LaserLight

1.22GHz 1550nm FTTP/CATV Optical Transmitter
OTOT-1220E-FF

Features and Benefits

Rugged and compact CATV fiber optic transmitter.

- *Low-Cost Direct Modulated (DM) ECL1550nm optical transmitter alternative to conventional Externally Modulated (EM) LiNbO3 optical transmitters*
- *48-1,220MHz available RF bandwidth for CATV analog & digital multichannel transport*
- *Supports Docsis 3.0 & 3.1*
- *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) applications*
- *Also accommodates optical loss budgets up to 14dB (or up to 10km) without an EDFA*
- *Optimized for fiber distances of 0-10km (-FF)*
- *(25) ITU-grid wavelengths @ 100GHz spacing available; Standard 1550nm ±10nm wavelength option available for non-DWDM, CATV HFC and FTTx AON/PON deployments*
- *Low Profile, Rugged Cast Aluminum, Flange-Mount Package*
- *Optional 19" EIA Rack Mount Kit mounts up to three(3) OTOT-1220E-FF's on a 1RU chassis panel*
- *Low Power Consumption; Runs Cool; Integrated 90-240 VAC Power Supply*
- *SBS suppression up to +16dBm*



The OlsonTech Model OTOT-1220E-FF 1550nm,1.22GHz FTTx/ CATV Broadcast Transmitter is a cost-effective, high quality, full-featured standalone or a 1RU 19" EIA optical transmitter. Its revolutionary design is specifically engineered for optical transport for analog and digital QAM broad cast 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. This transmitter was designed for high power, one-transmitter-to-multiple-receiver (up to 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 G.652 single-mode fiber such as SMF-28, or up to 25km of G.653 low dispersion (e.g. NZ-DSF) optical fiber. (NOTE: This unit is NOT suitable for long-haul CATV trunking applications). The rugged, lowprofile Model OTOT-1220E-FF transmitter utilizes a next-generation directly-modulated (DM), high-quality, low-chirp, optically isolated WDM Laser with a single +8dBm or +10dBm optical output. A DM 1550nm transmitter, such as the OTOT-1220E-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. SBS suppression is now available up to +16dBm.



The OTOT-1220E-FF is a rugged self-contained device with a cast Aluminum housing 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 t he optional Model OTLL-RMKIT-1. Up to three(3) OTOT-1220E-FF's can be mounted in a 1RU (1.75") 19" EIA space with each kit, or the user can mixand-match various LaserLite components (i.e. transmitters, receivers, couplers, etc.), as required.

The OTOT-1220E-FF is the perfect companions to EDFAs and optical receiver products from OlsonTech, like the OTEB-CO & OTEA-CM series, the MetroNode Model OTMN-x and OTPN-Premise Node series of products. 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.

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1.22GHz 1550nm FTTP/CATV Optical Transmitter

RF & LINK PERFORMANCE PARAMETERS:	
Frequency Range	48MHZ to 1.220MHz
Frequency Response	+-1.0dB
Input Impedance	75 ohms
Input Return Loss	>16 dB
Nominal Input Level	+18 dBmV for 77 NTSC Analog Channels from 55.25MHz to 547.25MHz
	+12 dBmV for Docsis 3.0 and 3.1 from 51MHz to 1220MHz
Distortion Performance	
Analog	77 NTSC channel loading 10km of fiber + passive loss. 0bBm Rx Input
	CNR > 52dBc
	CSO > 55 dBc @ 0-5km, @ 53dBc 5-10km
	CTB > 63 dBc
Docsis 3.0 & 3.1 MER	160 Channels SC-QAM with 192MHz OFDM Block channel loading
	10km of fiber + passive loss. 0 dBm Rx input
	> 41db MER

Measurements performed with Rohde & Schwartz CLGD DOCSIS Generator with DSA DOCSIS Signal Analyzer and OTPN-412 Optical Receiver

OPTICAL PARAMETERS:	
Wavelength (±0.1nm)	ITU channels 22 to 46 @ 100GHz(0.8nm) optical spacing
Output Power	+8dBm / 6mW or +10dBm / 10mW
SBS Suppression	> +16dBm

ELECTRICAL, ENVIRONMENTAL & MECHANICAL PARAMETERS:	
Dimensions	5.5"W x 1.6"H x 7.5"D (140mm W x 41mm H x 190mm D)
Weight	24.0 oz. (0.68kg)
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 Ac@ 50-60Hz; <11.5Watts
Power Connector	IEC 320 with 5x20, 0.5A SloBlo Fuse

TRANSMITTER INTERFACES:	
RF Test Point (laser drive)	NTSC analog channels = +10 dBmV/ch @ 547.25 MHZ for optimal OMI and
	Performance
	Docsis channels = +4 dBmV/ch @ 555MHz for optimal MER performance
Optical Output Connector	SC/APC standard; FC/APC optional(front or rear panel)
Optical Power Test Jack	0.1 V/mW
Laser Current Test Jack	1 V/50mA

ORDERING OPTION:	
OTOT-1220E-08-FFxx	LaserLite FTTH 0-10km Tx; 48-1,220MHz; +8dBm/6mW; 90-240VAc; SC/APC
OTOT-1220E-10-FFxx	LaserLite FTTH 0-101cm Tx; 48-1,220MHz; +10dBm/10mW; 90-240VAc ; SC/APC
	xx = DWDM ITU-Grid Channels # 22 - 46 (i.e. xx= 25 for 1557.36nm)
	00 = Standard 1550nm ± 10nm (non-DWDM)
	(Channels # 22 - 46 = 1559.79nm - 1540.56nm)
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.)

24926 Highway 108 Sierra Village, CA 95346 • T:(209) 586.1022 • F:(209).586.1026 • info@olsontech.com • www.olsontech.com