



## Features

- 50 to 2500 MHz Optimized for IF, L and S-band Satellite Signals
- Supports 100 km Links
- Supports 1310/1550 nm and 36-Channel DWDM
- 30 dB Tx Adjustable Gain Range
- 30 dB Rx Adjustable Gain Range
- Peak Optimizer for Quick and Easy Setup
- 50 & 75 Ohm BNC or 50 Ohm SMA
- SmartGain™ for Enhanced AGC Performance
- Tx & Rx RF Power Monitors Via LED, SMA & SNMP
- LNB Power
- SNMP Monitoring and Control
- Optically-Isolated DFB Lasers Enable High Dynamic Range Links
- Fits in Optiva Enclosures, Which Support Daisy Chain™ Video, Audio and Data Links
- 16, 6, 2, & 1 Slot Enclosures Available
- CE & CSA Certified, ROHS

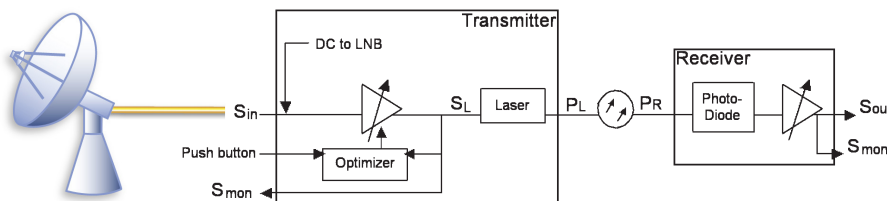
## 50 MHz to 2500 MHz DWDM Wideband Optical Link

Optiva Wideband fiber-optic links are optimized to perform in the 50 to 3000 MHz frequency range providing transparent signal transportation for satellite antenna applications. The unique features of the OTS-1LD series include simple push button peaking for optimum performance and our patent-pending SmartGain™ Control, which ensures consistent performance over varied signal conditions. As with all EMCORE optical products, the highest quality components and modern production techniques insure that intra-facility links provide the highest performance as a cost-effective alternative to coaxial cable. They provide much longer transmission distances than copper cables, simplify network design, ease installation and even enhance immunity from EMI, RFI and lightning. These transmitters and receivers take the high RF performance and diverse features of EMCORE's Ortel technology and combine them into a compact package compatible with the Optiva Family of OT-CC and OT-DTCR enclosures.



## System Design

Optiva is a completely modular hot-swappable platform. Both 19" rack mount and compact tabletop or wall-mountable enclosures are available. The 19" rack-mount enclosure (Model OT-CC-16F-XXX) can support up to 16 insert cards and provides a single power supply (Model PS-200), or a dual-redundant, hot-swappable power supply option. Compact enclosures are available with 1, 2 or 6 slots. The one slot (OT-DTCR-1) and two slot (OT-DTCR-2) enclosures both use an external power supply (PS-9012) and optionally have a standard 2-pin DC power connector for more custom applications. Like the OT-CC-16F the six-slot 1 RU enclosure (OT-CC-6) has hot swap redundant power supply. The Optiva family's existing wide range of video, audio and data transport products include a unique Daisy-Chain™ feature that multiplexes multiple electrical inputs onto a single fiber, thus resulting in an extremely capable, yet conveniently flexible, signal transport system.

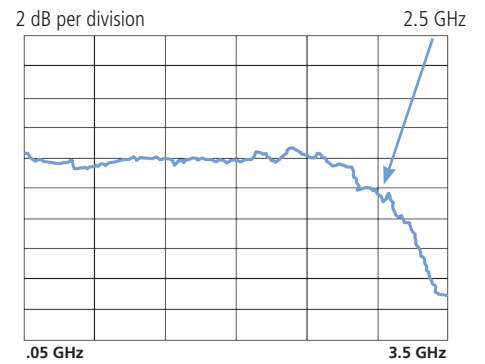


## Performance Highlights

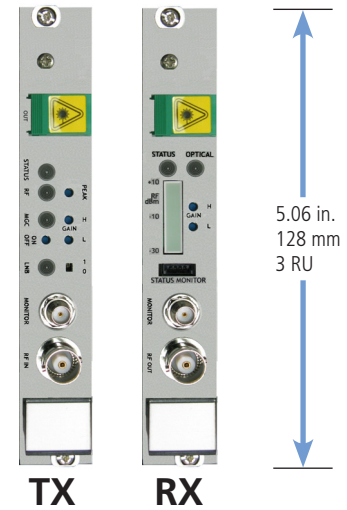
Parameter	Min	Typical	Max	Units	
Link	Frequency Range				
	50 Ohm	50	-	2500	MHz
	75 Ohm	50	-	2500	MHz
	Link Gain @ 1 dB Optical Loss	0	30	-	dBo
	Noise Figure (TG at Max, 2150 MHz, 1 dBo Loss)	-	10	15	dB
	Input IP3 (TG Max, 2150 MHz, 1 dBo Loss)	-	-	2	dBm
	Spur Free Dynamic Range (1 dBo Loss)	-	110	105	dB/Hz <sup>2/3</sup>
	Air Temperature	-10	-	50	°C
TX	RF Input within SGC range <sup>1</sup>	-	0 to -35	-	dBm
	TX Gain (TG) at max, 1 GHz <sup>2</sup>	0	8	-	dB (W/A)
TX	TG Adjustment Range (reduction from max)	30	-	-	dB
	Non DWDM Wavelengths	1280	-	1340	nm
TX	DWDM Wavelengths (See Center Wavelength Table for Specific Channel Center)	1530	-	1560	nm
	DWDM Wavelengths (See Center Wavelength Table for Specific Channel Center)	1534	-	1562	nm
TX	Input Return Loss				
	50 - 200 MHz		15	-	dB
	950 - 2150 MHz	8	18	-	dB
TX	50 MHz - 3000 MHz		13	-	dB
	LNB Voltage	16	17	19	V
TX	Current	-	-	350	mA
	Optical Power	8	9	10	dBmo
TX	DC Power	-	12	-	V
	LNB Off	-	-	500	mA
RX	RF Output (Tx at peak, 1 dBmo into Rx)	-	-8 to -25	-	dBm
	RX Gain (RG), at max, 1 GHz <sup>2</sup>	20	22	-	dB (A/W)
	RG Adjustment Range (reduction from max)	30	-	-	dB
	Output IP3 (2150 MHz)	20	25	-	dBm
	Output 1dB compression (2150 MHz)	-	15	-	dBm
	Receiver Sensitivity	-	-20	-	dBmo
	Output Return Loss				
	50 - 200 MHz		10	-	dB
	950 - 2150 MHz	10	15	-	dB
	50 MHz - 3000 MHz		10	-	dB
DC Power	-	12	-	V	
	-	-	250	mA	

