Integrated Transmitter and Fiber Amplifier TAFA3000

0.05 – 18 GHz, 1555 nm Externally Modulated Transmitter with Integrated EDFA



The Emcore TAFA3000 is an integrated high-performance externally modulated transmitter and erbium doped fiber amplifier with guaranteed performance over the 0.05 – 18 GHz frequency band. It incorporates a high dynamic range lithium niobate Mach Zehnder optical modulator. It provides 19 dBm of optical output power from the integrated EDFA.

The unit can be used to construct transparent optical links for microwave signal distribution, microwave delay lines, point-to-point data links and other applications where it is necessary to transport RF and microwave signals over long distances without signal degradation.

The unit operates at a nominal optical wavelength of 1550 nm and ITU wavelengths are available for CWDM and DWDM applications.

Applications

- **Microwave Antenna Signal Distribution**
- **Broadband Delay-line and Signal Processing Systems**
- **Frequency Distribution Systems**
- **Phased Array Antenna Systems, Interferometric Antenna Arrays**

Features

- **Integrated 1550 nm DFB source, microwave Mach-Zehnder optical modulator and single-stage isolated 980nm-pumped 19 dBm EDFA**
- **0.05 – 18 GHz specified bandwidth**
- **High dynamic range**
- **High optical output power - up to 19 dBm**
- **Internal splitter options for multiple optical outputs**
- **Thermally controlled for stable operational from –40 to +70°C**

Specifications

Electrical

RF Connector	SMA or K (female, 50Ω)
RF Input Power Range	0 to 25 dBm
Frequency Range	0.05 to 18 GHz
Input IP3 at 18 GHz	+26 dBm, min
Input P1dB at 18 GHz	+18 dBm, min
Typical Link Parameters (Using a reference photodiode receiver at 0 dBm)	
Link Gain at 2 GHz	-36 dB
Link gain at 18 GHz	-44 dB

Optical

Wavelength	1550 ± 6 nm (Select wavelengths available for wavelength-division-multiplexed (WDM) systems)
Connectors	Pigtailed FC/APC or SC/APC
Optical Output Power	13 to 19 dBm
Optical Power Stability	<± 0.5 dBm over temperature and time

