





# The Professional Audio

SourceBook

# Section 6

## Power Amplifiers

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# ALESIS

## RA SERIES

### 150/300/500 Watt Studio Reference Amplifiers

With their rugged construction, striking good looks, and a long list of features, the RA series will quickly find a home in project and commercial recording studios, broadcast and post-production control rooms around the world. Whether used for studio reference monitoring, live sound reinforcement, or instrument amplification, the RA-Series will provide clean, quiet, reliable power with the high quality found in all Alesis products. They are designed to provide more power and better performance at a lower overall cost per watt than any other competing amp. As a result, they can better match the power needs of virtually any passive speaker or studio monitor, offering a significantly better fit for an exceptionally wide range of budgets, applications and customers. They also provide a crisp, clean signal for outstanding performance and extended speaker life.

Designed for studio use, each RA series amp incorporates advanced convection cooling for heat dissipation. The result is long, stable operation unaffected by heat-related complications and without the added distraction and annoyance of fan cooling. Also helps eliminate the danger of losing hard-to-hear details due to noisy amp performance.



RA150



RA300



RA500

#### FEATURES

- ◆ DC coupled, fully complementary discrete amplifier topology
- ◆ Actively biased, dual differential inputs
- ◆ Wide bandwidth, low distortion design
- ◆ Fully protected from all fault conditions
- ◆ Front panel level controls
- ◆ LED output level metering (RA300 and 500 only)
- ◆ Overload/fault indicators
- ◆ Bridged mono operation
- ◆ Relay-controlled turn on/off
- ◆ Silent convection-cooled design
- ◆ Heavy-duty steel chassis
- ◆ RCA inputs (-10dB unbalanced)
- ◆ 1/4" TRS inputs (+4dB balanced)
- ◆ XLR input connectors (RA 300, RA 500)
- ◆ Heavy-duty, dual binding post output connectors

#### RA SERIES SPECIFICATIONS

	RA150	RA300	RA500
<b>Height</b>	2 RU	2RU	3U
<b>Rated Output, 4Ω</b>	75w RMS per channel	150w RMS per channel	250w RMS per channel
<b>Rated Output, 8Ω</b>	45w RMS per channel	90w RMS per channel	150 RMS per channel
<b>Rated Output, 8Ω</b>	150w RMS Bridged Mode	300w RMS Bridged Mode	500 RMS Bridged Mode
<b>S/N Ratio</b>	>105dB	>105dB	>105dB
<b>Frequency Response</b>	10Hz - 70kHz +0, -3dB	10Hz - 70kHz +0, -3dB	10Hz - 70kHz +0, -3dB
<b>Distortion</b>	< 0.02% @ 4Ω, 20Hz - 20kHz	< 0.02% @ 4Ω, 20Hz - 20kHz	< 0.02% @ 4Ω, 20Hz - 20kHz
<b>Input Sensitivity</b>	+4dB for rated output	+4dB for rated output	+4dB for rated output
<b>Crosstalk</b>	-85dB, 1kHz	-85dB, 1kHz	-85dB, 1kHz
<b>Output Offset</b>	±50 mV, Servo controlled	±50 mV, Servo controlled	±50 mV, Servo controlled



EQUIPMENT LEASING AVAILABLE

## POWERFLEX SERIES

### Four- and Six-Channel Power Amplifiers

Using a state of the art, high-speed MosFet switching design with spread spectrum switching technology, the Powerflex 4400 and 6250 provide uncompromised power with exceptional efficiency greatly reducing wasted power (heat). The 4400 delivers 275w RMS @ 8Ω or 400W RMS @ 4Ω of superior audio fidelity through four independent channels, while the Powerflex 6250—five times as efficient as conventional Class A or AB linear power amplifiers—delivers 150W RMS @ 8Ω or 250W RMS @ 4Ω through six independent channels.

- ◆ Their four or six channels may be used as individual, independent power amps with more than enough power to satisfy nominal audio applications. Additionally, three and two channel configurations of the Powerflex 4400 are possible for even greater flexibility. Channels may be bridged in pairs delivering 800W RMS @ 8 ohms.
- ◆ On the Powerflex 6250, five, four and three channel configurations are possible. Channels may be bridged in pairs providing for up to three higher power (500W/Ch @ 8 ohms) or 70-volt applications. The Powerflex 6250 can drive as many as six independent 25v or three independent 70v amps without the need of external transformers.



▼ Powerflex 6250

▲ Powerflex 4400



- ◆ The 4400 features bridgeable channels and switchable high pass filter on each pair of inputs. The 6250 offers a switchable high pass filter on each input. Both feature level controls located on the rear panel, XLR-1/4" and euroblock input connections, 5-way binding post output connections and a quiet three-speed fan for on-demand cooling.
- ◆ Applications include any multichannel power amp application, monitor amp, small FOH system amp, paging systems, cinema systems, boardroom audio applications, multiple zone restaurant, bar, theme park or auditorium. The Powerflex 6250 can also be used for any 25 and 70V system, surround sound, recording studios, PA and DJ applications.



SRA-120 front and rear view

### SRA-120 Stereo Amp

The SRA-120 is a professional amp with superior sonic quality, rugged construction, and many useful features in a single rack space chassis. Very compact (only 10" deep and under 20 lbs.), the SRA-120 is suitable

for full-range applications, such as small control room monitor systems or as an ideal headphone distribution amp. With its excellent bandwidth, the SRA-120 is also well-suited for driving the high end of a bi-amplification sound system setup.

- ◆ The amplifier will deliver 60 watts per channel into 4 ohms stereo, 45 watts per channel into 8 ohms stereo, or 120 watts total into 8 ohms mono-bridged.
- ◆ Amplifier design is based on Class A voltage amplifier stages with a complementary bipolar output section for low distortion and excellent overload behavior.
- ◆ Turn-on delay circuitry and instantaneous turn-off to eliminate any transients to the speaker. Each channel will also independently turn off its output if an overheated condition occurs.
- ◆ Rear panel switches let you select between two input sensitivities, stereo or mono operation, or normal or bridged mode.
- ◆ Input connections can be made via 1/4" balanced phone jacks or barrier strips with ground lift provision.
- ◆ Level attenuators for each channel are provided on the front panel, along with a stereo headphone jack.
- ◆ Status LEDs on each channel include signal present, clip alert, and "protect-mode"

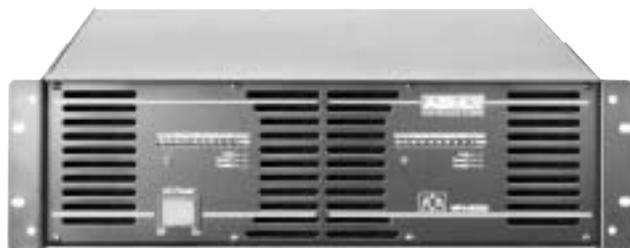
# ASHLY

## FTX-1501/FTX-2001

### Stereo Amplifiers

The FTX-1501 and FTX-2001 utilize ASHLY's proven output stage design, consisting of the latest generation of paralleled power MOS-FETs for current gain. These devices have smooth transconductance curves and run at a relatively high idle current, thus preventing crossover notch distortion. FTX Series III amplifiers require no dissipation limiting protective circuitry and provide virtually infinite power gain, keeping load reflections from the driver stage promoting stability and extremely low distortion.

- ◆ The FTX-1501 puts out 185 watts at 8Ω, 275 watts at 4Ω and 275 watts at 2Ω
- ◆ The FTX-2001 delivers a full 300 watts per channel at 8Ω, 475 watts into four, and 550 watts when confronted with a true two ohm load
- ◆ Both can be mono-bridged at a power rating twice their 4Ω per channel capability
- ◆ The FTX-2001 (only) can be used to drive 70V systems when configured in bridged mono mode without the use of external transformers
- ◆ Superior sonic performance with MOSFET outputs and class-A driver. Fan cooled for continuous high-power operation
- ◆ Both amps are Ashly PowerCard compatible for other input option possibilities
- ◆ They are also THX approved for use in cinema and home theater applications. To ensure compliance with the specifications of commercial installations, they are U.L. approved
- ◆ Modular construction for reliability and serviceability. Both also include Ashly's exclusive 5-year worry-free warranty



## MFA-8000

### High-Power Stereo Amplifier

The MFA-8000 is a very high power amplifier for the true sound professional. A three-level MOSFET power supply design is employed for maximum power efficiency and minimum AC power requirements. All power and gain stages use discrete, full

complimentary transistors for very low distortion and clean overload behavior. The MFA amp utilizes a dual-monaural design, with each channel electrically and physically identical. This improves audio performance by minimizing power supply interaction, while also increasing reliability. Any necessary maintenance is also very easy to perform. The MFA-8000 puts out 800 watts continuous into 8 Ω, 1200 watts into 4, and a thundering 1500 watts into 2 Ω operating conditions.

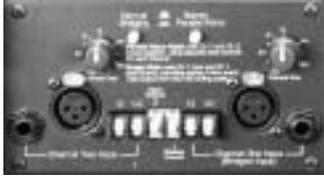
#### Employs Sophisticated Monitoring Circuits to Detect Abnormal Conditions

- A highly accurate detector illuminates the true CLIP LED at the onset of clipping. Further increases in signal level will activate a limiter circuit to prevent severe overload distortion from occurring, while an illuminated LIMIT LED lets you know that the function has been activated.
- Advanced thermal management circuitry senses temperature at four different locations in the amp and adjusts fan speed accordingly.
- A Thermal LED on each channel indicates above normal operating temperatures, while protective circuitry automatically attenuates the input signal until the amplifier returns to within a normal operating range.
- Output is automatically shut-down in the event of severe overheating, shorted output, DC voltage, or ultra high frequencies at the output. Each channel's limiting, thermal, and protection management is completely independent of the other channel.
- ◆ Each channel features a ten-segment LED level meter on the front panel
- ◆ Inputs include balanced XLR (with a transformer available as an option), 1/4" TRS and barrier strip terminals with ground lift provision. Outputs include Speakon and five-way binding posts.
- ◆ High power output with efficient power supply and output stage
- ◆ PowerCard compatible
- ◆ Modular construction for reliability and serviceability

## FTX / MFA OPTION CARDS

### PowerCard Input Options

Four option cards are available to replace the standard input card on the FTX and MFA amplifiers. Replacement is fast and simple, simply remove the standard input module, disconnect the signal connector, and reconnect the separate power and signal headers to the new input option card.



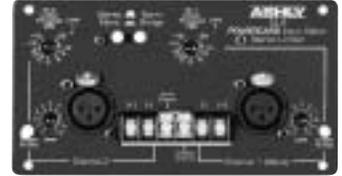
TR-2



XR-1



MM-6



CL-2

#### TR-2 Transformer Isolated Input

The TR-2 Transformer Isolated Input features transformer isolation of inputs, stereo/mono/bridged mono switch, 1/4" TRS, XLR, and barrier strip connectors, and individual gain potentiometers. This card is identical to the 'stock' input card shipped with every FTX and MFA amplifier except the outputs are transformer balanced.

#### XR-1 Three-Way Crossover

The XR-1 Three-Way Crossover features 24dB/octave filters, 20 Hz Low-cut filter, 360 degree phase control, internally adjustable frequency, CD Horn EQ switching, auxiliary outputs, and a mode switch for biamped or low only configuration.

#### MM-6 Mic/Line Mixer

The MM-6 Mic/Line Mixer features two stereo or four mono line inputs, two mic inputs with low-cut filter, switchable phantom power, stereo-mono bridged mono switching, and insertion points on both channels.

#### CL-2 Compressor/Limiter

The CL-2 Compressor/Limiter features adjustable threshold (peak detect) with indicator LED, 10:1 ratio for driver protection, stereo mono-bridged mono operation, and tamper-proof recessed controls.

