



ACION 8000

DT8130 (1.2 GHz) 1310 nm Forward Optical Transmitter

The ACION 8000 DT8130 series is a family of high performance headend 1.2 GHz forward optical direct modulation transmitter (Tx) for HFC or FTTH applications. The DT8130 series Tx is a 1RU 19" standard chassis and is available in several configurations to meet various network requirements. The DT8130 series Tx is available with optical power options from 3 dBm to 15 dBm

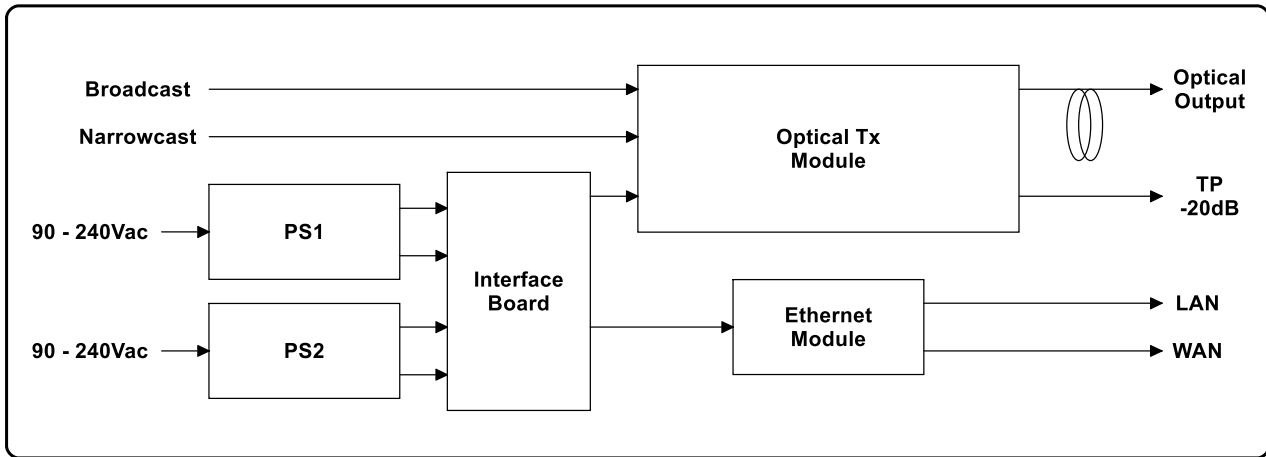
The transmitter's adjustable OMI level and user defined AGC setting features make it very versatile in field application with a wide range of RF input loading.

The transmitter's RF path employs several stages of RF amplification that includes single ended low noise high linear amplifiers and low noise push-pull amplifier from G7/EU brand name vendors.

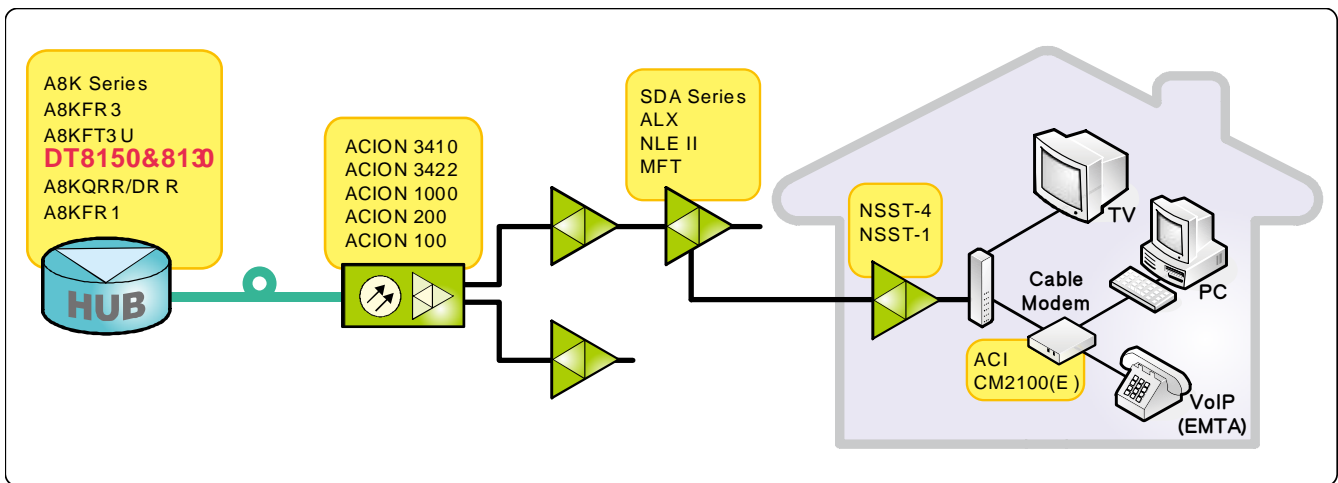
Features

- 19" standard 1RU rack design
- Transmission bandwidth up to 1.2 GHz
- Cooled DFB laser diode with integrated optical isolator
- 1310 nm optical wavelength
- AGC/MGC selection
- Video/CW selection
- OMI level adjust
- User define AGC setting
- Dual Hot-swappable Power Supply
- Remote control and monitor functions via HMS or SNMP
- -20dB RF front-panel test point

