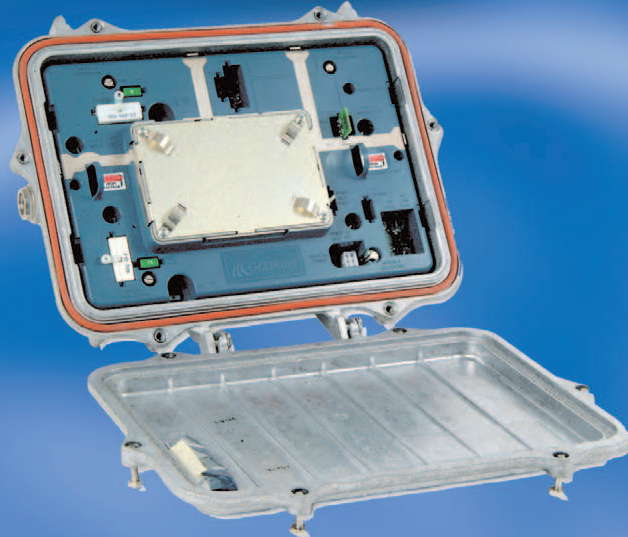


Flex Max



Flex Max340

Line Extenders



B R O A D B A N D C O M M U N I C A T I O N S P R O D U C T S

- **Transfer linearization**
- **Power doubling hybrids**
- **Robust and reliable**
- **15 Amp power passing**
- **Directional coupler –20dB testpoints**

C-COR **Flex Max340 Line Extenders** use our performance enhancing Transfer Linearization (TL) Technology in conjunction with reliable, field-proven silicon-based Power Hybrid Doubling (PHD) technology to significantly improve the output capabilities of our 862MHz line extender.

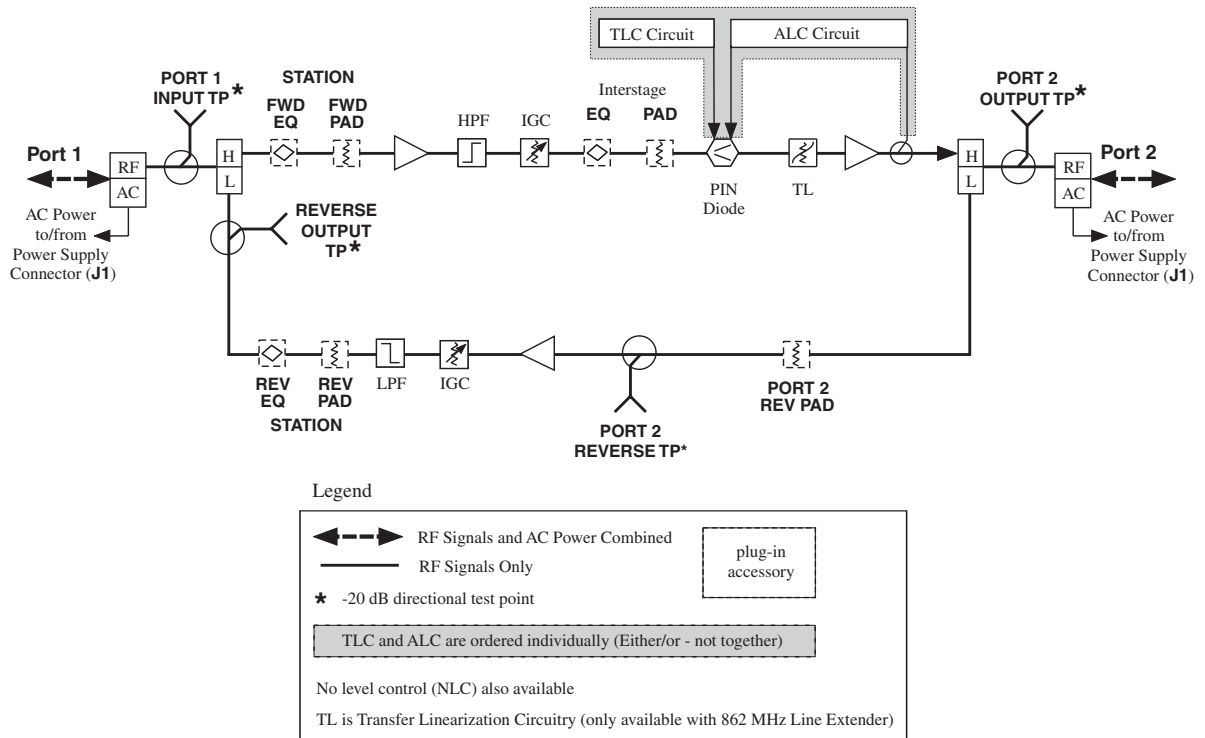
Flex Max340 Line Extenders are available with or without TL Technology. TL Technology improves the linear characteristics of standard, highly reliable silicon technology hybrids, thereby allowing for higher operating level capabilities and/or improved distortion performance, in addition to higher channel capacities and improved system level performance. TL enhanced products also translate into fewer active devices necessary in the HFC architecture, thus reducing maintenance, installation, and powering costs.

