Line Extender III PHD
750MHz with 40/52 MHz Split

22871

DESCRIPTION

The Line Extender III (LEIII) family of RF amplifiers provide optimum performance and reliability for broadband network applications. All LEIII amplifier modules offer fifteen amp current carrying capacity, and are pre-configured with diplexers and reverse amplifier for optimum reverse performance.

The LEIII PHD amplifier module can be field configured with a variety of options to meet specific requirements.

For applications where output level control is not required, the interstage is typically configured with a stand alone Interstage Equalizer (ISEQ).

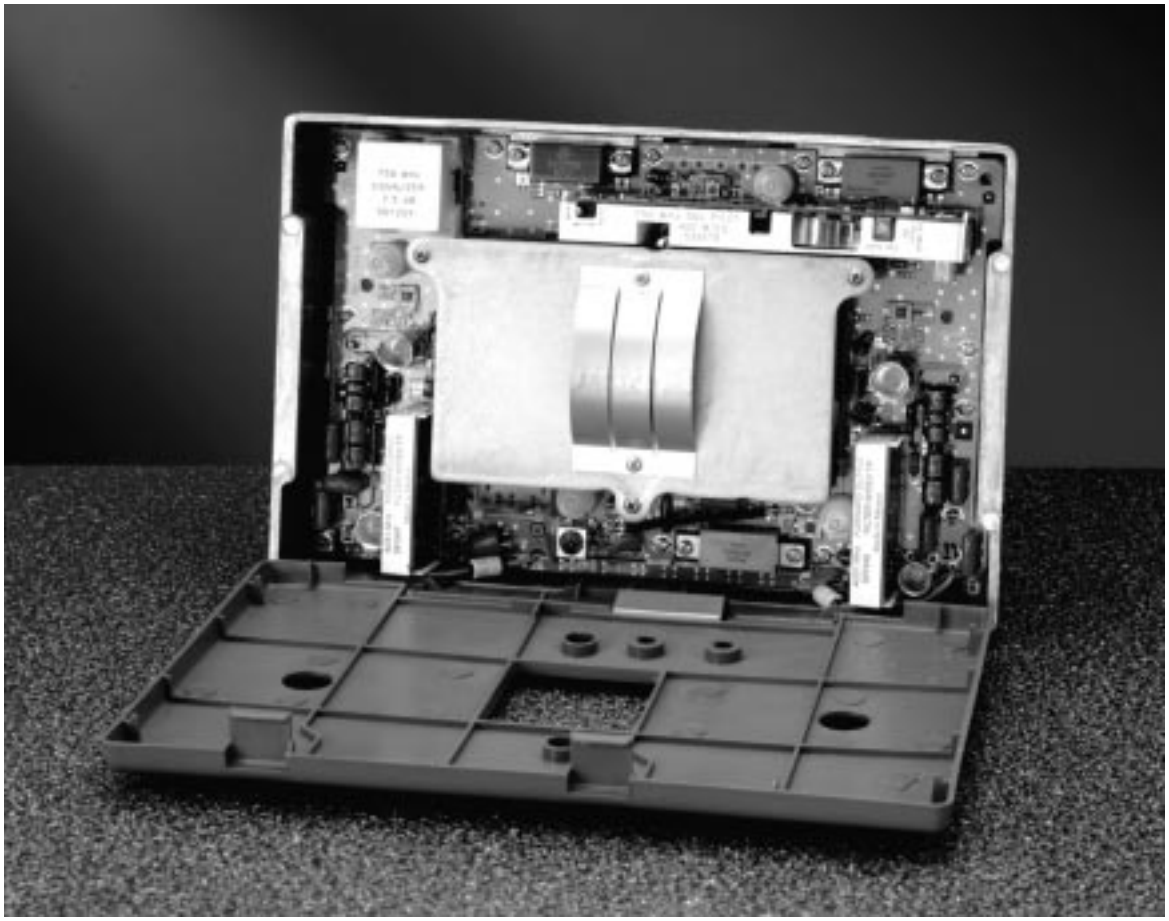
For basic output level control in aerial plant applications, a combination Thermal Compensator / ISEQ is available.

For the most accurate degree of output level control in both aerial and underground plant, a combination AGC / ISEQ is the desired option.

The LEIII PHD amplifier module provides one (bridger level) output.

