



LaserNGN-40mini

HIGH-POWER GAIN MODULE

SOLUTION OVERVIEW

INO LaserNGN-40mini is optimized for high peak power and high average power applications. The 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 gain module that can be operated 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:

- 40 μm core diameter output
- large endcap
- liquid cooled

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



MAIN SPECIFICATIONS

| PARAMETERS | SPECIFICATIONS | NOTES |
|--|--|---|
| Rated Average power* | 100W | |
| M^2 | ≤ 1.15 (CMOS - ISO Standard 11146) | Measured with a 33mm EFL plano-convex spherical lens for collimation |
| Beam diameter | 2 mm (typical) | Measured 60 cm from the collimating lens (33mm EFL plano-convex spherical lens) |
| Wavelengths | 1030nm, 1064nm | |
| Pumps (λ , ϕ , NA, #) | 976nm, 105/125 0.22, 2x | |
| Input fiber | PM 10/125 NA 0.08 | |
| Pumping configuration | Co-pumping | |
| Gain* | <26dB | |
| PER | ≥ 16 dB | (at 1064nm) |
| Polarization orientation | Vertical, perpendicular to the module | |
| High power termination | 8 x 16.5 mm endcap, AR coated | |
| Recommended module temperature | $20 \pm 5^\circ\text{C}$ | |
| Efficiency | $\geq 80\%$ | |
| Certifications | RoHS, REACH, CE | |
| Peak power class* | 200kW (Actual performance depends on seed power, seed spectral characteristics and seed temporal format) | |
| Power stability | $\leq 1\%$ over 8h | |
| Dimensions (AA x CC x DD mm ³) | 254x250x11 mm ³ | (without cold plate) |
| Dimensions (AA x CC x DD mm ³) | 254x250x34 mm ³ | (with cold plate) |
| Weight (without cold plate) | <1.4kg | |
| Weight (with cold plate) | <2.3kg | |
| Temperature (non-operationnal) | -20°C à 55°C | |
| Transport (non-operationnal) | MIL-STD810H 514.8C-3 Category 4 MIL-STD810H 516.8 | |

* Based on 300mW seed power

CONTACT US

1 866 657-7406 | info@ino.ca

ino.ca



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Québec (Head Office)
2740 Einstein Street
Québec (Québec) G1P 4S4
CANADA
418 657-7006

Hamilton
175 Longwood Rd. S., suite 305
Hamilton, ON L8P 0A1
CANADA
1 866 657-7406

INO