



MX4500  
C-Band DWDM VGA  
Next-Generation Variable Gain EDFA

Technical Specification



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### **Product description**

The Maxcom 4500 series is a next-generation variable gain EDFA. The series combines excellent performance along with superior functionality. The MX4500 series with excellent optical performance, gain flatness, advanced electronic technology and software function is one of the most versatile in today's market. Robust transient suppression control technology and heat management control technology provide excellent environmental stability. The flexibility of Maxcom multifunction optical amplifiers allow for best in class architectures with increased reliability, scalability, and cost-effectiveness.

This next generation variable gain amplifier module is composed using two stages of amplifiers: variable gain pre-amplifier (PA) and variable gain booster amplifier (BA). Gain Flatness is achieved through the combining of the filter and the electronic circuit control algorithms.

The MX4500 meets the demands of today's multi wavelength communication networks. These EDFA's support C-Band, up to 44 or 88 channel DWDM systems, commonly used in long distance and ultra-long distance transmission networks. Because of the MX4500's flexibility, it can be used as a line amplifier, pre-amplifier, and booster amplifier.



## PRODUCT FEATURES

- Next-generation Variable Gain Amplifies
- Support C-Band, up to 44 or 88 channel DWDM systems
- Adopts the latest full integration electronic transient control technology
- Adopts digital control technology with adaptive heat management
- Saturation output power optional: 18dBm, 20dBm, 23dBm
- AGC, APC, ACC operating modes
- RS232 command interface
- Front panel with LCD, providing status monitoring, fault diagnostics, alarm and safety power-off features.
- Optical monitoring ports at input and output
- Carrier-class security and reliability
- Low power consumption
- 1+1 power supply backup, supporting hot-pluggable
- Excellent P/P ratio

## APPLICATIONS

- Long distance DWDM transmissions
- Line amplifier, pre-amplifier, booster amplifier



Performance			Index			Supplement
			Min.	Typ.	Max.	
Optical feature	Operating wavelength range ( $\lambda$ )	(nm)	1529.16		1563.86	ITU 88CH
	Input power range	(dBm)	-35		3	MX4518
			-35		3	MX4520
			-40		0	MX4523
			-40		0	MX4524
	Gain range	(dB)	18		30	G30Typ
			23		35	G35Typ
			29		41	G40Typ
			12		26	G25Typ
	Max. output power	(dBm)			18	MX4518
					20	MX4520
					23	MX4523
					24	MX4524
	Gain flatness	(dB)		0.7	1	Peak-to-peak
	Noise figure	(dB)		5.5	5.9	Max gain
	Polarization dependence loss	(dB)			0.3	
	Polarization dependence gain	(dB)			0.3	
	Polarization mode dispersion	(ps)			0.3	
Pump power leakage	(dBm)			-30		
OSC wavelength ranges <sup>1)</sup>	(nm)	1500	1510	1520		
Return loss <sup>2)</sup>	(dB)	40			UPC	
Transient over /under shoot	(dB)	1.5		1	16dB Add/Drop	
Transient offset	(dB)			0.5		
General feature	SNMP interface		RJ45			
	Serial interface		RS232			
	Power supply	(V)	90		265	110VAC
			30		72	-48VDC
	Power consumption	(W)			25	
	Operating temp.	(°C)	0		65	
	Storage temp.	(°C)	-40		85	
	Operating relative humidity	(%)	5		95	
Size (W)×(D)×(H)	(")	19×7.87×1.75			1RU	

Note:

