Cisco Compact Single Output EGC Amplifier A93280

The Cisco Compact Single Output EGC Amplifier A93280 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 can be set with a handheld terminal or PC configuration kit without using the traditional plug-ins.

The amplifier has one forward active output port with high linearity. Reverse path can be set from 20 dB to 28 dB with 0.5 dB step. The bandwidth for reverse path 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 2 W if high output level isn't needed. Furthermore, the interstage gain-block can be powered off if the forward gain of the amplifier is set to 32 dB to reduce power consumption.

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

Features

- Unique power saving functionality
- Selectable 862 MHz or 1 GHz frequency range
- One active forward output port with 40 dB or 32 dB gain
- Electronically adjustable attenuators and equalizers
- 8 A current feed through all ports
- Plug-in horizontal diplex filter supporting different split frequencies
- 3-state switch for reverse path
- 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 1. Compact Single Output EGC Amplifier A93280, 230 V mains powered

Figure 2. Compact Single Output EGC Amplifier A93280, 65 V line powered

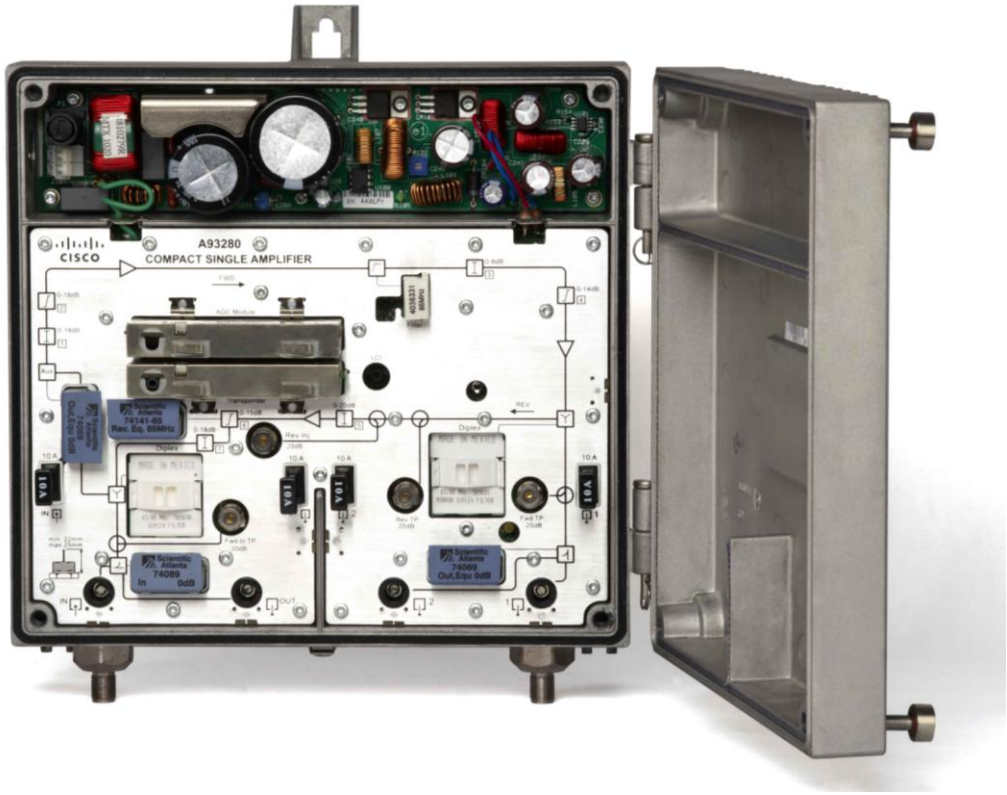


Figure 3. Block Diagram

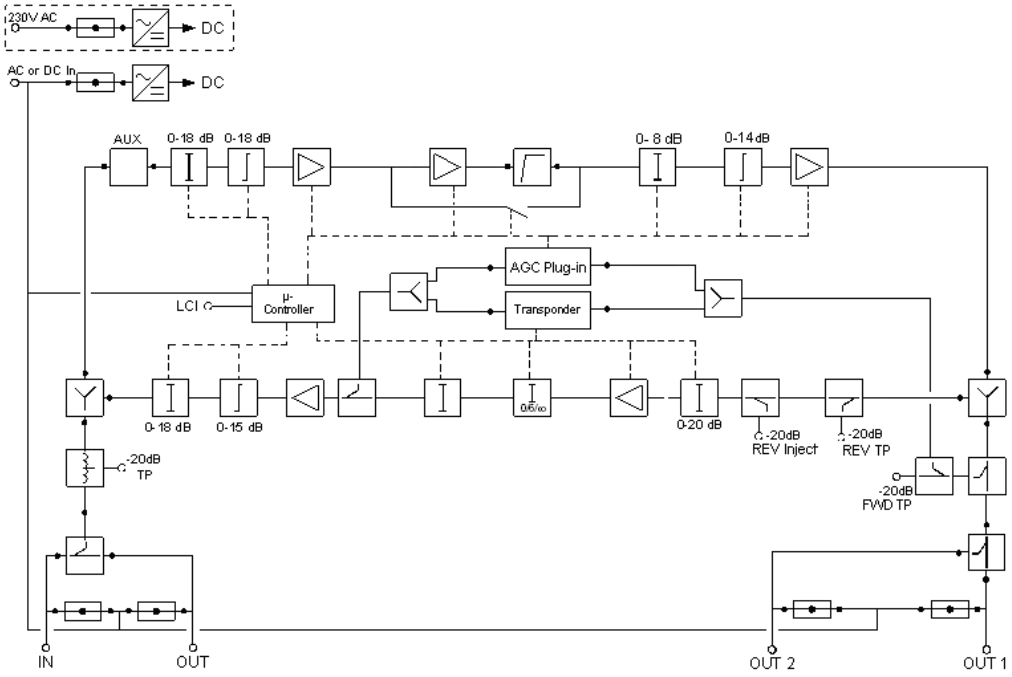
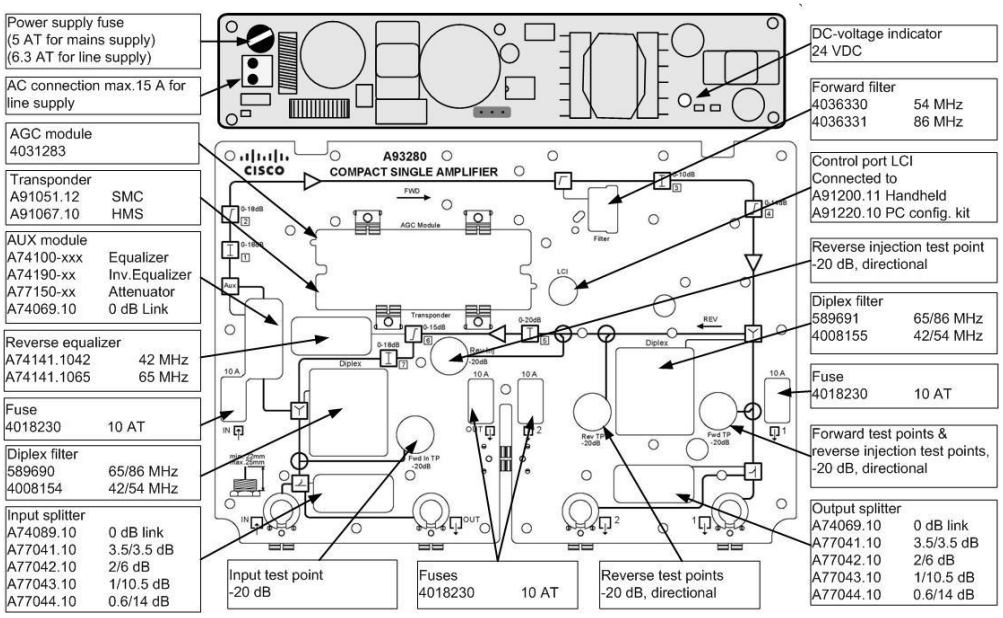


