

ELM/ELR SERIES

Erbium Fiber Lasers

Customer Selected Wavelength
in 1535 - 1575 μm Range



FEATURES

- ▶ Selectable Wavelength near 1.5 μm
- ▶ Output Power up to 100 W
- ▶ Excellent Beam Quality
- ▶ Air Cooling Option up to 100 W
- ▶ Compact, Rugged, & Easy to Install



APPLICATIONS

- ▶ Polymer Welding
- ▶ Remote Sensing
- ▶ Optical Pumping
- ▶ Scientific, Telecom, & Medical Applications

ELM and **ELR** lasers are continuous wave (CW) Erbium fiber lasers with customer selected wavelengths in the 1535-1575 nm spectral range with single-mode beam quality up to 100 W and multi-mode 150 W output. These lasers are offered as both OEM modules (ELM) and end-user friendly 19" rack-mountable units (ELR). Turnkey operation, compact size, simplicity, and unique reliability make these lasers an ideal "eye-safe"* infrared source for both commercial and lab applications.

Customers can select from a wide range of custom options including direct modulation, optical isolation, touch-screen display, delivery fiber length, air or water cooling, optical termination, and more. ELM and ELR lasers are randomly polarized. Scientific users can also purchase linearly polarized and single-frequency ELR-LP, ELR-SF, and ELR-LP-SF CW lasers and EAR-LP, EAR-SF, and EAR-LP-SF CW amplifiers.

* "Eye-Safe" operation generally means that eye damage threshold is orders of magnitude higher than for 1 μm lasers. Nevertheless, ELM and ELR are a Class IV laser products. IPG Photonics recommends that appropriate eyewear is worn and laser safety procedures are followed

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Optical Characteristics*	ELM	ELR	ELR-MM
Central Wavelength Range*, nm	1535 - 1575		1-100
Linewidth FWHM, nm	< 1		
Mode of Operation	CW/Modulated		
Modulation Frequency, kHz	< 2		<1
Maximum Average Power**, W	1, 5, 10, 20, 30, 50,100		150
Power Tunability, %	10-100		3 - 100
Power Stability***, %	±1 typ.		
Optical Noise****, %RMS	<2 , typ. 1		<3 , typ. 1.5
Polarization	Random		
Beam Quality, M ²	M ² <1.1		BPP 3 mm × mrad

*Custom central wavelengths are available upon request in the specified range; 1550 nm if not specified

**Maximum output power may be limited by wavelength selection

Higher power Erbium ELS CW Laser Systems provide multiple kilowatts of output power. Please contact your IPG Representative.

***Over 4 hours, T=const

****10 kHz to 10 MHz

General Characteristics	ELM	ELR	ELR-MM
Air-cooled Dimensions, mm	270 × 255 × 75	1-50 W: 448 × 403 × 132 100 W: 448 × 503 × 177	N/A
Water-cooled Dimensions, mm	N/A	448 × 580 × 132	448 × 550 × 132
Weight, kg	<7	Air-cooled <20 Water-cooled <40	<30
Cooling	Air	Air or Water	Water
Supply Voltage	24 VDC	100-120 or 200-240* VAC 1-phase, 50-60 Hz	
Power Consumption**	2% at 1 W, 15 % at 100 W typ.		

* Depends on output power.

** Electrical efficiency increases with output power.



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