Features

- TL Technology for improved performance capabilities over standard silicon-based technology
- High performance push-pull return amplifier for a wide range of signals on the return path
- Capable of handling 15 amperes of AC through-current for tough powering demands
- Pin-fin housing design for improved heat management and cooler operation
- C-COR Surge Protection Module (standard) decreases amplifier failure rates by dissipating surges due to lightning, power transients, and other causes
- User-configurable time-delay circuitry reduces load requirements on the network power supply during initial power-up
- Directional testpoints for accurate and repeatable measurements
- Reversible RF module gives operators the flexibility to make network design changes as fiber is pushed deeper and new optical nodes are deployed

Flex Max340 Line Extenders

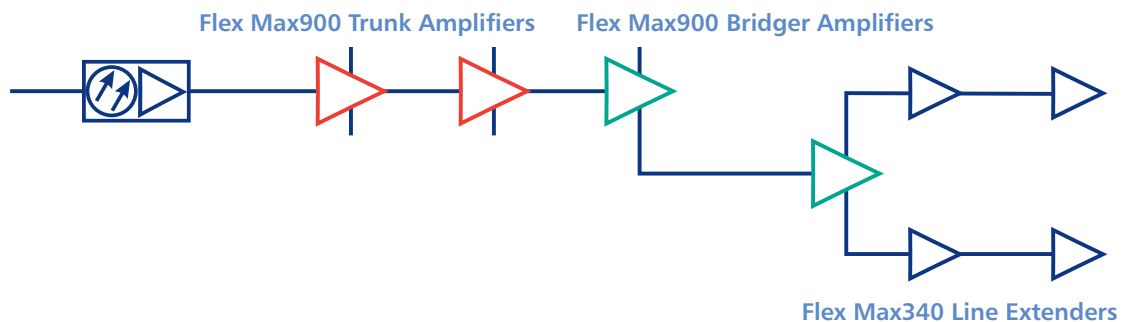
Functional Block Diagram



Flex Max340 Line Extender with TL Technology

Application

Flex Max340 Line Extenders amplify and control forward feeder signals from a network amplifier or other line extender. Return path circuitry of the Flex Max340 Line Extender also amplifies return signals from the subscriber.



