Optoelectronics

Laser Link®
Modular 1310 nm Optical Transmitters

Description

The Laser Link® Modular 1310 nm Optical Transmitters are part of an advanced transmission system designed to optimize network architectures and increase reliability, scalability, and cost effectiveness. The Laser Link III 1310 nm Transmitter Family includes the LLT III 870 MHz Forward Transmitter and the ELLT 870 MHz Forward Transmitter with dual RF inputs. These 1310 nm transmitters are designed to operate over a wide range of optical output powers and loss budgets, delivering both analog and digital signals.

LLT III Transmitter

The LLT III series of transmitters are single-width modules. Up to 14 modular LLT III transmitters can be housed in the Laser Link Mainframe or 4 modules in the Laser Link Mini-mainframe offering compact installation, improved system reliability and a telemetry interface for Network Management (status monitoring).

The ELLT series of transmitters are double-width modules that feature both broadcast and narrowcast RF inputs. Up to 7 modular transmitters can be housed in the Laser Link Mainframe, or 2 modules in the Laser Link Mini-mainframe, offering compact installation, improved system reliability and a telemetry interface for Network Management (status monitoring).

Common Features

- Outstanding performance
- Cost-effective
- Flexible configurations
- Efficient use of space
- Tiered performance offering – allows for selection of desired performance
- Front fiber entry connector
- Easily accessible test points
- Front panel gain and slope controls
- Front panel LEDs
- Low RF inputs
- Transmits NTSC, PAL or digital signals
- 870 MHz input bandwidth
- Primary and redundant powering options available
- Network Management (status monitoring) ready

ELLT-13 Transmitter

Single-Width LLT III Features

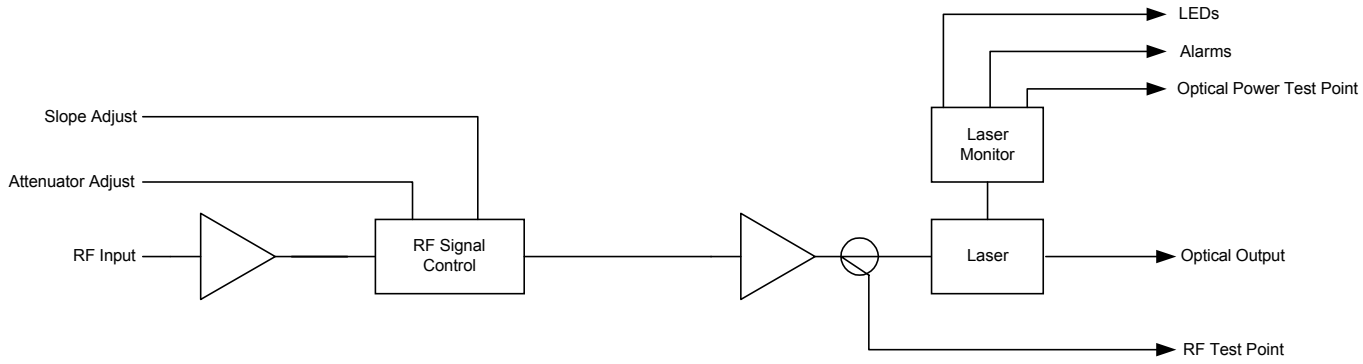
- Up to 16 dB optical link loss budget

Double-Width ELLT Features

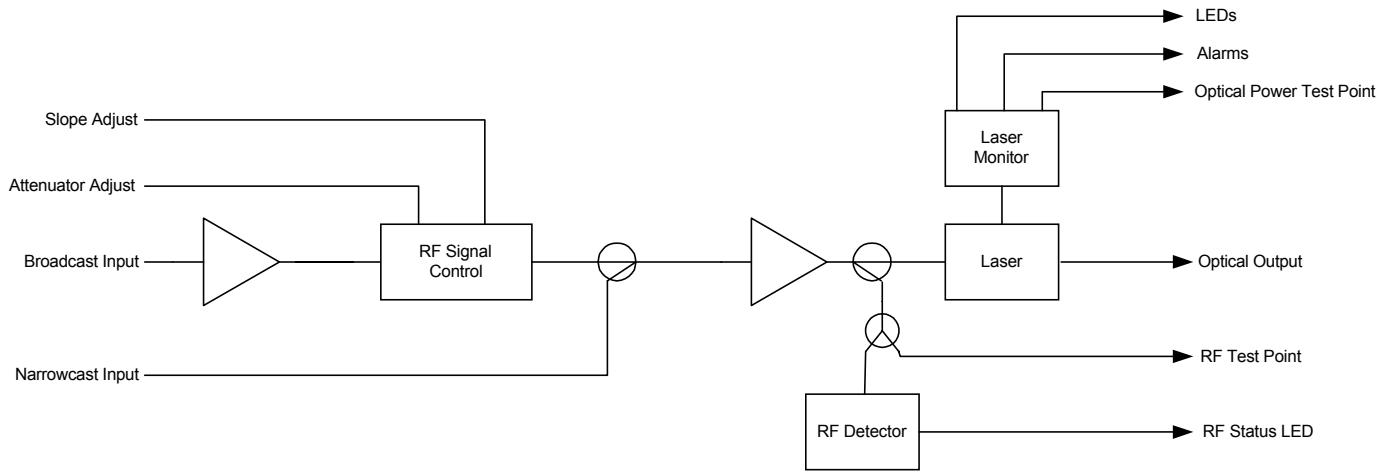
- Dual RF inputs
- 60 dB typical narrowcast to broadcast isolation