Figure 4. Overview



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	
Forward		
Frequency Range[1]	47-1002 MHz	
Number of RF Output Ports	2 (1 active output)	
Bandwidth Selection	47-862 MHz / 47-1002 MHz	
Gain	40 / 32 dB	
AGC Control Range[2]	±4 dB	
Gain with AGC	36 / 28 dB	
Flatness	With 65/86 MHz Diplexer	With jumper
	±0.75 dB (typical ±0.5) @ 95-862 MHz ±1.00 dB (typical ±0.75) @ 95-1002 MHz	±0.75 dB (typical ±0.5) @ 47-862 MHz ±1.00 dB (typical ±0.75) @ 47-1002 MHz
Input Attenuator, variable	0-18 dB, 0.5 dB step	
Input Equalizer, variable	0-18 dB, 0.5 dB step	
Output Attenuator	0-8 dB, 0.5 dB step (With AGC: 0-6, 0.5 dB step)	
Output Equalizer	0-14 dB, 0.5 dB step (With AGC: 0-6, 0.5 dB step)	
Signal Feed Through Insertion Loss	≤1.5 dB @ 47-862 MHz ≤ 2.0 dB @ 47-1002 MHz	
Signal Feed Through Return loss	≥ 18 dB @ 40 MHz Reduce 1.5 dB/octave	
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 ±1.5 dB	
Thermal Stability	±1.0 dB	
Distortion[4] CTB CSO	≥ 64 dB	
Noise Figure[5]	7.5 dB @ 47-862 MHz 8.0 dB @ 47-1002 MHz	
Group Delay	With 65/86 MHz diplexer Δf = 4.43 MHz	With 42/54 MHz diplexer Δf = 3.58 MHz
	≤ 5 nsec @ 112.25-116.68 MHz ≤ 5 @ nsec 119.25-123.68 MHz ≤ 5 @ nsec 126.25-130.68 MHz	≤ 60 nsec @ 55.25-58.83 MHz ≤ 20 nsec @ 61.25-64.83 MHz ≤ 10 nsec @ 67.25-70.83 MHz
Transponder and AGC Pick-off Point Loss[3]	-40 ±1 dB	
Transponder and AGC Receive Level Flatness[3]	±0.75 dB	

Notes:

1. Depending on diplexer.
2. With an optional AGC plug-in module.
3. With reference to output port.
4. Output level 112 dBµV, with power saving mode OFF; Gain 40 or 32 dB; 6 dB Output equalizer. CENELEC 42 channel loading, EN50083-3, with jumpers at diplexer slot and 3-pin filter slot. With power saving mode ON, output level is 107 dBµV
5. With jumpers at plug-in slots.

Product Specifications

Table 2. Reverse Path Specifications

Item	Value	
Reverse		
Frequency Range[1]	5-120 MHz	
Gain	20-28 dB, 0.5 dB step	
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 @ 5-65 MHz	
Input Test Point Accuracy	-20 ±0.5 dB @ 5-65 MHz	
Signal Injection Point	-20 ±0.75 dB	
Noise Figure	6.5 dB @ 5-65 MHz 6.5 dB @ 5-120 MHz	
3-state Switch	On, -6 dB, Off	
Thermal Stability	±0.75 dB	
Group Delay	With 65/86 MHz diplexer Δf = 1 MHz	With 42/54 MHz diplexer Δf = 1.5 MHz
	≤ 25 nsec @ 5-6 MHz ≤ 15 nsec @ 6-7 MHz ≤ 10 nsec @ 7-8 MHz ≤ 10 nsec @ 63-64 MHz ≤ 10 nsec @ 64-65 MHz	≤ 30 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
Distortion[3] @ 65 MHz IMD3 IMD2	 60 dB @ 117 dBμV 60 dB @ 116 dBμV	
Distortion[3] @ 120 MHz IMD3 IMD2	 60 dB @ 112 dBμV 60 dB @ 108 dBμV	
Transponder and AGC Injection Insertion Loss[2]	-30 ±1 dB	
Transponder and AGC Injection Flatness	±0.75 dB	

Notes:

1. Depending on diplexer.
2. With reference to the reverse input port; normalize at 28 dB gain setting.
3. With jumper; IMD3 according to DIN 45004B; IMD2 according to IEC 728-1.

