

PONA 3000 Series Erbium Doped Fiber Amplifier

Applications

- High Performance Supertrunking Links
- High Power Distribution Networks
- Fiber Deep Architectures
- FTTx Networks

Features

- Full Function High Power Fiber Optic Amplifier Ready for Integration
- Low Noise Figure (Typ < 6 dB)
- Total Input Power Range: -10 dBm to +12 dBm
- Total Output Power: +27 dBm to +35 dBm (Optical Output Power Splitter is Optional For These Units)
- Standard RS-232 Communications
- Low Electrical Power Consumption
- Input / Output Isolation > 40/40 dB
- Polarization Dependant Gain < 0.1 dB
- Polarization Mode Dispersion < 0.5 ps



The ORTEL PONA 3000 Series Fiber Optical Amplifier Module is an ideal building block for OEM system integrators. The family of PONA 3000 Optical Amplifiers is designed to meet the most demanding noise performance requirements of CATV and FTTx applications, and performs all the functions required of an optical amplifier for system integration. PONA 3000 series optical amplifiers provide optical isolation on the input and output of the gain block for stable, low noise operation. The input and output optical signal power levels are detected for monitoring and control. The input optical signal is amplified with active gain control for a constant output power level, or with active output power control for constant gain mode. The PONA 3000 series optical amplifiers also provide monitoring functions and associated alarms for all vital characteristics. The optical output of the PONA 3000 series optical amplifiers can be split into number of ports by an optional internal splitter.

PONA3000 series includes AC/DC power supply, front panel, optical splitters, network card and all necessary connectors.

Specifications

PROPERTY	UNIT	LIMIT	PONA MODELS				COMMENT
Product Code			3027	3030	3032	3035	
PERFORMANCE							(note 1)
Operating Input Power	Pin (dBm)	Max	+12	+12	+12	+12	
Operating Input Power	Pin (dBm)	Min	-10	-10	-10	-10	
Output Power	Po (dBm)		27.0	30.0	32.0	35.0	Nominal (note 2)
Noise Figure	NF (dB)	Typ/Max	5.5/6.0	5.5/6.0	5.5/6.0	5.5/6.0	(note 3)
Static Gain Flatness	GF (dB)	Max	+/-1.0	+/-1.0	+/-1.0	+/-1.0	(note 4)
Dynamic Gain Flatness	(dB)	Max	+/-2.00	+/-2.00	+/-2.25	+/-2.50	(note 5)
Output Power Stability	(dB)	Max	+/- 0.25	+/- 0.25	+/-0.25	+/- 0.25	(note 6)
Power Consumption (steady state regime)	Psys (W)	Max	40 25	50 30	65 40	80 50	50°C Case (premium) 50°C Case (economy) (note7)
Remnant pump power to output	Prp (dBm)	Nom.	<-30	<-30	<-30	<-30	

Notes:

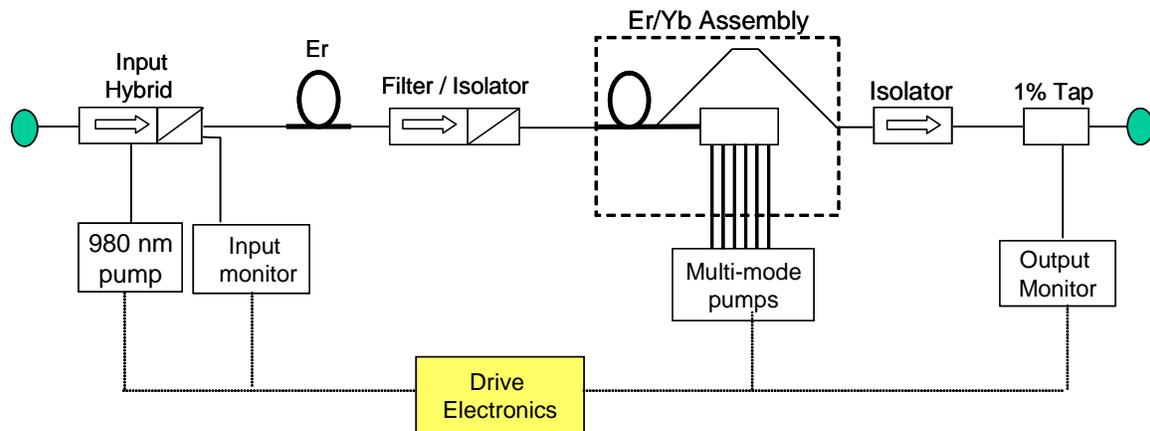
- 1) Unless stated otherwise all specifications apply over the full temperature range and humidity
- 2) Depending on the fiber optic patchcord interface the measured value can vary up to 0.5 dB less than the actual value
- 3) Measured @ 25°C, ΣPin = 0 dBm
- 4) Measured with a swept Probe Signal (Pp), where Pp = 0 dBm @ 25°C
- 5) Measured with a swept Probe Signal (Pp), and a fixed Tone Signal (Pt) @ 1553nm; (Pt = Pp+20 dB; Pt + Pp = 0 dBm) @ 25°C
- 6) Stability over polarization and temperature
- 7) Premium version – PONA with cooled, Telcordia qualified pumps
Economy version – PONA with uncooled pumps

