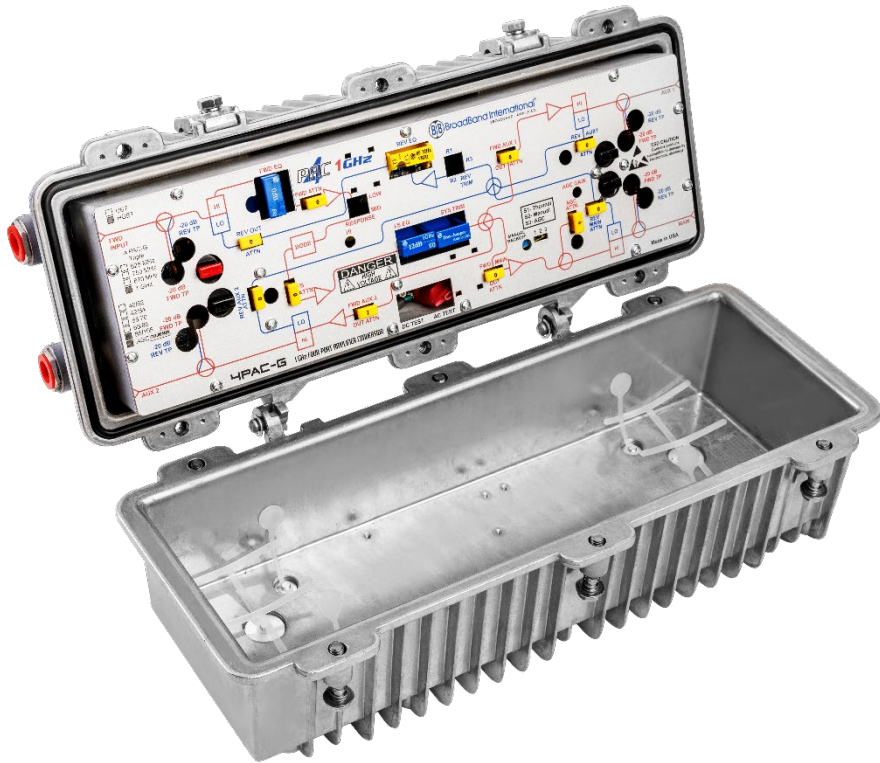


1 GHz System Amplifiers 4PAC-G HGD (High Gain Dual)

Replaces/Upgrades Cisco®/Scientific Atlanta®
550/625/750/870/1000 MHz Systems



The 4PAC-G HGD enhanced system amplifier module from Broadband International® is designed to drop into any existing SA II, III or GainMaker® system amplifier housing. The forward bandwidth is up to 1 GHz and may be optimized for any bandwidth from 550 to 1 GHz. This is accomplished by alignment of the interstage response network and by the type of cable equalizers utilized. Performance may be optimized by the choice of hybrids to achieve different operating gains.

The amplifier accepts any standard GainMaker® style equalizer and long JXP style pads. The unit can be ordered with a high efficiency power supply that is built into the back of the amplifier or will accept the standard power plug from any existing GainMaker® power pack. The use of plug-in hybrids makes this system amplifier easier to service than the OEM models now offered utilizing surface-mounted gain blocks.

Features:

- Specified bandwidth performance from 550 MHz up to 1 GHz
- Utilizes GainMaker® plug-in equalizers and JXP style pads
- Multiple options for return path bandwidth
- GaAs plug-in hybrid technology
- Plug-in diplex filter for future reverse split changes
- Surge Protection Crowbar included
- Three QAM AGC frequencies available at 423, 609 and 711 MHz
- Five Analog AGC frequencies available at 427.25, 445.25, 499.25, 527.25 and 547.25 MHz
- New BBI housing available with Chromate Conversion coating



Numerous analog and QAM automatic gain controls modules (AGC) are available to meet your current and future system requirements.

