

## Cisco Compact Dual Output EGC Amplifier A93270

The Cisco Compact Dual Output EGC Amplifier A93270 addresses the divergent needs of today's broadband networks. It is optimized for both trunk and distribution applications and provides superior reliability combined with a user-friendly layout.

The amplifier incorporates electronic gain control (EGC) technology and automatic gain control (AGC) technology, and has an extendable frequency range up to 1 GHz. Frequency range can be set to 862 MHz or 1 GHz. The tilt and gain for each port can be set separately with a handheld terminal or PC configuration kit, without using the traditional plug-ins.

The amplifier has two forward active output ports with high linearity. Reverse paths have 20 dB and 25 dB settings. The bandwidth for reverse paths is 120 MHz. Both forward and reverse gain has wide dynamic range and can be set in 0.5 dB step.

The amplifier power consumption can be reduced approximately 3 W per output if high output level isn't needed. Furthermore, output port 1 can be powered off if only one output is needed. This will reduce power consumption by approximately 10 W.

The amplifier supports ROSA<sup>®</sup> element management through the HMS and SMC transponder interface. A handheld terminal and PC configuration kit can also be used for local configuration.

**Figure 1.** Compact Dual Output EGC Amplifier A93270



## Features

- Unique power saving functionality
- Selectable 862 MHz or 1 GHz frequency range
- Two active forward output ports with 40 dB gain
- Electronically adjustable attenuators and equalizers
- 7 A current feed through all ports
- Plug-in horizontal diplex filter supporting different split frequencies
- 3-state switch for both reverse paths
- Thermal compensated forward and reverse paths
- Plug-In SMC/HMS transponder
- Plug-In AGC Module with auto alignment
- Configuration with either handheld terminal or PC configuration kit

Figure 2. Block Diagram

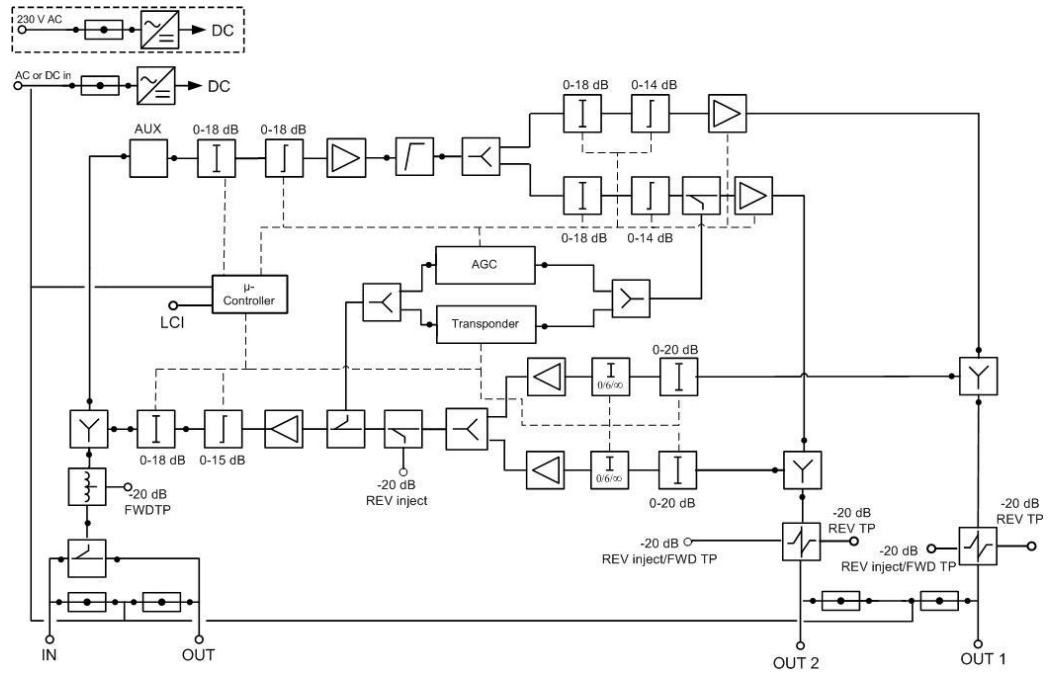
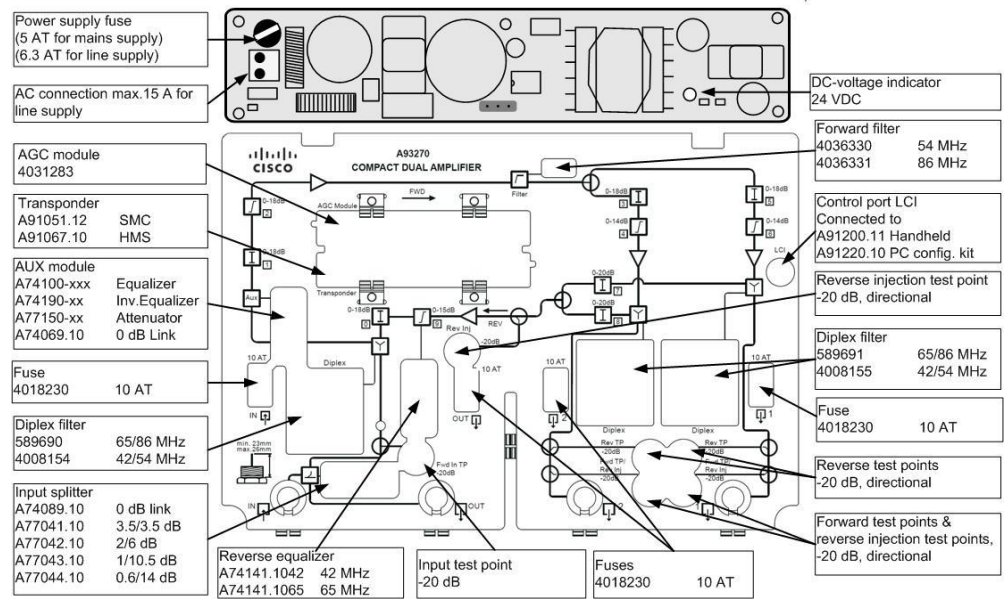


