



## ACION™ 8000 Series A8KFT3U-1550nm (1.2GHz) Forward Optical Transmitter

The ACION 8000 A8KFT3U-1550nm is a 1.2GHz forward headend 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).

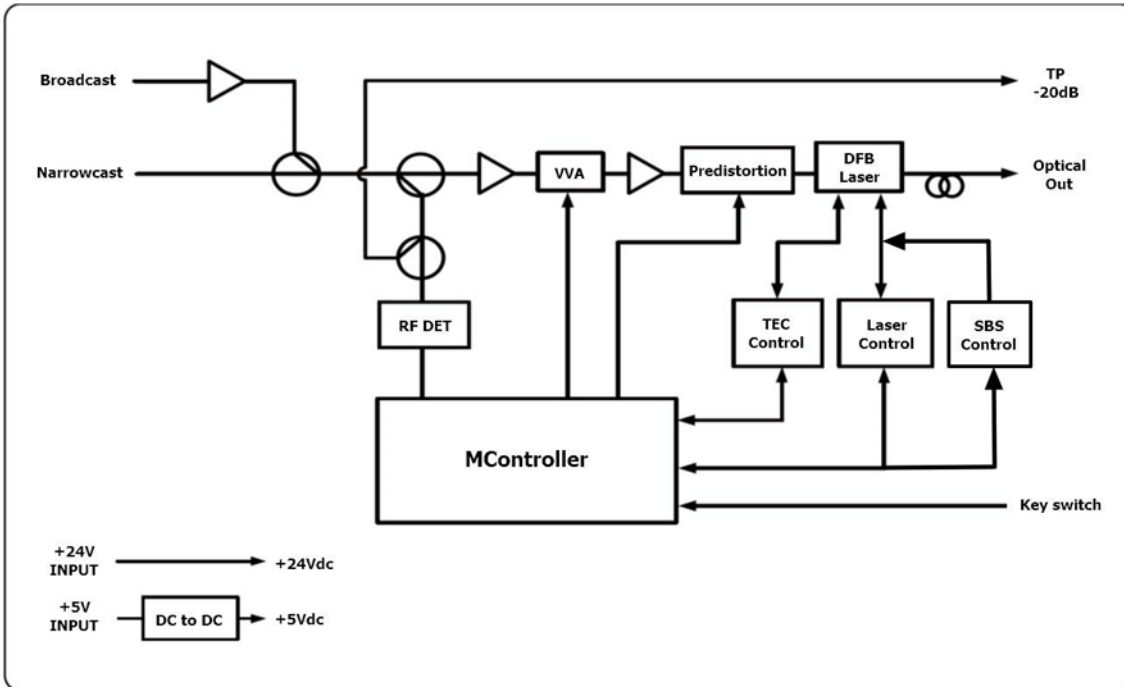
The transmitter's RF path employs several stages of RF amplification that includes single ended low noise high linear amplifiers and low noise push-pull amplifier from G7/EU brand name vendors.

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.

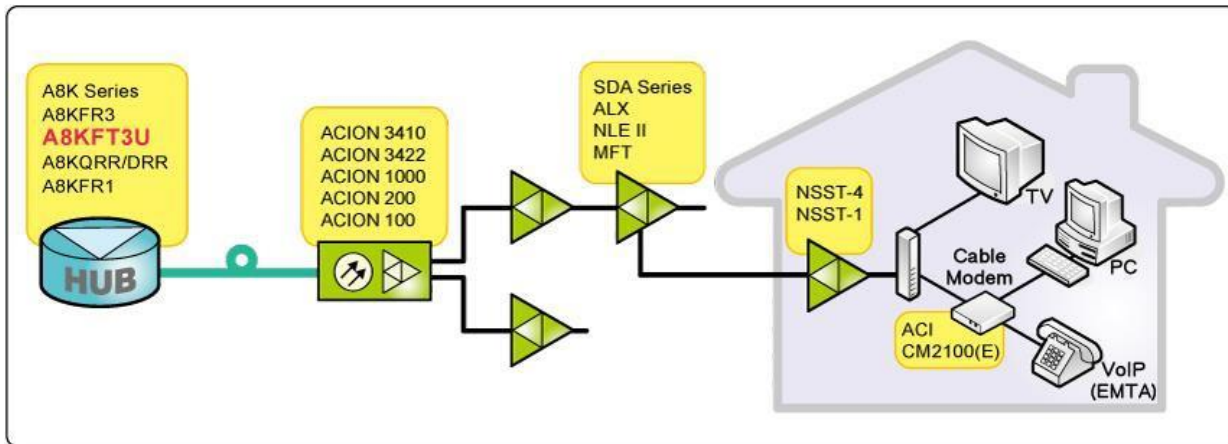
### Features

- ◆ Transmission bandwidth up to 1.2GHz
- ◆ Fiber distance adjustable in 1km increments from 0 to 30km
- ◆ AGC/MGC selection
- ◆ OMI level adjustments
- ◆ ITU Ch15 to Ch64, 100GHz Spacing
- ◆ User defined AGC setting
- ◆ Remote control and monitor functions via HMS or SNMP
- ◆ Hot – swappable
- ◆ -20dB RF front-panel test point
- ◆ Video/CW mode selection

