

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.

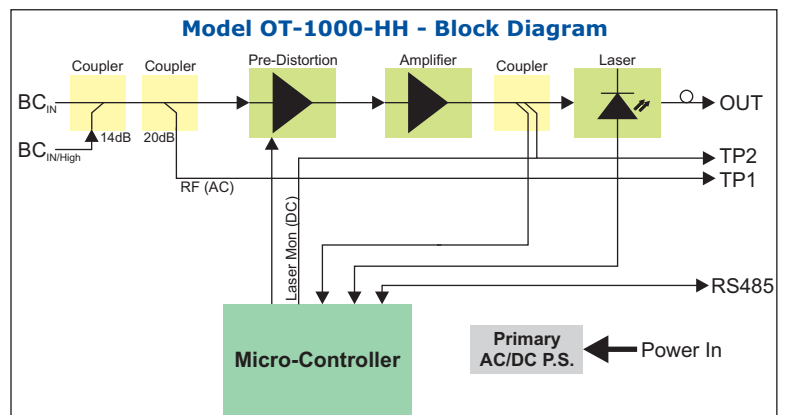
1RU 19" EIA rack mount chassis.



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 ± 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. ¹	+7	+8	+9	dBm
Optical Output Pwr. Adj. ³	-3		0	dB
Output Pwr. Tolerance	-1.5		+1.5	dB
Optical Wavelength Tuning ³	-100		+100	Ghz
Chirp Compensation Distance ^{4,5}	0		20	km
SBS Suppression	+15			dBm
Optical Return Loss	45			dB
Optical Connector		SC/APC		
Wavelength ¹		DWDM		

RF Characteristics

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

Electrical and Environmental Characteristics

	Min	Typ	Max	Units
Power Supply Voltage	+100		+240	V _{AC}
Power Supply Voltage	+36		+60	V _{DC}
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 _{OPT} ±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 ^{1,2}	≥60dBc ³	≥60dBc	≥60dBc
CTB ^{1,2}	≥62dBc	≥64dBc	≥63dBc

TEST CONDITIONS:

- 1) 20km non-dispersion shifted fiber, optical attenuator and optical receiver with P_{OPTIN}=0dBm, I_{eq}=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_{OPTIN}=0dBm, I_{eq}=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.