

Broadband Access Products

Compact Amplifier 93221

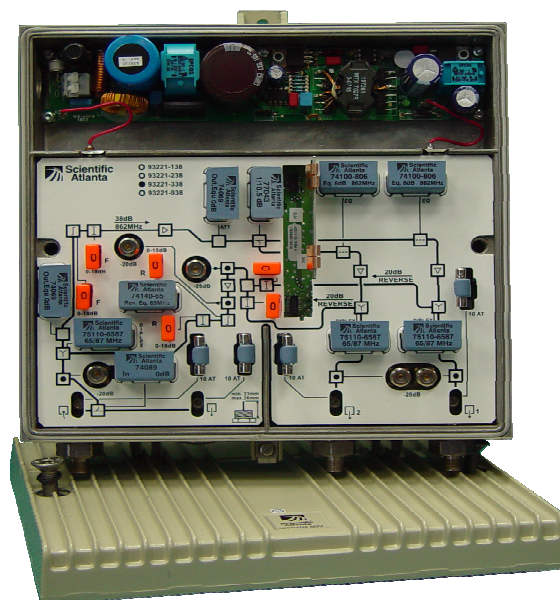
Description

The 862 MHz Compact Amplifier Platform includes a variety of RF amplifiers that address the divergent needs of today's broadband networks. All Compact amplifiers are optimized for both trunk and distribution applications and provide superior reliability combined with a user-friendly layout. All share common plug-in accessories. The amplifiers modular design means that today's upgrade will not limit tomorrow's options.

Lower Your Cost of Spares

All Compact amplifiers can be configured with diplex filters, forward interstage pads and interstage equalizer, to ensure optimal performance. The reverse amplifier is an integral part of all Compact amplifiers and enables a reverse bandwidth of more than 65 MHz. All amplifiers within this series utilize the orange plug-in 3-pin attenuator pads. These pads provide maximum user friendliness and make it very easy to replace the amplifier, in case of failure, as the pads are simply moved to the new amplifier, so there is no need for manual and complex adjustment procedures. And since all amplifiers within this series use the same pads for both attenuation and

input tilt, operators will be able to lower their cost of spares. The extra AUX plug-in socket means that it is possible to insert cable correctors, inverse equalizers and attenuation pads at the input. The plug-in splitters at both input and output make it possible to configure the amplifier to the network and as such eliminate the need for expensive external power passing passives.



