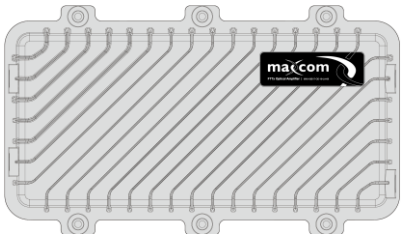
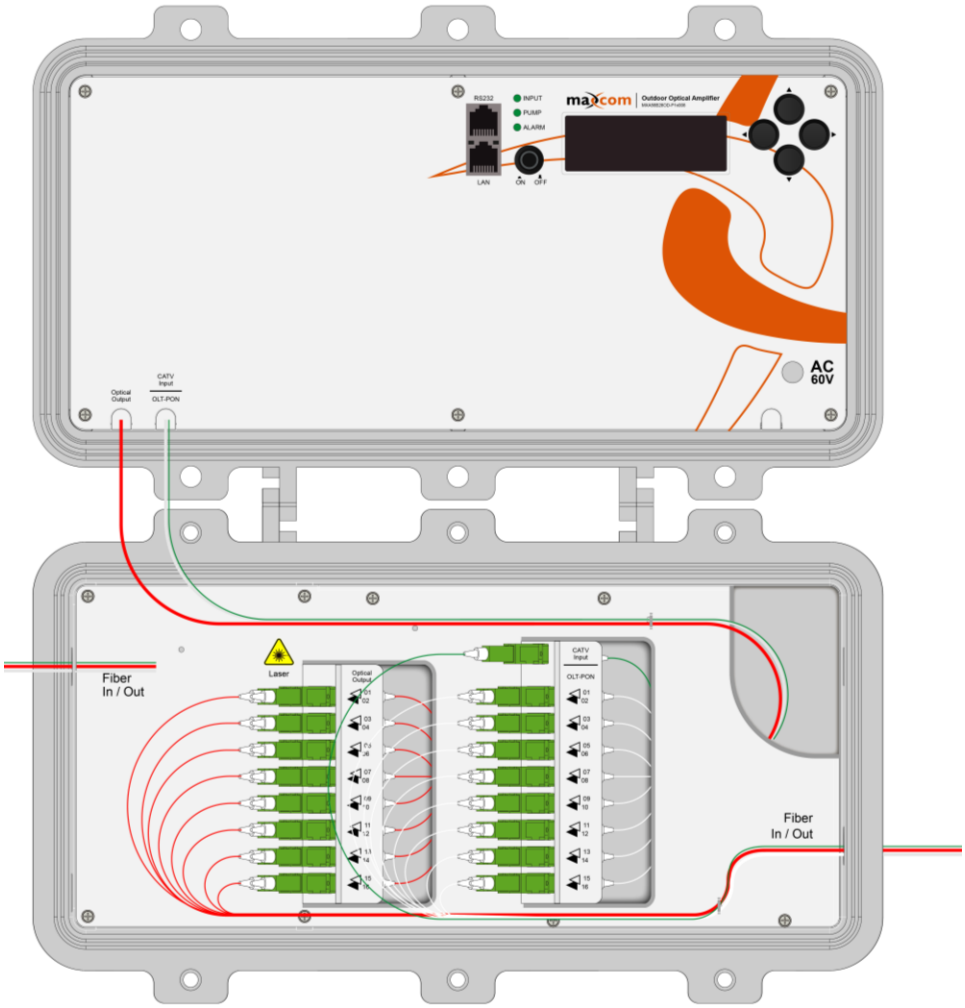
Ver. 4.3sb

1550nm CATV EDFA (Erbium Doped Fiber Amplifier) • MXA58B Outdoor Series

TECHNICAL SPECIFICATIONS

Available in 4, 8 and 16 port configurations





PRODUCT DESCRIPTION

The MXA58B outdoor series is low noise, high performance, FTTx high power multi-port optical amplifier with a gain spectrum band within 1540~1563nm. Each output port for the optical amplifier has a corresponding built-in high performance CWDM PON port. Every external up-link optical port of the optical amplifier can conveniently connect with an OLT. Each of the 1550nm (CATV)'s output optical ports will multiplex 1310/1490nm GPON, and/or 1270/1577nm XGS-PON wavelengths from an external OLT.

