

# Primary Driver Loudspeaker



## Primary Drive Loudspeaker

Coloration occurs when an audio signal is altered by the device producing the signal. In practice, no loudspeaker is free of coloration, but closed-box designs are particularly susceptible. Coloration is caused by resonance and reflected sound within the cabinet. It is usually tackled by making the box as rigid as possible, with a consequent increase in weight and mass. Internal reflections are controlled by filling the enclosure with an absorbent material like wool or fiberglass. These methods do not eliminate coloration—they merely place it below the musical signal, where it is not particularly noticeable. Volumetric damping also reduces efficiency and curtails the speaker's dynamic performance.

In phase-inversion systems, the box is, in effect, tuned by the use of a tube or port. However, only a narrow band of low frequencies is covered, and in effect, the low-frequency output from the rear of the driver is added to that from the front. Transmission-line and horn loading are also used, both of which require large enclosures. Horn loading is used where high efficiency is required, but for acceptable low-frequency results, the horn flare needs to be several feet across. Electrostatic loudspeakers, which use a different principle of operation to moving-coil devices, are often low in coloration, but they usually have low power handling, poor efficiency, and have difficulty producing low frequencies.

An ideal loudspeaker would be of acceptable domestic size, and would have the low coloration of electrostatic designs with the power handling and dynamic qualities of the best moving-coil designs. Such a loudspeaker now exists!

The Primary Drive Loudspeaker is a plane wave propagator with a dipole polar response. No damping material of any kind is employed. The Primary Drive uses three moving-coil drivers, two of Primary Drive design plus a conventional dome tweeter. The drivers are mechanically isolated from each other, in three separate modules. Power handling is 200 watts AES. Efficiency is 90dB (1w/1m).

Because the Primary Drive Loudspeaker has no panel or enclosure loading, it lacks box or panel coloration. No reflected sound (other than that produced by the room) is produced. The inherent smoothness of the system allows for the use of simple, high-quality, high-power-handling series inductors and capacitors in the crossover. Only three highly-rated crossover components are used.

The Primary Drive Loudspeaker is capable of producing high-definition, dynamic bass at high sound-pressure levels. It is capable of reproducing the subtle quality of the bass produced by many acoustic instruments.

Many loudspeakers generate extended bass, but do not allow the listener to determine the exact nature of the instrument producing the bass. In the midrange—the most vital part of the frequency spectrum—the Primary Drive Loudspeaker utilizes a 5-inch, studio-quality driver that covers the frequency range between 160Hz to 8kHz. This wide range was chosen to ensure a seamless midrange presentation. The midrange of the Primary Drive Loudspeaker is fast, uncolored, and tonally accurate. Treble frequencies are handled by a high-quality dome tweeter loaded into a diecast horn that extends the response to 25kHz.

The Primary Drive Loudspeaker retrieves a high level of information and produces excellent imagery. The soundstage is projected to the rear of the speakers, with exceptional lateral imagery and a solid, deep soundstage. The phase coherence of the system ensures that the image is very stable, within a wide listening area.

The Primary Drive Loudspeaker is available in two sizes. The smaller of the two is suitable for small- to medium-sized rooms, the larger for medium- to large-sized rooms. The midrange drivers and tweeters are identical in both speakers, and the woofers are identical except for size (8-inch in the smaller speaker and 10-inch in the larger)

The Primary Drive Loudspeaker offers a unique listening experience, with an unmatched combination of low coloration, high power handling, high sensitivity, and exceptional imagery, detail, and dynamics.