FEATURES

- 60 and 90 V AC powering capability
- 15 ampere current capacity (steady state) and 25 ampere surge survivability
- Integrated reverse amplifier, with optimized diplex filter group delay for forward and reverse paths
- Reverse input test point and input pad allowing optimum reverse path alignment
- Unitized design (amplifier and power supply in a single module) enables simplified and faster maintenance
- High efficiency, transformer-less power supply lowers system operating cost
- Directional Coupler RF testpoints provide optimum accuracy
- Surge Resistant™ Circuitry ensures hybrid protection without fuses or other nuisance failure causing device



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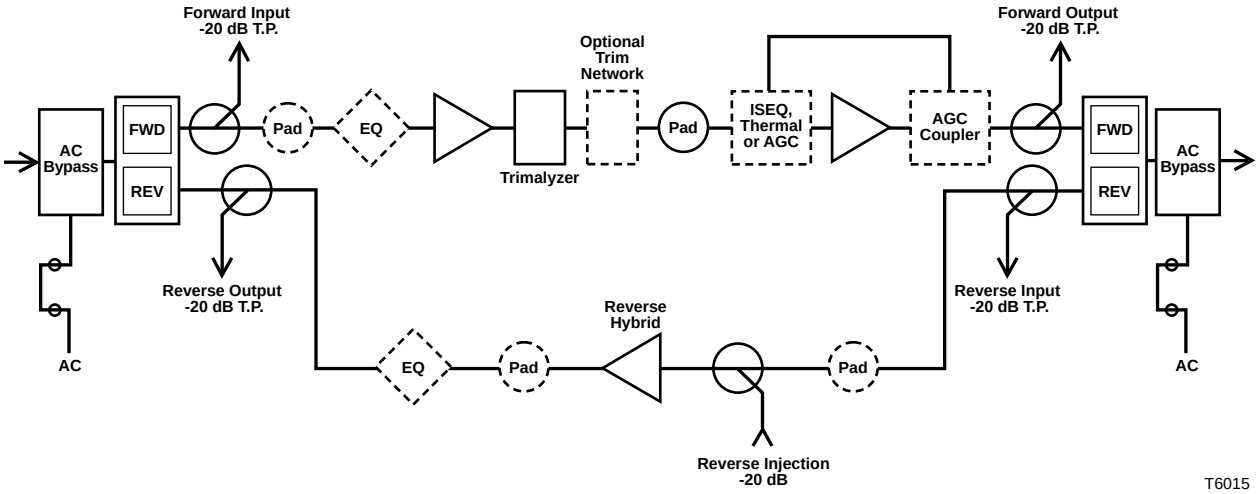
LINE EXTENDER III-PHD — 5-40/52-750 MHz



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LINE EXTENDER III-PHD – 5-40/52-750 MHZ

General Station Performance Data

	Units	Forward	Reverse
Pass Band	MHz	52-750	5-40
Amplifier Type	---	PHD	PP
Operational Temperature Range	degrees	-40 to +140 F	-40 to +140 F
Frequency Response	dB	±0.5	±0.5
Auto Slope & Gain Range	dB	±4	N/A
Return Loss	dB	15	16
Operational AC Through Current	Amps	15	N/A
Max AC Through Current (2 hrs)	Amps	25	N/A
Hum Modulation @ 10 A	dB	70 (55-750 MHz)	58 (5-15 MHz)
(over specified frequency range)			65 (16-40 MHz)
Hum Modulation @ 15 A	dB	62 (55-150 MHz)	50 (5-15 MHz)
(over specified frequency range)		60 (151-750 MHz)	59 (16-40 MHz)
		58 (601-750 MHZ)	
Current Draw @ 24 V DC	Amps	0.63	0.13
Test Points (±0.5 dB)	dB	-20	-20
Reference Output Level–High Freq.	dBmV	46 @ 750 MHz	36 @ 40 MHz [5]
		44 @ 550 MHz	
Reference Output Level–Low Freq.	dBmV	36 @ 54 MHz	36 @ 5 MHz [5]
Reference Output Tilt [1]	dB	10.0	0

Forward Station Performance

	Units	Manual No I/S EQ	Manual 9 dB I/S EQ	Thermal 9 dB I/S EQ	Auto 9 dB I/S EQ
Operational Gain [3]	dB	36	34.5	29	27.5
Internal Tilt [2] (±0.5 dB)	dB	+0.5	+6.5	+5.0	+6.2
Noise Figure [3] @ 54 MHz	dB	7	7.5	8	8
Noise Figure [3] @ 750 MHz	dB	9	9	9.5	9.5
77 NTSC Channels (CW) [4]					
Composite Triple Beat	dB	70	70	69	66
Cross Modulation	dB	66	66	65	62
Composite Second Order (high side)	dB	69	68	66	63
110 NTSC Channels (CW)					
Composite Triple Beat	dB	60	60	59	55
Cross Modulation	dB	61	61	60	56
Composite Second Order (high side)	dB	62	62	61	59

Reverse Performance - 5 CW carriers

	Units	
Operational Gain [6]	dB	19.5
Internal Tilt [2] (±0.5 dB)	dB	0
Reverse Noise Figure [6]	dB	6
Composite Triple Beat	dB	90
Cross Modulation	dB	78
Composite Second Order	dB	81