The MXA58B outdoor optical amplifier is compatible with FTTx PON Technology. It offers a flexible and low-cost solution for CATV RF Overlays.

Outdoor series has a low noise figure, the unit adopts twin-stage amplification, the pre-amplifier adopts a low noise EDFA, and the output cascade adopts high power EYDFA. When the input optical power Pin=0dBm, the noise figure of the unit is: Typical ⩽5dB, Max ⩽6dB.

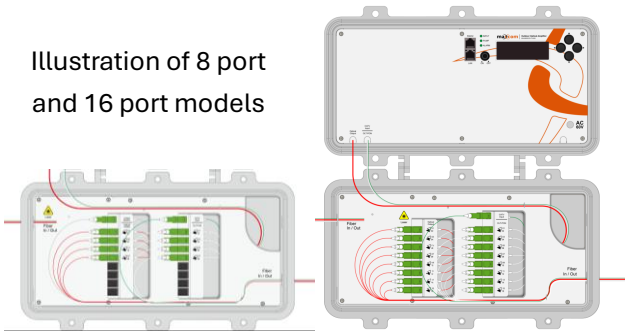
The MXA58B LCD at the internal module offers access to all equipment indexes and warning alarms. The laser will switch off automatically if optical power is removed, which offers security and protection of the laser. All optical ports of the optical amplifier may be installed on the lower door of the housing. The unit is powered by standard coax F-port line power between 45~90 VAC or optional 100~240VAC power supply, or optional -48 VDC PS.

The MXA58B optical amplifier is available with outdoor chassis, output power available up to 20 dBm and is available with 4, 8, and 16 optical outputs, with the corresponding uplink (xPON) optical ports (4, 8, and 16 ports).

MAIN APPLICATIONS

- FTTx GPON with RF Overlay
- FTTx XG(S)PON with RF Overlay

Illustration of 8 port and 16 port models



MODEL NUMBERS

Model Number Ordering Matrix

MXA-	5	□	□	□□ -	□□ -	□□ -	□□ -	□□
Product Series	Operating Wavelength	Production Type	WDM PON Port Configuration	Output Power (dBm) per port	Exterior	Number of output ports	Port Connector type	Power Supply
Model Configuration	**5** 1540-1563nm	**8** EDFA w/ PON Ports	**B** Combo GPON & XGSPON 1270/1310/1490/1577 Pass	**17** 17dBm	**OD** Outdoor Housing	**04** 4 ports	**LA** LC/APC	**12** 100~240 VAC
		4 NO WDM PON ports	**C** Custom	**20** 20dBm		**08** 8 ports	**SA** SC/APC	**48** -48VDC
				** Select dBm Output		**16** 16 ports		**69** 45~90VAC F-PORT

