



1 μ m Single Frequency PM Fiber Amplifiers

The Nufern NuAMP SF series of high power, polarization maintaining fiber amplifiers are specifically designed to operate in conjunction with ultra narrow linewidth, single frequency seed lasers based on distributed feedback (DFB) fiber lasers or solid state technologies. Capable of amplifying low power input signals with kHz linewidth to 2, 5 and 10 W of power, these monolithic amplifiers use large mode area fiber technology to overcome non-linearities such as stimulated Brillouin scattering (SBS) and maintain critical seed laser characteristics such as narrow linewidth and relative intensity noise (RIN). The NuAMP SF series includes input isolation (>30 dB at RT) and input/output interlocks to prevent system failure due to loss of signal and high back reflection, and to protect the seed source (response time of <10 μ sec).

Typical Applications

- Sensing
- LIDAR
- Spectroscopy
- Test and Measurement

Features and Benefits

- Single mode, TEM₀₀ beam with linearly polarized output — Coherent or spectral beam combining and harmonic frequency conversion to visible and UV
- Optimized for single frequency seed lasers — Maintain linewidth, frequency stability and RIN of the seed
- Complete optical train including pump diodes — Highly flexible platform, ideal for OEM integration
- Automatic shutdown of pump diodes, should seed laser fail — Protects system from failure

Optical Specifications¹

Output Power
Input Isolation (Nominal)
Mode of Operation
Output Power Tunability
Central Wavelength (10XX \pm 2 nm) ²
PER at Rated Power (Nominal)
Input Seed Power ³
Input Signal Linewidth (Nominal)
Peak-to-Peak Power Stability (Nominal) ⁴
Beam Quality

Mechanical Specifications

Input Fiber and Connector
Free Space Output Fiber Termination
Signal Tap at Output (Nominal)
Package Size ⁵

Electrical Requirements

Drive Voltage/Current

Options

Center Wavelength (XXXX \pm 2 nm)
Output Isolation (-Z)

SFA-PMXXXX-2W-Z

2 W
30 dB
CW
10–100 %
1064–1083 nm
15 dB
>50 mW
10 kHz
3 %
Single Mode, TEM ₀₀

SFA-PMXXXX-5W-Z

5 W
30 dB
CW
10–100 %
1064–1083 nm
15 dB
>50 mW
10 kHz
3 %
Single Mode, TEM ₀₀

SFA-PMXXXX-10W-Z

10 W
30 dB
CW
10–100 %
1064–1083 nm
15 dB
>50 mW
10 kHz
3 %
Single Mode, TEM ₀₀

PM980-HP in FC/APC
PM 10/125 in FC/APC
0.01 % with FC/APC
294 mm x 217 mm x 50 mm

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5 V/0.5 A (constant voltage) & 2 V/0–9 A (constant current)
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5 V/0–9 A (constant voltage) & 7 V/0–9 A (constant current)
--

5 V/0–9 A (constant voltage) & 7 V/0–9 A (constant current)
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1064–1083 nm
No Isolator (-0), Fiber to Fiber Isolator (-1), or Fiber to Free Space Isolator (-2)

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No Isolator (-0), Fiber to Fiber Isolator (-1), or Fiber to Free Space Isolator (-2)

1064–1083 nm
No Isolator (-0), Fiber to Fiber Isolator (-1), or Fiber to Free Space Isolator (-2)

¹All specifications are at RT and proper heatsinking is required. ²Other wavelengths can be accommodated. ³Options with lower input signal power are possible. ⁴Stability is measured over 2-hour period and calculated using (max-min)/Avg. Lower noise options are available. ⁵Custom OEM packaging available on request.

