

## **LaserLite** Model OT-1000-HH 1GHz SuperMod 1550nm Optical Transmitter

### Features / Benefits

#### Electrical to optical conversion of multichannel CATV signals.

Supports AM-VSB, FM, 8-VSB and QAM CATV signals.

Low noise SuperMod (Direct Mod) 1550nm DFB Transmitter with pre-distortion technology; DWDM variants available.

Very high-quality transmission from 0-20km. Usable to 35km.

Available RF bandwidth of 5-1,000MHz for CATV digital multi-channel transport.

Downstream or upstream transmission in HFC networks.

Optical output of +8dBm

Advanced SBS suppression and pre-chirping technology.

Dual RF inputs: low and high level inputs or optional narrowcast input with high isolation.

Preset or optional adjustment of slope, gain, output power, OMI, pre-chirping, etc.

Automatic load control (ALC) for constant  $OMI_{totrms}$ .

SC/APC optical connector; RS485 control interface.

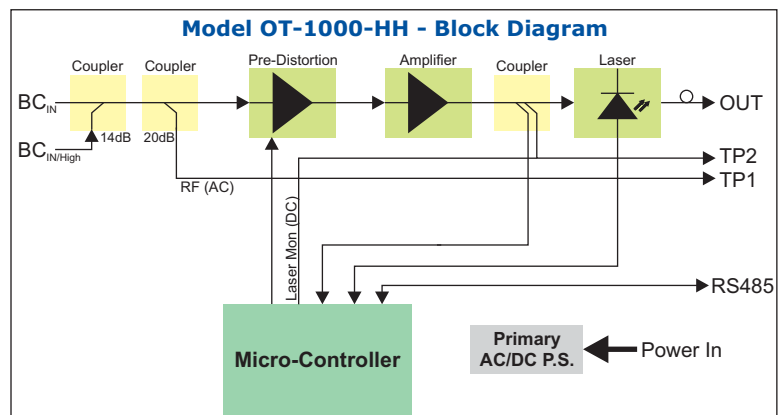
1RU 19" EIA rack mount chassis.



The Olson Technology, Inc. *LaserLite* Model OT-1000-HH 1GHz SuperMod (Direct Mod) 1550nm Optical Transmitter is a cost-effective, high quality, full-featured 1RU 19" optical transmitter. Designed for optical transport of forward path analog, return path and digital QAM broadcast signals, the OT-1000-HH transmitter is ideal for CATV Hybrid Fiber Coax (HFC) applications and Fiber-to-the-Premise (FTTP) deployments using Active/Passive Optical Network (AON/PON) architectures.

The Model OT-1000-HH transmitter utilizes a high-quality, DFB, low-chirp, optically isolated DWDM laser that uses advanced pre-distortion, SBS and pre-chirping technology to provide excellent signal quality. Often referred to as a Direct Mod 1550 nm transmitter, the OT-1000-HH SuperMod transmitter approaches External Modulator performance levels at distances from 0 to 20km at a substantially lower cost. The transmitter operates in the ITU-grid wavelength with adjustable wavelength to  $\pm 100$ GHz when used with the Network Controller. The Network Controller can control a wide range of transmitter parameters.

The OT-1000-HH provides exterior RF and optical connections and test points. These are the perfect companion to Olson Technology's *LaserLite* OTEA-CO, OTEB-CO and OTEA-CM series EDFA's and the *MetroNode* Model OTMN-x and *PremiseNode* Model OTPN-x product families, but is also designed to operate seamlessly with optical receivers and/or nodes from most leading manufacturers.