Product Specifications

Table 3. Power Supply and General Specifications

Item	Value	
General Performance		
Power Supply 65 V line powered 230 V mains powered	24-65 VAC 100-240 VAC	
Power Consumption	Normal Mode	Power Saving Mode
	≤ 28.5 W @ high gain (40 dB-32.5 dB) ≤ 24 W @ low gain (≤ 32 dB)	≤ 25.5 W @ high gain (40 dB-32.5 dB) ≤ 21 W @ low gain (≤ 32 dB)
Additional Power Consumption Transponder AGC Module	≤ 2.0 W ≤ 1.0 W	
Power Saving Mode	3 W	
Maximum AC Current Outputs	8 A	
Maximum AC Current External Supply	15 A	
Hum Modulation	≤ -65 dB @ 5-862 MHz ≤ -60 dB @ 862-1002 MHz	
Surge Susceptibility	6 KV	
Note:		

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)	1.80 A	1.44 A	1.32 A	1.20 A	1.10 A	0.99 A	0.90 A	0.86 A	0.81 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)	1.86 A	1.53 A	1.35 A	1.20 A	1.11 A	1.02 A	0.93 A	0.90 A	0.84 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)	1.92 A	1.54 A	1.36 A	1.20 A	1.11 A	1.02 A	0.93 A	0.91 A	0.84 A

Product Specifications

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

Item	Value
Environmental	
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
Transient Protection	6 KV, 1.2/50 µs
Mechanical	
Housing Dimensions (H x W x D)	250 x 230 x 98 mm 9.8 x 9.1 x 3.9 in.
Weight	4.5 kg 9.9 lb
Connectors, Inputs and Outputs	PG11 or 5/8" (Sleeve PG11 - 5/8" with O-ring)
Test Point Connectors	F-connector, Female
Compliance/Safety	
Electrical Safety	EN 50083-1, EN 60065, IEC 60065
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

This section lists the product ordering information in tables.

Table 6. Ordering Information

Description	Part Number
Cisco Compact Single Output EGC Amplifier, 65 V line powered, configured for 65/86 MHz	A93280.10340
Cisco Compact Single Output EGC Amplifier, 230 V mains powered, configured for 65/86 MHz	A93280.10240

*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:	
• 1 link 0 dB at input	A74089.10
• 1 splitter 3.5/3.5 dB at input	A77041.10
• 1 splitter 2/6 dB at input	A77042.10
• 1 splitter 1/10.5 dB at input	A77043.10
• 1 splitter 0.6/14 dB at input	A77044.10
Plug-in at AUX — 1 required, choose from below:	
• 1 link 0 dB	A74069.10
• 1 attenuator 2, 4, 6, 8, 10, or 12 dB (xx=02, 04, 06, 08, 10, or 12)	A77150.100xx
• 1 equalizer 450/606/750/862/1000 MHz Tilt 3, 6, 9, 12, 15 dB	A74100.10xxx
• 1 inverse equalizer 862 MHz, –3, –6, –9, or –12 dB (xx=03, 06, 09, or 12)	A74190.10xx
Plug-in at output — 1 required, choose from below:	
• 1 link 0 dB at output	A74069.10
• 1 splitter 3.5/3.5 dB at output	A77041.10
• 1 splitter 2/6 dB at output	A77042.10
• 1 splitter 1/10.5 dB at output	A77043.10
• 1 splitter 0.6/14 dB at output	A77044.10
* 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 — 2 required * • 42/54 MHz split, left/right • 65/86 MHz split, left/right		 4008154/4008155 589690/589691
Plug-in Reverse Equalizer — 1 required, choose from below: * • 42 MHz reverse band • 65 MHz reverse band		 A74141.1042 A74141.1065
Plug-in Forward Filter — 1 required, choose from below: • 54 MHz forward band • 86 MHz forward band		 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
* Plug-in Diplex Filter and Plug-in Reverse Equalizer are included in the part numbers listed in Table 6.		

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