Element Management

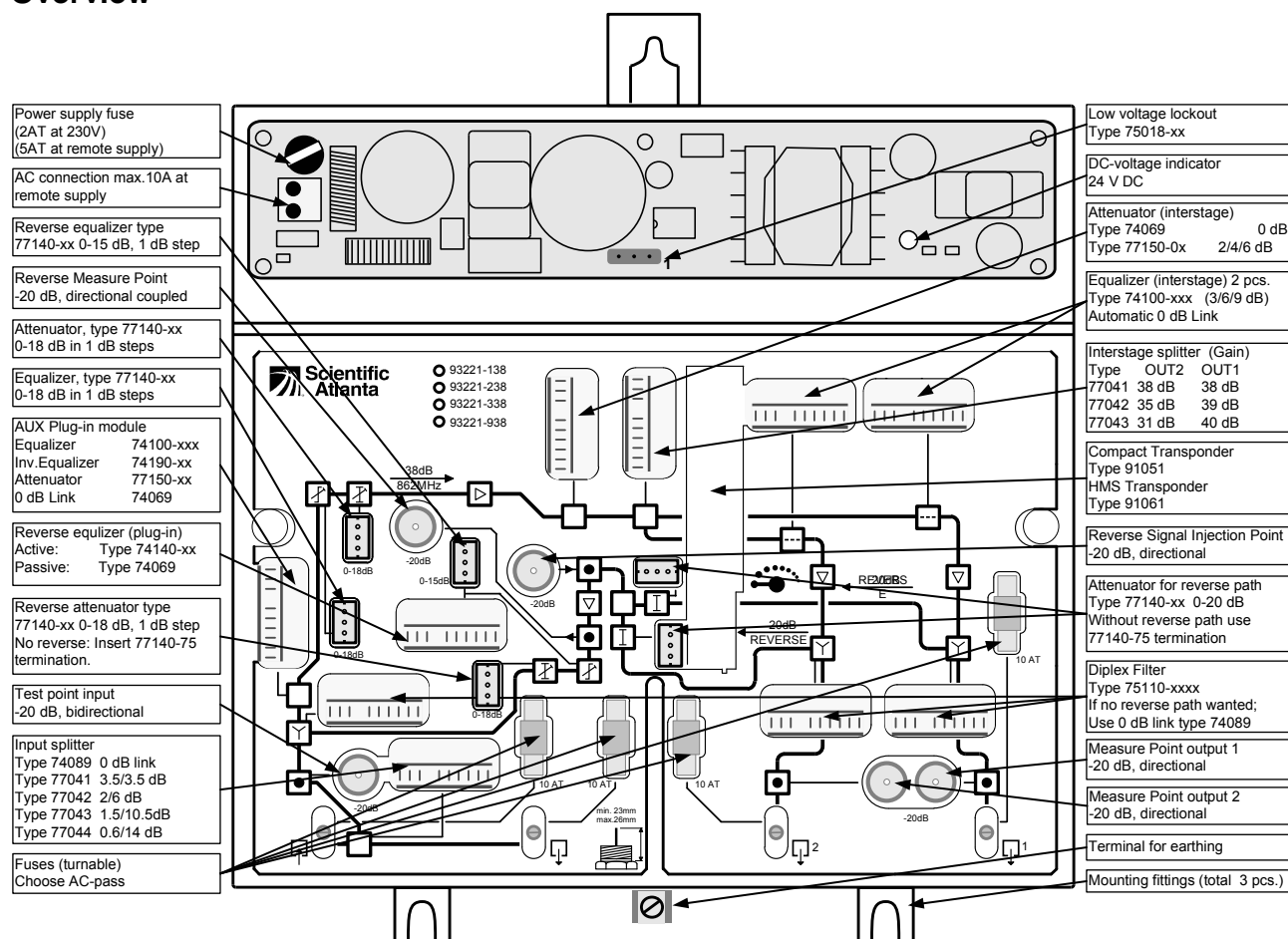
All amplifiers can be configured with a Scientific-Atlanta status monitoring transponder (proprietary or HMS) to enable remote monitoring of critical amplifier parameters and remote control of the built-in 3-state reverse switch. By switching to detection mode (-6 dB), it can be observed from which part of the network the ingress derives. Once a failure has been located, the defective network segment may be isolated until the failure has been eliminated and the remaining part of the reverse path is ensured normal traffic. All amplifiers are fully integrated in Scientific Atlanta's Element Management and Network Management Systems.

