



## Overview

The A8KFR1 is an advanced Forward Optical Receiver designed for HFC network to convert the optical signal to RF signal for distribution, with high reliability, scalability, and cost-effectiveness. The A8KFR1 has wide range of operation bandwidth from 45 MHz to 770 MHz or 1 GHz and input optical power range from -5 dBm to 1 dBm.

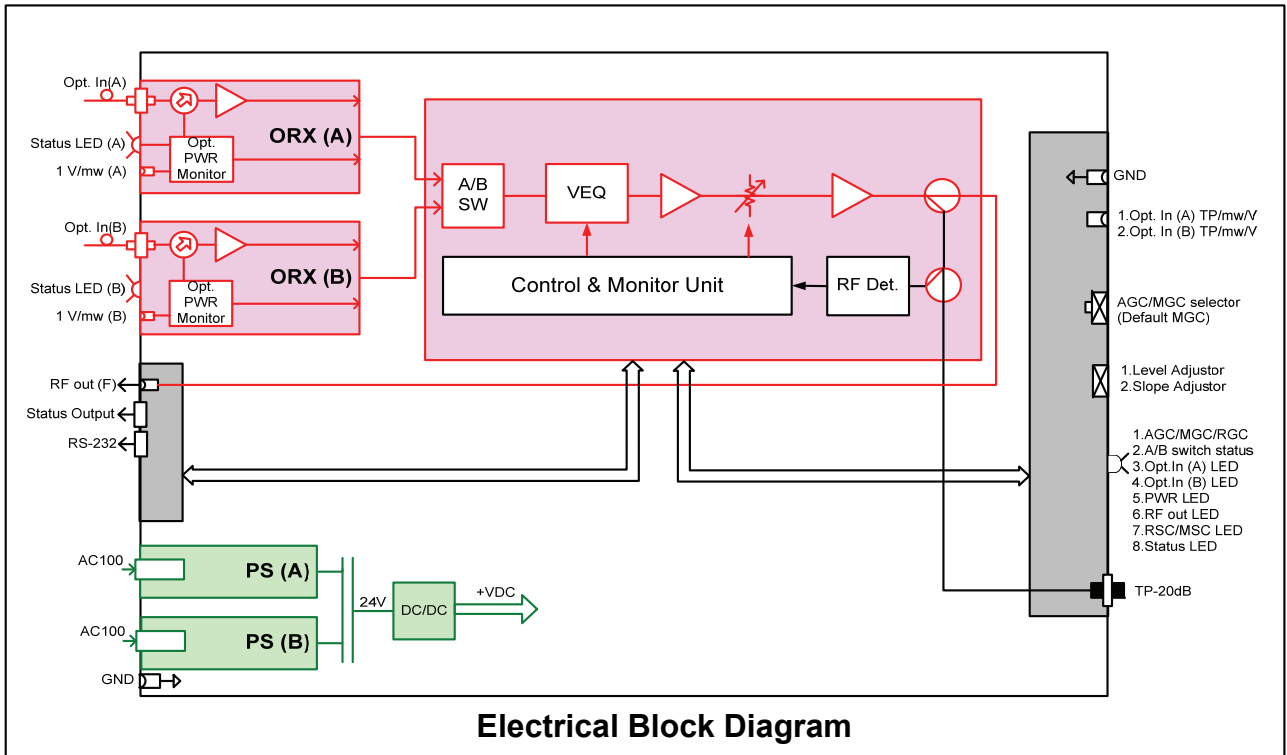
The power supply module can operate with redundancy when two power supplies are installed. Also, the optical receiver module can operate with redundancy when two optical receivers are installed. For the network management, the A8KFR1 supports the remote management by SNMP.

