



Nd:YAG passively q-switched DPSS lasers "Waveguard"

Main features

- Robust and compact design
- Internal and external TTL triggering
- Laser controller with USB or RS232 interface
- OEM version available

Application examples

- Material processing & micromachining
- LIBS
- Marking
- LIDAR & Laser Ranging
- Biophotonics

The typical configuration of these lasers is based on a Nd:YAG crystal placed in a cavity of a few millimeters in length, leading to a very compact laser design with a surprising performance, such as sub-nanosecond pulse widths and a peak power of several tens of kilowatts. State-of-the-art robust laser design allows it to be easily integrated into various laser applications and setups. Additional harmonics modules for 532 nm, 355 nm, or 266 nm wavelengths are available on request for all models. "Waveguard" series lasers offer wavelength stabilization possibility up to 3 pm and laser modules with a photodiode to control pulse repetition rate are available on request for all models.

Standard specifications

LASERS "WAVEGUARD" STANDARD SPECIFICATIONS	
Wavelength	1064 nm*
Wavelength tolerance	±1 nm
Repetition rate	1 Hz - 10 kHz
Pulse energy	Up to 400 µJ
Energy stability, STD	<2 %
Polarization contrast	>100:1
Beam diameter at exit window	<1 mm
Beam divergence	<5 mRad
Beam quality	M ² < 1.5
Beam profile	TEM ₀₀

*Custom wavelength available

Standard products

LASER MODEL	WAVELENGTH	REPETITION RATE	PULSE ENERGY	AVERAGE OUTPUT POWER	PULSE DURATION	SKU
WAVEGUARD-A	1064 nm	10 kHz	10 µJ	100 mW	<1 ns	8881
WAVEGUARD-D	1064 nm	1 kHz	120 µJ	120 mW	<1 ns	2248
WAVEGUARD-E	1064 nm	100 Hz	400 µJ	40 mW	<1 ns	8795
WAVEGUARD-2D	532 nm	1 kHz	50 µJ	50 mW	<1 ns	8820
WAVEGUARD-2E	532 nm	100 Hz	150 µJ	15 mW	<1 ns	8964
WAVEGUARD-D-ARR	1064 nm	1 Hz - 1 kHz	120 µJ	120 mW	<1 ns	19214
WAVEGUARD-E-ARR	1064 nm	1 Hz - 100 Hz	400 µJ	40 mW	<1 ns	19215
WAVEGUARD-2D-ARR	532 nm	1 Hz - 1 kHz	50 µJ	50 mW	<1 ns	19532
WAVEGUARD-2E-ARR	532 nm	1 Hz - 100 Hz	150 µJ	15 mW	<1 ns	19533

Utility requirements

LASERS "WAVEGUARD" UTILITY REQUIREMENTS	
Laser module dimensions	170 x 103 x 64 mm (L x W x H)
Laser driver dimensions	164 x 105 x 44 mm (L x W x H)
Pump current	8-10 A
Electric	100-240 V AC, 50/60 Hz
Working temperature	20-28 °C
Cooling	TEC element + active air cooling


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"Eye-safe" 1,54 μm ns lasers "KAUKAS 2"

Main features

- Compact robust design
- Wide operating temperature range
- 2 mJ energy model
- OEM version available

Application examples

- LIDAR & Laser Ranging
- LIBS
- Metrology and instrumentation

„Eye-safe“ 1,54 μm wavelength nanosecond lasers series „KAUKAS 2“ possess a unique compact design and are available in OEM models for dedicated applications such as LIDAR or laser ranging. „Eye-safe“ 1,54 μm wavelength lasers model „KAUKAS 2“ delivers up to 2 mJ energy per pulse with a repetition rate of up to 2 Hz.

Standard specifications

LASERS "KAUKAS 2" STANDARD SPECIFICATIONS	
Wavelength	1534 nm
Wavelength tolerance	± 1 nm
Repetition rate	SS - 2 Hz
Pulse energy	>2 mJ
Energy stability, STD	<3 %
Pulse duration	<11 ns
Beam diameter at exit window	<1 mm
Beam quality	$M^2 < 2$
Beam profile	TEM ₀₀

Standard products

LASER MODEL	WAVELENGTH	REPETITION RATE	PULSE ENERGY	PULSE DURATION	OPERATING TEMPERATURE	WEIGHT	POWER SUPPLY AND DRIVER	SKU
KAUKAS 2	1534 nm	SS-2Hz	>2 mJ	<11 ns	-20°C to +60°C	0,1 kg	Excluded	30828
					+10°C to +40°C	0,1 kg	Excluded	30920
					+10°C to +40°C	0,1 kg	Included	30943

Utility requirements

LASERS "KAUKAS 2" UTILITY REQUIREMENTS	
Laser module dimensions	61 x 33 x 29,5 mm (L x W x H)
Laser driver dimensions	128 x 83 x 48 mm (L x W x H)
Pump current	<100 A
Pump duration	<4 ms
Electric	100-240 V AC, 20 A, 50/60 Hz
Working temperature	-20 °C - +60 °C
Cooling	Passive air cooling


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"Eye-safe" 1,54 μm ns lasers "KAUKAS 3"

Main features

- Compact robust design
- High energy per pulse (>3 mJ)
- Wide operating temperature range
- OEM version available

Application examples

- LIDAR & Laser Ranging
- LIBS
- Metrology and instrumentation
- Research

"Eye-safe" 1,54 μm wavelength nanosecond lasers "KAUKAS 3" possess a unique compact design and are available in OEM models for dedicated applications such as LIDAR or laser ranging. This specific "Eye-safe" 1,54 μm wavelength lasers model "KAUKAS 3" delivers up to 3 mJ energy per pulse with a repetition rate of up to 1 Hz.