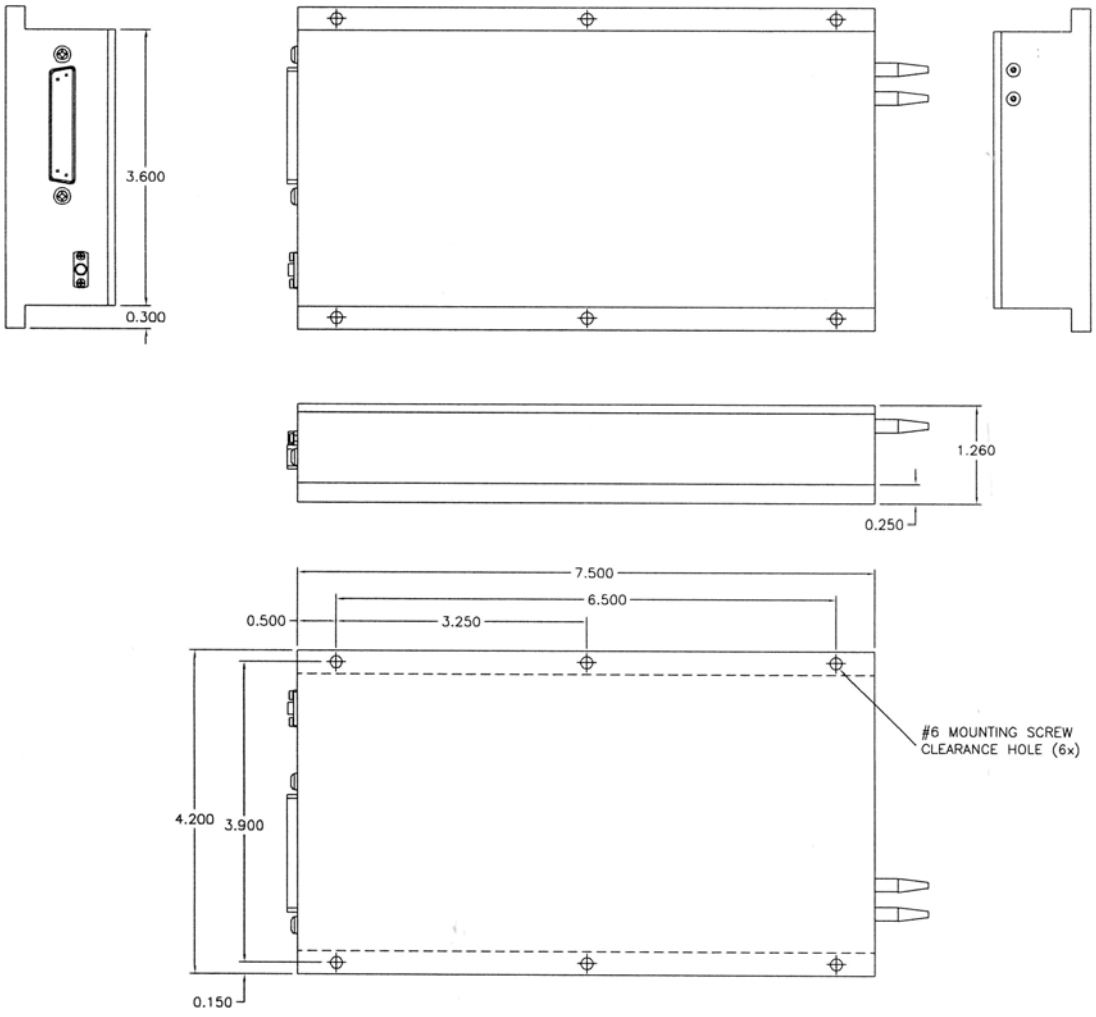
Physical

Configuration	Self Contained Housing
Dimensions	1.3” H x 4.2’ W x 7.5” D
Operating/Storage Temperature	-40°C to +70°C
Power Requirements	<± 15V @ 0.1 A, -5 V @ 1.0 A max, +5 V @ 2.5 A max

Interface and Control

DC Connector	25 Contact Micro-D
Input Controls	Laser Enable
Alarms	Low Output Power, Laser Temperature, Pump Laser Temperature, Pump Laser Bias

Package Outline Drawing



D-Connector Pin Out

1	GND	14	n/c
2	n/c	15	n/c
3	GND	16	Pump Temperature Alarm
4	GND	17	GND
5	n/c	18	n/c
6	Low Output Power Alarm	19	n/c
7	DFB Laser Temperature Alarm	20	n/c
8	+ 5 V	21	n/c
9	+ 5 V	22	n/c
10	Pump Bias Alarm	23	n/c
11	+ 15 V	24	n/c
12	- 15 V	25	- 5 V
13	- 5 V		

Laser Safety

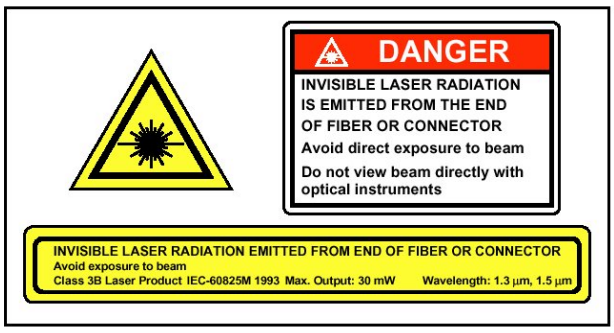
Class IIIb Laser Product

FDA/CDRH Class IIIb laser product. All transmitter versions are Class IIIB laser products per CDRH, 21 CFR 2040 Laser Safety requirements. All versions are Class 3B laser products per IEC*60825-1:1993.

Maximum Power = 20 dBm

Caution: Use of controls, adjustments and procedures other than those specified herein may result in hazardous laser radiation exposure.

*IEC is a registered trademark of the International Electrotechnical Commission.



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