 W @ 100 kHz	3 W @ 100 kHz
Repetition Rate	Single Shot to 200 kHz	Single Shot to 200 kHz
Pulse Width	< 13 ns @ 50 kHz	< 13 ns @ 50 kHz
Pulse Energy	100 µJ @ 50 kHz	50 µJ @ 50 kHz
Peak Power	> 7.6 kW @ 50 kHz	> 3.8 kW @ 50 kHz
Pulse-to-Pulse Stability	< 1%	< 2%
Power Stability (rms, 8h)	< 2%	< 2%
Spatial Mode	M ² < 1.2, TEM ₀₀	M ² < 1.2, TEM ₀₀
Nominal Beam Diameter (at waist)	0.4 mm	0.4 mm
Nominal Waist Location (from output)	-85 mm	-85 mm
Beam Divergence (full angle)	4.0 mrad	4.0 mrad
Nominal Beam Diameter (at output)	0.5 mm	0.5 mm
Polarization	Vertical, > 100:1	Vertical, > 100:1
Circularity	> 90%	> 90%
Warm-up Time	< 10 min	< 10 min
Operating Voltage	115-230 VAC ± 10%, 50-60 Hz, single phase, 24 VDC on request	115-230 VAC ± 10%, 50-60 Hz, single phase, 24 VDC on request
Laser Power Consumption	< 170 W	< 150 W
Cooling	Contact, < 100 W, 40 °C Maximum Base Temperature	Contact, < 80 W, 40 °C Maximum Base Temperature
Ambient Temperature	15-35 °C (59-95 °F), non-condensing	15-35 °C (59-95 °F), non-condensing
External Control	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control
Dimensions Laser Head (L x W x H)	180 x 105 x 60 mm (7.09 x 4.13 x 2.36 in.)	180 x 105 x 60 mm (7.09 x 4.13 x 2.36 in.)
Dimensions Power Supply (L x W x H)	358 x 447 x 44 mm (14.09 x 17.6 x 1.73 in.) 19" system, 1 RU high	358 x 447 x 44 mm (14.09 x 17.6 x 1.73 in.) 19" system, 1 RU high
Weight Laser Head	1.7 kg (3.7 lbs.)	1.7 kg (3.7 lbs.)
Weight Power Supply	6 kg (13.2 lbs.)	6 kg (13.2 lbs.)

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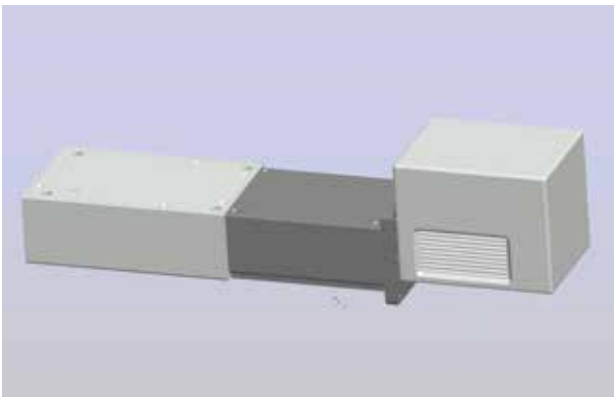


Options & Customization



Available Options

- * Umbilical length 1-10 m
- * 45° connectors at the laser head
- * Cooling plates
- * Beam expander box
- * Variable attenuator box
- * Scan head adapter flanges



Customization

- * Customized laser performance
- * Power supply front panel design
- * Laser interfacing
- * Branded laser control software
- * Special laser developments

(i) Since today's demanding applications deserve optimized laser parameters, we do not only sell off-the-shelf products. We can tailor our laser performance, design, interfacing or software to perfectly fit your individual application needs.