Standard specifications

LASERS "KAUKAS 3" STANDARD SPECIFICATIONS	
Wavelength	1534 nm
Wavelength tolerance	± 1 nm
Repetition rate	SS-1Hz
Pulse energy	>3 mJ
Energy stability, STD	<3 %
Pulse duration	<8 ns
Beam diameter at exit window	<1 mm
Beam quality	$M^2 < 2$
Beam profile	TEM ₀₀

Standard products

LASER MODEL	WAVELENGTH	REPETITION RATE	PULSE ENERGY	PULSE DURATION	OPERATING TEMPERATURE	WEIGHT	POWER SUPPLY AND DRIVER	SKU
KAUKAS 3	1534 nm	SS-1 Hz	>3 mJ	<8 ns	-20°C to +60°C	0,1 kg	Excluded	30829
					+10°C to +40°C	0,1 kg	Excluded	30944
					+10°C to +40°C	0,1 kg	Included	30945

Utility requirements

LASERS "KAUKAS 3" UTILITY REQUIREMENTS	
Laser module dimensions	61 x 33 x 29.5 mm (L x W x H)
Laser driver dimensions	128 x 83 x 48 mm (L x W x H)
Pump current	<100 A
Pump duration	<4 ms
Electric	100-240 V AC, 20 A, 50/60 Hz
Working temperature	- 20 - +60 °C
Cooling	Passive air cooling


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"Eye-safe" 1,54 μm ns lasers "KAUKAS HR"

Main features

- Compact robust design
- Energy per pulse $>30 \mu\text{J}$ @ 1 kHz
- Pulse repetition rate control
- OEM version available

Application examples

- LIDAR & Laser Ranging
- LIBS
- Metrology and instrumentation
- Automotive

"Eye-safe" 1,54 μm wavelength nanosecond high repetition rate (up to 1 kHz) DPSS lasers „KAUKAS HR“ possess a unique compact design and are available in OEM models for dedicated applications. „KAUKAS HR“ laser models have adjustable repetition rate feature. They deliver more than 30 μJ energy per pulse with a repetition rate of up to 1 kHz available on request.

Standard specifications

LASERS "KAUKAS HR" STANDARD SPECIFICATIONS	
Wavelength	1534 nm
Wavelength tolerance	$\pm 1 \text{ nm}$
Repetition rate	100 Hz - 1 kHz
Pulse energy	$>30 \mu\text{J}$
Energy stability, STD	$<2 \%$
Pulse duration	$<6 \text{ ns}$
Beam diameter at exit window	$<1 \text{ mm}$
Beam quality	$M^2 < 2$
Beam profile	TEM ₀₀

Standard products

LASER MODEL	WAVELENGTH	REPETITION RATE	PULSE ENERGY	PULSE DURATION	OPERATING TEMPERATURE	WEIGHT	SKU
KAUKAS HR	1534 nm	100 Hz	$>45 \mu\text{J}$	$<7 \text{ ns}$	15 - 35 °C	0,2 kg	9746
		1 kHz	$>30 \mu\text{J}$	$<7 \text{ ns}$	15 - 35 °C	0,2 kg	15575

Utility requirements

LASERS "KAUKAS HR" UTILITY REQUIREMENTS	
Laser module dimensions	111 x 34 x 25,5 mm (L x W x H)
Laser driver dimensions	164 x 105 x 44 mm (L x W x H)
Pump current	$<7 \text{ A}$
Electric	100-240 V AC, 50/60 Hz
Working temperature	15 - 35 °C
Cooling	Passive air cooling


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“Eye-safe” 1,54 μm ns lasers “KAUKAS 0.3”

Main features

- Robust design
- Integration into portable devices
- OEM version available

Application examples

- LIDAR & Laser Ranging
- LIBS
- Metrology and instrumentation

„Eye-safe” 1,54 μm wavelength nanosecond lasers “KAUKAS 0.3” possess a unique compact design and are available in OEM models for dedicated applications. This specific “eye-safe” 1,54 μm wavelength lasers model “KAUKAS 0.3” delivers up to 0.3 mJ energy per pulse with a repetition rate of up to 10 Hz. The unique laser optical design requires only up to 10 A pump current allowing this laser to be integrated into portable energy – efficient devices.

