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RF Electronics

GainStar™ Line Extender 862 MHz with 42/54 MHz Split

Description

The GainStar™ Line Extender (LE) amplifier is designed as a two-way 862 MHz line extender for use in CATV distribution systems. The GaAsFET technology and surface mount component design provide superior performance and reliability. The GainStar LE's modular plug-in design allows it to be easily configured for specific network needs. The frequency split, tilt, and output level can all be adjusted with simple plug-in components.

The GainStar LE housing is environmentally sealed and electrically shielded available for using in both indoor and outdoor applications.

Features

- 862 MHz bandwidth with advanced GaAsFET dual hybrids for low power dissipation, improved distortion and lower noise figure
- 48 dBmV maximum output
- Easy selection of split bandwidth in forward/reverse path
- Optional plug-in Thermal Interstage Control Module for level control
- Interstage trim to improve overall frequency response specification
- Multiple attenuator values available for reverse equalization adjustment
- AC thru-current capability of 15 A
- Optional Power Supply port for external (non-line) powering

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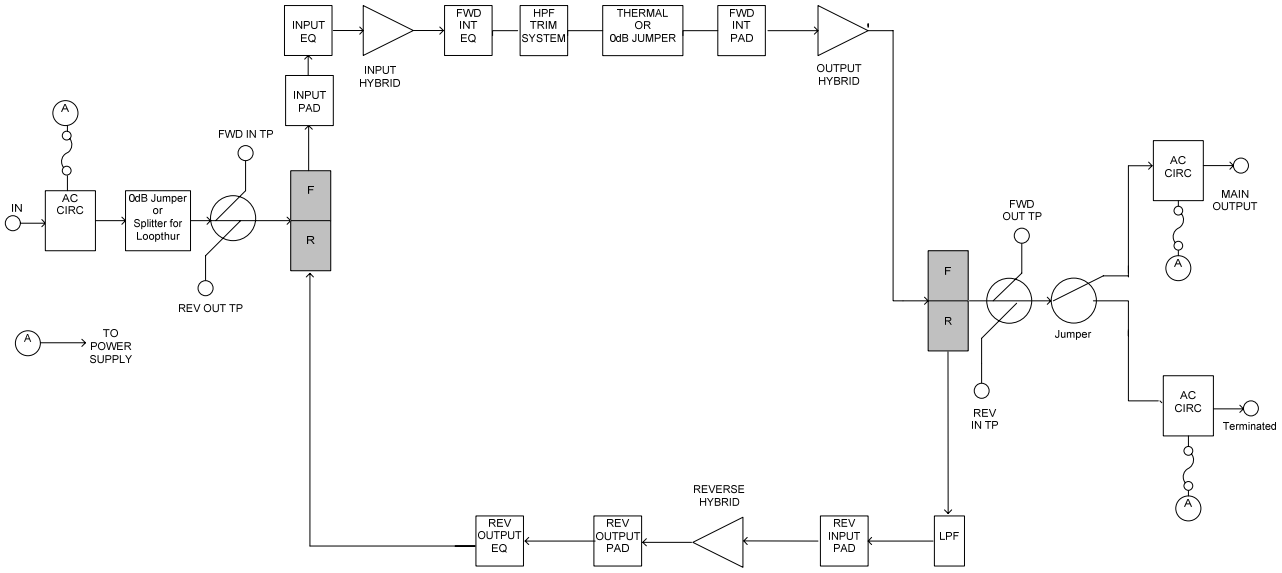
Block Diagram



Specifications

General Station Performance	Units	Forward	Reverse	Notes
Pass Band	MHz	54 to 862	5 to 42	
Amplifier Type	–	GaAs	PP-Hybrid	
Output Level	dBmV	47.5 (@ 862 MHz)	35 (@ 42 MHz)	
Output Tilt (54 to 862 MHz)	dB	10±1 @ Manual 11±1 @ Thermal	0	1
Flatness	dB	±1	±0.5	
Return Loss (max.)	dB	-16	-15	
Max AC Through Current (continuous)	Amps	15		
Hum Modulation @ 10 A (over specified frequency range)	dB	70 @ 54 to 862 MHz	55 @ 5 to 10 MHz 60 @ 10 to 42 MHz	
Test Points	dB	-20±1		

Forward Performance	Units	Manual with 12 dB I/S EQ	Thermal with 3 dB I/S EQ	Notes
Operational Gain (minimum)	dB	35 @ 862 MHz	31 @ 862 MHz	2
Internal Tilt	dB	+11±1 @ 54 to 862 MHz		3
Noise Figure	dB	7		2
78 NTSC Channels (CW) with digital				6
CTB	dB	78	75	4
CSO	dB	75	75	
XMOD	dB	75	73	
64 PAL B/G Channels (CW) with digital				6
CTB	dB	79	–	4
CSO	dB	76	–	
XMOD	dB	75	–	