## System Specifications

### Optical Characteristics (with SM 9/125µm Fiber)

	Min	Typ	Max	Units
Optical Output Pwr. <sup>1</sup>	+7	+8	+9	dBm
Optical Output Pwr. Adj. <sup>3</sup>	-3		0	dB
Output Pwr. Tolerance	-1.5		+1.5	dB
Optical Wavelength Tuning <sup>3</sup>	-100		+100	Ghz
Chirp Compensation Distance <sup>4,5</sup>	0		20	km
SBS Suppression	+15			dBm
Optical Return Loss	45			dB
Optical Connector		SC/APC		
Wavelength <sup>1</sup>		DWDM		

### RF Characteristics

	Min	Typ	Max	Units
Frequency Range	5		1,000	MHz
Input Impedance		75		Ohms
Input Level (OMI 5%, BC <sub>IN</sub> )		13		dbmV
Input Level (OMI 5%, BC <sub>INHigh</sub> )		27		dbmV
Gain Adjustment <sup>3</sup>	-17		7	dB
Slope Adjustment <sup>3</sup>	-3		+16	dB
RF Return Loss (@47MHz) <sup>2</sup>	20			dB
RF Return Loss (@5-65MHz)	18			dB

### Electrical and Environmental Characteristics

	Min	Typ	Max	Units
Power Supply Voltage	+100		+240	V <sub>AC</sub>
Power Supply Voltage	+36		+60	V <sub>DC</sub>
Power Supply Frequency	50		60	Hz
Power Consumption			17	W
Environmental Cond.	Class 3.1 acc. ETS 300 019-1-3 (temp. controlled)			
Safety Cond.	EN 50 083-1 EN 60 950 Laser Class 1M acc, IEC 60 825-1			
EMC Cond.	EN 50 83-2			

### Physical Characteristics

	Min	Typ	Max	Units
Weight		4.4		lbs.
		2		kg
Dimensions (W x H x D)	19 x 9.5 x 1.75			in.
	483 x 240 x 45			mm

#### NOTES:

- 1) Output power tolerance is ±1dB at transmitter pigtail.
- 2) RF return loss is 20dB at 47MHz, 1.5dB/oct, min. 15dB.
- 3) These adjustments are made through the NEC-E Controller
- 4) The chirp compensation distance can be set through the optional NEC-E Controller or the unit may be ordered with a preset distance.
- 5) The chirp compensation can be set as high as 35km with reduced performance. Contact factory for details.

### Test Points

Test Point TP1	20db Attenuation of RF Input
Test Point TP2	Dual Readings - +20dBmV+2ΔP <sub>OPT</sub> ±2.0dB at OMI=5% (AC) / 0.1V/mW ±0.02V/mW (DC)

### Transmission Performance Data

Channel Allocation Plan	“C”	“B”	“N”
Number of Carriers/Plan	Cenelec (42)	PAL B/G (36)	NTSC (77)
Optical Modulation Index	4.1%	4.4%	3.0%
Noise Bandwidth	5MHz	5MHz	4MHz
CNR	≥51dB	≥52dB	≥51dB
CSO <sup>1,2</sup>	≥60dBc <sup>3</sup>	≥60dBc	≥60dBc
CTB <sup>1,2</sup>	≥62dBc	≥64dBc	≥63dBc

#### TEST CONDITIONS:

- 1) 20km non-dispersion shifted fiber, optical attenuator and optical receiver with P<sub>OPTIN</sub>=0dBm, I<sub>eq</sub>=7.0pA/√Hz and η=0.95A/W (at 1550nm) used.
- 2) Non-dispersion shifted fiber, 0-20km, optical attenuator and optical receiver with P<sub>OPTIN</sub>=0dBm, I<sub>eq</sub>=7.0pA/√Hz and η=0.95A/W used and fiber length (chirp) compensation adjustment set to optimum.
- 3) Only for measured frequencies up to 600MHz. Otherwise the CSO value is 6dB lower.

## Ordering Information

Model OT-1000-HHcxx-yy-z     LaserLite Tx, 5-1000MHz, +8dBm Output, DWDM, 75Ω, SC/APC

#### NOTES:

- 1) “c” indicates the “Channel Allocation Plan.” (See above). “C”, “B” or “N”
- 2) “xx” indicates the ITU channel. Channels 22-46. Order “34” for std 1550nm.
- 3) “yy” is the factory set dispersion compensation distance in km. For example, “15” indicates that the unit is optimized for 15km distance.
- 4) “z” indicates the power supply. “A” for AC power, “D” for DC power.