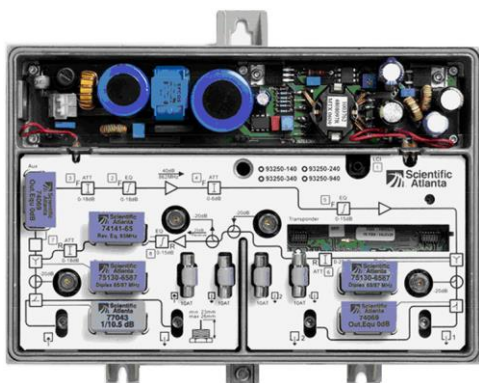


Cisco Compact EGC Amplifier Model 93250-93251

Description

The Cisco® Compact Electronic Gain Control (EGC) Amplifier Model 93250-93251 combines powerful performance with ease of use to meet operators' growing demands for advanced products. It provides advanced features to help reduce operating costs by streamlining amplifier deployment and configuration, and it is especially well suited for network upgrades because it provides increased reverse gain.

Figure 1. Cisco Compact EGC Amplifier Model 93250-93251



The amplifier (Figure 1) performs to 1 GHz in the forward path, and it can be configured electronically, using a handheld programmer terminal, for rapid initial setup or for adjustments that are needed as network requirements shift. All settings can be done without interrupting service, an especially important capability in networks that deliver voice over IP (VoIP) services. Settings for this EGC amplifier can be established or modified using a handheld programmer terminal. To streamline configuration, settings from one amplifier can be uploaded to the handheld programmer terminal for downloading to other amplifiers. Different forward-gain settings can be obtained in the amplifier, allowing it to support several different applications within the network, so a single amplifier model can help reduce inventory and costs.

The number of amplifier plug-ins is reduced to a minimum to help operators keep inventory and costs down. The full-range electronic attenuators and equalizers offer improved versatility and make it possible to achieve the same adjustment range as with conventional plug-in or potentiometer solutions. Plug-in diplex filters are used to determine the forward and reverse band split.

To meet future demands for more bandwidth, the amplifier offers an electronic 862 MHz to 1 GHz field-programmable bandwidth extension, as well as a reverse path that can be upgraded to 200 MHz.

