Single-Mode Rackmount Fiber Lasers

High-intensity rackmount fiber lasers with power up to 1.5 kW

nLIGHT® single-mode rackmount fiber lasers deliver continuous power with models from 500 to 1500 W and beam quality of $M^2 \leq 1.1$ for advanced applications in e-mobility, welding, and additive manufacturing. The compact size of these lasers facilitates easy integration into machine tools. Like all nLIGHT fiber lasers, the rackmount series includes hardware-based back-reflection protection to enable uninterrupted processing of highly reflective materials.

Features

- **Single-Mode Intensity**
  500 to 1500 W of continuous power with a high-intensity Gaussian beam of $M^2 \leq 1.1$ to support a diverse range of applications.
- **Back-Reflection Protection**
  Hardware-based back-reflection protection allows uninterrupted processing of even the most reflective metals with no material restrictions, process modifications, or damage to the laser.
- **Unparalleled Serviceability**
  Durable design ensures continuous operation in manufacturing environments with easy onsite serviceability to maximize uptime.
- **High-Frequency Modulation**
  Advanced electronics allow faster piercing and processing of fine features along with smaller heat-affected zones.

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nLIGHT Single-Mode Rackmount Fiber Laser Specifications

Models	CFL-500-SM	CFL-700-SM	CFL-1000-SM	CFL-1200-SM	CFL-1500-SM
Optical Specifications					
Mode of Operation	CW/Modulated				
Polarization	Random				
Maximum Average Power	0.5 kW	0.7 kW	1.0 kW	1.2 kW	1.5 kW
Power Tunability	5 – 100%				
Power Variation, 8-Hour	≤ 1%				
Modulation Frequency	≤ 100 kHz				
Rise and Fall Times	≤ 5 µs				
Beam Quality	$M^2 \leq 1.1$				
Fiber Core Diameter	14 µm				
Wavelength	1070 ± 10 nm				
Electrical Specifications					
Supply Voltage	200 to 240 VAC, single phase, 50/60 Hz				
Control Interface	External hardware control, analog power control, GUI, RS-232/Ethernet				
Mechanical Specifications					
Dimensions (W x D x H)	430 x 677 x 177 mm				
Optical Fiber[1]	5 and 10 m, QBH connector				
Cooling Method	Water				
Environmental Specifications					
Operating Temperature[2]	10 to 40°C				
Storage Temperature	-10 to 60°C				
Relative Humidity	10 to 80%				

[1] Configuration dependent
[2] Non-condensing or with use of CDA

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