Block Diagrams



Application



Specifications

ACI		ACION 8000 Series DT8130 1310nm Forward Optical Transmitter		
PARAMETERS	CONDITIONS	UNITS	SPECIFICATION	NOTES
Optical Specification				
Laser Type			Cooled DFB LD with isolator	
Optical Wavelength		nm	1310 ± 10	
Connector Type			SC/APC (standard) FC/APC, E2000/APC (optional)	
Optical Power		dBm	Standard: 3, 6, 10, 13 Optional: 4, 5, 7, 8, 9, 11, 12, 14, 15	
RF Parameters				
Operating Bandwidth		MHz	50 to 1218	
Channel Loading	NTSC+Digital	channel	79ch Analog+47ch 256QAM+2x192MHz OFDM	
	All Digital		125ch 256 QAM + 2x192MHz OFDM	
RF Input Return Loss	75 ohm, Worst Case	dB	-16	
Broadcast RF Input Level	Analog	dBmV/ch	15	
	Digital		9	
Narrowcast RF Input Level	Digital only	dBmV/ch	15	(1)
AGC Range	AGC Mode	dB	15	
MGC Gain Control Range	MGC Mode	dB	0 to 15	
Flatness (Peak-to-Valley)	50 to 1218 MHz	dB	± 0.6	
Test Point	50 to 1218 MHz	dB	-20 ± 0.5	(2)
Port-to-Port Isolation (Narrowcast to Broadcast)		dB	50	
Distortion Performance (see Note 4)				
79ch analog + 47ch 256 QAM + 2x192 MHz OFDM (digital channels are -6 dB from analog)				
Composite Second Order (CSO)	Max.	dBc	-65	(3)
Composite Triple Beat (CTB)	Max.	dBc	-70	
Cross-Modulation		dBc	-65	
Modulation Error Rate (MER)		dB	≥ 38	
Bit Error Rate (BER)	Pre-FEC		≤ 10 ⁻⁸	
All digital loading (125ch 256 QAM + 2x192MHz OFDM)				
Modulation Error Rate (MER)		dB	≥ 36	(4)
Bit Error Rate (BER)	Pre-FEC		≤ 10 ⁻⁸	

PARAMETERS	CONDITIONS	UNITS	SPECIFICATION	NOTES
Electrical/Environmental/Mechanical				
RF Connector Type	Rear Panel		F Type Female	
Module Width		slot	1	
Dimensions	DxHxW	in. (mm)	16.1 x 5.0 x 1.0 (410.0 x 127.0 x 25.9)	
Weight		lbs. (kg)	1.65 (0.75)	
Operating Temperature		° F (°C)	32 to 122 (0 to 50)	
Storage Temperature		° F (°C)	-40 to 149 (-40 to 65)	
Relative Humidity	Non-condensing	%	0 to 95	
Power Consumption	Max.	W	7.5	

Note:

- (1) Digital channel is -6 dB from analog after combined with Broadcast Input
- (2) Relative from the Broadcast Input
- (3) 79ch analog + 45ch 256 QAM + 2x192 MHz OFDM, 3.2% OMI, digital channels are -6 dB from analog, Rx optical power = 0dBm
- (4) Tx models 3, 4 are tested with 5km SMF, Tx models 5-7 are tested with 10km SMF, Tx models 8-15 are tested with 20km SMF

Performance Specifications

Carrier-to-Noise

Model#	Output Power	Total Optical Link Loss (dB)																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
DT8130XX03	3-3.9 dBm	53.5	52.5	51.5	50.5	49.5												
DT8130XX04	4-4.9 dBm		53.5	52.5	51.5	50.5	49.5											
DT8130XX05	5-5.9 dBm			53.5	52.5	51.5	50.5	49.5										
DT8130XX06	6-6.9 dBm				53.5	52.5	51.5	50.5	49.5									
DT8130XX07	7-7.9 dBm					53.5	52.5	51.5	50.5	49.5								
DT8130XX08	8-9.9 dBm						53.5	52.5	51.5	50.5	49.5							
DT8130XX09	9-9.9 dBm							53.5	52.5	51.5	50.5	49.5						
DT8130XX10	10-10.9 dBm								53.0	52.0	51.0	50.0	49.0					
DT8130XX11	11-11.9 dBm									53.0	52.0	51.0	50.0	49.0				
DT8130XX12	12-12.9 dBm										53.0	52.0	51.0	50.0	49.0			
DT8130XX13	13-13.9 dBm											53.0	52.0	51.0	50.0	49.0		
DT8130XX14	14-14.9 dBm												53.0	52.0	51.0	50.0	49.0	
DT8130XX15	15-16 dBm													52.0	51.0	50.0	49.0	48.0

Note: CNR numbers are based on 79ch analog + 45ch 256 QAM + 2x192MHz OFDM, 3.2% OMI, digital channels are -6dB

Part Number Ordering Matrix

DT8130 1310nm Configuration Sheet

Customer: _____

Created By: _____ Order Date: _____

ORDERING MATRIX

2018/10/9

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14
PART NUMBER	D	T	8	1	3	0								

7~8

OPTICAL CONNECTOR

SC: SC/APC with shutter
FC : FC/APC

11~12

CONTROL INTERFACE

RS: RS-232
SN: SNMP(LAN)

9~10

OPTICAL OUTPUT LEVEL

03 : 3 dBm (Standard)
04 : 4 dBm
05 : 5 dBm
06 : 6 dBm
07 : 7 dBm
08 : 8 dBm
09 : 9 dBm
10 : 10 dBm (Standard)
11 : 11 dBm
12 : 12 dBm
13 : 13 dBm (Standard)
14 : 14 dBm
15 : 15 dBm

13~14

POWER SUPPLY / POWER CORD

SA: Single AC(110~240 VAC) / North American power cord
DA: Dual AC(110~240 VAC) / North American power cord
SD: Single DC 48V
DD: Dual DC 48V
EA: Single AC(110~240 VAC) / European power cord
UA: Dual AC(110~240 VAC) / European power cord

NOTES:



ACI Communications, Inc.
23307 66th Avenue South
Kent, WA 98032

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