Reverse Performance	Units	Specifications	Notes
Operational Gain (minimum)	dB	18 @ 42 MHz	5
Internal Tilt	dB	0±0.5	3
Noise Figure	dB	8 @ 5 to 10 MHz 7 @ 10 to 42 MHz	5
6 NTSC Channels (CW)			
CTB	dB	85	4
CSO	dB	76	
XMOD	dB	86	

Specifications, continued

Station Delay Characteristics			
Forward (Chrominance to Luminance Delay)		**Reverse** (Group Delay in 1.5 MHz bandwidth)	
Frequency (MHz)	**Delay (ns)**	**Frequency (MHz)**	**Delay (ns)**
55.25 to 58.83	37	5.0 to 6.5	60
61.25 to 64.83	14	6.5 to 8.0	22
67.25 to 70.83	9	8.0 to 9.5	12
77.25 to 80.83	6	37.5 to 39.0	16
		39.0 to 40.5	22
		40.5 to 42.0	35

Station Powering Data			**Units**	**Forward**						**Reverse**					**Notes**
Surge			-	2 kV						2 kV					7
GainStar LE	**I_{DC}**		**AC Voltage**												
	Amps		**90**	**85**	**80**	**75**	**70**	**65**	**60**	**55**	**50**	**45**	**40**	**35**	
Manual/Thermal	1.5	AC Current (A)	0.41	0.42	0.43	0.45	0.46	0.48	0.51	0.54	0.57	0.63	0.70	0.81	
		Power (W)	21.4	21.3	21.3	21.2	21.2	21.3	21.2	21.1	21.1	21.4	21.5	21.7	

* Data is based on stations configured for 2-way operation. AC currents specified are based on measurements made with typical CATV type ferro-resonant AC power supply (quasi-square wave), and standard GainStar Line Extender power supply.

Notes:

1. Reference output tilt is specified as “LINEAR” tilt (as opposed to “cable” tilt).
2. Forward Gain and Noise Figure measured with 0 dB input EQ and 1 dB input pad.
3. Down tilt, the effect of cable, is represented by a (-). Up tilt, the effect of equalization, is represented by a (+).
4. X-mod (@ 15.75 kHz) specified using 100% synchronous modulation and frequency selective measurement device.
5. Reverse Gain and Noise Figure for station with 0 dB reverse input pad, 0 dB reverse output EQ, and 1 dB output pad.
6. 78 CW NTSC channels loaded from 55 to 550 MHz. Digital refers to 550 to 862 MHz loading with QAM carriers at -6 dB levels relative to analog video carrier levels.
7. Tested per IEEE C62.41-1991, category B1, 2 kV combination wave.

Environmental	**Units**	**Specifications**	**Notes**
Water/Dust Ingress Rating	–	IP68	
Operating Temperature	°C °F	-40 to +60 -40 to +140	
Storage Temperature	°C °F	-40 to +70 -40 to +158	
Mechanical			
Housing Dimensions (W x H x D)	mm in.	250 x 120 x 220 9.8 x 4.7 x 8.7	
Weight • Housing with power supply	kg lbs	2.7 5.9	

Ordering Information

Description	Part Number
GainStar Line Extender without Thermal, 862 MHz, 42/54 MHz Split	4012557
GainStar Line Extender with Thermal, 862 MHz, 42/54 MHz Split	4012558

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

Required Accessories	Part Number
0 to 20 dB Plug-in Pads (attenuators), in 1 dB step • 1 required for forward input • 2 required for reverse(1 input, 1 output)	3439009 to 3439029
1.5 to 22.5 dB Plug-in Forward Equalizer, in 1.5dB step • 1 required for forward input	See below list
1.5 dB Equalizer (Cable)	6679088
3 dB Equalizer (Cable)	6679079
4.5 dB Equalizer (Cable)	6679089
6 dB Equalizer (Cable)	6679080
7.5 dB Equalizer (Cable)	6679090
9 dB Equalizer (Cable)	6679081
10.5 dB Equalizer (Cable)	6679091
12 dB Equalizer (Cable)	6679082
13.5 dB Equalizer (Cable)	6679092
15 dB Equalizer (Cable)	6679083
16.5 dB Equalizer (Cable)	6679093
18 dB Equalizer (Cable)	6679084
19.5 dB Equalizer (Cable)	6679094
21 dB Equalizer (Cable)	6679085
22.5 dB Equalizer (Cable)	6679095

*The following **Optional Accessories** must be ordered separately:*

Optional Accessories	Part Number
3 dB Inverse Equalizer (Forward)	6679073
6 dB Inverse Equalizer (Forward)	6679074
9 dB Inverse Equalizer (Forward)	6679075
12 dB Inverse Equalizer (Forward)	6679076
Signal Director-Jumper	5119017
9 dB Thermal plug-in Module	4009685

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