Features

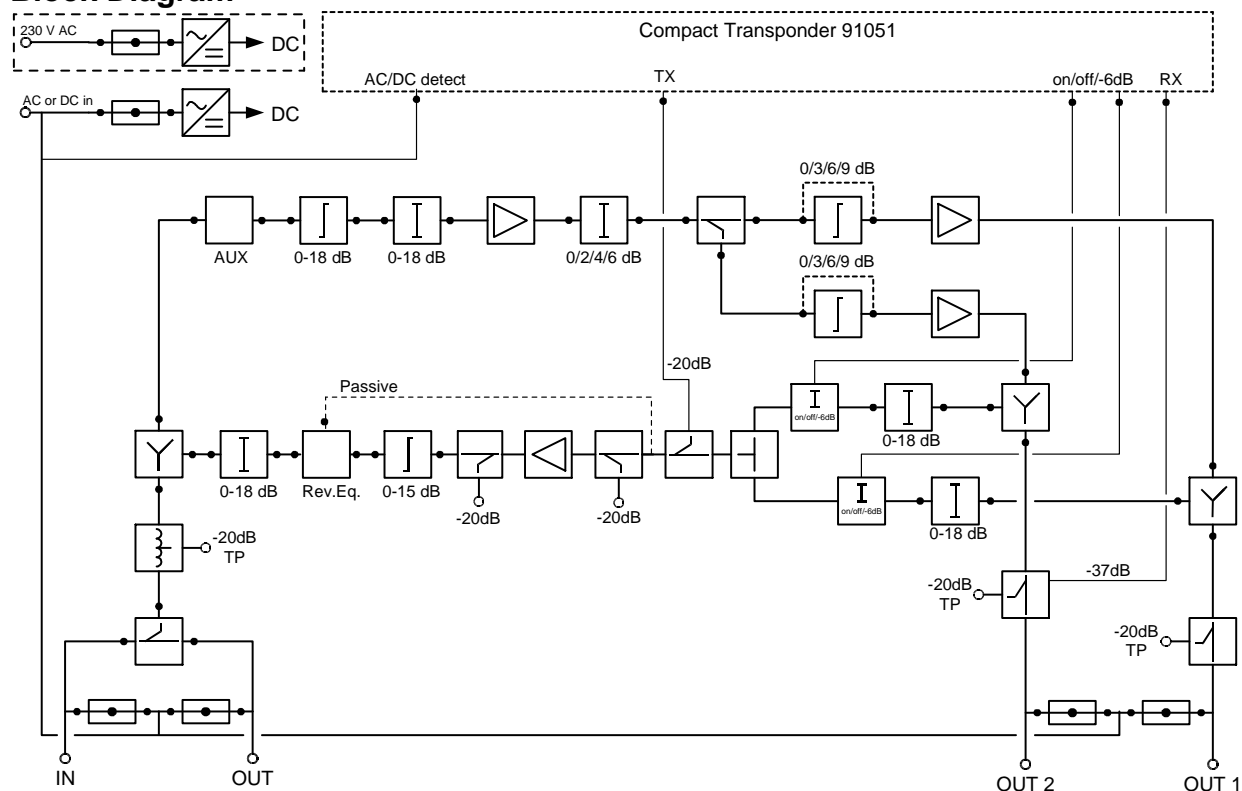
- GaAsFET gain block technology for improved distortion and lower noise figure
- Plug-in diplex filters for easy upgrade of reverse path bandwidth
- Easy plug-in mounting of transponder (no change of lid nor use of test points for cable connection)
- Optional status monitoring and control
- Integrated 3-state reverse switch (on/-6 dB/off) allows each reverse input to be isolated for noise and ingress
- Supports the Compact HMS transponder

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Overview



Block Diagram



Compact Amplifier 93221

Specifications

Forward Performance	Units	93221	Notes
Frequency range	MHz	40 to 862	
Gain, interstage splitter 77041	dB	2 x 38	1
Gain, interstage splitter 77042	dB	39/35	2
Gain, interstage splitter 77043	dB	40/31	3
Flatness	dB	± 0.75	
Attenuator, plug-in, at input, 1 dB step	dB	0 to 18	
Equalizer, plug-in, at input, 1 dB step	dB	0 to 18	
Attenuator, plug-in, interstage	dB	0/2/4/6	
Pre-equalizer, interstage	–	2 x (0/3/6/9)	
Input aux. socket	–	Plug in	
Test point, input, bi-directional	dB	-20 ± 1.5	
Test point, output, directional	dB	-20 ± 0.5	
Input signal loop-through	–	Plug-in	
Input loop-through attenuation	dB	≤ 0.75	
Return loss	dB	20	4
Noise figure, max. gain, flat output	dB	≤ 6.5	
Output level			
IMD3 ≥ 60 dB, EN 50083-5, 3.2	dBμV	2 x 125.0	
IMD2 ≥ 60 dB, EN 50083-3, 4.2.2	dBμV	2 x 118.0	
CTB ≥ 60 dB, EN 50083-3, 4.2.3	dBμV	2 x 112.0	5
CSO ≥ 60 dB, EN 50083-3, 4.2.4	dBμV	2 x 112.0	5
Reverse Performance			
Frequency range	MHz	5 to 65	
Gain, interstage splitter 77041	dB	20	6
Gain, interstage splitter 77042	dB	20	6
Gain, interstage splitter 77043	dB	20	6
Flatness	dB	± 0.5	
Passive reverse loss, with 74069	dB	≤ -7.5	
Attenuator, plug-in, at output, 1 dB step	dB	0 to 18	
Equalizer, plug-in, at output, 1 dB step	dB	0 to 15	
Test point, input and output	dB	-20 ± 0.5	7
Signal injection point, reverse	dB	-20 ± 0.5	
Return loss	dB	20	
3-state Reverse Switch, EM controlled	dB	2 x On/-6/Off	
Noise figure, max. gain, flat output	dB	≤ 13.0	
Output level			
IMD3 ≥ 60 dB, EN 50083-5, 3.2	dBμV	118.0	
IMD2 ≥ 60 dB, EN 50083-3, 4.2.2	dBμV	112.0	