☐ Fill the squares above to order the desired options

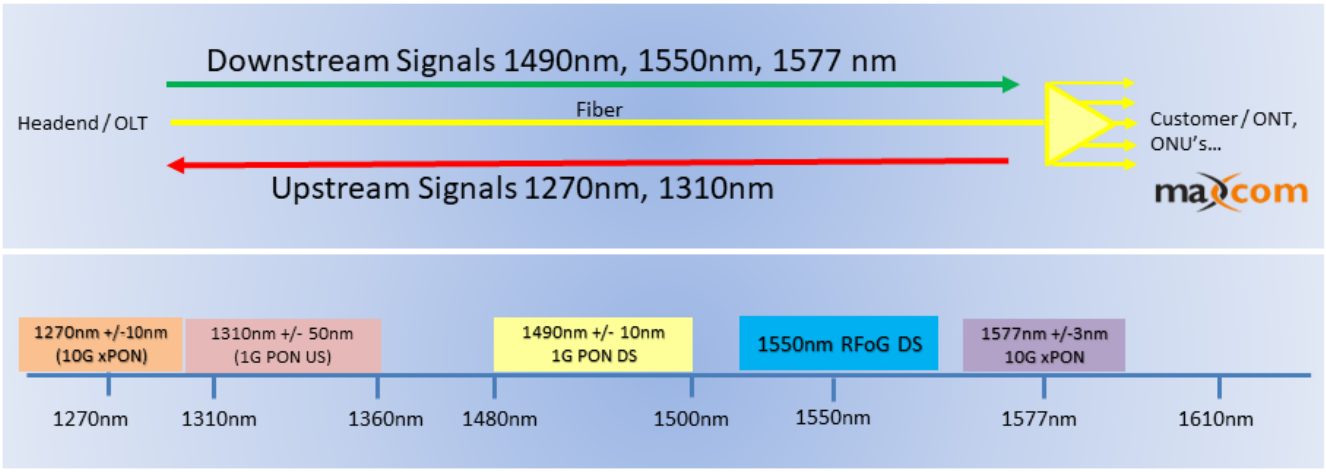
TECHNICAL INDEX

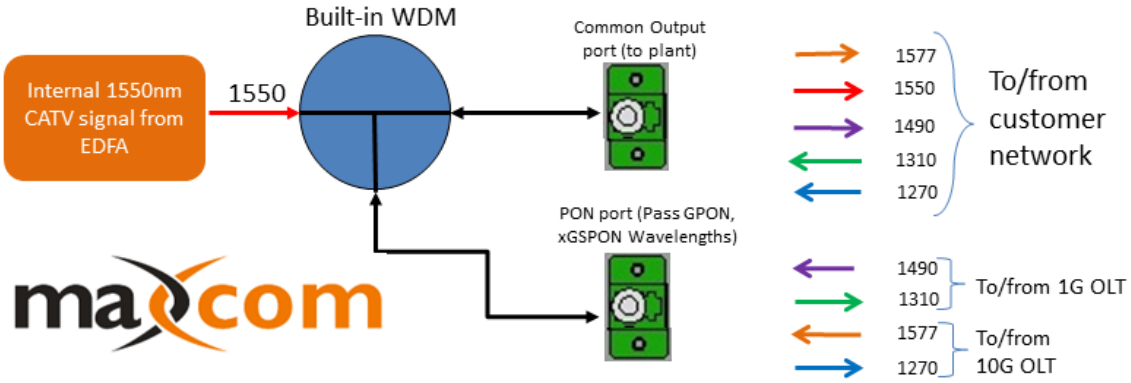
Performance			Index			Supplement
			Min.	Typ.	Max.	
Optical feature	CATV operation wavelength	(nm)	1540		1563	CATV
	OLT pass wavelength	(nm)		1310/1490 1290/1577		
	CATV pass wavelength loss	(dB)			0.8	1550nm
	OLT pass wavelength loss	(dB)			0.8	1310/1490nm 1270/1577
	CATV & OLT isolation	(dB)	40			
	Number of uplink optical ports (for OLT)	(pcs)	4	8	16	LC or SC
	1550nm CATV input power (Pi)	(dBm)	-5		+10	
	Total output power[1)]	(dBm)	18		38	Before internal splitter
	Number of output ports	(pcs)	4	8	16	LC or SC
	Each port output power	(dBm)	14		20	Based on model ordered. Standard models available with +17 and +20dBm
	Difference of each output power	(dB)	-0.5		+0.5	
	Output optical power monitoring	(dB)		-20		
	Output power adjustable range	(dBm)	-6		0	
	Noise figure	(dB)		5.0	6.0	
	Polarization dependence loss	(dB)			0.3	
	Polarization dependence gain	(dB)			0.4	
	Polarization mode dispersion	(ps)			0.3	
	Input/output isolation	(dB)	30			
	Pump power leakage	(dBm)			-30	
	Echo loss	(dB)	55			APC

GENERAL INDEX

General feature	Network management interface		RJ45			
	Serial interface		RS232			Optional feature
	Power supply Options	(V)	45~90 VAC F-PORT	-48VDC	100~240 VAC	Selectable feature
	Power consumption	(W)			84	
	Operation temp.	(°C)	-5		65	
	Storage temp.	(°C)	-40		80	
	Relative humidity	(%)	5		95	
	Size (W)×(D)×(H)	(mm)	400×232×162mm			

