

 **KENWOOD**

DC STEREO INTEGRATED AMPLIFIER

 **KA-8100**
Dual Power Supply



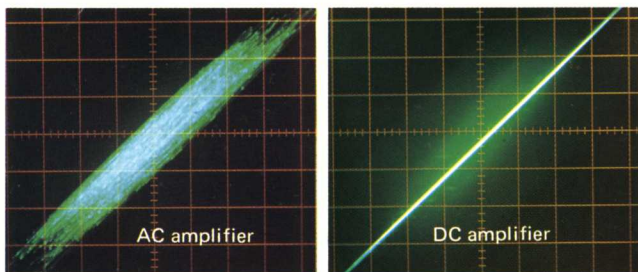
A DC amplifier that provides amplification down to zero frequency without any phase shift, independent power supplies for low transient crosstalk distortion, and outstanding signal to noise ratio of 85dB for 2.5mV input should make the KA-8100 the best performing integrated amplifier available today at any standard.

The DC power amplifier, first to be incorporated in an integrated amplifier by Kenwood engineers, has now been accepted as the ultimate in amplification of the audio signal. This amplifier provides gain to zero frequency as well as signal amplification down to zero frequency without any phase shift. Independent power supplies are incorporated to eliminate Dynamic Crosstalk distortion, a phenomenon first exposed by Kenwood engineers. In addition, there is a further separate power supply to the preamplifier stage which maintains the high level of sound quality. Output power is rated at a minimum of 75 watts

per channel RMS, driven into 8 ohms through 20Hz to 20,000Hz. Total harmonic distortion over the whole range is held to a very low 0.03%. Another indication of Kenwood's superior audio technology is the extremely high signal to noise ratio of 85dB (91dB 5mV, 97dB 10mV)—a reminder that the KA-8100 is designed with the ultimate criterion of reproducing sound with the least possible noise or distortion. Other key design elements include an attenuator type Volume control, a Gain control and a specially contoured loudness control, all carefully designed to provide you with high tonal quality and flexibility.



The DC Amplifier. Faithfully reproducing the input waveform



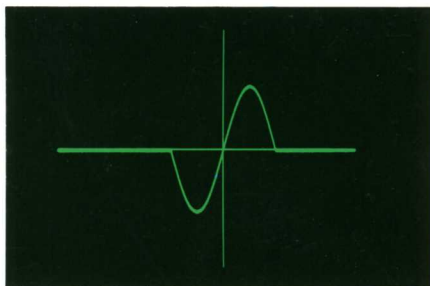
Phase characteristic of bass drum

A synchroscope comparison showing the waveform of a bass drum as it appears through a conventional AC amplifier and a DC amplifier. The DC amp. displays no phase shift and appears as a clean straight line.

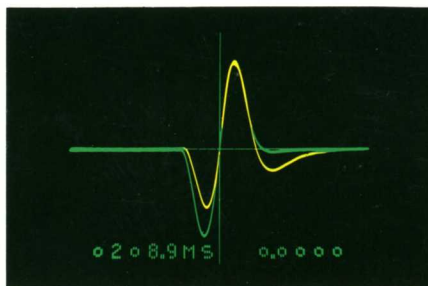
In the search for improvement in tonal quality, the advantages of the DC amplifier over the conventional AC type are evident. Originally a Kenwood development, the DC integrated amplifier provides linear frequency response from DC right up to 100kHz. Throughout this range, and particularly in the low frequencies, distortion is kept very low, while both phase and transient response are excellent. What this means to you is that the response in conditions of actual musical reproduction is unusually clear and natural—so natural, in fact, that the input signal seems to go 'straight through' the amplifier, with nothing added to it or subtracted from it. The resulting sound quality, with every musical instrument clearly defined, has a refreshing 'wholeness' throughout the whole dynamic range, even at very high or very low volume levels. But Kenwood's DC technology goes deeper. For embodied in our DC power theory lies the whole concept of the role of the amplifier, which we see as extending beyond

the amplifier's output terminals to the speaker system itself. One important area Kenwood engineers have been working on is the relationship between the speakers and the amplifier. In actual operation, a dynamic speaker feeds back electromotive force as well as free vibrations, to the amplifier, and these disturb its proper operation. Apart from driving the speakers, the amplifier must suppress this counter-electromotive force as well as control the cone movements (typically, when the cone continues to vibrate after the signal is cut abruptly). Conventionally, the damping factor, as one indication of an amplifier's performance, is actually a static measurement made without speakers connected. So with dummy loads, static tests show AC and DC amplifier damping factors to be relatively the same. Yet when our engineers made a number of complex comparison tests in dynamic conditions (with speakers connected), AC amplifier damping was poor. The DC amplifier on the other hand showed no adverse effects from the speaker counter-electromotive force. Simply put, it means that Kenwood's discovery of the Dynamic Damping Factor is a critical element in assessing tonal quality in the DC amplifier. Contributing to the KA-8100's tonal quality is the power circuitry, consisting of a direct-coupled, 3-stage differential circuit with FETs used in the first stage, and a pure complementary symmetry design provides signal amplification with low distortion over a wide range. Massive, solid-cast aluminum heat sinks provide efficient dissipation of the heat from the power transistors, while our full limiter and relay circuit protects all circuitry as well as speakers from overload.

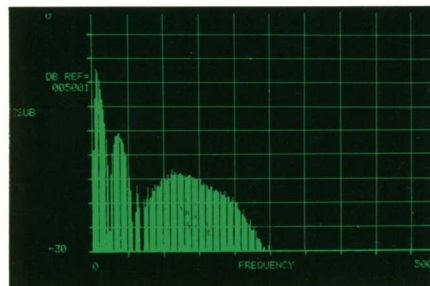
The Kenwood Dynamic Damping Factor proves the superiority of the DC amplifier.



Original toneburst input signal.



The same signal through a conventional AC amplifier and the Kenwood DC amplifier. The yellow line shows the AC amplifier's poor dynamic damping ability.



Difference in frequency component between AC and DC amplifiers analysed by computer.

