

MP-8000-22 Series Amplified Microwave Fiber Optic Transmitter (TX)

## 22 GHz Amplified Microwave Fiber Optic Transmitter



### Broadband Microwave Analog Fiber Optic Transmitter Modules Provides >100km Transport Capability.

The MP-8000-22-ATX RF/Fiber Optic Transmitter modules are designed to provide electrical-to-optical (E/O) conversion of broadband RF signals over a frequency range of 20 MHz to 22 GHz.

The utilization of the MP-8000-22-ATX, in conjunction with the appropriate MP-8000-RX-01 RF/Fiber Optic Receiver, forms a broadband link capable of supporting the transmission of RF signals over singlemode optical fiber for use in a wide array of scientific and communication applications. The link applications include antenna remoting, SATCOM, RF delay lines, telemetry tracking, and point-to-point RF transmission.

The transmitter utilizes a high efficiency Mach-Zehnder Lithium Niobate (LiNbO3) electro optic modulator, coupled with a high power Distributed Feedback (DFB) laser diode centered at 1550 nm or on customer specified ITU wavelengths. Use of a X-cut modulator ensures near zero chirp characteristics that enables >100km fiber lengths and predictable dispersion control implementations. The laser temperature stability is microprocessor controlled using a thermal electric cooler and an advanced ditherless bias control loop. These features, coupled with the MP-8000-RX-01's companion Photonic Receiver's incorporation of a high-speed, low distortion PIN photodiode detector, assures low noise and high dynamic range link performance over varying frequency, temperature, and optical loss budgets.

The MP-8000-22-ATX series Transmitter application modules have advanced Built-In-Test (BIT) diagnostic capabilities which provides remote status and monitoring of critical parameters such as transmitted optical power, system power, modulator bias, temperature, amplifier current, attenuator setting and a summary alarm status.

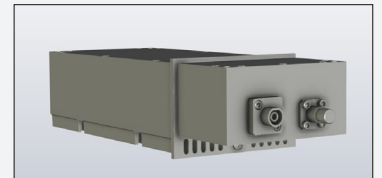
Information: Call us toll-free at 888-868-8967 or email [info@b2bphotonics.com](mailto:info@b2bphotonics.com)

### Applications:

- SATCOM Interfacility Links
- Microwave Antenna Remoting
- Electronic Counter Measure Systems
- Test and Measurement Applications
- Wideband Delay Line Applications
- Phased array Antenna Systems
- Secure Communication Systems

### Features:

- 20 MHz to 22 GHz Bandwidth
- X-Cut LiNbO3 Modulator
- Extended Operating Temperature
- High Optical Output - 10 dBm
- High Speed Noise free Bias Loop
- Integral RF Attenuator
- Low Noise RF Gain Stages
- Single Fiber DWDM Operation
- Small Form Factor Flange Mount
- Hot Swappable, Plug-In Module
- Compatible with MPS-1911 and MPS-1914 Rack Chassis Systems



1914 Plug-In Style Module



1914 Plug-In Style Module

Microwave Photonic Systems, Inc.

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### Specifications

#### Optical:

Operational Wavelength	1555 +/- 5 nm or Customer Specified ITU Grid Channel
Optical Output Power (nom)	10mW, 20mW
Optical Fiber Type	Single Mode SMF-28
Optical Connector Type	FC/APC, SC/APC, E2000, LC/APC, AVIM, Others
Optical Back Reflections	-55 dB

#### RF:

Frequency Response	20 MHz to 22 GHz
RF Input Impedance (nom)	50 Ohms
VSWR Input (typ)	2:1
RF Input Connector	2.92 mm (K) female
1 dB Input Comp. Level (min)	0.0 dBm TX Gain = 15 dB <sup>(1)</sup> -15 dBm TX Gain = 30 dB <sup>(1)</sup>
Input IIP3 (min)	+10.0 dBm TX & RX Gain = 15 dB <sup>(1)</sup> -5.0 dBm TX & RX Gain = 30 dB <sup>(1)</sup>
RF Link Gain (min)	0 dB TX & RX Gain = 15 dB <sup>(1)</sup> +30 dBm TX & RX Gain = 30 dB <sup>(1)</sup>
RF Link Gain Flatness (typ)	14dB over Full Operating Bandwidth <sup>(1)</sup> (Gain Equalized versions Available) ± 1.25 dB over any 500MHz Bandwidth <sup>(1)</sup>
RF Link Noise Figure (max)	37.0 dB TX & RX Gain = 15 dB <sup>(1)</sup> 22.0 dB TX & RX Gain = 30 dB <sup>(1)</sup>
Spur Free Dynamic Range	103 dB Hz <sup>2/3</sup>