Physical

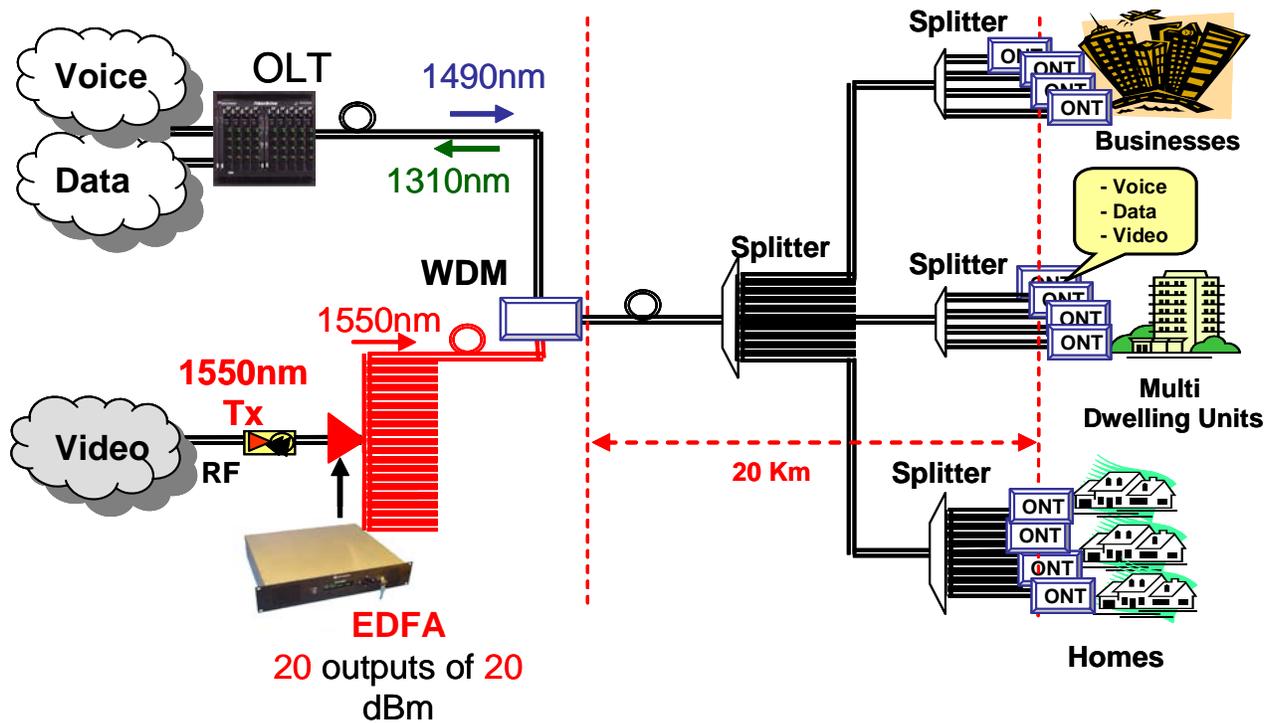
GENERAL PROPERTY	REQUIREMENT	COMMENTS
Operating Wavelength	1545 ~ 1562nm	Standard
Operating Case Temperature	0°C to 50°C	Standard
Storage Temperature	-40°C to 85°C	Standard
Operating Humidity	20% to 85%	Non-condensing
Voltage Supply Range	85 VAC to 265 VAC 50/60 Hz -36 to -60 V DC	AC version DC version *(Redundant Power Supply is Available by Customer Request)
Optical Connectors	See ordering information	User Specified
Dimensions In Inches	19.0"W x 14.76"D x 3.44"H	19" Rack Mounted, 2 RU

Block Diagram: Cladding Pump Technology

Cladding pump technology uses erbium/ytterbium fiber optic assemblies (double clad fiber and multi-mode pump lasers) to produce cost effective high power optical amplification. This technology enables the development of higher power EDFAs-something that is cost prohibitive when using standard erbium fiber and single mode pumps.