*All amplifiers are covered under Ashly's exclusive 5-year worry-free warranty.*

### ASHLY AMPLIFIER SPECIFICATIONS

	Powerflex 4400	Powerflex 6250	SRA-120	FTX-1501	FTX-2001	MFA-8000
<b>Power output per channel, all channels driven</b>						
8 ohm	275 Watts RMS	250 Watts RMS	45 Watts RMS	185 Watts RMS	300 Watts RMS	750 Watts RMS
4 ohm	400 Watts RMS	125 Watts RMS	60 Watts RMS	275 Watts RMS	475 Watts RMS	1200 Watts RMS
2 ohm	—	—	—	275 Watts RMS	550 Watts RMS	1500 Watts RMS
25V	150 Watts RMS	—	—	—	—	—
<b>Bridged Mono Mode</b>						
8 ohm	800 Watts RMS	500 Watts RMS	120 Watts RMS	550 Watts RMS	950 Watts RMS	2400 Watts RMS
4 ohm	—	—	—	550 Watts RMS	1100 Watts RMS	3000 Watts RMS
70V	—	500 Watts RMS	—	—	—	—
<b>Power output per channel, from 20Hz-20kHz &lt;.1% SMPTE IMD</b>						
8 ohm	—	—	40 Watts RMS	190 Watts RMS	250 Watts RMS	720 Watts RMS
4 ohm	—	—	55 Watts RMS	280 Watts RMS	400 Watts RMS	1100 Watts RMS
Weight	45 lbs.	45 lbs.	20 lb.	46 lbs.	60 lbs.	68 lbs.
Dimensions	19 x 5.25 x 16.5"	19 x 5.25 x 16.5"	19 x 1.75 x 10"	19 x 3.5 x 16.5"	19 x 5.25 x 16.5"	19 x 5.25 x 16.5"

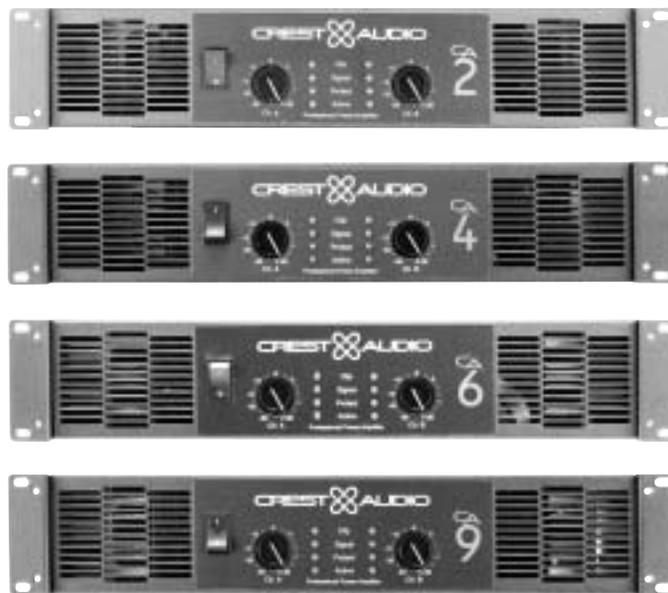
# CREST AUDIO

## CA SERIES

POWER AMPLIFIERS

552

*The CA series is designed to achieve unsurpassed sonic performance and long-term reliability—even when operating under extreme stress—in touring or fixed installation applications. Absolute sonic accuracy is the hallmark of every Crest amplifier. Bass is solid and defined to the limits of audibility, with ample current reserves delivered by an “over-engineered” power supply and advanced Class AB output circuit design. Wide-bandwidth output devices assure detailed, transparent high frequency response. And, thanks to Crest’s exclusive IGM circuit, they (except the CA-2) will drive 2-ohm loads safely without compromise in performance. CAs form the backbone of discriminating rental systems and high-power club installations world-wide. Auditoriums, churches, regional tour sound, and mobile DJs are all ideal candidates for the CA series’ combination of value and sonic quality.*



### FEATURES

- ◆ Crest’s legendary “overbuilt” power supply
- ◆ Toroidal power transformer
- ◆ High-speed, wide-bandwidth output devices
- ◆ Twin tunnel cooling with back-to-front air flow
- ◆ Input sensitivity selection
- ◆ Recessed, stepped attenuators
- ◆ Dual, variable speed DC fans
- ◆ Massive, extruded aluminum heat sinks
- ◆ Balanced XLR and 1/4” (TRS) inputs
- ◆ 5-Way binding post outputs or Speakon connectors (market dependent)
- ◆ Stereo/parallel/bridged mono mode selector switch
- ◆ Ground lift switch
- ◆ Front panel circuit breaker switch
- ◆ Modular construction
- ◆ Five-year warranty

### Construction and Quality Control



The CA series is built exclusively in Crest’s own USA manufacturing facility, with internal components selected for premium quality and proven durability. Each modular subassembly is pre-tested, and the assembled CA amp receives a rigorous

“hot room” burn-in before thorough final checkout on precision test equipment.

### Tour Class Protection

CA series is designed to operate at full-rated output under conditions that are far from “normal.” Because human error and external circumstances can create extreme conditions that no amp can safely handle, all the amps (and connected loads) are safeguarded by a comprehensive array of protection circuits:

- ◆ ACL (Active Clip Limiting) automatically reduces gain in any channel that is continuously clipping, protecting speakers and output stages from uncontrolled feedback and extreme system gain settings. ACL is removed from the circuit and totally transparent when normal conditions are restored.
- ◆ IGM (Instantaneous Gain Modulation) monitors connected loads to detect conditions that may overstress output devices, allowing safe operating into nominal 2 ohm speaker loads.
- ◆ AutoRamp gradually increases gain to attenuator setting when amp is turned on.
- ◆ TourClass Protection also includes: comprehensive thermal management, short circuit protection, DC voltage, turn on/off transient, current in-rush and sub/ultrasonic input protection.



# CREST AUDIO

## PRO 200 SERIES

POWER AMPLIFIERS

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CA SERIES POWER SPECIFICATIONS AT 20Hz - 20kHz, 0.1% THD+N

	8Ω Stereo	4Ω Stereo	2Ω Stereo	8Ω Bridged	4Ω Bridged
CA2	150W	200W		450W	
CA4	245W	400W	450W	800W	900W
CA6	350W	500W	600W	1000W	1200W
CA9	550W	800W	900W	1600W	1800W
CA12	650W	1100W	1100W	2200W	2200W
CA18	950W	1700W	2400W	3400W	4800W

## PRO 200 Series

Crest's latest series of professional power amplifiers—the Pro 200 Series—offer increased power, lower weight, and a smaller enclosure at a reduced cost. The Pro 8200 offers 1450 watts per channel (4500 watts bridge mode) into 4 ohms, Pro 7200 provides 1000 watts per channel (3300 watts bridge), and Pro 5200 has 525 watts per channel (1800 watts bridge).

Apart from the differences in power, the three amplifiers have very similar specifications, including a frequency response within +0, -3dB from 10 to 100kHz, with hum and noise better than -110dB, "A" weighted. The input impedance is 15k ohms, balanced. Each occupies 2RU and weigh 25 lbs.



- ◆ The Pro 200 Series amps feature Automatic Clip Limiting (ACL) to protect connected drivers, while IGM Impedance Sensing automatically modifies the gain to suit whatever impedance outputs are connected, allowing more efficient operation and loads as low as 2 ohms, as well as short-circuit protection.
- ◆ Tunnel-cooled high-efficiency heat sinks and variable speed DC fans limit the operating temperature and thus extend the life of the amplifiers. Automatic temperature sensing systems monitor the temperature of the air as it is funneled from the rear-mounted cooling fans to the front panel exhaust, and shut down a channel if temperatures exceed operating limits. AutoRamp circuitry minimizes the likelihood of power-on "thumps".

- ◆ Input connections are via XLR on the rear panel, and are actively balanced. Both Speak-On and binding post output connections are provided per channel for loudspeaker connection.
- ◆ Front panel controls include input attenuators and a combination AC power switch and circuit breaker. Five front panel LEDs per channel indicate ACL, signal, temperature protect, DC protect (which lights when a DC voltage is sensed), and Active (output relay closed and operational).
- ◆ On the rear panel, a mode switch determines stereo, parallel, or bridged mono mode, and a gain select switch determines whether the overall amplifier gain structure is x20 or x40.

PRO 200 SERIES SPECIFICATIONS

	4Ω	4Ω Bridged
Pro 8200	1450W	4500W
Pro 7200	1000W	3300W
Pro 5200	525W	1800W

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# CREST AUDIO

## CPX SERIES

Designed for mobile sound systems, fixed installations and a wide variety of audio applications, the CPX Series delivers superlative performance with Crest's legendary reliability and sound quality. Series includes three models - the CPX900, CPX1500 and CPX2600.

They offer a comprehensive feature set that includes built-in defeatable GCL clip limiting, low pass filters (18dB per octave @ 80 Hz), and electronic crossovers with direct outputs. In addition, all CPX Series amplifiers feature extensive protection circuitry heretofore not found in amps at this price point. These include: GCL Gain comparator (monitors input/output gain), Thermal

Protection, DC Triac Crowbar (prevents DC in/out), and Turn On/Off Muting. In addition, all CPX amps utilize a unique heat sink configuration which creates a "venturi effect" that greatly enhances the cooling capabilities of these amplifiers.



### FEATURES

- ◆ They feature a built-in crossover (150 Hz, 24dB per octave tuned for subwoofers), with individual in/out switches for Channels A & B.
- ◆ Barrier strip and female XLR 1/4-inch TRS input connectors; speakon output connectors for channel A & B, and bridged mono binding posts for bridged mode.
- ◆ Amps are 2U tall, have a mode selector switch for stereo and bridged-mono operation, and have a two-speed DC cooling fan.

#### Protection Circuitry

##### GCL (Gain Comparator Limiting):

Monitors input/output gain and reduces signal when distortion or excessive high current conditions occur. Protects speakers from dangerous transients and unexpected level changes. Transparent in operation, yet very effective for its designed purpose.

**Thermal:** Amp monitors internal heat sink temperature and temporarily shuts down during extreme thermal conditions.

**DC Triac Crowbar:** Prevents amps from putting out or receiving dangerous DC over the speaker lines.

**Turn On/Off Muting:** Outputs are muted during turn on and turn off to prevent audible pop through speakers.

### CPX SERIES POWER SPECIFICATIONS

	8Ω Stereo	4Ω Stereo	2Ω Stereo	8Ω Bridged	4Ω Bridged
CPX 2600	500w	750w	1100w	1550w	2200w
CPX 1500	300w	500w	750w	1000w	1500w
CPX 900	180w	300w	450w	600w	900w

1kHz, 0.1% THD+N (2Ω stereo and 4Ω bridged have 1% THD)

### LQ Series Speakers

Designed for a wide-variety of mobile and fixed sound reinforcement applications, the hallmark of the injection-molded LQ series is incredibly high power handling capability with the ability to maintain clarity, even at extreme power levels.

All LQ enclosures are made from high-impact, injection-molded polypropylene in a trapezoidal shape for easy stacking or cluster formation, and feature extensive ribbing and bracing. The grille utilizes perforated metal protected by a high-quality vinyl coating.



Power Handling	Continuous	Peak
LQ10	250W	1000W
LQ12	500W	2000W
LQ15	500W	2000W

# CREST AUDIO

## XR-20/XR-24

### 20- and 24-Input Rackmount Mixers

The XR-20 and XR-24 address a wide range of applications, including project studios, houses of worship, broadcasting, and all facets of live sound reinforcement. Crest's engineers group drew from decades of large and medium-format console design to create a compact, feature-filled rack mount mixer that exceeds all others in terms of quality, reliability and flexibility, regardless of price. AES-suggested grounding procedures are followed, resulting in excellent rejection of RF interference and ground-related noise. X-Rack mixers exhibit less than  $\pm 30^\circ$  of input to output phase shift, which is significantly better than most other consoles. XLR connectors are used on all primary inputs and outputs, while 1/4" TRS connectors are used for inserts, making it easy to interface with most professional audio gear.



POWER AMPLIFIERS

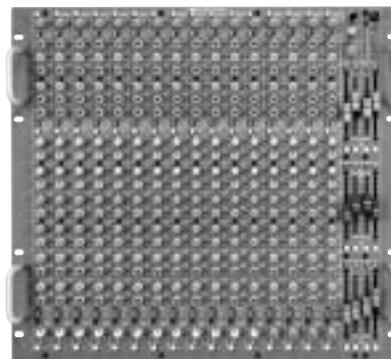
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#### FEATURES

- ◆ The XR-20 has 12 mono + 4 stereo inputs (20 inputs total); the XR-24 has 8 mono and 8 stereo inputs (24 inputs total). All inputs have mic pre-amps and individual 48volt phantom power switches.
- ◆ 100mm faders on all inputs and Left, Right, and Mono (center) outputs. 60mm faders on the 4 subgroups.
- ◆ Four-band EQ on all inputs
- ◆ 18dB per octave high pass filters on mono input channels
- ◆ Insert on all inputs, subgroups, aux outs and L, R & M outputs
- ◆ 6 Aux buses, selectable pre or post fader in pairs
- ◆ Auxes 1 and 2 are configured as Level/Pan for stereo operation
- ◆ XLR L, R & Mono outputs switchable between Line and Mic level
- ◆ Internal universal-voltage power supply
- ◆ 1/4" TRS and RCA connectors on Alt Output, Monitor Output and Tape Input
- ◆ Five-Year Crest Audio warranty

### XR-M

The XR-M is a compact and versatile rack-mount, monitor mixer designed to provide professional, desktop quality mixing performance in control applications, fixed installation systems and more. Housed in a compact 10-rack-space package, the XR-M provides up to 12 independent mono mixes, or up to six stereo mixes for stereo "in-ear" monitoring systems. Taking up minimal space in a sound control booth, the XR-M is small enough to travel with musicians who take their own self contained in-ear system with them on the road. Highly versatile, it can be used as a mono/stereo matrix mixer with 12 mono and four stereo mic/line input channels, all with mic preamps and individual 48V phantom power switches.



