

Prisma II 1310 nm High Density Transmitter and Host Module

Description

The Prisma II optical network is an advanced transmission system designed to help optimize network architecture and increase reliability, scalability, and cost effectiveness. The 1310 nm High Density Transmitters (HDTx) are designed for use in the standard Prisma II chassis* and utilize standard power supplies and fan tray. The ability to mix high-density transmitter modules with other PII modules in the same chassis greatly enhances the flexibility of the platform. Up to 26 transmitters can operate in a standard 6 RU Prisma II Chassis effectively doubling the density for 1310 nm transmitters in the chassis. The transmitter has 1 GHz passband which greatly increases the bandwidth for high definition TV and other advanced services. Microprocessor control allows ease of installation and flexibility of application. The transmitters are offered in a wide range of output powers, from 3 dBm to 15 dBm.



Prisma II Chassis

The Prisma II High Density Platform consists of the following modules:

Premium 1310 nm High Density Transmitters

The premium 1310 nm HDTx offers superior performance for either high power HFC application or forward path segmentation. Transmitters are offered in 4 dBm to 15 dBm output powers and deliver both analog and digital signals.

Standard 1310 nm High Density Transmitters

The standard HDTx offers a cost-effective solution for forward path segmentation. Transmitters are offered in 3 dBm to 12 dBm output power and deliver both analog and digital signals.

High Density Host Module

The host module is designed to double the density of the standard PII chassis. It provides two slots for the high density modules for each current Prisma II slot. The simple design provides an efficient route of RF and electrical signal between the backplane and the high density module.



Two HDTx in Host Module

* In a 28 connector Prisma II chassis, only the HDTx Broadcast Input port is available. The Prisma II 56 connector chassis is required to utilize both the Broadcast and Narrowcast inputs on the HDTx.

Common Features

High density design allowing up to 26 transmitters in a Prisma II Chassis

- Energy efficient design with lowest power consumption per transmitter
- 1 GHz RF passband to increase bandwidth capacity for new service
- Compatible with current Prisma II Chassis, power supply and fan tray
- Precise optical power levels enables superior link optimization and lower spare requirements
- Advanced pre-distortion circuitry improves cost-to-performance ratio
- Nonvolatile storage of pre-set operating parameters simplifies installation procedures
- Simple plug-and-play operation, no user configuration required
- Dual RF inputs for broadcast video and new media (narrowcast) service tiers
- Blind-mate (push-on) RF and DC connectors
- RF input test point
- User selectable Automatic Gain Control (AGC)
- Multiple set-up and control options
 - Local Control via Local Craft Interface (LCI)
 - Local monitoring via Intelligent Communications Interface Module (ICIM)
 - Remote monitoring via ROSA / TNCS status monitoring and control element manager
- Master / Slave Redundancy



HDTx

Premium 1310 nm HDTx Features

- Designed to achieve premium system performance
- Full range of output powers from 4 dBm to 15 dBm
- Applicable for loss budgets of 2 dB to 17 dB
- Wide operating temperature from -20~65°C (0~50°C for -T version)

Standard 1310 nm HDTx Features

- Designed to achieve excellent cost-to-performance ratio
- Carrier to noise improvement over TSD transmitter
- Full range of output powers from 3 dBm to 12 dBm
- Applicable for loss budgets of 1 dB to 10 dB
- Operating temperature from 0~50°C

High Density Host Module Features

- Host module provides an upper and a lower slot for high density sub modules
- Passive design for high reliability
- Provides an RF and DC route between backplane of the chassis and sub module



