

Fiber Optical Amplifier – 1310nm

(1250-1350nm, SM, PM, 16 dBm)

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BUY NOW



Features

- 1250-1350nm
- Up to 16 dBm Output
- Customizable
- Turn-Key Benchtop

Applications

- Communication
- OTDR
- LiDAR
- Instrument

The SOAA provides cost-effective solutions for 1310nm O-band optical amplification. It is a semiconductor with a fiber-coupled waveguide structure. Two configurations are available: Polarization Maintaining (PM) fiber or Single Mode (SM) fiber input/output. It has two package configuration choices. A Benchtop turn-key unit with an adjustable gain is suited for laboratory use. The Benchtop has a computer control interface and GUI. The compact module is suited for system integration with the universal control interface.

The EDFA has isolators on both input and output.

These Erbium-Doped Fiber Amplifiers (EDFAs) are engineered for a long operational lifespan, typically designed to function reliably for over 10 years. This durability is achieved through high-quality components and robust manufacturing processes. The design considerations include thermal management, component selection, and rigorous testing to maximize the amplifier's longevity and efficiency.

Specifications

Parameter	Min	Typical	Max	Unit
Wavelength	1250	1310	1350	nm
Input Power	-25	0	5	dBm
Saturated Output Power			16	dBm
Gain Range			20	dB
Noise Figure		7		dB
Gain Ripple		0.3		dB
Polarization Dependent Gain			0.5	dB
Polarization Extinction Ratio	18	20		dB
Input/output Isolation	35			dB
Output Stability (8hrs)			0.2	dB
Adjustable Output Power	10		100	%
Working Temperature	-30		60	°C
Storage Temperature	-40		85	°C
Module Power Supply		DC +5V / GND		
Communication	USB	RS232	LabView	

Notes:

Preamplifier output power is limited to 25dBm

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [\[click this link\]](#):

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Rev 11/15/24

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Package Choices



Component



Benchtop- USB/GUI

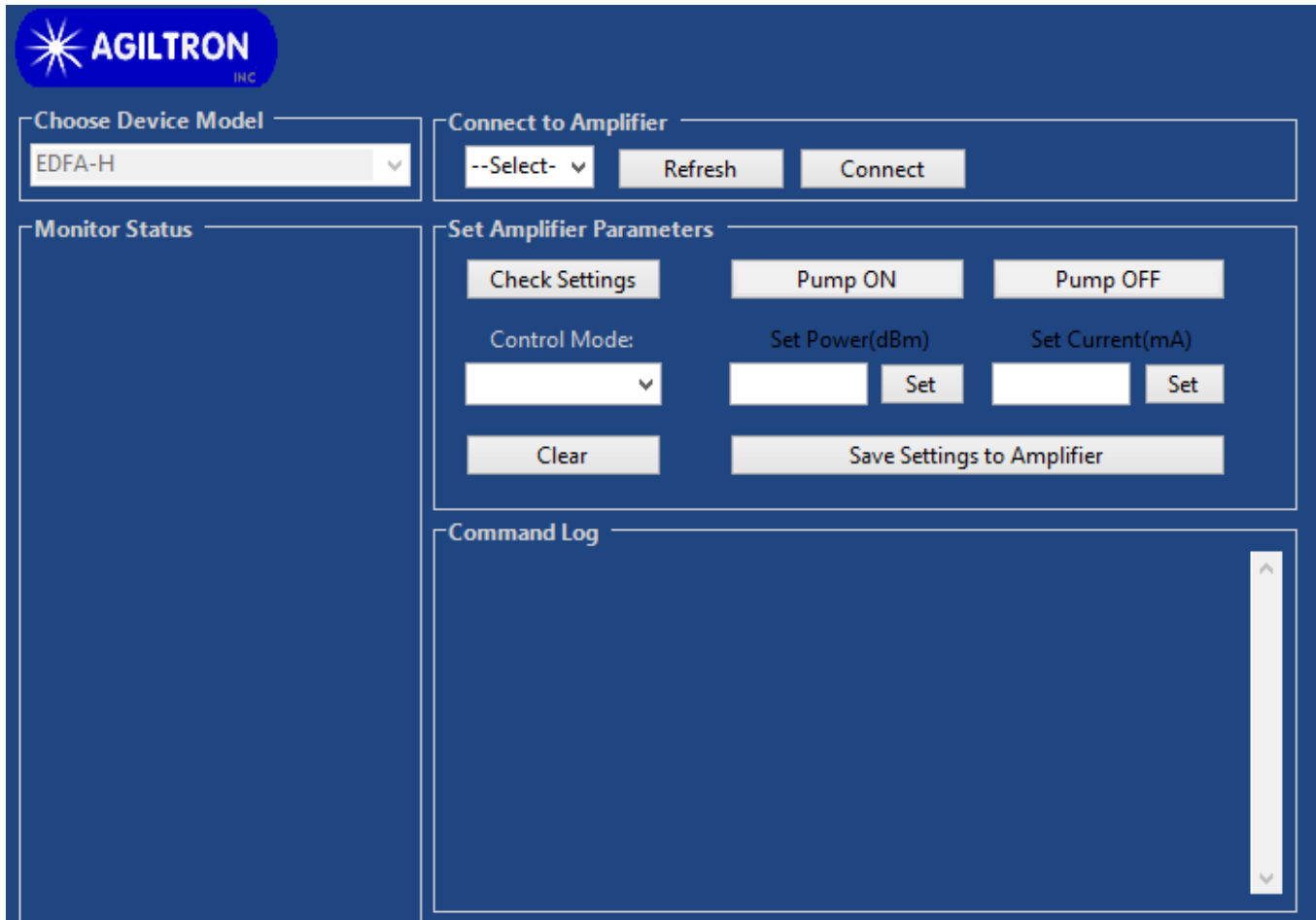
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GUI USB Interface



