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Bidirectional DWDM Optical Amplifier

(1528-1568nm, 22-32dB Gain, DWDM, data-rate: 200Gb)

The BEDF Series EDFA provides optical amplification across the full ITU C-band, supporting up to 48 DWDM channels with integrated gain-flattening filters for enhanced spectral uniformity. The BEDF integrates two amplifiers on a single board, enabling simultaneous bidirectional amplification over a single fiber. It incorporates photonic components to separate and combine downstream wavelengths (even DWDM channels) and upstream wavelengths (odd DWDM channels), allowing independent amplification of each traffic direction. The downstream path is configured with a booster amplifier, while the upstream path operates as a pre-amplifier. The system supports a true "set-and-forget" operation mode, requiring no manual adjustment or recalibration as traffic scales from 2 to 48 channels. This ensures stable and consistent performance across varying network loading conditions. The module can be seamlessly integrated into Agiltron's RNMC managed chassis, enabling centralized configuration, support for multi-rate hybrid transmission, and simplified operation and maintenance. This makes the BEDF well-suited for large-capacity transmission deployments across diverse network environments. Engineered for long-term reliability, the BEDF is designed for over 15 years of continuous operation, supported by advanced thermal management and rigorous qualification testing. Additionally, the BEDF is commonly deployed in combination with Fiber Chromatic Dispersion Compensation Modules (DCM), forming a low-distortion solution for long-haul and high-speed optical communication systems. This combined solution can be fully integrated within a standard 1U chassis, maximizing system density and efficiency.

Features

- Supports Bidirectional Amplification, Boosting Signals and Improving Coverage
- Built-in VOA Module Can Fast Adjust Optical Power to Realize 22-32dB Variable Gain
- Embedded OSC for Real-time Monitoring to Ensure Normal Operation of the Network
- Embedded OPM for Detection and Reporting of Optical Power

Applications

- DWDM Communication
- Ring Networks

Specifications

Parameter		Min	Typical	Max	Unit
Wavelength		1530		1568	nm
Input Power		-34		2	dBm
Optical Power	Tx	0		15	dBm
	Rx	-15		1	dBm
Optical Gain		22		32	dBm
Gain Till		-2	-1	0	dB
Noise Figure		6	7	7.3	dB
Gain Flatness		1		1.5	dB
Polarization Dependent Gain				0.3	dB
Polarization Mode Dispersion			0.5		ps
Input/output Isolation		35			dB
Return Loss		40			dB
Output Stability (8hrs)			0.05	0.1	dB
Operation Mode			AGC/APC		
Fiber Type		SMF-28e 9/125um NA = 0.13			
Housing		Pluggable Module Occupies 2 vertical Slots			
Working Temperature [1]		-5	35	65	°C
Storage Temperature		-40		85	°C
Power Consumption				95	W
Power Supply	DC	-40 ~ -70			V
	AC	100 ~ 240			V

Notes:

RoHS COMPLIANT

Rev 04/27/26

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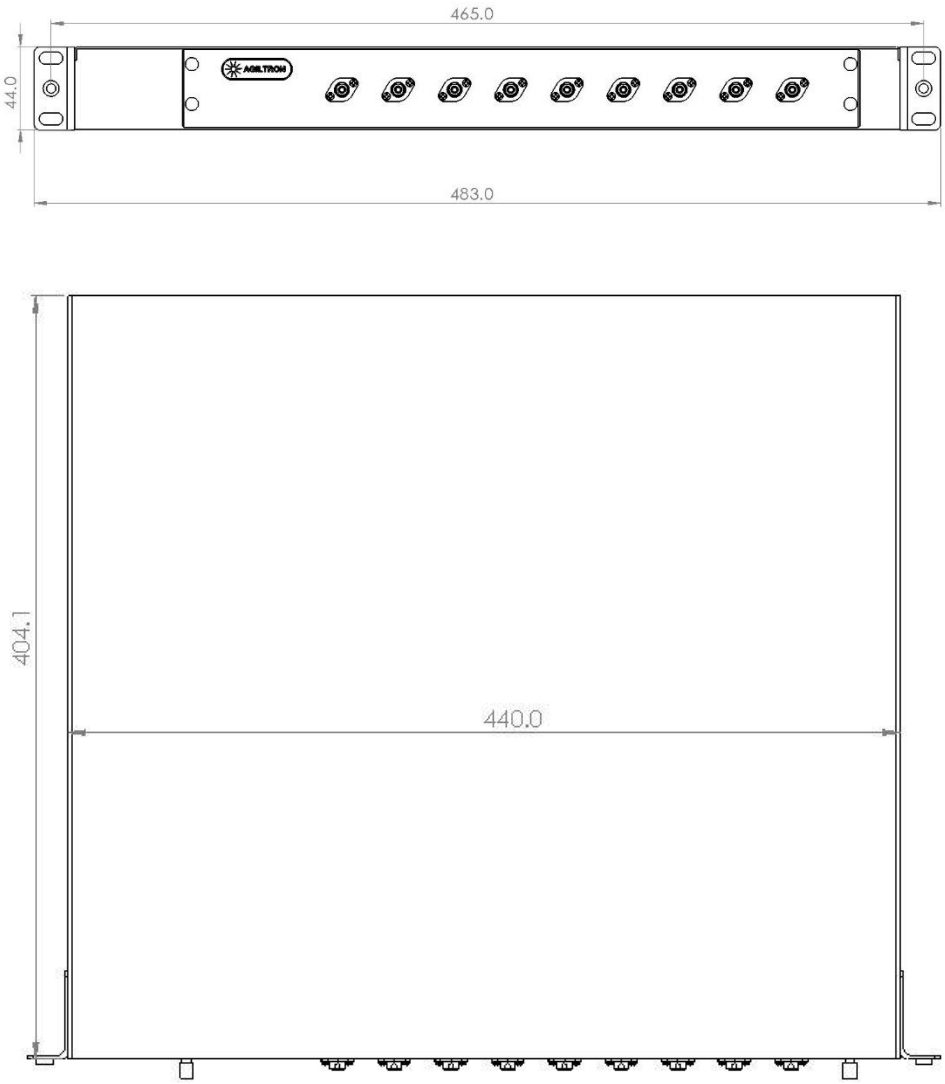
Mechanical Dimensions (mm)

