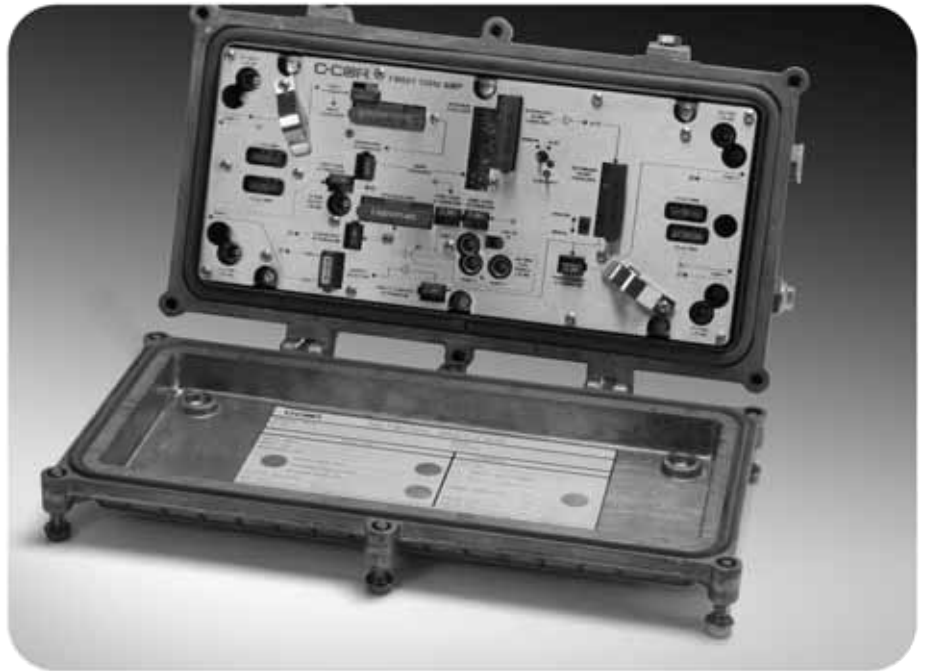




C-COR® Flex Max601

Bridger Amplifier



- 1GHz GaAs technology
- Designed to drop into existing 9-NH Series style housings to effectively upgrade a network from 750 or 870MHz to 1GHz bandwidth
- Plug-in diplex filters
- Built-in surge protection

The new Flex Max601 (FM601) Bridger Amplifier is ARRIS's latest edition to its extensive 1GHz RF Amplifier and Node offerings. The FM601 was designed using the legacy 9-NH Series housing as its base and can easily be deployed as either a new build/system extension amplifier or used as a drop-in module upgrade to existing Legacy 9-NH series housings.

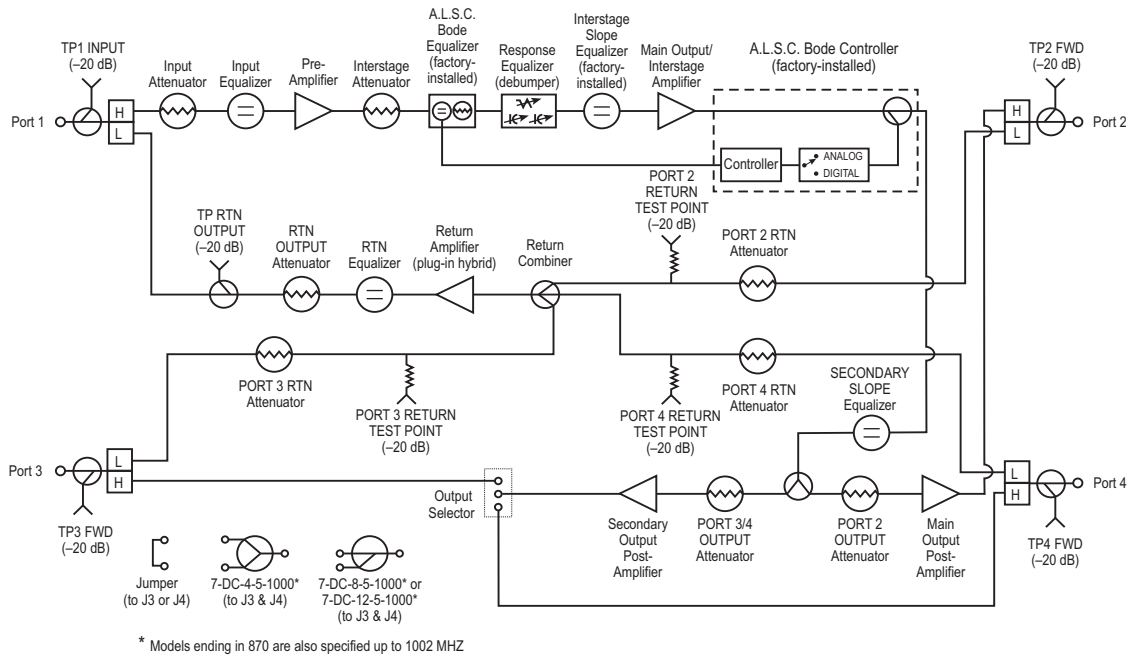
Offering the latest in 1GHz technology, these amplifiers also accept legacy style 750/870MHz EQs and Pads so you can efficiently extend or upgrade your network of GNA/TNA or G3A/T3A/G4 amplifiers using common style plug-ins.

