

LaserPlus Model LP-OT-FQ DWDM 1GHz Narrowcast 32 Ch. QAM Optical Transmitter

Features / Benefits

Designed for enhanced (32-ch) and basic (16-ch) QAM-256 and QAM-64 applications.

+10dBm optical output for distances from 0-20km.

Twenty-five (25) ITU-grid wavelengths @ 100GHz / 0.8nm spacing for maximum DWDM loading.

Electronic SBS dispersion compensation and advanced predistortion circuitry enables loading while minimizing second-order and third-order distortions.

Simple initial set-up - adjust the transmitter for RF input level and **GO!**

Front panel RF input test point (75 Ohms, F type).

Front panel Optical Power and Laser Current test points via high-impedance voltmeter.

Front panel status LED's for Optical Power, Laser Current and Cooler summary alarms.

Energy-efficient circuit design for **low power consumption and long life.**

Fills single slot in the **LaserPlus** LP-CH-16A chassis with front access hot-swap capability.

The Olson Technology, Inc. Model LP-OT-FQ DWDM 1GHz Narrowcast 32 channel QAM Transmitter is a single-slot module for the **LaserPlus** optical transmission platform. The design is optimized for optical transport of narrowcast 32-ch. (per wavelength) QAM-256 signals for targeted services delivery, up to 20km away. With a choice of (25) available ITU-grid DWDM wavelengths, a CATV system operator can either combine a multitude of independent QAM signals and transport them via a single optical fiber or transport QAM signals via a simple point-to-point narrowcast system. Properly deployed, this transmitter will allow an operator to reduce costs and enhance performance while dramatically increasing the capacity of traffic on the network.

Digital video services are typically carried in the CATV spectrum above 550MHz, with up to ten digital QAM-256 channels (or seven digital QAM-64 channels) occupying each traditional 6MHz analog channel slot. Subsets of QAM signals can be allocated geographically for narrowcast (vs. broadcast) deployment. This involves sending groups of QAM channels to targeted areas where the channel set is a function of choices in the headend and/or demographics of the served neighborhoods.

The rugged, low-profile Model LP-OT-FQ transmitter utilizes a directly modulated, high-quality, low-chirp, optically isolated DWDM laser with a single +10dBm optical output. The unit is packaged as a convenient, hot-swappable plug-in module, and features an RF driver, integrated laser cooler circuitry, advanced dispersion compensation and predistortion electronics, front panel RF and optical test points, and front panel LED's which provide immediate visual status of the unit. Initial setup requires a simple RF input gain adjustment via easily accessible front panel variable PIN attenuator to bring the unit online.

The **LaserPlus** Model LP-OT-FQ works with Olson Technology EDFA's and optical receiver/node products such as the **LaserLite** (OTEA-CO & OTEA-CL) and the **MetroNode** Model OTMN-x and **PremiseNode** Model OTPN-x product families, but is also designed to operate seamlessly with EDFA's and optical receivers and/or nodes from most leading manufacturers for successful deployment in a scalable, low-cost, future-proof DWDM targeted services network. Dispersion Compensation Modules (DCM's) such as the OT-DCM series can be used to extend to longer distances.



System Specifications

Optical Characteristics (with SM 9/125μm Fiber)

	Min	Typ	Max	Units
Optical Output Power		+10		dBm
		10		mW
Optical Connector		SC/APC FC/APC		
SBS Threshold		>Rated Output		
Wavelength Accuracy		±0.1		nm
Wavelength Spacing		ITU Channels 20-60 @100 GHz (0.8nm) optical spacing		

Electrical and Environmental Characteristics

	Min	Typ	Max	Units
Powering (per module)		5.25		V _{DC}
Operating Temp. Range	0		+50	°C
Humidity (RH Non Con.)	5		95	%

NOTE: The LP-OT-FQ is intended for use with the **LaserPlus** Model LP-CH-16A Chassis. Air temperature should be measured at the air inlet of the chassis, and humidity should be non-condensing.

RF and System Characteristics

	Min	Typ	Max	Units
Frequency Range	550		1,000	MHz
Frequency Response		±1.0		dB
Input Impedance		75		Ohms
Input Return Loss (1)	>16			dB
Input Level (1)		+15		dBmV/Ch
CNR (1)	51			dB
CSO (1)	50			dBc
CTB (1)	53			dBc

(1) Typically measured with 3.2% OMI, 20km SMF fiber, 550-870MHz 32-ch. QAM-256 loading, -6dBm input to Olson Model OTPN-400 reference optical receiver.

Physical Characteristics

	Min	Typ	Max	Units
Weight		1.0 0.45		lbs. kg
Dimensions (H x W x D)	4.5 x 1.125 x 8.75 11.4 x 2.9 x 22.2			in. cm

Summary Alarms

Enhanced local and remote monitoring of the transmitter is provided via summary alarms to LEDs on the Model LP-PS-x power supplies, via contact closures on the Model LP-CH-16A chassis, and additionally via the optional Model LP-CH-SNMP-1 element manager interface which is compatible with third-party remote status monitoring and control solutions.

Transmitter Interfaces

RF Input Connector	F-type, rear of module.
RF Input Test Point (F-type)	+10dBmV/carrier @ 550MHz for optimal OMI and performance.
Input Level Adjust	+4dB via variable attenuator on front of module.
Optical Output Connector	SC/APC standard, FC/APC optional, front of module.
LED Indicators (Green/Red)	Optical Power Alarm, Laser Current Alarm, Cooler Alarm

Ordering Information

Model LP-OT-10-A-FQxx-SA	<i>LaserPlus</i> QAM Tx, 550-1000MHz, +10dBm/10mW Optical Output, DWDM, SC/APC
Model LP-OT-10-A-FQxx-FA	<i>LaserPlus</i> QAM Tx, 550-1000MHz, +10dBm/10mW Optical Output, DWDM, FC/APC

See LP-CH-16A and LP-PS-x data sheets for ordering information about the chassis and power supplies.

The lowercase "xx" in the part numbers specifies the ITU grid channel. See Olson's System Solution, "DWDM ITU Wavelengths" for details.