

OFW-7820-TRX Series Microwave Fiber Optic Transceiver

## S / C / X Band Ruggedized Microwave Photonic Transceiver



### Ruggedized Broadband Microwave Analog Fiber Optic Transceiver Enables Low Noise Antenna Remoting

The OFW-7820-TRX fiber optic interfacility link (IFL) subsystem provides exceptional gain flatness and phase linearity performance over a 10 GHz instantaneous bandwidth, from 2 to 12 GHz.

The OFW-7820-TRX subsystem is part of an integrated earth terminal design intended to transmit and broadcast S/C/X-Band signal traffic using single mode fiber optic cabling over distances of up to 100 km. These signals can either be direct X-Band SATCOM or IF frequencies being upconverted into the X-Band spectrum.

The OFW-7820-TRX utilizes field proven RF optical conversion techniques that are transparent to the various earth terminal modulation techniques and their corresponding data rates. The RF performance of the subsystem is optimized to provide a Spur Free Dynamic Range (SFDR) in excess of  $110 \text{ dB} \cdot \text{Hz}^{(2/3)}$  over a broad range of optical loss budgets.

In addition, the OFW-7820-TRX supports a list optional features that enhance SATCOM terminal operation: Uplink / 10 MHz RF Frequency Diplexed Transport, Downlink LNB powering, RF Link Gain Control, and embedded Ethernet capability which supports remote control of system parameters such as AGC enable/disable/setpoint, Manual Gain Control (MGC) set point, and the monitoring of health parameters such as optical power, bias currents, and internal temperature.

Further, the OFW-7820-TRX has an optional integrated Ethernet switch which allows for the remoting of Ethernet over fiber signals from the local to remote location.

The OFW-7820-TRX series can be packaged in various styles of form factors including a 1RU x 19" rack chassis, 4RU x 19" high-density plug-in card chassis, rugged outdoor enclosures, and a compact flange mount unit.

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

### Applications:

- S thru X Band SATCOM IFL Links
- Microwave Antenna Remoting
- Electronic Counter Measure Systems
- Test and Measurement Applications
- Wideband Delay Line Applications
- Phased array Antenna Systems
- Secure Communication Systems

### Features:

- 2 to 12 GHz Instantaneous Bandwidth
- Excellent SFDR:  $> 110 \text{ dB} \cdot \text{Hz}^{(2/3)}$
- Extended Operating Temperature
- High Optical Output +8 dBm
- Manual or Automatic Gain Control
- Single Fiber DWDM Operation
- Multiple Fiber Operation
- Small Form Factor Flange Mount
- Ethernet Control and Monitoring
- Compatible with MPS-1911 and MPS-1914 Rack Chassis Systems



19" x 1RU Rack Mount  
Multi-Channel Enclosure



1914 Plug-In Style Module

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## Specifications

## Optical:

Operational Wavelength	1310/1550nm or Customer Specified ITU Grid Channel (DWDM)
Optical Output Power (nom)	+8 dBm
Optical Fiber Type	Single Mode SMF-28
Optical Connector Type	TFOCA, MIL-DTL-38999, FC/APC, SC/APC, E2000, PC/APC, AVIM, Others
Optical Back Reflections	-55 dB

## RF:

Frequency Response	2 GHz to 12 GHz
RF Input Impedance (nom)	50 Ohms
VSWR Input / Output	1.5:1
RF Connectors	TNC, SMA, 2.92mm (female)
RF Link Gain	0 dB +/-1 dB
RF Link Gain Flatness	± 1.0 dB over RF Bandwidth
RF Gain Adjustment Range	20 dB
1 dB Input Comp. Level	+0 dBm <sup>(1)</sup>
Input IIP3	+13.0 dBm <sup>(1)</sup>
RF Link Noise Figure	22.0 dB <sup>(1)</sup> with -3 dBo optical loss budget
Spur Free Dynamic Range	110 dB Hz <sup>2/3</sup> <sup>(1)</sup>
RF Input Power	+15.0 dBm, non-damage

## General

Power Supply (Remote unit)	48 VDC, or Customer Specified
Power Supply (local unit)	90-267 Universal AC
Power Connector (local unit)	Mil-Circular 3 PIN or Customer Specified
Power Connector (Remote unit)	IEC 320
Ethernet Connector (Local unit)	RJ-45
Ethernet Connector (Remote unit)	MIL-DTL-38999 ECRD3103U00 RJ-45
Operating Temperature (Remote Unit)	-40°C to +75°C
Operating Temperature (Local Unit)	-20°C to +50°C
Storage Temperature	-45°C to +85°C
Environmental rating	IPC67
Altitude	50,000 ft
Local Alarm	LED: Bit Fault & Optical Power Failure
Remote Alarm and Control	Ethernet / SNMP
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 -3 dBo Optical Link Loss