The Flex Max601 Bridger Amplifiers provide two equal or three un-equal high level RF distribution outputs. A plug-in output port selector lets you choose either or both secondary outputs.

Features

- Offers a forward operational gain of 43dB and an operational return gain of 18dB
- Pilot frequency available at 711.00 MHz (QAM)
- Directional coupler forward output and return input testpoints isolates forward output and return input signals from the effects of reflections in the cable
- On the return output, an attenuator and an equalizer allow for accurate return path alignment (return test signals can be injected at the forward output testpoint)
- Uses common legacy style equalizers and attenuators with guide pins

Functional Block Diagram



Accessories

Plug-ins for a Flex Max601

Factory-Installed Plug-Ins

Circuits or jumpers are factory-installed in these positions according to customer or product requirements.

- Automatic Level and Slope Control, ALSC (under cover, not user-changeable)
- Interstage Slope Equalizer

Plug-in Series

- 6-ALSC
- PEQ-1G (1 GHz)¹

Required Plug-Ins

The Flex Max601 is shipped with these positions empty. Install values based on the station's location.

- Input Attenuator 10-A-WC²
- Input Equalizer PEQ-1G (1 GHz)¹
- Return Output Equalizer 7-REF-WC
- Return Output Attenuator Jumper or 10-A-WC²

Optional Plug-Ins

Jumpers, or "zero" value circuits, may be shipped in these positions. Install different values based on system design.

- Interstage Attenuator Jumper or 10-A-WC²
- Response Equalizer (debumper) 1503638-001/1503639-001
- Distribution (Secondary) Slope Equalizer PEQ-1G (1 GHz)¹
- Secondary Output Attenuators Jumper or 10-A-WC²
- Secondary Output Selector
 - If using only one secondary output Jumper or 9-A0
 - If using both secondary outputs 7-DC-4-5-1000-WC
7-DC-8-5-1000-WC
7-DC-12-5-1000-WC

Return Input Attenuators (three locations)

- Jumper or 10-A-WC²

1. 7-2E-WC (862/750MHz) EQs can be used if the upper frequency is 870/750MHz.
2. 9-A-WC series PADs are compatible with 10-A-WC series PADs