1: OSC=Optical Supervisory Channel

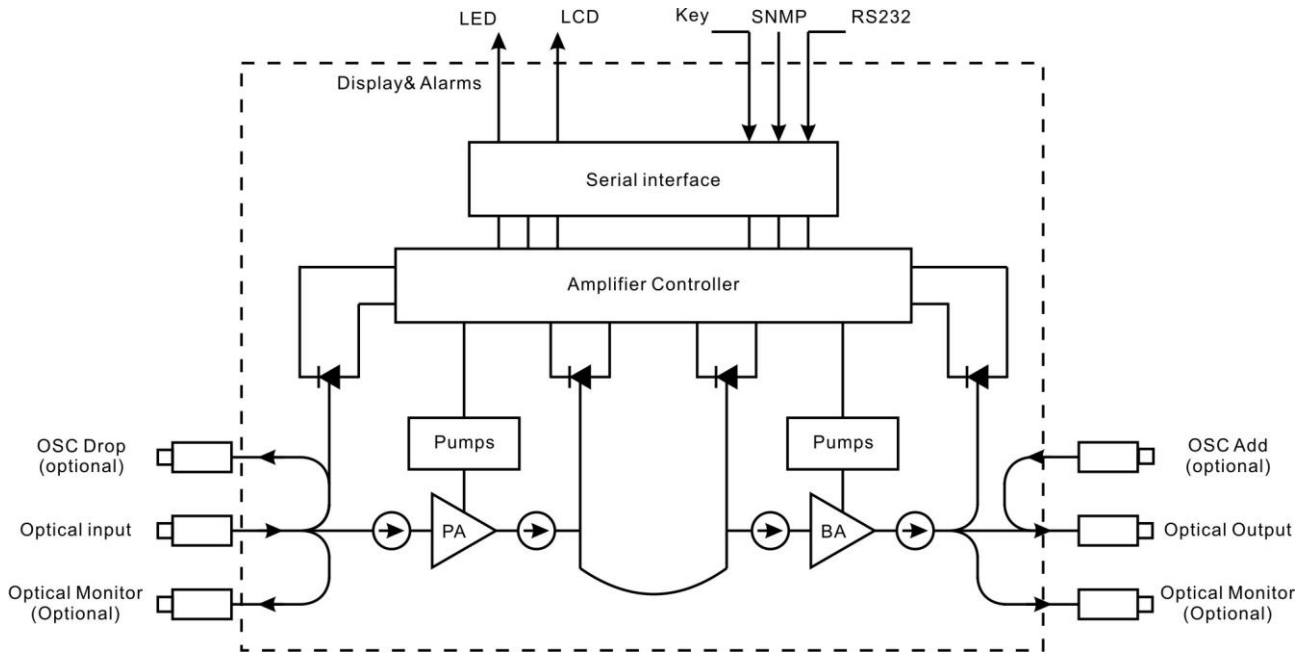
2 : Optional APC, Return loss >50dB

## SOFTWARE FUNCTIONS, MONITORS AND ALARMS

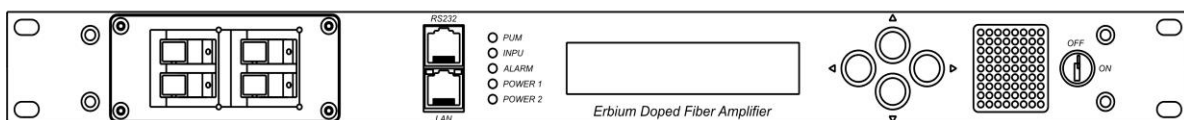
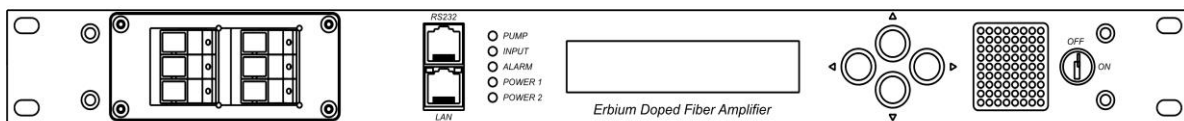
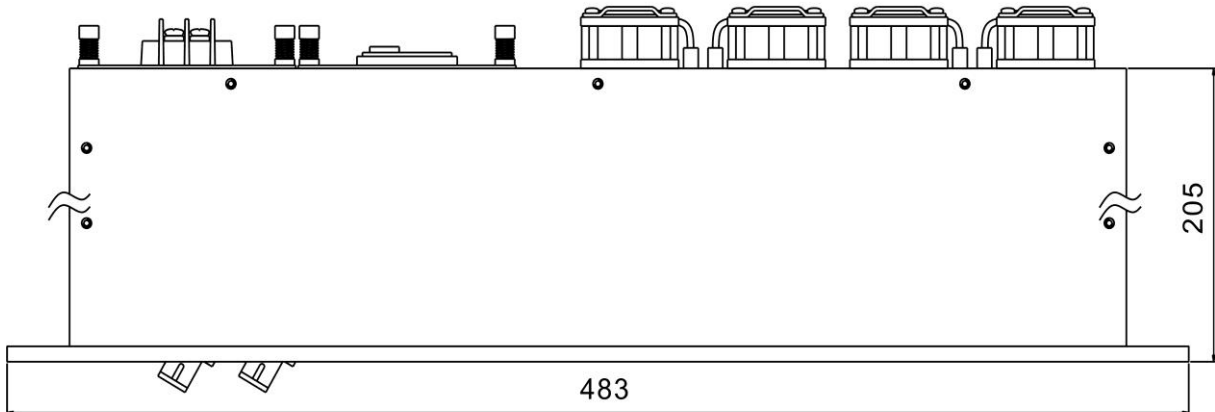
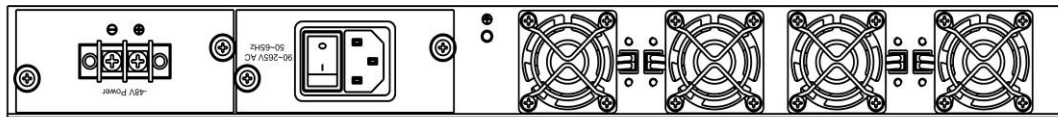
Functions	In Service Firmware Upgrades
	Auto Shut Down
	Gain Control Mode with Automatic Power limiting (VGA)
	Gain tilt Control
	Output Power Control Mode
	Pump Current Control Mode
	Eye-Safe Power Mode
	Non-Volatile Event Log
	Total Input Power
Monitors	Total Output Power
	Optical Back reflection
	Pump Status
	Chassis Temperature
	Loss-of-Signal Alarm
Alarms	Low Output Power Alarm
	Chassis Temperature Alarm
	Pump Temperature Alarm
	Pump Bias Alarm
	Excess Back reflection Alarm (Optional)



# Optical Electrical Diagram



# CHASSIS



## PRODUCT SERIES

Model	Max. output	Gain range	Input power range
	power (dBm)	Typ.(dB)	Typ. (dBm)
MX4518-G30-M00	18	16~28	+3~-35
MX4518-G35-M00		23~35	0~-35