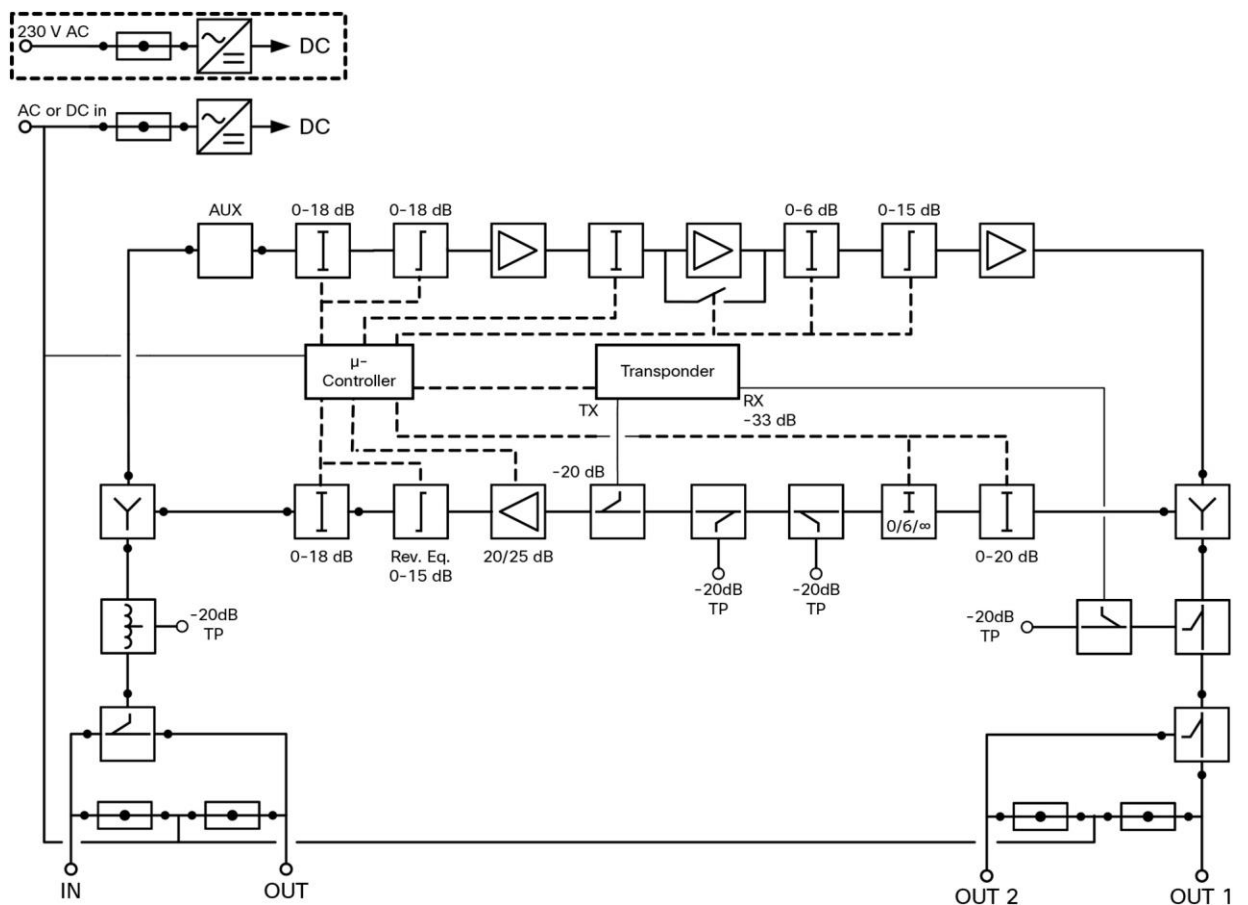
The Cisco Compact EGC Amplifier Model 93250-93251 can be configured with a Cisco status-monitoring transponder (meeting EuroDOCSIS and DOCSIS standards) to provide remote monitoring of critical amplifier parameters and remote control of the built-in three-state reverse switch. All amplifier settings are remotely addressable using a web GUI or Simple Network Management Protocol (SNMP) to help reduce truck rolls and associated costs.

Features

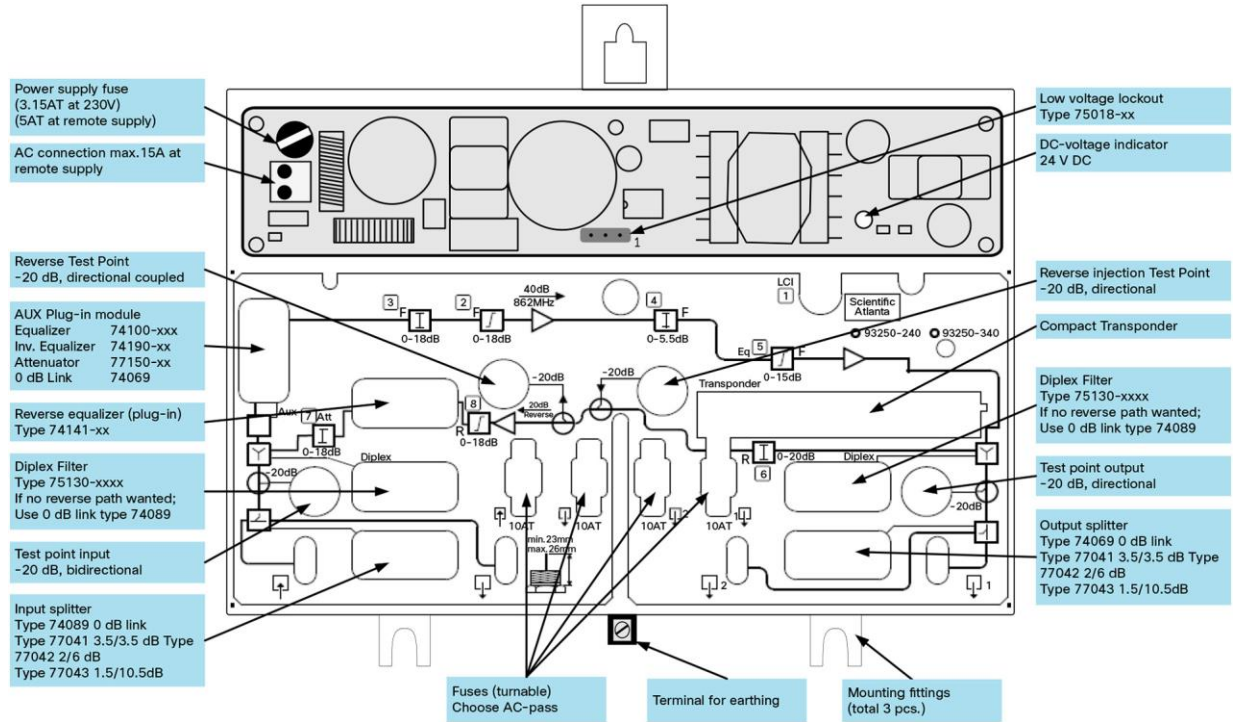
- Gallium arsenide field-effect transistor (GaAsFET) gain block technology for improved distortion and noise performance
- 8A power passing
- Improved output level and flatness
- 6 kV surge protection
- Plug-in, self-contained duplex filters for easy upgrade of reverse path bandwidth
- Easy plug-in mounting of transponder (no change of lid nor use of test points for cable connection)
- Optional status monitoring and control
- Integrated three-state reverse switch (on/-6 dB/off) allows the reverse input to be isolated for noise and ingress troubleshooting
- Compact EuroDOCSIS/DOCSIS transponder supported