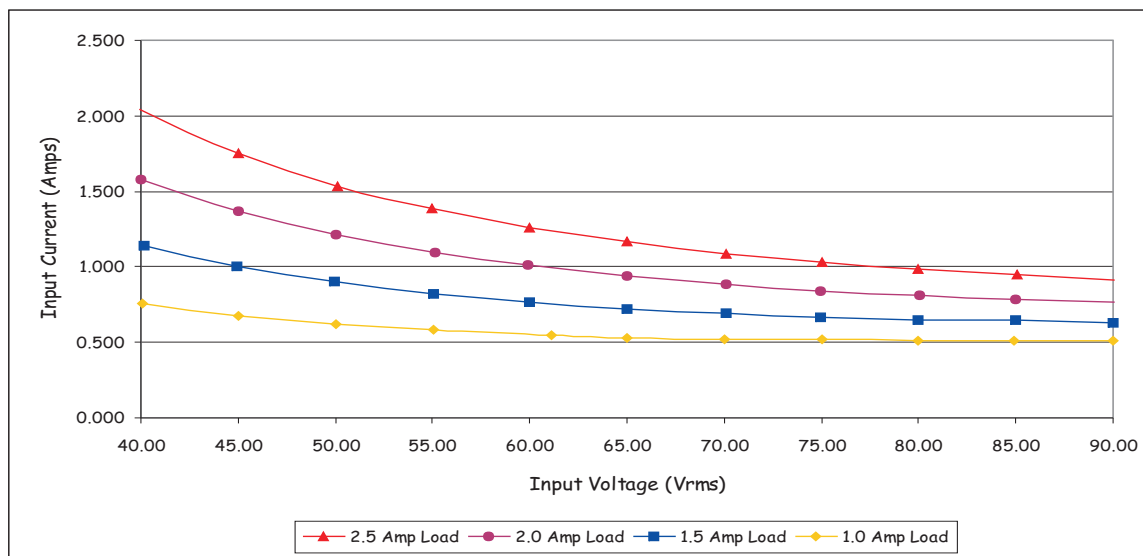
Power Supply Specifications

Characteristic	Specification
Input Voltage Range, 50/60Hz, Quasi-square wave	40 to 90V RMS
Input Frequency	50/60Hz
Output Voltage, VDC	24 ± 0.5
DC Output Current, max., A	2.5
Output Voltage Ripple, mVRMS, 0 to 100kHz	8
Output Voltage Ripple, mVp-p, 100MHz	150
Output Voltage Protection, max., VDC	33
Efficiency, typ.	85%
Short Circuit Current, max., ADC	<1 amp, pulse limited
Hold up Time @ 2.5ADC 40V, min., msec	7
Hold up Time @ 2.5ADC 60V, min., msec	25
Continuous Operation Input Voltage, min., VRMS	40
Re-start Voltage, min., VRMS	38
Low Voltage Turn Off, VRMS	20
Operating Temperature, °C ¹	-40 to 60

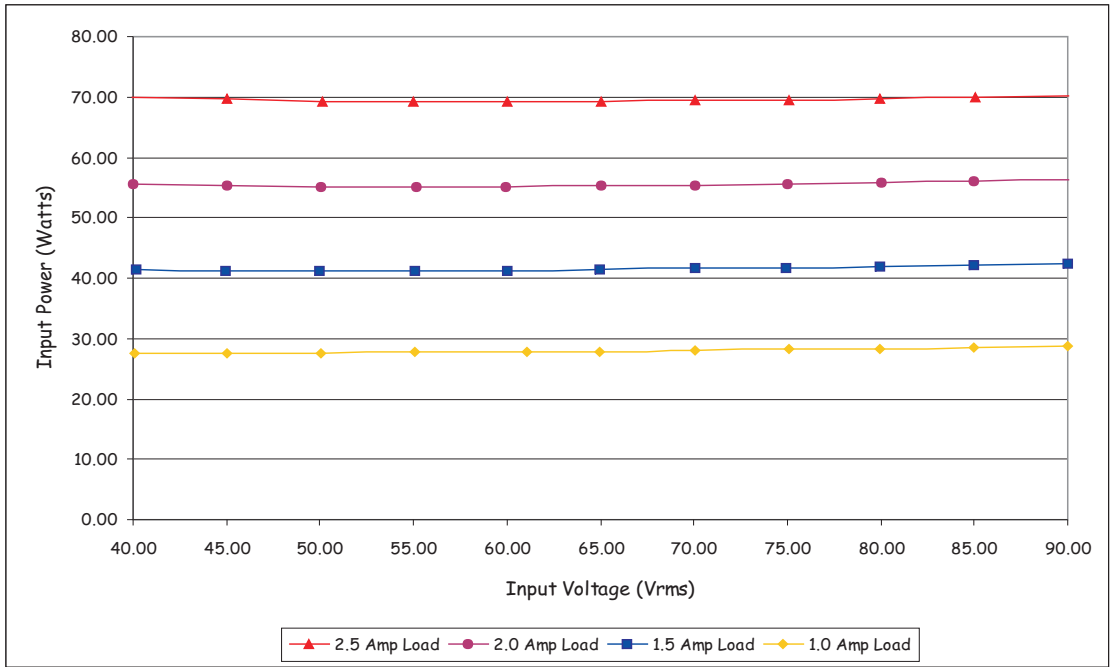
Specification Document Number 1503595 Rev A

