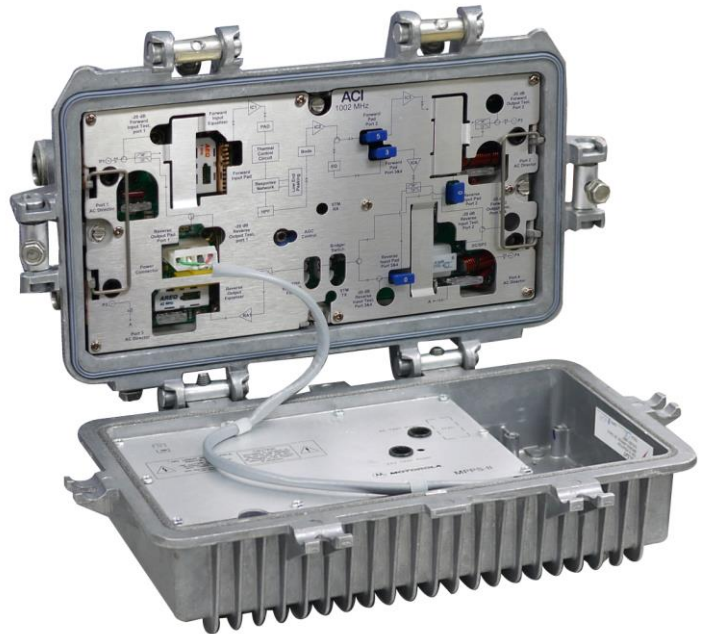




BLE  
(1 Output Line Extender)



MB  
(2 or 3 output Bridger)

## ASEM MOTO BLE & MB Distribution Amplifiers 1002 MHz

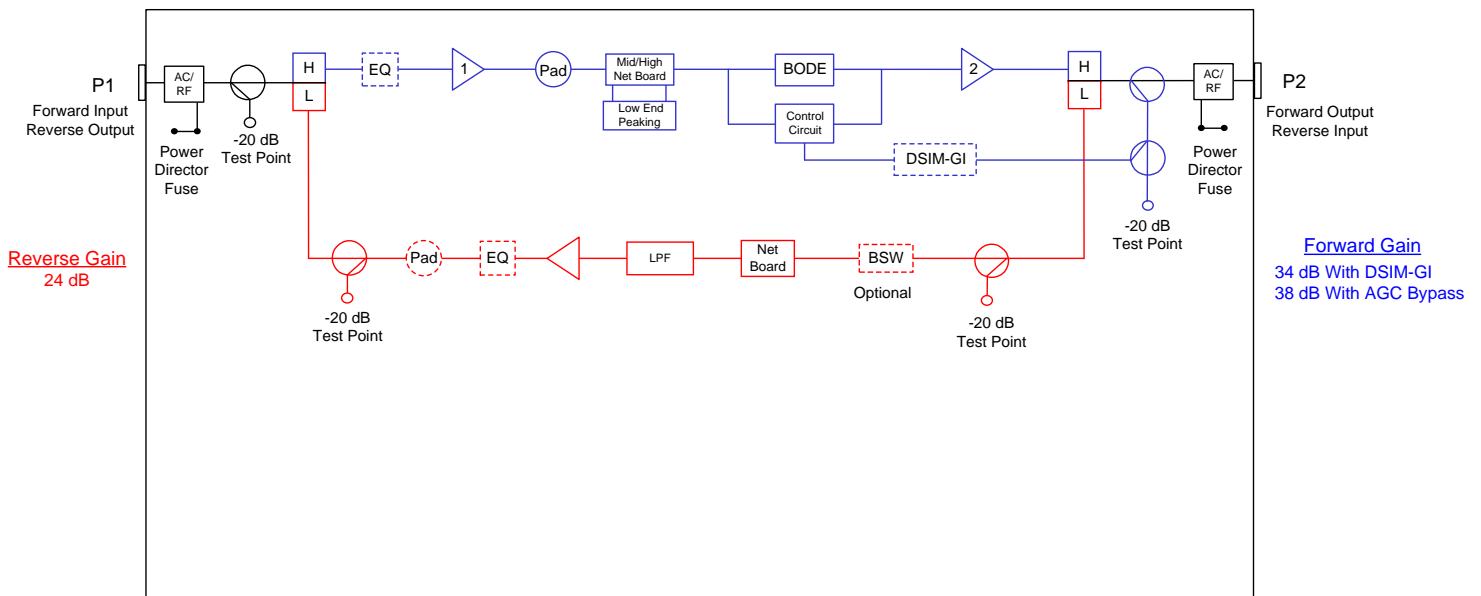
The ACI ASEM Moto BLE and MB 1G RF upgrade modules are now offered with the Gallium Nitride (GaN) hybrid technology that allows for 3 dB higher output levels while maintaining close to the same specifications as the previous stations with the Gallium Arsenide (GaAs) hybrids. With this increase in the output level capabilities the cable operators are now able to extend the fiber deeper in their networks at a lower cost by reducing the number of active that are needed. The GaN hybrid technology is also extremely beneficial for use in the traditional HFC networks with the increase in station performance at the standard output levels over the GaAS hybrid stations.

