

E A R Series

1 to 50 W Single-Mode High Power Erbium Fiber Amplifiers

Description

The **E A R Series** is a line of universal broadband, high power, randomly or linearly polarized, single-mode fiber amplifiers covering the spectral range from 1540 to 1600nm. The series includes 1W to 50 W saturated output power versions. These user friendly and highly efficient bench-top or 19" rack mounted devices are designed for maintenance free applications over a temperature range of 0°C to +50°C. **E A R Series** is basic series optimized for randomly or linearly (-LP) polarized signals with >1GHz linewidth. Although amplifiers optimized for single frequency signals are also available on request (-SF). These amplifiers can be used for variety of applications including components stress testing, free-space communications, detection system, and other laboratory and in-field applications. **E A R Series** amplifiers do not need water cooling or replacement parts. They required only a 110/220 V AC power source to boost your mW signal to tens of Watts of optical power.



Features

Up to 50 W saturated output power

Randomly or linearly polarized

Maintenance-free operation

"Eye-Safe" operation

User friendly interface

Extremely reliable

Automatic power and current controls

Common Parameters

The standard **E A R Series** amplifier provides amplification of input signals in the 1540-1600nm region. Typical bandwidth of the amplifier is 10-20nm (depending on output power) which allows a tunability of input signal for exact wavelength matching.

Amplifier input and output are provided by a 1-2 meter optical fiber cable with connectors or bare fiber at the input and a bare fiber or beam collimator (standard beam diameter is 5mm) at the output. Standard amplifier has 25-30 dB input optical isolation and <-30 dB residual pump power at the input and output ports. Typical extinction ratio is ~17-20 dB. Optional output free space output isolator is also available on request. The **E A R Series** amplifier provides control over all amplifier parameters as a saturated output power and pump diodes current as well as readings of temperature and output power over GPIB, RS-232 or user friendly manual interfaces.

All **E A R Series** amplifiers utilize broad stripe (1x100μm) pump diodes with a nominal wavelength of ~965nm. An estimated lifetime of this diodes is >100,000 hrs at 25°C.

Typical Performance

Parameters	Unit	EAR-10K-C(L)	EAR-20K-C(L)	EAR-30K-C(L)	EAR-50K-C
Mode of operation ¹		CW	CW	CW	CW
Polarization of output signal ²		random	random	random	random
Operating wavelength range ³	nm	1540-1600	1540-1600	1540-1600	1550-1570
Operating bandwidth (FWHM)	nm	20	20	10	10
Central operating wavelength ⁴	nm	1 5 5 0		1 5 5 0	
Input power range ⁵	mW	3-30	3-30	3-30	3-10
Input signal linewidth ⁶	GHz	>1	>1	>1	>1
Saturated output power (P _{IN} =3 mW)	W	10	20	30	50
Output power tunability	%	5-100	5-100	5-100	5-100
Output power stability (over 8 hrs) ⁷	%	2	2	2	3
Relative residual pump at input/output ports	dB	-30	-30	-30	-30
Maximum power consumption (at 20°C)	W	200	350	500	750
Dimensions ⁸		3RU 19"	3RU 19"	3RU 19"	4RU 19"

1 - Pulsed operation is available on request.

2 - Linear polarization is available on request (-LP option)

3 - Central wavelength could be selected in this range although bandwidth would be as specified in the spec.

4 - Typical central wavelength. Other central wavelengths are available on request.

5 - Higher and lower input power versions powers are also available.

6 - Single frequency signal optimized amplifiers are available on request (-SFoption).

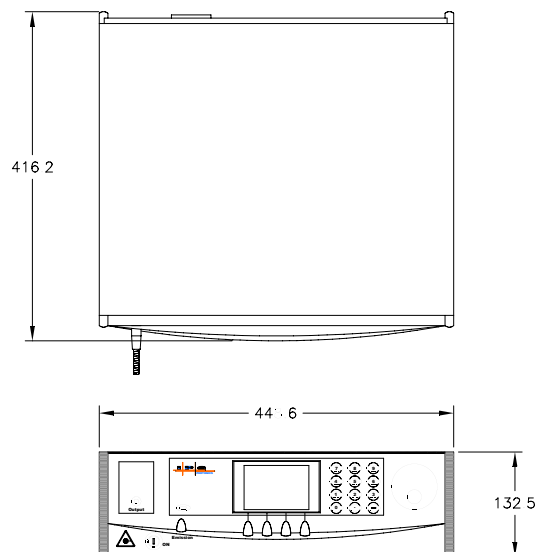
7 - More stable versions (<1%) are available on request.

8 - OEM module packages are available on request.

Options:

- ✓ Output Isolator
- ✓ Improved Extinction Ratio
- ✓ Linearly Polarized or Polarization Maintaining Operation
- ✓ Single Frequency Operation
- ✓ Input/Output Optical Monitors
- ✓ <1% Output Power Stability
- ✓ Customized OEM Package
- ✓ Improved Wall-Plug Efficiency (for OEM versions)
- ✓ Operation in 1micron range (1060-1090nm)

3RU 19" rack drawings



Performance can be matched to the customer's requirements. Contact IPG Photonics to discuss specific OEM configuration.

CAUTION: USE OF CONTROLS, ADJUSTMENTS AND PROCEDURES OTHER THAN THOSE SPECIFIED MAY RESULT IN HAZARDOUS LASER RADIATION EXPOSURE. WEAR PROPER SAFETY EYEWEAR DURING OPERATION.

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