XILA

Intelligent Line Amplifiers with OSC

Features

- 20 dBm output power
- Full C-band 88 channels at 50 GHz capacity
- Fully configurable constant gain of 20 to 29 dB across all channels
- Tilt control for extended amplifier cascades
- Operating temperature up to 65°C
- Automatically accommodates span loss for temperature dependent loss

Applications

Router-to-router interconnect; long-distance amplification; multi-vendor networks; utility substation deployments

Key Benefits

- Reduces cost and complexity of amplifier deployment, especially in harsh environments
- Eliminates or reduces cooling requirements in remote location
- Reduces complexity with integrated filtering and termination and two optional OSC channels for either XenOpt or third parties
- Minimizes footprint by up to 85% compared to conventional solutions
- Exceeds standards for conduction of emissions immunity; ideal for deployment in electrical utility substations or other industrial networks

Compliance

Telcordia NEBS Level 3; FDA Class 1M laser device; FCC Class A device; UL 60950-1 First Edition; CAN/CSA C22.2 No. 60950 01; CE; RoHS (Exemptions 7b, 8a); IEC 61850-3 Section 5.7 and IEEE 1613 Section 7 and 8 (EMI Immunity)

XILAN and XILAD

XenOpt ILAs are rugged, compact 1- and 2-rack unit (RU) optical amplification nodes that reduce the complexity of optical amplifier deployment, management, and operation, especially in harsh environments. Deployable as a pre-amp, post-amp, or in-line, the XenOpt ILA is self-optimizing, auto-adjusting, and easy to use.

Extended Temperature Operation

Supporting extended operating temperature up to 65°C, the XenOpt 2RU ILA supports outside plant deployment, and can dramatically reduce operating cost by eliminating or reducing cooling requirements.

Compact Configuration, Low Maintenance

These XenOpt east/west bidirectional ILAs are compact, space-saving, front-access units. Requiring only 1- or 2-RU of rack space for bidirectional amplification, XenOpt ILAs can reduce space requirements up to 90 percent compared to similar solutions. Also, front access may allow for lowering costs in physical plants by reducing the number of costly equipment racks.

The hardened design of the 2-RU ILA eliminates the need for an air filter, further reducing operating costs related to basic maintenance, even in areas of poor air quality.

Easy, Flexible OSC

The optical supervisory channel (OSC) of the XenOpt ILA reduces management complexity. Both OSC channels are data agnostic, support data rates up to 155 Mbps, and do not consume traffic wavelengths.

Built-in XenOpt and third-party OSC channels allow for easy in-line amplification and terminal equipment management without imposing overlay network penalties.

