

**nanio air\***  
*Industrial DPSS Lasers*



Think of **LASER** as a tool



## nano air\* Industrial DPSS Lasers

### Engineered Reliability. Rugged Design. No Water.

The new NANIO AIR lasers are a family of Q-switched DPSS lasers engineered for demanding 24/7 industrial applications based on the proven NANIO series platform. Available in 1064, 532 and 355 nm the NANIO AIR lasers are designed for applications that require short pulse widths, excellent beam quality and high intensity pulses over a wide range

of operating conditions without the need for water cooling. The compact and air cooled system comes with an exceptionally small 1 RU power supply and features quick connectors, wide range AC or 24 VDC supply voltage and the field proven InnoLas Laser Control (ILC) interface which is common to all InnoLas industrial lasers.

### Applications

- \* Resistor Trimming
- \* ID Card Marking
- \* PCB Marking
- \* LED Backlight
- \* Ceramic Marking

### Features

- \* Air Cooling
- \* Superior pulse-to-pulse stability
- \* High peak power and short pulse width
- \* Low cost of ownership
- \* Field proven long life pump diode



NANIO AIR lasers combine vibration-free air cooling with excellent TEM<sub>00</sub> beam quality, output powers up to 16 W and pulse widths below 10 ns. This minimizes undesirable thermal damage of the material and enables consistent and reliable scribing results.



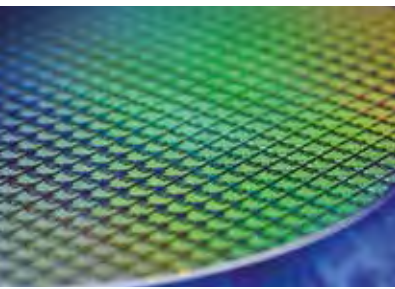
# NANIO AIR

## Specifications

	1064-16-V	1064-7-Y-30	1064-7-Y-50
Laser Medium	Nd:YVO <sub>4</sub>	Nd:YAG	Nd:YAG
Wavelength	1064 nm	1064 nm	1064 nm
Nominal Power	14 W @ 50 kHz	7 W @ 10 kHz	7 W @ 10 kHz
Repetition Rate	Single Shot to 300 kHz	Single Shot to 100 kHz	Single Shot to 100 kHz
Pulse Width	< 45 ns @ 50 kHz	< 35 ns @ 10 kHz	< 50 ns @ 10 kHz
Pulse Energy	280 μJ @ 50 kHz	700 μJ @ 10 kHz	700 μJ @ 10 kHz
Peak Power	> 6.2 kW @ 50 kHz	> 20 kW @ 10 kHz	> 14 kW @ 10 kHz
Pulse-to-Pulse Stability	< 0.5 % @ 50 kHz	< 1 % @ 10 kHz	< 0.5 % @ 10 kHz
Power Stability (rms, 8h)	< 1 %	< 1 %	< 1 %
Spatial Mode	M <sup>2</sup> < 1.2, TEM <sub>00</sub>	M <sup>2</sup> < 1.15, TEM <sub>00</sub>	M <sup>2</sup> < 1.15, TEM <sub>00</sub>
Nominal Beam Diameter (at waist)	0.7 mm	0.5 mm	0.5 mm
Nominal Waist Location (from output)	-44 mm	-164 mm	-132 mm
Beam Divergence (full angle)	2.3 mrad	3.1 mrad	3.1 mrad
Nominal Beam Diameter (at output)	0.7 mm	0.7 mm	0.7 mm
Polarization	Vertical, > 100:1	Vertical, > 100:1	Vertical, > 100:1
Circularity	> 90 %	> 90 %	> 90 %
Warm-up Time	< 10 min	< 10 min	< 10 min
Operating Voltage	115-230 VAC ± 10 %, 50-60 Hz, single phase	115-230 VAC ± 10 %, 50-60 Hz, single phase	115-230 VAC ± 10 %, 50-60 Hz, single phase
Laser Power Consumption	< 350 W	< 350 W	< 350 W
Cooling	Air	Air	Air
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)	400 x 150 x 125 mm (15.75 x 5.91 x 4.92 in.)	400 x 150 x 125 mm (15.75 x 5.91 x 4.92 in.)	400 x 150 x 125 mm (15.75 x 5.91 x 4.92 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	10.5 kg (23.1 lbs.)	10.5 kg (23.1 lbs.)	10.5 kg (23.1 lbs.)
Weight Power Supply	6 kg (13.2 lbs.)	6 kg (13.2 lbs.)	6 kg (13.2 lbs.)

