

APPLICATIONS

SCIENCE

SENSING

FREQUENCY-DOUBLING

FIBER LASER SEEDING



KEY FEATURES

- 1064 nm wavelength
- High pulse energy up to 30 nJ
- 40 ps pulse duration
- Single-mode beam quality
- Compact size (187 mm x 150 mm x 39.5 mm)
- · Cost-effective design
- Narrow linewidth ideal for sensing applications or nonlinear frequency conversion
- Computer controllable via USB and RS232 interfaces



OVERVIEW, PERFORMANCE

DESCRIPTION

The Kinos is a versatile picosecond OEM fiber laser at 1064 nm comprising a gain-switched distributed feedback (DFB) laser diode and an efficient fiber amplifier in a single package. Optimized for operation around 1 MHz repetition rate, it is ideally suited as a seed laser for industrial applications where high pulse energy is desired, for example combined with Ampliconyx tapered gain modules. The DFB seed's narrow linewidth also makes Kinos excellent for sensing applications and efficient nonlinear frequency conversion. The diode-based seed together with polarization-maintaining design guarantee maintenance-free long-term operation. The laser includes a narrow ASE filter and an output isolator to limit feedback from successive components or amplifiers.

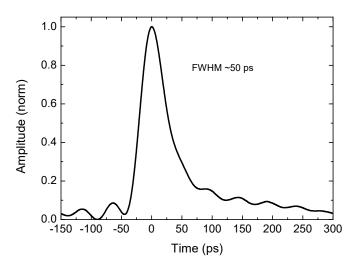
The Kinos is rated for operation between 0.5-10 MHz repetition frequencies where in-band ASE from the fiber amplifier is negligible. Other repetition frequencies are accessible by using external triggering. There are two models with different pulse durations available, both with > 500 W peak power at 1 MHz. Model A has a pulse duration of 40+/-15 ps while Model B has longer pulse duration of 60+/-15 ps but, on the other hand, offers narrower spectrum and higher average power.

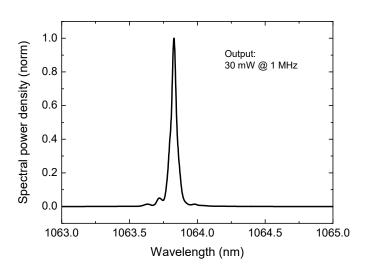
The Kinos is computer-controllable via USB and RS232 interfaces by using either Ampliconyx GUI or command library. The passively cooled, extremely compact < 1.2 liter housing allows the cost-efficient Kinos to be easily integrated into larger optical systems.

Ask us for further information and customizations!

PERFORMANCE

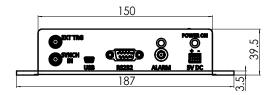
See below for the output pulse shape and the corresponding spectrum of Kinos - 1064 - B at 1 MHz.

