

## *LaserLite: 870MHz QAM DM Transmitter (OTOT-870-FQ)*

STANDALONE or 1RU 19" EIA RACK MOUNT 1550nm OPTICAL TRANSMITTER

### Features / Benefits

- **Low-Cost** Direct Modulated (DM) ECL 1550nm analog optical transmitter alternative to conventional Externally Modulated (EM) LiNbO<sub>3</sub> optical transmitters for large-scale QAM multichannel distribution applications
- **550 - 870MHz** available RF bandwidth for CATV digital multichannel transport
- Electronic SBS dispersion compensation and advanced predistortion circuitry enables full digital QAM loading while minimizing second-order and third-order distortions
- **+9dBm optical output** to drive multiple EDFAs
- Accommodates optical loss budgets up to 14 dB (or up to 20+ km) without an EDFA
- Optimized for fiber distances of **0-60km**
- **(41) ITU-grid wavelengths** @ 100GHz spacing available; Standard 1550nm ±10nm wavelength option available for non-DWDM, CATV HFC and FTTx AON/PON deployments
- Self-Contained, Low Profile, Rugged Flange-Mount Package for Low-Density Applications
- **Optional 19" EIA Rack Mount Kit** mounts up to three (3) OTOT-870's on a 1RU chassis panel
- Low Power Consumption; Runs Cool; **Integrated 90-240 V<sub>AC</sub> power supply**

The Olson Technology, Inc. Model OTOT-870-FQ 1550nm 550-870MHz QAM Broadcast Transmitter is a cost-effective,



high quality, full-featured standalone or 1RU 19" EIA optical transmitter. It's **revolutionary design** was specifically engineered for optical transport of digital QAM broadcast signals in traditional CATV Hybrid Fiber Coax (HFC) applications, as well as in newer Fiber-to-the-Premise (FTTP) deployments using Active/Passive Optical Network (AON/PON) architectures. Specifically, this transmitter was designed for high power, one-transmitter-to-multiple-receiver (up to 1:2048 fanout) point-to-point (P2P) AON and point-to-multipoint (P2MP) PON system topologies. Each transmitter's +9dBm optical output can directly feed up to 12 remote HFC nodes/receivers (via **Model OTCP 1x12** optical coupler) or can also be split externally (**Models OTCP 1x2, 1x3 or 1x4**) to drive multiple EDFA fiber amplifiers subsequently feeding up to 2048 homes with multichannel CATV-style video and/or data. In this scenario, each transmitter feeds up to four 16-port EDFAs, such as the **Model OTEA-CL-B-1616**, for large-scale distribution of broadcast broadband signals in short-haul FTTP applications, with maximum runs of up to 60km of standard SMF-28 singlemode fiber. (NOTE: This unit is **NOT** suitable for long-haul CATV trunking applications).

The rugged, low-profile **Model OTOT-870-FQ** transmitter utilizes a **next-generation** directly modulated, high-quality, low-chirp, optically isolated DWDM laser with a single +9dBm optical output. The **Model OTOT-870-FQ** DM QAM transmitter can also achieve a high level of spectral purity, comparable to that of EM sources (but at < 30% of the cost of comparable EM transmitters), making it the ideal choice for today's FTTH & CATV deployments.

The **OTOT-870** is a rugged self-contained device with exterior RF and optical connections and test points. The field-configurable SC/APC (or optional FC/APC) optical output connector can be mounted on the front-panel or rear-panel of the unit. The unit is forced air cooled via an external high-MTBF fan, which can be field-replaced without interrupting operations. It also features a unique provision which allows the unit to perform as a standalone flange-mount transmitter or as a rack mount transmitter with the addition of the optional **Model OTLL-RMKIT-1**. Up to three (3) OTOT-870-FQ's can be mounted in a 1RU (1.75") 19" EIA space with each kit, or the user can mix-and-match various *LaserLite* components (i.e. transmitters, receivers, couplers, etc.), as required.

The *LaserLite* **Model OTOT-870-FQ** is the perfect companions to EDFAs and optical receiver products from Olson Technology, Inc., like the *LaserLite* **OTEA-CO, OTEB-CO** and **OTEA-CL** series EDFA's and the **MetroNode Model OTMN-x** and **PremiseNode Model OTPN-x** product families, but is also designed to operate seamlessly with EDFAs and optical receivers &/or nodes from most leading manufacturers.

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Quality / Engineering / Innovation

## Specifications

### RF & LINK PERFORMANCE PARAMETERS:

Frequency Range	550MHz to 870MHz
Frequency Response	$\pm 1.0\text{dB}$
Input Impedance	75 Ohms
Input Return Loss	$> 15\text{dB}$
Input Level, Nominal	+10dBmV/ch (320 MHz Digital)
Distortion Performance *	CNR $> 51\text{dB}$
	CSO $> 50\text{dBc}$ (@ 0-60km)
	CTB $> 53\text{dBc}$ (@ 0-60km)

\*Typical: Measured with -2dBm input to Olson Model# OTPN-400 reference receiver

### OPTICAL PARAMETERS:

Wavelength Spacing	ITU channels 20 to 60 @ 100GHz (0.8nm) optical spacing
Wavelength Accuracy	$\pm 0.1\text{nm}$
Output Power	+9dBm / 8mW
SBS Threshold	$> +10\text{dBm}$

### ELECTRICAL, ENVIRONMENTAL & MECHANICAL PARAMETERS:

Dimensions	5.5" W x 1.6" H x 7.5" D
Weight	1.5 lb. (0.68 kg)
Operating Temperature Range	-10°C to +55°C
Cooling	Fan cooled, forced air, replaceable w/o interrupting operation
Humidity Range	to 95% (For use only in non-condensing environments)
Powering	90-240V <sub>AC</sub> @ 50-60Hz; < 11.5 Watts
Power Connector	IEC 320 with 5x20, 0.5A SloBlo Fuse

### TRANSMITTER INTERFACES:

RF Input Connector	F-Type (rear of module)
RF Input Test Point (F-Type Connector)	+10dBmV/carrier @ 550MHz for optimal OMI & performance
Input Level Adjust	+4dB (to +14dBmV/carrier) via variable attenuator (front panel)
Optical Output Connector	SC/APC standard; FC/APC optional (front or rear panel)
Optical Power Test Jack	0.1V/mW
Laser Current Test Jack	1V/50mA

## Ordering Options

<u>Model No.</u>	<u>Description</u>
<b>OTOT-870-10-FQxx</b>	<b>LaserLite QAM 0-60km Tx; 550-870MHz; 9dBm/8mW; 90-240V<sub>AC</sub>; SC/APC</b> xx = DWDM ITU-Grid Channels # 60-20 (i.e. xx = 34 for 1550.12 nm) 00 = Standard 1550nm $\pm$ 10nm (non-DWDM) (Channels # 60-20 = 1529.55 - 1561.42 nm)
<b>OTLL-SCFCKIT</b>	<b>LaserLite Optical Connector Adapter Kit; SC/APC to FC/APC</b>
<b>OTLL-RMKIT-1</b>	<b>LaserLite 1RU 19" Rack Mount Kit for up to three (3) modules (i.e. OTOT, OTOR, OTCP, etc.)</b>



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