### Available Options

Umbilical length between laser head and power supply 1-20 m. Standard is 3 m. External beam expander box, beam expanders and scan head adapter flanges. Customized power supply front design. Variable attenuator.



<b>1064-7-Y-70</b>	<b>532-10-V</b>	<b>532-4-Y-50</b>	<b>355-3-V</b>
Nd:YAG 1064 nm 7 W @ 10 kHz Single Shot to 100 kHz	Nd:YVO <sub>4</sub> 532 nm 10 W @ 40 kHz Single Shot to 300 kHz	Nd:YAG 532 nm 4 W @ 10 kHz Single Shot to 100 kHz	Nd:YVO <sub>4</sub> 355 nm 3 W @ 40 kHz Single Shot to 300 kHz
< 100 ns @ 10 kHz 700 μJ @ 10 kHz > 7 kW @ 10 kHz < 1 % @ 10 kHz < 1 %	< 30 ns @ 40 kHz 250 μJ @ 40 kHz > 8.3 kW @ 40 kHz < 1 % @ 40 kHz < 2 %	< 50 ns @ 10 kHz 400 μJ @ 10 kHz > 8 kW @ 10 kHz < 1 % @ 10 kHz < 2 %	< 35 ns @ 40 kHz 75 μJ @ 40 kHz > 2.1 kW @ 40 kHz < 2 % @ 40 kHz < 2 %
M <sup>2</sup> < 1.15, TEM <sub>00</sub> 0.7 mm  -92 mm  2.2 mrad 0.7 mm  Vertical, > 100:1 > 90 %	M <sup>2</sup> < 1.2, TEM <sub>00</sub> 0.5 mm  -408 mm  1.6 mrad 0.8 mm  Horizontal, > 100:1 > 90 %	M <sup>2</sup> < 1.2, TEM <sub>00</sub> 0.5 mm  -408 mm  1.6 mrad 0.8 mm  Horizontal, > 100:1 > 90 %	M <sup>2</sup> < 1.3, TEM <sub>00</sub> 0.4 mm  -408 mm  1.4 mrad 0.7 mm  Vertical, > 100:1 > 90 %
< 10 min 115-230 VAC ± 10 %, 50-60 Hz, single phase < 350 W Air 15-35 °C (59-95 °F), non-condensing RS232, USB, TTL and Analog Q-Switch Control	< 15 min 115-230 VAC ± 10 %, 50-60 Hz, single phase < 350 W Air 15-35 °C (59-95 °F), non-condensing RS232, USB, TTL and Analog Q-Switch Control	< 15min 115-230 VAC ± 10 %, 50-60 Hz, single phase < 350 W Air 15-35 °C (59-95 °F), non-condensing RS232, USB, TTL and Analog Q-Switch Control	< 15 min 115-230 VAC ± 10 %, 50-60 Hz, single phase < 350 W Air 15-35 °C (59-95 °F), non-condensing RS232, USB, TTL and Analog Q-Switch Control
510 x 150 x 125 mm (20.08 x 5.91 x 4.92 in.) 358 x 447 x 44 mm (14.09 x 17.6 x 1.73 in.) 19" system, 1 RU high 12 kg (26.5 lbs.) 6 kg (13.2 lbs.)	510 x 150 x 125 mm (20.08 x 5.91 x 4.92 in.) 358 x 447 x 44 mm (14.09 x 17.6 x 1.73 in.) 19" system, 1 RU high 12 kg (26.5 lbs.) 6 kg (13.2 lbs.)	510 x 150 x 125 mm (20.08 x 5.91 x 4.92 in.) 358 x 447 x 44 mm (14.09 x 17.6 x 1.73 in.) 19" system, 1 RU high 12 kg (26.5 lbs.) 6 kg (13.2 lbs.)	510 x 150 x 125 mm (20.08 x 5.91 x 4.92 in.) 358 x 447 x 44 mm (14.09 x 17.6 x 1.73 in.) 19" system, 1 RU high 12 kg (26.5 lbs.) 6 kg (13.2 lbs.)