Figure 3. Overview



## Product Specifications

This section provides the product specifications. Unless otherwise specified, the specifications are tested with a 65/86 diplexer module installed.

**Table 1.** Forward Path Specifications

Item	Value	
<b>Forward</b>		
Frequency Range <sup>1</sup>	47-1002 MHz	
Number of RF Output Ports	2 active outputs	
Slope Variation	< 1.0 dB	
Bandwidth Selection	47-862 MHz/47-1002 MHz	
Gain	40 dB	
AGC Control Range <sup>2</sup>	±4 dB @ 36 dB nominal gain	
Maximum Operational Gain with AGC	36 dB	
Flatness	±0.75 dB ≤ 862 MHz ±1.0 dB ≤ 1002 MHz	
Input Attenuator, variable	0-18 dB, 0.5 dB step	
Input Equalizer, variable	0-18 dB, 0.5 dB step	
Signal Feed through loss	≤ 1.5 dB @ 47-862 MHz ≤ 2.0 dB @ 862-1002 MHz	
Return Loss	≥ 18 dB @ 40 MHz Reduce 1.5 dB/octave	
Test Point Return Loss	≥ 20 dB @ 40 MHz Reduce 1.5 dB/octave	
Input Test Point	-20 ±2.0 dB	
Transponder and AGC Receive Level Pick-off Loss <sup>3</sup>	40 ±0.75 dB	
Thermal Stability	±1.0 dB	
Distortion <sup>4</sup> CTB CSO	≥ 64 dB	
Noise Figure <sup>5</sup>	Without AGC 40 dB	With AGC 36 dB
	7.5 dB @ 47-862 MHz 8.0 dB @ 47-1002 MHz	8.5 dB @ 47-862 MHz 9.0 dB @ 47-1002 MHz
Group Delay	With 42/54 diplexer Δf = 3.58 MHz	With 65/86 diplexer Δf = 4.43 MHz
	≤ 40 nsec @ 55.25-58.83 MHz ≤ 30 nsec @ 61.25-64.83 MHz ≤ 20 nsec @ 67.25-70.83 MHz	≤ 5 nsec @ 112.25-116.68 MHz ≤ 5 @ nsec 119.25-123.68 MHz ≤ 5 @ nsec 126.25-130.68 MHz
Notes:		
1. Depending on diplexer.		
2. With an optional AGC plug-in module.		
3. With reference to output port 2.		
4. Output level 112 dBμV, with power saving mode OFF; Gain 40 dB; 6 dB Output equalizer. CENELEC 42 channel loading, EN50083-3, with jumpers at diplexer slot and high pass filter at 3-pin filter slot. With power saving mode ON, output level is 107 dBμV.		
5. With jumper.		