- ◆ Optimized for "In Ear" monitor systems, capable of generating up to 6 stereo mixes (each input channel with individual level and pan controls) or up to 12 mono mixes.
- ◆ May be used as a stereo or mono monitor mixer or a combination of both, or a matrix mixer or for front-of-house applications.
- ◆ 12 Mono inputs plus 4 stereo mic/line inputs (20 total), all with Mic pre amps and individual (per channel) 48volt Phantom power.
- ◆ Splitter system on all mic/line inputs with ground lift switches on each input channel.
- ◆ Additional common stereo inputs on XLR and 1/4" connectors for use with click or Reference track sends to artists
- ◆ Four-band mid sweep EQ on mono and stereo input channels.
- ◆ 18dB per octave high pass filter on mono input channels
- ◆ 12 balanced XLR inputs and outputs

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# CROWN

## CE 1000/CE 2000

### Power Amplifiers

Crown's CE-Series amplifiers are professional tools designed and built for professional use. They feature front-panel detented level controls, useful function indicators, proportional fan-assisted cooling, short-circuit protection and more.

For superior flexibility, they can work with a range of Crown SST (System Solution Topologies) modules which provide true professional features like fixed-point crossover and summed bass output. With a powerful, reliable performance, CE-Series amps easily handle real 2-ohm loads and are capable of chest-thumping lows. Backed with a three-year, no-fault warranty that covers everything.



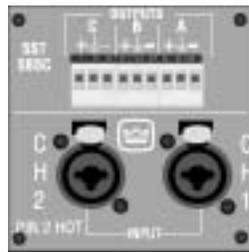
### FEATURES

- ◆ Accurate, uncolored sound with very low distortion for the best in music and voice reproduction
- ◆ Bridge-mono/stereo mode switch allows you to set up your amps/speakers in the configuration that best suits your needs
- ◆ Extremely versatile they can handle a wide range of speaker impedances and outputs
- ◆ Switchable input sensitivity
- ◆ Proportional speed fan optimizes cooling efficiency
- ◆ Removable front-panel level control knobs
- ◆ They can be mounted in 19" or shallow 14" racks or stacked on top of each other
- ◆ Choice of Speakon (comes standard), binding post, or barrier strip outputs
- ◆ Choice of balanced 1/4" (6.35-mm), XLR, or barrier strip inputs
- ◆ Advanced protection circuitry guards against shorted, open or mismatched loads; over-loaded power supplies; excessive temperature; chain destruction phenomena; input overload damage; and high-frequency blow-ups
- ◆ They also protect loudspeakers from input/output DC, large or dangerous DC offsets and turn-on/turn-off transients
- ◆ Three-year No-Fault (fully transferable) warranty even covers round-trip ground shipping in the U.S. for all warranty work

### SST Modules

For superior flexibility, Crown CE-Series amplifiers are compatible with a range of Crown SST (System Solution Topologies) modules to tailor the amp to your application. The modules provide true professional features like fixed-point crossover and summed bass output and install easily into the back of the amplifier to save rack space and simplify system wiring.

The SST-MX module is a fourth-order Linkwitz-Riley type crossover with a fixed crossover point set at 100 Hz. Truly a professional crossover, the SST-MX uses hard-wired precision components that stay at the frequencies you have selected for consistent bandwidth control.



- ◆ Stereo biamp
- ◆ 24-dB/octave Linkwitz-Riley crossover fixed at 100-Hz
- ◆ Stereo sub outputs
- ◆ Neutrik Combo input jacks
- ◆ Barrier block balanced outputs
- ◆ Optional high-pass filter bypass on amplified outputs adapts system for full-range use

The SST-SX module is a fourth-order Linkwitz-Riley type crossover with the crossover point switchable to either 80 or 120 Hz. High-frequency (HF) signals are routed to the internal amplifier channels, and low-frequency (LF) signals are summed and routed the mono output connector. Truly a professional crossover, the SST-SX uses hard-wired precision components that stay at the frequencies you have selected for consistent bandwidth control.

- ◆ Stereo biamp
- ◆ 24-dB/octave Linkwitz-Riley tuned filters
- ◆ Crossover switchable to either 80 or 120 Hz
- ◆ SST modules install into the back of your amp, saving rack space & simplifying system wiring
- ◆ Neutrik Combo (1/4" (6.35-mm) phone and 3-pin XLR) input jacks
- ◆ Male 3-pin XLR Sub Output

**SST-MX:** 100-Hz Linkwitz-Riley crossover with stereo sub-bass outputs

**SST-SX:** 80-/120-Hz switchable Linkwitz-Riley crossover with mono summed sub-bass output

**SST-SBSC:** variable Linkwitz-Riley stereo cross-over with mono-summed sub-bass output



# CROWN

## CE 4000

*Engineered from the bottom up for top performance and unmatched reliability, the CE 4000 was designed using Crown's award-winning BCA (Balanced Current Amplifier) engineering to provide superior power output, increased efficiency, legendary Crown sound, and extraordinary reliability. With typical output power at 1,200 watts per channel, and Burst Power up to 1,800 watts per channel, the CE 4000 not only handles but excels at handling 2-ohm loads. In repeated stress tests, the CE 4000 continued to perform at levels 12 dB into clip, long after others had shut down.*

*Flexibility is also unsurpassed with features like selectable on-board high- and low-filter sets, optional signal control modules, and dual output connectors. So whether you're a touring band, DJ, A/V rental company or looking for a fixed install amp, the CE 4000's lightweight, modern design and lowest cost per watt of any amp in its class, make it the obvious choice.*



POWER AMPLIFIERS

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### FEATURES

- ◆ Patented BCA (Balanced Current Amp) technology delivers high efficiency and superb sound. Generates more power and less heat than traditional linear amplifiers
- ◆ Delivers 1800 watts per channel (both driven) into 2 ohms, 1200 watts into 4 ohms, and 600 watts into 8 ohms
- ◆ Compatible with SST (System Solution Topologies) input modules for additional signal control. SST modules offer a variety of active crossover configurations
- ◆ 31-step detented rotary level control for each channel
- ◆ 3-way sensitivity switch is switchable among 0.775, 1.4 or 3.46 volts for full output into 8-ohm load
- ◆ Protection from shorted, open or mismatched loads, input and high-frequency overloads. Loudspeakers protected from in/out DC, and power on/off transients
- ◆ Amplifier is automatically muted during power up to avoid turn-on transients
- ◆ Designed for the utmost in flexibility, the CE 4000 features sub-bass output via integral 4-position high-pass and 3-position low-pass filter sets for each channel
  - 4-position, selectable High-Pass filter switch provides settings for Flat, 30, 40 and 50Hz. Filter rolloff is 18 dB per octave
  - 3-position, selectable Low-Pass filter switch provides settings for Flat, 80 and 100 Hz. Filter roll-off is 24 dB per octave

- ◆ Clip LED indicators for each channel
- ◆ 5-Way Fault Indicator:
  - 1) blinks during power-up;
  - 2) excessive heatsink temperature;
  - 3) transformer thermal protection;
  - 4) short at amplifier output;
  - 5) output stage non-operational
- ◆ The CE 4000 is extremely energy efficient—more than twice conventional switching amps. It requires much less energy to deliver its massive power into virtually any load, no matter how difficult. This efficiency means that you realize significant savings over the life of the amp. It also allows more CE 4000's to be plugged into a single AC circuit, reducing installation costs
- ◆ Choice of dual output connectors:
  - 5-way binding post plus Neutrik Speakon
  - 5-way binding post plus barrier strip
  - Dual Neutrik Speakon
- ◆ Enhanced switch-mode power supply with PFC (Power Factor Correction) allows you to plug the amp in anywhere in the world with any line voltage.
- ◆ Easy to transport and set up (only 34 lbs.)
- ◆ Extremely reliable keeps running under the harshest of conditions. However, just in case, it includes a 3-Year "No-Fault" full warranty (even covers round-trip ground shipping in the U.S. for all warranty work)

### CROWN AMPLIFIER SPECIFICATIONS

	CE1000	CE2000	CE4000
<b>2 ohm Dual*</b>	560w	975w	1800w
<b>4 ohm Dual*</b>	450w	660w	1200w
<b>8 ohm Dual*</b>	275w	400w	600w
<b>4 ohm Bridge-Mono</b>	1100w	1950w	3600w
<b>8 ohm Bridge-Mono</b>	900w	1320w	2400w
<b>Frequency Response</b>	±0.2dB from 20Hz to 25 kHz @1 watt	±0.2dB from 20Hz to 25 kHz @1 watt	±0.25dB from 20Hz to 25 kHz @1 watt
<b>S/N Ratio A-Weighted</b>	>105dB**	>105dB**	>102dB**
<b>S/N Ratio 20-20k Hz</b>	>100dB**	>100dB**	>102dB**
<b>Dimensions</b>	19 x 5.25 x 12.25"	19 x 5.25 x 12.25"	19 x 5.25 x 16.25"
<b>Weight</b>	32.6 lbs.	40.3 lbs.	33.3 lbs.

\* per channel, maximum power @ 1 kHz with 0.5% THD \*\* below rated 1kHz power

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# CROWN

## D-45/D-75A

With their long history of reliability, D-45 and D-75A amps are the choice of professionals for use on the road, at home, in recording studios, laboratories and in public facilities. Very compact (1RU), the convection cooled D-45 and D-75A provide ultra-low distortion for medium power applications making them perfect for moderate power applications such as recording or broadcast studio near-field monitoring, video suite audio monitoring, a recording/broadcast headphone amp or a small paging system. Designed, built and carefully checked to ensure reliable operation with a wide variety of loads, Crown's AB+B circuitry ensures efficient use of output transistors while incorporating protection against shorted, open, mismatched or low-impedance loads. Both include the industry's only 3-year, no-fault, fully transferable warranty.

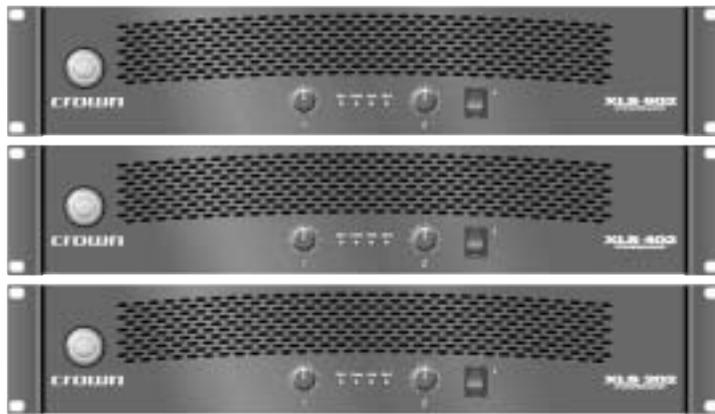


- ◆ Powerful AB+B class circuitry yields maximum efficiency with minimum crossover "notch" distortion
- ◆ IOC (Input/Output Comparator) alerts of any distortion that exceeds 0.05% to provide proof of distortion-free performance
- ◆ Detented level controls for precise repeatability
- ◆ Ultra-low harmonic and intermodulation distortion result in the best dynamic transfer function in the industry
- ◆ Very low noise and wide dynamic range
- ◆ High damping factor provides exceptional loudspeaker motion control
- ◆ Signal presence indicators verify the presence of amplifier output
- ◆ Convection cooling dissipates heat through the heat sinks and chassis for optimal cooling and maintenance-free operation
- ◆ Mounts in a standard 19" rack
- ◆ 3-Year, no-fault, transferable warranty

### POWER OUTPUT @ 1 kHz with 0.5% THD

	D-45	D-75A
4 ohm Dual*	35w	55w
8 ohm Dual*	25w	40w
16 ohm Dual*	20w	25w
8 ohm Bridge-Mono	70w	110w
16 ohm Bridge-Mono	50w	80w

\* maximum power @ 1 kHz with 0.5% THD



## XLS SERIES

### XLS202, XLS402, XLS602

The XLS Series represents a new era in affordable, quality power amplification. Consisting of three models in a uniform, rugged chassis, the XLS Series incorporate the best of tried-and-true design principles and innovative features to meet demanding audio requirements—reliably and within budget. Plus, they are backed by Crown's unequalled 3-year warranty that covers everything.

