



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

Technical Specification





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 (λ) | (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 ¹⁾ | (nm) | 1500 | 1510 | 1520 | | |
| Return loss ²⁾ | (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

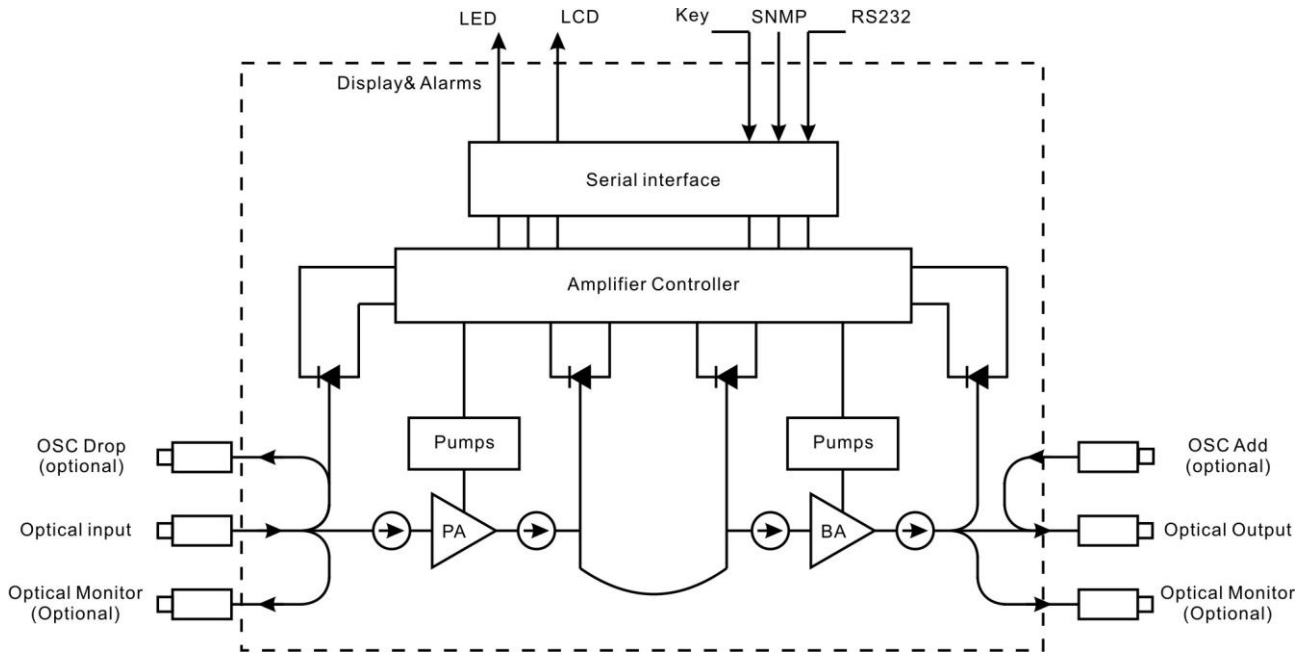
2 : Optional APC, Return loss >50dB

SOFTWARE FUNCTIONS, MONITORS AND ALARMS

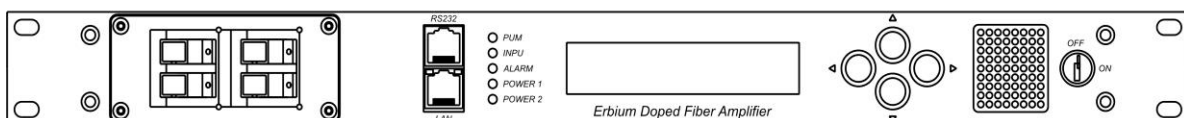
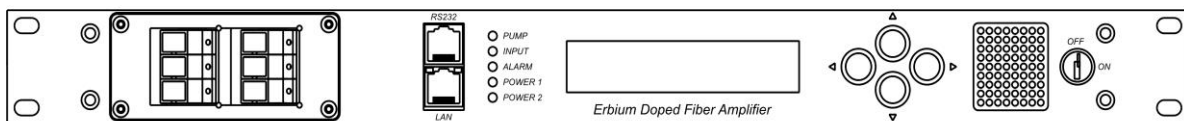
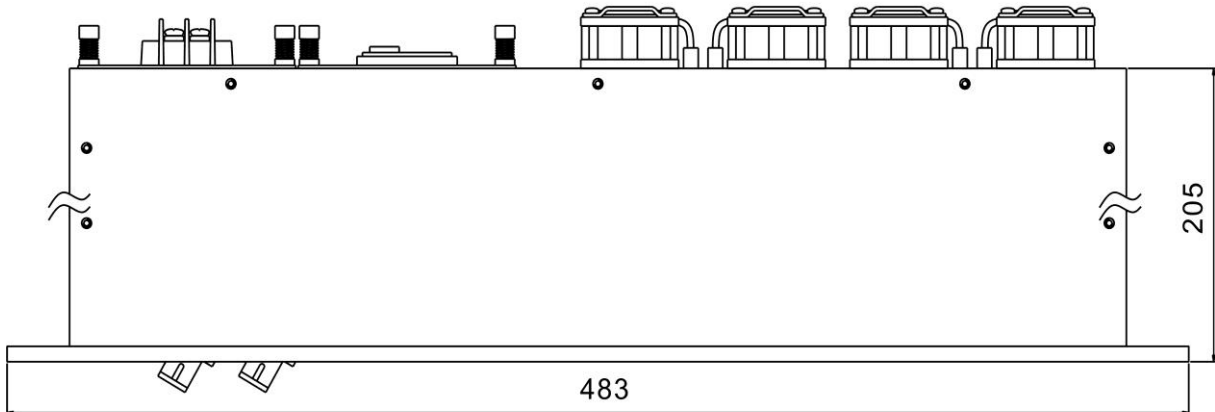
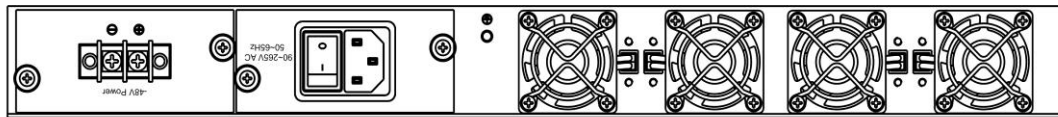
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|-----------|---|
| Functions | In Service Firmware Upgrades |
| | Auto Shut Down |
| | Gain Control Mode with Automatic Power limiting (VGA) |
| | Gain tilt Control |
| | Output Power Control Mode |
| | Pump Current Control Mode |
| | Eye-Safe Power 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



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