



LaserNGN HIGH-POWER GAIN MODULE

SOLUTION OVERVIEW

INO LaserNGN is optimized for high peak power and high average power applications. The tapered optical fiber at the heart of the gain module is based on our low photodarkening core chemistry and features a distinctive and proprietary refractive index profile. The result is a TMI-free operation at up to 100 W of average output power, with excellent beam quality and good polarization maintenance. The module can be easily integrated to a pigtailed oscillator with its standard 10/125 PM input fiber.

The module integrates everything needed to handle power, high thermal load and high peak fluence pulses:

- 56 μm core diameter output
- large endcap
- liquid cooled
- robust pump stripper

APPLICATIONS

- High power ultrafast fiber laser
- Frequency conversion

FEATURES

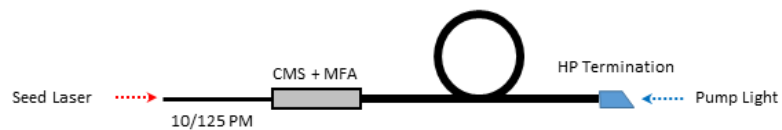
- Singlemode-like output
- Easy to integrate
- Liquid cooled
- Robust construction
- Long lifetime, TMI-free operation

BENEFITS

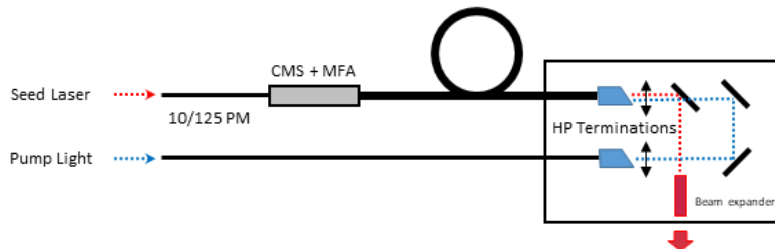
- High nonlinear threshold
- High peak power
- High average power
- High gain
- Excellent beam quality
- Good polarization maintaining capabilities
- Broad gain bandwidth
- Excellent optical-to-optical efficiency

LASERNGN GAIN MODULE

Counter-pumping



Counter-pumping with the pump injection module



Schematic representation of the LaserNGN gain module

MAIN SPECIFICATIONS

| PARAMETERS | SPECIFICATIONS | NOTES |
|----------------------------------|--------------------------------------|--|
| Amplifier Fiber | Yb-MCOF-35/250-56/400-07-2.2-T0.7-PM | |
| Rated Output Power | 100 W | |
| Gain | 30 dB max @ 1064 nm | |
| Peak Power Class | 500 kW max | Actual performance depends on the pumping wavelength, pumping configuration, seed wavelength, seed power, seed spectral characteristics and seed temporal format . |
| Input Pump Power Counter-Pumping | 150 W total max | 400 μ m , NA <0.15 or equivalent brightness |
| Pumping Wavelength | 976 nm wavelength-locked | |
| Gain Bandwidth | 1020-1080 nm | |
| M ² | <1.3 (D4 σ) | ISO Standard 11146 |
| Polarization Extinction Ratio | >16 dB | |
| Slope Efficiency | >70% @ 1064 nm | |
| Recommended Seeding Power | >500 mW | >500mW seeding power is recommended for operation at 100W output power. Lower seeding power is acceptable when operating the module at lower output power. |
| Input Fiber | 10/125 μ m | Low NA, PM |
| High Power Terminaison | Integrated to the module | 10 x 10 mm endcap, angle polished (2°) & AR coated |
| Dimensions | 481 X 451 X 29 mm ³ | |
| Case Temperature | 20 +/- 2°C | Cooling liquid temperature |
| Cooling | Water cooled | Minimum flow rate > 2 L/min |

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