### Features

- ◆ Drop-in 1G replacement RF modules for Motorola® Starline® MB100 Mini-Bridger and BLE100 Line Extender
- ◆ 5 to 42, 65, 85 or 204 MHz reverse path
- ◆ Ideal for traditional HFC networks for increased performance & reliability
- ◆ Ideal for fiber deep networks with the extended reach of the amplifiers
- ◆ Pad adjustable forward and return EQ's
- ◆ Patented DSIM technology (Digital AGC)
- ◆ Increased reliability with higher surge protection in the GaN hybrids
- ◆ Up to 3 dB higher output levels with same distortion performance with GaN Hybrids
- ◆ Lower power consumption than OEM amplifiers

# BLOCK DIAGRAM

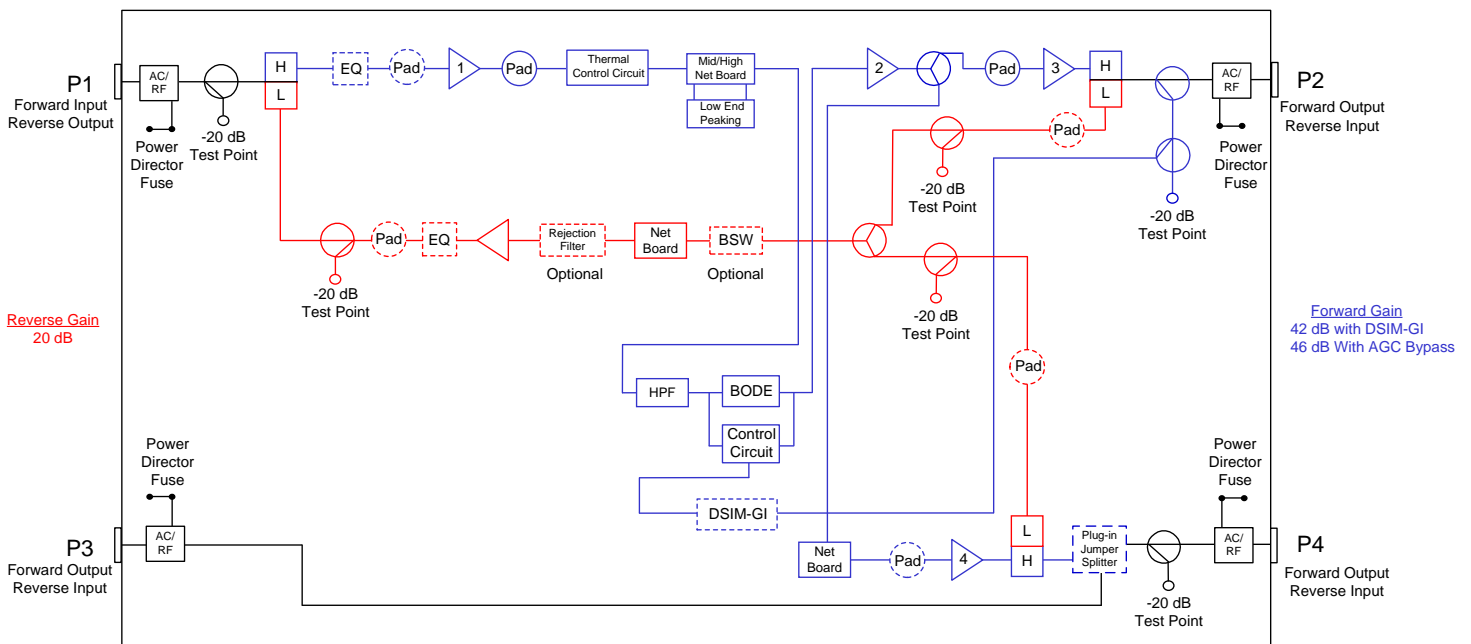
## ASEM-BLE



Note:  
1. Forward gain stated at 1002 MHz. Reverse gain stated at 40 MHz.

## ASEM-MB

### ASEM (Type 2A-TRI & 2M-TRI) 1002 MHz GaN Amplifier Block Diagram



Note:  
1. Forward gain stated at 1002 MHz. Reverse gain stated at 40 MHz.

# SPECIFICATIONS (MB – Mini-Bridger)

STATION PARAMETERS:			1002 MHz 42-53 MHz Split		ASEM Moto-MB 1002 MHz With GaN Hybrids 15.0 dB Forward Slope @ 1002 MHz High Forward Gain	
SPECIFICATIONS		CONDITIONS	UNITS	Forward	Return	
Housing passband			MHz	53-1002	5-42	
Flatness		Normalized w / 0 dB slope	dB	± 0.75	± 0.5	
Minimum Full Gain			dB	46	NA	
Operation Gain		Min @ 1002MHz	dB	42	20	
Noise Figure		(w / 1dB for input EQ loss)	dB	12.5	15.5	
Test Point		Forward & reverse	dB	20 (±1.0dB)	20 (±1.0dB)	
Return Loss		Any port, worst case	dB	14.5	15	
Hum Modulation		Time domain @ rated 15A	dBc	<60	<65	