Host Module

Specifications

Optical	Units	HDTx Premium	HDTx Standard	Notes
Nominal Optical Output Wavelength	nm	1310 ± 20		
Optical Interface SC/APC SC/UPC E2000		Standard Optional Optional		
Optical Output Power	dBm dBm dBm dBm dBm dBm dBm	4 6 8 10 12 14 15	3 5 6 8 10 12	
Electrical				
Bandwidth	MHz	46 - 1002		
Frequency Response	dB	± 0.6		
Input Return Loss	dB	>16.0		
Port-to-Port Isolation (New Media to Broadcast Inputs)	dB	> 50		
Broadcast (BC) RF Input Required RF Input Level per Ch. (NTSC) 78 NTSC analog ch's with: -320 MHz QAM (550-870 MHz) @ -6 dB -450 MHz QAM (550-1002 MHz) @ -6 dB 64 PAL B/G analog ch's with: -270 MHz QAM (600-870 MHz) @ -6 dB -400 MHz QAM (600-1002 MHz) @ -6 dB 59 PAL D/K analog ch's with: -270 MHz QAM (600-870 MHz) @ -6 dB -400 MHz QAM (600-1002 MHz) @ -6 dB	dBmV dBmV dBmV dBmV dBmV dBmV	15.3 15.0 16.3 16.0 16.6 16.3		1
Narrowcast (NC) RF Input Required RF Input Level per Ch. (QAM) -for QAM @ -6 dBc relative to analog ch's Required RF Input Level per Ch. (analog) - for equal amplitude analog ch's (BC and NC)	dB dB	+6 +12 <i>(above Broadcast RF analog level)</i>		2
Power Consumption (maximum)	W DC	7.5		
Front Panel Test Point Relative to Input	dB dB	<u>Broadcast Input</u> -20 ± 0.5 @ <u>Narrowcast Input</u> -32 ± 0.5@		
Environmental				
Operating Temperature Range				
Full Specs	°C °F	-20 to +65* -4 to +149	0 to +50 +32 to +122	8
Storage	°C °F	-40 to +65 -40 to +149	-40 to +65 -40 to +149	
Humidity Range	%	0 to 95		
Mechanical (Modules)				
Depth	in.	8.80		
	cm	22.35		
Width	in.	1.03		
	cm	2.62		
Height	in.	3.48		
	cm	8.84		
Weight	lb	0.90		
	kg	0.41		
Module Width	slots	1		

*(0~50°C for -T version, 4 to 10 dBm)

Link Performance Specifications

Premium HDTx

Carrier to Noise (see notes: 1,3,4,5)		78 CW NTSC with 53 QAM ₂₅₆ (550-870 MHz) 64 CW PAL B/G or 59 CW PAL D/K with 33 QAM ₂₅₆ (600-870 MHz)														
Model #	Output Power (dBm)	Total Optical Link Loss (dB) ³														
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
HD-13TXF-04	4	54.5	53.5	52.5	51.5											
HD-13TXF-06	6			54.5	53.5	52.5	51.5									
HD-13TXF-08	8					54.5	53.5	52.5	51.5							
HD-13TXF-10	10							54.5	53.5	52.5	51.5					
HD-13TXF-12	12									54	53	52	51			
HD-13TXF-14	14											53.5	52.5	51.5	50.5	
HD-13TXF-15	15												53	52	51	50

Standard HDTx

Carrier to Noise (see notes: 1,3,4,5)		78 CW NTSC with 53 QAM ₂₅₆ (550-870 MHz) 64 CW PAL B/G or 59 CW PAL D/K with 33 QAM ₂₅₆ (600-870 MHz)													
Model #	Output Power (dBm)	Total Optical Link Loss (dB) ³													
		2	3	4	5	6	7	8	9	10	11	12	13	14	
HD-13XTS-03	3	52.5	51.5	50.5	49.5										
HD-13XTS-05	5			52.5	51.5	50.5	49.5								
HD-13XTS-06	6				52.5	51.5	50.5	49.5							
HD-13XTS-08	8						52.5	51.5	50.5	49.5					
HD-13XTS-10	10								52	51	50	49			
HD-13XTS-12	12										52	51	50	49	

Distortion Performance (all HD-Tx's)	78 CW NTSC with up to 75 QAM ₂₅₆ (550-1002 MHz) 64 CW PAL B/G or 59 CW PAL D/K with up to 50 QAM ₂₅₆ (600-1002 MHz)	Notes
CTB	70	1, 4
CSO	65	1, 4
XMOD	65	1, 4

256 QAM BER Performance (all HD-Tx's)	78 CW NTSC (55-550 MHz) with up to 75 QAM ₂₅₆ (-6 dB, 550-1002 MHz)	Notes
Pre-FEC BER (typical)	≤ 1.0 e-6	1, 4, 6, 7

