

### System Amplifier III 750 MHz with 40/52 MHz Split Low Gain Dual



23027

#### DESCRIPTION

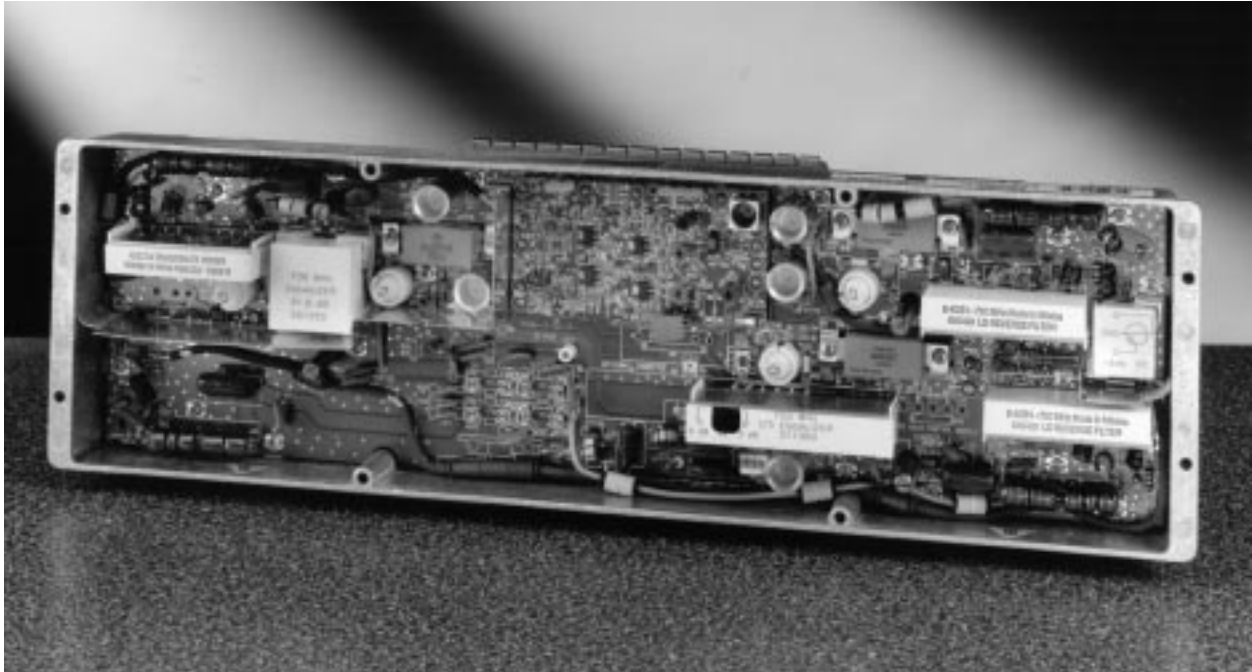
The System Amplifier III (SAIII) family of RF amplifiers includes a variety of gain, output, and frequency configurations to optimally address the various network architectures being deployed. All SAIII amplifier modules offer 15 amp current carrying capacity, and come preconfigured with diplexers and reverse amplifier for optimum reverse performance.

The SAIII product line also incorporates a metal module cover which improves the RF performance of the station.

The Low Gain Dual provides two high level outputs (with the capability to split one to feed a third port) and is primarily utilized in advanced Fiber-to-the-Serving Area (FSA) architectures functioning as an express or tap amplifier. It can also be deployed as a terminating bridge in more traditional architectures.

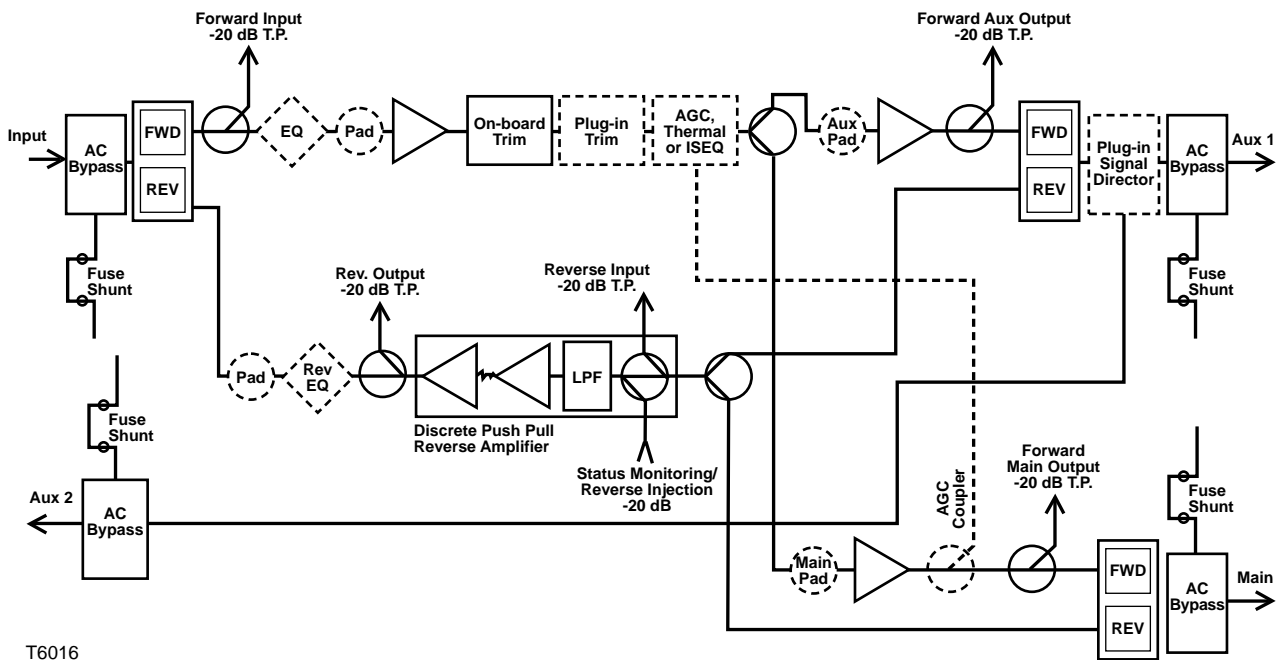
#### FEATURES

- 60 and 90 V AC powering capability
- 15 ampere current capacity (steady state) and 25 ampere surge survivability
- Optional status monitoring capability
- Integrated reverse amplifier for two-way applications
- High-efficiency, transformerless power supply lowers system operating costs
- Reversible module increases availability during upgrading and configuring
- Fixed value plug-in attenuators and equalizers (common with all SAII, II+, III and LE II, III) simplify maintenance and reduce inventory requirements
- Surge Resistant™ Circuitry assures hybrid protection without fuses or other nuisance failure-causing devices



23028

### LOW GAIN DUAL SYSTEM AMPLIFIER III — 5-40/52-750 MHz



T6016

## LOW GAIN DUAL-SYSTEM AMPLIFIER III – 5-40/52-750 MHZ

### General Station Performance Data

	Units	Forward	Reverse
Pass Band	MHz	52-750	5-40
Amplifier Type	---	PHD	PP
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	N/A
Max AC Through Current (surge)	Amps	25 (up to 2 hours)	N/A
Hum Modulation @ 10 A (over specified frequency range)	dB	65 (52-750 MHz)	60 (5-40 MHz)
Hum Modulation @ 15 A (over specified frequency range)	dB	58 (52-145 MHz) 65 (146-750 MHz)	55 (5-10 MHz) 60 (11-40 MHz)
Current Draw @ 24 V DC	Amps	1.20	0.10
Test Points (±1.0 dB)	dB	-20	-20
Reference Output Level	dBmV	46 @ 750 MHz 44 @ 550 MHz 36 @ 54 MHz	36 @ 40 MHz <sup>3</sup> 36 @ 5 MHz <sup>3</sup>

### Forward Station Performance

	Units	Manual 9 dB I/S EQ	Thermal 9 dB I/S EQ	Auto 9 dB I/S EQ
Operational Gain <sup>6</sup>	dB	32	27.5	24.5
Internal Tilt (±0.5 dB) <sup>2,5</sup>	dB	7	7	7.5
Noise Figure @ 54 MHz <sup>6</sup>	dB	7.5	8.5	9.5
Noise Figure @ 750 MHz <sup>6</sup>	dB	9	9	9

#### 77 NTSC Channels (CW)<sup>1</sup>

Composite Triple Beat	dB	70	65	63
Cross Modulation	dB	64	59	57
Composite Second Order (high side)	dB	69	66	65

#### 110 NTSC Channels (CW)

Composite Triple Beat	dB	59	55	53
Cross Modulation	dB	59	54	52
Composite Second Order (high side)	dB	63	60	59

### Reverse Performance - 5 CW carriers

	Units	Low Gain	High Gain
Amplifier Module Gain <sup>7</sup>	dB	23	27
Station Operational Gain <sup>4</sup>	dB	17	21
Internal Tilt (±0.5 dB) <sup>2</sup>	dB	-0.75	-0.75
Reverse Noise Figure <sup>4</sup>	dB	10	10
Composite Triple Beat	dB	92	92
Cross Modulation	dB	83	83
Composite Second Order	dB	89	85

### 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	25	5.0 - 6.5	60
61.25 - 64.83	10	37.0 - 38.5	32
67.25 - 70.83	5	38.5 - 40.0	70

#### Notes:

1. Activation of Digital loading may impact analog performance.
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 reverse output test point.
4. Reverse operational gain and noise figure for station, with 0 dB reverse output EQ and 1 dB reverse output pad. For Aux ports, with jumper in Aux signal director slot.
5. "Internal Tilt" includes the effect of the interstage accessory and equalizer value referenced in the column heading.
6. Forward gain and noise figure with 0 dB input EQ and 1 dB input pad.
7. Reverse amplifier module gain, as measured between the reverse input and output test points. In a station, an input loss of 4.25 dB and output loss of 1.25 dB (includes a 1 dB output pad) causes the station gain to be 6 dB less than the module gain.

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).

# Low Gain Dual System Amplifier III — 5-40/52-750 MHz

## Station Powering Data

System Amplifier III Low Gain Dual		I DC (Amps)	AC Voltage											
			90	85	80	75	70	65	60	55	50	45	40	35
Manual / Thermal	AC Current (A)	1.30	0.54	0.56	0.58	0.60	0.62	0.65	0.70	0.73	0.78	0.83	0.92	1.05
	Power (W)		35.6	35.5	35.1	35.0	35.1	35.1	34.8	34.7	34.6	34.5	34.5	34.5
AGC or Status Monitoring	AC Current (A)	1.40	0.56	0.59	0.62	0.64	0.66	0.69	0.74	0.77	0.82	0.89	0.99	1.13
	Power (W)		38.2	38.3	38.3	38.1	37.6	37.6	37.2	37.1	37.0	37.0	37.0	36.9
AGC and Status Monitoring	AC Current (A)	1.50	0.59	0.62	0.65	0.67	0.70	0.73	0.79	0.83	0.88	0.96	1.07	1.23
	Power (W)		41.1	41.0	40.9	40.5	40.4	40.1	40.1	40.0	39.9	39.9	39.9	40.2

Data is based on stations configured for 2-way operation. AC currents specified are based on measurements made with typical CATV type ferroresonant power supply (quasi-square wave).

## ORDERING INFORMATION

### Housings — 1 Required (all have 15 amp capacity)

- #545435 Uncoated 4-port housing with external test point access
- #545436 Coated 4-port housing with external test point access
- #564387 Uncoated 4-port housing with mid-height status monitoring lid
- #564388 Coated 4-port housing with mid-height status monitoring lid

### Amplifier Module — 1 Required

- #562402 - Forward and 23 dB reverse with 30 V AC undervoltage lockout (40 V lockout is field configurable).
  - #591908 - Forward and 27 dB reverse with 30 V AC undervoltage lockout (40 V lockout is field configurable).
- NOTE:** Standard modules/housings should not be mixed with high current (15 amp) modules/housings

### Required Accessories

- Plug-in pads, 3 required for forward (1 input, 2 interstage); 1 additional pad required for reverse (output). 1 additional pad required for AGC if used. 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 (forward input). Available in 1.5 dB steps from 0 dB to 27 dB at 750 MHz. 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 @ 40 MHz
- #511295 4.5 to 7.5 dB @ 40 MHz
- #511298 7.5 to 12.0 dB @ 40 MHz

#### Fixed Reverse Equalizers

Available in 1 dB steps from 1 dB to 12 dB at 40 MHz. Order Model EQ40S-\* (\* denotes equalizer value), specify value.

- Plug-in Signal Director for auxiliary output, 1 required:
  - #467778 Jumper
  - #502110 2-way splitter
  - #502115 DC-8
  - #502120 DC-12

- One of the following interstage accessories is required for most applications:

#539578 445.25 MHz single pilot AGC with fixed 9 dB interstage equalizer

**NOTE:** See AGC data sheet for complete listing of modules and applications.

#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 ampere
- #511217 Circuit Breaker, 8 ampere

### Related Equipment

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

## MECHANICAL SPECIFICATIONS

### Housing Dimensions

17.25 in. L x 4.82 in. H x 7.82 in. D  
438.3 mm L x 122.4 mm H x 198.7 mm D

### Weight

Module 4 lb, 13 oz. (2.2 kg)  
Housing 9 lb, 9 oz. (4.4 kg)

Specifications and product availability are subject to change without notice.

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