## Services

### Applications Lab

Our in-house applications lab offers a wide variety of lasers, scanning and measurement equipment to find the ideal solution for your application tasks. Supported by our application experts, our open house policy allows for fast results and short lead times for your sample processing requests.

### Customer Service

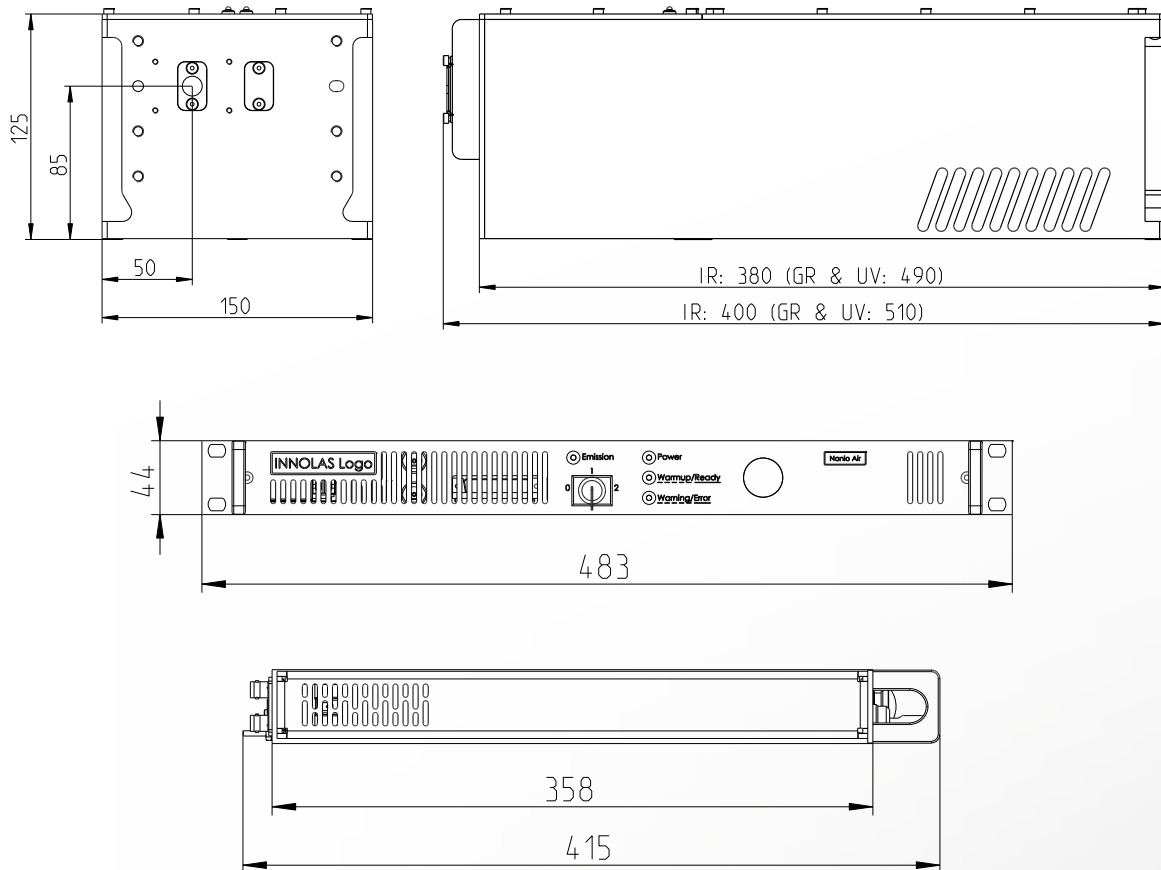
Being close to the customer is our strength. We guarantee fastest response times for all customer requests, new development challenges or service issues as you expect it.

## Customization

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.



# Technical Drawing



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