### POWER OUTPUT @ 1 kHz with 0.5% THD

	XLS202	XLS402	XLS602
2 ohm Stereo*	250w	570w	240w
4 ohm Stereo*	200w	400w	600w
8 ohm Stereo*	145w	260w	370w
8 ohm Bridge-Mono	—	800w	1200w

\* per channel

- ◆ Housed in a rugged, all-steel 3U chassis
- ◆ Selectable high-pass filter on each channel enables amplifier to work more efficiently when full band-width is not required
- ◆ Precision detented level controls, power switch, and four LEDs, which indicate clip for each channel, power and fault conditions
- ◆ Pair of linear optocoupler clip limiters protects loudspeakers from being overdriven
- ◆ Efficient forced-air fan prevents excessive thermal buildup
- ◆ Electronically balanced XLR inputs and touch-proof binding post outputs
- ◆ 3-year, fully-transferable warranty



EQUIPMENT LEASING AVAILABLE

# CROWN

## MACRO-TECH 02 SERIES

*Crown's Macro-Tech Series (MA-602, 1202 and 2402)*

*deliver superior sonic accuracy and enormous amounts of power from a low-profile design—perfect for touring and fixed installations. They offer a combination of features and flexibility not available from any other amplifier, including three separate power supplies, PIP2 compatibility, XLR connectors, detented level controls and more. Patented ODEP protection and Grounded Bridge output circuitry provide*

*incredible reliability while at the same time virtually eliminating distortion. Finally, dual bridge-mono or parallel-mono modes allow you to optimize power to your loads, while IOC (Input/Output Comparator) circuitry acts as a supersensitive distortion meter, providing you with proof of distortion-free performance.*



POWER AMPLIFIERS

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- ◆ Crown's Grounded-Bridge design delivers large voltage swings without using easily stressed output-transistor configurations like conventional amplifiers. The results are lower distortion and superior reliability.
- ◆ Patented ODEP (Output Device Emulation Protection) circuitry compensates for overheating and overload to keep the amps working when others would fail. Front panel ODEP indicators show the reserve thermodynamic headroom for each channel.
- ◆ Complete protection against shorted, open, and mismatched loads, overheating, DC, high-frequency overload, and full internal fault protection provided by "Quad-Mute."
- ◆ Dedicated power supply transformers isolate channels in stereo mode for superb crosstalk characteristics and reliability —each channel is virtually a separate amplifier
- ◆ High damping factor provides superior control over low-frequency drivers for a clean, accurate low end
- ◆ PIP (Programmable Input Processor) connector accepts accessories that tailor the amplifier to suit specific applications
- ◆ Enhanced PIP2 connector accepts new accessory modules that further tailor the amp to suit specific applications, including wideband load current monitoring
- ◆ Two mono modes (bridge and parallel) for driving a wide range of load impedances
- ◆ 3-year, no-fault, fully transferable warranty



## K2 Series

*Housed in a durable, maintenance-free package that's just 2RU high, K2 Series amps incorporate Crown's exclusive Balanced Current Amplifier (BCA) circuitry to provide massive amounts of power while generating just one-tenth the heat of conventional amplifiers. In fact, the powerful K2 can deliver 1250 watts per channel into 2 ohms. And since they are incredibly efficiency, they require no internal cooling fan*

*and feature a closed chassis. No fan means no fan noise, while the closed chassis makes them virtually immune to dust, cigarette smoke, stage fog and spilled liquids. In addition, each amp is equipped with a "green" circuit that further reduces energy use during idle periods. Energy draw is so low—only 12 watts or less—the amps may be kept in a continual ready state at minimal cost.*

- ◆ Accurate, uncolored sound with very low distortion for the best in music and voice reproduction
- ◆ High damping factor for tight, clean bass response
- ◆ Mono mode switches let you set up your amps/speakers in the configuration that best suits your needs —with combined amp inputs, combined amp outputs, or both
- ◆ Advanced protection circuitry guards against shorted outputs, open circuits, DC, mismatched loads, overheating, high-frequency overloads and internal faults
- ◆ Extremely versatile, handling a wide range of speaker impedances and outputs
- ◆ BCA (Balanced Current Amplifier) power design provides super efficiency for quiet, fan-free operation
- ◆ Switchable input sensitivity
- ◆ "Soft start" prevents the amps from drawing large currents when first turned on
- ◆ Uniquely molded, cast-aluminum front panel provides exceptional air circulation
- ◆ They mount in a 19" rack
- ◆ 3 year "No-Fault" full warranty

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# HAFLER

## POWER AMPLIFIERS

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Hafler designs audio components for one purpose—to help you do better work. Employing some of the best engineers in the world, they have developed patented, cutting-edge technologies such as trans•nova, trans•ana and DIAMOND. Hafler power amps are meticulously assembled using patented surface mount technology (SMT), upon which intricate macro-components are affixed by computerized machinery. Products manufactured using surface mount technology offer advantages that can be heard as well as measured, including low level components that operate at nearly identical temperatures, which is critical at low signals. SMT results in precise, hairline tolerances between components for optimum performance, the end product being fewer incidences of human error in placing parts, reduced hum and noise, and more efficient use of space. The bottom line: the only thing you hear through Hafler equipment, is music.

### P1000 100-watt Trans•ana Power Amplifier

*A high-quality amplifier with transparent and detailed sound, the P1000 is designed for broadcast studio monitoring, recording or critical listening, headphone system amplification, surround sound applications, paging systems, balanced or unbalanced use, and 115V/230V requirements.*

*The P1000's unique Trans•ana circuitry is based on TRANsconductance Active Nodal Amplifier topology, which operates the output stage with its full voltage gain, allowing the input stage to operate from a low voltage regulated supply. The signal is then shifted up in level to the high voltage section by the driver stage, which forms an active node at ultrasonic frequencies. This results in very stable, highly linear operation producing a natural and accurate soundstage with exceptional image focus.*



#### Amplifier Technology

In older designs, an engineer had to choose whether to amplify voltage or current at any given gain stage, usually requiring extensive circuitry to drive an amplifier's output devices. But since every stage of amplification adds noise, crosstalk and distortion to the signal, the music often gets lost in the process. Hafler's Trans•nova circuitry configures output MOSFETs to provide voltage and current gain - what they call "power gain," with fewer gain stages required in amplifier front ends. Noise and crosstalk are also greatly reduced because the signal travels through the front end at a low level. Trans•ana design achieves the same end result in a simpler, lower cost circuit. DIAMOND works in conjunction with the amplifier front end to combine the linearity of a Class A amplifier stage with the headroom of Class B. Providing up to 14dB additional dynamic range in the amplifier front end, this flawless simplicity in the signal path keeps your music perfectly intact.

- ◆ Offers an amazing 100 watts of Hafler power from a single rack space. Combines superior sonic quality, weight and power consumption in a very compact size
- ◆ Trans•ana circuitry using patented MOSFET output stage configured for "power gain" allows simpler front end circuitry, and dramatically lower cross talk and noise. Provides a very open three dimensional sound quality at a more affordable price.
- ◆ Proprietary NOMAD (NON-Multiplying Advanced Decision) system provides safe operating area. Smart protection circuitry, NOMAD accurately computes the allowable device current for the device voltage and clamps the gate drive when the actual current exceeds this value.
- ◆ Thermal sensing network continuously monitors the heatsink temperature and shuts down the amp to protect it from excessive operating heat. Soft start circuit prevents sending of potentially destructive turn-on/off transients to the speakers.
- ◆ Front mounted rotary level controls for each channel
- ◆ Front mounted headphone jack lets you easily monitor your work.
- ◆ Balanced and unbalanced inputs offer versatile connections. Each of the two channels has dual-function (XLR or 1/4" TRS) Neutrik combo connectors, as well RCA jacks for unbalanced use.
- ◆ Front panel LED indicators (signal, clipping, and active thermal protection) for monitoring each channel.
- ◆ Ground-lift switch lets you fit the amp in a metal rack without worrying about hum
- ◆ The P1000 has no cooling fans, and its rackmounting case is only 1U high.
- ◆ 12" wide central portion houses the circuitry and mains transformer, and each of the rack ears is incorporated into a pair of large finned heatsinks that make up the remainder of the rack width. This provide plenty of air space for better air circulation.



# HAFLER

## P1500/P3000

### 200-and 400-watt Trans•nova Power Amplifiers

Designed for the beginning studio professional or musician for use in studio monitoring, touring sound and fixed installations the P1500 delivers nearly 200 watts of power from a 2RU high chassis and features James Strickland's radical Trans•nova topology (TRANS Conductance NODal Voltage Amplifier) as well as high-quality MOSFET outputs. Same features but twice as powerful, the convection-cooled P3000 is the ultimate studio and touring amp, delivering an unbelievable 400 watts of pure power out the same size chassis.

Unlike other amplifier designs that use "buffers" following voltage gain stages, thus killing current gain, and requiring more parts, resulting in more noise and distortion, Trans•nova provides voltage and current gain at the output stage (power gain), requiring less componentry. The simple nature of Trans•nova's circuitry provides transparent, dynamic and three-dimensional sound.



POWER AMPLIFIERS

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#### FEATURES

##### MOSFET Outputs

- ◆ They incorporate MOSFET (Metal Oxide Semiconductor Field Effect Transistor) outputs for high output current, rugged reliability and superb sound quality. This sturdiness enables the amp to drive reactive speaker loads without the performance and sound penalties imposed by elaborate protection schemes. Very expensive to manufacture, the advantages of high-quality MOSFET outputs include:

- Extremely fast switching speed, audio band is easy!

- Ultrawide bandwidth for effortless audio performance

- Very rugged, can pass huge bolts of current into a loudspeaker

- Do not "thermally run away" like bi-polar types, needing less feedback control

- Have "soft saturation"-much like tubes

##### Trans•nova Circuitry

- ◆ They incorporate the latest refinement of the Trans•nova (TRANSconductance NODal Voltage Amplifier) circuit. Proven to offer sound quality to satisfy the most analytic audiophile or the most demanding professional, their natural sound and realistic reproduction have made trans•nova amplifiers preferred in many critical installations.

- ◆ Each channel of these amps is built as a self-contained module which only requires mounting the heatsink and connection to the chassis-mounted transformer and binding posts to be fully functional. The circuit board contains all the operational components. This simplifies construction and improves service accessibility.

##### Input Sensitivity

- ◆ Input sensitivity for each channel can be adjusted individually via the front-panel level controls. Gain control on an amplifier is usually fully advanced to its maximum (rated) sensitivity. However, in public systems where it is necessary to match levels, the knobs can be removed and the controls adjusted with your fingers or a screwdriver.

##### LED Status

- ◆ In addition to 'Signal', 'Clip' and 'Thermal' LED indicators, a 'Short' LED lights up when a potentially damaging short has been detected. (Due to the self-protecting properties of the output power MOSFETs, there is no need for sonically degrading voltage and current limiting circuits. However in case of a short in the speaker load or cables, a speaker detection circuit shuts down that channel and lights the SHORT indicator.)

##### Additional Features

- ◆ 3.5" rack mount (2-rack spaces)
- ◆ 1dB increment gain controls
- ◆ Stereo/bridged mono
- ◆ Chassis/float ground switch
- ◆ Level control security covers
- ◆ Serviceable channel modules
- ◆ XLR or 1/4" balanced inputs
- ◆ Gold-plated 5-way binding posts for output connectors. These posts directly accept 12 AWG wire or banana plugs and are spaced on 3/4" centers to accept dual banana plugs.
- ◆ 5-year warranty



Rear view of the P1500 and P3000

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# HAFLER

## P4000

POWER AMPLIFIERS

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### 400-watt Trans•nova DIAMOND Power Amplifier

Featuring 400-watts of power in a 3RU high chassis and the trans•nova circuit with the added brilliance of DIAMOND (Dynamically Invariant AMplification Optimized Nodal Drive), the P4000 is perfect for studio monitoring, touring sound and fixed installations. The DIAMOND transconductance driver stage combines the linearity of Class A operation with the current headroom of a Class B system providing up to 14dB additional dynamic range in front end. The sonic result of all this unique technology is very easily heard. The P4000 presents a deep, wide sound stage with incredible musical transparency and detail.