WAVELENGTH DETAIL for GPON, xGPON, and RF Overlay:





Operation of the Control Screen - Open Menu

A. Turn on power switch. Begin with the panel display in the "OFF" position. The Laser Status lamp will be Red.

B. Connect a 1550nm optical signal source to the input, then turn on the laser start-up key switch.

LED shows "**KEY ON…"**,
PUMP- Status lamp is Red when OFF, Green when ON
INPUT - Status lamp will turn from Red to Green once input signal detected
ALARM - Status lamp is Red when alarm condition is met
POWER - Status lamp is Green (no light when power is off)

Start-up main menu

By pressing the ▲/▼ buttons, the following menu items will be displayed in sequence.

Model
Read-only menu, indicates the model number
S/N
Read-only menu, indicates the serial number of the unit
Laser CTRL
Adjustable list, allows operator to turn laser on or off
INPUT
Read-only menu, indicates the input optical signal
OUTPUT
Read-only menu, indicates the output optical signal
SET OUTPUT
Adjustable list displays the output optical power in dBm. Allows user to attenuate optical output up to 6 dBm
LASER CURRENT 1
Read-only menu, indicates the laser current in mA
CORE TEMP
Read-only menu, indicates the internal temperature
AMBIENT TEMP
Read-only menu, indicates the outside temperature
Power
Read-only menu, displays the status of power

IP CONFIG
Adjustable list, Allows user to select Static or DHCP
IP
Adjustable list, displays the IP address
SUB
Adjustable list, displays the sub address
GW
Adjustable list, displays the gateway address
TRAP 1
Adjustable list, displays the TRAP1 address
TRAP 2
Adjustable list, displays the TRAP2 address
MAC
Read-only menu, displays the mac address
CONSOLE BAUD
Adjustable list, allows user to set baud rate between 1,200 and 230,400
HW VER
Read-only menu, displays the hardware version
SW VER
Read-only menu, displays the software version
REBOOT OPTIONS
Select Cancel or Confirm. Rebooting will NOT turn off output or change optical power levels. Other settings such as the IP address or switch settings will return to Default.
RESET SETTINGS
Adjustable list, restores device to factory default settings
LCD Contrast Level
Adjustable list, LCD contrast adjustment, select 0 to 100%

Modifying Settings

You may easily navigate the menu by using the arrow buttons to select and modify the settings as desired.

For example, press ▶ key to modify the address menu item that needs to be changed, press ▶ to shift the value, push ▲\▼ to increase/decrease value, then shift the value to the next digit as desired, press ▶ to the save, press ◀ all the way to the left and exit.

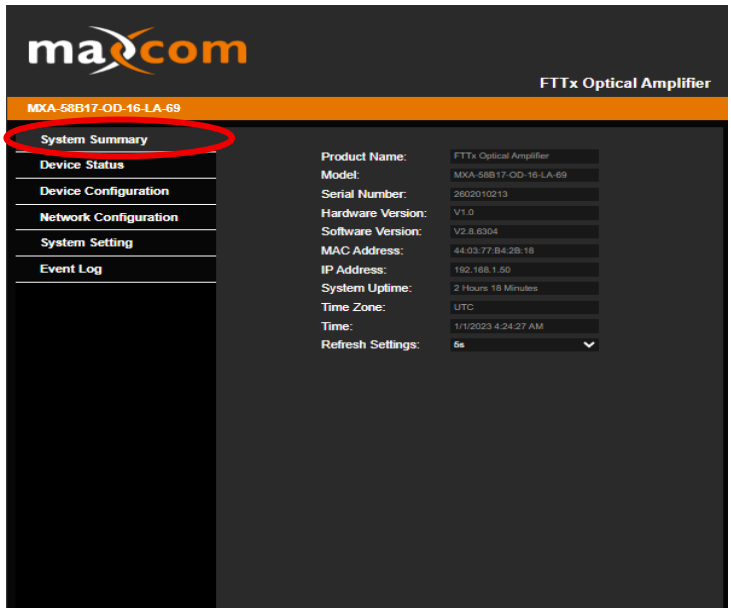
For example, modify the IP setup menu, IP: 192.168.000.015; if changing the number 5 to a 6, use ▶ key to choose the place of 5, then press ▲ key to change the 5 to 6, then press ▶ to save modified IP:192.168.000.016

