

NANIO AIR | NANOSECOND LASERS

Customized Solutions for Perfect Results



Highest Reliability

High-end components
for best lifetime



Adapted to Your Application Needs

Customization of
laser design



Better Process Results

Benefits from our advanced
pulse control features

Highest Flexibility

Air-Cooled with a Compact Design

The Nanio Air is specifically designed for easy customization and is available in a variety of wavelengths. The air-cooled system has all the advantages of the Nanio series, highest reliability and is designed to be easily customized for your application. And, without the need for water cooling, it is even easier to integrate. With this compact short-pulse laser you can rapidly match the laser parameters to the actual needs of your application.

Applications

Flexible Nanosecond DPSS Lasers for Wide Range of Applications in the Following Markets:

- ID Card
- LED and Display
- Chip and PCB
- Photovoltaics
- Resistor Trimming

Benefits

Customized Performance and Pulse Control

Find a nanosecond DPSS laser that exactly matches your application. The Nanio Air offers advanced pulse Control Features for best stability and accurate process repeatability.

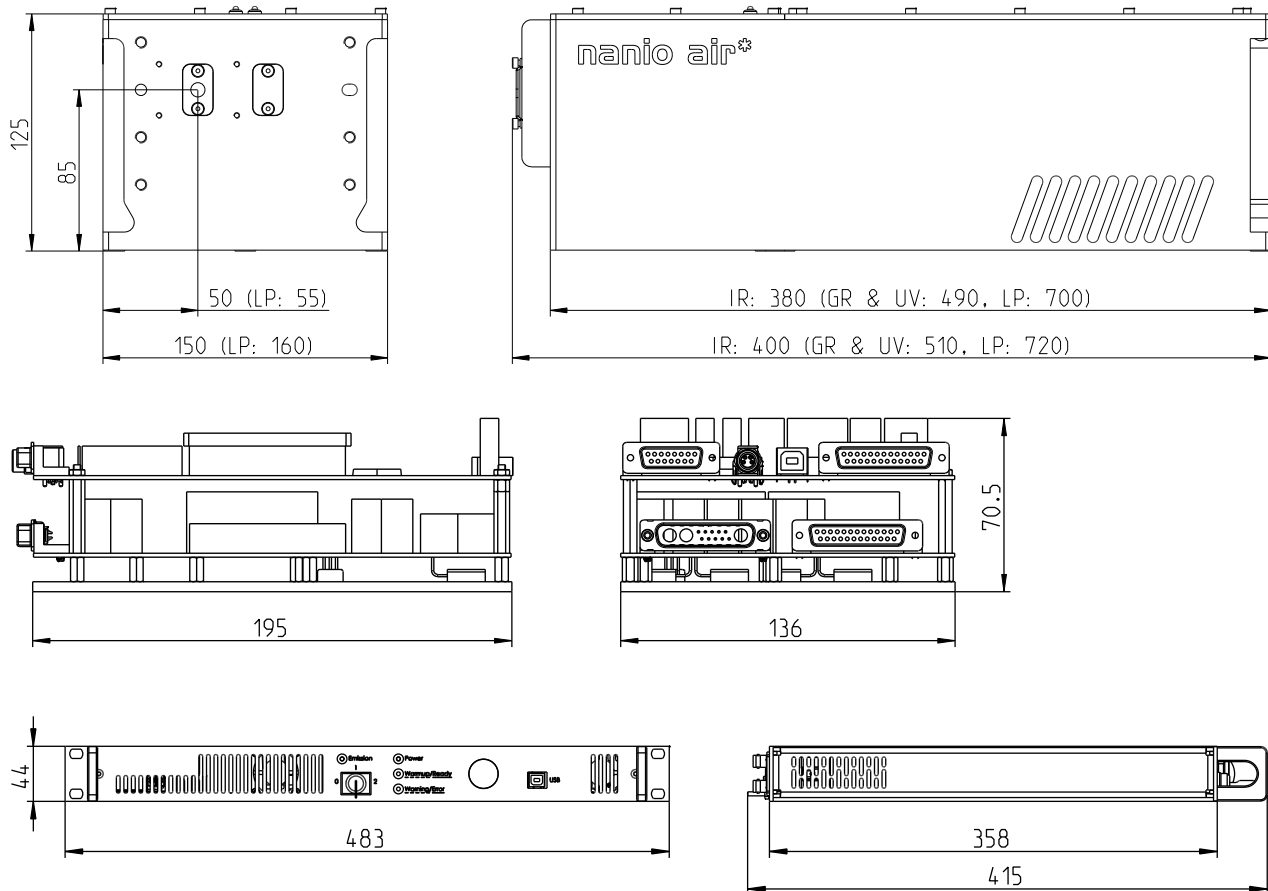
Advantages

Engineered for Challenging Industrial Applications

The Nanio Air Q-switched DPSS Laser is designed for applications that benefit from excellent beam quality with optimized pulse widths across a wide range of operating conditions. Its features:

- Superior pulse-to-pulse stability
- Advanced pulse control features
- High peak power and short pulse width
- Low cost of ownership
- Integrated air cooling

Technical Drawings



Customizations & Options

Highest Flexibility with Customizable Nanosecond DPSS Lasers

The Nanio Air can be tailored regarding optical performance, electrical interfacing, as well as hard- and software control.

