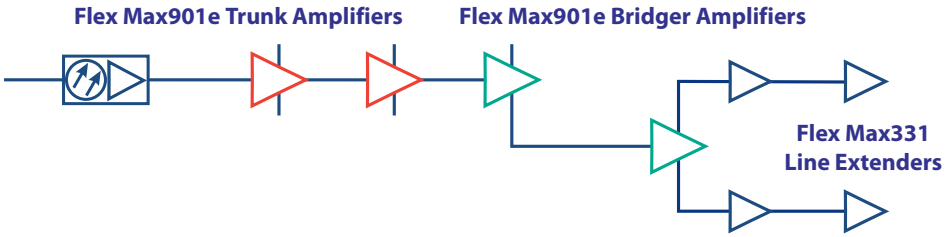
Flex Max901e 1 GHz Trunk Amplifiers Technical Specification

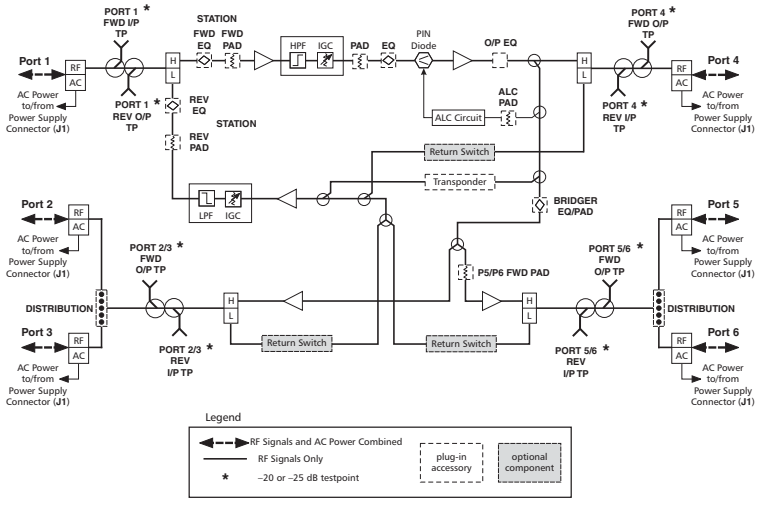
Application

The Flex Max901e Trunk is a three active output station that provides one trunk level output and two distribution level outputs. The two active distribution or bridger ports can be configured in the field to provide four outputs. Flex Max901e Trunks provide a high performance trunk level output to "express" to other Trunks in the cascade for maximum distortion performance.

The Flex Max901e Bridger is used at the end of the express line. The Flex Max901e Bridger provides two high-level distribution outputs, which can also be configured in the field to provide four outputs. These distribution ports can be independently configured for specific applications.



Functional Block Diagram



Flex Max901e Trunk Amplifier

Technical Specifications

Flex Max901e Trunk Amplifier Sample Specifications

	Forward		Return
	Trunk	2-Output Bridger	Trunk and Bridger
General			
Passband, MHz		54–1002	5–42
Housing, MHz		1002	—
AC Current Passing, A—Ports 1, 3, 4, 6		15	15
AC Current Passing, A—Ports 2, 5		13	13
Typical Operating Conditions			
Operational Gain, dB (–0, +0.5) (Notes 1 and 2)	33	43	18
Channels, Number of NTSC (Note 3)	79	79	6
Operating Levels (recommended)			
Frequency, MHz	1002/870/750/550/54	1002/870/750/550/54	42/5
Input, dBmV, min. (Note 4)	9.0/8.4/8.4/7.6/9.2	9.0/8.4/8.4/7.6/9.2	17/17
Output, dBmV (Notes 5 and 6)	42/40.5/39.5/37/32	52/49.5/47.5/44/35	35/35
Performance Specifications @ Recommended Levels (Temperature Range: –40 to 60°C)			
Carrier-to-Interference Ratio, dB (Note 7)			
Composite Triple Beat	84	75	80
Second Order Beat (F1 ± F2)	—	—	—
Cross Modulation (per NCTA std.) (Note 8)	76	67	74
Third Order Beat (F1 ± F2 ± F3)	—	—	—
Composite 2IM	79	73	82
Comp. Intermodulation Noise (CIN) (Note 9)	80	66	—
Comp. Intermodulation Noise (CIN) (Note 10)	86	72	—
Noise, 4 MHz, 75 Ohms (Note 2)	59/59.4/59.4/57.6/57.2	59/59.4/59.4/57.6/57.2	62
Noise Figure, dB (without EQ) (Note 11)	8/7/7/8/10	8/7/7/8/10	14
Full Gain, dB (without EQ and ALC)	38	48	19
Factory Alignment (with ALC Reserve, without EQ)			
Cable Loss, dB @ 1002 MHz	13	13	—
Linear Equalization, dB (Note 12)	—	8	—
Flat Loss, dB (Note 13)	21	31	19
Gain Slope, dB, typ. (Note 14)	–0.4 to 0.4	0 to 1.25	—
Flatness (@ Gain Slope), dB (P-V), typ. (Notes 15 and 16)	0.75	1.5	±0.5
Return Loss, dB min., all entry ports	16	16	16