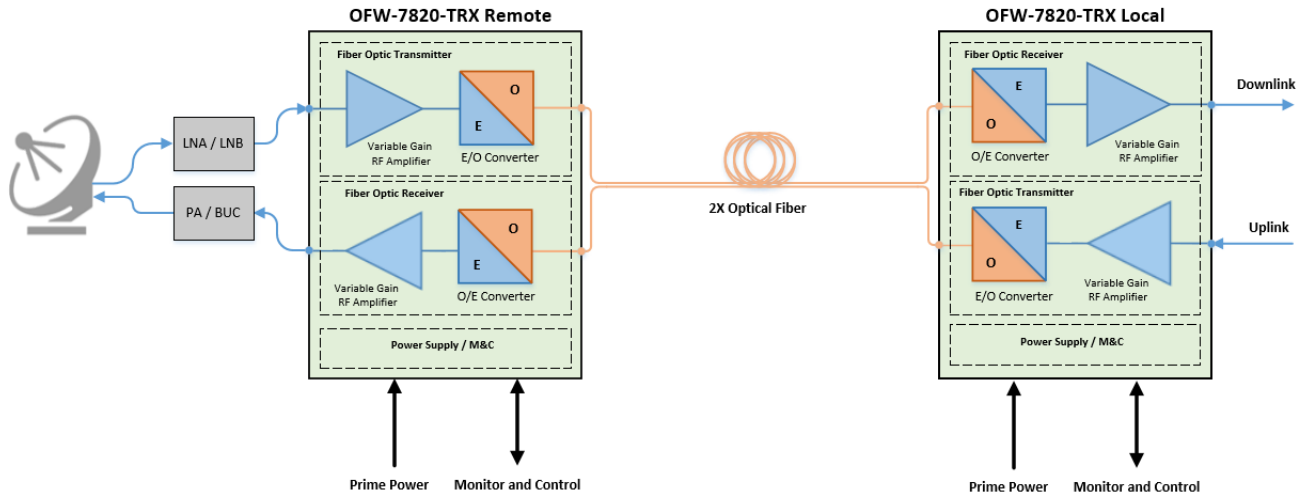
Note (2) : Unless stated otherwise all performance specifications are typical

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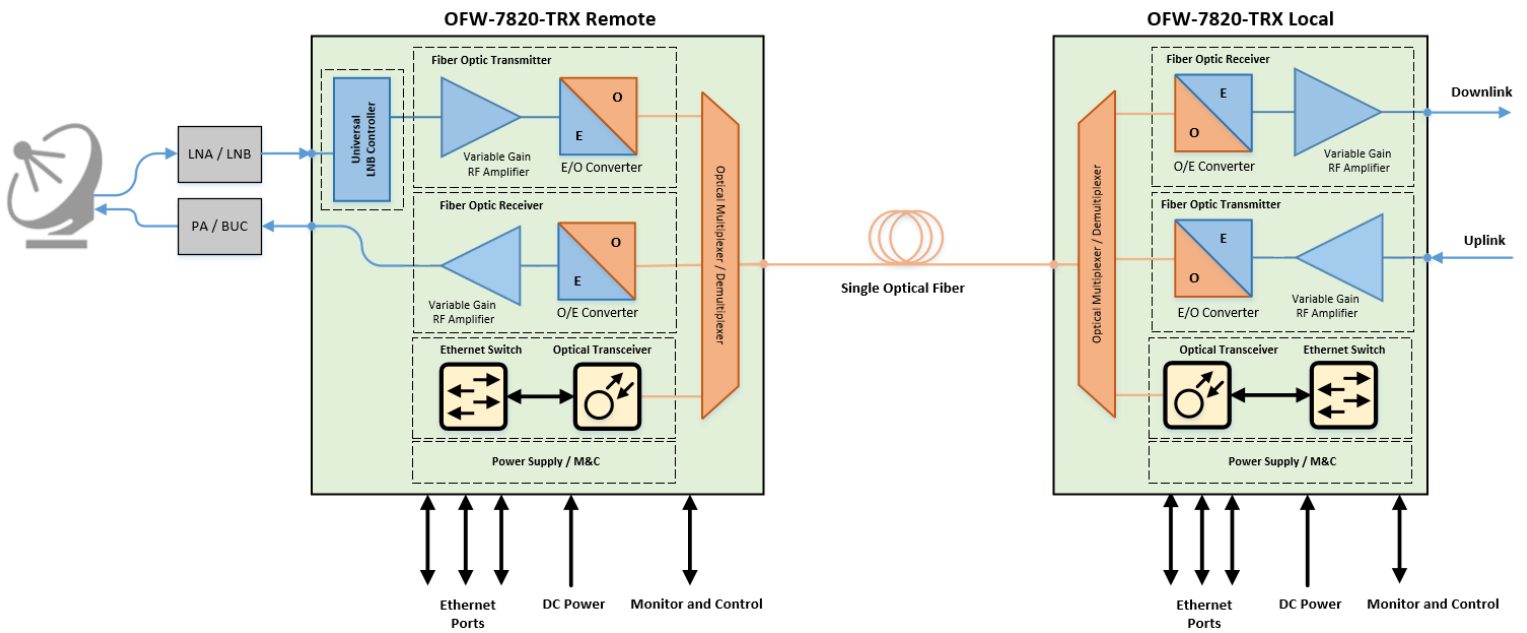
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Sample Configurations

