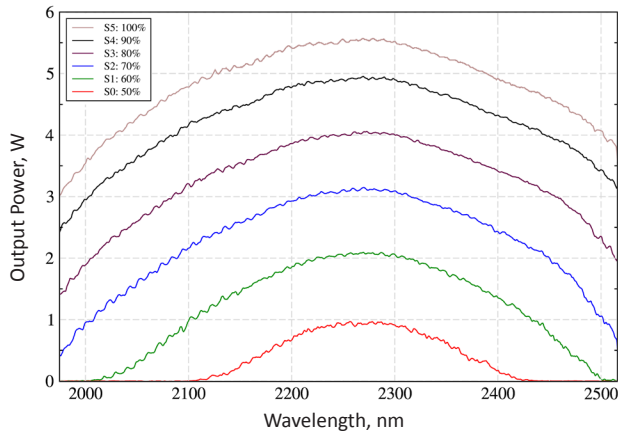
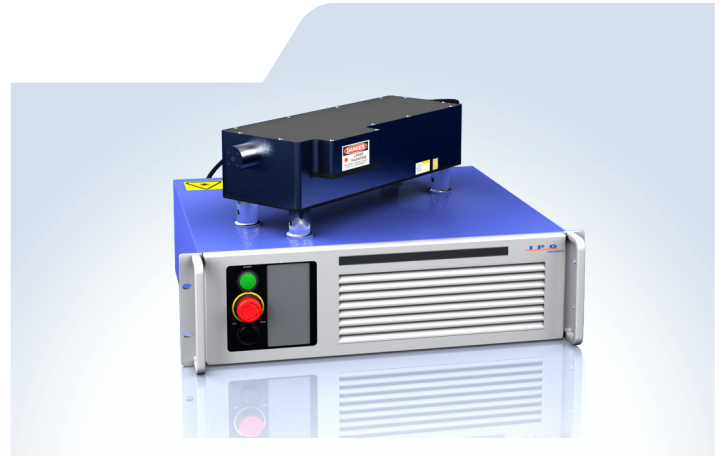


CL-SF and CLT-SF Series

Single-frequency Cr:ZnSe/S Lasers



Output Power vs. Wavelength for Different Levels of Pump Power



IPG Photonics offers single-frequency Cr:ZnSe/S continuous wave Mid-IR lasers. These lasers are offered as either fixed wavelength CL-SF or tunable CLT-SF models. The tunable range is between 1.9 - 2.6 μm with a custom selected central wavelength. The lasers feature a linewidth range of <1 MHz and TEM_{00} beam mode quality. The SF series Mid-IR lasers provide up to 5 W of output power. These lasers are pumped by IPG's efficient and reliable erbium (1.6 μm) or thulium (1.9 μm) CW fiber lasers. Single-frequency Cr:ZnSe/S lasers are used in scientific and R&D applications such as high resolution spectroscopy, OPO pumping and free space communications.



Applications

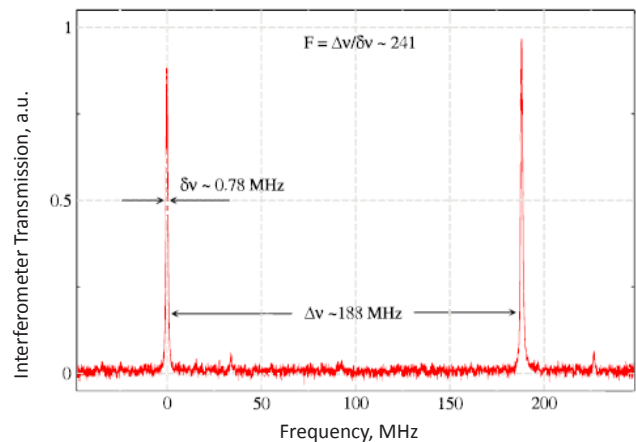
- ▶ High Resolution Spectroscopy
- ▶ Free Space Communications
- ▶ THz Generation by Difference Frequency Mixing
- ▶ Environmental Monitoring
- ▶ Mid-IR OPO Pump Source
- ▶ Frequency Comb Generation



Features

- ▶ Single Longitudinal Mode
- ▶ Tunable Wavelengths within 1.9 - 2.6 μm
- ▶ Narrow Linewidth Operation
- ▶ Output Power up to 10 W
- ▶ Tunable Wavelength Range* up to 500 nm
- ▶ TEM_{00} Output Beam Quality

*with a single set of optics



Interferogram of CLT-SF Radiation using High Resolution Ring Interferometer

CL-SF and CLT-SF Series

Single-frequency Cr:ZnSe/S Lasers

Optical Characteristics	CL-SF	CLT-SF
Mode of Operation	CW	
Central Wavelength Tuning Range*, nm	customer selected in 1.9 - 3.0 μm	tunable in 1.9 - 2.6 μm
Spectral Bandwidth, MHz	0.5 - 10, typ. <1	
Output Power**, W	0.2 - 5, typ. 3	
Polarization	Linear, Horizontal >100:1	
Beam Quality, M ²	< 1.2, typ. \leq 1.1	
Beam Diameter*** (FW, 1/e ²), mm	3 \pm 0.5	
Beam Divergence, mrad	0.2 - 0.5, typ. 0.3	
Warm up Time, min	15 from standby, 60 from cold start	

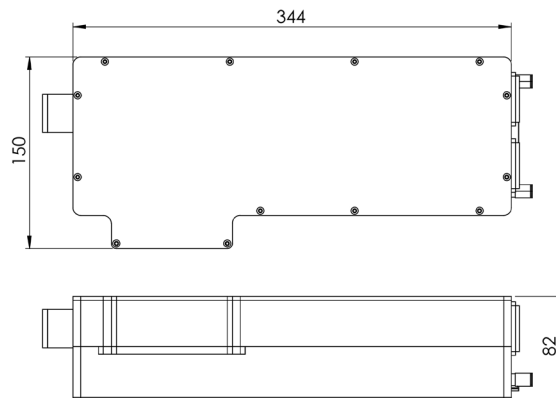
*500 nm continuous tuning with a single set of optics. Wavelength tuning range depends on central wavelength. Rapid tuning option available.

**Custom output powers are available upon request.

***Beam diameter and beam divergence may be adjusted to meet customer specifications.

General Characteristics

Pump Laser	IPG Photonics ELR or TLR CW Fiber Laser
Pump Laser Dimensions (WxDxH), mm	448 x 403 x 132
Optical Head Dimensions (WxDxH), mm	150 x 345 x 87
Supply Voltage 50 - 60 Hz, VAC	110 - 240
Power Consumption, W	200 typ.

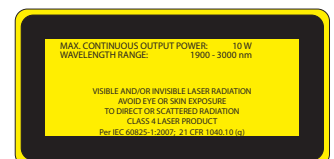


+1 (205) 307-6677

sales.us@ipgphotonics.com

www.ipgphotonics.com/midIR

Legal notices: All product information is believed to be accurate and is subject to change without notice. Information contained herein shall legally bind IPG only if it is specifically incorporated into the terms and conditions of a sales agreement. Some specific combinations of options may not be available. The user assumes all risks and liability whatsoever in connection with use of a product or its application. IPG, IPG Photonics, The Power to Transform and IPG Photonics' logo are trademarks of IPG Photonics Corporation. © 2012-2015 IPG Photonics Corporation. All rights reserved. Protected by US patents 5,541,948; 6,960,486; 7,548,571 and applicable licenses.



The Power to Transform®