EAD Series: 1 to 5 Watts

Single Channel C- and L- Band Erbium Fiber Amplifiers

With the EAD high-power series, IPG offers a range of Erbium doped fiber amplifiers (EDFAs) with models in both the C-band (1533-1565 nm), the L-Band (1565-1610 nm), and powers ranging from 1 Watt to over 5 Watts. The amplifiers are conveniently packaged for use in a laboratory or test-bed environment, with all electronics and optical components contained in one instrument. The user-friendly front panel includes a monitor display, a keyed on/off switch, power control and fiber input/outputs. An RS232 or optional GPIB interface allows for easy integration into your manufacturing or experimental set-up.

These universal amplifier devices operate in the temperature range of 0 – 50 ^{o}C, and require only 110/220V AC (50/60 Hz). IPG's patented multi-clad side pumping technique allows for the use of extremely reliable broad-stripe multimode diodes in all models, with built-in redundancy, and no need for TEC cooling.

Because of IPG's vertical integration, we can tailor designs and materials to offer you the widest range of choices. Options include combined CL band, extended C-band, shifted L-Band, gain-flattened high-power amplifiers, and ultra-high power amplifiers up to 20 Watts. Polarization-maintaining amplifiers are also available, with true Panda-type polarization-maintaining active fiber for distortion-free spectral output.

In addition to the EAD Series, IPG amplifiers are available in a modular version, and also in telecom-grade units for the highest durability in operation. Contact IPG Photonics with the details of your application to see how we can help.

Main Features:

- ✓ C- Band, L- Band or Combined C+L-Band Operation
- ✓ Optional Band Extension Down to 1529 nm, or up to 1620 nm
- ✓ Dispersion Compensation Option
- ✓ APC, ACC Control Modes
- ✓ Low Noise Figure, PMD, and PDL
- ✓ Polarization Maintaining and Gain Flattened Versions Available
- ✓ Higher Powers Available, Up to 20 Watts

Applications:

- ✓ Fiber Optic Communications
- ✓ Free-Space Communications
- ✓ Photonics Switching
- ✓ Sensorics
- ✓ Product Test Beds
- ✓ Research & Development

Common Parameters

Standard EAD-C models provide an amplification of a randomly polarized single input signal in the 1533-1567 nm region and the EAD-L models in the 1570-1605 nm region. The EAD-CL covers a >60 nm bandwidth, from 1540-1605 nm.

Standard amplifier inputs and outputs are provided by a 1.5 meter, SMF-28 optical fiber cable with connectors or bare fiber (depending on the output power). Typically an amplifier has 50 dB input and 30 dB output optical isolation. The EAD-PM version amplifies a polarized input with an extinction ratio of >17dB.

The front panel provides user control of the amplifier output power and readout of the pump diode current and pump diode temperature. The RS232 or GPIB port on the rear panel allows computer control of the module.

All EAD Series Amplifier Modules utilize broad stripe (1x100 µm) pump diodes operating at a 970 nm nominal wavelength. Minimum pump diode reliability is 100,000 hrs MTTF at 20ºC. All pump diodes are subject to intensive component qualification at IPG prior to installation.

Typical Performance

Parameter	Unit	EAD-C	EAD-L	EAD-CL
Saturated output power	dBm	30-37	30-37	30-37
Optical bandwidth	nm	1533-1567	1570-1605	1540-1605
Saturation gain equalization	dB	±0.5 (at 1533-1565nm, $P_{=}$ –3dBm)	±0.7 (at 1570-1605nm, P_{in}=3dBm)	±1.5 (at 1540-1605nm, P_{in}=3dBm)
Polarization sensitivity of saturated output power	dB	0.2	0.3	0.3
Typical noise figure	dB	<5.5 (at 1540-1567nm, P_{in}–3dBm)	<6.0 (at 1570-1603nm, P_{in}=3dBm)	<6.0 (at 1540-1603nm, P_{in}=3dBm)
Polarization mode dispersion	ps	<0.5	<0.5	<0.5
Maximum power consumption	W	60	60	60

NOTE: Specifications and operating parameters can be matched to customer requirements. Contact IPG with your requirements.

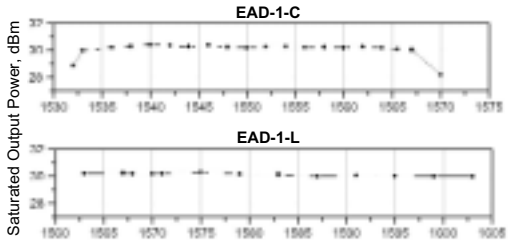
Options

- Polarization-Maintaining and DWDM Versions
- Extended Wavelength
- Mid-Stage Access
- Dispersion Compensation
- ASE Operation Mode
- Module or 19" Rackmount

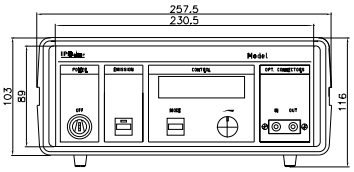
General Environmental Parameters

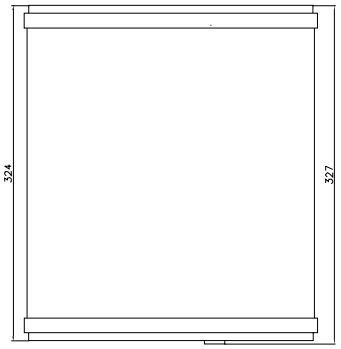
Parameters	Unit	Min.	Max.
Operating temperature	ºC	0	+50
Storage temperature	ºC	–10	+60
Relative Humidity	%	0	95
Warm up time	min		1
Cooling			Forced air/heat sink

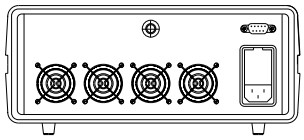
Typical Output



Outline Drawings







CAUTION: USE OF CONTROLS, ADJUSTMENTS AND PROCEDURES OTHER THAN THOSE SPECIFIED MAY RESULT IN HAZARDOUS LASER RADIATION EXPOSURE.

www.ipgphotonics.com

IPG Photonics Corporation
50 Old Webster Road
Oxford, MA 01540, USA
Tel: +1.508.373.1100
Fax: +1 508.373.1103
sales.us@ipgphotonics.com

IPG Laser GmbH
Siemensstrase 7
D-57299, Burbach, Germany
Tel: +49.2736.4420.0
Fax: +49.2736.4420.25
sales.europe@ipgphotonics.com

IPG Photonics Ltd.
22 Buckingham Gate
London, SW1E 6LB, UK
Tel: +44.207.828.9929
Fax: +44.207.834.1521
sales.uk@ipgphotonics.com

IPG Fibertech S.r.l.
Via Pisacane, 46
20025 Legnano (MI), Italy
Tel: +39.0331.4874.00
Fax: +39.0331.4874.11
sales.italy@ipgphotonics.com