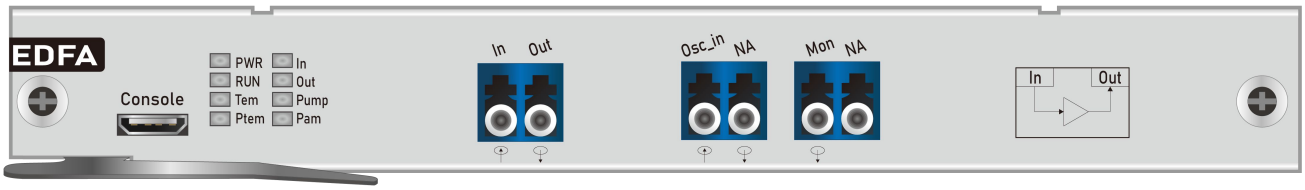
EDFA Optical Amplifier

EDFA Optical Amplifier module provide multi-function, low noise, Erbium-Doped Fiber Amplifier (EDFA) solutions, The amplifier module can be operated at constant gain (Automatic Gain Control AGC), constant output power (Automatic Power Control, APC). Integrated VOA can be automatically adjusted to achieve smooth gain spectrum. It can amplify the C-Band signal with or w/o middle stage access (MSA), which brings great flexibility for the network application.



Function

- C-band optical signal overall amplification
- Covering the wavelength range of 1528 ~ 1565nm
- Support systems to achieve different cross-section radio repeater transmission

Highlight

- Wide operating wavelength range:1528nm~1565nm
- Three Optical Amplifier C-Band applications:
  - Booster
  - In-line
  - Pre-amplifier
- Low noise figure: typical: 5dB
- Excellent gain flatness
- Multiple operating modes:
  - AGC adjustable Gain
  - APC output is adjustable
  - ACC voltage adjustable
- Mid-stage access for DCM or OADM
- Optional OSC channel for remote management
- MON port, on-line monitoring optical power and OSNR

Many model options serve all the traditional amplifier applications in an extended optical link: booster, in-line, and pre-amplifier.

A booster amplifier operates at the transmission side of the link. It features high input power, high output power, and medium optical Gain . Boosters are designed to amplify aggregated optical input power for reach extension.

An in-line amplifier operates in the middle of an optical link. It features medium to low input power, high output power, high optical Gain , and a low noise figure. In-line amplifiers are designed for optical amplification between two network nodes on the main optical link.

A Pre-amplifier operates at the receiving end of an optical link. It features medium to low input power, medium output power, and medium Gain. Pre-amplifiers are designed for optical amplification to compensate for losses in a demultiplexer located near the optical receiver.

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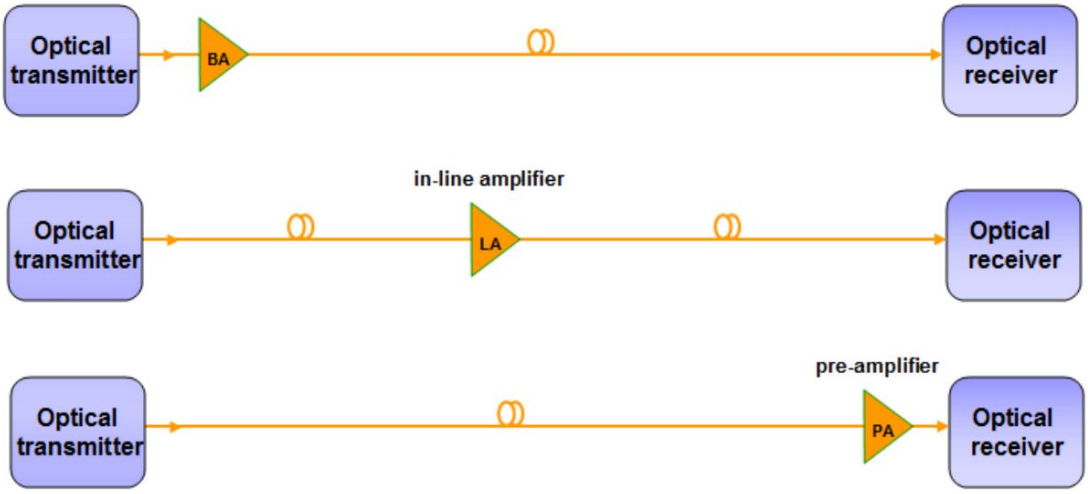
Some EDFA Models include an additional mid-stage port designed for insertion of a Dispersion Compensation Management (DCM) unit without its inherent insertion loss. The design of these models maximizes the DCM benefits to increase deployment flexibility. New placement options require fewer amplifiers in the link, and they can open the door to applications that were not possible with older technology.

