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FULL POWER BALANCED AMPLIFIERS

KRELL®

The Full Power Balanced Experience

Dan D'Agostino and the Krell Engineering Group continually explore the possibilities of amplifier design. New technologies emerge, further dissolving the boundary between a recording and the orginal live performance.

The Krell lineage is replete with milestones in high-performance audio. The new Full Power Balanced line, however, captures an extraordinary moment in our evolution. A potent array of new technologies has been harnessed and deployed throughout these amplifiers: Current Mode Gain™, balanced signal path from input to binding post, regulated power supplies for both input and output stages, full microprocessor control, and our patented Sustained Plateau Bias II™ system. When coupled to legendary Krell power capabilities, the result is sonic revelation — music presented with its emotional power intact.

On the cover: The Full Power Balanced 600 front panel display. A rear panel circuit breaker switches the amplifier into Standby mode, at which time the Power led will be illuminated. When switched from Standby to Operate the Regulator led will light, signaling that the power supplies have stabilized. Finally, the Bias led will come on, indicating that the Sustained Plateau Bias II™ system is functioning and that the amplifier is ready for playback.

PASSION ENGINEERING MUSICAL TRUTH

Current Mode Gain™

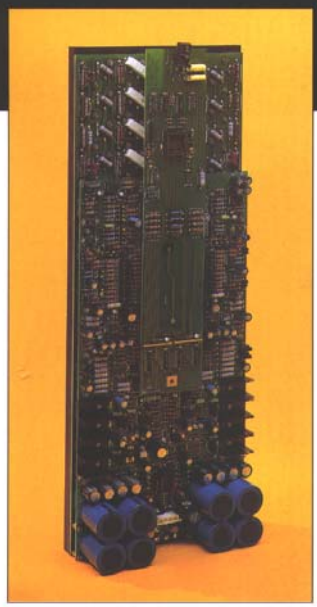
There is a place deep inside every conventional power amplifier where a translation occurs. Input and pre-driver stages operate in what engineers refer to as voltage-mode gain, while output stages operate in current-mode. This is true regardless of what type of output transistors are used — bipolars, MOSFETs, JFETs, or any other known solid-state device. For the same reason that something is always lost in the translation when two people speaking different languages communicate through an interpreter, musical detail can be distorted and nuances obscured when forced to pass through the electrical equivalent. It is precisely at this junction, where the voltage and current gain stages meet, that engineers have traditionally been forced to accept the compromises inherent in translating from one domain to the other.

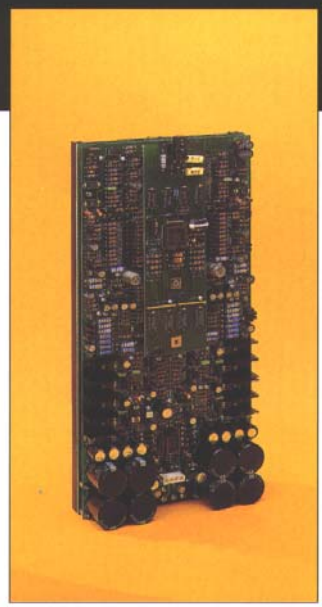
Krell has developed a new topology called Current Mode Gain™ in which all amplification stages, from input through final output, operate in current-mode, thereby eliminating the translation process altogether. Because they talk the same language — the language of current — the internal gain stages of Full Power Balanced amplifiers communicate with a directness and seamlessness that is electrifying. The engineering community will likely view this latest achievement as strikingly elegant and perhaps, in private moments, inspired. Music lovers will be struck by the heightened sense of ease, unrivaled transparency, and re-illumination of music's natural shapes, colors, and textures.

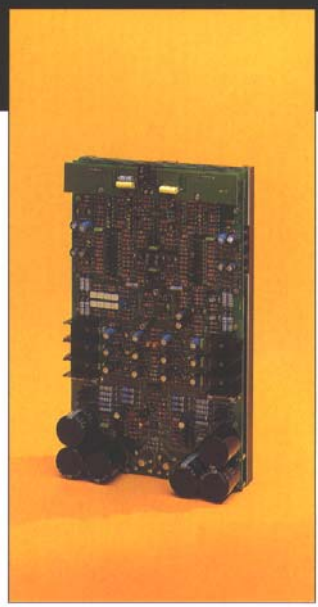
Fully Active Regulation

Music's continuously varying demands — the swings from shimmering pianissimos to bone-crushing fortissimos—place extraordinary demands on an amplifier's power supply. The power supply relies on large banks of capacitors to support it during demanding dynamic passages. Unfortunately, the capacitor's passive nature dictates that there will always be a time lag between the precise moment the power supply needs current and when that current is supplied. The result is that the output rail voltages cycle back and forth from linear to non-linear states, depending on the particular demands of the signal and the load. Sometimes subtle, sometimes not, the effect of this electrical phenomenon is that of an amplifier laboring to stay in control.

