

ELR Series

“Eye-Safe”* High Power Single Mode Erbium Fiber Lasers Industrial 19” Rack-Mounted Units



Main Features:

- ✓ Output optical powers from 1 to 150W
- ✓ Wavelengths from 1530 to 1620nm
- ✓ Over 10% wall-plug efficiency
- ✓ Excellent TEM_∞ beam quality
- ✓ >50,000 hours pump diode lifetime
- ✓ Air-cooled

Applications:

- ✓ *Marking*
- ✓ *Micromachining*
- ✓ *Mid-IR Crystal Laser and OPO Pumping*
- ✓ *Biomedicine*
- ✓ *3D Sintering*
- ✓ *Research & Development*

The **ELR Series** laser is a unique instrument that combines a diffraction-limited, high-power CW light source in “eye-safe”* (1530 to 1620nm) spectral range with all-solid-state laser reliability. Its turnkey operation, compact size, and air-cooled simplicity makes it an ideal light source for material processing and a variety of IR systems. First manufactured in 1994 for airborne applications, these lasers have since been deployed in a vast variety of telecom test, R&D, and medical applications. Now with higher powers, more options and even better efficiency and reliability, the **ELR Series** remains the best solution for a zero-maintenance manufacturing or laboratory light-source.

Purchasers can select from a wide range of options including: random, linear or circular polarization, 50KHz to 4nm linewidth, direct (up to 5KHz) or AOM (up to 20MHz) modulation, optical isolation at the output, package, redundancy, termination and many others. An extensive user friendly front panel and RS232 and GPIB interface allows you to keep an **ELR** laser as an easy part of your industrial workstation, medical or test system, or a final computer-controlled masterpiece.

IPG’s **ELR Series** is an exciting product line that does not have any analogs on the market. Unmatched pump diodes lifetime makes these lasers even more attractive for any application.

* - “Eye-Safe” operation generally means that eye damage threshold is significantly higher than for 1064nm lasers. Nevertheless, IPG recommends that appropriate eyewear be worn and laser safety procedures be followed.

Typical Specifications

Optical Parameters	Unit	ELR-10	ELR-20	ELR-50	ELR-100
Mode of operation			CW or modulated		
Central emission wavelength ¹	nm	1529-1620	1530-1600	1540-1580	1550-1570
Linewidth (FWHM)	nm	<1	<1	<2	<3
Nominal output power ²	W	10	20	50	100
Output power tunability	%	10-110	10-105	10-105	10-105
Output power stability (long term)	%	+/-1	+/-2	+/-2	+/-3
Typical beam quality	M ²	<1.05	<1.05	<1.05	<1.1
Polarization ³		random	random	random	random
Noise (1kHz - 20MHz)	%	<1.5	<1.5	<2	<2
Electrical Parameters					
Operating voltage	VAC	110/220	110/220	110/220	175/240
Maximum power consumption	W	100	200	500	1200
Cooling method ⁴		air	air	air	air or water
General Parameters					
Dimensions		3U 19"rack	3U 19"rack	4U 19"rack	6U 19"rack
Weight	kg	15	20	40	60
Ambient temperature ⁵	°C	0-45	0-45	0-45	0-45

- 1 - Fixed wavelength. Preselected by customer and set at factory.
- 2 - Higher powers available. Up to 1kW in a multimode version.
- 3 - Linear polarization version is available on request.
- 4 - Customer can specify version.
- 5 - Extended ambient temperature range is available on request.

Options

- Power Modulation by pump current (0 to 5kHz) or AO modulator (0 to 5MHz)
- Linear Polarization
- Narrower (kHz) or Broader Linewidth
- Output Termination
- Output Fiber Delivery Length
- Custom Mechanical and Electrical Interface
- Extended Warranty

General Environmental Parameters

Parameter	Unit	Min.	Max.
Operating temperature*	°C	0	+45
Storage temperature	°C	-40	+70
Humidity	%	0	95
Warm up time	min	0.5	5

* Temperature range can be extended on customer request

Control Interface

Parameter	Unit
Output power	digital/analog
Diode current	digital/analog
Diode temperature	digital/analog
Interface	RS232/GPIB

CAUTION: USE OF CONTROLS, ADJUSTMENTS AND PROCEDURES OTHER THAN THOSE SPECIFIED MAY RESULT IN HAZARDOUS LASER RADIATION EXPOSURE. WEAR PROPER SAFETY EYEWEAR DURING OPERATION.

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