## Features

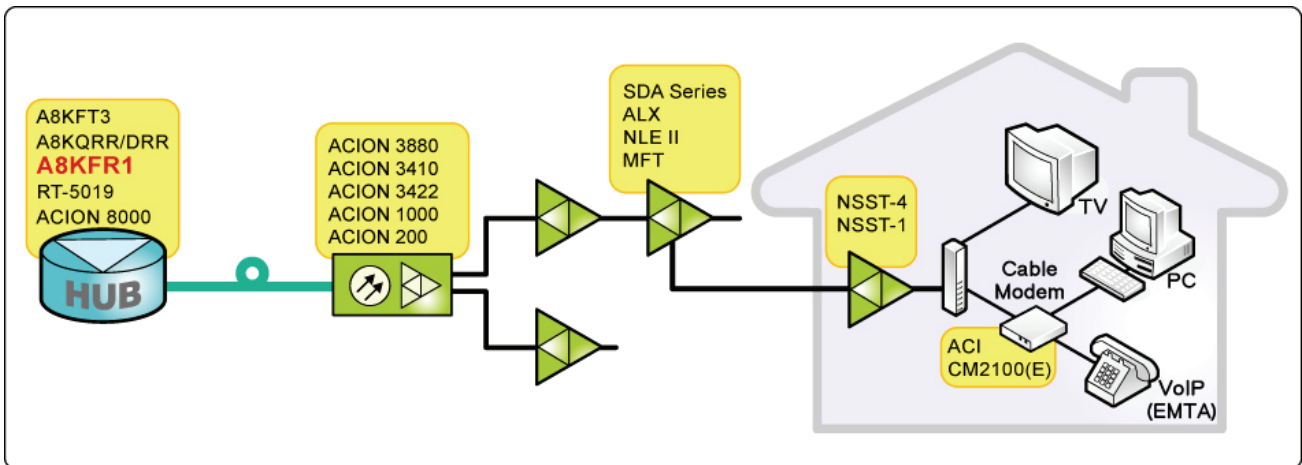
- Operation bandwidth 45 to 770 MHz or 1 GHz
- Supports 80 digital channels/10 analog channels or 110 analog channels loading performance
- -5 dBm to +1 dBm received input power range
- Located on the rear panel: rear mount RF ports, optical ports and alarm circuitry
- Located on the front panel: test-point, gain control, slope control, and LED for easy setup
- Occupies only 1RU (JIS/EIA) of vertical rack space
- Redundant forward receiver (optional)
- Redundant power supply (optional)
- Operation optical wavelength 1310 or 1550 nm optical input operation
- RS232 control interface
- Support Telnet or SNMP management by Ethernet



## Block Diagram



## Application



Specifications

ACI Communications, Inc.		A8KFR1 770 MHz		
PARAMETERS	CONDITIONS	UNITS	SPECIFICATION	NOTES
<b>Optical Parameters</b>				
Photodiode Type			1nIGaAs PIN	
Optical Wavelength		nm	1310 ± 20 or 1550 ± 20	
Connector Type			STD: SC-APC with shutter Option: SC-UPC, FC-APC or E2000/APC	
Input Optical Power		dBm	-5 ~ +1	
Optical Receiver Module	Max.		1 or 2	
<b>RF Parameters</b>				
Operating Bandwidth		MHz	45 to 770	
Connector Type			F type female	
RF Output Impedance		Ω	75	
RF Output Return Loss	Max.	dB	-16	
RF Output Level (MGC)		dBμV	97.5 ± 0.5	Note 1
RF Output Level (AGC)		dBμV	96 ± 0.5	Note 2
Flatness	45 to 770 MHz	dB	± 1	
Slope Adjust Range		dB	+2 ~ -2	
Gain Control Range	Min.	dB	20	
Test Point	Ref. to RF output power	dB	-20 ± 1	
AGC			Total Power or Pilot Power	
<b>Link Performance</b>				
<b>Channel Loading: Analog 10ch + Digital 80ch (For 1550nm Tx, Analog OMI: 7%, Digital OMI:</b>				
CNR	Optical Input: -5 dBm	dB	Analog 52 / Digital 42	
CSO	Optical Input: +1 dBm	dB	Analog -60 / Digital -53	
CTB	Optical Input: +1 dBm	dB	Analog -65 / Digital -56	
<b>Channel Loading: Analog 74ch (For 1550nm Tx, Analog 3.0%)</b>				
CNR	Optical Input: 0 dBm	dB	Analog 52.5	
CSO	Optical Input: 0 dBm	dB	Analog -60	
CTB	Optical Input: 0 dBm	dB	Analog -65	
<b>Channel Loading: Analog 74ch (For 1310nm Tx, Analog 3.6%)</b>				
CNR	Optical Input: -1 dBm	dB	Analog 52	
CSO	Optical Input: +1 dBm	dB	Analog -60	
CTB	Optical Input: +1 dBm	dB	Analog -67	

Specifications

ACI Communications, Inc.		A8KFR1 770 MHz		
PARAMETERS	CONDITIONS	UNITS	SPECIFICATION	NOTES
<b>Electrical / Environmental / Mechanical</b>				
Control Interface			RS232 / RJ45	
Test Point for Input Power	@1310nm @1550nm (optional)		1V = 1mW	
Power Supply	Max.		90 to 260 VAC, 50/60 Hz, 30W	
Power Supply Module	Max.		1 (standard) or 2 (optional)	
Operating Temperature		°C	0 to +50	
Storage Temperature		°C	-40 to +65	
Rack Mount Type			EIA / JIS 19" rack	
Operating Humidity	Max.	%	85	
Dimensions	W x H x D	mm	JIS: 480 x 49 x 357 EIA: 482.6 x 43.7 x 357	
Weight		kg	5	