Some EDFA Models include a Red and a blue port designed for Single fiber DWDM Solution. The design of these models is used for single-fiber DWDM transmission systems.



Performance Parameter

Parameter		Min.	Typical	Max.	Unit
Operating Wavelength		1528		1565	nm
Output Power				22	dBm
Gain		8		33	dB
Input Power	BA	-10		Max.Output -Gain	dBm
	PA/LA	(Max.input-29)		Max.Output -Gain	
Noise Figure			5.0		dB
Gain Flatness			1.0		dB
Input Threshold		-34		Can be adjusted	dBm
Polarization Dependence Loss				0.3	dB
Polarization Dependence Gain				0.4	dB
Polarization Mode Dispersion				0.5	ps
Pump Power Leakage				-29	dBm
Return Loss		45			dB
EDFA Size		191 (W) x 253 (D) x 20 (H)			mm
Environment	Operating Temperature	-10℃ ~ 60℃			℃
	Storage Temperature	-40℃ ~ 80℃			℃
	Relative Humidity	5% ~ 95% Non-condensing			
Power Consumption		≤15			W

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Common Module

Model	Description	Gain dB	Max.Output dBm	Min.Input dBm	Max.Input dBm	Typ.NF dB
Booster Amplifier						
BA16/G12	Booster, Max.Output 16dBm, Gain 12dB, With OSC	12dB	16dBm	-10dBm	4dBm	5dB
BA16/G12NS	Booster, Max.Output 16dBm, Gain 12dB, Without OSC	12dB	16dBm	-10dBm	4dBm	5dB
BA20/G12	Booster, Max.Output 20dBm, Gain 12dB, With OSC	12dB	20dBm	-10dBm	8dBm	5dB
BA20/G12NS	Booster, Max.Output 20dBm, Gain 12dB, Without OSC	12dB	20dBm	-10dBm	8dBm	5dB
Pre-Amplifier						
PA16/G20	Pre-Amplifier, Max.Output 16dBm, Gain 20dB, With OSC	20dB	16dBm	-29dBm	-4dBm	4.5dB
PA16/G20NS	Pre-Amplifier, Max.Output 16dBm, Gain 20dB, Without OSC	20dB	16dBm	-29dBm	-4dBm	4.5dB
PA16/G20-8	Midstage access Pre-Amplifier, Max.Output 16dBm, Gain 20dB, With OSC, Mid-access Gain 8dB	20dB	16dBm	-29dBm	-4dBm	5dB
PA16/G20NS-8	Midstage access Pre-Amplifier, Max.Output 16dBm, Gain 20dB, Without OSC, Mid-access Gain 8dB	20dB	16dBm	-29dBm	-4dBm	5dB
PA16/G25	Pre-Amplifier, Max.Output 16dBm, Gain 25dB, With OSC	25dB	16dBm	-29dBm	-9dBm	4.5dB
PA16/G25NS	Pre-Amplifier, Max.Output 16dBm, Gain 25dB, Without OSC	25dB	16dBm	-29dBm	-9dBm	4.5dB
PA16/G25-8	Midstage access Pre-Amplifier, Max.Output 16dBm, Gain 25dB, With OSC, Mid-access Gain 8dB	25dB	16dBm	-29dBm	-9dBm	5dB
PA16/G30-8	Midstage access Pre-Amplifier, Max.Output 16dBm, Gain 30dB, With OSC, Mid-access Gain 8dB	30dB	16dBm	-29dBm	-14dBm	5dB
PA16/G25NS-8	Midstage access Pre-Amplifier, Max.Output 16dBm, Gain 25dB, Without OSC, Mid-access Gain 8dB	25dB	16dBm	-29dBm	-9dBm	5dB
PA16/G30NS-8	Midstage access Pre-Amplifier, Max.Output 16dBm, Gain 25dB, Without OSC, Mid-access Gain 8dB	30dB	16dBm	-29dBm	-14dBm	5dB
In-Line-Amplifier						
LA16/G20	In-Line-Amp, Max.Output 16dBm, Gain 20dB, With OSC	20dB	16dBm	-29dBm	-4dBm	5dB
LA16/G20NS	In-Line-Amp, Max.Output 16dBm, Gain 20dB, Without OSC	20dB	16dBm	-29dBm	-4dBm	5dB
LA16/G20-8	Midstage access In-Line-Amp, Max.Output 16dBm, Gain 20dB, With OSC, Mid-access Gain 8dB	20dB	16dBm	-29dBm	-4dBm	6dB
LA16/G20NS-8	Midstage access In-Line-Amp, Max.Output 16dBm, Gain 20dB, Without OSC, Mid-access Gain 8dB	20dB	16dBm	-29dBm	-4dBm	6dB
LA20/G20	In-Line-Amp, Max.Output 20dBm, Gain 20dB, With OSC	20dB	20dBm	-29dBm	0dBm	5dB
LA20/G20NS	In-Line-Amp, Max.Output 20dBm, Gain 20dB, Without OSC	20dB	20dBm	-29dBm	0dBm	5dB
LA20/G20-8	Midstage access In-Line-Amp, Max.Output 20dBm, Gain 20dB, With OSC, Mid-access Gain 8dB	20dB	20dBm	-29dBm	0dBm	6dB

