



ACION 8000 Series

A8KFT3U-1550nm (1.2GHz) Forward Optical Transmitter

The ACION 8000 A8KFT3U-1550nm is the head-end equipment 1.2GHz forward optical transmitter (Tx) for HFC or FTTH applications. The A8KFT3U-1550 Tx can transmit RF signals over a fiber length up to 30km. This compact and cost-effective Tx module is a 3RU height and up to 12 Tx modules can be integrated in the 19-inch high-density chassis (A8KMF3).

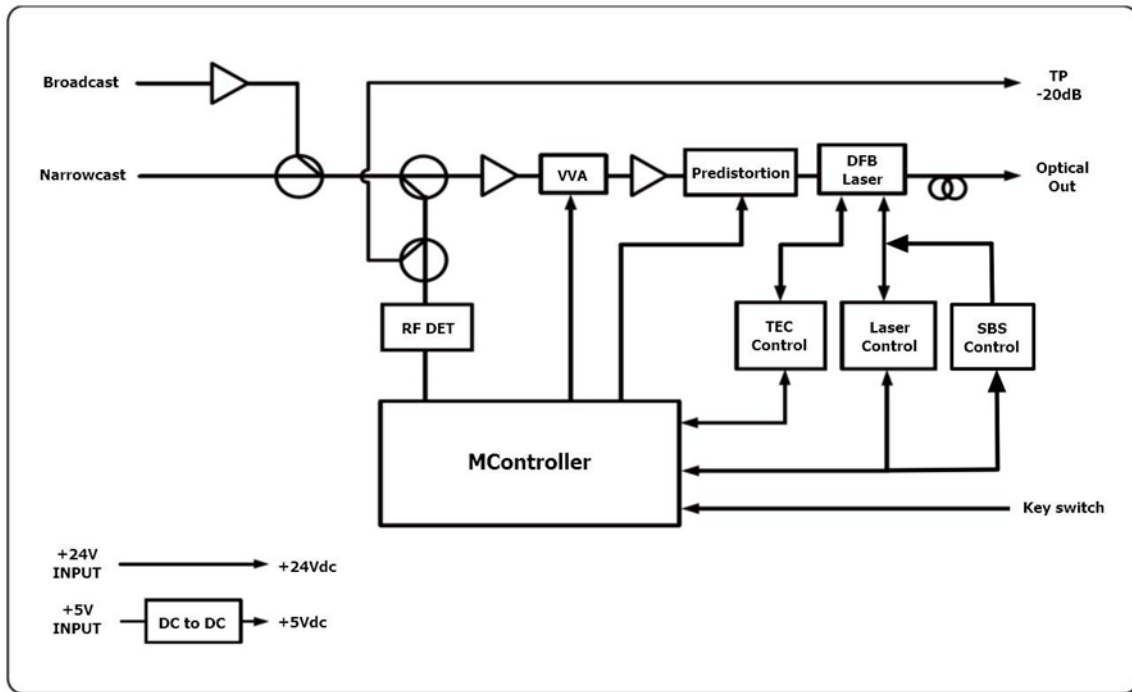
The transmitter's RF path employs several stages of RF amplification that includes single ended low noise high linear amplifiers and low noise push-pull amplifier from G7/EU brand name vendors.

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.

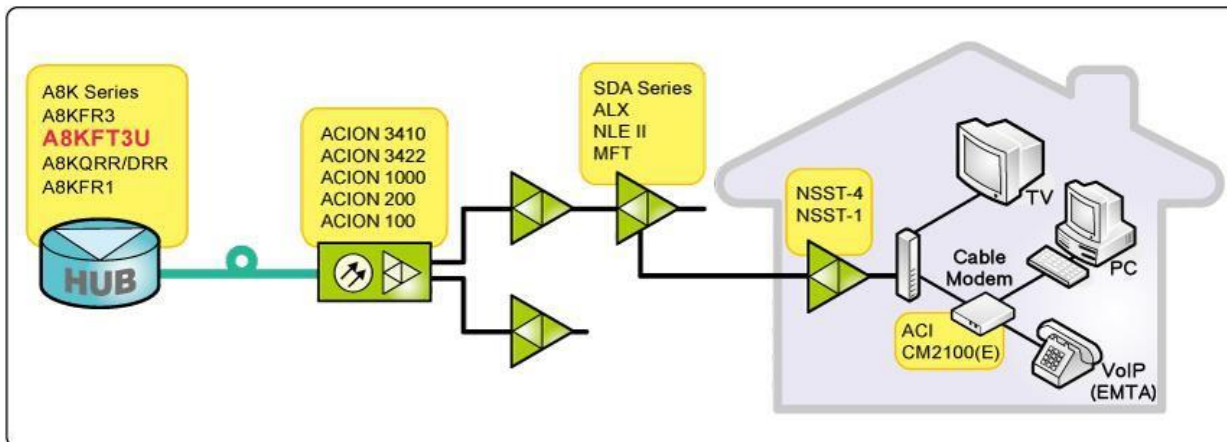
Features

- ◆ Transmission bandwidth up to 1.2GHz
- ◆ Fiber distance up to 30km with fiber length setting in 1km increment 1310 nm optical wavelength
- ◆ AGC/MGC selection
- ◆ OMI level adjustments
- ◆ Video/CW Mode selection
- ◆ 1550 nm, Standard ITU Ch15 to Ch72, 100GHz Spacing,
- ◆ User defined AGC setting
- ◆ Hot - swappable
- ◆ Remote control and monitor functions via HMS or SNMP
- ◆ -20dB RF front-panel test point