Naming Conventions:

SFA-PMXXXX-YW-Z

Central Wavelength
(between 1064–1083 nm)

Output power: 2, 5, or 10 W

Output isolation
-0 = No isolator,
-1 = Fiber to Fiber Isolator
-2 = Fiber to Free Space Isolator



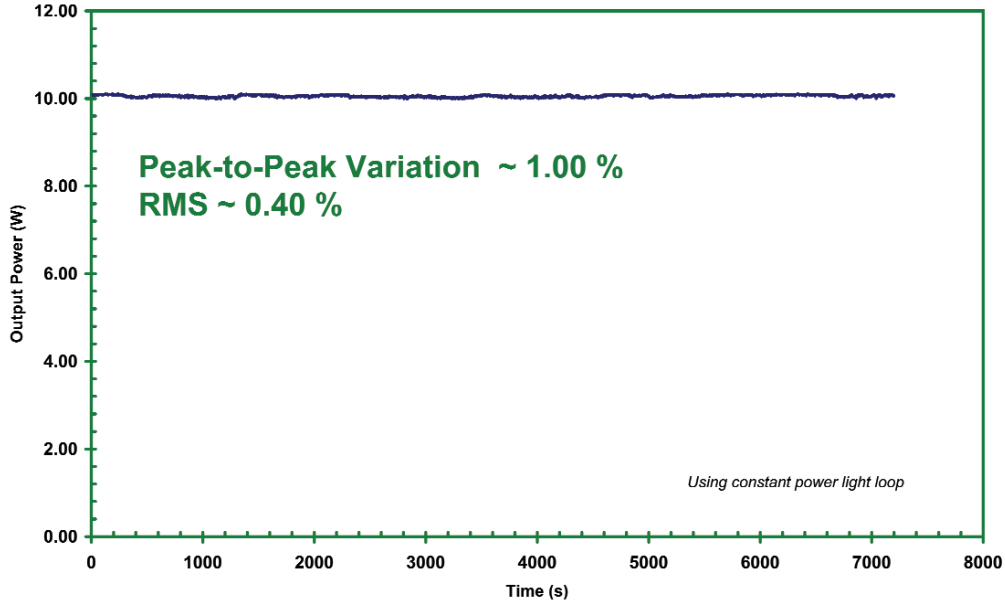
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Standard specifications and design parameters are listed above. Specifications are subject to change without notice.

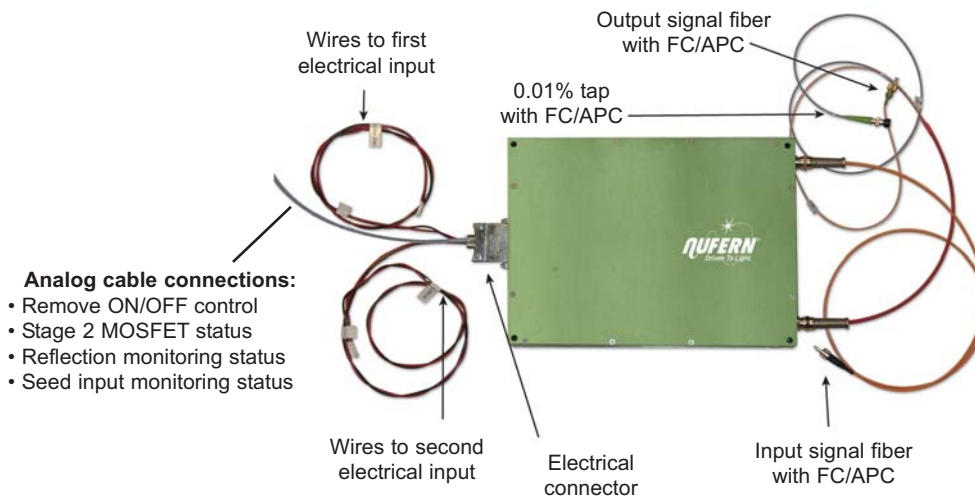


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Typical Output Stability of 10 W Single Frequency Linearly Polarized Amplifier Operating at < 2 kHz Linewidth



Standard amplifier package



Safety and Operating Considerations

The laser light emitted from this laser system is invisible and will be harmful to the human eye. Proper laser safety eyewear must be worn during operation.

21 CFR 1040.10 Compliance

These products are Class 4 lasers as designated by the Center for Device and Radiological Health (CDRH). They are specifically designed to be an OEM laser device for incorporation or integration into other equipment. As such, they DO NOT MEET the full requirements for a stand-alone laser system as defined by 21 CFR 1040.10 under the Radiation Control for Health and Safety Act of 1968. It is the responsibility of the equipment manufacturer to meet all of the regulatory requirements for the full system.

