

## External Modulation 1550nm CATV Optical Transmitter Low-Cost Model OTOT-EM55X

### Features and Benefits

#### Low-Cost externally modulated 1550nm DFB laser CATV transmitter.

Low noise, narrow linewidth CW-DFB laser.

Fixed SBS threshold of +16.5dBm

Power supply available for 100 to 240V<sub>AC</sub> or  $\pm 36$  to  $\pm 72$  V<sub>DC</sub>.

LCD display, LED status indication, and front panel -20dB front panel RF test point aide in set-up and operation.

Electro-optical modulator offers dual +6dBm optical outputs.

Automatic RF gain control: CW, video, and manual modes.

RS485/232 status interface.

General purpose I/O interface for remote functions.

Housed in a 1RU 19" rack-mount enclosure for use in standard equipment racks.

SC/APC optical connector standard. FC/APC optional.



The low-cost Olson Model OTOT-EM55X 1550nm Externally Modulated CATV Optical Transmitter uses a low-noise, narrow bandwidth, CW laser as a light source. The external modulator amplitude modulates the light, allowing the transmitter to eliminate the chirp associated with 1550nm direct modulation lasers. Ideal for FTTx networks (Up to 60km typical) and other multipoint distribution networks. The OTOT-EM55X provides wide bandwidth from 47MHz to 862MHz. It also offers superb stability over the full operating temperature range from 0°C to +50°C.

Direct modulation 1550nm CATV transmitters suffer from the effects of dispersion that can occur even in modest length fiber runs (10-20km). The key degradation is CSO caused by the laser chirp. In networks using an EDFA, the output fiber optical launch power must also be closely regulated to avoid performance degradation of due to SBS. Olson's Externally Modulated CATV transmitter can compensate for these types of distortion, allowing for high quality signal transmission of multiple CATV channels for distances up to 60km or more.

The OTOT-EM55X fixed SBS suppression allows up to +16.5dBm of light to be launched into a fiber with none of the deleterious effects of the SBS nonlinearity.

The transmitter is enclosed in a 19" wide, 1RU rack chassis for using in a standard EIA 19" rack. Front panel controls and a LCD display allow the user to quickly monitor and control system parameters. Optical connectors are SC/APC standard, with an option for FC/APC connectors. Single AC and DC power supply options are available.

## System Specifications

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

	Min	Typ	Max	Units
Laser Wavelength	1545	1550	1555	nm
Optical Connector		SC/APC FC/APC		
Side Mode Suppression		>30		dB
Relative Intensity Noise	<-158	<-160		dBc/Hz
Nom. Input Level per Tx Ch.		20		dBmV
RF Monitor Output Level (+0.2 to -0.8dB @ 862 MHz; -1.3dB @ 1GHz)		-20		dB
AGC Dynamic Range	-6		+3	dB
Impedance (F-female)		75		Ohm
Return Loss (47 MHz, -1.5dB/oct.)	>15	>20		dB
Control Interface	RS485/232			

### Electrical and Environmental Characteristics

	Min	Typ	Max	Units
Power Supply Voltage	100		240	V <sub>AC</sub>
Power Supply Voltage	±36		±72	V <sub>DC</sub>
Power Consumption (110V <sub>AC</sub> )		<50		W
Power Consumption (48V <sub>DC</sub> )		<50		W
Operating Temp. Range	0		+50	°C
Storage Temp. Range	-20		+85	°C
Humidity	20		85	%

EMI meets EN50083-2 (April 1996) and EN50083-2/A1 (February 1998).

### Physical Characteristics

	Min	Typ	Max	Units
Weight		21.4 9.7		lbs. kg
Dimensions (W x L x H)	19 x 11 x 1.75 482.6 x 279.4 x 44.5			in. mm

### Optical and RF Performance (with SM 9/125µm Fiber)

	Min	Typ	Max	Units
Laser Wavelength	1545	1550	1555	nm
Laser Linewidth		0.65		MHz
Optical Output Power (dual)	+5.0	+6.0	+7.0	dBm
SBS Suppression (fixed)		16.5		dBm
RF Frequency Range	47		862	MHz
Flatness		<±0.75		dB
Version		PAL84		
Channel Plan		PAL-D		
Number of Channels TV/FM (-4dB)/QAM64 (-10dB)		84/0/0		
Noise Bandwidth		5		MHz
CNR Tx/Rx		52.5		dB
CNR Link 1		51.5		dB
CNR Link 2		49.0		dB
CNR Link 3		46.5		dB
CSO Tx/Rx and Link 1		65		dBc
CSO Link 2		65		dBc
CSO Link 3 at output #1		63		dBc
CTB		65		dBc

### Test Configurations

	Booster EDFA	First Fiber Length	In-Line EDFA	Second Fiber Length	Rx
<b>Tx/Rx</b>	No	No	No	No	0dBm
<b>Link 1</b>	No	35km	No	No	0dBm
<b>Link 2</b>	16dBm	65km	No	No	0dBm
<b>Link 3</b>	13dBm	52km	13dBm	52km	0dBm

NOTES: 1) Rx with 7pA/Hz Input Noise Current Density  
 2) EDFA's with 5dB Noise Figure  
 3) RF Input Level at 20dBm/Channel

### Ordering Information

OTOT-EM55	X	Freq. Plan (See Below)	Opt. Conn. (See Below)	RF Conn. (See Below)	Power Supply (See Below)
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**Frequency Plans**  
 N = NTSC 77 Chan  
 P = PAL 84 Chan

**Optical Connector**  
 SA = SC/APC  
 FA = FC/APC

**RF Connector Location**  
 F = On Front Side  
 R = On Rear Side

**Power Supply**  
 AC = 1x (100 to 240V<sub>AC</sub>)  
 DC = 1x (±36 to ±72 V<sub>DC</sub>)