

# GigaXtend

## GMC (GainMaker® Compatible) 1.2GHz Line Extender



GigaXtend GMC 1.2GHz Line Extender  
*(front view)*

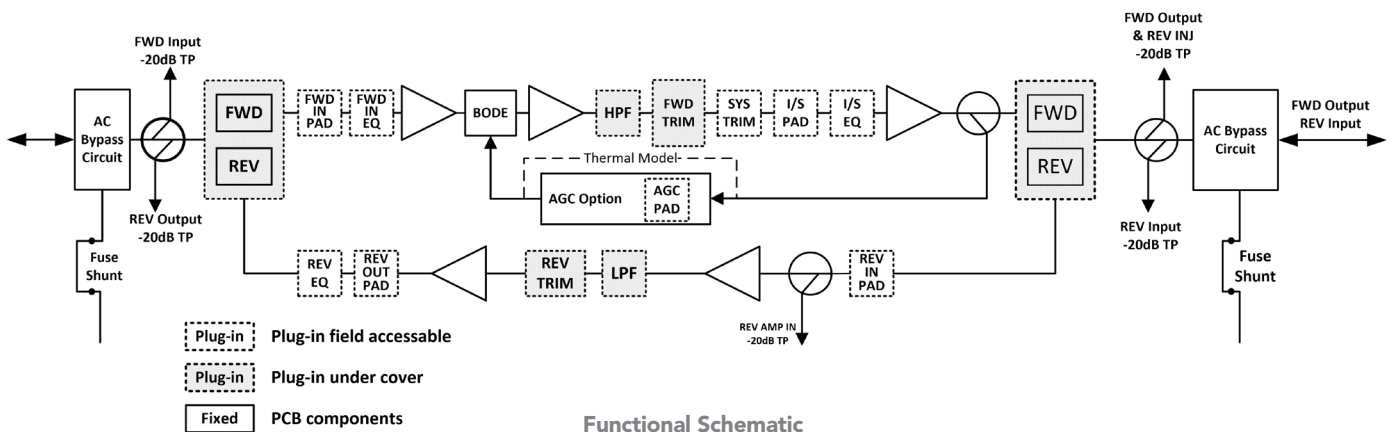
1.2 GHz

The ATX GigaXtend™ GMC 1.2GHz Line Extender broadband amplifier is compatible with earlier versions of the GainMaker® platform, sharing common plug-in accessories. The ATX GaN amplifier provides one high-level forward RF output.

ATX GigaXtend GMC 1.2GHz Line Extender modules have increased gain to allow drop-in for 750MHz (or higher) spacing and are mechanically compatible with the GainMaker® Line Extender GMLE housing bases, often allowing upgrades to higher bandwidth with no respacing or resplicing. The DC power supply is modular and located in an updated housing lid for easy access. All ATX 1.2GHz Line Extender modules are factory configured with reverse amplifier, diplex filters, thermal compensation circuit, forward interstage pads and equalizer to promote optimal performance. Optional single-pilot Automatic Gain Control (AGC) configurations are also available.

### Features

- High-performance GaN gain stage technology
- Plug-in accessories are compatible with earlier version of the GainMaker® platform
- Amplifier cover that provides access to RF test points
- Power supply mounted in housing lid for efficient thermal dissipation (60- and 90-VAC powering capability)
- 15A current capacity (steady state) and 25A surge survivability
- Quadrature Amplitude Modulation (QAM) pilot channel AGC
- AGC with thermal backup, which eliminates disruptive RF output variation in the event of pilot channel loss
- Reverse input pad and RF test point for the reverse input port to allow optimum reverse path design and alignment
- Surge-resistant circuitry that helps ensure gain stage protection without fuses or other failure-causing devices
- Spring-loaded seizure assemblies allow coaxial connectors to be installed or removed without removing amplifier RF module