Applications for XenOpt ILAs

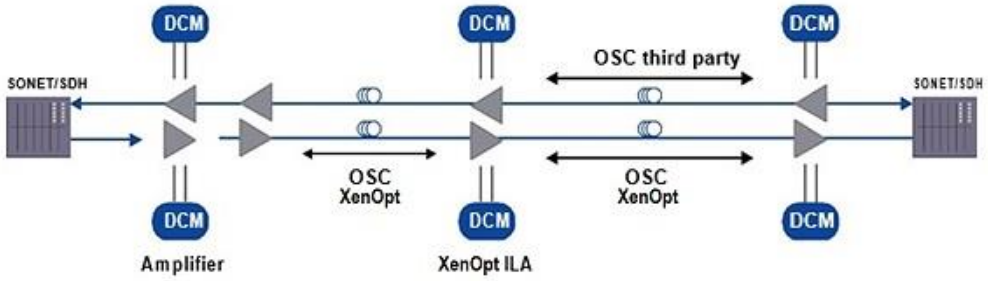

Figure 1. XenOpt ILA complexity reduction

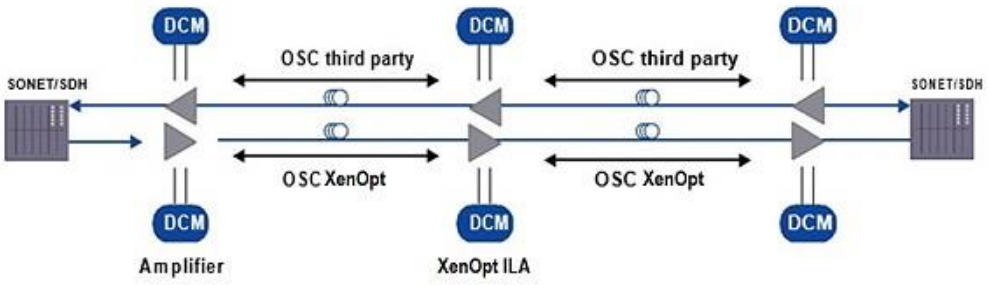

Figure 2. XenOpt ILA OSC and interop deployment

Specifications

EDFA Performance		Minimum	Typical	Maximum
Operating wavelength (C-band)		1528.4 nm	—	1564.3 nm
Module temperature range	XILAN	−5	—	55
	XILAD	−5	—	65
Optical damage threshold[2]		23 dBm	—	—
Input power range		−30 dBm	—	7 dBm
Maximum output power		20 dBm	—	—
Input LOS threshold (minimum input signal power)		−32 dBm	—	—
Maximum per-channel power at stage 1 output		—	—	−2 dBm
Flat gain range (tilt control available)[3]		13 dB	—	26 dB
Extended gain range (no tilt control, some tilt)[3]		26 dB	—	29 dB
Gain accuracy[4]	Full channel load	−0.5 dB	—	0.5 dB
	Gain variation at 0 dB tilt	—	—	1.2 dB
	Gain Variation at −3 dB Tilt	—	—	2.0 dB
Provisional tilt range in flat gain range[5]		−3 dB	—	0.7 dB
Steady-state gain stability[6]		−0.25 dB	—	0.25 dB
Polarization-dependent gain		—	—	0.55 dB
Polarization mode dispersion		—	< 0.1 ps	0.5 ps
Backward ASE at input		—	—	−20 dBm
Return loss[7]		40 dB	—	—
Monitor tap ratio		−21.5 dB	—	−18.5 dB
Transient settling time[8]		—	—	1 ms
Physical				
Size (H x W x D)	XILAN	1.75 x 11 x 17.2 inches		
	XILAD	3.5 x 11 x 17.2 inches		
Air Filter	XILAN	Replaceable filter on fan module		
	XILAD	No filter required		
Ambient temperature rating	XILAN	Short term: −5 to 55°C; long term: −5 to 40°C		
	XILAD	Long term: −5 to 65°C		
Interfaces				
Optical		LC/UPC SMF		
Alarms and Sense		15-pin micro DSub connector • Three dry alarm inputs (Critical, Major, Minor) • Six sense inputs		
Craft		SB mini AB		
Ethernet		Three 10/100 BaseT		

Electrical		
Input power supply		Redundant −48 VDC (nominal)
Input operating voltage		−40 to −57.5 VDC
Fusing		Two GMT indicating
Grounding		Redundant −48 V returns via connector, isolated from one another as well as from frame ground
Power consumption	XILAN	80 W worst case; 70 W at room temperature
	XILAD	95 W worst case; 80 W at room temperature
Bulkhead adapter		Replaceable GMT indicating fuses in proximity to the power connections

Noise Performance	Maximum
Noise figure, beginning of life (BoL)	
P_{in} = −6 dBm, G = 26 dB (P_{out} = 20 dBm)	6.5 dB
P_{in} = 0 dBm, G = 20 dB (P_{out} = 0 dBm)	9.2 dB
P_{in} = 7 dBm, G = 13 dB (P_{out} = 20 dBm)	16.5 dB
P_{in} = −26 dBm, G = 26 dB (P_{out} = 0 dBm)	7 dB
P_{in} = −20 dBm, G = 20 dB (P_{out} = 0 dBm)	9.5 dB
P_{in} = −13 dBm, G = 13 dB (P_{out} = 0 dBm)	15.3 dB
P_{in} = −30 dBm, G = 26 dB (P_{out} = −4 dBm)	7.0 dB
P_{in} = −24 dBm, G = 20 dB (P_{out} = −4 dBm)	9.5 dB
P_{in} −17 dBm, G = 13 dB (P_{out} = −4 dBm)	15.3 dB
P_{in} −9 dBm, G = 29 dB (P_{out} = 20 dBm)	6.5 dB
P_{in} −13 dBm, G = 33 dB (P_{out} = 20 dBm)	6.5 dB
P_{in} −30 dBm, G = 33 dB (P_{out} = +3 dBm)	6.7 dB
P_{in} −30 dBm, G = 29 dBm (P_{out} = −1 dBm)	6.7 dB
Noise figure, end of life (EoL)	
Maximum degradation at EoL	0.3 dB

OSC Performance		Minimum	Typical	Maximum
OSC wavelength	Low-Band OSC	1500 nm	1510 nm	1520 nm
	High-Band OSC	1570 nm	1610 nm	1630 nm
OSC drop loss with respect to line in		—	—	2.2 dB
OSC add loss with respect to line out		—	—	1.6 dB

1. All specifications are guaranteed over the lifetime, temperature, wavelength range, and operating voltages unless otherwise specified.
2. All optical ports.
3. User configurable with resolution of 0.1 dB.
4. 13 – 26 dB gain.
5. Full-range only available [13, 26] dB gain range.
6. Over 1 ms, 2 µs sampling rate with 64 times averaging.
7. Input or output port.
8. Gain ≥ 17 dB with 16.4 dB change, maximum gain excursion of 1 dB.

Ordering information

For more information on this or other products and their availability, please contact your local XenOpt reseller or XenOpt directly at www.xenopt.com.

PN	Description
XILAN	Compact in-line amplifier with OSC, 1 RU, standard temperature range
XILAD	Compact in-line amplifier with OSC, 2 RU, extended temperature range

Notes:

[1] For accurate order specification please contact Xenopt reseller before placing an order. The content of this document is subject to change without notice. Xenopt does not guarantee errorless or outdated information. Please specify any compatibility requirements at time of ordering.

Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by XenOpt before they become applicable to any particular order or contract. In accordance with the XenOpt policy of continuous improvement specifications may change without notice.

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