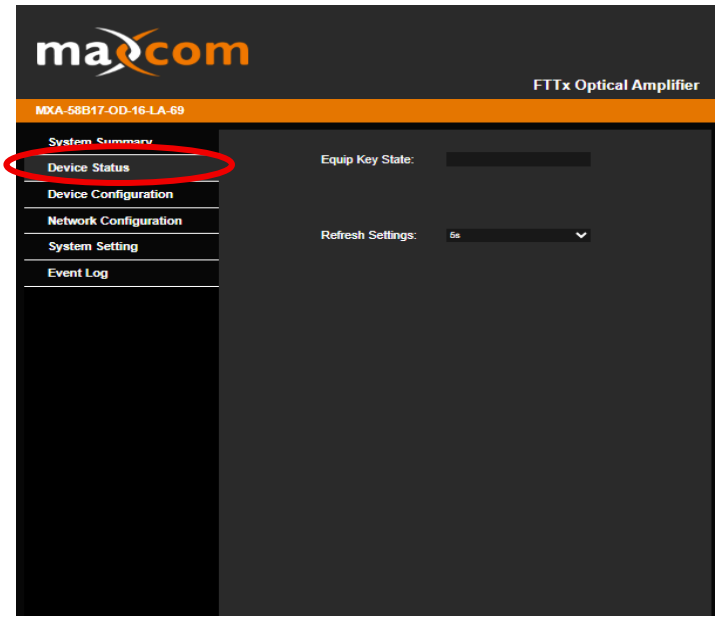
Web Interface

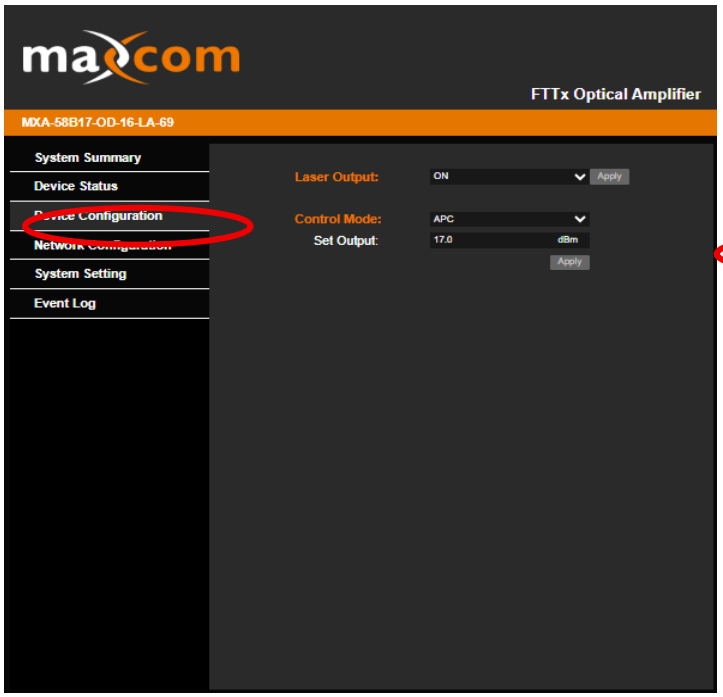
The Maxcom Optical Transmission Platform offers a web interface GUI (Graphic User Interface) for control, display, and monitoring features similar to the front panel LED and control features. The device/equipment management software allows the user to remotely monitor or adjust several parameters simultaneously, such as laser power, optical switch settings, temperature, voltages, etc...