### P7000 700-watt Trans•nova DIAMOND Power Amplifier

The most powerful and versatile amplifier in the line up, the 2RU high, dual fan-cooled P7000 combines Hafler's best technologies with unusual flexibility like level control, bridging, and plug-in electronic crossovers, making it perfect for studio, cinema, or musical instruments such as bass guitar or keyboards. The sonic result of this unique combination of versatility and power is immediately apparent to the discerning listener.



Delivers a deep, rich expansive sound stage with incredible transparency and detail.

- ◆ Active crossovers are incorporated at the input of the amplifier. These crossovers are controlled through the use of Hafler's X-Card plug-in modules. Each X-Card can operate as a full-range, high-pass or low-pass filter with a 12dB per octave Butterworth alignment.
- ◆ Each channel utilizes two 100Hz X-Cards which in combination can be configured as a 24dB per octave slope or a 12dB per octave bandpass filter. Since the X-Card contains the resistors and capacitors that establish the crossover Q and frequency; specific system requirements can easily be accommodated just by changing the component values.
- ◆ Input configuration switches allow the amp to be configured for conventional stereo, two channel mono or single channel bridged use. When the amplifier is run in two-channel mono mode, the level controls and crossovers for each channel are fully functional which allows for using the amplifier as a single channel in a bi-amped system.

### P9505 500-watt Trans•nova DIAMOND Reference Amp

The standard of sonic excellence for professional applications, the 9505 features the best of Hafler's legendary technology and performance to create the ultimate balanced amplifier—at an affordable price. Utilizing triple-matched J-FET inputs and MOSFET outputs in combination with trans•nova circuitry and the brilliant DIAMOND driver stage the 9505 effortlessly outperforms products costing two or three times as much, delivering crystal clear, true sounding music with less coloration and added dimension.



# HAFLER

## SR2300/SR2800/GX2800

### 300 and 700-watt per Channel Amplifiers

The SR2300, SR2800 and GX2800 amplifiers are 2RU high, two-channel, fan-cooled power amps suitable for use in the most demanding sound reinforcement and commercial sound installations. They offer outstanding efficiency by means of three technologies: high-efficiency TRANS•nova Class-G circuitry, high-frequency switching power supplies, and constant power output/load impedance selection switches. The GX2800 has the same power output as the SR2800 plus adds selectable low pass/high pass crossovers, time delay, CD Horn EQ and phase switch. However, it doesn't have daisy chain jacks.



POWER AMPLIFIERS

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### TA1600

The TA1600 (Trans\* Amp) is a two-channel, two-rack height, convection-cooled MOSFET power amplifier. It is suitable for various applications such as instrument amplification, DJ, Monitoring, Live Sound Reinforcement, and permanent installations.

The circuitry used in the TA1600 is the latest refinement of the patented Trans\* nova circuit. It has been proven to offer sound quality to satisfy the most analytic audiophile or the most demanding professional. The natural sound and realistic reproduction have made Trans\* nova amplifiers the choice in critical installations. They have proven extremely fault tolerant even in abusive situations. This ruggedness enables the amplifier to drive reactive speaker loads without the performance and sound penalties imposed by elaborate protection schemes.

Specialized circuits prevent damage to the amp and speakers, without affecting the audio signal. A soft start circuit prevents sending potentially destructive turn-on and turn-off transients to the speakers. A thermal sensing network monitors the heatsink and transformer temperature, and shuts down the amplifier to protect from excessive operating heat. The need for internal fuses has been eliminated. A sensing circuit monitors the output signal and shuts down operation when it detects a short in the output load. In addition, LED indicators give a visual representation of the operating status of each channel. Any type of fault (clipping, short protection, or thermal standby) will be indicated with a red LED.

#### HAFLER AMPLIFIER SPECIFICATIONS

	P1000	P1500	P3000	P4000	P7000	P9505	TA1600	SR2300	SR2800	GX2800
<b>Power @ 8Ω</b>	50W	75W	150W	200W	350W	250W	60W	300W	600W	700W
<b>Power @ 4Ω</b>	55W	85W	200W	275W	500W	375W	75W	300W	600W	700W
<b>8Ω Bridged Mono</b>	110W	170W	400W	550W	1000W	750W	—	600W	1200W	1400W
<b>Circuitry</b>	Trans•ana	Trans•nova	Trans•nova	Trans•nova/ Diamond	Trans•nova/ Diamond	Trans•nova/ Diamond	Trans•nova	Trans•nova/ Diamond	Trans•nova/ Diamond	Trans•nova/ Diamond
<b>RU Spaces</b>	1RU	2RU	2RU	3RU	2RU	3RU	2RU	2RU	2RU	2RU
<b>Cooling System</b>	Convection	Convection	Convection	Convection	Dual Fan	Convection	Convection	Dual Fan	Dual Fan	Dual Fan
<b>LEDs</b>	Signal Clip Thermal	Signal Clip Thermal Short	Signal Clip Thermal Short	Signal Clip Thermal Short	Signal Clip Thermal Short	Power On —	Signal Clip Protect	Signal Clip Thermal Short	Signal Clip Thermal Short	Signal Clip Thermal Short
<b>Inputs</b>	XLR • ¼" balanced	XLR • ¼" balanced	XLR/¼" bal RCA unbal	XLR/¼" balanced	XLR/¼" balanced	XLR/¼" balanced	1/4" balanced	XLR/¼" bal RCA unbal	XLR/¼" balanced	XLR/¼" balanced
<b>Outputs</b>	Barrier Strip	5-way	5-way	5-way	5-way	dual binding	Barrier Strip	5-way Binding	5-way Binding	5-way
<b>Warranty</b>	5-Year	5-Year	5-Year	5-Year	7-Year	7-Year	1-Year	5-Year	5-Year	5-Year

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# MACKIE

## FR SERIES

POWER AMPLIFIERS

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### High Current Power Amplifiers

*Incredibly affordable, the FR (Fast Recovery) Series power amps are traditional "lead sled" designs with massive toroid transformers, huge storage capacitors, state-of-the-art output devices and cooling systems that outperform all amps in their price range. Designed to perform reliably under the most adverse conditions, the amps feature sustained high-current output capability, high voltage and current slew rate, and defeatable clipping eliminator, to ensure that the output of is distortion-free. They also deliver enormous amounts of current into extremely low impedances – with dynamic power reserves to spare. For added convenience and versatility, they offer both XLR and TRS inputs, extra XLR signal pass-through, integral servo-controlled limiters, elaborate but normally inaudible protection circuits, automatic turn-on delay, front panel LED ladder displays and detented level controls calibrated in both volts and dB. So whether you want to run your whole sound reinforcement system with a single amp, or need rack upon rack of them back stage, there's an FR Series amp tailored for your application.*



M800



M1400



M1400i



M2600

### FEATURES

#### Fast Recovery

- ◆ FR series amps sound better than their competition when driven into clipping (overload). When an amp clips, you start hearing harmonic distortion. Most amps use negative feedback to help control clipping distortion. The output section of the amp sends a signal back to earlier stages to "throttle the system down. However, this causes its own problem: During clipping, when the amp relies on negative feedback, it electronically "confuses" earlier amp stages, causing them to latch in a clipping mode instead of recovering quickly. Latching causes an amp to sound terrible when pushed too hard, which it inevitably will be.
- ◆ To effectively deal with clipping, an amp must be able to recoup almost instantaneously. That's what Mackie means by Fast Recovery. FR Series amps use very sparing amounts of negative feedback. Then they use complementary Baker Clamp circuits on the positive and negative voltage amp stages, which prevent the stages from saturating (and latching) during periods of overdrive. An additional transistor senses when the Baker Clamp is active and then activates the amplifiers' internal limiting circuits. The result is no latching, instant recovery from overdriving the amp — and way better sound.

#### Better Cooling

- ◆ The more heat you can conduct away from an amp's output devices (transistors) the longer they'll last. The better physical contact that can be made between a transistor and its heat exchanger, the more heat can be pulled away and dissipated. FR amps have a mirror-polished heat exchanger that maximizes thermal transfer.
- ◆ The exchanger itself is transverse mounted with its air inlet in the middle. Cool room air enters the front of the amp, then travels down two short cooling tunnels and exits on the amplifier's sides. This T-Tunnel design provides a more constant thermal gradient than one long cooling tunnel — in other words, two short air passages keep all transistors closer to the same temperature instead of getting progressively hotter as the air temperature increases down one long exchanger.
- ◆ A dual-speed fan in the center directs air from the front of the amps through a large intake manifold into the cooling tunnel. The cool air is evenly distributed from the middle of the tunnel to each end, where the warm air exits the amp on either side.

Designed for professionals and amateurs alike, the FR Series amps are great for live sound reinforcement applications, as well as studio or broadcast control rooms. With the ability to deliver massive amounts of current instantly, they can handle power-sucking subwoofers, yet remain discriminating and responsive when driving a bank of delicate tweeters.

They are designed to drive low impedance loads effortlessly and reliably. Most power amps have difficulty driving anything lower than 4 ohms, but the FR Series can easily drive 2 ohms all day. And like Mackie's Audio Mixers which are well-known for their ability to withstand the abuses of the road, the FR Series amplifiers are just as durable.



ONE HOUR FREE PARKING

AT 349 W. 34th STREET (with purchase of \$100 or more)

# MACKIE

## FR SERIES

### Sound Enhancing Features

- ◆ All PA cabinets only reproduce bass down to a certain point, called the tuned frequency. Below that point, you get audio sludge and potential woofer damage. FR Series variable low cut filters let you feed your system only the frequencies it can handle. You can "dial in" any tuned frequency from 5Hz to 170Hz. Each amp also includes an infrasonic stabilizer circuit that cuts the really low frequencies that cause visible woofer cone flutter.
- ◆ To improve high frequency reproduction, many systems use constant directivity (CD horns). They improve treble dispersion by more evenly distributing high frequencies. But in doing so, they actually create a frequency "dip" that reduces important frequencies anywhere from 2.5kHz to 5kHz. The old way to compensate for this was a very expensive crossover module or a graphic equalizer. The M•800, M•1400 and M•1400i include separate left and right CD horn EQ adjustments. This 6dB/octave EQ's "knee" position is sweepable from 2kHz to 6kHz -- Mackie extended the high end boost so you can add "Air" EQ even if you're not using CD horns.
- ◆ The M•1400/M•1400i feature 3rd order, 18dB/octave, Bessel electronic crossovers with 2 selectable frequencies. The M•2600 features 4th order, 24dB/octave, Linkwitz-Riley electronic subwoofer crossovers with 3 selectable frequencies. All have uniform time-delay low-pass filters. Just select the crossover frequency, connect the subwoofer output to another amp -- and drive that subwoofer all over the map.



