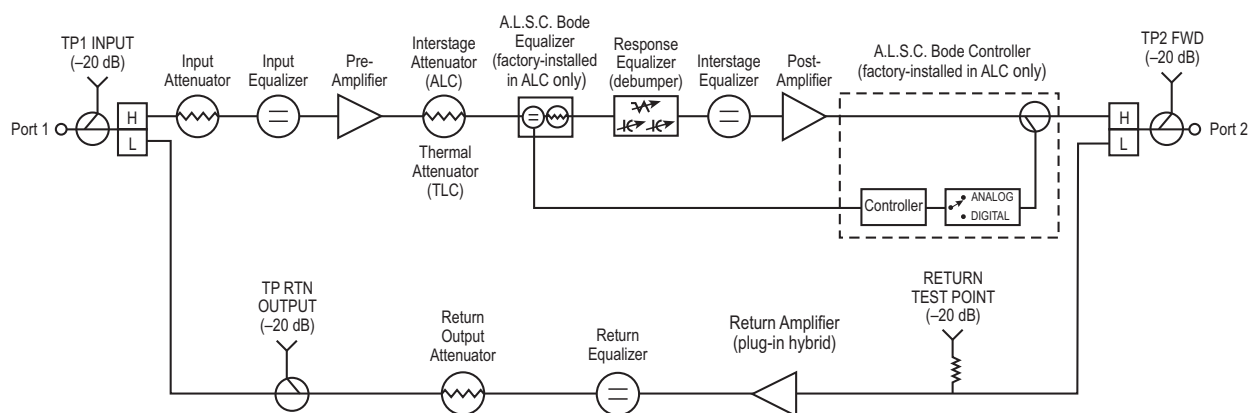




Flex Max601 1 GHz Line Extender Technical Specification

Functional Block Diagram



Accessories

Plug-ins for a Opti Max3100

Plug-in Series

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) for ALSC model	6-ALSC
Interstage Slope Equalizer (ALSC model)	PEQ-1G-09 (1GHz) ¹
Interstage Slope Equalizer (TLC model)	PEQ-1G-10 (1GHz) ¹

Required Plug-Ins

The Opti Max3100 is shipped with these positions empty. Install values based on the station's location.

Input Attenuator	10-A-WC ²
Return Output Attenuator	Jumper or 10-A-WC ²

Optional Plug-Ins

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

Input Equalizer	PEQ-1G (1GHz) ¹
Interstage Attenuator (ALSC model)	Jumper or 10-A-WC ²
Interstage Attenuator (TLC model)	0707424-804
Response Equalizer (debumper) ³	1503691-001/1503691-002
Return Output Equalizer	7-REF-WC

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

3. Response of 1503691-001 is flat in the center and is approximately 5dB higher at the lower (54MHz) and upper (1002MHz) ends of the frequency range. Response of 1503691-002 is flat from 54 to 200MHz and then sharply rises toward the upper frequency range.