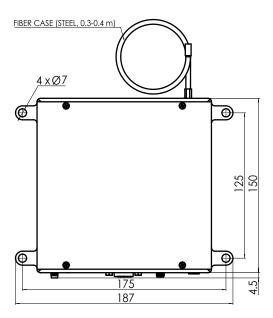




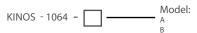
SPECIFICATIONS, DIMENSIONS

DIMENSIONS





ORDERING INFORMATION



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SPECIFICATIONS

Model A Model B OPTICAL SPECIFICATIONS Mode of operation Pulsed Center wavelength 1064 ± 2 nm Avg. output power (@ 1 MHz) >20 mW Pulse energy (@ 1 MHz) >20 mJ Pulse energy (@ 1 MHz) >20 mJ Pulse duration 40 ± 15 ps 60 ± 15 ps 60 ± 15 ps Spectral FWHM < 0.3 nm Output polarization Linear Polarization extinction ratio > 18 dB Beam quality M² < 1.1 Laser output FC/APC connector (PM 980 fiber) Output isolation ≥ 22 dB MECHANICAL / ELECTRICAL Laser dimensions Laser dimensions 187 x 155 x 40 mm Laser weight < 1.3 kg Supply voltage 4.8 5.2 VDC Power supply current ≤ 3 A Power consumption ≤ 15 W Operation temperature +10 +50 C Storage temperature -20 +70 C Cooling Passive Operating humidity < 85 % Storage humidity < 95 %			
Mode of operation Pulsed Center wavelength 1064 ± 2 nm Avg. output power (@ 1 MHz) > 20 mW > 30 mW Pulse energy (@ 1 MHz) > 20 nJ > 30 nJ Repetition rate 0.5 MHz - 10 MHz* Pulse duration 40 ± 15 ps 60 ± 15 ps Spectral FWHM < 0.3 nm < 0.1 nm Output polarization Linear Polarization extinction ratio > 18 dB Beam quality M² < 1.1 Laser output FC/APC connector (PM 980 fiber) Output isolation ≥ 22 dB MECHANICAL / ELECTRICAL Laser dimensions 187 x 155 x 40 mm Laser weight < 1.3 kg Supply voltage 4.8 5.2 VDC Power supply current ≤ 3 A Power consumption ≤ 15 W Operation temperature +10 +50 C Storage temperature -20 +70 C Cooling Passive Operating humidity < 85 % Storage humidity < 95 % External trigger output 3.3 5 VDC (50 Ω) Control interfaces USB,		Model A	Model B
Center wavelength 1064 ± 2 nm Avg. output power (@ 1 MHz) > 20 mW > 30 mW Pulse energy (@ 1 MHz) > 20 nJ > 30 nJ Repetition rate 0.5 MHz - 10 MHz* Pulse duration 40 ± 15 ps 60 ± 15 ps Spectral FWHM < 0.3 nm	OPTICAL SPECIFICATIONS		
Avg. output power (@ 1 MHz) Pulse energy (@ 1 MHz) Pulse energy (@ 1 MHz) Pulse duration 40 ± 15 ps 5pectral FWHM Output polarization Linear Polarization extinction ratio Beam quality FC/APC connector (PM 980 fiber) Output isolation MECHANICAL / ELECTRICAL Laser dimensions 187 x 155 x 40 mm Laser weight Claser weight Also Also Supply voltage Power supply current Also Storage temperature Cooling Passive Operating humidity Storage humidity Control interfaces CONNECTORS Power "SVDC" Power "SVDC" 2-pin terminal block SMA Jack (73251 - 1350 Molex) Interface connector "USB" Mini-USB	Mode of operation	Pulsed	
Pulse energy (@ 1 MHz) Pulse duration Repetition rate 0.5 MHz - 10 MHz* Pulse duration 40 ± 15 ps 60 ± 15 ps Spectral FWHM < 0.3 nm < 0.1 nm Output polarization Linear Polarization extinction ratio Beam quality FC/APC connector (PM 980 fiber) Output isolation ★ 22 dB ★★★★ 1.1 Laser output Control interfaces CONNECTORS Power "SVDC" Power "SVDC" Power "SVDC" Power supply cutput External trigger input Control interface connector "USB" Mini-USB Pulse duration A 0.5 MHz - 10 MHz* A 0.5 MHz - 10 MHz* A 0.1 nm A 0	Center wavelength	1064 ± 2 nm	
Repetition rate Pulse duration \$\text{40 \times 15 ps} \text{60 \times 17 ps} \text{60 ps} \	Avg. output power (@ 1 MHz)	>20 mW	> 30 mW
Pulse duration Spectral FWHM Output polarization Clinear Polarization extinction ratio Polarization extinction ratio Seam quality M² < 1.1 Laser output FC/APC connector (PM 980 fiber) Output isolation Exert existing the fibre of the fibre	Pulse energy (@ 1 MHz)	>20 nJ	> 30 nJ
Spectral FWHM < 0.3 nm < 0.1 nm Output polarization Linear Polarization extinction ratio > 18 dB Beam quality M² < 1.1	Repetition rate	0.5 MHz - 10 MHz*	
Output polarization Linear Polarization extinction ratio > 18 dB Beam quality M² < 1.1	Pulse duration	40 ± 15 ps	60 ± 15 ps
Polarization extinction ratio Beam quality Beam quality FC/APC connector (PM 980 fiber) Output isolation ≥ 22 dB MECHANICAL / ELECTRICAL Laser dimensions 187 x 155 x 40 mm Laser weight < 1.3 kg Supply voltage Power supply current Power consumption ○ 15 W Operation temperature +10 +50 C Storage temperature Cooling Passive Operating humidity <85 % Storage humidity <95 % External trigger output 2 3.3 VDC External trigger input CONNECTORS Power "5VDC" 2-pin terminal block SMA Jack External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB	Spectral FWHM	< 0.3 nm	< 0.1 nm
Beam qualityM² < 1.1Laser outputFC/APC connector (PM 980 fiber)Output isolation≥ 22 dBMECHANICAL / ELECTRICALLaser dimensions187 x 155 x 40 mmLaser weight< 1.3 kg	Output polarization	Linear	
Laser output FC/APC connector (PM 980 fiber) Output isolation ≥ 22 dB MECHANICAL / ELECTRICAL 187 x 155 x 40 mm Laser dimensions 187 x 155 x 40 mm Laser weight < 1.3 kg	Polarization extinction ratio	> 18 dB	