Notes

1. With 3.5/3.5 dB internal splitter
2. With 2/6 dB internal splitter
3. With 1/10.5 dB internal splitter
4. At 40 MHz red. 1.5 dB/octave, with link 74809 at the input and link 74609 at the output
5. With 6 dB pre-equalizer
6. Include plug-in EQ, Variation due to unit differences
7. Directional Couple. Active with plug-in EQ

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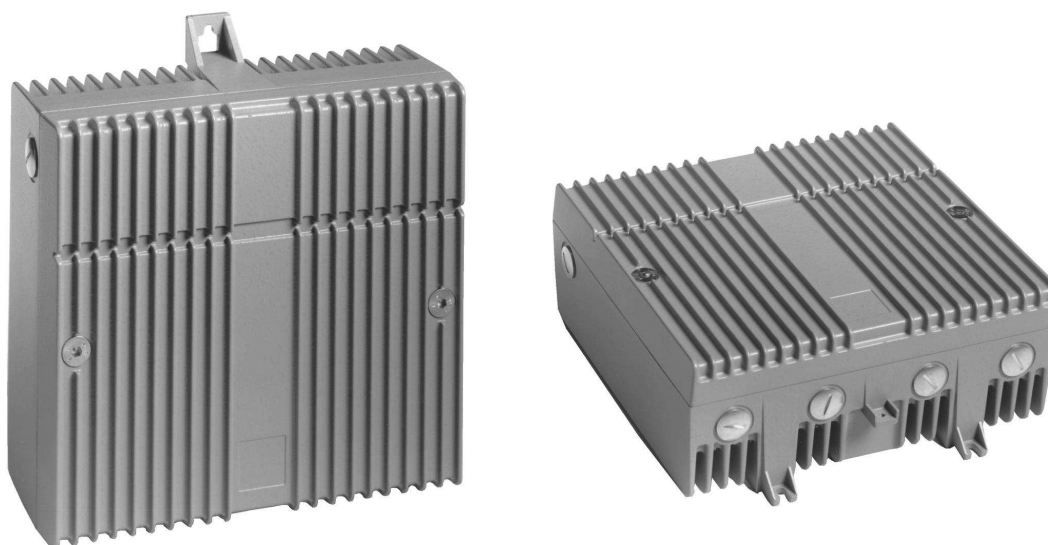
Specifications, continued

General Performance	Unit	93221	Notes
Power supply			
65 V coax line powering, rms, sine	V AC	24 to 65	8
230 V mains line powering, rms, sine	V AC	187 to 250	
Power consumption, remote powered	W	35.0 (38.0)	9
Power consumption, mains powered	W	33.0 (36.0)	9
Max. current inputs and outputs	A AC	7	
Max. current, power insertion	A AC	10	10
Hum Modulation at max. current, EN 50083-3	dB	< -65	
Transient protection	kV, μ s/ μ s	2, 1.2 / 50	
Enclosure category	–	IP 66	
Emission, EN 50083-2	dBpW	< 20	
Screening, EN 50083-2	dB	< 85	
Connectors			
– input and outputs (reduction)	–	PG 11 (5/8")	
– Test points		Female F-connector	
Environmental			
Operating temperature	°C °F	-20 to +55 -4 to 131	
Mechanical			
Housing Dimensions, W x H x D:	mm in.	230 x 220 x 95 9.1 x 8.7 x 3.7	
Packaging Dimensions, H x W x D	mm in.	330 x 290 x 110 13.0 x 11.4 x 4.3	
Material	–	Die-cast aluminium	
Weight	kg lbs	< 4.4 < 9.7	

Notes:

8. A DC voltage supply is possible, 35 to 90 V DC
9. (...) with 3 dB compact transponder's power consumption
10. external supply, remote powered type only