Technical Specifications

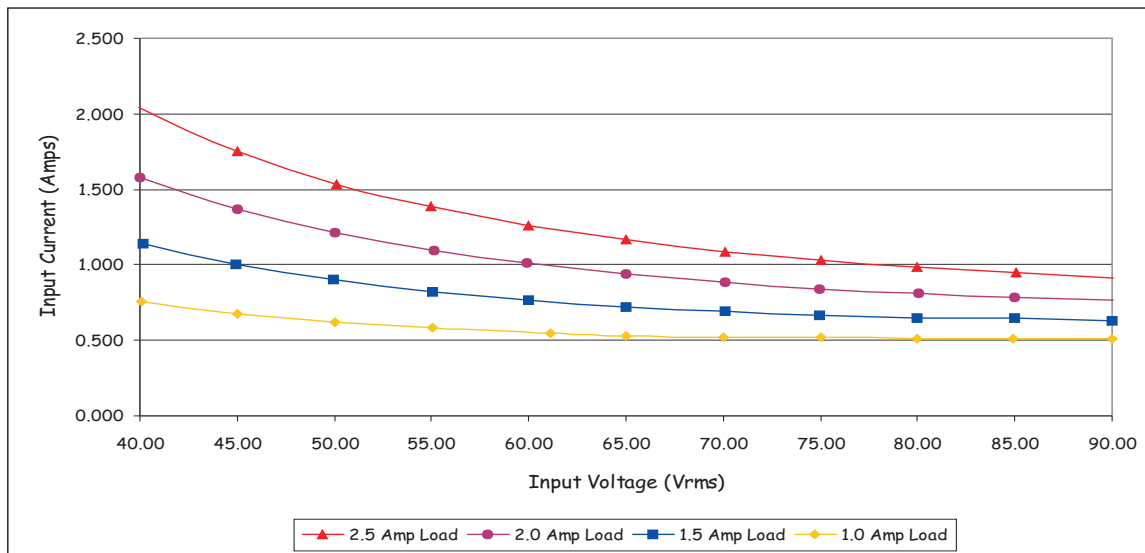
Power Supply Specifications

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

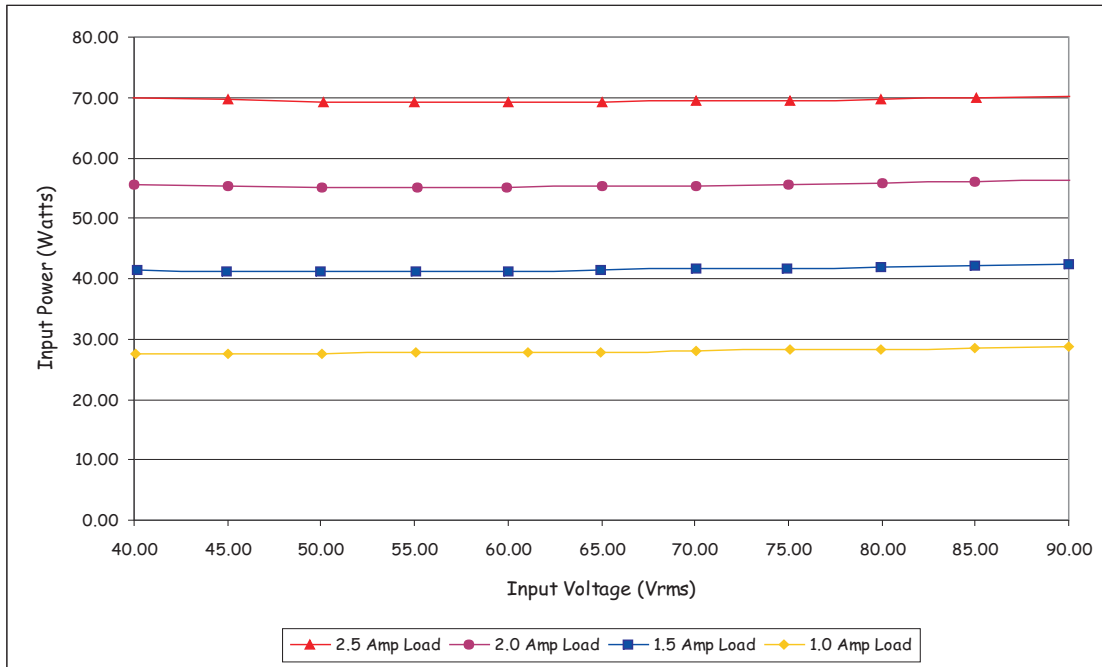
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1. Reflects an external ambient temperature range.

Specifications subject to change without notice



Flex Max601 Line Extender Power Supply — Input Current vs. Input Voltage



Flex Max601 Line Extender Power Supply — Input Power vs. Input Voltage

Flex Max601 Specifications

	FORWARD	RETURN
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	36/33/33	18
Channels, Number of NTSC ²	79	6
Operating Levels, Recommended		
Frequency, MHz	1002/870/750/550/54	42/5
Input, dBmV min., Manual ³	16/13.5/12.5/10/8.5	17/17
Input, dBmV min., Thermal or ALSC ³	19/16.5/15.5/13/11.5	17/17
Output, dBmV ^{4,5}	52/49.5/47.5/44/35	35/35

