HEA40-1220

1.22 GHz Headend Amplifier

Model	Bandwidth
HEA40-1220/42	5-42 MHz / 54-1220 MHz
HEA40-1220/85	5-85 MHz / 105-1220 MHz

CE

FEATURES

- 1.22 GHz forward bandwidth,
- GaAs/GaN Power Doubler Hybrid for high output levels with low distortions,
- Active push-pull reverse path with separate output, field selectable active/passive operation,
- Rack mount - 1 EIA (1.75”) spacing, rugged aluminum chassis
- Surge protection at all ports,
- UL and CE listed power transformers.

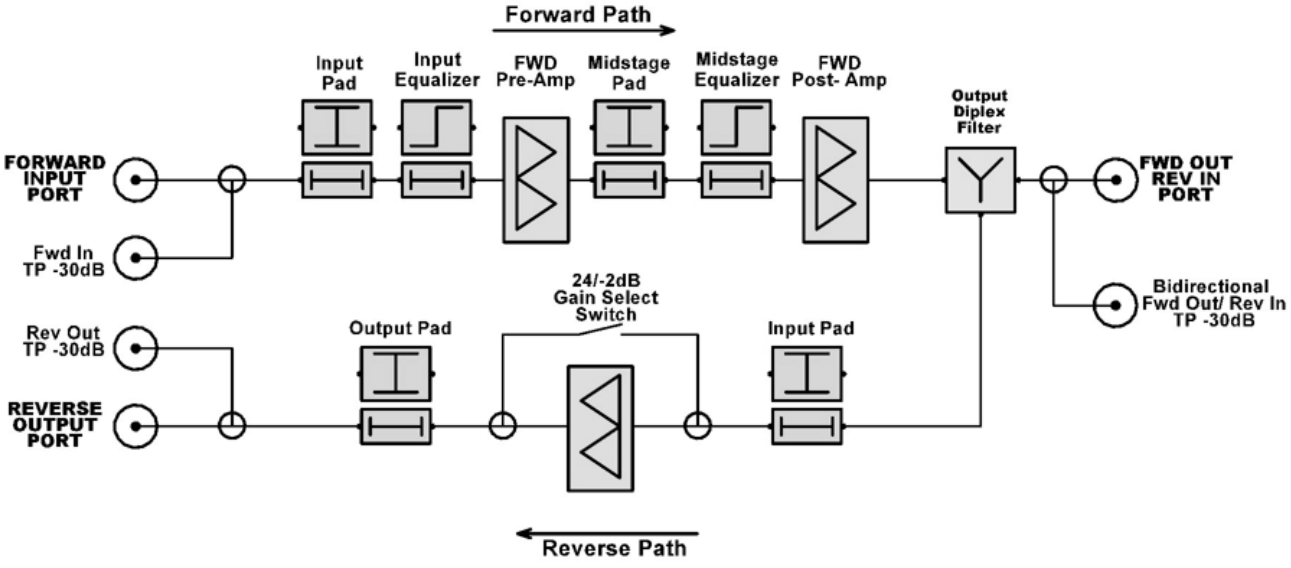


Figure 1 – Block Diagram

INSTALLATION NOTES:

1. Unpack the amplifier.
2. Mount the amplifier in the desired location in the rack. Please leave 1U rack space below and above the amplifier for proper ventilation.
3. Connect the input and output cables to the amplifier.
4. This product is shipped with default 0 dB pads for all plug-in attenuators (ATT) and equalizers (EQ).
5. We offer a Pad and EQ kit for our amplifiers, PAD-EQ KIT which includes a selection of Pads and equalizers.
6. Before applying power to the amplifier make sure that the forward input level to the amplifier does not exceed

   20 dBmV, otherwise damage to the amplifier might occur. To be on the safe side, you should select the input attenuator (ATT) according to input power level before powering the amplifier. Forward input attenuator pad (FWD IN PAD) is located at the rear panel.
7. Ground connection is provided at the rear panel to ensure proper grounding to the amplifier.
8. For most amplifiers the desired input level is typically 3 dB above the noise figure. For the HEA40-1220 the noise figure is 6 dB, so the ideal input level is 9 dBmV. When set properly and with 40 dB of gain the output level would be 49 dBmV. The spec sheet states maximum output level of 55 dBmV so then this would equate to an input level of 15 dBmV that would provide an output level at full gain of 55 dBmV while maintaining the specified distortions.