- A variety of additional options are selectable. Umbilical length 1 -10 m
- 19-inch power supply
- Beam expander box
- Scan head adapter flanges
- Constant pulse energy mode CPEM+
- Motorized attenuator

Specifications

Nanio Air	355	
Model	355-5-V	355-3-V
Laser Medium	Nd:YVO ₄	Nd:YVO ₄
Wavelength	355 nm	355 nm
Nominal Power	5 W @ 40 kHz	3 W @ 40 kHz
Repetition Rate	Single Shot to 300 kHz	Single Shot to 300 kHz
Pulse Width	<20 ns @ 40 kHz	<35 ns @ 40 kHz
Pulse Energy	125 µJ @ 40 kHz	75 µJ @ 40 kHz
Peak Power	>6.2 kW @ 40 kHz	>2.1 kW @ 40 kHz
Pulse-to-Pulse Stability	<2% @ 40 kHz	<2% @ 40 kHz
Power Stability (rms, 8h)	<2%	<2%
Spatial Mode	M ² <1.3, TEM ₀₀	M ² <1.3, TEM ₀₀
Nominal Beam Diameter (at waist)	0.3 mm	0.4 mm
Nominal Waist Location (from output)	-380 mm	-408 mm
Beam Divergence (full angle)	1.9 mrad	1.4 mrad
Nominal Beam Diameter (at output)	0.8 mm	0.7 mm
Polarization	Vertical, >100:1	Vertical, >100:1
Circularity	>90%	>90%
Warm-up Time	<15 min	<15 min
Operating Voltage OEM P/S (standard)	24 VDC	24 VDC
Operating Voltage 19" P/S (optional)	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz
Laser Power Consumption	<350 W	<350 W
Cooling	Air, optional water-cooling	Air, optional water-cooling
Ambient Temperature	15-35 °C, non-condensing	15-35 °C, 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)	510 x 150 x 125 mm	510 x 150 x 125 mm
Dimensions OEM P/S (standard) (L x W x H)	195 x 136 x 71 mm	195 x 136 x 71 mm
Dimensions 19" P/S (optional) (L x W x H)	358 x 447 x 44 mm, 1 RU high	358 x 447 x 44 mm, 1 RU high
Weight Laser Head	12 kg	12 kg
Weight Power Supply (standard / optional)	2 kg/6 kg	2 kg/6 kg

Specifications

Nanio Air	532		
Model	532-10-V-SP	532-10-V	532-4-Y-50
Laser Medium	Nd:YVO ₄	Nd:YVO ₄	Nd:YAG
Wavelength	532 nm	532 nm	532 nm
Nominal Power	10 W @ 40 kHz	10 W @ 40 kHz	4 W @ 10 kHz
Repetition Rate	Single Shot to 300 kHz	Single Shot to 300 kHz	Single Shot to 100 kHz
Pulse Width	<20 ns @ 40 kHz	<30 ns @ 40 kHz	<50 ns @ 10 kHz
Pulse Energy	250 µJ @ 40 kHz	250 µJ @ 40 kHz	400 µJ @ 10 kHz
Peak Power	>12.5 kW @ 40 kHz	>8.3 kW @ 40 kHz	>8 kW @ 10 kHz
Pulse-to-Pulse Stability	<1% @ 40 kHz	<1% @ 40 kHz	<1% @ 10 kHz
Power Stability (rms, 8h)	<2%	<2%	<2%
Spatial Mode	M ² <1.2, TEM ₀₀	M ² <1.2, TEM ₀₀	M ² <1.2, TEM ₀₀
Nominal Beam Diameter (at waist)	0.4 mm	0.5 mm	0.28 mm
Nominal Waist Location (from output)	-350 mm	-408 mm	-408 mm
Beam Divergence (full angle)	2.0 mrad	1.6 mrad	1.9 mrad
Nominal Beam Diameter (at output)	0.8 mm	0.8 mm	0.8 mm
Polarization	Horizontal, >100:1	Horizontal, >100:1	Horizontal, >100:1
Circularity	>90%	>90%	>90%
Warm-up Time	<15 min	<15 min	<15 min
Operating Voltage OEM P/S (standard)	24 VDC	24 VDC	24 VDC
Operating Voltage 19" P/S (optional)	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz
Laser Power Consumption	<350 W	<350 W	<350 W
Cooling	Air, optional water-cooling	Air, optional water-cooling	Air, optional water-cooling
Ambient Temperature	15-35 °C, non-condensing	15-35 °C, non-condensing	15-35 °C, 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)	510 x 150 x 125 mm	510 x 150 x 125 mm	510 x 150 x 125 mm
Dimensions OEM P/S (standard) (L x W x H)	195 x 136 x 71 mm	195 x 136 x 71 mm	195 x 136 x 71 mm
Dimensions 19" P/S (optional) (L x W x H)	358 x 447 x 44 mm, 1 RU high	358 x 447 x 44 mm, 1 RU high	358 x 447 x 44 mm, 1 RU high
Weight Laser Head	12 kg	12 kg	12 kg
Weight Power Supply (standard/optional)	2 kg/6 kg	2 kg/6 kg	2 kg/6 kg