Standard specifications

LASERS “KAUKAS 0.3” STANDARD SPECIFICATIONS	
Wavelength	1534 nm
Wavelength tolerance	± 1 nm
Repetition rate	1-10 Hz
Pulse energy	0.3 mJ
Energy stability, STD	<2 %
Pulse duration	<5 ns
Beam diameter at exit window	<1 mm
Beam quality	$M^2 < 2$
Beam profile	TEM ₀₀

Standard products

LASER MODEL	WAVELENGTH	REPETITION RATE	PULSE ENERGY	PULSE DURATION	OPERATING TEMPERATURE	WEIGHT	SKU
KAUKAS 0.3	1534 nm	1-10 Hz	0.3 mJ	<5 ns	-20 - +40 °C	0,2 kg	32273

Utility requirements

LASERS “KAUKAS 0.3” UTILITY REQUIREMENTS	
Laser module dimensions	85 x 26 x 20 mm (L x W x H)
Laser driver dimensions	128 x 83 x 48 mm (L x W x H)
Pump current	<10 A
Pump duration	<4 ms
Electric	100-240 V AC, 3,6 A, 50/60 Hz
Working temperature	-20 - +40 °C
Cooling	Passive air cooling



1,54 μm ns lasers "Ranger"

Main features

- Compact design
- Integration into portable devices
- OEM version available

Application examples

- LIDAR & Laser Ranging
- LIBS
- Metrology and instrumentation
- Automotive

The "RANGER" nanosecond lasers at a wavelength of 1.54 μm feature a distinctive compact design and are offered in OEM configurations tailored for specific uses like LIDAR or laser ranging applications.

The "RANGER" laser operating at a 1.54 μm wavelength can provide a pulse energy of up to 1.5 mJ, and it achieves a repetition rate ranging from 5 to 10 Hz.

Standard specifications

LASERS "RANGER" STANDARD SPECIFICATIONS	
Wavelength	1534 nm
Wavelength tolerance	± 1 nm
Repetition rate	5-10 Hz
Pulse energy	>1.5 mJ@5Hz >1.3 mJ@10Hz
Energy stability, STD	<3 %
Pulse duration	<6 ns
Beam diameter at exit window	<1 mm
Beam quality	$M^2 < 2$
Beam profile	TEM ₀₀

Standard products

LASER MODEL	WAVELENGTH	ENERGY PER PULSE	REPETITION RATE	PULSE DURATION	BEAM DIAMETER (ON OC)	OPERATING TEMPERATURE	POWER SUPPLY AND DRIVER	SKU
1,54 μm ns lasers "Ranger"	1534 nm	>1,5 mJ	5-10 Hz	<6 ns	<1 mm	-20°C to +60°C	Excluded	32008
						+10°C to +40°C	Excluded	32009
						+10°C to +40°C	Included	32010

Utility requirements

LASERS "RANGER" UTILITY REQUIREMENTS	
Laser module dimensions	62 x 33 x 24 mm (L x W x H)
Laser driver dimensions	164 x 78 x 46 mm (L x W x H)
Pump current	<100 A
Pump duration	<2,5 ms
Operating environment temperature	-40 °C ... +60 °C
Cooling	Passive air cooling

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"Eye-safe" 1,5 μm lasers "KAUKAS CW"

Main features

- Up to 400 mW
- Compact DPSS design
- Various 1,5 μm wavelength models
- High beam quality

Application examples

- Optical instrumentation
- Metrology and spectroscopy
- Life sciences

"KAUKAS CW" series of diode-pumped, solid-state laser models that deliver up to 400 mW of continuous-wave power at several 1,5 μm wavelengths. These erbium-doped gain media based economical, active air-cooled lasers provide a unique combination of high performance, exceptional lifetime, and outstanding reliability. "KAUKAS CW" "eye-safe" lasers offer a diffraction-limited, TEM₀₀ output beam, excellent power stability, and narrowband spectrum.

Standard specifications

"KAUKAS CW" LASERS STANDARD SPECIFICATIONS	
Wavelength	1,5 μm
Wavelength tolerance	± 1 nm
Laser operating mode	CW
Average output power	up to 400 mW
Power stability	<3 %
Polarization contrast	>100:1
Beam diameter at exit window	<1 mm
Beam divergence	<5 mRad
Beam quality	M ² < 1,5
Beam profile	TEM ₀₀

Standard products

LASER MODEL	WAVELENGTH	AVERAGE OUTPUT POWER	SKU
KAUKAS CW-K	1522 nm	300 mW	9749
KAUKAS CW-P	1531 nm	300 mW	9750
KAUKAS CW-N	1542 nm	300 mW	16114
KAUKAS CW-G	1550 nm	400 mW	9751
KAUKAS CW-Y	1555 nm	300 mW	16115
KAUKAS CW-S	1602 nm	150 mW	9752

Utility requirements

"KAUKAS CW" LASERS UTILITY REQUIREMENTS	
Laser module dimensions	175 x 78 x 86 mm (L x W x H)
Laser driver dimensions	164 x 105 x 44 mm (L x W x H)
Pump current	5-10 A
Electric	100-240 V AC, 50/60 Hz
Working temperature	15 - 25 °C
Cooling	TEC element + active air cooling


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