Slope Reference Frequency			MHz	54/550/1002	35 (flat)	
Reference Output Level		@ 54 / 550 / 1002 MHz	dBmV	39/47/54	-	
Operating Interstage Slope		@ 1002 MHz	dB	15 ± 1	NA	
Distortion Performance (Worse Case)				Forward	Return	
Channel loading				NTSC/550 MHz analog channel loading, 79 channels +450 MHz digital channel loading, 256 QAM at -6 dBc relative to its associated visual carrier		6 channel analog
Composite Triple Beat (CTB)			-dBc	69	80	
Cross Modulation (XMOD)			-dBc	60	70	
Composite Second Order (CSO)			-dBc	68	79	
Carrier-to-Intermodulation Noise (CIN)			-dBc	66	-	
Station Group Delay						
Group delay		Channel 2 (Std)	nSec / 3.58 MHz	40 (35 Typical)		
Group delay		Channel 3		16		
Group delay		Channel 4		10		
Group delay		Channel 5 & >		3		
ADU				DSIM-GI Single Pilot Channel ADU		
Pilot Channel Type			N / A	NTSC Analog or QAM		
Compensation Range			dB	System compensation input change +3/-6 @ 1002 MHz		
Accuracy			±dB	0.5		
Nominal loss		@ 77 °F (25 °C)	dB	6.25		
Center frequency bandwidth				6 (MHz)		
Power Requirements						
DC Voltage			VDC	24		
Current DC Max.		Current draw at 24 VDC	mA	1590		
Power Consumption Max.			W	52		
AC Input Voltage Range			VAC	38-90		
AC Current Draw Max.			A			
@ 90VAC				0.6		
@ 60VAC				0.8		
@ 38VAC				1.3		
Weight						
Weight			lbs. (kg)	3.75 (1.7)		
Physical						
Dimensions		(H x W x D)	In, (cm)	5.9 X 12.6 X 2.36 (15 X 32 X 6)		
Environmental						
Operating temperature			°F (°C)	-40 to +140 (-40 to +60)		