Dual Fiber, Low Complexity Configuration



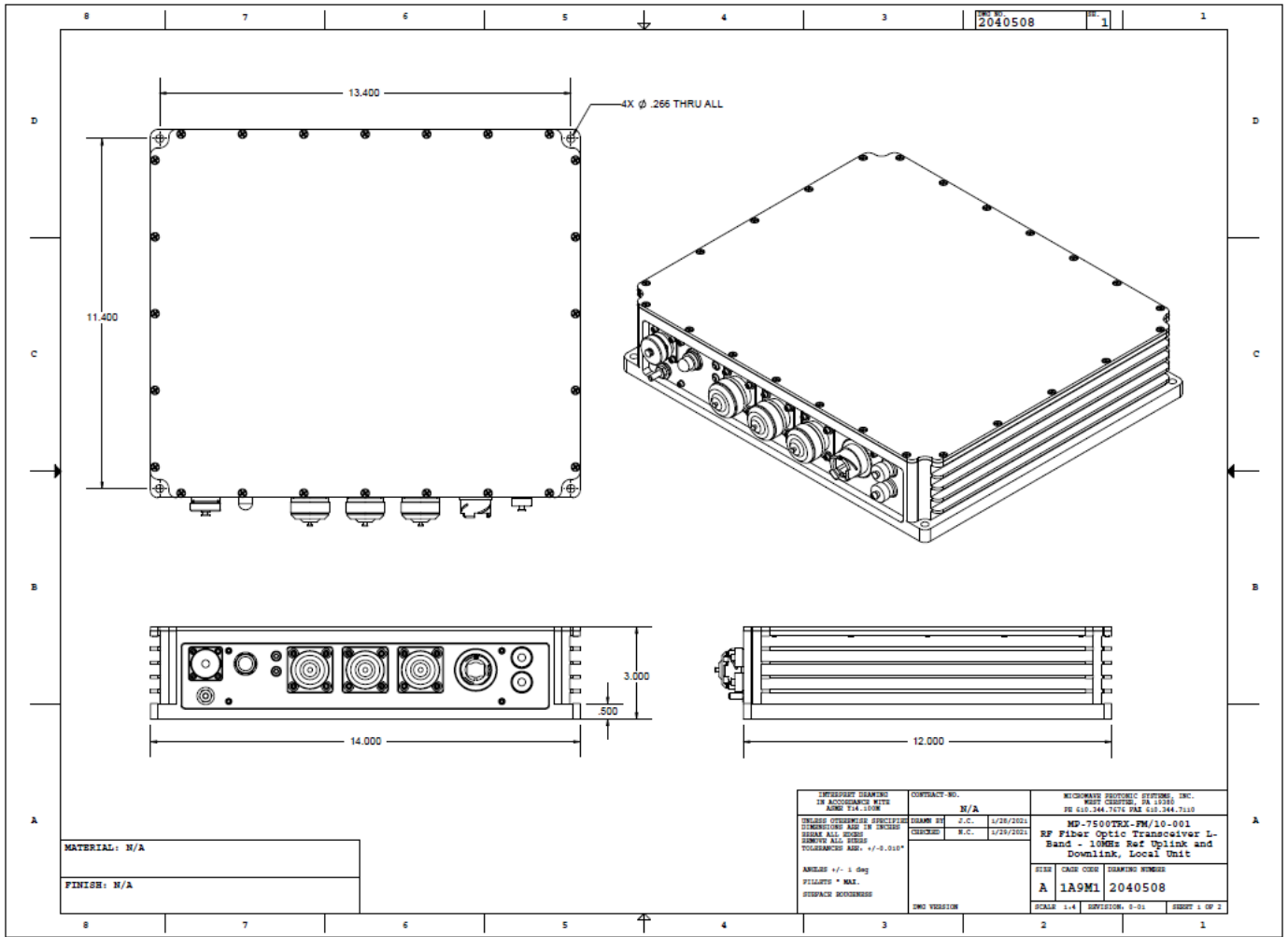
Single Fiber, Feature Rich Configuration



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Remote Unit Outline Drawing



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Local Unit Outline Drawing