## Specifications

### General Station Performance

MEASUREMENT		UNITS	FORWARD	REVERSE
PASS BAND		MHz	54-1218	5-42 / 85 / 204
AMPLIFIER TYPE			GaN	GaAs
FREQUENCY RESPONSE <sup>(1)</sup>		dB	±0.5	±0.5
RETURN LOSS		dB	16	16
MAXIMUM AC THROUGH CURRENT (Continuous)		Amps	15	-
MAXIMUM AC THROUGH CURRENT (Surge)		Amps	25	-
HUM MODULATION @ 15A		dB	60 (Fmin-1002MHz) 55 (1002-1218 MHz)	55 (5-10MHz) 60 (10-Fmax MHz)
TEST POINT	RESPONSE (± 0.75 dB)	dB	-20	-20

NOTE:

1. Mid-split 85/102, 102 MHz to 105 MHz roll-off of <1.0 dB. Intended to support lower modulation signals such as OOB.

Unless otherwise noted, specifications reflect typical performance and are referenced to 68°F (20°C). Specifications are based upon measurements made in accordance with SCTE/ANSI standards (where applicable), using standard frequency assignments.

## Specifications

### Forward Station Performance

MEASUREMENT	UNITS	BODE SWITCH MODE	
		THERMAL/AGC	MANUAL
OPERATIONAL GAIN (Minimum) <sup>(1)</sup>	dB	39.0	44
INTERNAL TILT (± 0.5 dB) @ 54 MHz <sup>(2)</sup>	dB	+11.7	
NOISE FIGURE @ 54,105,258 MHz <sup>(1)</sup>	dB	7.5	
NOISE FIGURE @ 1218 MHz <sup>(1)</sup>	dB	8.0	
REFERENCE FREQUENCY <sup>(3,5)</sup>	MHz	1218 / 258 / 54	
REFERENCE OUTPUT LEVEL <sup>(3,4,5)</sup>	dBmV	49 / 34 / 31	
BER <sup>(3,5)</sup>		<1E-9	
CCN <sup>(3,5)</sup>	dB	49	
MER <sup>(3,5)</sup>	dB	49	

NOTE:

1. Forward gain and noise figure measured with 0 dB input EQ and 1 dB input pad. AGC will provide up to +4.5 and -7.5dB over operating temperature range.

2. Down tilt, the effect of cable, is represented by a (-). Up tilt, the effect of equalization, is represented by a (+).

3. All digital loading. 49dBmV QAM at 1218MHz 18dB linear tilt to 54MHz.

4. QAM above 1026 MHz may be substituted with 192MHz OFDM

5. Distortion performance at reference output levels and tilt. Corrected with source performance backed out.

Unless otherwise noted, specifications reflect typical performance and are referenced to 68°F (20°C). Specifications are based upon measurements made in accordance with SCTE/ANSI standards (where applicable), using standard frequency assignments.