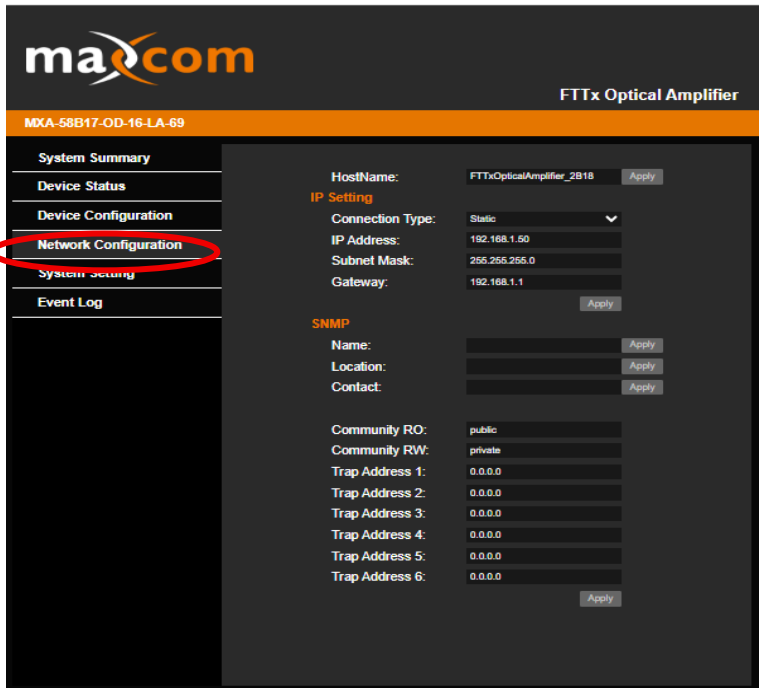
For quick access, simply plug a laptop or PC into the RJ-45 LAN port on the front panel of the chassis. Open a web browser. The default IP address is 192.168.1.50. Enter 192.168.1.50 into the browser and hit enter. The GUI Screen should appear with a log-in box. The default username is admin, the default password is admin. *Note, network settings and IP address on your laptop or other device may need to be adjusted in order to communicate with the device. Standard network protocols should be followed when connecting via a network connection.

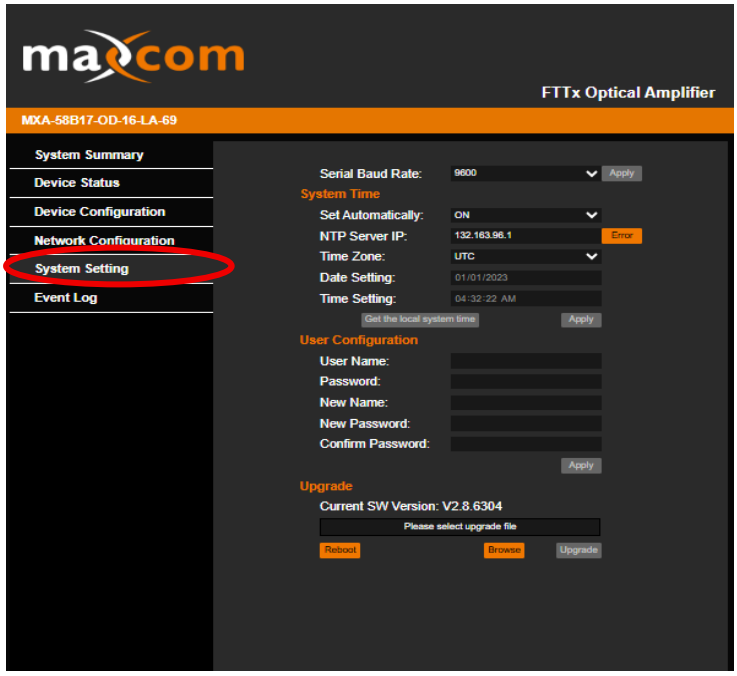
Below are illustrations of category screens available once logged in:

