



DELTA OMEGA™ 2000  
POWER AMPLIFIER



...an active control for the speaker voice coil.



## A practical solution for a com

Beyond all the specs, beyond the numbers, beyond the words and the hype about distortion, is the reality of listening – the belief that your ears, alone, can tell you when the sound is right; when the music suddenly becomes everything it should be.

The key to that reality, the only criterion by which you can judge pleasurable listening, is the sound radiated from the speaker cone.

Every other component in the monitor system may be functioning perfectly – the mike, mixer, equalizer and amplifier. But if the speaker voice coil cannot be properly controlled, if the response to the music signal is not perfect, the resulting sound will not precisely match the original music.

Crown's new Delta Omega™ 2000 power amplifier actively controls the voice coil to develop a degree of precision in the most powerful sound systems that is unique. It does that in a clearly understandable way: you can **hear** the improvement even in speakers which are universally admired.

Much of the time, your listening may be less than pleasurable because of problems caused by the interaction between the power amp and the speaker voice coil. The resulting distortion is a common problem, characterized as effective radiated distortion (ERD).

ERD is related to what comes out of the signal source, but does not necessarily correlate with that source. It can be affected by pre-amp and amp, but ERD may not reflect the quality of those components.

ERD radiates from your speaker, and is created by the **interaction** between amp and speaker; between amp and cables, between amp and voice coil, between amp and crossover.

Until now, you had very little choice but to live with the end result. If your speakers and amp didn't relate well, you frequently had to live with the inaccuracies, or experience the frustration of trying to find an ultimately perfect amp/speaker combination. The enormous variation in speaker impedance curves also made it unlikely that you would ever find that combination.

The Crown Delta Omega 2000 amp now includes electronic circuitry that significantly reduces ERD at the turn of a single control. The control selects the exact compensation needed to bring the realities of the original music to your ears.



# Common problem.

The Delta Omega circuit allows the amplifier itself to evaluate the effects that the amp-to-speaker cables, the crossover network, **and** the speaker coils have on the sound you hear. Delta Omega incorporates a velocity-control system at the amp/speaker interface in which the speaker velocity informs the amp, while the amp controls the velocity. The perfect setting for the Delta Omega control will be confirmed by your ears. One set-up method for the Delta Omega system even suggests that you set the control to whatever position allows you to **hear** the perfect sound.

You can, of course, also use a square-wave generator and an oscilloscope reading the signal across the voice coil input to calibrate the Delta Omega system. Crown engineers did this in perfecting the Delta Omega amp; **you** may only need your ears.

Amplifier systems have been designed in the past that used cabling and electro-magnetic mechanical sensors between amp and speaker to determine the precise functioning of the voice coil, but this solution for correcting ERD has proven expensive to design, build and maintain.

Crown engineers found a simpler way to accomplish this objective, with a process and a circuit by which the amp demands accurate speaker performance, and **knows** when it happens.

In the past thirty years, Crown has introduced many of the major improvements in power amplifiers—high-power solid-state design, high current design for reactive loads, IOC distortion detection and many others. Crown amps, including the Delta Omega, have been shown to deliver flawless amplification of the most difficult music signals.

But Crown engineers recognized also that the speakers in any audio system may introduce distortion elements into the total signal-processing sequence which until now were beyond the power of the amp to correct. The Crown Delta Omega 2000 amplifier now solves that problem, even for the best, high-performance speakers.

How? The precise circuitry will for now have to remain our secret, but the essence of the Delta Omega operation is to compare the wave-form current of the voice-coil output with the amp input, and add the necessary compensation to correct any non-linearities introduced by the load. It is not just a variable damping system, since the Delta Omega circuit actively controls signal velocity as needed to correct voice-coil behavior.



The Delta Omega circuit is sensitive to both reactive and resistive components of the speaker function, which allows the amp to know where the wave-form discrepancies are, and to apply the precise compensation needed to achieve real-world, near-perfect reproduction.

The Crown Delta Omega 2000 amplifier is not only the key to the purest, truest sound available, it is also the door to a new world of creative sound management. It is the first practical solution to a problem which is almost universal in electronic sound reproduction and reinforcement. The simple control of the Delta Omega amp can be set to eliminate most of the distortion introduced by amp/speaker interaction, or it can be tuned to introduce **desired** distortion. Your monitors can be adjusted ("mistuned") to duplicate almost any speaker configuration. You can clean-up the sound, or muddy it up to the harshest, grittiest noise that ever gladdened the heart of a heavy-metal advocate.