The Full Power Balanced Experience



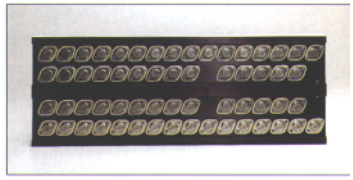




Krell has employed an innovative and demonstrably effective solution. The output stages in all Full Power Balanced amplifiers are fully and actively regulated through a free-floating feedback arrangement. The active, ultra-fast regulator operates independently of the output stage, continuously monitoring its every action to respond to even the smallest and most fleeting drop in current or voltage. Though expensive to implement, the success of this ambitious effort — essentially instantaneous response of the regulators — is awe-inspiring. The Full Power Balanced amplifiers demonstrate the ability to develop full power into the most demanding loads, with virtually no drop in current or voltage.

Balanced In, Balanced Out

The advantages of balanced operation, in which the positive and negative conductor paths are symmetrically referenced to ground, are well established among manufacturers and consumers of high-performance audio components. Balanced circuits are inherently better equipped to reject noise and the signal-degrading effects of cable interfaces and sub-optimum components. However, the primary advantage of input-to-output balanced operation is control. Independent symmetrical circuit paths individually amplify the positive and negative signals, locking the speaker into a push-pull relationship. The new Full Power Balanced series' exercises. absolute control over the most unruly speakers, even those with exotic impedance curves and disruptive back-electromotive forces (EMF). These amplifiers overcome the speakers natural resistance to motion and force them to perform the precise required movements.



Microprocessor Based Control

Krell digital engineering has made its impact on the Full Power Balanced amplifiers. By replacing conventional circuitry with two Motorola microprocessors, critical performance parameters of the Full Power Balanced amplifiers are optimized by computer control. Introduced in the industry

Above (from left to right): The Full Power Balanced 600, 300, and 200 output channels, with the output device side of the 600 also shown. Self-contained in one subassembly, each channel includes input and output stages, digital control circuitry, and regulated input and output supplies. These amplifiers use ultra-high speed Motorola output devices built exclusively for Krell: 120, 88, and 60 respectively.

Engineering Embraces The Music

reference Krell Audio Standard amplifiers, Krell's patented Sustained Plateau Bias™ circuitry renders the sonic accuracy possible only with Class A operation but without the heat generation or power consumption inherent in conventional designs. Benefiting from the accuracy that digital technology provides, the new Sustained Plateau Bias II™ circuitry now evaluates both the musical signal and speaker impedance. This critical information is passed to the microprocessors, allowing Krell bias software to precisely select bias plateaus, ensuring Class A operation during any musical passage or speaker condition.

Amplifiers as capable as the Full Power Balanced series require sophisticated protection schemes when confronted with system anomalies. The Motorola microprocessors are programmed to recognize a variety of conditions — short circuit, excessive heat, irregular regulator voltage, and excessive DC at the amplifier outputs. When any aberration is detected, the Full Power Balanced amplifiers disengage their input and output stages, protecting both the amplifier and associated system components from damage.

