

## *LaserLite: 1GHz FTTP/CATV DM Transmitter (OTOT-1000-FF)* STANDALONE -or- 1RU 19" EIA RACKMOUNT 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 deployment in CATV HFC -or- FTTP AON/PON large-scale multichannel distribution applications**
- **48-1,000MHz available RF bandwidth for CATV analog & digital multichannel transport**
- **Electronic SBS dispersion compensation and advanced predistortion circuitry enables full analog and digital QAM loading while minimizing second-order and third-order distortions**
- **+8dBm or +10dBm optical output drives multiple EDFAs in short-haul (0 - 10km) apps**
- **Also accommodates optical loss budgets up to 14dB (or up to 10km) without an EDFA**
- **Optimized for fiber distances of 0-10km (-FF)**
- **(12) 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-1000'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-1000-FF 1550nm, 1GHz FTTx/CATV Broadcast Transmitter is a cost-effective,



high quality, full-featured standalone or a 1RU 19" EIA optical transmitter. It's **revolutionary design** was specifically engineered for optical transport of analog and 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 1:1024 fanout) point-to-point AON and point-to-multipoint PON system topologies. Each transmitter's +8dBm or +10dBm optical output can directly feed up to sixteen (16) remote HFC nodes/receivers (via **Model OTCP 1x16** optical coupler) or can also be split externally (**Models OTCP 1x2, 1x3 or 1x4**) to drive EDFA fiber amplifiers subsequently feeding up to 1,024 homes with multichannel CATV-style video and/or data. In this scenario, each transmitter feeds up to four(4) 8-port EDFAs, such as the **Model OTEA-CO-B-816-SA**, for large-scale distribution of broadcast broadband signals in short-haul FTTP applications, with maximum runs up to 10km of standard SMF-28 single-mode fiber, or up to 25km of 1550nm low dispersion (e.g. NZ-DSF) optical fiber. (NOTE: This unit is NOT suitable for long-haul CATV trunking applications).

The rugged, low-profile **Model OTOT-1000-FF** transmitter utilizes a next-generation directly-modulated (DM), high-quality, low-chirp, optically isolated DWDM Laser with a single +8dBm or +10dBm optical output. A DM 1550nm transmitter, such as the OTOT-1000-FF achieves a high level of performance, similar to that of EM sources (**but at < 30% of the cost of comparable EM transmitters**), making it an attractive choice for today's FTTH & CATV deployments.

The **OTOT-1000-FF** 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 by using the optional **Model OTLL-RMKIT-1**. Up to three(3) OTOT-1000'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-1000-FF** is the perfect companions to EDFAs and optical receiver products from Olson Technology, Inc., like the **LaserLite OTEA-CO & OTEA-CM** series, the **MetroNode Model OTMN-x** and **PremiseNode Model OTPN-x** product families. It is also designed to operate seamlessly with EDFAs and optical receivers &/or nodes from most leading manufacturers. *Note that only EDFA's rated to operate with DM transmitters can be used.*

## Specifications

### RF & LINK PERFORMANCE PARAMETERS:

Frequency Range	48MHz to 1,000MHz
Frequency Response	$\pm 1.0$ dB
Input Impedance	75 Ohms
Input Return Loss *	>15dB
Input Level, Nominal	+18dBmV/ch (79 NTSC channels)+320 MHz Digital
CNR & Distortion Performance *	CNR > 50.5dB CSO > 55dBc (@ 0 - 5km); > 53dBc (@ 0 - 10km) CTB > 60dBc

\* Typical: Measured with 3.2% OMI, 0dBm input to Olson Model# OTPN-400 reference receiver

### OPTICAL PARAMETERS:

Wavelength ( $\pm 0.1$ nm)	ITU channels 18 to 29 @ 100GHz (0.8nm) optical spacing
Output Power	+8dBm/6mW or +10dBm/10mW
SBS Threshold (with RF Applied)	>+10dBm

### 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; <11.5Watts
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 +22dBmV/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>
OTOT-1000-08-FFxx	LaserLite FTTH 0-10km Tx; 48-1,000MHz; +8dBm/6mW; 90-240V <sub>AC</sub> ; SC/APC
OTOT-1000-10-FF xx	LaserLite FTTH 0-10km Tx; 48-1,000MHz; +10dBm/10mW; 90-240V <sub>AC</sub> ; SC/APC
	xx = DWDM ITU-Grid Channels # 18 - 29 (i.e. xx = 25 for 1557.36nm)
	00 = Standard 1550nm $\pm$ 10nm (non-DWDM)

(Channels # 18 - 29 = 1563.05nm - 1554.13nm)

**OTLL-SCFCKIT** LaserLite Optical Connector Adapter Kit; SC/APC to FC/APC

**OTLL-RMKIT-1** LaserLite 1RU 19" Rack Mount Kit for up to three(3) modules (i.e. OTOT, OTOR, OTCP, etc.)



All specifications are subject to change without notice