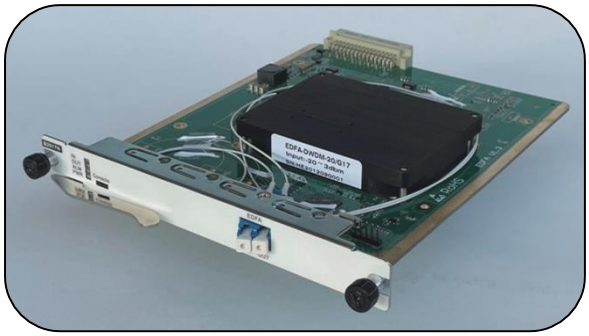
X8600 EDFA

XenOpt Optical Amplifier Family



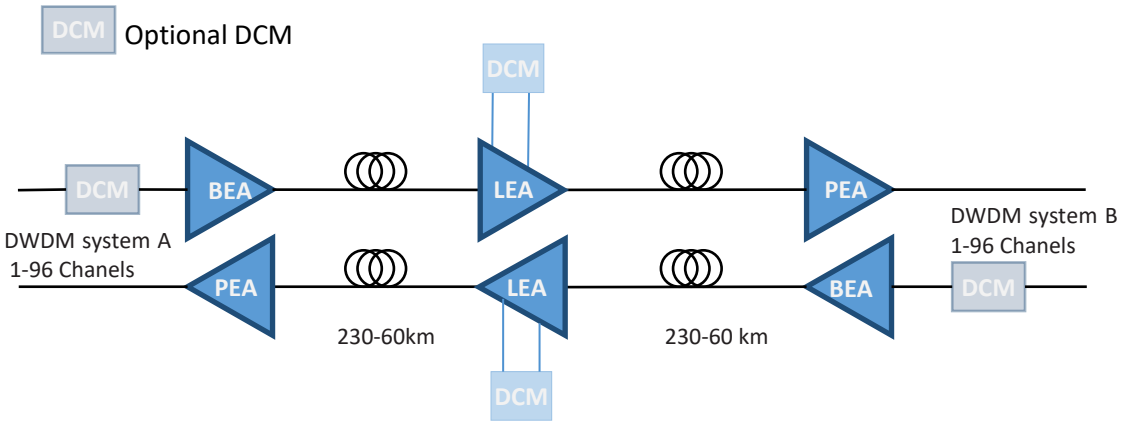
Applications

- Long haul DWDM transport systems
- Transport systems with large number of channels
- Transport Systems using transceivers that require external amplification, like PAM4 DWDM
- Data Center Interconnect systems

Features

- Booster, Line and Pre-amplifier type of optical amplifiers
- Amplification with Erbium doped optical fibe
- Up to 48CH/96CH DWDM channels in C-Band
- Automatic gain control (AGC) and Automatic Power Control (APC) operation
- Saturated output power with up to +23dBm
- Single or Two-stage amplification with optional mid-stage DCF
- Optional Built-in output VOA with automatic power control
- Network management through SNMP and Web GUI
- Low noise figure for Erbium Amplifiers
- Operating temperature range -10℃~+60℃

Typical long haul application:



Description

X8600-xEA is a family of cost effective Erbium Doped Fiber optical Amplifiers (EDFA) that are compatible with X8600 XenOpt transport chassis that includes Booster, Line and Pre-amp versions. Each amplifier is a single height X8600 module. Each amplifier type is also available with additional output voltage controlled attenuator (VOA) that enables wider adjustment range of output levels.

Amplifiers can be managed through snmp with ability to control gain and receive alarm conditions when selected optical parameters, temperature or current exceed set thresholds. For network based management X8600 chassis must include X6500-SC management module. For installations that do not require remote management these optical amplifiers can also be managed through on board serial interface.

All these amplifiers operate in standard version as constant gain mode (AGC) – amplifying all signals for set amount. Some can be set to work in constant output power mode (APC) – assuring output is at set power as long as input power is within specified range. Standard versions of **X8600-xEA** family amplifiers can cover most of C-Band range (1529-1561nm). These amplifiers are also available in Extended version that covers extended C band range and can operate from 1528nm to 1568nm.