1RU 19" mount rack typically. The input and output connectors and the control interface are on the front panel, while and power inputs are on the rear panel.

1U Rack Mount



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

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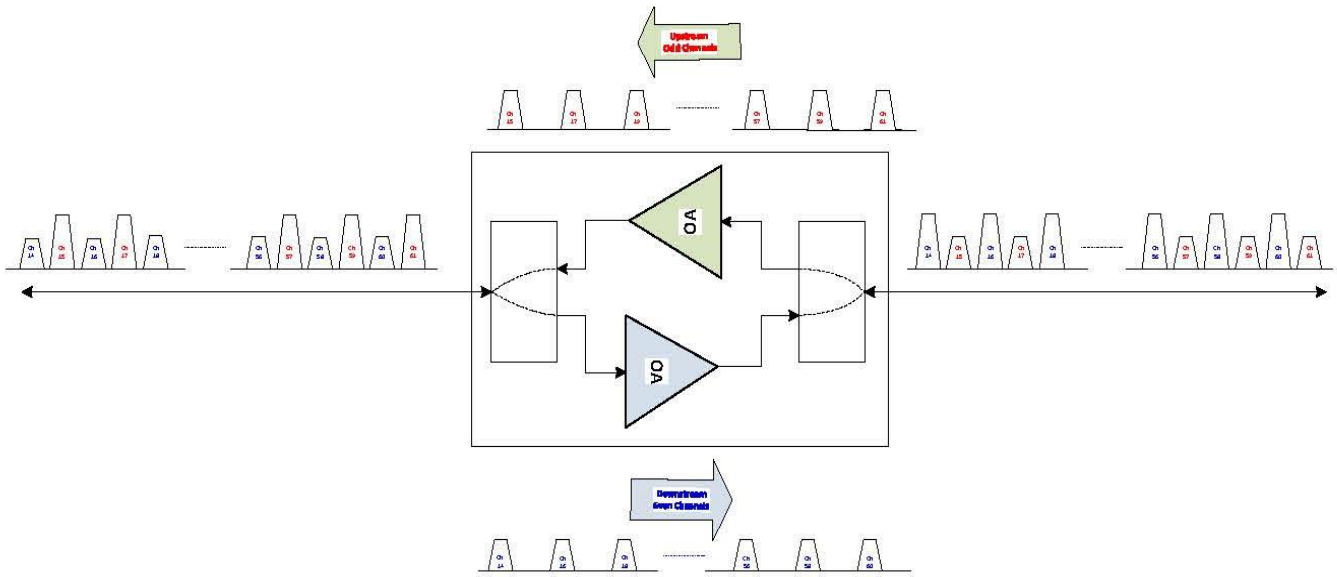
Function Diagram



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Ordering Information (Part Number)

	1	1	1	1	☐	☐	☐	☐
Prefix	**Type**	**Wavelength**	**Power/Gain**	**Output Channel**	**Management Chase**	**CDM**	**Power Supply**	**Connector [1]**
BEDF-	Standard = 1	1528-1565nm = 1	Standard = 1 High Power = 2	One = 1	Non = N Yes = 1	Non = N 20km = 2 30km = 3 40km = 4 50km = 5	DC = 1 AC =2	LC/APC = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 LC/PC = 7 LC/UPC = U High Power FC/PC = H Special = 0

* Rack Mount Depth ~ 430mm.

[1]. The connector cannot be installed directly onto bare fiber, as it is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer can remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SM28 fiber and decreases further with smaller core fibers.

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