## Block Diagram



## Application Diagram



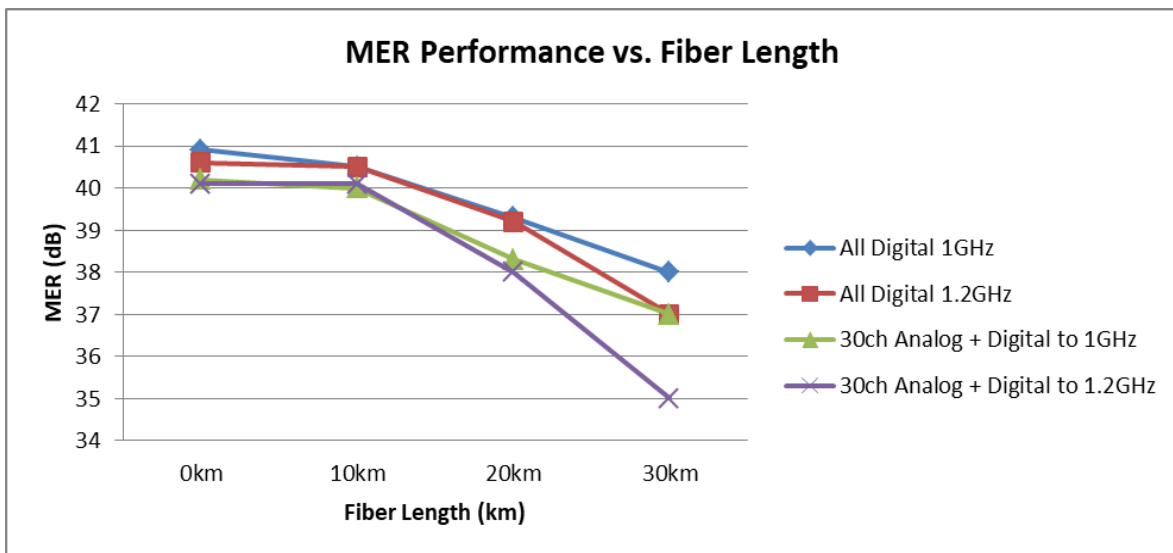
# Specifications

ACI		ACION 8000 Series A8KFT3U-1550nm 1.2 GHz Forward Optical Transmitter		
PARAMETERS	CONDITIONS	UNITS	SPECIFICATION	NOTES
<b>Optical Specification</b>				
Laser type			Cooled DFB LD with Isolator	
Optical Wavelength		nm	1526 - 1565	(1)
Optical Power		dBm	10	
Optical Power Tolerance		%	10	
Optical Connector Type			SC/APC (standard) FC/APC, E2000/APC (optional)	
<b>RF Parameter</b>				
Operating Bandwidth		MHz	50 - 1218	
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	BC & NC	dB	± 0.6	
AGC Input Capture Range	AGC Mode	dB	-3/+12	
OMI Drive Level Range	MGC Mode	dB	±3	
Test Point Level	50 to 1218 MHz	dB	-20 ± 0.5	(3)
Port-to-Port Isolation	NC to BC BC to NC	dB	45 15	
<b>Distortion Performance 30ch + 256QAM (261-831MHz) + 2x192MHz OFDM</b>				
Carrier to Noise Ratio (CNR)	Min.	dB	50	(4,5)
Composite Second Order (CSO)	Max.	dBc	-62	
Composite Triple Beat (CTB)	Max.	dBc	-65	
Cross-Modulation (XMOD)	Max.	dBc	-62	

PARAMETERS	CONDITIONS	UNITS	SPECIFICATION		NOTES
<b>MER/BER Performance</b>			<b>0 to 20km</b>	<b>21 to 30km</b>	
Modulation Error Rate (MER)	All Digital: 57 - 999MHz	dB	≥ 39	≥ 38	(5,6,7)
	All Digital: 57 - 1218MHz	dB	≥ 39	≥ 37	
	30ch analog + Digital 261-999MHz	dB	≥ 38	≥ 37	
	30ch analog + Digital 261-1218MHz	dB	≥ 38	≥ 35	
Bit Error Rate (BER)	Pre-FEC		≤ 10 <sup>-9</sup>	≤ 10 <sup>-9</sup>	(5,6)
<b>Environmental / Mechanical</b>					
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		

**Notes:**

- (1) DWDM ITU Standard ch15 to ch64, 1GHz 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.
- (5) Rx optical power = 0dBm, fiber length = 0 to 30km with fiber length setting from 0 to 30km with 1km increment.
- (6) Source MER ≥43dB.
- (7) See MER vs. Fiber Length Graph for MER performance at different fiber lengths.



# Ordering Matrix

## A8KFT3U-1550nm Configuration Sheet

Customer: \_\_\_\_\_

Created By: \_\_\_\_\_

### ORDERING MATRIX

February 11, 2022

Position		1	2	3	4	5	6	7	8	9	10	11	12
<b>PART NUMBER</b>	<b>A8KFT3U-1550</b>		<b>1</b>	<b>0</b>	<b>—</b>			<b>—</b>					

1

#### FIBER RANGE OPTION

A = Adjustable Fiber Range

2-3

#### OUTPUT POWER

10 = 10 dBm (standard)

5-6

#### CONNECTOR

SA = SC/APC with shutter (standard)

FA = FC/APC (option)

EA = E2000/APC (option)

8-9

#### CHANNEL NUMBER

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

10-11

#### FIBER DISTANCE

3A = For 0 to 30 km Adjustable Fiber Length Setting

12

#### RF Transmission Bandwidth

C = CATV Band ( 50~1218 MHz) only

### NOTES:



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

Rev F 02-11-22 Printed in U.S.A.  
ACI Communications, Inc. reserves the right to discontinue the manufacture or change specifications without prior notice on any parts illustrated in this data sheet. ACI and DSIM are registered trademarks and ASEM and ACION are trademarks of ACI. Other trademarks are the property of their respective owners, and ACI is in no way affiliated with these companies.