Operation Instruction

- Load the software, Unzip the folder and Click "setup" to Install the GUI
- Select an amplifier type that matches your PO
- Connect your PC to the Amplifier by first connecting a USB cable and then choosing the necessary port and clicking "Connect". To change the COM port click "Refresh", choose the necessary port, then click "Connect"
- Obtain the stored settings by clicking "Check Settings"
- To change the setting, first select the control mode
- To set up output power or current, input desired value and click "Set". There are limits for max output per the model type.
- To turn on the Amplify click "Pump ON"; the green color should appear. To stop click "Pump OFF"; the red color should appear
- To save the setting click "Save Settings to Amplifier". The Amplifier will store the setting for the next time you turn it on, even without the PC.
- The Amplifier only works if the input optical power level is within the spec.

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Control GUI

EDFA GUI V3.0

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Choose Device Model
EDFA-L

Connect to Amplifier
COM7 Refresh Disconnect

Monitor Status
Opt.IN -0.34 dBm
Opt.Out 15 dBm
BIAS-1 417 mA
CoolCurr-1 0 mA
LaserTemp-1 26.2 °C
Modul Temp 25.1 °C
PumpPower 21.67 dBm
Power Voltage 4.93 V
GAIN 15.31 dB
ALARM: No Alarms
Model: EDFA-20dBm
SN: 220728001

Set Amplifier Parameters
Check Settings Pump ON Pump OFF
Control Mode: Power control Set Power(dBm) 15 Set Set Current(mA) 600 Set
Set Gain(dB) 23 Set

Command Log
Port connected
Get Sn/Model Success
Power Control Mode: Success
Check Settings: Success

