

1RU DWDM EDFA Product Description

GA11A Series

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Version	Date	Author	Approver	Remarks
V1.0	2/04/2020			1) Not open to the third party

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1 Product Introduction

1.1 Product Introduction

The product is a high stability output power EDFA. The stability Pump Laser and unique ATC (automatic temperature control) and AGC (automatic gain control) circuit are employed in it as the key components to ensure the high stability and reliability of output power. The unique optical circuit design ensures the excellent optical characteristics. The high stability and high precision MPU system are employed to ensure the control adjustment and display are intelligent and user-friendly.

Professional design GFF (gain flattening filter) with excellent optical path design make flatness and noise reach the best optimization. It can provide 40~80 channels, and flatness above 35nm.

The optical circuit is designed especially for digital optical fiber communication system including:

- (1) lower noise figure
- (2) the high output booster and high sensitivity pre-amplifier improve the system loss budget
- (3) Broad input power range and output power is adjustable easily.

The design of dual Power Mixed and hot swap provides longer MTBF. Also, the power system can be backed up.

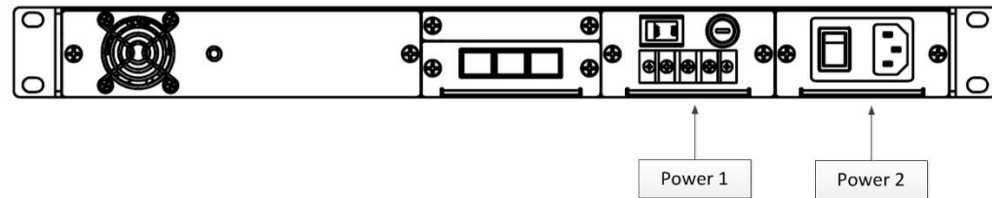
Employing the intelligent temperature control system, the fan is on when the module temperature over 35°C, and it will stop when the temperature goes under 30°C, which ensures the thermal stability and fan's long life-time, moreover, the professional air flow design can also ensure the best temperature stability.

Intelligent network management system. Perfectly network interface: Ethernet, RS-485 and RS-232 network interface, and the open mib ensure the connectivity with all other network management systems.

Figure 1-1 Front Panel



Figure 1-2 Back Panel



1.2 Features

This Single Channel EDFA has the following features:

- Low noise figure: typical is under 4.5dB
- High Flatness: Typical 1.5dB
- Redundancy hot swap power module: 110/220VAC and -48VDC can plug mix
- Works for 19' or 21' racks
- Cover Whole C-Band: Carrier 40 or 80 chs
- OLED display shows and controls the system parameters, LED status indication shows the alarm status
- Supports ETH, RS232 ports by RJ45
- Network Management interface supporting SNMP via Ethernet port
- AGC (Automatic Gain Control) optical output

2 Technical Specifications

2.1 Environmental Requirements

Table 2-1 Environmental Characteristics

Parameters	Min.	Max.	Unit
Working Temperature	-5	+60	°C
Storage Temperature	-40	+80	°C
Humidity	5	85	%

Note: non-condensing

2.2 Mechanical / Power/ Interface Characteristics

Table 2-2 Mechanical/ Power/ Interface Characteristics

Parameters	Min.	Typ.	Max.	Unit
Size	1U H×D×W≤44×236×483			mm
Weight	-----	-----	6	Kg
Power Consumption ¹	-----	-----	18	W
Cooling	Air cool fans			
Power Supply ²	85/170	110/220	132/264	VAC
Interface	RS-232, Ethernet			

(1) Actual consumption depends on the output power and environment temperature.

(2) 110VAC, 220VAC and -48VDC are optional.

2.3 Optical Specifications

2.3.1 Pre-amplifier

Table 2-3 Optical Characteristics

Parameter	Min	Typ	Max	Units	Remark
Wavelength Range	1529	1550	1561	nm	
Output Power	-----		13	dBm	Optional
Gain	17	20	23	dB	Optional
Flatness	-----	1.0	1.5	dBm	@typical gain
Input Power ¹	-30		-5	dBm	Optional
Output Power Stability	-----		±0.1	dB	
NF (In=0dBm, λ=1550nm)	-----	5.0	5.5	dB	@max output, typical gain
PMD (Polarization Mode Dispersion)	-----	-----	0.5	ps	
PDG (Polarization Dependent Gain)	-----	-----	0.3	dB	
RL (Optical Return Loss)	45	-----	-----	dB	
Pump Leakage at Input & output			-30	dBm	
Eye Safety		Class1M.Based on. a. Pump Back Reflection b. ASE in 1500-1520 band			

*1 When input power is lower than -26dBm, it will alarm. And when input power is lower than -28dBm, pump laser will be off.