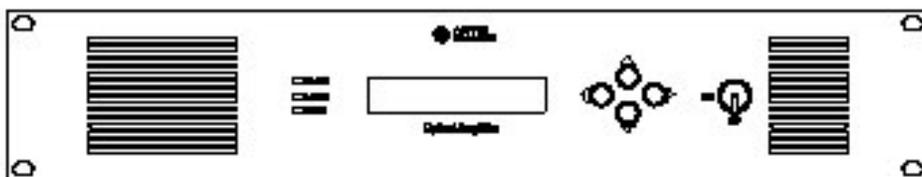
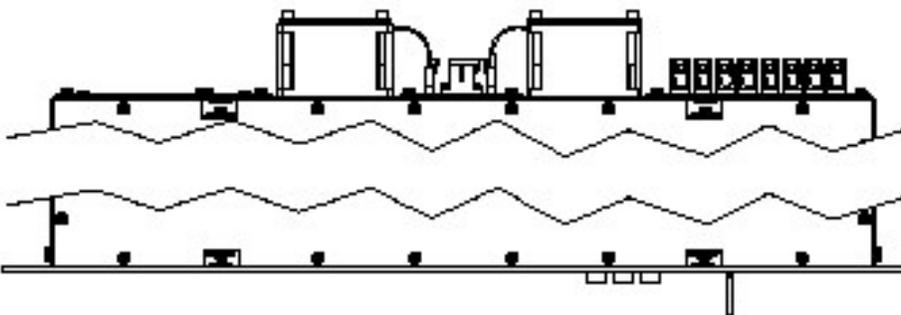
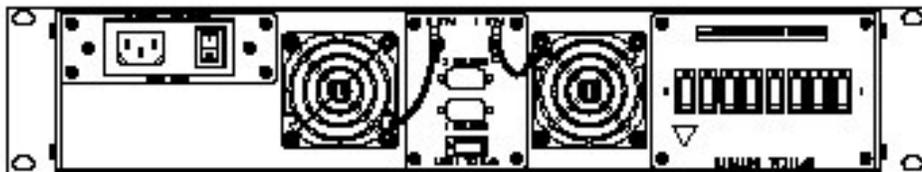
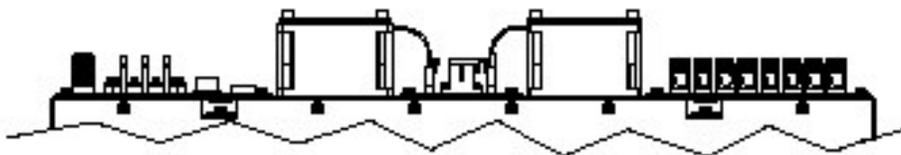
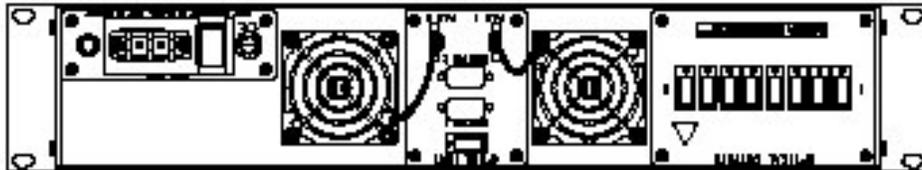


Sample FTTx Architecture



Outline Drawing

AC and DC versions shown below with 8-port option



Laser Safety Information

This product meets the applicable requirements of 21 CFR 1010 & 1040 and is classified as a Class IV laser product based on the maximum optical output power shown below. During use as intended, the laser energy is fully contained within the fiber network such that there is no accessible laser radiation and would meet the requirements for a Class I laser product. The laser product report has been submitted to the CDRH and the accession number is expected by October 2006.

Wavelength = 1545 ~ 1562 nm (dependant on input source)

Maximum Output Power = 3.2 W (single output, 35 dBm model)



AVOID EXPOSURE - INVISIBLE LASER RADIATION IS EMITTED FROM THIS APERTURE

Ordering Information

*

PONA30 - - - -

Power Level	Connector Options	# of Output Ports	Class	Input Voltage
27: 27 dBm	SC: SC/APC	01: 1 port	P: Premium	AC: 90-260 VAC 50/60 Hz
30: 30 dBm	FC: FC/APC	02: 2 ports	E: Economy	DC: -48 VDC
32: 32 dBm	EC: E2000/APC	04: 4 ports		2DC: Redundant DC
35: 35 dBm	TC: SC/UPC	08: 8 ports		
	GC: FC/UPC	16: 16 ports		
		20: 20 ports		

Class:

Premium: Utilizes cooled pump lasers
 Economy: Utilizes uncooled pump lasers

* PONA3000 series with one or two optical outputs will have special high power output optical connector(s) and optical bulkhead(s)

For exact model number, please contact your Sales Representative.

Qualifications

- FCC: Subpart B. Part 15, class "A" Unintentional Radiators
- CE: EN50083-2, 1995 with Amendment 1, which Incorporates EN 55013 Radiated and Conducted Emissions
- EN 61000-4-3 Radiated Immunity
- EN 55020 Conducted Immunity
- EN 61000-3-2 Harmonics
- All Components Meet Telcordia GR-1312 and GR-486 Standards (Except Pumps in Economy Class).
- EN 61000-3-2 Harmonics

- Fit Rate:
 - 90% Level of Confidence < 2000 @ 30°C Premium PONA 3035
 - 90% Level of Confidence < 3500 @ 30°C Economy PONA 3035

Information contained herein is deemed to be reliable and accurate as of issue date. EMCORE reserves the right to change the design or specifications of the product at any time without notice. Ortel, the Ortel logo, EMCORE, and the EMCORE logo are trademarks of EMCORE Corporation.