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LA20/G20NS-8	Midstage access In-Line-Amp, Max.Output 20dBm, Gain 20dB, Without OSC, Mid-access Gain 8dB	20dB	20dBm	-29dBm	0dBm	6dB
LA16/G25	In-Line-Amp, Max.Output 16dBm, Gain 25dB, With OSC	25dB	16dBm	-29dBm	-9dBm	5dB
LA16/G25NS	In-Line-Amp, Max.Output 16dBm, Gain 25dB, Without OSC	25dB	16dBm	-29dBm	-9dBm	5dB
LA16/G25-8	Midstage access In-Line-Amp, Max.Output 16dBm, Gain 25dB, With OSC, Mid-access Gain 8dB	25dB	16dBm	-29dBm	-9dBm	6dB
LA16/G25NS-8	Midstage access In-Line-Amp, Max.Output 16dBm, Gain 25dB, Without OSC, Mid-access Gain 8dB	25dB	16dBm	-29dBm	-9dBm	6dB
LA20/G25	In-Line-Amp, Max.Output 20dBm, Gain 25dB, With OSC	25dB	20dBm	-29dBm	-5dBm	5dB
LA20/G25NS	In-Line-Amp, Max.Output 20dBm, Gain 25dB, Without OSC	25dB	20dBm	-29dBm	-5dBm	5dB
LA20/G25-8	Midstage access In-Line-Amp, Max.Output 20dBm, Gain 25dB, With OSC, Mid-access Gain 8dB	25dB	20dBm	-29dBm	-5dBm	6dB
LA20/G25NS-8	Midstage access In-Line-Amp, Max.Output 20dBm, Gain 25dB, Without OSC, Mid-access Gain 8dB	25dB	20dBm	-29dBm	-5dBm	6dB

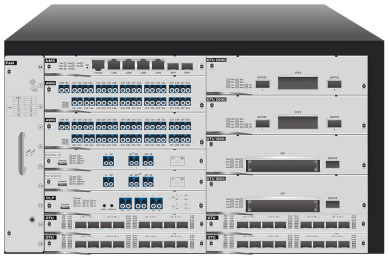
HT6000 Series Chassis

CH04 Chassis

- Standard 1U, 19", 4 slots
- Dual power supply AC/DC optional
- Multiple service card hybrid insertion
- Support 10G/100G /200G hybrid transmission

CH08 Chassis

- Standard 2U, 19", 8 slots
- Dual power supply AC/DC optional
- Multiple service card hybrid insertion
- Support 10G/100G /200G hybrid transmission



CH20 Chassis

- Standard 5U, 19", 20 slots
- Dual power supply AC/DC optional
- Multiple service card hybrid insertion
- Support 10G/100G /200G hybrid transmission

HT6000 Series Chassis is the foundation for deploying and managing the HTF multi-service mixed-media solutions.

HT6000 Series Chassis Optional			
CH04 Chassis: 482.5(W) x 350(D) x 44.5(H) mm	1U 19-inch chassis	1 network management slot	3 universal service slots
CH08 Chassis: 482.5(W) x 350(D) x 89(H) mm	2U 19-inch chassis	1 network management slot	7 universal service slots
CH20 Chassis: 482.5(W) x 350(D) x 222.5(H) mm	5U 19-inch chassis	1 network management slot	19 universal service slots
Power Consumption: 1U <120W, 2U<200W, 5U<400W			
Support SNMP, Web, CLI multiple network management modes			
Support dual power supply redundancy protection, Power supply support AC: 220V / DC: -48V optional			

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HT6000 Series Chassis support multiple service intermixing:

100G Transponder	100G OEO	4/8/16/40/48 Channel DWDM MUX/DEMUX, or OADM Card
2x100G to 200G Muxponder	25G OEO	4/8/16 Channel CWDM MUX/DEMUX
4x25G to 100G Muxponder	2x10G OCP Transponder	OLP Optical Line Protection
4x10G SFP+ Transponder	8x1.25G Convergence 10G Muxponder	EDFA Card

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