3 System Interface

Figure 3-1 System Interface

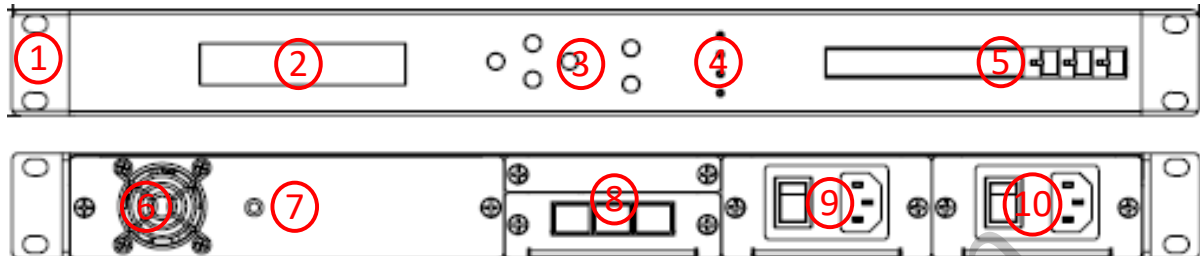


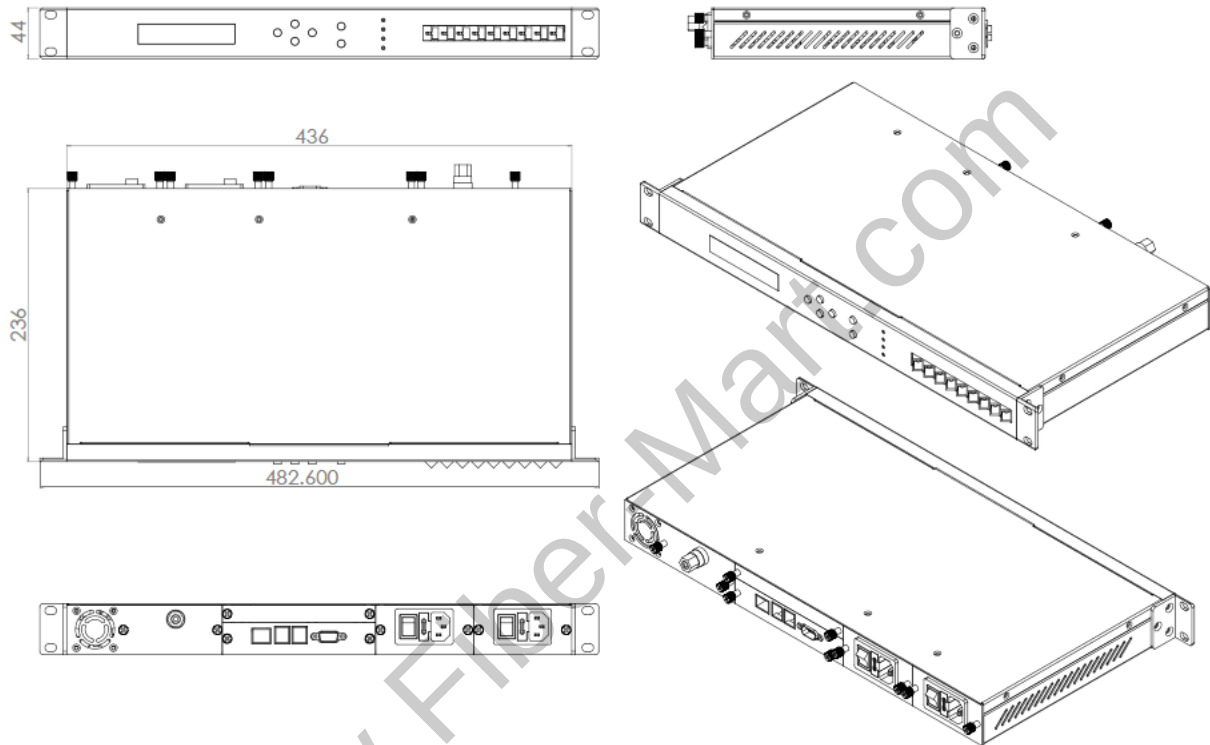
Table 3-1 Interface Definition

No.	Function	Remark
1	Mounting brackets	Φ4
2	OLED Screen	
3	Press key	
4	Indicator light	
5	Optical interface	LC/UPC
6	FAN	
7	Grounding Stud	
8	SNMP, RS232 communication with indicators	SNMPV1.V2C
9/10	Power Supply (110VAC/-48VDC optional)	

4 Mechanical Dimensions

Size: 44*236*483 mm

Figure 4-1 Structure diagram



5 Order Information

Model	Application	-	Output	-	Gain	-	Power	Interface
GA11A: 1RU EDFA	4: C band DWDM		010: - 10dBm 000: 0dBm ... 22: 22dBm		5: 5dB ... 35:35dB		33:dual 110~220VAC 44:dual -48VDC	1: SC/UPC 2: SC/APC 3: FC/UPC 4: FC/APC 5: LC/UPC 6: LC/APC