

**L1590 loudspeaker system:
A reference monitor for
digital playback.**



Two sheets of paper with text are pinned to the wooden surface in the foreground.

Continuing innovation in the art and science of sound reproduction.

Digital The very word evokes images of space exploration, high speed computers, advanced technology, and absolute precision.

Digital has also brought new images and meaning to the reproduction of music. The performance potential of the Compact Disc and digital recording processes are redefining "high fidelity." The advantages of low distortion, radically reduced noise levels, stable and precise stereo imaging, and extended dynamic range present new opportunities, but not without challenge.

The exactness of digital playback demands that each component in the music system be as capable of accurate sound reproduction as this new source. And of all the components, the loudspeaker has the most demanding task: by far, it must translate precise electrical waveforms into the motion that is sound. It is at this interface, where energy changes form, that most loudspeakers prove inadequate.

Meeting the challenge Precision in a loudspeaker has never been more important. Only with a speaker that can generate high sound pressure levels while also resolving the nuances of detail can the potential advantages of digital playback be made real for the listener.

No one has been more successful in meeting the digital challenge than ADS. ADS loudspeakers have been an important contributor to the development of digital recording technology. Many of the most respected digital recordings, notably those from Telarc, have been made using ADS loudspeakers as monitors. Working interactively with digital audio technology has given ADS insight into the demands made of loudspeakers by digital recording and by music itself. The L1500 is the culmination of everything ADS has learned as the premier speaker of digital loudspeakers.

Creating a loudspeaker that is as good as the L1500 requires innovations in design, materials, and manufacturing techniques. And because ADS designs and builds each driver in every speaker, we can be sure that every speaker we ship will be identical in performance to the original prototype in the engineer's lab.

The Linear Drive woofer successfully moves large amounts of air in the piston-like butyl rubber surround. Fiberglass honey-comb cones have the strength to handle



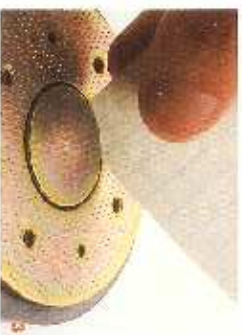
Power and detail! Digital sources contain both more bass signal and more finely delineated bass information than do conventional sources. The woofers must be able to track this fast-moving high level signal without adding coloration, and without compression at higher volume levels.

The woofer cones are constructed of Stiffite®, a material unique to ADS. Its microscopic infrastructure resembles an irregular honeycomb; the cone is rigid without being heavy or resonant. In cross section, it is tapered for strength without mass. The cones are suspended by ultra-thin butyl rubber surrounds which allow extended, balanced cone excursion and long usable life.

The L1590 will change forever your understanding of music.

Linear Drive ADS Linear Drive design combines a long voice coil with a correspondingly long magnet pole piece so that even at the limits of excursion the cone is completely controlled by the magnetic system. Conventional designs often leave the cone uncontrolled at these crucial points. The Linear Drive design provides high power handling capability and improved transient definition—qualities necessary to take full advantage of all the bass information that digital sources provide.

The L1590 employs two woofers. The total piston area is roughly equivalent to a 15" driver, but these two smaller pistons perform with the speed, efficiency and low distortion unattainable from a single driver. In the ADS tradition, acoustic suspension woofers are used for incoherent and low distortion. Each woofer is in its own separate sealed enclosure. The voice coils for the two L1590 woofers are precision wound on Kapton® bobbins—each using over seventy feet of copper wire for the excursion, efficiency and ruggedness digital demands.



The ADS tweeter's woven soft dome and precisely constructed voice coil assembly make up the driver's extremely low mass moving system. The low mass, and the strength and damping of the dome fabric, mean high efficiency and accurate transient response.

ADS woven soft-dome tweeter and midrange Advanced computer analysis techniques were necessary to evolve and refine the design of the L1590's mid and high frequency cone transducers. Dome drivers are chosen because of their rigidity in cross section and the ability to disperse energy evenly. The dome itself is woven, although soft to the touch, it is extremely rigid over the distances it must travel. Being woven, instead of solid, it is free from internal resonances which color the sound. A precisely matched damping compound seals the dome and further limits stored energy.

The mass of the moving system is extremely low—even the voice coil's precision wound in a single layer over a Kapton bobbin to add as little mass as possible.

In the ortho assembly moves in a magnetic gap barely thicker than a sheet of paper. Since magnetic strength decreases as the square of distance, a gap this narrow concentrates the magnetic field. The result is a high force-to-mass ratio which translates directly into accurate precision and transient accuracy. A proprietary high-gravity casting fluid quickly transfers heat away from the coil, making it possible for the L1590 to reliably handle high levels of power without any aberration in frequency response. These advanced materials and techniques are combined with painstaking hand assembly and alignment. Every ADS tweeter and midrange driver is computer tested to assure performance identical to its laboratory reference.

The gap of the ADS magnetic structure is extremely narrow and unvaryingly consistent. The tight tolerances necessary for low voice coil movement in such a narrow gap are critical to achieve optimum, but the improvement in efficiency and linearity that result enable ADS speakers to resolve musical detail which less precision driver designers cannot.

The components that together make up an ADS crossover network are of uniformly high quality, but that is only half the story. Equally important is what is not included. Because of ADS superior driver design and technology, the crossover need not be made more complex to make up for driver shortcomings.



The crossover network The L1590's crossover network has much to do with the quality of the aural image and the resulting sense of 'stage'. The crossover determines the portion of the music's spectrum sent to each driver and so directly affects the distribution of sonic energy in the room. ADS uses computer grade, light-tolerance components in elegant, low-loss circuits designed for highest efficiency. The modified all-pass design assures correct phase relationship among the drivers and smooth, flat frequency response throughout the listening area. The L1590's have the ability to create the breadth, depth and air instantly recognizable as 'real'.