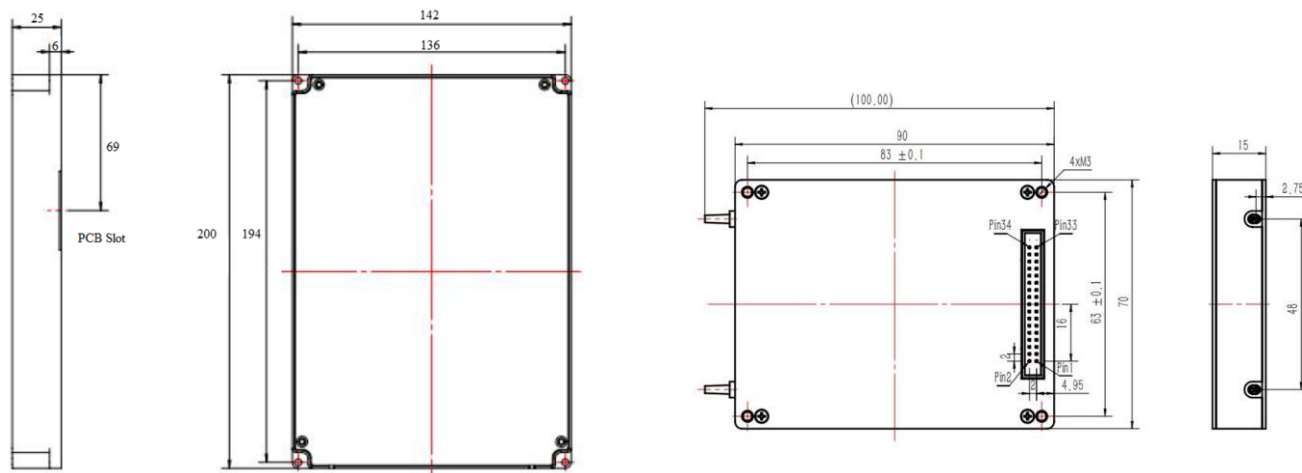
Threshold settings
Module Temp Threshold -5 - 55 °C Set Input Power LOS Threshold -33 dBm Set
Pump Temp Threshold 0 - 40 °C Set Output Power LOS Threshold -8 dBm Set
Pump Current Threshold 1200 mA Set No Optical Power Threshold -33 dBm Set

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Mechanical Dimensions (mm)



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Ordering Information

Prefix	Type	Wavelength	Power ^[1]	Polarization	Package	Cable Type	Fiber Length ^[2]	Connector	Low Temperature
SOAA-			12 dBm = 1 16 dBm = 2 18 dBm = 3 10 dBm = 4	Polarization = P Random = R	Component = 1 Benchtop = 2	0.9mm tube = 3 Special = 0	0.25m = 1 0.5m = 2 1.0m = 3 Special = 0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 LC/PC = 7 LC/APC = A LC/UPC = U Special = 0	-5°C = 1 -30°C = 2 Special = 0

[1]. For Booster, Power means maximum output power. For Preamp, Power means maximum amplification gain.

[2]. For >1W modules, the fiber cables extrude out of the front.

Note:

- Preamplifier output power is limited to 25dBm

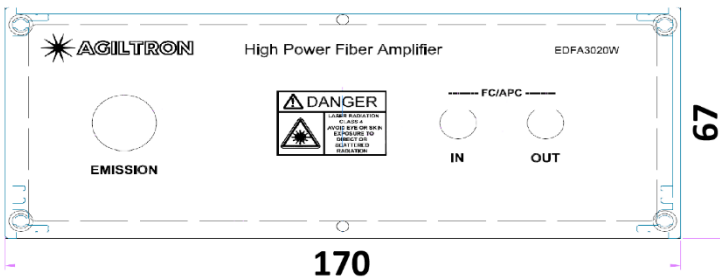
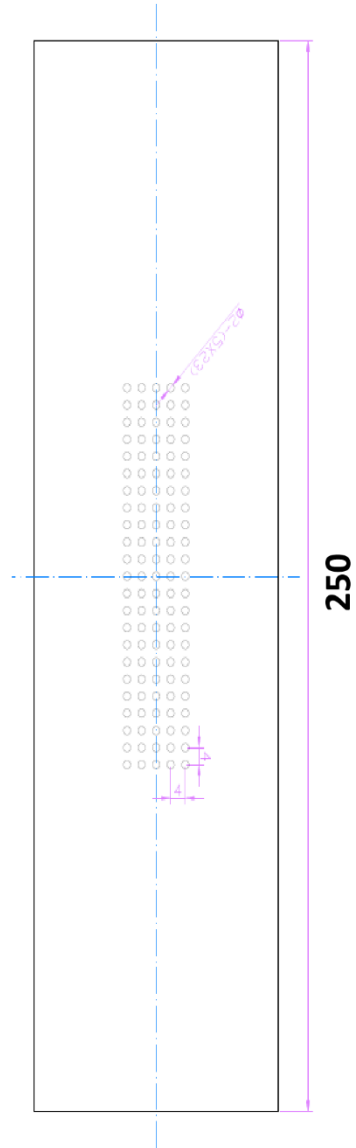
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Mechanical Dimensions (mm)