With the Delta Omega system correctly tuned, guitars bite more clearly, kick drums snap, all your music sounds more real. It is the ultimate monitor amp for recording or reinforcement systems.

In fact, in many high-power systems, apparent SPL can be increased with Crown Delta Omega amps **without** increasing measured power supplied to the speakers. Improvements in low-end articulation are especially noticeable in Delta Omega powered systems.

The Crown Delta Omega 2000 amplifier also offers significant improvement in other areas of amp performance. This is the fastest power amplifier Crown has ever produced, with correction signals which are faster than music signals, overcoming any possible limitations of negative feedback circuitry, even at ultra-sound frequencies.



# DELTA OMEGA™ 2000 POWER AMPLIFIER

**Where is Delta Omega important?** Maybe you own or operate a recording studio concerned with its leadership in sound. Crown Delta Omega offers prime performance at the mix position, plus clearer, more definitive low end at the producer position.

Or perhaps you manage a traveling sound reinforcement company that wants to offer the ultimate in sharp, controlled, powerful output. Regardless of the impedance problems created by three- or four-way speaker systems, the Crown Delta Omega system will provide a listenable, saleable difference, whatever the venue.

Even in high-power (70.7 volt) voice systems such as are needed in today's sports arenas, Delta Omega can provide more punch and greater intelligibility.

Wherever you need a major source of audio power with precision control and sonic accuracy, the Crown Delta Omega amp is the ultimate choice, just as it is the ultimate performer.

**Controls.** The Crown Delta Omega 2000 includes an LED Dynamic Range indicator, based on a full-wave rectifier,

which shows instantaneous dynamic range and is particularly valuable in evaluating the amp's energy storage on sustained passages.

Other indication systems include signal present, standby, power-on, and a 70.7 volt (RMS) reference system which activates a green LED when output level reaches 70.7 volts.

The Delta Omega control itself is a rotary potentiometer, screwdriver adjustable from the front panel. Set-up can be accomplished most accurately with a scope, if available, but near-perfect control is possible just by listening. Improvements in the quality of sound output are often dramatic, and almost always easily discernible.

**Back Panel.** The Crown Delta Omega amp is a monaural power source, with balanced input to a 3-post screw terminal panel.

Output terminals are high-current screw connections.

DC and low frequency protection (below 10 Hz) and input turn-on delay (4 secs.) are defeatable with rear-panel recessed switches.

## SPECIFICATIONS

Applicable to Delta Omega amplifier used as a conventional voltage amplifier. Consult Crown for specifications in other configurations.

**Finish:** Charcoal front panel coated with durable textured polyurethane. Black anodized aluminum chassis and covers.

**Heat Sinking:** Two-speed fan forces air over high-efficiency coolers (8) capable of dissipating 1900W with 25°C intake air at one atmosphere (dissipation zero @ 75°C). Dual fan, single speed available for high temperature environments.

**Power Response:** DC to 45KHz @ 600W continuous average output power into 8Ω, no more than .05% THD.

**Power at Clip Point** (less than .01% THD): 2000W R.M.S. into 2.2Ω, 10 to 500 Hz; 50 Hz, 50% duty cycle tone burst.

**Slew Rate:** 32V/microsec.

**I.M. Distortion** (60Hz-7KHz 4:1): Less than .05% from .1W to 600W into 8Ω. Less than .01% @ 600W into 8Ω; 1200W into 4Ω.

**Harmonic Distortion** (True RMS): Less than .05% from DC-45KHz @ 600W into 8Ω. Less than .001% from 20Hz-400Hz, increasing linearly to .05% @ 20KHz, 600W into 8Ω.

**Output Impedance:** Variable (+ 8Ω to - 8Ω)

**Input Impedance:** 25K ± 5% with standard balanced bridging input. 44.76K ± 5% at unbalanced remote protect connector input.

**Hum and Noise** (20Hz-20KHz): 120dB below 600W into 8Ω. Typically 128 dB.

**Turn On:** Switch-selectable for instantaneous or 4-second delay.

**Low Frequency Load Protection:** Switch selectable to shut-down high-voltage power output if outputs are greater than 600W @ 20Hz into 8Ω.

**Dimensions:** EIA 19" Rack Mount, 8¾" high, 16½" deep.



**Crown International Inc.**

1718 West Mishawaka Road, Elkhart, IN 46517 • (219) 294-5571

Crown amplifiers are available outside the United States under the brand name AMCRON.