Output isolation ≥ 22 dB MECHANICAL / ELECTRICAL Laser dimensions 187 x 155 x 40 mm Laser weight < 1.3 kg	Beam quality	$M^2 < 1.1$	
MECHANICAL / ELECTRICAL Laser dimensions 187 x 155 x 40 mm Laser weight < 1.3 kg	Laser output	FC/APC connector (PM 980 fiber)	
Laser dimensions 187 x 155 x 40 mm Laser weight < 1.3 kg	Output isolation	≥ 22 dB	
Laser weight < 1.3 kg	MECHANICAL / ELECTRICAL		
Supply voltage 4.8 5.2 VDC Power supply current ≤ 3 A Power consumption ≤ 15 W Operation temperature +10 +50 C Storage temperature -20 +70 C Cooling Passive Operating humidity <85 %	Laser dimensions	187 x 155 x 40 mm	
Power supply current ≤ 3 A Power consumption ≤ 15 W Operation temperature +10 +50 C Storage temperature -20 +70 C Cooling Passive Operating humidity <85 %	Laser weight	< 1.3 kg	
Power consumption ≤ 15 W Operation temperature +10 +50 C Storage temperature -20 +70 C Cooling Passive Operating humidity <85 %	Supply voltage	4.8 5.2 VDC	
Operation temperature +10 +50 C Storage temperature -20 +70 C Cooling Passive Operating humidity <85 % Storage humidity <95 % External trigger output 2 3.3 VDC External trigger input 3.3 5 VDC (50 Ω) Control interfaces USB, RS232 CONNECTORS Power "5VDC" 2-pin terminal block External trigger output (73251 - 1350 Molex) External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB	Power supply current	≤ 3 A	
Storage temperature -20 +70 C Cooling Passive Operating humidity <85 % Storage humidity <95 % External trigger output 2 3.3 VDC External trigger input 3.3 5 VDC (50 Ω) Control interfaces USB, RS232 CONNECTORS Power "5VDC" 2-pin terminal block External trigger output (73251 - 1350 Molex) External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB	Power consumption	≤ 15 W	
Cooling Passive Operating humidity <85 % Storage humidity <95 % External trigger output 2 3.3 VDC External trigger input 3.3 5 VDC (50 Ω) Control interfaces USB, RS232 CONNECTORS Power "5VDC" 2-pin terminal block External trigger output (73251 - 1350 Molex) External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB	Operation temperature	+10 +50 C	
Operating humidity <85 % Storage humidity <95 % External trigger output 2 3.3 VDC External trigger input 3.3 5 VDC (50 Ω) Control interfaces USB, RS232 CONNECTORS Power "5VDC" 2-pin terminal block External trigger output (73251 - 1350 Molex) External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB	Storage temperature	-20 +70 C	
Storage humidity <95 % External trigger output 2 3.3 VDC External trigger input 3.3 5 VDC (50 Ω) Control interfaces USB, RS232 CONNECTORS Power "5VDC" 2-pin terminal block SMA Jack External trigger output (73251 - 1350 Molex) SMA Jack External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB	Cooling	Passive	
External trigger output 2 3.3 VDC External trigger input 3.3 5 VDC (50 Ω) Control interfaces USB, RS232 CONNECTORS Power "5VDC" 2-pin terminal block SMA Jack External trigger output (73251 - 1350 Molex) External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB	Operating humidity	<85 %	
External trigger input 3.3 5 VDC (50 Ω) Control interfaces USB, RS232 CONNECTORS Power "5VDC" 2-pin terminal block SMA Jack External trigger output (73251 - 1350 Molex) SMA Jack External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB	Storage humidity	<95 %	
Control interfaces USB, RS232 CONNECTORS Power "5VDC" 2-pin terminal block SMA Jack External trigger output (73251 - 1350 Molex) SMA Jack External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB	External trigger output	2 3.3 VDC	
CONNECTORS Power "5VDC" 2-pin terminal block SMA Jack External trigger output (73251 - 1350 Molex) SMA Jack External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB	External trigger input	3.3 5 VDC (50 Ω)	
Power "5VDC" 2-pin terminal block SMA Jack External trigger output (73251 - 1350 Molex) SMA Jack External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB	Control interfaces	USB, RS232	
External trigger output SMA Jack (73251 - 1350 Molex) SMA Jack External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB	CONNECTORS		
External trigger output (73251 - 1350 Molex) SMA Jack External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB	Power "5VDC"	2-pin terminal block	
(73251 - 1350 Molex) SMA Jack External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB	External trigger output	SMA Jack	
External trigger input (73251 - 1350 Molex) Interface connector "USB" Mini-USB		(73251 - 1350 Molex)	
(73251 - 1350 Molex) Interface connector "USB" Mini-USB	External trigger input		
Interface connector "USB" Mini-USB		(73251 - 1350 Molex)	
	Interface connector "USB"		
	Interface connector "RS232"	D-SUB9	

^{*} Other repetition rates are available with external triggering.



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