



YLR-1070 Series Ytterbium Fiber Lasers

Output Power up to 4000 W



Applications

- ▶ Precision Cutting and Scribing
- ▶ Microdrilling, Blind Hole Machining
- ▶ Welding
- ▶ Sintering/ 3D Printing
- ▶ Heat Treating
- ▶ Scientific and Advanced Applications



Features

- ▶ Wavelength 1.07 μm^*
- ▶ Output Power 100 W to 4 kW
- ▶ Single-mode up to 2 kW
- ▶ Direct Modulation up to 50 kHz
- ▶ Air-cooled up to 700 W
- ▶ High Reliability, Low Cost

* Other wavelengths in 1006-1080 nm range are available upon request.

YLR-1070 Series diode-pumped CW fiber lasers provide a unique combination of high power, high stability, ideal beam quality, fiber delivery, ultra-long lifetime and record wall-plug efficiency. Single-mode output up to 2 kW may be integrated via collimator or QBH plug-in connector. Multi-mode output is emitted from a step index fiber with core diameter from 50 to 200 μm , allowing optimal performance in critical welding and additive manufacturing applications. Air-cooled units are available up to 700 W and water-cooled units up to 4 kW.

The CW output can be modulated up to 50 kHz. The YLR-1070 compact 19" rack mounted packages offered as a cost effective, adaptable solution for a clean room system or for integration into a production line. Featuring optional front panel touch display or standard rear Analog, RS-232 or Ethernet controls, the rack mount configuration is ideal for a variety of applications from precision materials processing to advanced and scientific applications. Beam delivery options include coupler, beam switch (time or energy share) and delivery optics such as cutting and welding heads.

YLR-1070 Series

Ytterbium Fiber Lasers

Optical Characteristics

| | |
|------------------------------------------|--------------------------------------------|
| Central Wavelength*, nm | 1070 ±10 |
| Mode of Operation | CW/Modulated |
| Modulation Frequency, kHz | 0-50 |
| Maximum Average Power, W | 100 to 4000 |
| Power Tunability, % | 10-100 |
| Power Stability**, % | ± 0.5 |
| Optical Noise***, % RMS | <2, typ.1 |
| Output Fiber Core | Single-mode or 50, 100 and 200 µm diameter |
| Single-mode Beam Quality, M ² | <1.1 (up to 2 kW) |
| Beam Parameter Product, mm × rad | <2 @ 50 µm, <5 @ 100 µm, <10 @ 200 µm |

* Other wavelengths in 1006-1080 nm range are available upon request. ** Over 4 hours, T=const *** 10 kHz to 10 MHz

General Characteristics

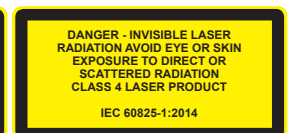
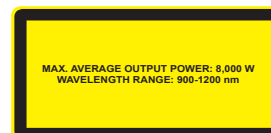
| Cabinet Dimensions (W × D × H), mm | Output Power, W | Cooling | Weight, kg | Supply Voltage, VAC |
|------------------------------------|------------------------|--------------|--------------------------------|--------------------------------|
| 448 × 394 × 133 | 100 | Air-cooled | <25 | single-phase 50/60 Hz 100-240 |
| 448 × 500 × 177 | 200, 300 | | <30 | single-phase 50/60 Hz 100-240 |
| | 400 | | | single-phase 50/60 Hz 200-240 |
| 448 × 497 × 266 | 500, 700 | | <50 | single-phase 50/60 Hz 200-240 |
| 448 × 580 × 133 | 100, 200, 300 | Water-cooled | <30 | single-phase 50/60 Hz, 100-240 |
| | 400, 500, 600, 700 | | | single-phase 50/60 Hz, 200-240 |
| | 1000 | | <50 | single-phase 50/60 Hz, 200-240 |
| 1500 | <70 | | single-phase 50/60 Hz, 200-240 | |
| 448 × 798 × 177 | 2000, 2500, 3000, 4000 | | <80 | |

Single-mode lasers are equipped with a 5 mm beam diameter affixed collimator for powers up to 400 Watts; 500 - 4,000 Watt lasers terminate to an HLC-8 connector. Affixed collimator options include beam diameters in either 2.5 or 7.5 mm. IPG manufactures a complete suite of optical beam delivery components including delivery fiber and optics, collimators, beam couplers, switches and sharers, and processing heads and scanners, as well as process control and tooling solutions. Interchangeable collimators and processing heads connect easily to the HLC-8.

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