### Additional Features

- ◆ Amps convert some of the raw power from a wall socket into modulated musical power for your speakers. The rest is turned into heat. FR amps achieve 74.5% efficiency, just shy of 78%— the theoretical maximum.
- ◆ It's easy for an amplifier to put out high frequencies. But low frequencies demand awesome amounts of power. In order to sound good, a power amplifier has to be able to deliver flat response over an extremely wide range of frequencies. The outputs of an FR Series amplifier are very flat and wide: +0/-3dB from 10 Hz to 80 kHz and full power capability to 100 kHz.
- ◆ An amp must be able to reproduce brief, intense bursts of energy—transient peaks—at the same rate they are input to the amp. The ability to do this is measured by its voltage slew rate. The slew rate of an FR Series amp exceeds 50V/μsec. That's one of the fastest slew rates of any pro audio amp.
- ◆ The can operate on as little as 63% of their rated voltage (a big plus during brownouts or at the end of a long extension cord)
- ◆ Heavy-duty 5-way binding post output
- ◆ Rack-mountable (2U) with rear support rails for extra support
- ◆ Separate left and right detented gain controls, calibrated in both dB (off to 30) and volts (with indications of 1v, 2v and 3v)
- ◆ Balanced XLR and 1/4" TRS input jacks plus extra male XLR signal pass-through
- ◆ 6 discrete LEDs including signal present and overload indicate signal levels
- ◆ Switch for Stereo, Mono or Bridge modes
- ◆ Limiter eliminates clipping in both channels
- ◆ Subwoofer mode switch with dual-frequency select (63Hz/125Hz)
- ◆ Separate L/R Protection Circuits:
  - Automatic 3-second turn-on delay prevents damaging thumps from reaching the speakers
  - Short-circuit protect with separate L/R indicating LEDs
  - Thermal protect with combined CH1 and 2 Cold and Hot indicating LEDs

	M•800	M•1400	M•1400i	M•2600
<b>4-ohm bridge</b>	800W	1400W	1400W	2600W
<b>8-ohm bridge</b>	550W	1000W	1000W	1700W
<b>2-ohm load</b>	400+400W	700+700W	700+700W	1300+1300W
<b>4-ohm load</b>	275+275W	500+500W	500+500W	850+850W
<b>Low cut filters</b>	yes	yes	yes	yes
<b>Limiter circuit</b>	yes	yes	yes	yes
<b>CD Horn EQ</b>	yes	yes	yes	—
<b>Subwoofer crossover</b>	—	2-position	2-position	3-position
<b>XLR pass-through</b>	yes	yes	yes	yes
<b>5-way binding posts</b>	yes	yes	yes	yes
<b>Neutrik Speakons</b>	—	yes	—	yes
<b>1/4" TS outputs</b>	yes	—	yes	—
<b>T-Design cooling</b>	yes	yes	yes	yes
<b>Demand-sensitive fan</b>	yes	yes	yes	yes
<b>Detented level controls</b>	yes	yes	yes	yes
<b>LED output display</b>	yes	yes	yes	yes
<b>Signal present, OL and Channel Status LEDs</b>	yes	yes	yes	yes
<b>Temp &amp; Short Circuit LEDs</b>	yes*	yes	yes	yes

\*(Temp LEDs only)

## RMX SERIES



### Professional Power Amplifiers

The RMX Series amplifiers offer clean, dynamic power with legendary QSC sound quality and reliability for unmatched performance.

Providing professional quality at affordable prices, they range in power from 430 watts to 2000 per channel at 2 ohms, all in a compact chassis only 2 rack spaces high and less than 16" deep.

They use a powerful high-current toroidal transformer and ample filter capacitance to ensure generous energy reserves. This makes a critical difference in sound quality, because it allows the amps to effortlessly punch out high level transients, even when driving abusive 2-ohm speaker loads. A full complementary output circuit using the highest-grade linear output devices delivers ultra-low distortion and a ruler-flat frequency response.

RMX output devices are direct-mounted to the heat sink for optimum thermal coupling and cooling. Other features include user-defeatable clip limiters and selectable low-frequency filters to optimize sonic performance. They are equipped with XLR and 1/4" balanced inputs, and Speakon and binding post outputs.

### FEATURES

#### RMX Series Features

- ◆ High-current toroidal transformers for greater 2-ohm power and low noise
  - ◆ Barrier strip, XLR and 1/4" balanced inputs plus Speakon and binding post outputs provide easy connections.
  - ◆ Low-noise variable speed fans with rear-to-front air flow keep amps and racks cool
  - ◆ Front mounted gain controls for easy access
  - ◆ Signal and Clip LED indicators help monitor performance
  - ◆ Amplifier protection includes full short circuit, open circuit, thermal, ultrasonic, and RF protection. Stable into reactive or mismatched loads.
  - ◆ Independent DC and thermal overload protection on each channel automatically protects amp and speaker
  - ◆ 3-year warranty plus optional 3-year extension available
- ◆ Independent defeatable clip limiters reduce distortion without sacrificing peak performance. When an RMX is pushed to extremes, the clip limiter automatically finds the exact point of overload and keeps the amp in its "Peak Zone", preventing severe distortion without reducing performance.
  - ◆ Prevent low-frequency muddiness with selectable 30 or 50Hz low-frequency filters and boost your system's response by matching the amp's range to the speakers. Each channel is separately adjustable: 50Hz for compact full-range speakers; 30Hz for subwoofers and large full-range systems (OFF for studio monitoring).
  - ◆ The clip limiter and low-frequency filter are independently adjustable for each channel

	RMX 850	RMX 1450	RMX 1850HD	RMX 2450	RMX 4050
<b>STEREO MODE, EIA</b>	<b>Both Channels Driven Continuous Average Output Power Per Channel</b>				
8Ω EIA 1 kHz, 0.1% THD	200W	280W	360W	500W	850W
4Ω EIA 1 kHz, 0.1% THD	300W	450W	600W	750W	1400W
2Ω EIA 1 kHz, 1% THD	430W	700W	900W	1200W	2000W
<b>BRIDGE MONO MODE</b>	<b>Bridge Mono Mode Operation</b>				
8Ω EIA 1 kHz, 0.1% THD	600W	900W	1150W	1500W	2800W
4Ω EIA 1 kHz, 1% THD	830W	1400W	1800W	2400W	4000W

Thermal Management System provides continuously variable speed fan for quiet operation. Rear-to-front air flow keeps amps and racks cool.



### Professional Power Amplifiers

The PLX Series define high impact. Up to 3,400 watts in a 2 rack-unit chassis that's only 13" deep and 21 lbs. They also include QSC's exclusive PowerWave Technology used in the award-winning PowerLight Series for chest-pounding bass and crystal-clear highs. They also feature hum-free noise floor and ultra-low distortion of 0.03% THD. And to keep them running under the most demanding conditions, they incorporate QSC's Advanced Thermal Management System.



POWER AMPLIFIERS

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#### FEATURES

##### PLX Series Features

- ◆ Exclusive PowerWave power supply for superior bass and lighter weight
- ◆ Stereo, parallel-input, or bridged mono modes
- ◆ Ultra-low distortion (0.03% THD at 8 ohms) and studio-quality noise floor (-107 dB)
- ◆ Detented gain controls
- ◆ Front panel LED indicators for power, signal, -20 and -10 dB, clip/ protect, parallel inputs, and bridged mono mode
- ◆ Class H output reduces AC power draw and heat by 40% (PLX 2402, 3002, 3402)
- ◆ Selectable clip limiters and subsonic filters (30 or 50 Hz roll-off) reduce distortion and protect speakers
- ◆ Variable-speed fan for low noise and solid 2 ohm performance
- ◆ Balanced 1/4" TRS & XLR inputs, Speakon and shock-proof binding post outputs
- ◆ Amplifier protection includes full short circuit, open circuit, thermal, ultrasonic, and RF protection. Stable into reactive or mismatched loads.
- ◆ Advanced Thermal Management (ATM) system ensures PLXs run cool and reliable even under harsh conditions. Using a high-output variable speed fan, ATM pulls cool air from the rear of the amp and propels it through a heat shroud precision-fitted to flow air over the heat sinks and out of the amplifier.
- ◆ Compact 2 RU high, 21 lbs. and 13" deep chassis fits into any rack
- ◆ 3-year warranty plus optional 3-year extension available

### PowerWave Technology

With PowerWave technology, the PLX series make your music to a whole new level. Not only does it deliver bigger bass and cleaner highs, PowerWave also cuts wasted heat and boosts reliability. PowerWave makes the amps better sounding and more compact—so you don't have to settle for conventional "lead sled" designs with hum, sagging supplies, and backbreaking weight. Provides heavyweight audio performance in less than half the size and weight of typical amps.

PowerWave is a switching power supply that provides ample current to the audio power circuitry by charging the supply rails 230,000 times a second through an ultra-low impedance circuit. So unlike other amps with conventional supplies, the audio signal is never starved prematurely and remains crisp and clean. It virtually eliminates hum and greatly reduces noise, providing a vast dynamic range that can handle any music without running out of headroom.

—Conventional power supplies draw 60 Hz AC from the wall directly into the power transformer. This low frequency requires a massive iron core and hundreds of windings. In fact, a conventional 3000-watt amp needs a transformer that weighs at least 35 lbs. as much as two-thirds of the amp's total weight.

—Worried about hum? PowerWave gets rid of it completely. The 115-kHz PowerWave supply eliminates 60 Hz fields that can couple into internal or external audio circuitry.

—Bass A PowerWave transformer has lower impedance and greater efficiency because its copper windings are short and thick. In essence, it provides a "bigger pipe" to get electrical energy to the amp's output circuitry. Helps the amps deliver chest-pounding bass.

—PowerWave supply charges the rails 230,000 times per second—a vast improvement over 100–120 times per second in conventional supplies. This high recharge rate minimizes AC ripple that can degrade sonic quality

	PLX1202	PLX1602	PLX2402	PLX3002	PLX3402
<b>8-ohms (stereo)</b>	200	300	430	830	200
<b>4-ohms (stereo)</b>	280	450	700	1400	200
<b>2-ohms (stereo)</b>	360	600	900	1800	200
<b>16-ohms (bridged mono)</b>	500	750	1200	2400	200
<b>8-ohms (bridged mono)</b>	200	300	430	830	200
<b>4-ohms (bridged mono)</b>	200	300	430	830	200

## ISA SERIES

### Professional Power Amplifiers

Designed as a cost-effective solution specifically for sound contractors, the ISA Series feature three low impedance models (ISA 280, ISA 450, ISA 750) rated for 2-ohm operation, and three "T" versions with 25, 70 and 100 volt outputs for distributed audio systems (ISA 300T, ISA 500T, ISA 800T).

Versatile loading options and a comprehensive feature set make the ISA Series a rugged, cost-effective power solution for any permanently installed sound system.

Unique among distributed sound power amplifiers, the "T" versions will drive 8- or 4-ohm loads and a distributed system on the same channel simultaneously. This enables a contractor to reduce the number of required amplifier channels by allowing a limited number of distributed speakers to be attached to the same amp as is powering the main sound system.

Housed in a rugged 3RU chassis, all amps feature rear panel gain controls for tamper resistant operation with 2 dB detents for quick and repeatable settings. Inputs include XLR and detachable Euro-style connectors. Outputs feature covered barrier strip connectors for safety agency compliance. For added versatility, a DataPort permits use with compatible signal processing accessories such as the XC-3 Crossover, SF-3 Subwoofer Filter, LF-3 LF Filter and the DSP-4 with external power supply.



### FEATURES

- ◆ Rear panel gain controls for tamper resistant operation with 2-dB detents for quick and repeatable settings
- ◆ XLR and detachable Euro style input connectors
- ◆ DataPort V2 for use with compatible signal processing accessories (XC-3, SF-3, LF-3) and DSP-3 (with external power supply)
- ◆ Independent defeatable clip limiters for reduced distortion
- ◆ Selectable high-pass filters protect speakers and prevent speaker transformer saturation with minimal effect on program material (30Hz or 70Hz on non-"T" models, 50Hz or 75Hz on "T" models)
- ◆ Class H complementary bipolar output circuitry reduces AC power draw and waste heat by 40% (ISA 750 and 800T)
- ◆ Front panel indicators include power, signal, and clip
- ◆ Covered barrier strip output connectors for safety agency compliance
- ◆ Automatic variable-speed fan for quiet normal operation with maximum cooling on demand
- ◆ Rear-to-front air flow keeps equipment racks cool
- ◆ Stereo, bridge, or parallel operating modes
- ◆ Comprehensive protection circuitry including DC, infrasonic, thermal overload, and short circuit protection
- ◆ 3-year warranty plus optional 3-year extended service contract

	ISA280	ISA450	ISA750	ISA300T	ISA500T	ISA800T
<b>STEREO MODE, Both Channels Driven Continuous Average Output Power Per Channel</b>						
8Ω 20-20k Hz 0.1% THD	185W	260W	450W	185W	260W	450W
4Ω 20-20k Hz 0.1% THD	280W	425W	650W	280W	425W	650W
2Ω 1 kHz 1% THD	430W	700W	1200W	430W	700W	1200W
<b>XF OUTPUT POWER, STEREO MODE, 50 Hz-16 kHz 0.5% THD</b>						
70V or 100V	-	-	-	300W	500W	800W
25V	-	-	-	240W	400W	640W
<b>BRIDGE MONO MODE Continuous Average Output Power</b>						
8Ω 1 kHz 0.1% THD	600W	900W	1500W	600W	900W	1500W
4Ω 1 kHz 1% THD	830W	1400W	2400W	830W	1400W	2400W
<b>XF OUTPUT POWER, BRIDGE MONO MODE, 50 Hz-16 kHz 0.5% THD</b>						
140V or 200V	-	-	-	600W	1000W	1600W
50V	-	-	-	480W	800W	1280W

### "T" Models

- ◆ 25-, 70-, 100-volt, and low-impedance outputs available simultaneously
- ◆ Simple barrier strip connection determines output mode



**ONE HOUR FREE PARKING**

AT 349 W. 34th STREET (with purchase of \$100 or more)

## CX SERIES

The CX Series is designed to meet the specialized needs of sound contractors. Eight 2-channel, three 4-channel and one 8-channel including 70-volt models have been designed from the ground up, combining QSC's exclusive PowerWave technology with specific features to meet the requirements of fixed installations. With high output power, versatile loading options, high thermal capacity and reliability, the CX Series is the ideal solution to any permanently installed sound system.