Block Diagrams

LLT III 870 MHz Forward Transmitter



ELLT 870 MHz Forward Transmitter with dual RF inputs



Laser Link Modular 1310 nm Optical Transmitters

Specifications

Optical	Units	LLT III	ELLT	Notes
Nominal Optical Output Wavelength	nm	1310 ± 10	1310 ± 10	
Optical Interface SC/APC SC/UPC E2000		 Standard Optional Optional	 Standard Optional	
Electrical				
Bandwidth	MHz	45 - 870	45 - 870	
Frequency Response	dB	± 0.5	± 0.5	
Composite Triple Beat	dBc	-70	-70	2,3
Composite Second Order	dBc	-65	-65	2,3
Input Return Loss	dB	17	17	
Port-to-Port Isolation (Narrowcast to Broadcast Inputs)	dB	n/a	>55	
Broadcast RF Input Required per channel RF Input Level NTSC 79 Analog ch	 dBmV	 15 (series 3~12) 16 (series 13~15)	 15 (series 3~12) 16 (series 13~14)	
NTSC 110 Analog ch	dBmV	13.5 (Series 3~12) 14.5 (series 13~15)	13.5 (series 3~12) 14.5 (series 13~14)	
Narrowcast RF Input Required per channel RF Input Level NTSC 79 Analog ch	 dBmV	 n/a	 42 (series 3~12) 43 (series 13~14)	 4
NTSC 110 Analog ch	dBmV	n/a	40.5 (series 3~12) 41.5 (series 13~14)	4
Power Consumption (maximum)	W DC	19.8	19.8	
Supply Voltage	V DC	24	24	
Supply Current	mA	825	825	
Front Panel Test Point (dBmV/Channel) (110 NTSC Channel Input)	dBmV	10 ± 0.5	10 ± 0.5	
Environmental				
Operating Temperature Range	°F °C	-4 to 149 -20 to 65	32 to 122 0 to 50	
Humidity Range	%	5 to 95	15 to 95	
Mechanical (All Modules)				
Depth	in. cm	13.5 34.3	13.5 34.3	
Width	in. cm	1.07 2.7	2.17 5.5	
Height	in. cm	5.25 13.3	5.25 13.3	
Weight	lb kg	2.0 0.9	3.4 1.54	
Module Width	slots	1	2	

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Performance Specifications

Carrier-to-Noise

Model #	Output Power	Total Optical Link Loss (dB)[1]																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
LLT III / ELLT-3	2-4	55	54	53	52	51												
LLT III / ELLT-4	3-5		55	54	53	52	51											
LLT III / ELLT-5	4-6			55	54	53	52	51										
LLT III / ELLT-6	5-7				55	54	53	52	51									
LLT III / ELLT-7	6-8					55	54	53	52	51								
LLT III / ELLT-8	7-9						55	54	53	52	51							
LLT III / ELLT-9	8-10							54.5	53.5	52.5	51.5	50.5						
LLT III / ELLT-10	9-11								54.5	53.5	52.5	51.5	50.5					
LLT III / ELLT-11	10-12									54.5	53.5	52.5	51.5	50.5				
LLT III / ELLT-12	11-13										54	53	52	51	50			
LLT III / ELLT-13	12-14											54	53	52	51	50		
LLT III / ELLT-14	12-15												54	53	52	51	50	
LLT III -15	13-16													54	53	52	51	50

Notes:

1. Total optical link loss includes 0.5 dB passive connector loss with balance of all fiber loss at 0.35 dB/km
2. Reference load is 79 NTSC channels 200 MHz of digital loading
3. Performance measured in accordance with NCTA practices using unmodulated CW carriers
4. Referenced to analog video levels, produces level equal to broadcast level at laser module input

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Ordering Information

1310 nm LLT III Transmitters

Model Number	Part Number SC/APC	Part Number SC/UPC	Part Number E2000
LLT III-3	R253920	253936	253952
LLT III-4	R253921	253937	253953
LLT III-5	253922	253938	253954
LLT III-6	R253923	253939	253955
LLT III-7	253924	253940	253956
LLT III-8	253925	253941	253957
LLT III-9	R253926	253942	253958
LLT III-10	253927	253943	253959
LLT III-11	253928	253944	253960
LLT III-12	253929	253945	253961
LLT III-13	253930	253946	253962
LLT III-14	253931	253947	253963
LLT III-15	253932	R253948	R253964

1310 nm ELLT Transmitters

Model Number	Part Number SC/APC	Part Number SC/UPC
ELLT-3	253368	R253380
ELLT-4	R253369	R253381
ELLT-5	253370	R253382
ELLT-6	253371	R253383
ELLT-7	253372	R253384
ELLT-8	253373	253385
ELLT-9	253374	R253386
ELLT-10	253375	R253387
ELLT-11	253376	253388
ELLT-12	253377	253389
ELLT-13	253378	253390
ELLT-14	253379	253391

Laser Link products include some of the industry's most complete range of high performance optical components:

	For more information please refer to:
1310 nm Transmitters	Laser Link Data Sheet Part Number 7001673
1550 nm Transmitters	Laser Link Data Sheet Part Number 7001674
1550 nm Optical Amplifiers	Laser Link Data Sheet Part Number 7001675
Receivers	Laser Link Data Sheet Part Number 7001676
Ancillary Modules	Laser Link Data Sheet Part Number 7001677
Main Frame	Laser Link Data Sheet Part Number 7001678

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Part Number 7001673 Rev A
April 2003