# SPECIFICATIONS (BLE - Line Extender)

STATION PARAMETERS:			1002 MHz 42-53 MHz Split		ASEM - Moto BLE 1002 MHz With GaN Hybrids 15.0 dB Forward Slope @ 1002 MHz High Forward Gain	
SPECIFICATIONS	CONDITIONS	UNITS	Forward	Return		
Housing passband		MHz	53-1002			5-42
Flatness	Normalized w / 0 dB slope	dB	± 0.7			± 0.5
Minimum Full Gain		dB	38			NA
Operation Gain	Min @ 1002MHz	dB	34			24
Noise Figure	(w / 1dB for input EQ loss)	dB	55 MHz = 12 550 MHz = 7.5			15
Test Point	Forward & reverse	dB	20 (±1.0 dB)			20 (±1.0 dB)
Return Loss	Any port, worst case	dB	15			16
Hum Modulation	Time domain @ rated 15A	dBc	<60			<60
Slope Reference Frequency		MHz	54/550/1002			35 (flat)
Reference Output Level	@ 54 / 550 / 1002 MHz	dBmV	36/43.8/51			-
Operating Interstage Slope	@ 1002 MHz	dB	15 ± 1			NA
<b>Distortion Performance (Worse Case)</b>			<b>Forward</b>	<b>Return</b>		
Channel loading			NTSC/550 MHz analog channel loading, 79 channels +450 MHz digital channel loading, 256 QAM at -6 dBc relative to its associated visual carrier		6 channel analog	
Composite Triple Beat (CTB)		-dBc	75			80
Cross Modulation (XMOD)		-dBc	70			70
Composite Second Order (CSO)		-dBc	71			81
Carrier-to-Intermodulation Noise (CIN)		-dBc	73			-
<b>Station Group Delay</b>						
Group delay	Channel 2 (Std)	nSec / 3.58 MHz	40 (35 Typical)			
Group delay	Channel 3		16			
Group delay	Channel 4		10			
Group delay	Channel 5 & >		3			
<b>ADU</b>			<b>DSIM-GI Single Pilot Channel ADU</b>			
Pilot Channel Type		N / A	NTSC Analog or QAM			
Compensation Range		dB	System compensation input change +3/-6 @ 1002 MHz			
Accuracy		±dB	0.5			
Center frequency bandwidth			6 (MHz)			
<b>Power Requirements</b>						
DC Voltage		VDC	24			
Current DC Max.	Current draw at 24 VDC	mA	1000			
Power Consumption Max.		W	35			
AC Input Voltage Range		VAC	38-90			
AC Current Draw Max. @ 90VAC @ 60VAC @ 40VAC		A	0.5 0.6 0.8			
<b>Weight</b>						
Weight		lbs. (kg)	3.31 (1.5)			
<b>Physical</b>						
Dimensions	(H x W x D)	In, (cm)	5.12 X 8.72 X 3.20 (13.0 X 22.14 X 8.20)			
<b>Environmental</b>						
Operating temperature		°F (°C)	-40 to +140 (-40 to +60)			

# Ordering Matrix

## ASEM Product Configuration Worksheet

Customer: \_\_\_\_\_

Created By: \_\_\_\_\_ Order Date: \_\_\_\_\_

**ORDERING MATRIX** March 8, 2018

Position	1	2	3	4	5	6	7	8	9	10
PART NUMBER										

1,2  STATION TYPE

BL = 1 Output LE      MB = 2 Output Bridger

3  BANDPASS SPLIT

K = 5-42 MHz / 54- 1002 MHz  
N = 5-85 MHz / 105- 1002 MHz

4,5  STATION GAIN (Forward)

Amplifier Model	BL	MB	BT
Max gain with DSIM-GI	34	42	42
Max gain w/AGC bypass	38	46	46

6  FORWARD GAIN CONTROL TYPE

M = Manual (AGC Bypass)      D = Digital Station Intelligence Manger (DSIM-GI)

7  STATION SLOPE

A = 15 dB (Fmin-1002 MHz)

8  STATION GAIN (Reverse)

B = 20 dB min (MB Only)  
L = 24 dB min (BL Olny)

9  HOUSING OPTIONS

M = RF Module Only

10  CUSTOM OPTIONS

0 = NONE  
X = Determined by Product Management

Generic Order Form: Not all configurations are available



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