### CX 2-Channel Amps

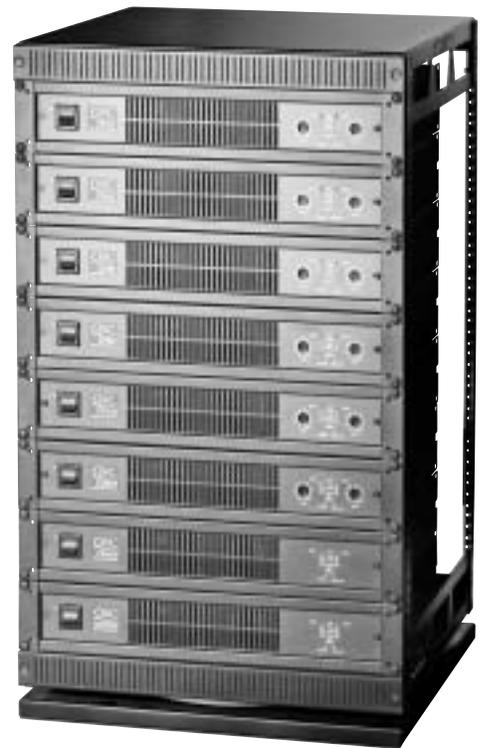
- ◆ 8 models to meet your exact power requirements (five low impedance models, three 70-volt direct models)
- ◆ Exclusive PowerWave switch-mode power supply technology for high performance and compact size
- ◆ Custom integrated security cover for tamper proof installations
- ◆ Variable speed fan for low noise
- ◆ 1dB detented gain controls for fast and accurate gain settings
- ◆ Active In-rush Limiting eliminates AC inrush current, removing the need for expensive power sequencers
- ◆ XLR and detachable Euro style input connectors
- ◆ Comprehensive front panel indicators include signal, clip, protect and QSC's bridge-mono and parallel-input LEDs
- ◆ Dip switch control for clip limiters, high pass filters, bridge-mono and parallel operation
- ◆ HD15 DataPort connector for QSCControl computer control or QSC signal processing accessories
- ◆ Selectable high pass filters protect speakers and prevent speaker transformer saturation with minimal effect on program material (33 Hz or 75 Hz on non-V models, 50 Hz or 75 Hz on V models)
- ◆ Barrier strip output connector
- ◆ Comprehensive protection circuitry including DC, infrasonic, thermal overload and short circuit protection
- ◆ Class H complementary bipolar output circuitry for high efficiency (CX702, CX902, CX1102 & CX1202V)
- ◆ Optional external transformer pack for isolated 70- and 100-volt outputs (converts CX302 to 400 w/ch isolated output)
- ◆ Amps are 2 RU high, 14" deep and weigh only 21 lbs. for easier racking & shipping
- ◆ 3-year warranty plus optional 3-year extended service contract

### CX-SERIES SPECIFICATIONS

Stereo Mode, All Channels Driven

	70v <sup>1</sup>	8-ohms <sup>2</sup>	4-ohms <sup>2</sup>	2-ohms <sup>3</sup>
CX302V	250w	—	—	—
CX602V	440w	550w	—	—
CX1202V	1000w	700w	1100w	—
CX302	—	200w	325w	600w
CX502	—	300w	500w	800w
CX702	—	425w	700w	1200w
CX902	—	550w	900w	1500w
CX1102	—	700w	1100w	1700w
CX204V	200w	—	—	—
CX254	—	170w	250w	450w
CX404	—	250w	400w <sup>4</sup>	not recommended
CX168	—	90w	130 <sup>5</sup>	—

<sup>1</sup>1kHz, 0.05% THD    <sup>2</sup>20-20k Hz, 0.05% THD    <sup>3</sup>1kHz, 1% THD    <sup>4</sup>(0.1% THD 1 kHz)    <sup>5</sup>0.1% THD 20 Hz-20 kHz



POWER AMPLIFIERS

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### CX-4 Channel Amps

Same as 2-channel models except:

- ◆ Channel 1&2 and 3&4 bridgeable for maximum flexibility
- ◆ High-performance Class AB+B complementary bipolar output circuitry
- ◆ Detachable Euro style input connectors
- ◆ 3 models to choose from (two low impedance one 70-volt direct)

### CX 8-Channel Amp

Same as 4-channel models except:

- ◆ Channel pairs bridgeable for maximum flexibility (1&2, 3&4, 5&6, 7&8)
- ◆ Four HD15 DataPorts (one per channel pair) for QSCControl computer control or signal processing accessories
- ◆ Detachable Euro style input and output connectors
- ◆ 1dB recessed detented gain controls

# RANE

## MA3

### Multichannel Amplifier

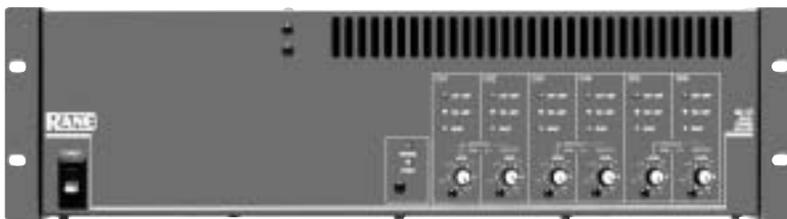
The MA 3 is a three-channel amplifier specifically designed for use in paging, foreground music, and background music distribution. Each channel of the MA 3 delivers 40 watts of continuous average



power into 8 ohms and 60 watts into 4 ohms. Up to three optional 40 watt, 70.7 volt or 100-volt constant-voltage audio transformers may be installed inside the MA 3, eliminating the need for external wiring or transformer mounting. The combination of a solid, conservative power supply and forced air cooling allows the MA 3 to simultaneously deliver 60 watts of continuous-average-power to all three channels.

- ◆ SPiKe dynamic protection circuitry completely safe-guards each channel against over-voltage, under-voltage, overloads, transients from inductive loads, thermal runaway and instantaneous temperature peaks. Biasing is not allowed to occur when an under-voltage condition exists, reducing turn on and turn off transients.
- ◆ Fast-response limiters allow the MA 3 to tolerate up to 20 dB of overdrive into 8 and 4 ohm loads while holding THD below 1%. This means no loss of speech intelligibility or harsh clipping. Greatly increases the dynamic range of the system without external limiters. Peak-responding, load-adaptive meters accurately indicate the remaining headroom, and are helpful in setting system levels and indicating signal compression.
- ◆ Balanced inputs with Euroblock connectors are provided. Euroblock output connectors accept up to 12 gauge wire. Rear panel level controls allow amplifier sensitivity adjustment.
- ◆ Internally selectable 80 Hz highpass filters offer protection against over excursion of small bookshelf speakers and saturation of distribution transformers at low frequencies.

### MA6S Multichannel Amplifier



The MA 6S supplies six completely independent amplifier channels in one 3-space rack-mount unit. Each channel delivers 100 watts RMS into an 8-ohm load, or 150-watts each into a 4-ohm load. Adjacent pairs of Channels (1 & 2, 3 & 4, 5 & 6) operate bridged to provide 300-watts into an 8-ohm load. Each channel of the MA 6S

includes an input Voltage Controlled Attenuator (VCA). This carefully designed VCA prevents clipping at the output of the amplifier for any load for up to 15 dB of input overdrive. This VCA provides additional headroom to each Channel, making the 100 watt ratings effectively much higher, and the results much louder.

- ◆ Unprecedented degree of flexibility:
  - Use it as a monitor amplifier for six separate Channels of stage monitor mixing;
  - Drive a pair of two-way speakers bi-amped with two bridged pairs at 300w for the low end and two 100w channels for the high end, each with limiters for driver protection
  - Run three bi-amped monitors at 100w each
  - Drive three passive two-way monitors at 300 watts each
- ◆ All channels of the MA 6S are completely independent. Each is contained on its own circuit board making it immune to the actions of any other channel.
- ◆ Power supply is designed so that signal won't back-feed from a heavily loaded channel to any other channel. This makes power supply cross talk between channels inaudible.
- ◆ Euroblock quick disconnects allow fast and inexpensive connection of input and output signals. Up to 12 AWG wire can be used.
- ◆ Individual indicators for each channel indicate the status of the Mute Relay, Clipping Protection, and Safe Operating Area (SOA) Protection circuits.
- ◆ Heavy gauge all-steel construction offers a high level of mechanical integrity, even when the amp is rack-mounted and unsupported in the rear. As an added benefit, mounting holes are provided on the side rails so the amplifier may be supported from the back.



ONE HOUR FREE PARKING

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# SAMSON

## SERVO 120

*Ideal for powering near field monitors or a headphone amplifier, the Servo 120 gives you "reference-class" audio performance and reliability in a compact package.*

*Ideal for recording, live sound and home*

*theater situations, the 120's bipolar design and toroidal transformer power supply ensure reliability and quiet performance. A headphone jack with a speaker-disable switch lets you work through late night mixing sessions without disturbing anyone.*



- ◆ 1RU servo-controlled stereo power amp
- ◆ 60w per channel into 4 ohms (stereo), 120watts into 8 ohms (bridged mono mode)
- ◆ Wide, flat frequency response of less than 10Hz to plus 100kHz for high-quality audio
- ◆ Relay-controlled power-on circuitry prevents speaker "thumps"
- ◆ Individual left and right Level controls with 5-segment, 3-color LED meters
- ◆ Push-spring terminal outputs
- ◆ Convection-cooled design eliminates fan noise and maintenance problems
- ◆ Bipolar design and toroidal transformer power supply
- ◆ Overheating and over-current protection circuitry
- ◆ Front panel headphone jack with speaker-disable switch
- ◆ Balanced 1/4" TRS inputs and unbalanced RCA inputs on gold-plated connectors for improved conductivity

## DS70 70-Volt Speaker Distribution System



*Rugged and reliable, the 2RU high DS70 transforms the 4 ohm output of a standard power amp to a 25 or 70-volt level for use in multiple ceiling-mounted speaker systems. 4 independent channels allow for 4 mono or 2 separate stereo zones.*

- ◆ Transforms conventional 4 ohm amplifier output to a 70 or 25 volt level for sound distribution in commercial installations
- ◆ 4 independent signal paths
- ◆ Binding post inputs and terminal strip outputs
- ◆ Maximum power for each output: 120 watts (240 watts in bridged mode)
- ◆ 4 high-quality toroidal transformers for full-range audio with extended high frequency reproduction

## F800/F1200

*The 3RU high F800 and F1200 are rugged amps ideal for sound reinforcement, DJ use, commercial installations and PA systems.*

*The F800's amp section produces 400 watts per side into four ohms and 800 watts into eight ohms in the bridged mono mode.*

*The F1200's amp section produces 600 watts per side into four ohms and 1200 watts into eight ohms in the bridged mono mode. Housed in a three rack space chassis, they both feature a bipolar design to ensure stable operation and accurate audio reproduction. Their front panel includes a Power On/Off switch along with Power, Bridge and Peak LEDs. Other practical features include 1/4" balanced and RCA input connectors and Binding Post output connectors.*



- ◆ F800 produces 400w per channel into 4 ohms and 800w into 8 ohms (bridged mono mode), the F1200 produces 600 watts per channel into 4 ohms and 1200 watts into 8 ohms (bridged mono mode)
- ◆ Dual temperature-sensitive, speed-controlled fans for maximum efficiency and reliability
- ◆ Stable bipolar design for long life and enhanced audio reproduction
- ◆ Dual protection, power and bridging LEDs
- ◆ Balanced 1/4" and RCA input connectors
- ◆ Binding post output connectors
- ◆ Resettable in-line fuse on rear panel

# SAMSON

## SERVO 170/260/550

POWER AMPLIFIERS

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### Power Amplifiers

A versatile performer in a compact package, the Servo 170 is excellent for near field monitoring, stereo midrange/high frequency bi-amping applications and low power distribution systems.