**Small-size
Benchtop**

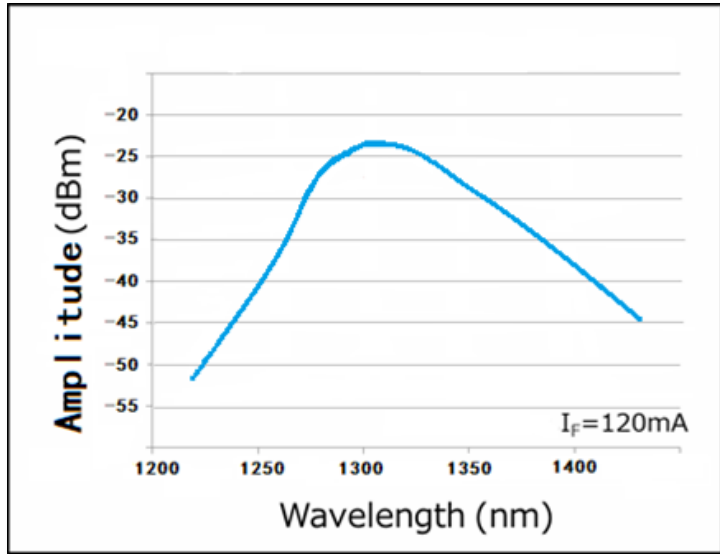
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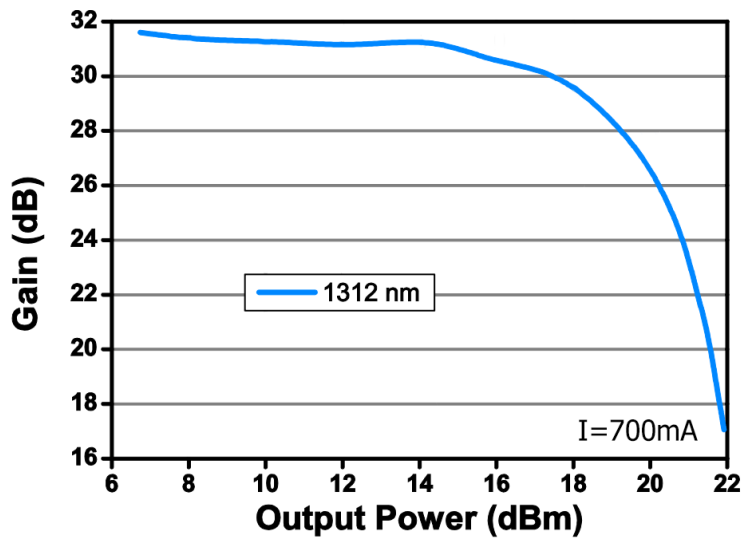


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Wavelength Dependence (Typical)



Gain vs Output Power



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Application Notes

Fiber Core Alignment

Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness

Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power

Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the handling by expanding the core side at the fiber ends.

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Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All versions of this laser are Class 1M laser products, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 μ m.

Maximum power = 30 mW.



*Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

*IEC is a registered trademark of the International Electrotechnical Commission.

Q&A About Fiber Optical Amplifier

Q: Can this amplifier pulsed signals?

A: It has been tested to amplify up to 100GHz digital data.

Q: Can this amplifier WDM signals?

A: It has been tested to amplify signals with DWDM wavelength spacing.

Q: Can this amplifier has a flat wavelength response?

A: Yes, by put fluttering gain filters, that is an extra cost.

Q: If one puts a small signal into it, can it be amplified to the maximum output power indicated on the spec?

A: The amplifier is set as an analog mode whose output signal strength is approximately proportional to the input strength. It has a certain gain of about 40dB. There are two types: one is a preamplifier and a booster. One can use a preamplifier before the booster for weak signals, as done in electronic amplifiers.

Q: We have an existing amplifier. Can you duplicate it?

A: Yes, we can produce it with a seamless software interface.