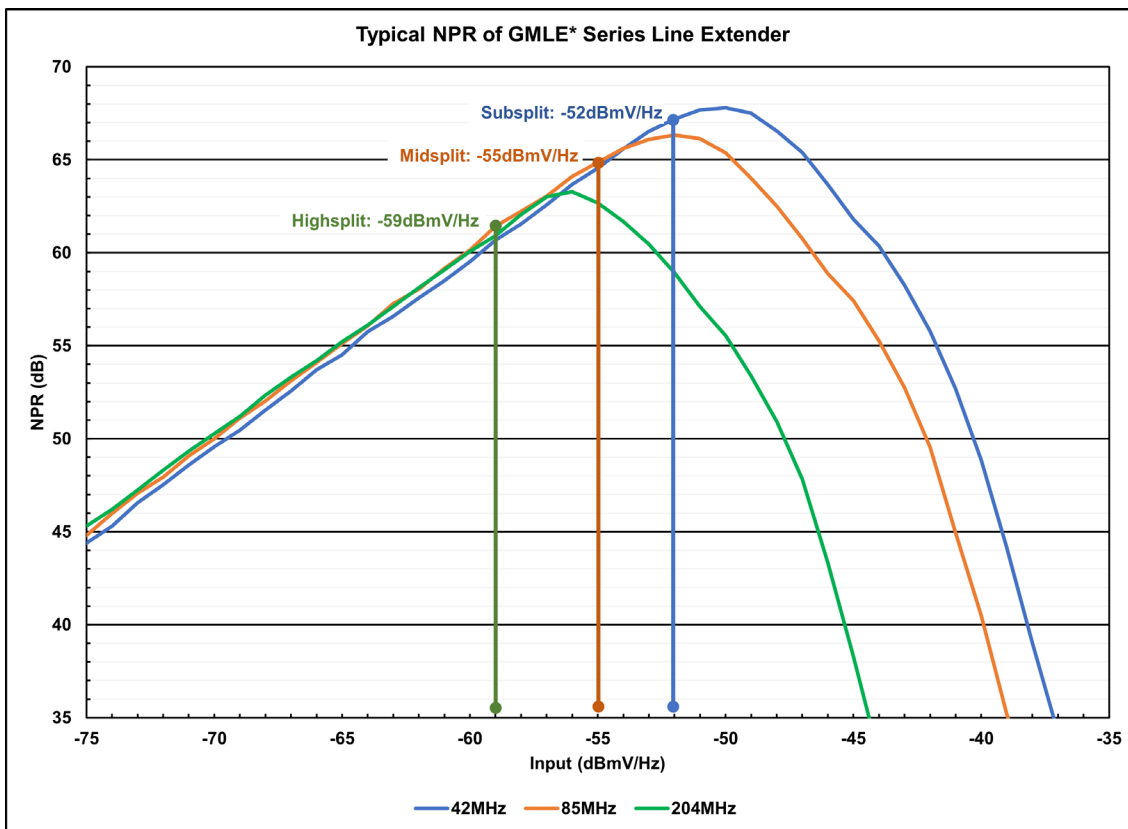
## Reverse Station Performance

MEASUREMENT		UNITS	
OPERATIONAL GAIN (Minimum) <sup>(1)</sup>		dB	27
INTERNAL TILT ( $\pm 0.5$ dB) @ 54 MHz <sup>(2)</sup>		dB	0
NOISE FIGURE <sup>(1)</sup>		dB	6
RECOMMENDED INPUT LEVEL <sup>(1)</sup> 42MHz / 85MHz / 204MHz		dBmV/6.4MHz	16/13/9
		dBmV/Hz	-52 / -55 / -59
RECOMMENDED OUTPUT LEVEL 42MHz / 85MHz / 204MHz		dBmV/6.4MHz	43 / 40 / 36
		dBmV/Hz	-25 / -28 / -32
MEASUREMENT	FREQUENCY (MHz)	UNITS	
NPR/Dynamic Range <sup>(3)</sup>	42	dB	50/27
	85	dB	50/24
	204	dB	50/20

**NOTE:**

- Reverse gain, noise figure and recommended levels for station with 0 dB reverse input pad, 0 dB reverse output EQ, and 1 dB reverse output pad.
- Down tilt, the effect of cable, is represented by a (-). Up tilt, the effect of equalization, is represented by a (+).
- See NPR chart.

Unless otherwise noted, specifications reflect typical performance and are referenced to 68°F (20°C). Specifications are based upon measurements made in accordance with SCTE/ANSI standards (where applicable), using standard frequency assignments.



