



DT8150

1550 nm Forward Optical DM Transmitter 1.2 GHz

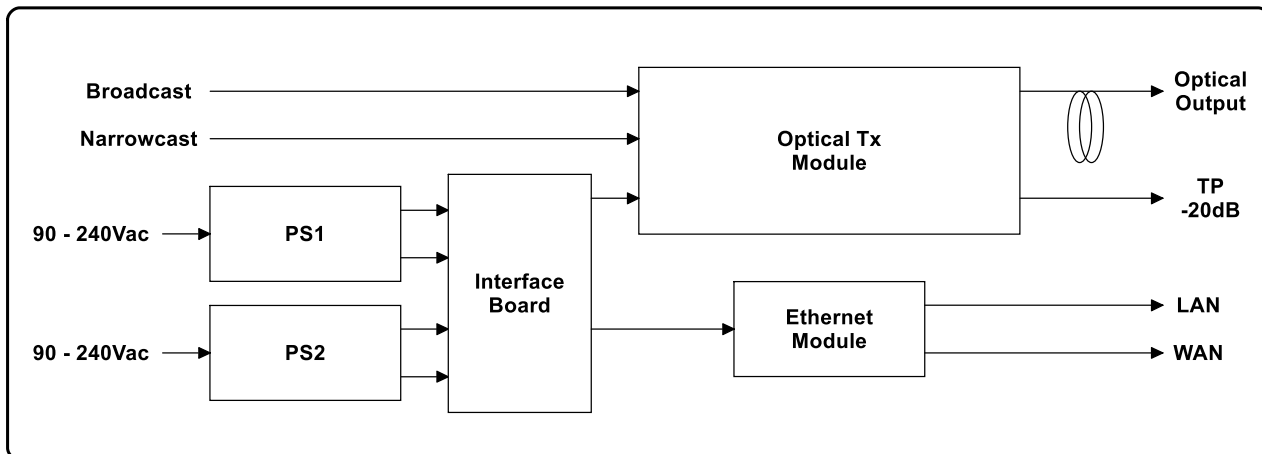
The DT8150 series are high performance head-end 1.2 GHz forward optical direct modulation transmitter (Tx) for HFC or FTTH applications. The DT8150 series Tx is a 1RU 19" standard chassis and is available in several wavelength options and configurations to meet various network requirements. The DT8150 series Tx provides a minimum optical power output of 10 dBm and can transmit RF signals over a fiber length up to 30 km with user fiber length setting in 1 km increment.

The Transmitter's adjustable OMI level and user defined AGC setting features makes it very versatile in field application with a wide range of RF input loading from analog only, analog and digital or full digital.

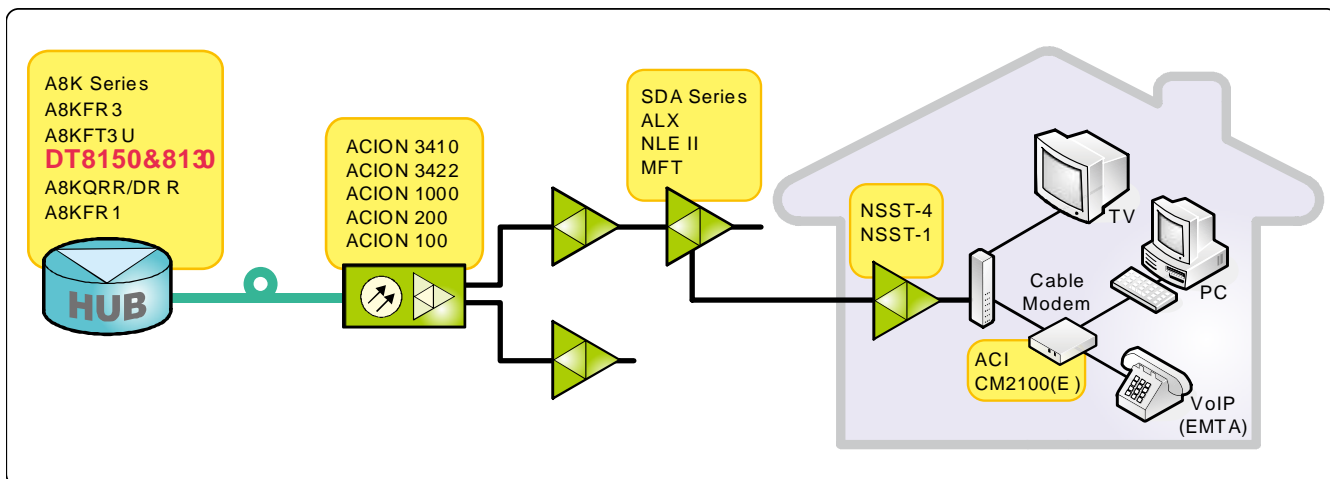
Features

- 19" standard 1RU rack design
- Transmission bandwidth up to 1.2 GHz
- Fiber distance up to 30 km with user fiber length setting in 1 km increment
- Cooled DFB laser diode with integrated optical isolator
- AGC/MGC mode selection
- 1550 nm, standard DWDM ITU Ch15 to Ch72, 100 GHz spacing
- Video/CW Mode selection
- OMI level adjustments
- User defined AGC setting
- SBS: 18 dBm
- Dual Hot-Swappable power supply
- -20 dB RF front panel test point
- Remote control and monitor functions via HMS or SNMP

Block Diagram



Application



Specifications

ACI			DT8150 1550nm 1.2 GHz Forward Optical DM Transmitter	
PARAMETERS	CONDITIONS	UNITS	SPECIFICATION	NOTES
Optical Specification				
Laser Type			Cooled DFB LD with Isolator	
Optical Wavelength		nm	1520 - 1565	(1)
Optical Power		dBm	10	
Optical Power Tolerance		dB	+1/-0	
Optical Connector Type			SC/APC (standard) FC/APC, E2000/APC (optional)	
SBS Control Level		dBm	18	

PARAMETERS	CONDITIONS	UNITS	SPCIFICATION	NOTES
RF Parameter				
Operating Bandwidth		MHz	50 - 1218	
Channel Loading	Analog + Digital	Channel	NTSC 79ch Analog + 47ch 256QAM + 2x192 MHz OFDM	
	All Digital	Channel	125ch 256 QAM + 2x192 MHz OFDM	
Broadcast RF Input Level	Analog	dBmV/ch	15	
	Digital		9	
Narrowcast RF Input Level	Digital only	dBmV/ch	15	(2)
RF Return Loss (All Ports)	75 ohm, Max	dB	-16	
Broadcast & Narrowcast Flatness	50 to 1218 MHz	dB	± 0.6	
RF Input AGC Range	AGC Mode	dBmv	+5/-10	
MGC Gain Control Setting	MGC Mode	dB	0 to 15	
Front Panel Test Point Level	50 to 1218 MHz	dB	-20 ± 0.5	(3)
Test Point Flatness	50 to 1218 MHz	dB	± 0.6	
Port-to-Port Isolation	Narrowcast to Broadcast Broadcast to Narrowcast	dB	45	
			15	
Distortion Performance (see Note 4)				
79ch analog + 47ch 256 QAM + 2x192 MHz OFDM (digital channels are -6 dB from analog)				
Fiber Length Setting	Selectable 1 km increment	km	0 to 30	(4)
Carrier to Noise Ratio (CNR) 79ch NTSC Analog Only 79ch NTSC + 47ch 256 QAM + 2x192MHz OFDM	Min.	dB	52	(5)
			51	
Composite Second Order (CSO)	Max.	dBc	-62	
Composite Triple Beat (CTB)	Max.	dBc	-65	
Cross-Modulation	Max.	dBc	-62	
Pre-FEC Bit Error Rate (BER)	Max.		≤ 10 ⁻⁹	
Modulation Error Rate (MER)	Min.	dB	38	
All digital loading (125ch 256 QAM + 2x192 MHz OFDM)				
Modulation Error Rate (MER)			≥ 38	(6)
Bit Error Rate (BER)	Pre-FEC		≤ 10 ⁻⁹	
Environmental / Mechanical				
RF Connector Type	RF Input RF Test Point	Rear Panel Front Panel	F-Type Female F-Type Female	
Dimensions	D x H x W		mm	482.6 x 43.7 x 357
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 - 95	
Power Consumption	0 to 50°C, Max.	W	18	
Dual Power Supply (Rear Panel)	Hot Swap		90 to 240 VAC, 50/60Hz	AC Power Model
LED Indicator			Power, Status, AGC	
Front Panel Control & Monitor Interface			LAN & WAN (RJ45)	
Network Management			Webpage Remote NMS	

Notes:

- (1) DWDM ITU Standard ch15 to ch72, 100GHz spacing
- (2) Digital channels are -6dB from analog after combined with Broadcast Input
- (3) Relative to the Broadcast Input
- (4) Fiber Length Setting via Webpage Remote NMS and Front Panel LAN/WAN
- (5) 3.2% OMI/ch, digital channels are -6 dB from analog, Rx optical power = 0 dBm, CNR degraded by 1 dB at 30 km of fiber, fiber length setting from 0 to 30 km with 1 km increment
- (6) Rx optical power = 0 dBm, Fiber length = 0 to 30 km. Fiber length setting from 0 to 30 km with 1 km increment

Part Number Ordering Matrix

DT8150 1550nm Configuration Sheet

Customer: _____

Created By: _____

ORDERING MATRIX

March 3, 2023

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PART NUMBER	D	T	8	1	5	0										

7-8

OPTICAL CONNECTOR
 SC: SC/APC with shutter
 FC : FC/APC

9-10

DWDM WAVELENGTH TABLE

CW = None DWDM / C-Band Wavelength (1550nm±20nm)

ITU Ch	Wavelength (nm)	Freq (THz)
Ch 15	1565.50	191.5 THz
Ch 16	1564.70	191.6 THz
Ch 17	1563.86	191.7 THz
Ch 18	1563.05	191.8 THz
Ch 19	1562.23	191.9 THz
Ch 20	1561.42	192.0 THz
Ch 21	1560.61	192.1 THz
Ch 22	1559.79	192.2 THz
Ch 23	1558.98	192.3 THz
Ch 24	1558.17	192.4 THz
Ch 25	1557.36	192.5 THz
Ch 26	1556.55	192.6 THz
Ch 27	1555.75	192.7 THz
Ch 28	1554.94	192.8 THz
Ch 29	1554.13	192.9 THz
Ch 30	1553.33	193.0 THz
Ch 31	1552.52	193.1 THz

ITU Ch	Wavelength (nm)	Freq (THz)
Ch 32	1551.72	193.2 THz
Ch 33	1550.92	193.3 THz
Ch 34	1550.12	193.4 THz
Ch 35	1549.32	193.5 THz
Ch 36	1548.51	193.6 THz
Ch 37	1547.72	193.7 THz
Ch 38	1546.92	193.8 THz
Ch 39	1546.12	193.9 THz
Ch 40	1545.32	194.0 THz
Ch 41	1544.53	194.1 THz
Ch 42	1543.73	194.2 THz
Ch 43	1542.94	194.3 THz
Ch 44	1542.14	194.4 THz
Ch 45	1541.35	194.5 THz
Ch 46	1540.56	194.6 THz
Ch 47	1539.77	194.7 THz
Ch 48	1538.98	194.8 THz

ITU Ch	Wavelength (nm)	Freq (THz)
Ch 49	1538.19	194.9 THz
Ch 50	1537.40	195.0 THz
Ch 51	1536.61	195.1 THz
Ch 52	1535.82	195.2 THz
Ch 53	1535.04	195.3 THz
Ch 54	1534.25	195.4 THz
Ch 55	1533.47	195.5 THz
Ch 56	1532.68	195.6 THz
Ch 57	1531.90	195.7 THz
Ch 58	1531.12	195.8 THz
Ch 59	1530.33	195.9 THz
Ch 60	1529.55	196.0 THz
Ch 61	1528.77	196.1 THz
Ch 62	1527.99	196.2 THz
Ch 63	1527.22	196.3 THz
Ch 64	1526.44	196.4 THz

11-12

OPTICAL OUTPUT LEVEL
 07 : ≧ 7 dBm (7~8 dBm)
 09 : ≧ 9 dBm (9~10 dBm)
 10 : ≧ 10 dBm (10~11 dBm)

15-16

POWER SUPPLY / POWER CORD

SA: Single AC(100~240 VAC) / North American power cord
 DA: Dual AC(100~240 VAC) / North American power cord
 SD: Single DC 48V
 DD: Dual DC 48V
 EA: Single AC(100~240 VAC) / European power cord
 UA: Dual AC(100~240 VAC) / European power cord
 SM: Single Mains PS AC(100~240 VAC) (UL) / North American power cord
 DM: Dual Mains PS AC(100~240 VAC) (UL) / North American power cord
 EM: Single Mains PS AC(100~240 VAC) (UL) / European power cord
 UM: Dual Mains PS AC(100~240 VAC) (UL) / European power cord

13-14

CONTROL INTERFACE
 SN: SNMP(LAN)

NOTES:



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