

OT-1000-HH

1 GHz SuperMod 1550nm Optical Transmitter

Electrical to optical conversion of multichannel CATV signals.

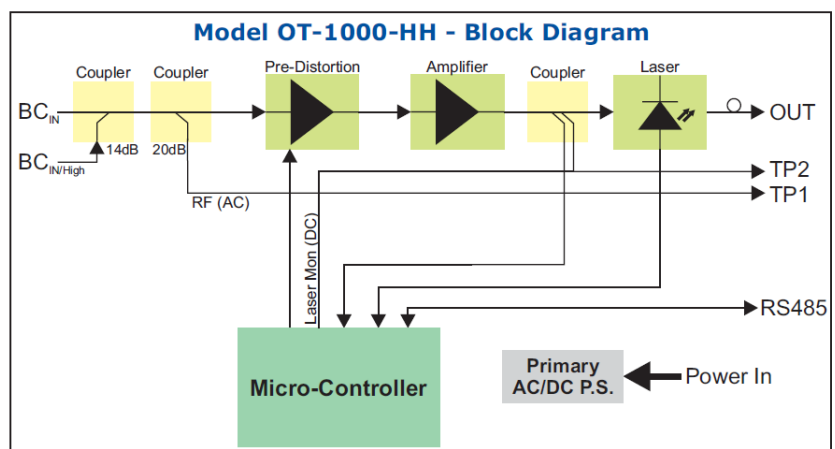


- Supports AM-VSB, FM, 8-VSB and QAM CATV signals.
- Low noise SuperMod (DirectMod) 1550nm DFB Transmitter with pre-distortion technology; DWDM variants available.
- Very high-quality transmission from 0-20km. Usable to 35km.
- Available RF bandwidth of 5-1,000MHz for CATV digital multi-channel transport.
- 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 predistortion, 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.



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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		

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			

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:

- 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.
- 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.
- Only for measured frequencies up to 600MHz. Otherwise the CSO value is 6dB lower.

Ordering Information

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

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 _{IN(HIGH)})		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

Physical Characteristics

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

NOTES:

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

NOTES:

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