Specifications

Nanio Air	1064		
Model	1064-16-V	1064-7-Y-30	1064-7-Y-50
Laser Medium	Nd:YVO ₄	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 ² < 1.2, TEM ₀₀	M ² < 1.15, TEM ₀₀	M ² < 1.15, TEM ₀₀
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 OEM P/S (standard)	24 VDC	24 VDC	24 VDC
Operating Voltage 19" P/S (optional)	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz
Laser Power Consumption	<350 W	<350 W	<350 W
Cooling	Air, optional water-cooling	Air, optional water-cooling	Air, optional water-cooling
Ambient Temperature	15-35 °C, non-condensing	15-35 °C, non-condensing	15-35 °C, 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	400 x 150 x 125 mm	510 x 150 x 125 mm
Dimensions OEM P/S (standard) (L x W x H)	195 x 136 x 71 mm	195 x 136 x 71 mm	195 x 136 x 71 mm
Dimensions 19" P/S (optional) (L x W x H)	358 x 447 x 44 mm, 1 RU high	358 x 447 x 44 mm, 1 RU high	358 x 447 x 44 mm, 1 RU high
Weight Laser Head	10.5 kg	10.5 kg	10.5 kg
Weight Power Supply (standard/optional)	2 kg/6 kg	2 kg/6 kg	2 kg/6 kg

Specifications

Nanio Air	1064		1342
Model	1064-7-Y-70	1064-7-Y-100	1342-4-V
Laser Medium	Nd:YAG	Nd:YAG	Nd:YVO ₄
Wavelength	1064 nm	1064 nm	1342 nm
Nominal Power	7 W @ 10 kHz	7 W @ 10 kHz	4 W @ 40 kHz
Repetition Rate	Single Shot to 100 kHz	Single Shot to 100 kHz	Single Shot to 100 kHz
Pulse Width	<70 ns @ 10 kHz	>100 ns @ 10 kHz	<150 ns @ 40 kHz
Pulse Energy	700 µJ @ 10 kHz	700 µJ @ 10 kHz	100 µJ @ 40 kHz
Peak Power	>10 kW @ 10 kHz	>6 kW @ 10 kHz	>0.6 kW @ 40 kHz
Pulse-to-Pulse Stability	<1% @ 10 kHz	<1% @ 10 kHz	<5% @ 40 kHz
Power Stability (rms, 8h)	<1%	<1%	<2%
Spatial Mode	M ² <1.15, TEM ₀₀	M ² <1.15, TEM ₀₀	M ² <1.2, TEM ₀₀
Nominal Beam Diameter (at waist)	0.7 mm	1.1 mm	0.7 mm
Nominal Waist Location (from output)	-92 mm	-160 mm	-44 mm
Beam Divergence (full angle)	2.2 mrad	1.4 mrad	2.3 mrad
Nominal Beam Diameter (at output)	0.7 mm	1.1 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 OEM P/S (standard)	24 VDC	24 VDC	24 VDC
Operating Voltage 19" P/S (optional)	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz
Laser Power Consumption	<350 W	<350 W	<350 W
Cooling	Air, optional water-cooling	Air, optional water-cooling	Air, optional water-cooling
Ambient Temperature	15-35 °C, non-condensing	15-35 °C, non-condensing	15-35 °C, 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)	510 x 150 x 125 mm	720 x 160 x 125 mm (LP Head)	400 x 150 x 125 mm
Dimensions OEM P/S (standard) (L x W x H)	195 x 136 x 71 mm	195 x 136 x 71 mm	195 x 136 x 71 mm
Dimensions 19" P/S (optional) (L x W x H)	358 x 447 x 44 mm, 1 RU high	358 x 447 x 44 mm, 1 RU high	358 x 447 x 44 mm, 1 RU high
Weight Laser Head	12 kg	17 kg	12 kg
Weight Power Supply (standard/optional)	2 kg/6 kg	2 kg/6 kg	2 kg/6 kg

Iradion follows a policy of continuous product improvement. All specifications are subject to change without notice. Rev. 2.3, 06/2023.
Iradion Laser GmbH is DIN EN ISO 9001 certified.

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