## Product Specifications

**Table 2.** Reverse Path Specifications

Item	Value	
<b>Reverse</b>		
Frequency Range <sup>1</sup>	5-120 MHz	
Gain	20/25 ±1 dB	
Slope Variation	< 0.5 dB	
Flatness	±0.75 dB	
Return Loss	> 18 dB @ 40 MHz Reduce 1.5 dB/octave	
Input Attenuator	0-20 dB, 0.5 dB step	
Output Attenuator	0-18 dB, 0.5 dB step	
Output Equalization	0-15 dB, 0.5 dB step	
Test Point Return Loss	≥ 20 dB @ 40 MHz Reduce 1.5 dB/octave	
Input Test Point	-20 ±0.5 dB	
Signal Injection Point	-20 ±0.75 dB	
Transponder Transmit Insertion Loss	-29 ±0.75 dB	
Noise Figure <sup>2</sup>	9.5 dB @ 5-65 MHz 11 dB @ 5-120 MHz	
3-state Switch	On, -6 dB, Off	
Thermal Stability	±0.75 dB	
Group Delay	With 42/54 diplexer Δf = 1.5 MHz	With 65/86 diplexer Δf = 1 MHz
	≤ 40 nsec @ 5-6.5 MHz ≤ 20 nsec @ 6.5-8 MHz ≤ 15 nsec @ 8-9.5 MHz ≤ 15 nsec @ 37.5-39 MHz ≤ 30 nsec @ 40.5-42 MHz	≤ 30 nsec @ 5-6 MHz ≤ 20 nsec @ 6-7 MHz ≤ 15 nsec @ 7-8 MHz ≤ 10 nsec @ 63-64 MHz ≤ 10 nsec @ 64-65 MHz
Distortion <sup>3</sup> @ 65 MHz		
IMD3	60 dB @ 118 dBμV	
IMD2	60 dB @ 116 dBμV	
Notes:		
1. Depending on diplexer.		
2. With jumper; full gain.		
3. With jumper; IMD3 according to DIN 45004B; IMD2 according to IEC 728-1; full gain.		

## Product Specifications

**Table 3.** Power Supply and General Specifications

Item	Value
<b>General Performance</b>	
Power Supply 65 V line powered 230 V mains powered	24-65 VAC 100-253 VAC
Power Consumption Additional Power Consumption Transponder AGC Module	≤ 39 W ≤ 1.0 W (average) ≤ 1.0 W (average)
Power Saving Power Saving On Single Output Mode	3 W (per output port) 10 W
Maximum AC Current Outputs	7 A
Maximum AC Current External Supply	15 A
Hum Modulation	≤ -65 dB @ 5-862 MHz ≤ -60 dB @ 862-1002 MHz
Transient Protection	6 kV 1.2/50 μs

**Table 4.** Current Consumption

Item	Value								
Supply Voltage rms	24 VAC	30 VAC	35 VAC	40 VAC	45 VAC	50 VAC	55 VAC	60 VAC	65 VAC
Line Power Current Consumption (Without Accessories)	2.31 A	1.87 A	1.54 A	1.50 A	1.27 A	1.16 A	1.08 A	1.00 A	0.95 A
Supply Voltage rms	24 VAC	30 VAC	35 VAC	40 VAC	45 VAC	50 VAC	55 VAC	60 VAC	65 VAC
Line Power Current Consumption (With Transponder)	2.38 A	1.89 A	1.60 A	1.45 A	1.29 A	1.19 A	1.09 A	1.01 A	0.96 A
Supply Voltage rms	24 VAC	30 VAC	35 VAC	40 VAC	45 VAC	50 VAC	55 VAC	60 VAC	65 VAC
Line Power Current Consumption (With AGC Module)	2.27 A	1.86 A	1.63 A	1.45 A	1.32 A	1.22 A	1.12 A	1.06 A	1.00 A