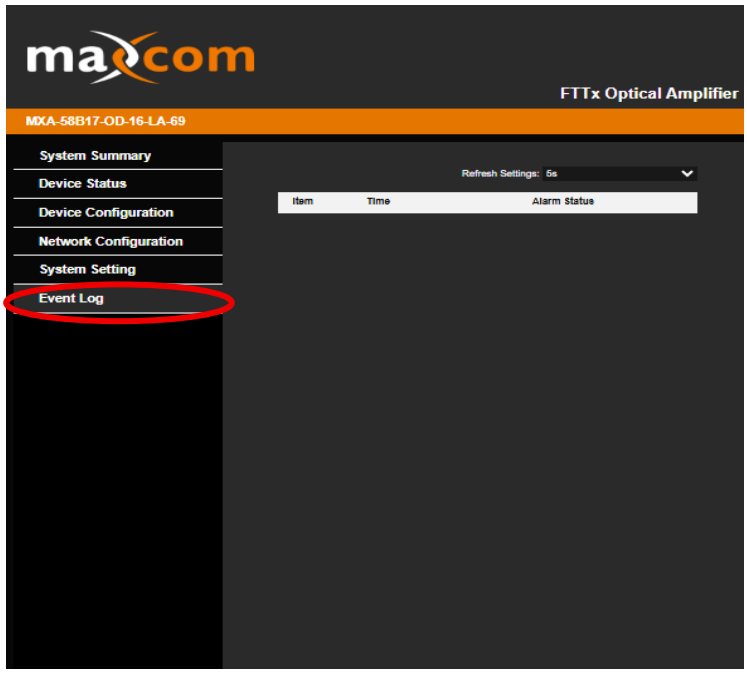





maxcom
FTTx Optical Amplifier
MXA-58B17-OD-16-LA-69
System Summary
Device Status
Device Configuration
Network Configuration
System Setting
Event Log
Laser Output:
ON
Apply
Control Mode:
APC
Set Output:
17.0
dBm
Apply


maxcom
FTTx Optical Amplifier
MXA-58B17-OD-16-LA-69
System Summary
Device Status
Device Configuration
Network Configuration
Event Log
HostName:
FTTxOpticalAmplifier_2B18
Apply
IP Setting
Connection Type:
Static
IP Address:
192.168.1.50
Subnet Mask:
255.255.255.0
Gateway:
192.168.1.1
Apply
SNMP
Name:
Location:
Contact:
Community RO:
public
Community RW:
private
Trap Address 1:
Trap Address 2:
Trap Address 3:
Trap Address 4:
Trap Address 5:
Trap Address 6:
0.0.0.0
Apply


maxcom
FTTx Optical Amplifier
MXA-58B17-OD-16-LA-69
System Summary
Device Status
Device Configuration
Network Configuration
System Setting
Event Log
Serial Baud Rate:
9600
Apply
System Time
Set Automatically:
ON
NTP Server IP:
132.163.96.1
Error
Time Zone:
UTC
Date Setting:
01/01/2023
Time Setting:
04:32:22 AM
Get the local system time
Apply
User Configuration
User Name:
Password:
New Name:
New Password:
Confirm Password:
Apply
Upgrade
Current SW Version: V2.8.6304
Please select upgrade file
Reboot
Browse
Upgrade


maxcom
FTTx Optical Amplifier
MXA-58B17-OD-16-LA-69
System Summary
Device Status
Device Configuration
Network Configuration
System Setting
Event Log
Refresh Settings:
5s
Item
Time
Alarm Status

Faults

The MXA5 series EDFA will monitor system operation and offer brief warnings. It will correct most of the status alarm detections of the unit, such as system parameter floating, equipment tolerance, laser aging, RF level changing, and temperature changes. The PUMP laser will continue operating while alarming. The alarm will disappear as the unit continually self-detects, or after the relative system parameters recover into a normal range. Some serious warnings may be eliminated by restarting the power supply. The warning will disappear automatically if related parameters recover to within normal range.

The majority of warnings will be sent out when the correction ability is near or is exceeding the permitted range. During most situations, the operator may not modify the status. Status modification requires special equipment and lab adjustments; hence the modification should only be processed at the Maxcom facility.

Warning status

When the pump laser is in warning status, the status LED will turn red, and a brief notification of the status will be displayed on the screen. The warning will not prevent the EDFA from operating, it only indicates the relative parameter exceeding the normal scope marginally. If the warning ends, it indicates that the relative parameter has returned to the permitted scope. The screen and LED will return to their normal status and there is no need for user to intervene. However, it should be emphasized that the problem originally shown by alarm should be noted, due to the possibility there may be a serious system error occurring.