#### General:

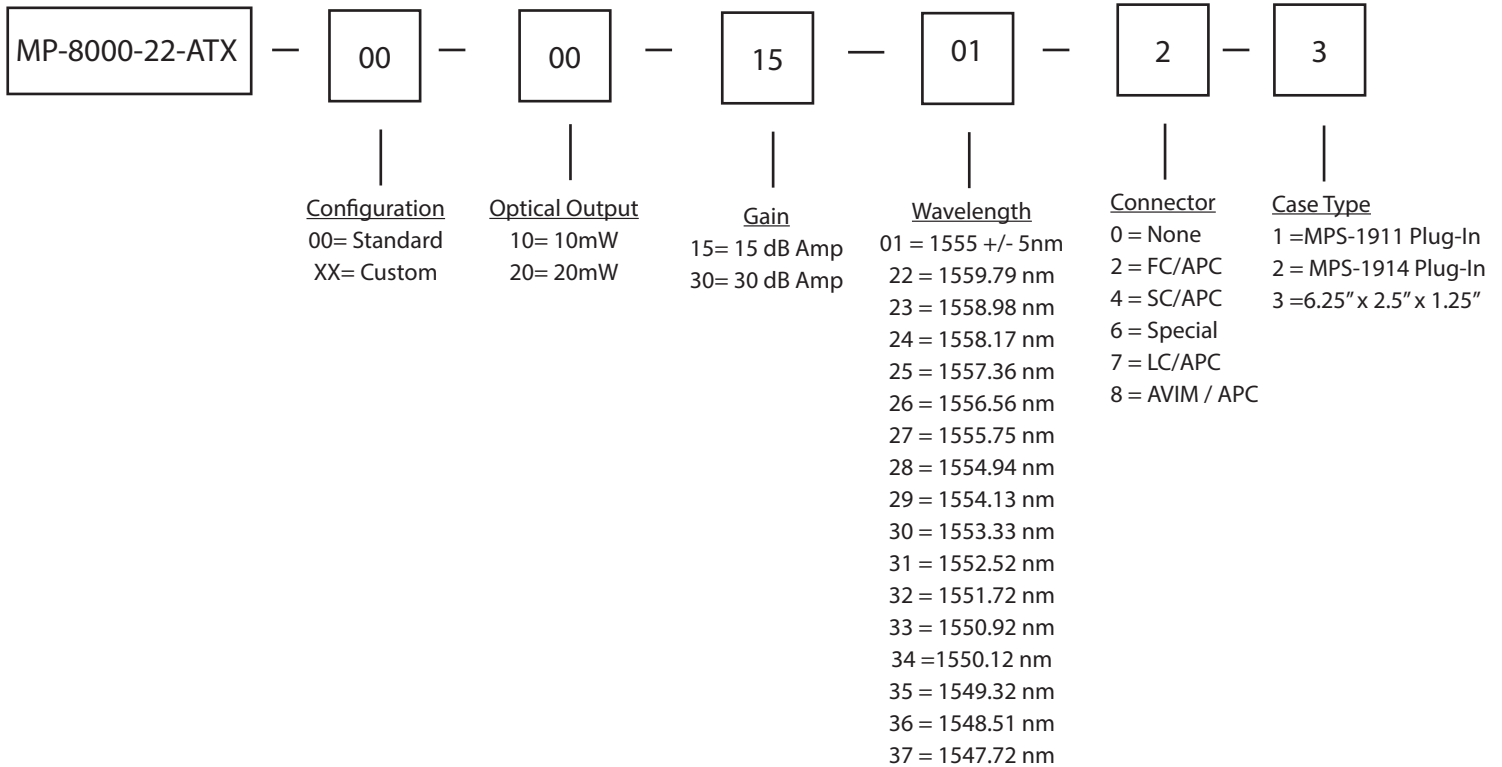
Power Supply	+8.0 to + 24 VDC, 12.5 Watts (max)
Operating Temperature (std)	-20°C to +50°C
Operating Temperature (extended)	-40°C to +70°C
Storage Temperature	-45°C to +85°C
Operating Humidity	95% Non-condensing
Storage Altitude	50,000 ft
Local Alarm	LED: Bit Fault & Optical Power Failure (Plug-In Version Only)
Remote Alarms	Open Collector and Serial Interface
Dimensions:	
Flange Mount TX	6.5" x 2.5" x 1.25"
Chassis Mount	MPS-1911 or MPS-1914 Compatible

Note (1) : Performance stated with 10mW dBm<sub>o</sub> RX Optical Input applied to MP-8000-RX-01-15/30 Receiver Module

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### Transmitter Part Number Generator



Note (1) : Other Frequency Bandwidths Available on Request