

1.5ミクロン帯単一周波数 Erファイバーレーザ増幅器



1.5 μm Single Frequency, PM, Fiber Amplifiers (Gen. II)

The Nufern NuAMP PSFA family of high power, polarization maintaining fiber amplifiers offer the broadest operating wavelength range in the industry. They 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 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 msec).

Typical Applications

- LIDAR & sensing
- Spectroscopy
- Test and Measurement
- Frequency conversion
- Coherent or spectral beam combining
- Atom cooling & trapping

Features and Benefits

- Single mode, TEM₀₀ beam with linearly polarized output — Useful for high-precision applications
- Optimized for single frequency seed lasers — Maintain linewidth, frequency stability and RIN of the seed
- Complete optical train including pump diodes with integrated diode drivers — Highly flexible for OEM integration
- Signal input, output power & back-reflection monitoring — Automatic system protection
- Optional control box — Provides PC control via USB, E-stop, key switch, and remote interlock

Optical Specification¹

	PSFA-1550-VV-2W-Y-Z	PSFA-1550-VV-5W-Y-Z	PSFA-1550-VV-10W-Y-Z
Output Power	2 W	5 W	10 W
Output Power Adjustment (nominal)	10–100%	10–100%	10–100%
Power Stability ²	< 3%	< 3%	< 3%
Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀
Output Type	No isolator, FC/APC Fiber to fiber isolator, FC/APC Fiber to free space isolator	No isolator, FC/APC Fiber to fiber isolator, FC/APC Fiber to free space isolator	No isolator, FC/APC Fiber to fiber isolator, FC/APC Fiber to free space isolator
Mode of Operation	CW	CW	CW
Polarization	Linear	Linear	Linear
PER at Rated Power	> 13 dB with isolator	> 13 dB with isolator	> 13 dB with isolator
Operating Wavelength	1540 – 1560 nm	1540 – 1560 nm	1540 – 1560 nm
Signal Input Power	1–15 mW 15 – 50 mW 50 – 200 mW	1–15 mW 15 – 50 mW 50 – 200 mW	1–15 mW 15 – 50 mW 50 – 200 mW
Signal Input Isolation	> 30 dB	> 30 dB	> 30 dB
Input Signal Linewidth	< 10 kHz	< 10 kHz	< 10 kHz

¹ All specifications are at RT and proper heatsinking is required.

² Stability is measured over 2-hour period & calculated using (max-min)/Avg.

³ Custom OEM packaging available on request.



Naming Conventions:

PSFA-1550-VV-WW-Y-Z

Input Power
01 = 1-15 mW
15 = 15-50 mW
50 = 50-200 mW

Output Power
2 = 2W
5 = 5W
10 = 10W

Output Isolation

0 = No isolator, FC/APC Connector
1 = Fiber to fiber isolator, FC/APC Connector
2 = Fiber to free space isolator

Other Options

1 = With NuControl Box
2 = With Cold Plate
3 = With NuControl Box & Cold Plate
0 = No Options

光技術をサポートする

株式会社オプトサイエンス

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1.5 μm Single Frequency, PM, Fiber Amplifiers (Gen. II)

Mechanical Specifications

Delivery Fiber Length	1 m
Output Cable Type	Armored cable
Input Type	FC/APC bulkhead
Dimensions ³	275 x 250 x 37 mm
Weight	3.9 kg

Electrical Specifications

DC Supply Voltage	24 VDC
Current Consumption	3 A
Digital Interfaces	NuCONTROL

Environmental Specifications

Cooling	Water cooled
Cold Plate Dimensions	305 x 178 x 14 mm

PSFA-1550-VV-2W-Y-Z

PSFA-1550-VV-5W-Y-Z

PSFA-1550-VV-10W-Y-Z

Delivery Fiber Length	1 m
Output Cable Type	Armored cable
Input Type	FC/APC bulkhead
Dimensions ³	275 x 250 x 37 mm
Weight	3.9 kg

Delivery Fiber Length	1 m
Output Cable Type	Armored cable
Input Type	FC/APC bulkhead
Dimensions ³	275 x 250 x 37 mm
Weight	3.9 kg

DC Supply Voltage	24 VDC
Current Consumption	6 A
Digital Interfaces	NuCONTROL

DC Supply Voltage	24 VDC
Current Consumption	8 A
Digital Interfaces	NuCONTROL

Cooling	Water cooled
Cold Plate Dimensions	305 x 178 x 14 mm

Cooling	Water cooled
Cold Plate Dimensions	305 x 178 x 14 mm

Standard *NUAMP* Package



Optional *NUCONTROL* Box



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6,779,364; 6,950,586; 7,003,206; 7,050,686; 7,062,137; 7,110,647; 7,116,887; 7,167,621; 7,317,857; 7,371,019; 7,386,210; 7,400,812; 7,483,610; 2006/0198590; 2008/0095199 and more specifically the following licensed from:

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Rev A



**INVISIBLE LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO
DIRECT OR SCATTERED RADIATION
CLASS 4 LASER PRODUCT**

1.53–1.6 μm (1.55 μm nominal) Output Wavelengths
 ≤ 50 W Avg. Power Max.



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