Application Diagram

Flex Max340 Line Extender Sample Specifications

	Forward	Return
General		
Bandwidth, MHz	54 to 862	5 to 42
AC Current Passing, A	15	15
Typical Operating Conditions		
Operational Gain, dB (Note 1)	31	18
Channels, Number of NTSC (Note 2)	112/96/79	6
Operating Levels (Recommended)		
Frequency, MHz	862/750/650/550/54	42/5
Input, dBmV, min. (Note 3)	20.5/19/18/17/12	17/17
Output, dBmV (Note 4)	51.5/49.5/48/46/37	35/35
Performance Specifications @ Specified Levels (Temperature Range: -40 to 60°C)		
Carrier-to-Interference Ratio, dB		
Composite Triple Beat	63/68/73	—
Second Order Beat (F1 ± F2)	—	82
Cross Modulation (per NCTA std.) (Note 5)	60/64/65	78
Third Order Beat (F1 ± F2 ± F3)	—	89
Composite 2IM	58/66/73	—
Composite Intermodulation Noise CIN (Note 6)	66	—
Noise, 4MHz, 75Ω (Note 7)	69.5/69/68/67/62	69
Noise Figure, dB (without EQ) (Note 7)	9/8/8/8/8	7
Full Gain, dB (without EQ and ALC)	35.5	19
Factory Alignment (with ALC reserve, without EQ)		
Cable Loss, dB @ 862MHz	8	—
Flat Loss, dB	24	19
Gain Slope, dB	-0.25 to 0.5	-0.5 to 0.5
Flatness, dB	± 0.5	± 0.5
Return Loss, dB min., All Entry Ports	16	16.5
Powering Requirements, Max./Typ. (Note 8)		With Active Return
AC Voltage, 60Hz		@ 90V @ 60V
AC Power, Watts		29.5/26 29/25.5
AC Current, mA		475/450 580/525
DC Current, mA @ 24V ± 0.5V		1075/940 1075/940
Automatic Level Control		
Range, dB @ 862MHz	+3.5/-4.0	—
Accuracy (-40 to 60°C), dB	± 0.5	—
Operating Level Range (from specified levels), dB	+2/-6	—
Pilot Frequency Band (Recommended), MHz	439.25 (single channel)	—
Gain Control		
Plug-in Pad	SPB-xx	SPB-xx
Equalization to Compensate for Cable Loss		
Plug-in Equalizers for Additional Equalization	SEQ-862-xx	MEQ-42-xx
Chrominance/Luminance Delay, Max.		
Channel 2, ns/3.58MHz	30	—
Channel 3, ns/3.58MHz	11	—
Channel 4, ns/3.58MHz	6	—
Channel 5, ns/3.58MHz	3.6	—
Return Group Delay, Max.		
5.5-7MHz, ns	—	45
10-11.5MHz, ns	—	5
35-36.5MHz, ns	—	9
38.5-40MHz, ns	—	28

Flex Max340 Line Extender Sample Specifications

Hum Modulation (Time Domain @ 15A)

5–10MHz, –dBc	—	55
11–750MHz, –dBc	60	60
751–862MHz, –dBc	50	—

Specification Document Number 601071 Rev H

Notes:

1. Spacing is at the highest frequency with SEQ-862-xx installed. Return spacing includes losses due to housing, diplex filters, and MEQ-42-xx.
2. NTSC video channels occupying the appropriate frequency spectrum per specified number of channels.
3. Recommended minimum forward input level at 862MHz including loss due to equalizer.
4. Recommended maximum return output level at 42MHz including loss due to equalizer.
5. Cross modulation specification number indicates typical cascade performance.
6. System operating with digitally compressed channels or equivalent broadband noise from 550 to 862MHz at levels 6dB below equivalent video channels will experience a composite distortion (CIN) appearing as noise in the 54 to 550MHz frequency spectrum.
7. The Noise Figure and C/N specifications are "Typical" within the specified passband.
8. Power Supply is internal to RF module. See 333995-25 for additional information.

Specifications are subject to change without notice.

Model Options

Options	Description	NL	x	x	x	x	x	–	x	6	x	2	x	x
NL	Flex Max340 Line Extender	Line Extender												
1	100 Series	Series												
2	200 Series with TL Technology													
4	28dB PHD													
5	32dB PHD													
6	31dB PHD	Spacing												
7	35dB PHD													
C	750MHz	Bandwidth												
D	862MHz													
C	7dB	Factory Equalization												
D	8dB													
J	42/54MHz													
N	65/80MHz	Frequency Split												
Q	55/70MHz													
–	Spacer	Spacer												
A1	TLC													
KB	439.25MHz TV													
KC	451.25MHz TV													
LO	499.25MHz TV	Level Control												
L4	495.25MHz TV													
NA	None													
6		Return												
B	1 Output with –20dB Internal TPs	Output Configuration												
D	1 Output with –20dB External TPs													
2	1.0 Amp, 90V Transformerless	Powering (Time-delayed)												
A	None													
B	2 Port, 1 GHz, with Internal TPs	Housing												
G	2 Port, 1 GHz, with External TPs													
1	Standard	Housing Finish												
4	Corrosion Protected													

In certain markets, Flex Max340 Line Extenders were referred to as FlexNet NL Series Line Extenders.



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