Block Diagram



Application:



Specifications

ACI		ACION 8000 Series A8KFT3U-1550nm 1.2 GHz Forward Optical 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		%	10	
Optical Connector Type			SC/APC (standard) FC/APC, E2000/APC (optional)	
RF Parameter				
Operating Bandwidth		MHz	50 - 1218	
Channel Loading	Analog + Digital All Digital	Channel	See Distortion Performance description	
Broadcast RF Input Level	Analog Digital	dBmV/ch	15 9	
Narrowcast RF Input Level	Digital only	dBmV/ch	15	(2)
RF Return Loss	75 ohm, All Ports Worst Case	dB	-16	
Flatness	50 to 1218 MHz BC & NC	dB	± 0.6	
AGC Range	AGC Mode	dB	15	
MGC Gain Control Range	MGC Mode	dB	0 to 15	
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		dB	45	
Broadcast to Narrowcast			15	
Environmental / Mechanical				
RF Connector Type	Rear Panel		F-type female	
Module Width		Slot	1	
Dimensions	D x H x W	in. (mm)	16.1 x 5.0 x 1.0 (410.0 x 127.0 x 25.9)	
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	Max. 0 to 50°C	W	6.5	

PARAMETERS	CONDITIONS	UNITS	SPECIFICATION	NOTES
Distortion Performance				
10km & 20km - 79ch analog + 47ch 256 QAM + 2x192MHz OFDM (digital channels are -6dB from analog)				
Carrier to Noise Ratio (CNR) 79ch NTSC Analog Only 79ch + 47ch QAM + 2x192MHz OFDM	Min.	dB	52 51	(4)
Composite Second Order (CSO)	Max.	dBc	-65	
Composite Triple Beat (CTB)	Max.	dBc	-70	
Cross-Modulation	Max.	dBc	-65	
Pre-FEC Bit Error Rate (BER)	Max.		1×10^{-9}	
Modulation Error Rate (MER)	Min.	dB	38	
10km & 20km - All digital loading (125ch 256 QAM + 2x192MHz OFDM)				
Modulation Error Rate (MER)		dB	≥ 38	(6)
Bit Error Rate (BER)	Pre-FEC		$\leq 10^{-8}$	
30km - All digital loading (125ch 256 QAM + 2x192MHz OFDM)				
Modulation Error Rate (MER)		dB	≥ 38	(6)
Bit Error Rate (BER)	Pre-FEC		$\leq 10^{-8}$	
30km - 79ch analog				
Carrier to Noise Ratio (CNR) 79ch NTSC Analog Only	Min.	dB	52	(5)
Composite Second Order (CSO)	Max.	dBc	-62	
Composite Triple Beat (CTB)	Max.	dBc	-65	
Cross-Modulation	Max.	dBc	-65	
Pre-FEC Bit Error Rate (BER)	Max.		1×10^{-9}	
Modulation Error Rate (MER)	Min.	dB	38	
30km - All digital loading (125ch 256 QAM + 2x192MHz OFDM)				
Modulation Error Rate (MER)		dB	≥ 38	(6)
Bit Error Rate (BER)	Pre-FEC		$\leq 10^{-8}$	

Notes:

- (1) DWDM ITU Standard ch15 to ch72, 100GHz spacing.
- (2) Digital channel is -6dB from analog after combined with Broadcast Input.
- (3) Relative to the Broadcast Input.
- (4) 3.2% OMI, digital channels are -6dB from analog, Rx optical power = 0dBm, 10km option is tested with 10km of fiber and 20km option is tested 20km of fiber.
- (5) 3.2% OMI. Rx optical power = 0dBm, fiber length = 0 to 30km with fiber length setting from 0 to 30km with 1km increment.
- (6) Rx optical power = 0dBm, fiber length = 0 to 30km with fiber length setting from 0 to 30km with 1km increment.

Ordering Matrix

A8KFT3U-1550nm Configuration Sheet

Customer: _____

Created By: _____

ORDERING MATRIX

December 20, 2018

Position			1	2		3	4		5	6	7	8	9
PART NUMBER	A8KFT3U-1550	—	1	0	—			—					

1-2

OUTPUT POWER
10 = 10 dBm (standard)

3-4

CONNECTOR
SA = SC/APC with shutter (standard)
FA = FC/APC (option)
EA = E2000/APC (option)

5-6

CHANNEL

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	1556.56	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
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

ITU Ch	Wavelength (nm)	Freq (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
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
Ch 65	1525.66	196.5 THz
Ch 66	1524.89	196.6 THz
Ch 67	1524.11	196.7 THz
Ch 68	1523.34	196.8 THz
Ch 69	1522.56	196.9 THz
Ch 70	1521.79	197.0 THz
Ch 71	1521.02	197.1 THz
Ch 72	1520.25	197.2 THz

7-8

FIBER DISTANCE
10 = 10 km 20 = 20 km 30 = 30 km (Adjustable)

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RF Transmission Bandwidth
C = CATV Band (50-1218 MHz) only

NOTES:



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

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