Table: Warning status:

Working status	Status display	LED color	Explanation
Present laser deflection is low or out of parameter	Key Off	Red	The EDFA is OFF. It is shut down.
Present case temp	Alarm	Red	Warning when the temp ≥60°C.
Input	Input Low	Red	Optical input power is low.
Output	Output Low	Red	Optical output power is low.

Alarm status

When the pump laser issues a warning, it has stopped working. The alarm is due to potential parameters exceeding its safe operating scope, or some other situation that may cause damage to the laser. Some alarm situations may be eliminated by rebooting (restarting the power supply) or resetting the key switch. If user is not able to eliminate the alarm, please contact Maxcom for assistance.

PORT AND CABLE ASSIGNMENTS

The MXA5 series provide the following management port:

RS232 port using RJ45: suitable for examining the MXA5 parameters and some system configurations by attaching to a PC RS232 port.

SNMP: Simple network management protocol

Before connecting the MXA5 series to the RJ45 port, please read the following instructions and port connectivity requirements.

LAN Port (RJ-45)

Connection Management (Out-Band)

Remote management may be performed through the dedicated LAN port (10/100BASE-TX port) on the front of the MXA5 or any 10/100BASE port of MXA5.

Before the Management port may be accessed through LAN port, please configure the IP address and subnet mask by serial port according to network configuration requirement. Please refer to page 6 (Web Management) of this manual for instructions.

SNMP:

RS232 Console port (DB9)

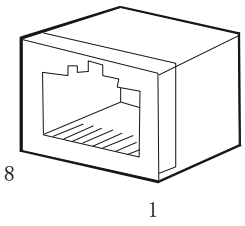


Figure 4-2.1 DB9 interface

DB9 interface is a standard connector used in RS232 in series communication connects. OLT adopts 9 pin standard connector which is the same as the connector of PC Com interface.

Pin assignment

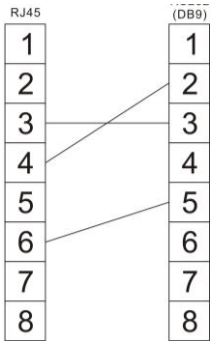


Figure 4-2.2 DB9/RS232 pin assignment

Pin	Distribution
2	RXD: Receive data
3	TXD: transmitter data
5	SG: signal

Table 4-3 Pin information

Port connection

The MXA5 series requires a cable to connect the MXA5 series serial port. This cable has a DB9 connector in the MXA5 series and PC side. Consult figure 4.2.1.

Follow these steps to connect cables:

1) Through an RS232 (DB9) cable, connect a super terminal program PC to RS232 port on the MXA5. For example, connect one COM port in PC (com 1~4) and one RS232 port of MXA5.

2) Setup the terminal to analogue type VT100, distribute a COM (com 1~4) to connect with MXA5 RS232, then setup communication mode as follows:

1. Data bit: 8

2. Stop bit: 1

3. Parity check: No

4. Baud: 9600 bps (applies to initial configuration)

5. Flow control: No

Fiber Connections

Cleaning fiber-optic connectors can help prevent interconnect problems and therefore aid with system performance. When optical connectors are disconnected and reconnected, the fiber surface may become dirty or scratched. The goal of cleaning the fiber optic connectors is to remove all dust and contaminants without leaving any residue.

DO NOT connect or disconnect optical jumpers/connectors when unit is ON and in operation (switched on)! Connector surface may become damaged or burned by HIGH LASER POWER Level. Unit must be switched to the OFF position prior to any type of connection being made to unit. In case of accidental damage where levels are displayed normally on screen, but low on the output port, the optical connector may be changed or replaced to restore normal levels.

CAUTION:

For high power optical levels, in particular to high power optical transmitters and EDFA's, extra caution should be used. Fiber connectors may be burned or melted, arcing may occur, damage may occur to any device that a connector comes in contact with. Extreme caution and safety practices should be observed to avoid contact with eyes and skin. To avoid injury and microscopic damage to fiber mating surfaces, turn off optical power before making or breaking optical connections.

Warranty Maxcom provides a 2-year warranty on the MXA5 series EDFA. Warranty is from date of purchase. Additional warranty details are available from Maxcom or your Sales Partner.

www.maxcomcorp.com

USA 1-209-339-2333