MX4518-G40-M00		28.5~40.5	+3~-30
MX4518-G25-M00		12~26	0~26
MX4520-G30-M00	20	18.5~30.5	+3~-35
MX4520-G35-M00		23~35	0~-35
MX4520-G40-M00		29~41	+3~-35
MX4520-G25-M00		12~26	0~26
MX4523-G30-M00	23	19~31	0~-35
MX4523-G35-M00		25~37	0~-37
MX4523-G40-M00		29~41	0~-40
MX4523-G25-M00		12~26	0~26
MX4524-G35-M00	24	25~37	0~-37
MX4524-G40-M00		30.5~42.5	0~-40

### Model Number Ordering Matrix

MX	4	5	□□	G□□	□□ -	□ /	□□ -	M□□								
Product Series	Operating Wavelength		Max Output Power (dBm)		Gain Range Typ (dBm)		Optical Connector type		Power Option	Power Supply		In/Output optical port monitor				
Model Series	4	1528-1564nm	5	Variable Gain EDFA	18	18.5	21	13-21.5	LA	LC/APC	P	Dual PS Hot Pluggable	11	110VAC	MIO	With In/Output Port Monitor
					20	20	30	18-30	SA	SC/APC			48	-48VDC		
					23	23	35	23-35					41	-48VDC & 110VAC		
					24	24	40	29-41								
							25	12-26								

\*Note - Some options only available of certain chassis or models  
Please consult with your Maxcom Rep for ordering options