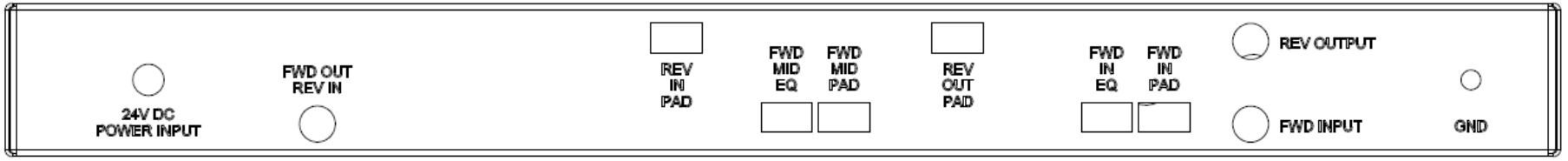
   NOTE: it is recommended that an amplifier is set so that the maximum output level is 1 to 2 dB below it rated maximum output for the best performance.
9. Please use the power adapter supplied with the amplifier, plug the power line cord into a 115VAC/60Hz power source.
10. After applying power to the amplifier measure the amplifier forward output level at the 30 dB output test point. If it is very low, adjust it by installing appropriate plug-in attenuator pads (ATT) as the forward input and mid-stage attenuators (FWD IN PAD and FWD MID PAD) to reach the desired output level. Remember that the level measured at the test point is 30 dB lower than the real signal level.
11. Install plug-in equalizer pads (EQ) to activate the forward input equalizer (FWD IN EQ) and forward mid-stage equalizer (FWD MID EQ) located at the rear panel. This will adjust the output level to be flat across the bandwidth.
12. Reverse Amplifier setup, follow our recommendation for the forward amplifier set up when you are setting up the reverse amplifier keeping in mind the maximum Reverse output level is 52 dBmV
13. Reverse amplifier is controlled by «REV AMP ON/OFF» switch located at the front panel. Reverse output level can be adjusted by installing appropriate valued plug-in attenuator pads (ATT) as the reverse input and output attenuators (REV IN PAD and REV OUT PAD) located at the rear panel.

SPECIFICATIONS

Parameter	Notes	Forward		Reverse		Units
Bandwidth		54 - 1220	105 - 1220	5 - 42	5 - 85	MHz
Technology		GaAs/GaN Power Doubler Hybrid		GaAs Phemt, Push Pull		
Gain		40	40	24 / -2 Switchable	24 / -2 Switchable	dB
Return Loss		16		16		dB
Test Points, Frw IN/Rev OUT	bidirectional	-30 +/- 1.5		-30 +/- 1.5		dB
Test Points, Frw OUT/Rev IN	bidirectional	-30 +/- 1.5		-30 +/- 1.5		dB
Input Gain	JXP plug-in (1)	0 to 20dB in 1dB steps		0 to 18dB in 2dB steps		
Second Stage Gain	JXP plug-in (1)	0 to 14dB in 1dB steps		0 to 18dB in 2dB steps		
Input Slope	JXP EQ plug-in (2)	0 to 18dB in 1dB steps		N/A		
Second Stage Slope	JXP EQ plug-in (2)	0 to 12dB in 1dB steps		N/A		
Forward Distortions:	55 dBmV output level (NTSC 79 analog channels)					
CTB		-70		N/A		dBc
CSO		-82		N/A		dBc
MER		40		N/A		dB
Cross Modulation (XMOD)		-63		-58		dBc
Reverse Distortions:	52dBmV flat output, 2-ch according to ANSI/SCTE 115 2006					
DTO on 7MHz		N/A		-68		dBc
DSO on 6MHz		N/A		-65		dBc
Noise Figure	with 0 dB jumpers	6		6		dB
MAX RF Input Level (per channel, w/o using fixed input attenuator)	20 dBmV @ 74 analog channels, 75 SC-QAM-256 digital channels, -6dB offset relative to the analog carrier.					dBmV
Input/Output Connections		F Type				
Hum Modulation		-70				dBc
Surge Withstand	IEEE C62.41 Cat. A3 (6KV, 200A)					
Power Consumption		19				Watt
Power Requirement		Wall Power Transformer, Input = 90-240VAC, 50-60Hz, 1A				
Operating Temperature Range		-4 to +130				degF
Weight		4.85 / 2.2				lbs / kgs
Dimensions (L x W x H)		19 x 9 x 1.75				inch

1. Universal 1'' JXP style pads. 0dB jumper pads are factory default.
2. Universal 1'' JXP plug-in equalizer. 0dB jumper pads are factory default.

Front Panel



Rear Panel