Powering Requirements, max./typ. (Note 17)	**With Active Return**	
AC Voltage, 60 Hz	@ 90V	@ 60V
AC Power, Watts	53.5/49	53/48
AC Current, mA	735/700	970/880
DC Current, mA @ 24 V ± 0.5 V	1955/1775	1955/1775

Level Control		
Range, dB @ 1002 MHz	+4.0/–5.0 dB	—
Accuracy (–40 to 60°C)	±0.5 dB	—
Pilot Level Range (Note 18)	+5/–3 dB	—
Pilot Frequency Band (recommended) (Note 19)	499.25 MHz (single channel)	—

Specification Document Number 1502212 Rev D

Notes:

1. Spacing is at highest frequency with SEQ-1G-xx installed. Return spacing includes losses due to housing, diplex filters, and MEQ-42-xx.
2. Specifications are based on the amplifier configured (with two SPB-0) as a 2-output bridger with distribution outputs on ports 3 and 6. When using distribution plug-ins (SS-1000-2, SDC-1000-8, or SDC-1000-12), levels should be derated accordingly, based on the accessory specification.
3. NTSC video channels occupying the appropriate frequency spectrum per specified number of channels.
4. Recommended minimum forward input level at 1002 MHz including loss due to equalizer.
5. Recommended maximum return output level at 42 MHz including loss due to equalizer.
6. Bridger output: at specified operational tilt the maximum output level for 870 MHz or 1 GHz loading is 56.5 dBmV @ HF.
7. Distortion performance is derated accordingly to account for the influence of the digitally compressed channels 6 dB below equivalent video channels.
8. Cross modulation specification indicates typical cascade performance.
9. System 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 MHz frequency spectrum.
10. Systems operating with digitally compressed channels or equivalent broadband noise from 550-870 MHz at levels 6 dB below equivalent video channels will experience a composite distortion (CIN) appearing as noise in the 54-550 MHz frequency spectrum.
11. Noise figure and C/N specifications are typical within the specified passband.
12. Difference in linear loss between 54 MHz and 1002 MHz.
13. Total flat loss at 1002 MHz which includes insertion loss of linear EQ.
14. 'Typical' gain slope for the bridger port is measured without reference to the trunk port. Forward trunk port 'worst case' slope is –0.5 to 1.0 dB and forward bridger port 'worst case' slope is –1.0 to 1.0 dB.
15. Forward bridger port 'worst case' flatness is ±1.0 dB as referenced to the trunk port. The 'worst case' trunk port flatness is ±0.75 dB. All measurements are with NPB-00 installed in the Bridger EQ/PAD locations. Forward bridger port 'typical' flatness is measured without reference to the trunk port.
16. Reverse bridger port gain and flatness is 0 ± 0.5 dB as referenced to trunk port.

17. Powering requirements indicated are with the Model HEPS790-2.3 power supply 122027-05. See 333995-17 for additional information. For 60VAC Powering: AC Power consumption in Watts divided by a factor of 43 = Amps required. For 90VAC Powering: For ≤ 67VAC, 1.03 x (AC Power consumption in watts divided by voltage) = Amps required. For 67 - 90VAC, AC Power consumption in watts divided by 65 = Amps required.
18. ALC pilot level range is based on a nominal pilot level of 37 dBmV for pilot frequencies ≤ 499.25 MHz or 32 dBmV for pilot frequencies > 499.25 MHz. ARRIS recommends that if the pilot level, from a design standpoint, is more than +2/–1 dBmV from nominal, the ALC PAD should be changed to optimize the ALC pilot level range. This should alleviate any possible ALC setup and/or operation issues due to typical system level variations caused by system components flatness characteristics. See the FM901e equipment manual (P/N 1502154) for correct selection of ALC PAD value to insure proper ALC setup and operation.
19. For ALC pilot frequencies of ≤ 499.25 MHz, the ALC pilot filter is a single channel device (using an analog pilot). This means that the adjacent channels will have no affect on the RF power level that the RF detector is measuring. For ALC pilot frequencies > 499.25 MHz, the ALC pilot filter is not a single channel device. This means that the adjacent QAM channels will have an affect on the RF power level that the RF detector is measuring. ARRIS recommends that the adjacent QAM channels be present on the system before the ALC system of the amplifier station is balanced. This will avoid station re-balance in the future when those QAM channels would be added to the system.
20. Specifications are typical for Flex Max901e Trunks. Contact your ARRIS sales professional for Flex Max901e Bridger specifications.
21. Specifications for 870 MHz trunk configurations are available on request (*Specification document number 1502211*).

Specifications subject to change without notice.

Ordering Information

To configure a product that meets your specific needs, or for any questions, please contact your ARRIS Sales Professional. You may also use our Product Wizard, located at **support.arrisi.com** (User ID and password required). If you do not have a user ID and password or have forgotten your password, please use the Sign In Help section indicated.