## Station Delay Characteristics (42/54)

FORWARD (Chrominance to Luminance Delay)		REVERSE (Group Delay in 1.5MHz 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	15	6.5 to 8.0	22
67.25 to 70.83	10	8.0 to 9.5	12
77.25 to 80.83	5	37.5 to 39.0	20
		39.0 to 40.5	32
		40.5 to 42.0	45

## Station Delay Characteristics (85/102)

FORWARD (Chrominance to Luminance Delay)		REVERSE (Group Delay in 1.5MHz bandwidth)	
FREQUENCY (MHz)	DELAY (ns)	FREQUENCY (MHz)	DELAY (ns)
109.275 to 112.855	15	5.0 to 6.5	60
115.275 to 118.855	10	6.5 to 8.0	22
121.2625 to 124.8425	8	8.0 to 9.5	12
127.2625 to 130.8425	5	80.5 to 82.0	10
		82.0 to 83.5	17
		83.5 to 85.0	21

## Station Delay Characteristics (204/258)

FORWARD (Chrominance to Luminance Delay)		REVERSE (Group Delay in 1.5MHz bandwidth)	
FREQUENCY (MHz)	DELAY (ns)	FREQUENCY (MHz)	DELAY (ns)
259.2625 to 262.8425	10	5.0 to 6.5	60
265.2625 to 268.8425	8	6.5 to 8.0	22
271.2625 to 274.8425	7	8.0 to 9.5	12
277.2625 to 280.8425	5	199.5 to 201.0	10
		201.0 to 202.5	17
		202.5 to 204.0	21

## Specifications

### Station Powering Data

		1.2GHz GigaXtend GMC Line Extender											
AC Input Range		35-90VAC											
AC Input Frequency		47-63 Hz											
		AC VOLTAGE											
		90	85	80	75	70	65	60	55	50	45	40	35
Thermal/Manual	AC Amps	0.56	0.61	0.61	0.64	0.65	0.67	0.67	0.69	0.71	0.75	0.83	0.92
	AC Watts	27.9	28.1	27.7	28.1	27.9	27.9	27.6	27.9	27.9	28.1	28.6	28.9
AGC	AC Amps	0.56	0.61	0.62	0.64	0.66	0.68	0.68	0.70	0.72	0.77	0.85	0.95
	AC Watts	28.9	29.1	28.7	29.1	28.9	28.9	28.6	28.9	28.9	29.1	29.6	29.9

**NOTE:**

Data is based on stations configured for two-way operation. AC currents specified are based on measurements made with typical CATV-type ferroresonant AC power supply (quasi-square wave) and GigaXtend Power Supply (0.82A, 24VDC).

DC supply has a user-configurable 30V, 40V, or 50 VAC under voltage lockout circuit. Default setting is 40 VAC. Under-voltage lockout may be selected by changing the position of the lockout jumper.

PHYSICAL & ENVIRONMENTAL	
OPERATING TEMPERATURE	-40-140°F (-40-60°C)
MECHANICAL	
HOUSING (LxDxH)	11.66 in. x 6.77 in. x 9.58 in. (296.1 mm x 172.0 mm x 243.3 mm)
WEIGHT (Housing with power supply)	13 lb, 0 oz (5.9 kg)

## Ordering Information

Part Number	Description
<b>1.2GHz LE Full Station w/ Coated Housing,PS, CB, TPA, Launch Amp</b>	
GAGMLES45H	GMC 1.2GHz LE, 42/54, D-AGC711, Full Station w/ PS
GAGMLES4TH	GMC 1.2GHz LE, 42/54, Thermal, Full Station w/ PS
GAGMLES85H	GMC 1.2GHz LE, 85/102, D-AGC711, Full Station w/ PS
GAGMLES8TH	GMC 1.2GHz LE, 85/102, Thermal/Manual, Full Station w/ PS
GAGMLES25H	GMC 1.2GHz LE, 204/258, D-AGC711, Full Station w/ PS
GAGMLES2TH	GMC 1.2GHz LE, 204/258, Thermal/Manual, Full Station w/ PS
<b>1.2GHz LE Launch Amp/Tray Only (legacy GainMaker® compatible)</b>	
GAGMLES45	GMC 1.2GHz LE, 42/54, D-AGC711, Tray Only
GAGMLES4T	GMC 1.2GHz LE, 42/54, Thermal, Tray Only
GAGMLES85	GMC 1.2GHz LE, 85/102, D-AGC711, Tray Only
GAGMLES8T	GMC 1.2GHz LE, 85/102, Thermal/Manual, Tray Only
GAGMLES25	GMC 1.2GHz LE, 204/258, D-AGC711, Tray Only
GAGMLES2T	GMC 1.2GHz LE, 204/258, Thermal/Manual, Tray Only