It also works effectively for powering vocals and acoustic instrument setups in small clubs, restaurants and bars. Like all Samson Servo amps, the 170 is designed to ensure quiet, reliable performance every time you use it.



A mainstay of the line, the Servo 260 can be used to power near field monitors, passive headphone distribution systems in the studio and small live sound reinforcement setups. It is also a great choice for stereo keyboard or guitar amp setups with external mixer

or preamps, or amplifying a large screen TV or video system. The Servo 260 is dedicated to transparent audio, consistent performance and the rugged construction you need from a professional amplifier.

Using the Servo 550 in the bridged mono mode is a great way to power a separate subwoofer system as an enhancement to your overall sound. The 550 also shines in other live sound reinforcement uses, monitoring and dedicated recording applications like powering near and midfield monitors and passive headphone distribution systems. A/V installers appreciate the 550's versatility, quiet performance and reliability for distributed sound, clubs, restaurants and home theater settings.



#### Servo 170

- ◆ Servo-controlled stereo power amps in two rack spaces
- ◆ 85 watts per channel into 4 ohms
- ◆ Wide, linear 20Hz to 50kHz frequency response for superior audio performance
- ◆ Relay-controlled power-on circuitry prevents speaker "thumps"
- ◆ Front-panel Clip and Idle LEDs for both channels
- ◆ 1/4" and push-spring terminal outputs
- ◆ Balanced 1/4" TRS and unbalanced RCA inputs
- ◆ Circuitry protection against overheating and over-current
- ◆ Independent left/right input level controls with 41 detents
- ◆ Bipolar output stage for quiet audio performance you can always count on
- ◆ Convection-cooled design eliminates fan noise for quiet performance

#### Servo 260 Step-up Features

- ◆ Produces 130 watts per channel into 4 ohms

#### Servo 550 Step-up Features

- ◆ Servo-controlled, 3-space rack-mount stereo and mono-bridgeable power amp
- ◆ 275w per channel (stereo) into 4 ohms and 550w into 8 ohms (bridged mono mode)
- ◆ Fully balanced 1/4" inputs
- ◆ Balanced 1/4" and binding post outputs
- ◆ Front-panel Clip, Idle, Protection and Power LEDs

	Servo 170	Servo 260	Servo 550
4Ω	85w	130w	275w
8Ω	60w	90w	235w
8Ω Bridged	—	—	550w
Frequency Response (-3dB)	<20 Hz to 50 kHz	20 Hz to 50 kHz	<10 Hz to 85 kHz
Dimensions (WHD)	3.5 x 19 x 9.5"	3.5 x 19 x 9.5"	19 x 5.2 x 9.2"
Weight	13.7 lb.	17.6 lb.	32.4 lb.



# SAMSON

## S500/S700/S1000/S1500/S2000

*Sturdy and reliable, the S500 is perfect for live sound or fixed installations where 500 watts is the right amount of power.*

*Exceptionally rugged and reliable, the S700 fits seamlessly into a variety of sound reinforcement applications and fixed installations. It is capable of producing 350 watts a side and 700 watts (mono bridged) from a compact rack-mountable format. Two temperature-sensitive, speed-controlled fans and a bipolar design as well as comprehensive control and protection capability ensure stable performance over the long haul.*

*A smart choice for powering all kinds of live sound projects, commercial installations and PA systems, the rugged S1000 provides plenty of power, reliability and protection.*

*Dedicated to transparent audio and long term reliability, the S1000 is built tough and provides exceptional control and interfacing capability.*

*Efficient and highly reliable, the S1500 provides plenty of power on the road, in commercial installations and for PA use. It produces 750 watts per channel into 4 ohms (stereo mode) and 1500 watts into 8 ohms (bridged mono mode). Its flat frequency response ensures great audio. Other features include full front-panel control, metering and protection capability and a wide range of interconnect options.*

*The rugged S2000 delivers plenty of power, reliability and protection in live sound situations, commercial installations and PA situations. It produces 1000 watts per channel into 4 ohms (stereo mode) and 2000 watts into 8 ohms (bridged mono). It offers a wide frequency response; dual temperature-sensitive, speed-controlled fans, Bipolar design for consistent performance and full front-panel control, metering and protection capability along with a wide range of interconnect options.*



POWER AMPLIFIERS

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### S500 Features

- ◆ Heavy-duty dual rack space stereo power amplifier
- ◆ 250 watts per channel into 4 ohms, 150 watts into 8 ohms (stereo) and 500 watts into 8 ohms (bridged mono)
- ◆ Temperature-sensitive, speed-controlled fan
- ◆ XLR and locking TRS inputs; banana jack outputs with Speakon connectors
- ◆ Parallel outputs allow several amps to be "daisy-chained" together
- ◆ Front panel input level controls with 41 detents and 3-segment output LED meters
- ◆ Overheating and over-current protection circuitry with LED monitoring

### S700 Step-up Features

- ◆ Produces 350 watts a side into 4 ohms (stereo mode) and 700 watts into 8 ohms (bridged mono mode)
- ◆ Dual temperature-sensitive, speed-controlled fans
- ◆ Bipolar design for greater stability
- ◆ Relay-controlled outputs linked to the protection LEDs

### S1000 Step-up Features

- ◆ 500w per channel into 4 ohms (stereo) and 1000w into 8 ohms (bridged mono mode)
- ◆ Linear frequency response for exceptional audio performance

### S1500 Step-up Features

- ◆ 750 watts per channel into 4 ohms (stereo mode) and 1500 watts into 8 ohms (bridged mono mode)
- ◆ Flat frequency response for superior audio performance
- ◆ AC mains: IEC and Neutrik Powercon connector included

### S2000 Step-up Features

- ◆ 1000 watts per channel into 4 ohms (stereo mode) and 2000 watts into 8 ohms (bridged mono)
- ◆ Linear frequency response for exceptional audio performance

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# YAMAHA

## P1600/P3200/P4500

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### *“P” Series Amps with Exceptional Efficiency*

*Remarkably efficient, the “P” series also offers excellent cost per watt value. Utilizing Yamaha’s EEEngine technology, these amplifiers deliver outstanding sound quality with remarkable efficiency. All of this power and performance comes in a compact 2-space rack-mount size that makes installation and transport easy. If you need transparent amplification with excellent reliability and superior performance, give the new “P” series a close look.*

### FEATURES

#### *Power Efficient*

Yamaha’s EEEngine (see box) consumes power efficiently, which allows the amplifier to produce the same amount of output power with about half the input power required. The EEEngine outperforms other efficiency-enhancing schemes like drive voltage switching, pulse-width modulation and switching series regulators - without degrading sound quality.

#### *Quality Sound*

Transparent amplification without sound coloration is supplied with a frequency response of 10Hz to 50 kHz. A high damping factor of >200 provides excellent bass response and total harmonic distortion is <0.05% — perfect for today’s digital sources and musical instruments.

#### *Yamaha’s EEEngine*

By means of switching drive system, Yamaha’s EEEngine technology reduces AC power requirements and heat loss while maintaining output power and sound quality. Input power is supplied through a high-efficiency current buffer. During low requirement periods, it transparently switches the input power on and off automatically as needed. As the signal becomes large, an independently responding auxiliary power line supplies the additional power, as required. The output isn’t compromised because the auxiliary power line is driven by the power supply voltage, which can maintain the maximum output to the speaker load. The amplifiers make more efficient use of the AC power than conventional amplifier technology. With EEEngine technology, the electric company will wonder how you’re doing it!

#### *Input/Output*

Input attenuators are 31-position, dB-calibrated and allow independent L/R adjustment with smooth, noise-free control. Balanced XLR jacks, a barrier strip and balanced 1/4” phone jacks accommodate input connections. Five-way binding posts provide solid, reliable speaker connections.

#### *Three Output Modes*

- In stereo mode, separate input signals are routed to each channel with independent L/R signal control.
- An extra margin of flexibility is provided in parallel mode, which feeds a single input signal to both channels while maintaining independent L/R signal control.
- Bridged mono mode can be used for extra high power.

#### *Comprehensive Protection*

- ◆ They offer comprehensive protection designed to prevent accidental damage to the amplifier itself and any connected speakers.
- Power ON muting suppresses the outputs until the amplifier circuitry has stabilized.
- To keep the operating temperature stable, they are equipped with ultra-quiet variable speed cooling fans.
- Added protection is supplied with heat oversink protection, noise filtering, a PC limiter for short circuit protection and an attenuator security cover to protect level settings.



#### **Power Rating- (20Hz - 20kHz)**

##### **P1600:**

160W @ 8Ω stereo, 200W @ 4Ω stereo, 400W bridged mono

##### **P3200:**

340W @ 8Ω stereo, 440W @ 4Ω stereo, 880W bridged mono

##### **P4500:**

460W @ 8Ω stereo, 620W @ 4Ω stereo, 1240W bridged mono



For Any Inquiries Regarding Your Order, Call Our Customer Service:  
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# YAMAHA

## P2500/P3500/P5000/P7000S

### “P” Series II Amps

Yamaha’s engineers have designed these new P-Series power amplifiers as perfect mates to the popular Club Series speakers. To achieve this, they provided them with big power output that matches the power handling capabilities of the speakers. Each amp is also equipped with the specially designed YS (Yamaha Speaker) Processing circuit to deliver a signal that is tuned to the specific response of the Club Series speakers for superior audio quality and performance.

The amps features both XLR and 1/4” TRS inputs and Neutrik Speakon, phone plug, and 5-way binding post outputs to make connections quick and easy. Other features include Yamaha’s exclusive EEEngine technology which delivers high performance with exceptional efficiency, sweepable high and low pass filters for optimizing output to any loudspeakers, compact and durable 2U chassis, and variable speed cooling fans.



POWER AMPLIFIERS

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### FEATURES

- ◆ They deliver a robust amount of professional quality power in a wide range of configurations. In a 4-ohm bridged application, the P7000S delivers 3200 watts, the P5000S delivers 2600 watts, the P3500S 2000 watts, and the P2500S 1300 watts.
- ◆ Each is equipped with independent sweepable high and low pass filters on each channel so you can optimize output for subwoofer or full range systems to provide peak audio quality and performance from any speaker system you may be using.
- ◆ The P2500S and P3500S are respectably light in weight making transport and setup less strenuous. What’s amazing though, is the comparison in weight per watt when you look at the P5000S and P7000S. The use of a switching power supply makes these two models very lightweight while maintaining superior audio quality.
- ◆ To provide the most flexible connectivity possible, all four are equipped Neutrik Speakon output jacks, and 1/4-inch output jacks for each channel in addition to 5-way binding post. Channel inputs consist of both XLR and 1/4-inch TRS jacks.
- ◆ Continuously variable-speed fans mounted internally on either side of the front panel offer quiet, efficient cooling.
- ◆ Their industrial design delivers a refined and impressive look with deep blue faceplates bordered in silver trim, handles, and mounts. The chassis is specially designed to provide added durability and strength.
- ◆ EEEngine Technology makes more efficient use of AC power by reducing power consumption and heat generation without degrading output power or sound quality. See box on previous page.
- ◆ Comprehensive protection consists of power on/off muting, DC detection, thermal protection, current limiting, and a protective cover for the attenuators.
- ◆ With YS (Yamaha Speaker) Processing, you get direct compatibility with Yamaha’s Club Series speaker. This circuit optimizes output from the amps to match the characteristics of Club Series delivering a signal that is precisely what the speaker requires. With the YS Processing system, extra-smooth highs and enhanced low frequency from your Club Series loudspeaker system is assured.

Models	P7000S	P5000S	P3500S	P2500S
<b>1kHz, THD+N=1%</b>				
8Ω/Stereo	750W+750W	525W+525W	390W+390W	275W+275W
4Ω/Stereo	1100W+1100W	750W+750W	590W+590W	390W+390W
8Ω/Bridge	2000W	1500W	1180W	780W
<b>20-20kHz, THD+N=0.1%</b>				
8Ω/Stereo	700W+700W	500W+500W	350W+350W	250W+250W
4Ω/Stereo	950W+950W	700W+700W	450W+450W	310W+310W
8Ω/Bridge	1900W	1400W	900W	620W
<b>1KHz, 20mS nonclip</b>				
2Ω/Stereo	1600W+1600W	1300W+1300W	1000W+1000W	650W+650W
4Ω/Bridge	3200W	2600W	2000W	1300W