Flex Max601 1 GHz Line Extender Technical Specification

	FORWARD			RETURN
Performance Characteristics at Recommended Levels (Temperature Range: -40°C to 60°C)				
Carrier-to-Interference Ratio, dB ⁶	Manual/Thermal/ALSC			
Composite Triple Beat	75/72/72			80
Second Order Beat (F1 ± F2)	—			—
Cross Modulation ⁷ (per NCTA std.)	69/66/66			74
Third Order Beat (F1 ± F2 ± F3)	—			—
Composite 2IM	72/69/69			82
Comp. Intermodulation Noise CIN ⁸	71			—
Comp. Intermodulation Noise CIN ⁹	76			—
Noise Figure¹⁰ (without EQ)				
Frequency, MHz	1002/870/750/550/54			42
Manual NF, dB	10/10/9.5/9/10.5			7.5
Thermal NF, dB	10/9.5/9/9/10			7.5
ALSC NF, dB	10/9.5/9/9/10			7.5
Noise, Manual, 4MHz, 75Ω	64/61.5/61/59/56			68.5
Noise, Thermal and ALSC, 4MHz, 75Ω	67/65/64.5/62/59.5			68.5
Full Gain, dB (without EQ and ALC, without EQ and Thermal, and without EQ)	37			19
Factory Alignment, with ALC Reserve, Without EQ				
	Manual	Thermal	ALSC	Return
Cable Loss, dB @ 1002MHz	13	13	13	—
Flat Loss, dB	24	21	21	19
Gain Slope, dB	±1.0	±1.0	±1.0	±1.0
Flatness (@ Gain Slope), dB	±0.8	±0.8	±0.8	±0.8
Return Loss, dB Minimum, All Entry Ports	16	16	16	16
Testpoint Accuracy				
-20dB Forward Input Test Point, dB (Directional Coupler Type)	± 0.5 (54 to 550MHz) ± 1.0 (550 to 1002MHz)			—
-20dB Forward Output Testpoint(s), dB (Directional Coupler Type)	± 0.5 (54 to 550MHz) ± 1.0 (550 to 1002MHz)			—
-20dB Return Input Testpoint, dB (Resistive Type)	—			± 0.75
-20dB Return Output Testpoint, dB (Directional Coupler Type)	—			± 0.5
Powering Requirements¹¹				
	Manual	Thermal	ALSC	
AC Voltage, 60Hz	60V 90V	60V 90V	60V 90V	—
AC Power, Watts, Max./Typ.	27/23 27/23	27/23 27/23	29/24. 29/24. 5 5	—
AC Current, mA	610/52 375/32 0 0	610/52 375/32 0 0	655/55 405/34 5 0	—
DC Current, mA @ 24 ± 0.5, max./typ.	865/800		965/890	—
Level Control				
Range, dB @ 1002 MHz	—		± 3.0	—
Accuracy, dB (-40°C to 60°C)	—		± 1.0	—
Operating Level Range, dBmV (at pilot frequency) ¹²	—		37 to 52	—
Pilot Frequency, (Recommended)	—		711MHz	—

Flex Max601 1 GHz Line Extender Technical Specification

	FORWARD	RETURN
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, Max.		
Channel 2, ns/3.58 MHz	28	—
Channel 3, ns/3.58 MHz	12	—
Channel 4, ns/3.58 MHz	7	—
Channel 5, ns/3.58 MHz	4	—
Return Group Delay, Maximum		
5.5–7 MHz, ns	—	55
10–11.5 MHz, ns	—	10
35–36.5 MHz, ns	—	10
38.5–40 MHz, ns	—	30
Hum Modulation (Time Domain at 15 A)		
5–10 MHz, –dBc	—	55
11–42 MHz, –dBc	—	65
54–1002 MHz, –dBc	60	—

Specification Document Number 1503615 Rev A

1. Forward spacing at highest frequency with PEQ-1G-xx equalizer installed. Return spacing includes losses due to housing, diplex filters, and return EQ.
2. NTSC video channels occupying the appropriate frequency spectrum per specified number of channels.
3. Recommended minimum forward input level includes loss due to equalizer.
4. Recommended maximum return output level at 42 MHz.
5. At specified operational tilt, maximum output level for 1 GHz or 870 MHz loading is 56.5 dBmV @ high frequency.
6. 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.
7. Cross modulation specification number indicates typical cascade performance.
8. 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.
9. 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.
10. The Noise Figure and C/N specifications are typical within specified passband where $C/N = \text{Input Level (dBmV)} + 59 - NF$.
11. Powering requirements. See 333995-37 power curves for additional information.
12. 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

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.

www.arrisi.com

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