X8600-BEA is a single stage Booster EDFA Amplifier intended for amplifying transmission signals ether single channel or multiplexed multichannel. Saturated output optical power is 20dBm in standard version and up to 23dBm (200mW) in special versions. X8600-BEA is the most cost effective solution for boosting optical signals.

X8600-LEA is a Line EDFA Amplifier that can be used at all locations of the network, especially where DCM, high gain and/or where adjustments in wider range is needed. It can work as booster or preamplifier, but is most effective as mid line amplifier located at Intermediate location(s) of a long track. It is two stage EDFA amplifier with **optional** mid-point connections for connecting additional CD correction modules (DCM).

X8600-PEA is a low noise single stage EDFA Preamplifier that is optimal for amplification of low level signals at the end of an optical track. Due to its lower noise factor it degrades OSNR less than alternative optical amplifiers.

Line and Booster Amplifiers can come in fixed gain version, that support only ±1dB gain variations (typically 16-18dB) or in variable gain versions that allow higher gain adjustments from nominal gain value that can result in lower saturated power. Preamplifiers have fixed gain and operate in AGC mode only. Line and Booster models come in five different maximum power versions among these also 17, 20 and 23dBm. All of these amplifiers can optionally come with output voltage adjustable attenuator (VOA) that can be controlled through management in range of 0 to -20dB.

Technical Specifications

Parameter			
Operating wavelength range	**Standard type:** 1529 nm - 1561 nm, supporting 40 CH (@ 100 GHz) or 80 CH (@ 50 GHz) for C-band DWDM systems		
	Extended type: 1528 nm - 1568 nm, supporting 48 CH (100 GHz) or 96 CH (50 GHz) for extended C-band DWDM systems		
EDFA type	X86-B2017N (V) **X86-BEA(V)**	X86-L2025N(V) **X86-LEA(V)**	X86-P1620N(V) **X86-PEA(V)**
Minimum input power (typical)[1]	-22 dBm	-30 dBm	-32 dBm
Maximum input power (typical)	+3 dBm	-5 dBm	-4 dBm
Saturation output[2] power (typical)	+20 dBm	+20 dBm	+16 dBm
Gain control in AGC mode (without VOA)[3]	16-18 dB	20-25 dB	20 dB
Power control in APC mode[3]	10-20 dBm	-	-
VOA attenuation range[4]	0 - 25 dB		
Gain flatness	≤ 1.5 dB		
Noise figure	≤ 5.5 dB		≤ 5 dB
Operating temp. range	-10℃ ~ 60℃		
Operating humidity range	5% ~ 95% non condensing		
Storage temperature	-40℃ ~ 85℃		
Equipment size	Single slot module for Xenopt X8600 chassis		
Network management	SNMP (v1, v2c) and Web GUI		
Power consumption	@full output power < 20 W		
MTBF	> 100000 hours		

[1] Alarm treshold for Low input signal is settable from 0 to this value, standard versions disable operation, below this levels.
[2] Special versions available with max saturated output power of up to +23 dBm (200 mW).
[3] Can be customized.
[4] VOA installed only in selected models.

Ordering information[1]

Part number	Product Description
X86-B2017N	X8600-EDFA Booster Erbium Optical Amplifier (BEA), -10℃~+60℃
X86-B2017V	X8600-EDFA Booster Erbium Optical Amplifier with VOA (BEAV), -10℃~+60℃
X86-L2025N	X8600-EDFA Line Erbium Optical Amplifier (LEA), -10℃~+60℃
X86-L2025V	X8600-EDFA Line Erbium Optical Amplifier with VOA (LEAV), -10℃~+60℃
X86-P1620N	X8600-EDFA Erbium Optical Pre-Amplifier (PEA), -10℃~+60℃
X86-P1620V	X8600-EDFA Erbium Optical Pre-Amplifier with VOA (PEAV), -10℃~+60℃

Notes

[1] For detailed order specification and all options please contact XenOpt reseller. The content of this document is subject to change without notice.

To find out more, please contact: