ACION 8000 Series

A8KFT3UD-15 1550nm (1.2GHz) Dual Forward Optical Transmitter

The ACION 8000 A8KFT3UD-1550nm is a head-end 1.2GHz dual forward optical transmitters (Tx) for HFC or FTTH applications. The A8KFT3UD-1550 Tx has two transmitters integrated in one module which can transmit RF signals over a fiber length up to 30km. This compact and cost-effective Tx module is 3RU in height and up to 12 Tx modules (i.e. 24 transmitters) can be integrated in the 19-inch high-density chassis (A8KMF3).

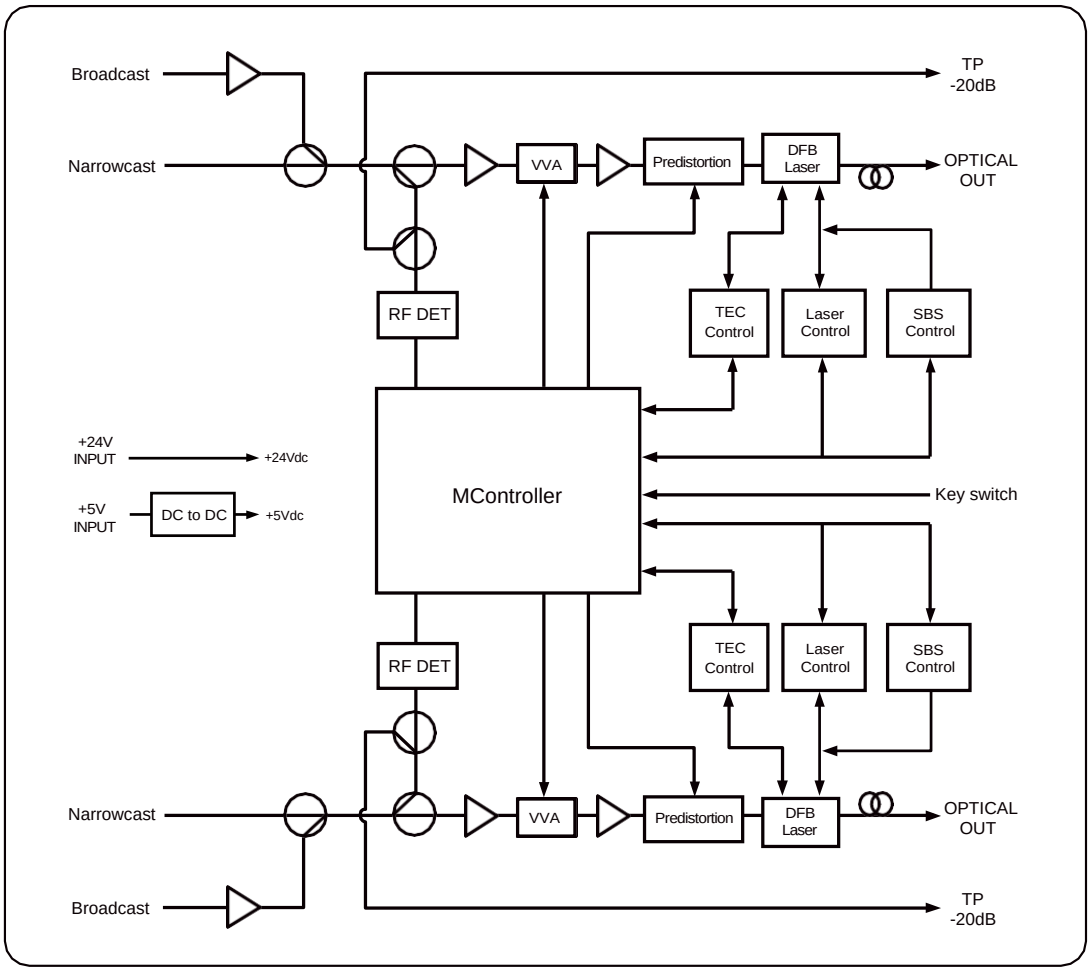
The transmitter's RF path employs several stages of RF amplification that includes single ended low noise high linear amplifiers and low noise push-pull amplifier from G7/EU brand name vendors.

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

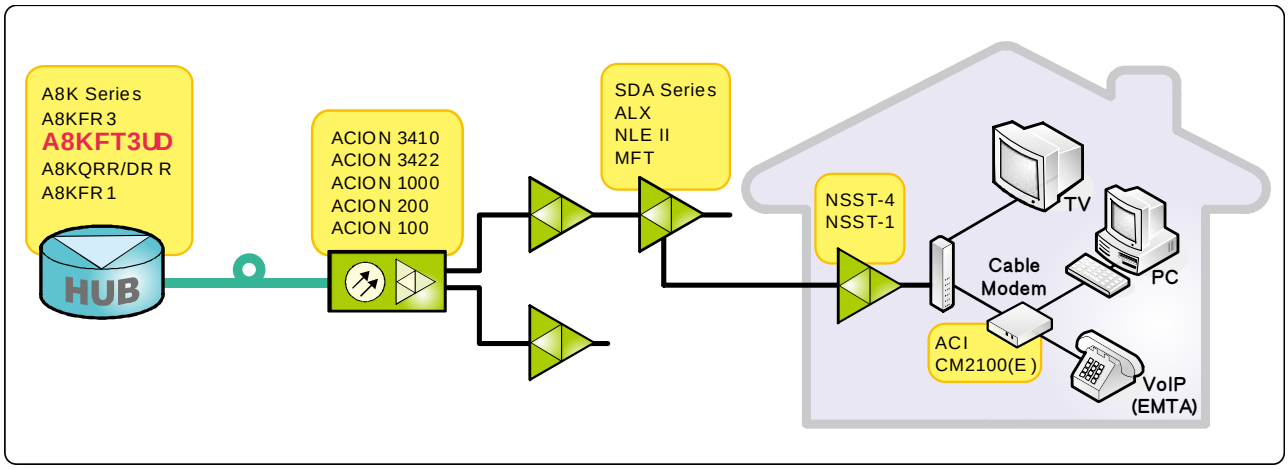
Features

- Transmission bandwidth up to 1.2GHz.
- Dual transmitters in one module.
- Fiber distance up to 30km
- Cooled DFB laser diode with isolator.
- AGC/MGC selection
- 1550nm, Standard ITU Ch15 to Ch72, 100GHz Spacing
- Video/CW Mode selection
- OMI level adjustments
- User defined AGC setting
- Hot – swappable
- -20 dB RF front-panel test point
- Remote control and monitor functions via HMS or SNMP

Block Diagram



Application:



Specifications

ACI	ACION 8000 Series A8KFT3UD-13 1310nm (1.2GHz) Dual Forward Optical Transmitter				
Parameter	**Unit**	**Min**	**Typ.**	**Max**	**Note**
Optical Wavelength	nm	1520	-	1565	(1)
Optical Power	dBm	10	-	12	
Optical Power Reading Accuracy	%	-10	-	10	
Optical Power in OFF Mode	dBm	-	-	-20	
RF Bandwidth	MHz	54	-	1218	
BC Input Level					(2)
Analog Channels	dBmV/ch	-	18	-	
Digital Channels	dBmV/ch	-	12	-	
OFDM Channels	dBmV/ch	-	27	-	
NC Input Level				-	(2) & (3)
Digital Channels	dBmV/ch	-	12		
OFDM Channels	dBmV/ch	-	27		
NC Input Level Relative to BC Input Level	dB	-6.5	-6	-5.5	
Normalized BC Input Flatness	dB	-	-	1.2	Peak to valley
Normalized NC Input Flatness	dB	-	-	1.2	Peak to valley
Port to Port Isolation					
NC Input to BC Input	dB	50	-	-	
BC Input to NC Input	dB	15	-	-	
BC Input Return Loss	dB	-16	-	-	
NC Input Return Loss	dB	-16	-	-	
RF Test Point Flatness	dB	-	-	1.5	Peak to valley
RF Test Point Level	dB	-20.5	-20	-19.5	Reference to BC Input
RF Test Point Return Loss	dB	-16	-	-	
RF TP to TP Isolation	dB	-50	-	-	50 to 550 MHz
	dB	-40	-	-	550 to 1128 MHz
Tx1 BC to Tx2 BC Path Isolation					
54 to 1000 MHz	dB	-	-	-50	
1 GHz to 1.218 GHz	dB	-	-	-45	
Tx1 NC to Tx2 NC Path Isolation					
54 to 1000 MHz	dB	-	-	-50	
1 GHz to 1.218 GHz	dB	-	-	-45	

Parameter	Unit	Min	Typ.	Max	Note
Video Mode Offset from CW	dB	-	3	-	
Video Mode Offset Accuracy	dB	-0.25	-	0.25	
RF Attenuation Range	dB	15	-	-	
RF Attenuator Adjust Increments in MGC Mode	dB	-	-	0.1	
Reserve Gain for Variation over Temperature	dB	1	-	-	
Gain Change over Temperature	dB	-0.75	-	0.75	
Spurious	dBc	-	-	-65	
79ch NTSC Loading with 30km Max. Fiber Length					
Fiber Length Setting	km	0	-	40	Setting in 1km increment
CNR	dB	52	-	-	(4)
CSO	dBc	-	-	-62	
CTB	dBc	-	-	-62	
30ch NTSC + 96ch 256QAM + 2ch 192MHz OFDM Loading with 30km Max. Fiber Length					
Fiber Length Setting	km	0	-	40	Setting in 1km increment
CNR	dB	50	-	-	(4)
CSO	dBc	-	-	-62	
CTB	dBc	-	-	-62	
Pre-FEC Bit Error Rate (BER)	-	-	-	$1x10^{-9}$	
MER	dB	38	-	-	
1GHz All QAM Loading: 125ch 256QAM (249 to 999MHz) with 50km Max Fiber Length					
Fiber Length Setting	km	0	-	60	Setting in 1km increment
Pre-FEC Bit Error Rate (BER)	-	-	-	$1x10^{-9}$	(5)
MER	dB	38	-	-	
1.2GHz All QAM Loading: 97ch 256QAM (249 to 831MHz) + 2ch 192MHz OFDM with 50km Max Fiber Length					
Fiber Length Setting	km	0	-	60	Setting in 1km increment
Pre-FEC Bit Error Rate (BER)	-	-	-	$1x10^{-9}$	(5)
MER	dB	38	-	-	

Notes:
(1) DWDM ITU, ITU ± 0.1nm
(2) Level shown represents the total power of a 192 MHz wide OFDM "channel". This is equivalent to the power of 6 MHz (CEA (Consumer Electronics Association) + 10*log (# of ch) or 12 dBmV+10*log (32).
(3) Digital channels only and they are -6 dB below analog channels after combined with BC input
(4) CNR degrades 1 dB at Max Fiber Length, Rec'd Optical Power = 0 dBM
(5) Rx Optical Power = -2 dBm (Assume fiber attenuation is 0.2 dB/km @ 1550nm)

Ordering Matrix

A8KFT3U-1550nm Configuration Sheet

Customer: _____

Created By: _____

ORDERING MATRIX **2019/1/18**

Position		1	2	3	4	5	6	7	8	9	10	11	12	13	14
PART NUMBER	**A8KFT3U-1550**	—	1	0	—			—							

2-3 [1][0] **OUTPUT POWER**
10 = 10 dBm (standard)

5-6 [ ][ ] **CONNECTOR**
SA = SC/APC with shutter (standard)
LA = LC/APC with shutter
FA = FC/APC
EA = E2000/APC

8-9 [ ][ ] **TX1 DWDM CHANNEL**
10-11 [ ][ ] **TX2 DWDM CHANNEL**

00 = no transmitter

ITU Ch	Wavelength (nm)	Freq (THz)	ITU Ch	Wavelength (nm)	Freq (THz)
Ch 15	1565.50	191.5 THz	**Ch 44**	1542.14	194.4 THz
Ch 16	1564.70	191.6 THz	**Ch 45**	1541.35	194.5 THz
Ch 17	1563.86	191.7 THz	**Ch 46**	1540.56	194.6 THz
Ch 18	1563.05	191.8 THz	**Ch 47**	1539.77	194.7 THz
Ch 19	1562.23	191.9 THz	**Ch 48**	1538.98	194.8 THz
Ch 20	1561.42	192.0 THz	**Ch 49**	1538.19	194.9 THz
Ch 21	1560.61	192.1 THz	**Ch 50**	1537.40	195.0 THz
Ch 22	1559.79	192.2 THz	**Ch 51**	1536.61	195.1 THz
Ch 23	1558.98	192.3 THz	**Ch 52**	1535.82	195.2 THz
Ch 24	1558.17	192.4 THz	**Ch 53**	1535.04	195.3 THz
Ch 25	1557.36	192.5 THz	**Ch 54**	1534.25	195.4 THz
Ch 26	1556.56	192.6 THz	**Ch 55**	1533.47	195.5 THz
Ch 27	1555.75	192.7 THz	**Ch 56**	1532.68	195.6 THz
Ch 28	1554.94	192.8 THz	**Ch 57**	1531.90	195.7 THz
Ch 29	1554.13	192.9 THz	**Ch 58**	1531.12	195.8 THz
Ch 30	1553.33	193.0 THz	**Ch 59**	1530.33	195.9 THz
Ch 31	1552.52	193.1 THz	**Ch 60**	1529.55	196.0 THz
Ch 32	1551.72	193.2 THz	**Ch 61**	1528.77	196.1 THz
Ch 33	1550.92	193.3 THz	**Ch 62**	1527.99	196.2 THz
Ch 34	1550.12	193.4 THz	**Ch 63**	1527.22	196.3 THz
Ch 35	1549.32	193.5 THz	**Ch 64**	1526.44	196.4 THz
Ch 36	1548.51	193.6 THz	**Ch 65**	1525.66	196.5 THz
Ch 37	1547.72	193.7 THz	**Ch 66**	1524.89	196.6 THz
Ch 38	1546.92	193.8 THz	**Ch 67**	1524.11	196.7 THz
Ch 39	1546.12	193.9 THz	**Ch 68**	1523.34	196.8 THz
Ch 40	1545.32	194.0 THz	**Ch 69**	1522.56	196.9 THz
Ch 41	1544.53	194.1 THz	**Ch 70**	1521.79	197.0 THz
Ch 42	1543.73	194.2 THz	**Ch 71**	1521.02	197.1 THz
Ch 43	1542.94	194.3 THz	**Ch 72**	1520.25	197.2 THz

12-13 [ ][ ] **FIBER DISTANCE**
10 = 10 km 20 = 20 km 30 = 30 km

14 [ ] **RF Transmission Bandwidth**
C = CATV Band (50~1218 MHz) only

NOTES:

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