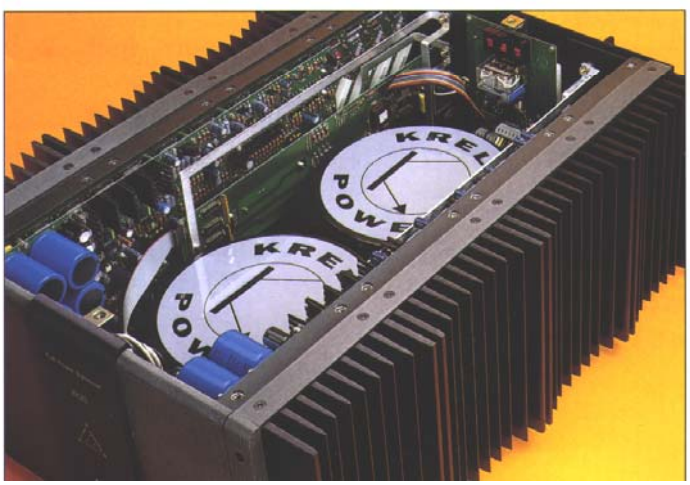
In the Krell Tradition

Over the years the phrase "built like a Krell" has become the highest compliment an audio component can be paid. An engineering analysis will quickly disclose, however, that the only thing built like a Krell *is* a Krell. Although Current Mode Gain™, active regulation, and a balanced signal path propel the art and science of stereo amplification to new performance strata, it must be acknowledged that even the most brilliant circuit designs can fail to stir the musical imagination if the execution of those designs is not equally inspired. In this respect, each Full Power Balanced amplifier enjoys what amounts to a hereditary advantage: it is distinctly Krell from faceplate to binding post, from military-grade multilayer circuit boards to the brushed and anodized finish. The internal and external construction of the Full Power Balanced amplifiers radiates both strength and refinement. The rigidity necessary to support the heavy power supply and output subassemblies is complimented by graceful detail, precise alignment of cosmetic elements, and handcrafted finishes.

At the End of the Day

Accurate music reproduction requires power, the more the better. The varying nature of speakers demands unflappable performance from an amplifier in order to recreate the dynamic shadings, intricate layerings, and explosive transients that make music sparkle. Every speaker, regardless of size, design, or playback level, thrives when driven by a monumental source of power. From the massive power supplies and overwhelming number of proprietary Krell output devices, the Full Power Balanced amplifiers provide speakers with a virtually limitless supply of power. This energy is delivered with ease, completely devoid of stress or strain.

The only remaining question is which Full Power Balanced amplifier is the right choice for your system. Plainly stated, the Full Power Balanced 200 is the most musically satisfying amplifier available — except



Left: The Full Power Balanced 600 with its hood off. Above: Detail from the front and top cover assembly.

SPECIFICATIONS

The Full Power Balanced rear panel is efficiently arranged to allow ease of connections and a clean wiring layout. A heavy gauge AC connector is used to insure maximum current transfer to the amplifiers.

for its bigger brothers. The Full Power Balanced 300, with its 480 watt clipping specification, dramatically illustrates the benefits that greater power has on musical presentation. However, in a category all its own is the Full Power Balanced 600. Never before has there been an amplifier that combines such raw power capabilities with the degree of sonic elegance and refinement as realized in the Full Power Balanced 600.

Rest assured, whichever you choose, a new Full Power Balanced amplifier will elevate your experience from sound reproduction to musical seduction.

	FPB200	FPB300	FPB600
Frequency Response:			
20Hz - 20KHz	+0.0, -0.5dB	+0.0, -0.5dB	+0.0, -0.5dB
0.1Hz -240KHz	+0.0, -3.0dB	+0.0, -3.0dB	+0.0, -3.0dB
THD:			
1KHz	0.02%	0.02%	0.02%
20KHz	0.06%	0.15%	0.15%
Gain:	26.4 dB	26.4 dB	26.4 dB
Input sensitivity:	1.92Vrms	2.35Vrms	3.39Vrms
Input impedance:	100Kohms	100Kohms	100Kohms
Output voltage:			
Peak to peak	135V	170V	239V
Rms	48V	60V	84V
Output power, each channel driven:			
8 Ohms	200W	300W	600W
4 Ohms	400W	600W	1,200W
2 Ohms	800W	1,200W	2,400W
Transformer:	2KVa	4KVa	2 x 4KVa
Power Consumption:			
Standby	60W	75W	85W
Idle	175W	350W	430W
Maximum	1,700W	3,000W	6,000W
Dimensions:			
Height	10.2"-25.9cm	10.2"-25.9cm	10.2"-25.9cm
Width	19.0"-48.3 cm	19.0"-48.3cm	19.0"-48.3cm
Depth	16.9"-42.9 cm	19.9"-50.5cm	25.6"-65cm
Weight:			
Unit only	90 lbs.-198kg	110 lbs.-242kg	180 lbs.-396kg
Packed	107 lbs.-236kg	127 lbs.-280kg	200 lbs.-441kg

Warranty:
5 years, limited and transferable.

Specifications subject to change without notice.

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