Delay Characteristics

Forward (Chrominance to Luminance Delay)		Reverse (Group Delay in 1.5 MHz BW)	
Freq. (MHz)	**Delay (ns)**	**Freq. (MHz)**	**Delay (ns)**
55.25 - 58.83	24	5.0 - 6.5	55
61.25 - 64.83	12	10 - 11.5	6
67.25 - 70.83	6	33.5 - 35.0	8
77.25 - 80.83	3	38.5 - 40.0	25

NOTES:

(1) Forward reference output tilt is specified as “CABLE” tilt (as opposed to “linear” tilt).
(2) Down tilt, the effect of cable, is represented by a (-). Up tilt, the effect of equalization, is represented by a (+).
(3) Forward gain and noise figure with 0 dB input EQ and 1 dB input pad.
(4) Activation of digital loading may impact analog performance.
(5) Reverse output reference level with a 0 dB output EQ and 1 dB output pad.
(6) Reverse gain and noise figure for station, with 0 dB reverse input pad, 0 dB reverse output EQ, and 1 dB reverse output pad.

Unless otherwise noted, the above specifications reflect typical station performance at stated reference levels in the recommended operating configuration, including the input equalizer and reverse filters where applicable. Unless otherwise noted, specifications are based on measurements made in accordance with NCTA Practices for Measurements on Cable Television Systems using standard frequency assignments and are referenced to 68°F (20°C).

Line Extender III PHD — 5-40/52-750 MHz

Station Powering Data

Line Extender III PHD		I DC (Amps)	AC Voltage										
			90	85	80	75	70	65	60	55	50	45	40	35
Manual / Thermal	AC Current (A)	0.76	0.38	0.41	0.42	0.44	0.46	0.48	0.49	0.52	0.55	0.58	0.61	0.67
	Power (W)		22.2	21.8	21.8	21.9	21.5	21.8	21.8	21.7	22.3	22.3	21.8	22.2
AGC	AC Current (A)	0.86	0.42	0.46	0.46	0.48	0.50	0.52	0.54	0.57	0.60	0.64	0.68	0.76
	Power (W)		24.7	24.4	24.3	24.4	24.2	24.3	24.4	24.3	24.8	24.8	24.4	24.6

Data is based on stations configured for 2-way operation.

ORDERING INFORMATION

Housing — 1 Required

- #545443 Uncoated housing, high current passing
- #545444 Coated housing, high current passing
- #548774 High current upgrade kit for LE housing (includes two seizure assemblies & two anvils)

Amplifier Module — 1 Required

- #573900 Forward & Reverse with power supply. Power supply has 30 V AC undervoltage lockout.
- #590523 Forward & Reverse with power supply. Power supply has 40 V AC undervoltage lockout.

Required Accessories

- Plug-in Pads (attenuators):
  - 2 required for forward (1 input, 1 interstage)
  - 1 required for reverse (1 output)
  - 1 optional for reverse (1 input)
  - 1 required for AGC option

  Available in 0.5 dB steps from 0 to 20 dB. Order Model PP-* (* denotes pad value), specify value.
- Plug-in Forward Input Equalizer, 1 required. Available in 1.5 dB steps from 0 to 28.5 dB at 750 MHz. Order Model EQ750-* (* denotes equalizer value), specify value.
- Reverse Equalizer, Variable or Fixed, 1 required (reverse output), select one of either type:

  Variable Reverse Equalizers

  #511075 1.5 to 4.5 dB at 40 MHz
  #511295 4.5 to 7.5 dB at 40 MHz
  #511298 7.5 to 12.0 dB at 40 MHz

  Fixed Reverse Equalizers

  Available in 1 dB steps from 1 to 12 dB at 40 MHz. Order Model EQ40S-* (* denotes equalizer value), specify value.
- One of the following interstage accessories is required for most applications:

  #539578 445.25 MHz single pilot AGC with 9 dB fixed value interstage equalizer
  #503100 Thermal compensator with 3-9 dB variable interstage equalizer
  #511380 3-9 dB variable interstage equalizer

Optional Accessories

- #467351 230 VAC Crowbar Surge Protector
- Plug-in Cable Simulator. Simulates cable losses, creating tilt opposite that of equalizers. Use in place of forward input equalizer as needed to maintain proper output tilt in short spaced locations. Available in 1.5 dB steps from 1.5 dB to 12.0 dB cable loss at 750 MHz. Order Model CS 750-* (* denotes CS value), specify value.
- Interstage Trim Network,. Type and use factor is determined by evaluating actual system frequency response. Use as needed.

Related Equipment

- #501111 Long Reach Test Point Adapter
- #276982 Reverse Injection Probe (3 dB insertion loss)
- #143190 Cable Seizure Wrench

MECHANICAL SPECIFICATIONS

Housing Dimensions
11.5 in. L x 9.5 in. H x 4.0 in. D
292.1 mm L x 241.3 mm H x 101.6 mm D
Weight
Housing 6 lbs, 6 oz; 2.9 kg
Module 2 lbs, 13 oz; 1.3 kg

Specifications and product availability are subject to change without notice.

Scientific Atlanta

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