## Product Specifications

**Table 5.** Environmental, Mechanical and Compliance/Safety Specifications

Item	Value
<b>Environmental</b>	
Operating Temperature	-40 to +55 °C -40 to +131 °F
Storage Temperature	-40 to +85 °C -40 to +185 °F
Water/Dust Ingress Rating	IP67
<b>Mechanical</b>	
Housing Dimensions (H x W x D)	250 x 242 x 98 mm 9.8 x 9.5 x 3.9 in.
Weight	4.5 kg 9.9 lb
Connectors, Inputs and Outputs	PG11
Test Point Connectors	F-connector, Female
<b>Compliance/Safety</b>	
Electrical Safety	EN 50083-1, EN 60065, IEC 65
EMC Emissions	EN 50083-2
RoHS	Directive 2002/95/EC on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, O.J. (L 19)

## Ordering Information

Refer to the tables below for product ordering information.

**Table 6.** Ordering Information

Description	Part Number
Cisco Compact Dual Output EGC Amplifier, 65 V line powered, configured for 65/86 MHz	A93270.10340
Cisco Compact Dual Output EGC Amplifier, 230 V mains powered, configured for 65/86 MHz	A93270.10240

The following **Required Accessories** must be ordered separately.

**Table 7.** Required Accessories\*

Required Accessories	Part Number
Plug-in at input - 1 required, choose from below: <ul style="list-style-type: none"> <li>• 1 link 0 dB at input</li> <li>• 1 splitter 3.5/3.5 dB at input</li> <li>• 1 splitter 2/6 dB at input</li> <li>• 1 splitter 1/10.5 dB at input</li> <li>• 1 splitter 0.6/14 dB at input</li> </ul>	A74089.10 A77041.10 A77042.10 A77043.10 A77044.10
Plug-in at AUX - 1 required, choose from below: <ul style="list-style-type: none"> <li>• 1 link 0 dB</li> <li>• 1 attenuator 2, 4, 6, 8, 10, or 12 dB (xx=02, 04, 06, 08, 10, or 12)</li> <li>• 1 equalizer 450/606/750/862/1000 MHz Tilt 3, 6, 9, 12, 15 dB</li> <li>• 1 inverse equalizer 862 MHz, -3, -6, -9, or -12 dB (xx=03, 06, 09, or 12)</li> </ul>	A74069.10 A77150.100xx A74100.10xxx A74190.10xx
* For more information on the above accessories, see the "Compact Amplifier and Node Accessories" data sheet (P/N: 7013922).	

**Table 8.** Optional Accessories

Optional Accessories	Part Number on Module	Part Number for Ordering
Plug-in Diplex Filter - 3 required * <ul style="list-style-type: none"> <li>• 42/54 MHz split, left/right</li> <li>• 65/86 MHz split, left/right</li> </ul>		4008154/4008155 589690/589691
Plug-in Reverse Equalizer - 1 required, choose from below: * <ul style="list-style-type: none"> <li>• 42 MHz reverse band</li> <li>• 65 MHz reverse band</li> </ul>		A74141.1042 A74141.1065
Plug-in Forward Filter - 1 required, choose from below: * <ul style="list-style-type: none"> <li>• 54 MHz forward band</li> <li>• 86 MHz forward band</li> </ul>		4036330 4036331
Compact Transponder		A91051.12
HMS Transponder		A91067.10
Handheld Terminal		A91200.11
PC Configuration Kit (software and USB-cable)		A91220.10
AGC Module	4031283	4036170
Sleeve PG11 - 5/8" with O-ring *		744576
* Included in the part numbers listed in Table 6.		





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Part Number 7016981 Rev E  
February 2012