Note:

1. Max@ 1550nm, OMI 3%, -2 dBm

2. Optical Input: -2 ~ +1dBm, 1550nm, OMI 3%; Optical Input: -5 ~ +1dBm, 1550nm, OMI 7%

ACI Communications, Inc.		A8KFR1 1002 MHz		
PARAMETERS	CONDITIONS	UNITS	SPECIFICATION	NOTES
<b>Optical Parameters</b>				
Photodiode Type			1nIGaAs PIN	
Optical Wavelength		nm	1310 ± 20 or 1550 ± 20	
Connector Type			STD: SC-APC with shutter Option: SC-UPC, FC-APC or E2000/APC	
Input Optical Power		dBm	-5 ~ +1	
Optical Receiver Module	Max.		2	
<b>RF Parameters</b>				
Operating Bandwidth		MHz	45 to 1002	
Connector Type			F type female	
RF Output Impedance		Ω	75	
RF Output Return Loss	Max.	dB	-16	
RF Output Level (MGC)		dBμV	37.0 ± 0.5	Note 1
RF Output Level (AGC)		dBμV	37.0 ± 0.5	Note 2
Flatness	45 to 1 GHz	dB	± 1	

## Specifications

ACI Communications, Inc.		A8KFR1 1002 MHz		
PARAMETERS	CONDITIONS	UNITS	SPECIFICATION	NOTES
<b>RF Parameters</b>				
Slope Adjust Range		dB	+2 ~ -2	
Gain Control Range	Min.	dB	20	
Test Point	Ref. to RF output power	dB	-20 ± 1	
<b>Link Performance</b>				
<b>Channel Loading: Analog 110ch (For 1310nm Tx, Analog OMI: 3.6%)</b>				
CNR	Optical Input: -1 dBm	dB	Analog 52	
CSO	Optical Input: +1 dBm	dB	Analog -61	
CTB	Optical Input: +1 dBm	dB	Analog -67	
<b>Electrical / Environmental / Mechanical</b>				
Control Interface			RS232 / RJ45	
Test Point for Input Power	@1310nm		1V = 1mW	
Power Supply	Max.		90 to 260 VAC, 50/60 Hz, 30W	
Power Supply Module	Max.		1 (standard) or 2 (optional)	
Operating Temperature		°C	0 to +50	
Storage Temperature		°C	-40 to +65	
Rack Mount Type			EIA / JIS 19" rack	
Operating Humidity	Max.	%	0 - 95	
Dimensions	W x H x D	mm	JIS: 480 x 49 x 357 EIA: 482.6 x 43.7 x 357	
Weight		kg	5	

Note:

1. Max@ 1550nm, OMI 3%, -2 dBm
2. Optical Input: -2 ~ +1dBm, 1310nm, OMI 3.6%

## Ordering Matrix

### A8KFR1 770 MHz / 1 G Configuration Sheet

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

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

#### ORDERING MATRIX

2011/6/22

Position		1	2	3	4	5	6
<b>PART NUMBER</b>	<b>A8KFR1</b>	—					

1

**Bandwidth**

- 0 = NA
- 1 = 45 — 770 MHz
- 2 = 45 MHz — 1002 MHz

6

**Housing Type**

- 0 = NA
- 1 = EIA Panel (4C)
- 2 = JIS Panel (3C)
- 3 = JIS Panel (4C)

2

**Optical Receiver & SNMP**

- 0 = NA
- 1 = 1OR, W/O SNMP
- 2 = 2OR, W/O SNMP
- 3 = 1OR, W SNMP
- 4 = 2OR, W SNMP

3

**Optical Connector Type**

- 0 = NA
- 1 = SC / APC

4

**Power Supply & Control Type**

- 0 = NA
- 1 = 1PS, Pilot AGC
- 2 = 2PS, Pilot AGC
- 3 = 1PS, Total Power AGC
- 4 = 2PS, Total Power AGC

5

**Power Cord Sets or Custom**

- 0 = None
- 1 = North America
- 2 = International / Europe
- 3 = Japan
- 4 = Australia
- 5 = Argentina
- X = Custom

#### NOTES:

ACI Communications, Inc. reserves the right to discontinue the manufacture or change the specifications without prior notice on any parts illustrated in the data sheet.

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**ACI Communications, Inc.**