Housing

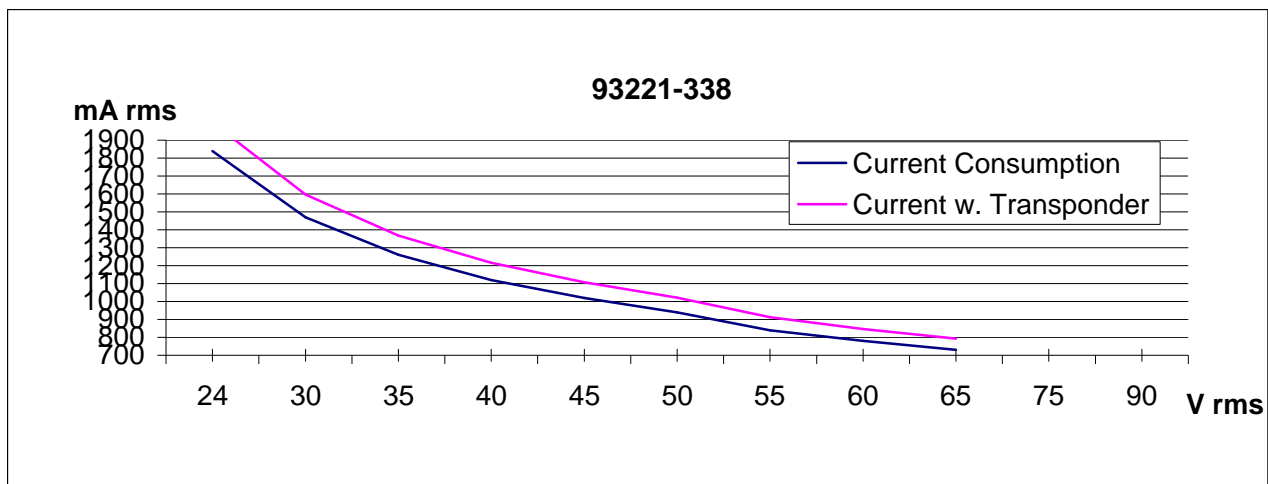


Note: Port thread: PG 11 Extra reduction rings for 5/8" thread are included in the delivery.

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Coax Line Powering

Below charts show current consumption at different input voltages for amplifiers with remote power supplies (coax line powering).



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Ordering Information

Amplifiers, single and dual	Part Number
93221 Compact Amplifier, 862 MHz, 230 V Mains powered	A93221.10238
93221 Compact Amplifier, 862 MHz, 65 V Remote powered	A93221.10338
93221 Compact Amplifier, 862 MHz, 65 V Remote powered IEC	A93221.14338
To select the requested power supply, please replace the x in the amplifier part number with the required figure 2, 3 or 9 from the power supply number (stated below).	
Power Supply 230 V mains powered	A932x1.xx2xx
Power Supply 24-65 V coax line powered	A932x1.xx3xx
Power Supply 35-90 V coax line powered, refer to separate data sheet	A932x1.xx9xx
Please note that some combinations are available on request only.	

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

Required Accessories	Part Number
Plug-in Pads (attenuators) - available in 1.0 dB steps from 0 to 20 dB <ul style="list-style-type: none"> 2 required for forward att + eq 2 required for reverse att + eq 2 required for reverse input 	A77140.00xx A77140.00xx A77140.00xx
Plug-in Diplex Filter <ul style="list-style-type: none"> 3 required, xx/yy MHz split 	A75110.10xxyy
Plug-in at input - 1 required, choose from below: <ul style="list-style-type: none"> 1 link 0 dB at input 1 splitter x/y dB at input 	A74089.10 A7704x.10
Plug-in at Interstage - 1 required, choose from below: <ul style="list-style-type: none"> 1 link 0 dB 1 attenuator x dB 	A74069.10 A77150.100x
Plug-in Splitter at Interstage <ul style="list-style-type: none"> 1 required x/y dB 	A7704x.10
Plug-in Equalizer at Interstage <ul style="list-style-type: none"> 2 required x dB 	A74100.10xxx
Plug-in Reverse Equalizer <ul style="list-style-type: none"> 1 required xx MHz reverse band (passive reverse) 	A74140.10xx A74069.10

The following **Optional Accessories** for amplifiers 93221 may be ordered separately:

Optional Accessories	Part Number
Plug-in Compact Transponder	A91051.11
Plug-in HMS Transponder	A91061.10
Voltage Lock-Out Module, 24 or 35 V *	A75018.00xx
For additional information on the status monitoring transponders, see the "Compact Transponder" (P/N: A541381) and "Compact HMS Transponder" (P/N: A541440) data Sheet(s).	
*The 35 V Lock-Out Module is standard with all 90 V Power Supplies.	