1. Wider RF inputs are acceptable, but will set the RF amp gain to its limit.  
 2. Link RF Gain<sub>dB</sub> = TG + RG - 2 \* FiberLoss<sub>dB</sub> (assumes Rin = Rout)  
 3. dBmo & dBo indicate optical power & loss to minimize confusion with RF dBm & dB

## Typical S21



## OTS-1LD (TX & RX)



## Enclosure Options



## Center Wavelengths

Channel	nm	Channel	nm	Channel	nm	Channel	nm	Channel	nm
54	1534.25	46	1540.56	38	1546.92	30	1553.33	22	1559.79
53	1535.04	45	1541.35	37	1547.72	29	1554.13	21	1560.61
52	1535.82	44	1542.14	36	1548.51	28	1554.94	20	1561.42
51	1536.61	43	1542.94	35	1549.32	27	1555.75	19	1532.23
50	1537.40	42	1543.73	34	1550.12	26	1556.56		
49	1538.19	41	1544.53	33	1550.92	25	1557.36		
48	1538.98	40	1545.32	32	1551.72	24	1558.17		
47	1539.77	39	1546.12	31	1552.52	23	1558.98		

## Ordering Information

Product Code	Specifications
OTS-1LDT/S5-XX09-SA-IC	Transmitter, 50-2500 MHz, SMA 50 ohm, DWDM Channel XX, 9dBm (min), SC/APC
OTS-1LDT/B5-XX09-SA-IC	Transmitter, 50-2500 MHz, BNC 50 ohm, DWDM Channel XX, 9dBm (min), SC/APC
OTS-1LDT/B7-XX09-SA-IC	Transmitter, 50-2500 MHz, BNC 75 ohm, DWDM Channel XX, 9dBm (min), SC/APC
OTS-1LDT/S5-1309-SA-IC	Transmitter, 20-2500 MHz, SMA 50 ohm, 1310 nm, 9dBm (min), SC/APC
OTS-1LDT/B5-1309-SA-IC	Transmitter, 50-2500 MHz, BNC 50 ohm, 1310 nm, 9 dBm (min), SC/APC
OTS-1LDT/B7-1309-SA-IC	Transmitter, 50-2500 MHz, BNC 75 ohm, 1310 nm, 9 dBm (min), SC/APC
OTS-1LDT/S5-1509-SA-IC	Transmitter, 50-7500 MHz, SMA 50 ohm, 1550 nm, 9 dBm (min), SC/APC
OTS-1LDT/B5-1509-SA-IC	Transmitter, 50-2500 MHz, BNC 50 ohm, 1550 nm, 9 dBm (min), SC/APC
OTS-1LDT/B7-1509-SA-IC	Transmitter, 50-2500 MHz, BNC 75 ohm, 1550 nm, 9 dBm (min), SC/APC
OTS-1LR/S5-SA-IC	Receiver, 50-3000 MHz, SMA 50 ohm, SC/APC
OTS-1LR/B5-SA-IC	Receiver, 50-3000 MHz, BNC 50 ohm, SC/APC
OTS-1LR/B7-SA-IC	Receiver, 50-2500 MHz, BNC 75 ohm, SC/APC
OPV-CTLR-IC	NMS SNMP Controller Card & MIB for Optiva Family
OTP-1ETR-A2/A2	Optical Tcwr, 1Ch, Ethernet, SM, Dual LC
OT-CC-16F-XXX	Chassis, Rack Mount, 16 Slot, 3RU -- See OT-CC-16F data sheet for exact models
PS-200-XX	Power Supply, 12 Vdc, 100 to 240 Vac, 50/60 Hz -- See PS-200F data sheet for exact models
OT-CC-6-1U	Chassis, Rack Mount, 6 Slot, 1RU -- See OT-CC-6 data sheet for exact models
OT-DTCR-1 / OT-DTCR-2	Chassis, flange-mount, w/ Power Supply, 1 slot / 2 slot

## Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All Versions of this laser are Class 1M laser product, tested according to IEC 60825-1:2007 / EN 60825-1:2007

An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example: eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example: telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5  $\mu\text{m}$ .

Maximum power = 30 mW.



\*Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

\*IEC is a registered trademark of the International Electrotechnical Commission.