Figure 2. Block Diagram and Overview

Block Diagram



Overview



Specifications

Table 1 provides product specifications for the Cisco Compact EGC Amplifier Model 93250-93251.

Table 1. Product Specifications

Forward	Units	Description		Notes
Frequency range	MHz	47 to 862	47 to 1000	1
Gain	dB	Selectable 28, 34, 40		
Flatness	dB	± 0.50	± 0.75	2
Input attenuator	dB	0 to 18 in 0.5 dB step		
Input equalizer	dB	0 to 18 in 0.5 dB step		
Interstage attenuator	dB	0 to 6 in 0.5 dB step		
Interstage pre-equalizer	dB	0 to 15 in 0.5 dB step		
Input test point	dB	-20 ± 1.5		
Output test point	dB	-20 ± 0.50	-20 ± 0.75	
Number of outputs	-	1 or 2		3
Return loss	dB			
• Input, output port		> 18		2, 4
• Input, output test point		> 20		
Noise figure	dB	7.0		5
Signal feed through loss	dB	≤ 1.0		
Output Level @ 42 ch CENELEC				
• Composite triple beat (CTB) ≥60 dB	dBμV	114		6, 7
• Composite second order (CSO) ≥60 dB		114		

Reverse	Units	Description		Notes
Frequency range	MHz	5 to 65	5 to 200	1
Gain	dB	Selectable 20, 25		
Flatness	dB	± 0.5	± 0.75	
Input attenuators	dB	0 to 20 in 0.5 dB step		
Output attenuators	dB	0 to 18 in 0.5 dB step		
Output equalizer	dB	0 to 15 in 0.5 dB step		
Test point	dB	-20 ± 0.5		
Signal injection point	dB	-20 ± 0.5		
Return loss at test point	dB	> 20 @ 5 to 10 MHz > 23 @ 10 to 200 MHz		4
Return loss at input and output	dB	> 18		4, 8
Output level				
• IMD3 ≥ 60 dB	dBμV	117	111	
• IMD2 ≥ 60 dB		112	107	
Three-state reverse switch, EM controlled	-	On/-6 dB/off		
Noise figure	dB	≤ 7.5	≤ 8.0	

* Unless otherwise noted, all data given are for the amplifier with standard configuration for 1 output.