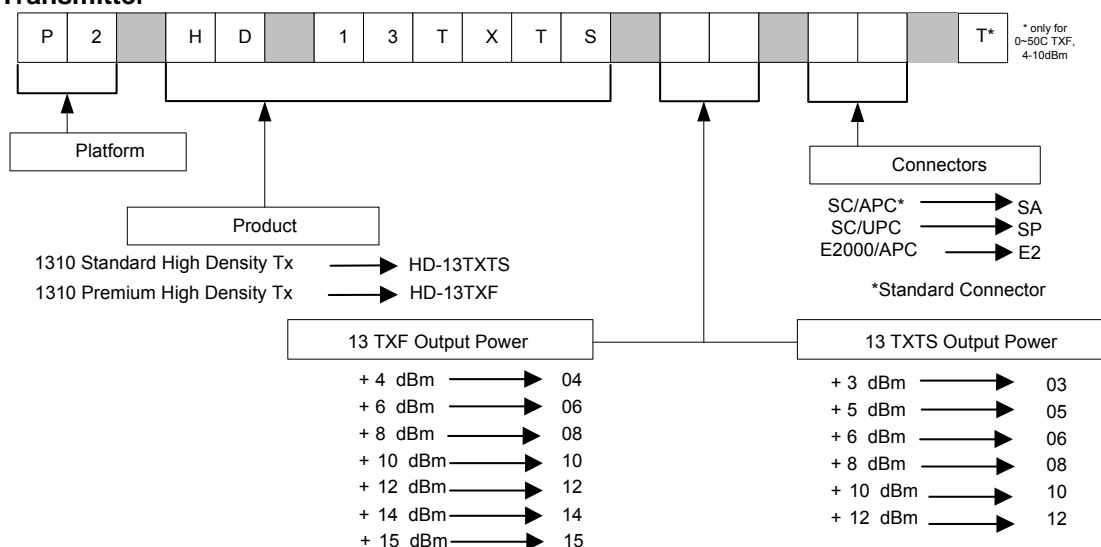
Notes:

- At specified RF input level. RF levels shown are required with Tx AGC off.
- Narrowcast Input requires an RF input level that is greater than the RF input to Broadcast.
- Total optical link loss allows 3.5 dB for passive loss with balance of all fiber loss.
- All measurements taken with Scientific-Atlanta 6940/44/GainMaker Node Receiver.
- For 78 NTSC, 64 PAL B/G, or 59 PAL D/K with QAM₂₅₆ loading through 1002 MHz, subtract 0.3 dB from listed CNR.
- Pre-FEC BER specified for ITU-T J.83 Annex B 256 QAM modulation, 78 NTSC in CW mode, 15 minute test duration w averaged BER.
- Pre-FEC BER improves to ≤ 1.0 e-9 when tested with 78 NTSC carriers modulated with independent NTSC video sources.
- Temperature at air inlet to Prisma II chassis.

Unless otherwise noted, specifications are minimum performance over temperature. Specifications are based upon measurements made in accordance with SCTE/ANSI standards (where applicable), using standard frequency assignments.

Ordering Information

Forward Transmitter



Model Number	Part Number		
	SC/APC	SC/UPC	E2000
P2-HD-13TXF-04-T	4012980	4012985	4012990
P2-HD-13TXF-06-T	4012981	4012986	4012991
P2-HD-13TXF-08-T	4012982	4012987	4012992
P2-HD-13TXF-10-T	4012983	4012988	4012993
P2-HD-13TXF-04	4008424	4008431	4008438
P2-HD-13TXF-06	4008425	4008432	4008439
P2-HD-13TXF-08	4008426	4008433	4008440
P2-HD-13TXF-10	4008427	4008434	4008441
P2-HD-13TXF-12	4008428	4008435	4008442
P2-HD-13TXF-14	4008429	4008436	4008443
P2-HD-13TXF-15	4008430	4008437	4008444
P2-HD-13TXTS-03	4008445	4008449	4008453
P2-HD-13TXTS-05	4008446	4008450	4008454
P2-HD-13TXTS-06	4008447	4008451	4008455
P2-HD-13TXTS-08	4008448	4008452	4008456
P2-HD-13TXTS-10	4010447	4010448	4010449
P2-HD-13TXTS-12	4010450	4010451	4010452
PS-HM (Host Module)			4008281
PII Chassis upgrade kit (converts 28 connector chassis to 56 connector chassis)			741429



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