4PAC-G HGD Amplifier Conversion Performance to 1 GHz				
Pass Band	MHz	105-1002	5 - 85	
Frequency Response (Flatness)	dB	+/- 0.75	+/- 0.5	
Return Loss	dB	16	16	
Noise Figure	dB	8	8	
Full Gain	dB	45	20	
Operating Gain with AGC-4 dB back off	dB	41	20	
Bode Control Range	dB	+/- 4	N/A	
AC Hum Mod @ 12 Amperes	dBc	<-60	<-60	
AC Hum Mod @ 15 Amperes	dBc	<-60	<-60	
Reference Analog Output Level (1002/109 MHz)	dBmV	50/36.3	35-40	
Output Slope (typical)	dB	13.7	0	
Hybrid Technology	dB	GaAs	Si PP	
Test Points	dB	20 +/- 1 dB)	20 +/- 1 dB)	
Noise and Distortion Performance		Units	Forward	Reverse
Composite Triple Beat-(Analog 109-550/256 QAM 558-1002 MHz)		dB	79	82
Cross-Modulation		dB	74	71
Composite Second Order		dB	80	81
Carrier to Intermodulation Noise (CIN)		dB	65	N/A
Amplifier Delay Characteristics				
Forward Chrominance to Luminance Delay ns/3.58 MHz		Reverse Group Delay 1.5 MHz		
Frequency (MHz)	Delay (ns)	Frequency (MHz)	Delay (ns)	
109.25 to 112.83	15	5.0 to 6.5	65	
115.25 to 118.83	8	6.5 to 8.0	24	
121.25 to 124.83	5	8.0 to 9.5	12	
		80.5 to 82	11	
		82 to 83.5	13	
		83.5 to 85	21	
Powering Data		Units		
DC Voltage		VDC	24	
DC Power Consumption- Manual		A	1.54	
DC Power Consumption- with AGC		A	1.60	
AC Input voltage range		VAC	38-90	

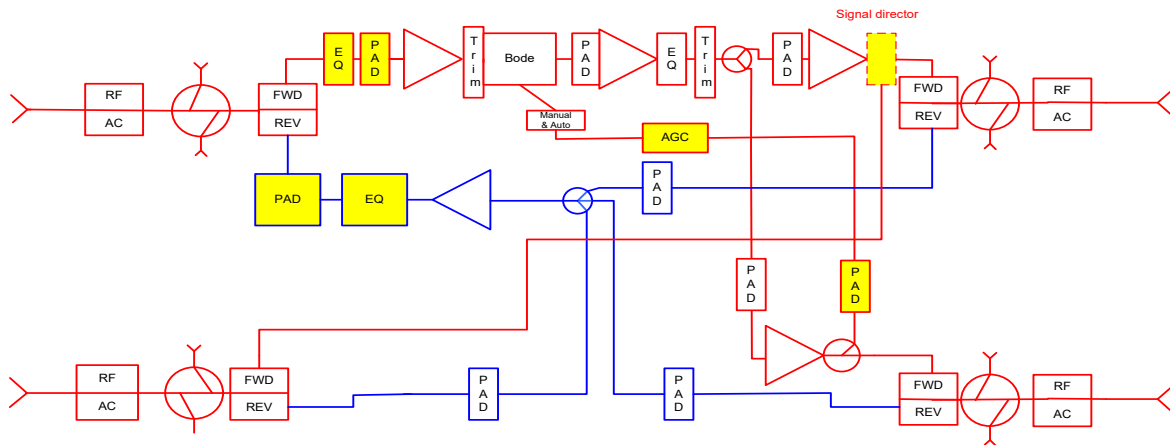
All measurements at +68 degrees F – Specification subject to change without notice

Powering Data (continued)

4PAC-G HGD	With BBI Internal PS		AC Voltage										
	IDC		90	85	80	75	70	65	60	55	50	45	40
Thermal	1.54	AC current draw	0.75	0.76	0.81	0.83	0.89	0.93	1	1.09	1.18	1.32	1.45
AGC	1.60	AC current draw	0.77	0.78	0.83	0.85	0.91	0.96	1.03	1.12	1.21	1.36	1.49

4PAC-G HGD Diagram and Ordering Information

The following Required Accessories highlighted in yellow must be ordered separately (all other pads and equalizers are provided)



The Broadband International 4PAC-G amplifier can be configured in many different frequencies and options. Please consult your account representative for assistance with specific plug-in options.

Required Accessories	Part Number
Plug-in Pads (attenuators): Available in 0 dB steps from 0 to 25 dB	589xxx
- 1 Pad required for forward input	
- 1 Pad required for reverse output	
- 1 Pad required for AGC, (if applicable)	
*To determine AGC pad value, subtract 29 dB from the design value main port RF output level at the AGC pilot FQ	
Forward Cable Equalizer: Available in 1.5 dB steps from 0 to 30 dB	2011xx
- 1 Forward Equalizer required for forward input	
Reverse Cable Equalizer: Available in 1 dB steps from 0 to 12 dB at 85 MHz	2068xx
- 1 Reverse Equalizer required for reverse output	
1 GHz - Plug-in Signal Director for Ports 3 and 4 output: 1 required,	
AUX Port Single Jumper (activates 1 port on either side of the module)	589281
2-way Splitter	589357
8 dB Directional Coupler	589363
12 dB Directional Coupler	589367