1. Reflects an external ambient temperature range.

Specifications subject to change without notice



Flex Max601/DL



Flex Max601/DL

Flex Max601 Specifications

	FORWARD Bridger (ea)	RETURN Bridger (ea)
General		
Pass Band, MHz	54–1002	5–42
Housing, MHz	1002	—
AC Current PAssing, Amp	15	15
Typical Operating Conditions		
Operational Gain, dB (–0, +1.0dB) ^{1,2}	43	18
Channels, Number of NTSC ³	79	6
Operating Levels, Recommended		
Frequency, MHz	1002/870/750/550/54	42/5
Input, dBmV Minimum ⁴	9/8.2/8/7.7/10.5	17/17
Output, dBmV ^{5,6}	52/49.5/47.5/44/35	35/35
Performance Characteristics at Recommended Levels (Temperature Range: –40°C to 60°C)		
Carrier-to-Interference Ratio, dB ⁷		
Composite Triple Beat	73	80
Second Order Beat (F1 ± F2)	—	—
Cross Modulation ⁸ (per NCTA std.)	69	74
Third Order Beat (F1 ± F2 ± F3)	—	—
Composite 2IM ⁹	71	82
Comp. Intermodulation Noise CIN ¹⁰	71	—
Comp. Intermodulation Noise CIN ¹¹	76	—
Noise, 4 MHz, 75 Ohms ²	58/57.2/57/57.7/58.5	64
Noise Figure, dB (Without EQ) ¹²	9/9/9/8/10	12
Full Gain, dB (without EQ and ALC)	48	19
Factory Alignment, with ALC Reserve, Without EQ		
Cable Loss, dB @ 1002MHz	24	—
Flat Loss, dB	20	19
Gain Slope, dB	–1.0 to 1.0	–0.75 to 0.75
Flatness (@ Gain Slope), dB	±1.0	±0.75
Return Loss, dB Minimum, All Entry Ports	16	16
Testpoint Accuracy¹³		
–20dB Forward Input Test Point, dB	± 0.5 (54 to 550MHz) ± 1.0 (550 to 1002MHz)	—
–20dB Forward Output Testpoint(s), dB	± 0.5 (54 to 550MHz) ± 1.0 (550 to 1002MHz)	—
–20dB Reverse Input & Output Testpoint, dB	—	± 0.75
Powering Requirements¹⁴		
AC Voltage, 60Hz	@ 90V	@ 60V
AC Power, Watts		
AC Current, mA		
DC Current, mA @ 24 ± 0.5, max./typ.	1700/1530	1700/1530

	FORWARD	RETURN
	Bridger (ea)	Bridger (ea)
Level Control		
Range, dB @ 1002 MHz	+3.5/–4.0	—
Accuracy, dB (–40°C to 60°C)	± 1.0	—
Operating Level Range, dBmV (at pilot frequency) ¹⁵	37 to 52	—
Pilot Frequency Band (Recommended)	711 MHz (single channel)	—
Gain Control		
Plug-In Pad	9-A-WC, 10-A-WC	9-A-WC, 10-A-WC
Equalization To Compensate For Cable Loss		
Plug-in Equalizers for Additional Equalization	PEQ-1G-xx	7-REF-WC
Chrominance, Luminance Delay, Maximum		
Channel 2, ns/3.58 MHz	28	—
Channel 3, ns/3.58 MHz	11	—
Channel 4, ns/3.58 MHz	7	—
Channel 5, ns/3.58 MHz	3.6	—
Return Group Delay, Maximum		
5.5–7 MHz, ns	—	55
10–11.5 MHz, ns	—	11
35–36.5 MHz, ns	—	10
38.5–40 MHz, ns	—	30
Hum Modulation (Time Domain at 15 A)		
5–10 MHz, –dBc	—	55
11–750 MHz, –dBc	65	65
751–1002 MHz, –dBc	60	—