General Performance	Units	Description		Notes
Transponder receive level attenuation	dB	-33 ± 0.75		
Transponder transmit insertion loss	dB	-20 ± 0.75		
Surge protection	kV, μs	6, 1.2/50		9
Enclosure category	-	IP 66		
Emission, EN 50083-2	dBpW	< 20		
Screening	dB	> 85		
Connectors, inputs, and outputs (reduction)	-	PG 11 (5/8 in.)		
Test point	-	F-connector, female		
Electrical				
65V coaxial line powering (rms, sine)	VAC	24 to 65		
230V mains line powering (rms, sine)	VAC	187 to 250		
Power consumption, network powered	W	25.5 with built-in reverse amp 27.5 with plug-in transponder		
Current draw	A AC	See table		10
Maximum current, inputs and outputs	A AC	8		
Maximum current, local input	A AC	15		
Hum modulation	dB	≤ -65		
Compliance and Safety				
Electrical safety	-	EN 50083-1 EN 60065 IEC 65		
EMC emissions	-	EN 50083-2		
Environmental				
Operating temperature range	°C	-20 to 55		
	°F	-4 to 131		

General Performance	Units	Description	Notes
Mechanical			
Housing dimensions model 93250 (W x H x D)	mm in.	230 x 190 x 120 9.1 x 7.5 x 4.7	
Housing dimensions model 93251 (W x H x D)	mm in.	230 x 155 x 95 9.1 x 6.1 x 3.7	
Packaging dimensions model 93250 (W x H x D)	mm in.	270 x 285 x 130 10.6 x 11.2 x 5.1	
Packaging dimensions model 93251 (W x H x D)	mm in.	270 x 285 x 100 10.6 x 11.2 x 3.8	
Weight model 93250	kg lb	3.0 6.6	
Weight model 93251	kg lb	2.7 6.0	

Notes:

1. Frequency range depends on plug-in diplex filters and amplifier settings
2. With diplex filters
3. Two outputs that can be activated by using splitter or directional coupler
4. At 40 MHz red, 1.5 dB/octave
5. Maximum gain, no equalization
6. With 6 dB interstage EQ
7. Change in CTB, CSO, and noise figure with different interstage attenuation, relative to 0 dB

40 dB	CTB	CSO	Noise Figure
2 dB	1	2	0.1
4 dB	2	2	0.2
6 dB	2	2	0.3
34 dB	CTB	CSO	Noise Figure
2 dB	2	1	0.1
4 dB	3	1	0.2
6 dB	4	1	0.3
28 dB	CTB	CSO	Noise Figure
2 dB	1	1	0.2
4 dB	3	1	0.6
6 dB	4	1	1.0

8. Start from 7 MHz
9. According to IEC60 on input and output with diplex filters
10. AC current draw is tested with 50-meter coaxial cable

AC Input Voltage (V)	24	30	35	40	45	50	55	60	65
AC Current Draw (A)									
Without transponder	1.24	1.00	0.87	0.78	0.71	0.65	0.60	0.57	0.54
With transponder	1.29	1.04	0.90	0.79	0.73	0.66	0.62	0.58	0.56

Ordering Information

To place an order, visit the [Cisco Ordering Home Page](#), and use the information provided in Table 2.

Table 2. Ordering Information for the Cisco Compact EGC Amplifier Model 93250-93251

Unconfigured Amplifier	Part Number
Cisco Compact EGC Amplifier, 862MHz/1GHz, 28/40dB, 230V Electronic adjustable Att & Eq, PG11 at input/output, Plug-in Xpdr	A93250.10240
Cisco Compact EGC Amplifier, 862MHz/1GHz, 28/40dB, 230V Electronic adjustable Att & Eq, PG11 at input/output, Plug-in Xpdr	A93250.10340
Cisco Compact EGC Amplifier, 862MHz/1GHz, 28/40dB, 230V, Electronic adjustable Att & Eq, PG11 at input/output, Plug-in Xpdr	A93251.10240
Cisco Compact EGC Amplifier, 862MHz/1GHz, 28/40dB, 65V, Electronic adjustable Att & Eq, PG11 at input/output, Plug-in Xpdr	A93251.10340