## Ordering Information

Part Number	Description
<b>Required Accessories (GM Compatible)</b>	
<b>GAGM-PAD-1.2G-a=</b>	1.2GHz PAD (Multi=10)(a=dB: 00,1.0,2.0,..20.0) - 1 required for forward (1 input) - 1 required for AGC, if applicable* - 1 required for reverse (1 output) *To determine AGC pad value, subtract 34dB from the design value main port RF output level at the AGC pilot frequency
<b>Forward Path Plug In Conditioners (GM Compatible)</b>	
<b>GAGM-EQC-1.2G-a=</b>	1.2GHz FWD EQ (Multi=10)(a=dB: 0,1.5,3,..30)
<b>GAGM-EQL-1.2G-a=</b>	1.2GHz FWD LIN EQ (Multi=10)(a=dB: 1.5,3,..24)
<b>GAGM-EQIN-1.2G-a=</b>	1.2GHz INV EQ (Multi=10)(a=dB: 1.5,3,..21)
<b>GAGM-EQC-1G-a=</b>	1GHz FWD EQ (Multi=10)(a=dB: 0,1.5,3,..30)
<b>GAGM-EQIN-1G-a=</b>	1GHz INV EQ (Multi=10)(a=dB: 1.6,3.3,4.9,6.5,8.1,9.8,11.4,13,14.6,16.2)
<b>Other Plug In Conditioners (GM Compatible)</b>	
<b>GAGM-EQREV-42M-a=</b>	Rev EQ,42MHz (Multi=10)(a=dB: 1,2,3,..12)
<b>GAGM-EQREV-85M-a=</b>	Rev EQ,85MHz (Multi=10)(a=dB: 1,2,3,..12)
<b>GAGM-EQREV-204M-a=</b>	Rev EQ,204MHz (Multi=10)(a=dB: 1,2,3,..12)
<b>GAGM-EQREVT-42M-a</b>	Rev Therm EQ,42MHz(a=dB: 1,2,3,..8)
<b>GAGM-PAD-1.2G-75=</b>	1.2GHz 75ohm Terminator (Multi=10)
<b>MISC Accessories (GM Compatible)</b>	
<b>GAGM-AGC-QAM-711</b>	GMC QAM AGC 711MHZ (Multi=10)
<b>GAGMLE-LIDPS=</b>	LE 1.2GHz Housing Lid w/ Wire Harness, PS + Cable
<b>GAGMLE-HSG-1.2G=</b>	GMC 1.2GHz LE Ctd Housing (incl. cable assembly & harness, seizure ports. No PS or amp module)
<b>GAGMLE-PS-1.2GWCBL=</b>	GMC 1.2GHz LE Power Supply w/ Cable & Harness, 24V (Multi=10)
<b>GAGMLE-PWRKIT-1.2G</b>	GMC AC Power Pack Kit, 120VAC, Universal LE and SA w/ wall bracket (Multi=10)
<b>GAGM-1.2G-LONGF81</b>	1.2GHz Long Test Point Adapter (Multi=10)

**NOTE:**

GAGMLE Amplifiers do not ship with plug-ins installed in the following positions, because the user must choose values based on installation levels (see user manual): Forward Input PAD, Forward Input EQ, AGC, AGC PAD. Reverse Output Pad and Reverse Output EQ. Other positions come factory installed, based on model of LE ordered.

\*\* unless otherwise mentioned, all new housings and housing parts are coated aluminum, and all plugins are compatible with legacy 750MHz or higher GainMaker® and GigaXtend system amplifiers

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**ATX Networks**

Tel: 289.204.7800 | Toll-Free: 866.YOUR.ATX | support@atx.com