Specification Document Number 1503444 Rev D

1. Spacing at highest frequency with Equalizer installed. Return spacing includes losses due to housing, diplex filters, and Return EQ.
2. The specifications are based on the amplifier configured (with two SPB–0) as a 2–output bridger with distribution outputs on Ports 2 and 4. When using output selectors 7-DC-4/8/12, levels should be derated accordingly based on the accessory specifications.
3. NTSC video channels occupying the appropriate frequency spectrum per specified number of channels.
4. Recommended minimum forward input levels at 1002 MHz including loss due to equalizer.
5. Recommended maximum return output level at 42 MHz including loss due to equalizer.
6. At specified operational tilt, maximum output level for 1 GHz or 870 MHz loading is 56.5 dBmV @ HF.
7. Distortion performance is derated accordingly to take into account the influence of the digitally compressed channels operating at levels 6 dB below equivalent video channels.
8. Cross modulation specification number indicates typical cascade performance.
9. Composite second order (CSO) distortion performance reflects typical cascaded performance derating at 15log.
10. Systems operating with digitally compressed channels or equivalent broadband noise from 550 to 1002 MHz at levels 6 dB below equivalent video channels will experience a composite distortion (CIN) appearing as noise in the 54 to 550 frequency spectrum.
11. Systems operating with digitally compressed channels or equivalent broadband noise from 550 to 870 MHz at levels 6 dB below equivalent video channels will experience a composite distortion (CIN) appearing as noise in the 54 to 550 MHz frequency spectrum.
12. The Noise Figure and C/N specifications are typical within specified passband.
13. All testpoints are directional and referenced to their associated RF port.
14. Powering requirements. See 333995-37 power curves for additional information.
15. Denotes range of operating levels at pilot frequency where ALSC will set up and operate. For operating levels below 45 dBmV, ALSC attenuator should be set to "DIGITAL" position.

Specifications subject to change without notice.

Ordering Information

1	2	3	4	5	6	7		8	9	10	11	12	13	14	15
F	M	6	B	E	P	J	-	R	M	6	A	6	x	x	N

1-3	Platform
FM6	Flex Max601 Series, 1GHz

4	Amplifier Type
B	Bridger Amplifier

5	Factory Equalization
E	24dB cable loss

6	Spacing
P	43dB

7	Frequency Split
J	42/54MHz

8-9	Level Control
RM	711.00MHz QAM

10	Return Gain
6	18dB active gain

11	Output Configuration
A	2 active outputs with internal testpoint

12	Powering/Surge
6	3 amp, 90 volt with crowbar surge protection

13	Housing
A	None
S	4 port 9-NH15 series, 1GHz, internal testpoints, strand mount housing

14	Housing Finish
1	Standard Finish or N/A
4	Corrosion protected finish

15	Future Option
N	N/A

Flex Max601 Bridger Amplifier



The capabilities, system requirements and/or compatibility with third-party products described herein are subject to change without notice. ARRIS, the ARRIS logo, C3™, C4™, CableEdge™, Cadant™, C-COR™, CHP Max™, Cornerstone™, CXM™, D5™, Digicon™, Flex Max™, Keystone™, MONARCH™, n5™, nABLE™, NSM™, nVision™, PLEXIS™, Regal™, ServAssure™, TeleWire Supply™, Touchstone™, VoiceAssure™, and WorkAssure™ are all trademarks of ARRIS Group, Inc. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and the names of their products. ARRIS disclaims proprietary interest in the marks and names of others. © Copyright 2008 ARRIS Group, Inc. All rights reserved. Reproduction in any manner whatsoever without the express written permission of ARRIS Group, Inc., is strictly forbidden. For more information, contact ARRIS.

FM601B-D-0608

