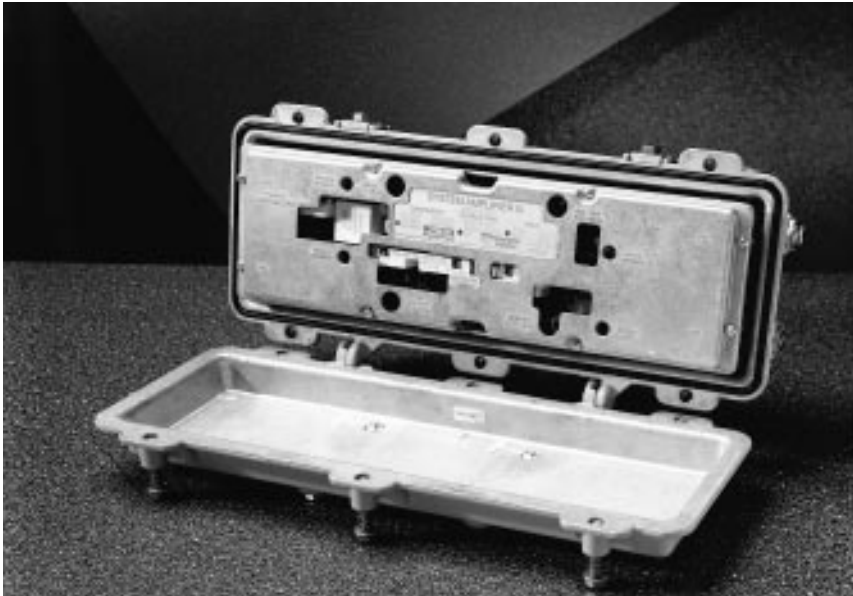


System Amplifier III 750 MHz with 40/51 MHz Split High Gain Dual



22396

DESCRIPTION

The System Amplifier III family of RF amplifiers includes a variety of gain, output, and frequency configurations to optimally address the various network architectures being deployed. Additionally, these amplifiers incorporate several features to increase current passing capability by as much as 50 percent and tolerance to high current surges is greatly improved. This results in significant cost reductions in repair and replacement of amplifiers damaged by electrical surges. The high current housings and amplifier modules are indicated by blue insulators on the module "F" connectors and housing seizure connectors.

The System Amplifier III product line also incorporates a metal cover which improves the performance of the station. This family of amplifiers has

CE been designed to afford maximum flexibility and

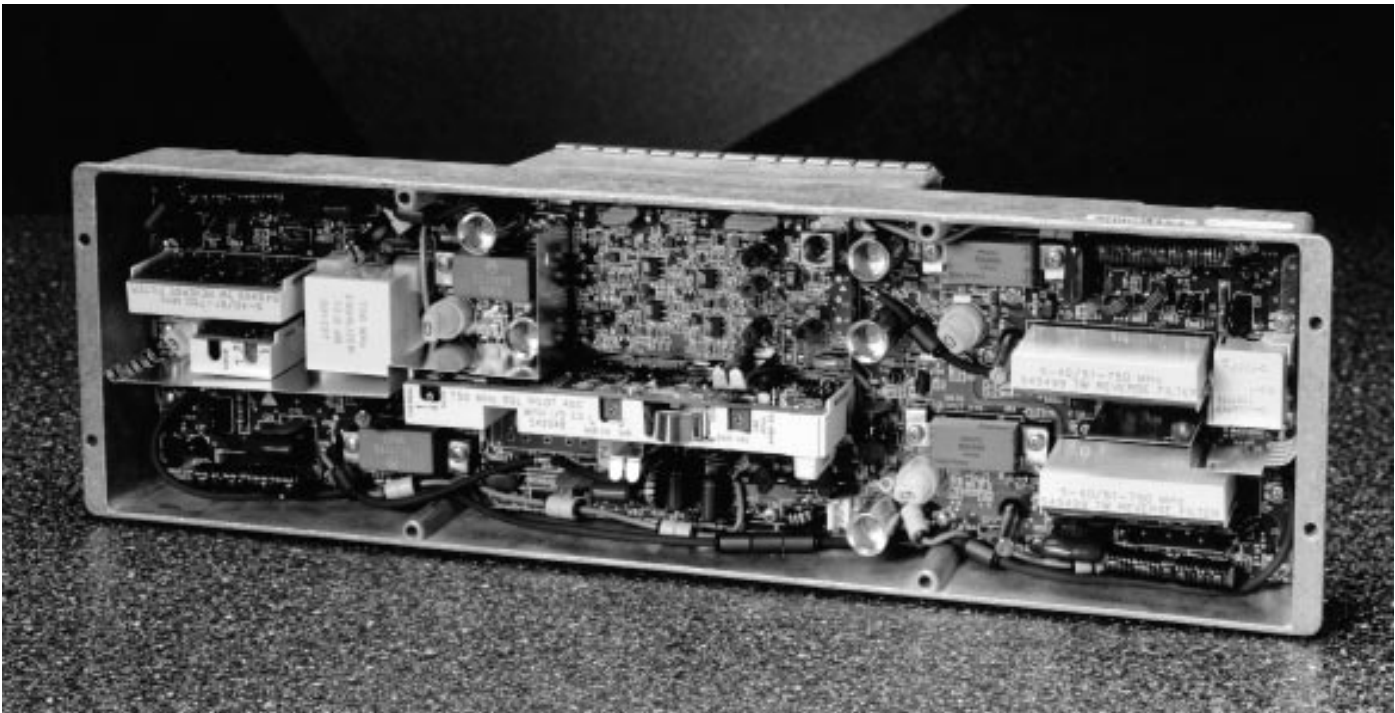
upgradability to enable low-cost delivery of basic broadcast video, data, and voice services. Reliability and maintain-ability are also at the

core of the designs to ensure maximum network availability.

The High Gain Dual output module is a valuable member of the System Amplifier III product line. Providing two high level outputs (with the capability to split one to feed a third port) the High Gain Dual is primarily utilized in advanced Fiber to the Serving Area (FSA™) architectures functioning as a tap amplifier. With an extra amplification stage, it is also very useful in long-reach applications, or as a terminating bridger in more traditional architectures.

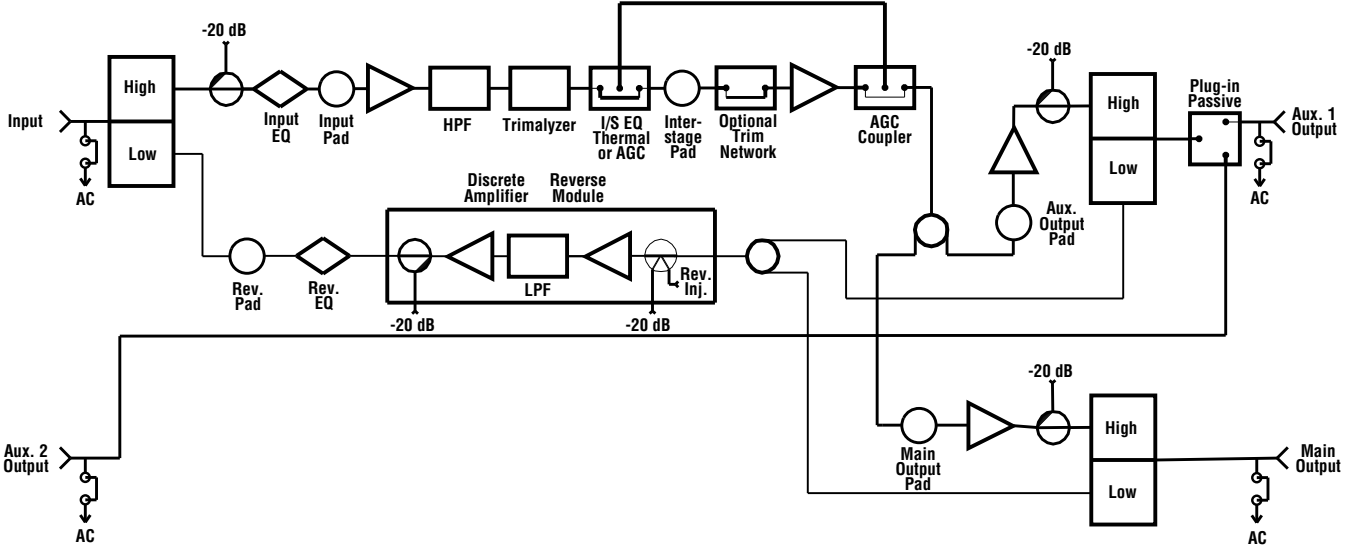
FEATURES

- 60 and 90 V AC powering capability
- 15 ampere current capacity (steady state) and 25 ampere surge survivability
- Unitized design (amplifier and power supply in a single module) permits simplified and faster maintenance
- Optional status monitoring capability
- Integrated reverse amplifier for two-way applications
- High-efficiency, transformer-less power supply reduces system operating costs
- Reversible module increases availability during upgrading and reconfiguring
- Fixed value plug-in accessories (common with all System Amplifier II, II+ and III as well as Line Extender II and III) simplify maintenance and reduce inventory requirements
- Surge Resistant™ circuitry ensures hybrid protection without fuses or other nuisance failure causing devices
- Utilizes a high-current four-port housing featuring:
 - single tool (1/2-inch hex head) installation and maintenance
 - composite RFI/weather gasket
 - optional side-entry ports for pedestal installation



22397

HIGH GAIN DUAL SYSTEM AMPLIFIER III – 5-40/51-750 MHz



M0895-17

HIGH GAIN DUAL SYSTEM AMPLIFIER III – 5-40/51-750 MHz

General Station Performance Data

	Units	Forward	Reverse
Pass Band	MHz	51-750	5-40
Amplifier Type	---	PHD	PP
Full Gain	dB	44.4 ⁷	See Below
Frequency Response	dB	±0.5	±0.5
Auto Slope & Gain Range	dB	±4	N/A
Return Loss	dB	16	16
Max AC Through Current (continuous)	Amps	15	---
Max AC Through Current (surge)	Amps	25 (up to 2 hours)	---
Hum Modulation @ 10 A/15 A	dB	65/56	59/54
Current Draw @ 24 V DC	Amps	1.26	0.10
Test Points (±1.0)	dB	-20	-20
Reference Output Level	dBmV	46 @ 750 MHz 44 @ 547.25 MHz 36 @ 55.25 MHz	36 @ 40 MHz ³ 36 @ 5 MHz ³ ---

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	dB	40.0 ⁷	40.0 ⁷	38.9	35.2
Internal Tilt (±0.5 dB) ²	dB	0.0	+6.8	+6.8	+6.8
Noise Figure @ 51 MHz	dB	6.2	6.9	7.9	8.2
Noise Figure @ 750 MHz	dB	10.1	10.1	10.4	10.7

77 NTSC Channels + 200 MHz Digital Tier¹

	Units	Manual No I/S EQ	Manual 9 dB I/S EQ	Thermal 9 dB I/S EQ	Auto 9 dB I/S EQ
Composite Triple Beat	dB	68.6	68.6	68.5	68.2
Cross Modulation	dB	64.7	64.6	64.5	64.1
Composite Second Order	dB	68.1	68.2	68.0	67.7

110 NTSC Channels

	Units	Manual No I/S EQ	Manual 9 dB I/S EQ	Thermal 9 dB I/S EQ	Auto 9 dB I/S EQ
Composite Triple Beat	dB	60.2	60.1	60.0	59.7
Cross Modulation	dB	60.7	60.6	60.5	60.1
Composite Second Order	dB	65.8	65.7	65.5	65.2

Reverse Performance - 5 CW carriers

	Units	Low-gain	High-gain
Operational Gain ⁴	dB	23	27
Internal Tilt (±0.5 dB) ²	dB	-0.75	-0.75
Noise Figure @ 5 MHz	dB	6.5	6.5
Noise Figure @ 40 MHz	dB	7.0	7.0
Composite Triple Beat	dB	92	92
Cross Modulation	dB	83	83
Composite Second Order	dB	89	89

Group Delay

Forward (51-750 MHz)		Reverse (5-40 MHz)	
Freq. (MHz)	ns @ 3.58 ⁵	Freq. (MHz)	ns @ 2.0 ⁶
55.25	40.2	5 to 7	68.6
61.25	12.0	7 to 9	20.4
67.25	6.2	9 to 11	20.4
77.25	3.0	34 to 36	21.0
---	---	36 to 38	37.0

NOTES:

- (1) Noise and distortions will degrade an additional 1.0 dB due to the adjacent digital loading. (Digital 6 dB down reference analog carrier.)
- (2) Down tilt, the effect of cable, is represented by a (-). Up tilt, the effect of equalization, is represented by a (+).
- (3) Reverse output reference level at the reverse output test point.
- (4) Gain as measured between the reverse input and output test points. An input loss of 4.25 dB and output loss of 1.75 dB must be accounted for in the reverse path design. Output loss includes 1 dB to account for reverse equalizer.
- (5) Chrominance/Luminance delay at 3.58 MHz above video carrier.
- (6) Propagation delay in 2 MHz bandwidth.
- (7) Operational gain must not exceed 40 dB. For manual operation, use an interstage pad to reduce the station gain as necessary.

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. 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).

750 MHz System Amplifier III High Gain Dual

Station Powering Data

System Amplifier III High Gain Dual		I DC	AC Voltage											
		(Amps)	90	85	80	75	70	65	60	55	50	45	40	35
Manual/Thermal	AC Current (A)	1.36	0.55	0.58	0.60	0.63	0.64	0.67	0.69	0.73	0.79	0.87	0.98	1.13
	Power (W)		37.2	37.2	37.0	36.9	36.6	36.6	36.4	36.2	37.7	37.0	36.9	36.9
AGC or Status Monitoring	AC Current (A)	1.46	0.58	0.61	0.64	0.66	0.68	0.71	0.74	0.78	0.85	0.94	1.05	1.21
	Power (W)		39.9	39.9	39.9	39.5	39.3	39.1	39.1	39.1	40.2	39.7	39.6	39.7
AGC and Status Monitoring	AC Current (A)	1.56	0.61	0.64	0.67	0.69	0.72	0.75	0.78	0.82	0.91	1.00	1.13	1.31
	Power (W)		42.7	42.6	42.5	42.1	42.1	41.8	41.8	41.9	42.6	42.5	42.4	42.5

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

ORDERING INFORMATION

Housing – 1 Required (all have 15 amp capacity)

- #545435 Uncoated 4-port Housing w/ external test point access
- #545436 Coated 4-port Housing w/ external test point access
- #564387 UnCoated 4-port Housing w/ mid-height Status Monitoring Lid
- #564388 Coated 4-port Housing w/ mid-height Status Monitoring Lid

Amplifier Modules – 1 Required

- #562462 Forward and 23 dB Reverse w/ 30 V Lockout (40 V is field configurable)
- Reverse Amplifier Module, 5-40 MHz (optional); #539900 High Gain, 27 dB

NOTE: Standard modules/housings should not be mixed with high current modules/housings.

Required Accessories

- Plug-in Pads, 4 required (1 input, 1 interstage, 2 output), 1 additional pad required for reverse, and 1 additional pad required for AGC if applicable. Available in 0.5 dB steps from 0 dB to 20.5 dB. Model PP-* (* denotes pad value), specify value.
- Plug-in Forward Equalizer, 1 required. Available in 1.5 dB steps from 0 dB to 27 dB at 750 MHz. Model EQ750-* (* denotes equalizer value), specify value.
- Variable Reverse Equalizer, select one of the following:
 - #511075 1.5 dB to 4.5 dB
 - #511295 4.5 dB to 7.5 dB
 - #511298 7.5 dB to 12.0 dB
- Plug-in Passive for Auxiliary Output, select one of the following:
 - #467778 Jumper
 - #502110 2-way Splitter
 - #502115 DC-8
 - #502120 DC-12

- One of the following Interstage Accessories is required for most applications. (See AGC data sheet, pub number 88D156Z, for complete listing of modules and applications.)

#539578	445.25 MHz Single Pilot AGC w/ 9 dB Fixed Interstage Equalizer
#503100	Thermal Compensator w/ 3-9 dB Variable Interstage Equalizer
#511380	3-9 dB Variable Interstage Equalizer

Optional Accessories

- #467351 230 V AC Crowbar Surge Protector
- Interstage Trim Network, type and use factor, is determined by evaluating actual system frequency response. Use as needed.
- Status Monitoring Transponder
- #511216 Circuit Breaker, 5 A
- #511217 Circuit Breaker, 8 A

Related Equipment

- #501111 Long Reach Test Point Adapter
- #276982 Reverse Injection Test Probe

MECHANICAL SPECIFICATIONS

Housing Dimensions

17.3 in. L x 4.8 in. H x 7.8 in. D
438.3 mm L x 122.4 mm H x 198.7 mm D

Weight

Housing
9 lbs, 9 oz; 4.4 kg
Module
4 lbs, 13 oz; 2.2 kg

Specifications and product availability are subject to change without notice.

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