Preconfigured Amplifier	Part Number
Cisco Compact EGC Amplifier, 862MHz/1GHz, 28/40dB, 230V; Elec adj Att & Eq, PG11 at in/out, Plug-in Xpdr; Configured for 65MHz rev;0dB IN;0dB OUT;0dB AUX	A93250.1024065
Cisco Compact EGC Amplifier, 862MHz/1GHz, 28/40dB, 65V; Elec adj Att & Eq, PG11 at in/out, Plug-in Xpdr; Configured for 65MHz rev;0dB IN;0dB OUT;0dB AUX	A93250.1034065
Cisco Compact EGC Amplifier, 862MHz/1GHz, 28/40dB, 230V; Elec adj Att & Eq, PG11 at in/out, Plug-in Xpdr; Configured for 65MHz rev;0dB IN;0dB OUT;0dB AUX	A93251.1024065
Cisco Compact EGC Amplifier, 862MHz/1GHz, 28/40dB, 65V; Elec adj Att & Eq, PG11 at in/out, Plug-in Xpdr; Configured for 65MHz rev;0dB IN;0dB OUT;0dB AUX	A93251.1034065

The following required accessories must be ordered separately.

Required Accessories	Part Number
Plug-in Diplex Filter: 2 required, choose from the following options: <ul style="list-style-type: none"> • 30/47 MHz split • 42/54 MHz split • 65/87 MHz split • 85/105 MHz split 	A75130.103047 A75130.104254 A75130.106587 A75130.1085105
Plug-in Reverse Equalizer: 1 required, choose from the following options: <ul style="list-style-type: none"> • 30 MHz reverse band • 42 MHz reverse band • 65 MHz reverse band • 85 MHz reverse band 	A74141.1030 A74141.1042 A74141.1065 A74141.1085
Plug-in at input: 1 required, choose from the following options: <ul style="list-style-type: none"> • 1 link 0 dB at input • 1 splitter 3.5/3.5 dB at input • 1 splitter 2/6 at input • 1 splitter 1/10.5 dB at input • 1 splitter 0.6/14 dB at input 	A74089.10 A77041.10 A77042.10 A77043.10 A77044.10
Plug-in at AUX: 1 required, choose from the following options: <ul style="list-style-type: none"> • 1 link 0 dB • 1 attenuator 2, 4, 6, 8, 10 or 12 dB (xx=02, 04, 06, 08, 10 or 12) • 1 equalizer/862 MHz Tilt 3, 6, 9, 12, 15 dB • 1 inverse equalizer 862 MHz -3, -6, -9 or -12 dB (xx=03, 06, 09 or 12) 	A74069.10 A77150.100xx A74100.10xxx A74190.10xx

Required Accessories	Part Number
Plug-in at output: 1 required, choose from the following options: <ul style="list-style-type: none"> • 1 link 0 dB at output • 1 splitter 3.5/3.5 dB at output • 1 splitter 2/6 at output • 1 splitter 1/10.5 dB at output • 1 splitter 0.6/14 dB at output 	A74069.10 A77041.10 A77042.10 A77043.10 A77044.10
For more information on these accessories, see the Cisco Compact Amplifier and Node Accessories (P/N: A541441) data sheet http://www.cisco.com/en/US/prod/collateral/video/ps8806/ps8918/ps8921/product_data_sheet0900aecd806c5ba9.pdf .	

* Please note that the required accessories are only relevant for unconfigured amplifiers.

The following optional accessories for Cisco Compact EGC Amplifier Model 93250-93251 amplifiers may be ordered separately.

Optional Accessories	Part Number
Voltage Lock-Out Module, 24 or 35V*	A75018.00xx
Plug-in Compact EuroDOCSIS/DOCSIS Transponder	4038498
For additional information on status-monitoring transponders, see the Cisco Compact Transponder (P/N: 7006287). http://www.cisco.com/en/US/prod/collateral/video/ps8806/ps9048/ps9066/7021141_a.pdf .	
* The 35V lock-out module is standard with all 90V power supplies.	

For More Information

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