

# microwave photonic systems

50150A1MTX/L and 50125A1MRX/L Product Series: L-Band Fiber Optic Plug-In

## L-Band, Extended Range, RF Photonic Link



### 100 km Long Haul Fiber Optic Link with Enhanced SFDR

The MP 50150A1MTX and MP 50125A1MRX provides long haul transport of satellite communications signals using a high performance L-Band RF Photonic architecture designed to leverage the latest technology for optical amplification and dispersion compensation. The transmitter (50150A1MTX) and receiver (50125A1MRX) modules are both equipped with digitally controlled RF gain blocks which allow the operator to dynamically configure the RF channel Carrier to Noise (C/N) and Carrier to Intermodulation (C/IMD) performance to best optimize the RF channel for Uplink (UL) or Downlink (DL) transmission.

In addition, to further enhance RF channel performance when novel long haul architectures are employed these modules are compatible with the MP-17X100TDC. The MP-17X100TDC is an optical C-Band subsystem consisting of an Erbium Doped Fiber Amplifier (EDFA) and a Tunable Dispersion Compensator Module (TDCM), and is used to facilitate RF channel enhancements for architectures in which multiple optical channels are multiplexed onto a single fiber (DWDM) and/or extended transmission distances up to 100 km are required.

The 50150A1MTX uses an ultra linear C-Band Distributed Feedback (DFB) laser diode that provides high dynamic range performance. The laser bias and temperature stability are ensured by use of an embedded microprocessor controlled feedback loop. The microprocessor also provides status monitoring of all critical parameters and communicates this information to a network computer using an Ethernet interface. The parameters include laser bias current, temperature and alarm status.

The 50125A1MRX utilizes a high-speed, low distortion PIN photodiode detector and also has an integrated microprocessor which provides the user with status monitoring of critical parameters. The parameters include received optical power, temperature and alarm status.

The 50150A1MTX and 50125A1MRX are both designed as plug-in modules for use within the MPS 4RU series chassis, offering a high capacity, hot-swappable form factor.

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

#### Applications

- Antenna Remoting
- SATCOM
- Telemetry
- Wireless / PCS

#### Features

- Uplink or Downlink, 800 - 2050 MHz
- High Spur Free Dynamic Range
- Adjustable Gain Blocks
- Ethernet Status Monitoring
- Hot-Swappable 4RU Plug-In Design
- 3 Year Warranty



Microwave Photonic Systems, Inc.

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### Specifications

RF Specifications @ 25 km:	Optical Link Budget of 7.5 dBo (See Note 1 & Note 2)
Frequency Response	950 MHz to 2150 MHz
RF Link Gain (typ)	+1.0 dB (min) , +3.0 dB (max)
Gain Flatness (max)	±0.25 dB per 36 MHz, ±0.50 dB per 1.2 GHz, ±0.75 dB Full Span
VSWR (max)	1.5:1
Noise Figure (max)	30 dB
1 dB Comp. Level (min)	0.0 dBm
Input IP3 (min)	+18.0 dBm
Spur Free Dynamic Range	+108.0 dBm * Hz <sup>(2/3)</sup>
RF Specifications @ 50km:	Optical Link Budget of 15.0 dBo (See Note 1 & Note 2)
Frequency Response	950 MHz to 2150 MHz
RF Link Gain (typ)	+1.0 dB (min) , +3.0 dB (max)
Gain Flatness (max)	±0.25 dB per 36 MHz, ±0.50 dB per 1.2 GHz, ±0.75 dB Full Span
VSWR (max)	1.5:1
Noise Figure (max)	35dB
1 dB Comp. Level (min)	0.0 dBm
Input IP3 (min)	+18.5dBm
Spur Free Dynamic Range	+105.0 dBm * Hz <sup>(2/3)</sup>
RF Specifications @ 100 km	Optical Link Budget of 30.0 dBo (See Note 1 & Note 2)
Frequency Response	950 MHz to 2150 MHz
RF Link Gain (typ)	+1.0 dB (min) , +3.0 dB (max)
Gain Flatness (max)	±0.25 dB per 36 MHz, ±0.50 dB per 1.2 GHz, ±0.75 dB Full Span
VSWR (max)	1.5:1
Noise Figure (max)	40 dB
1 dB Comp. Level (min)	0.0 dBm
Input IP3 (min)	+17.5 dBm
Spur Free Dynamic Range	+101.0 dBm * Hz <sup>(2/3)</sup>
Optical Specifications:	C-Band Wavelengths, DWDM Compatible
Output Power (typ)	+10 dBm
Optical Connector	FC/APC (Or Customer Specified)
Return Loss (min)	60 dB
General Specifications:	
Supply Voltage	12-15 VDC
RF Connector	SMA(F), 50 Ohm
Operation/Storage Temp	-20°C to +60°C / -40°C to +85°C
Local / Remote Alarms	Panel LEDs / Remote Ethernet
Form Factor	Plug-In for 19" x 4RU Rack Chassis
Weight	< .5 lb
EMI Rating	FCC Class A

Note 1: Optic losses at C-Band calculated using 0.2 dBo per km + 0.1 dBo per km of infrastructure losses

Note 2: Assumes use of MP-17X100TDC on transmit side of subsystem.

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