Authoritative performance that removes the last boundary between equipment and music.

Technical superiority and the total system

The L1590's are able to take full advantage of the increased stereo separation that digital sources now make possible. The slim tower enclosure posts on the rich and high-frequency drivers at ear level for a seated listener for best dispersion. Starting from the extremely even dispersion of the drivers themselves, the logical placement of the driver draws a three-dimensional stereo image that is startlingly honest. The front panel of the L1590 and the flush mounting of the drivers are acoustically correct and provide diffraction- and reflection-free high-frequency radiation. The acoustically transparent, frameless metal grille preserves the integrity of the acoustic wavefronts while protecting the drivers.

The L1590 has the unusual and attractive quality of being a state-of-the-art loudspeaker designed without unwelcome by-products. It takes its place in the listening room without dominating. Its tower shape occupies very little floor space—less, in fact, than many bookshelf speakers. Its shallow furniture height, moderate depth and small footprint make it extremely adaptable in placement.

Fit and finish

The enclosure is fully finished with either the bookmatched, genuine rosewood or walnut wood veneers, or with a textured, soft black urethane coating. The enclosure's fine finish and detailed craftsmanship enhance a loudspeaker that is as satisfying to own when silent as it is definitive when it speaks.

The L1590 achieves the elusive goal of being more than just the fulfillment of engineering excellence—it is a full partner with the recording in recreating the highest level of musical experience.

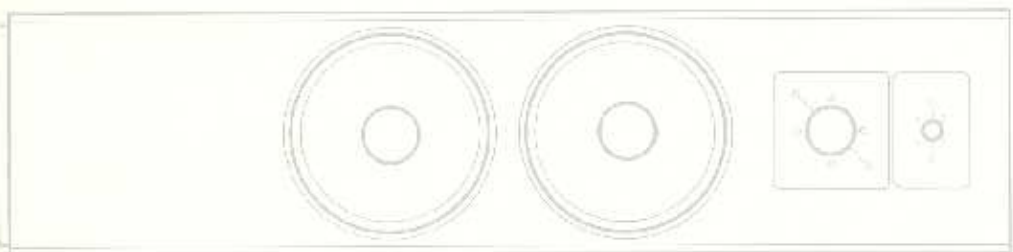


The L1590 is fabricated and shipped in matched pairs; all visible sides are finished in either rosewood or straight-grain walnut veneers, or in a soft black textured urethane. The cover for the recessed in the back panel is laser cut from a single piece of wood

for continuity of the wood grain. The rear recess provides access to the connection terminals and for the board mounting of the PA1 Blamfilter module.



L1590 specifications.



About ADS ADS, Aradog & Digital Systems, is an expanding young high-technology American company with roots in European craftsmanship and design. At ADS, advanced technology is always at the service of musical enjoyment, and it is always firmly grounded in the sciences of physics, chemistry and acoustics.

Because many of the most respected digital recordings are made using ADS speakers as monitors, ADS has been able to develop and refine driver and crossover technology interactively with these new digital processes.

ADS offers a carefully thought out line of loudspeakers and electronic components for the home, for professional applications and for automotive use. Atelier electronic components express a particularly human approach to high fidelity: their modular design will grow with advancing technologies. Combining the design talents of ADS in the United States and its sister company Braun Electronic in West Germany, ADS products have consistently received high critical acclaim and have won many coveted design and engineering awards.



Analog & Digital Systems, Inc.

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Frequency response

20 - 27000 Hz ± 3 dB

Impedance

8 Ohms nominal

Efficiency

90 dB SPL from 2.8 V RMS (1 W) at 1 m (100 cm) measured at 1 meter in a free field (standard)

Driver complement

- One 15mm (0.75" driver and dome tweeter with ceramic layer damping. Not wound, silk paper high frequency period, wave coil assembly Magnalloy dust coating.
- One 50mm (2" woven soft dome mid range with protein early damping. Not wound, single layer high temperature coil assembly. Magnalloy dust coating.
- Two 250mm (10" cast basket, high compliance voice coils with tapered, stamped steel cones and poly rubber surround. Wo. 400 Hz. Two eye high temperature Linear Drive voice coil assemblies in steel basket with IR resistor jackets.

Crossovers

950 Hz and 5000 Hz. High efficiency 1:240 voltage design with 2 dB/octave slopes.

Provision for biamped operation

Wedge position and separate terminals for direct woofer input.

Tweeter level control

Two-position switch: 0 and 15 dB.

Driver protection

Two-position switch: stable operation.

Power rating

500 Watts maximum per program.

Recommended amplifier power

15 Watts per program, 500 Watts maximum.

Input connectors

Two pairs of color coded, multi-way binding post terminals.

Enclosure type

Acoustic suspension, with glass fiber damping and separate chamber for bass reflex.

Enclosure construction

3mm (0.125" thick, high density compressed wood with heavy fibers, tracing, dirt and oil resistant flush front, ballistic and flash driver mounting.

Finishes

Selective staining, rosewood or straight grain without veneers or exotic black urethane. Enclosure fully finished on all sides.

Grille

Acoustically transparent frameless perforated steel with fabric mesh liner.

Dimensions

1800mm (71.3" H x 290mm (11.5" W x 950mm (42.2" D) Grille adds 25mm (1") to depth.

Weight

45 Kg (100 lbs)

Optional accessories

F-5 Base, D-1 Signal Processor module, 15 cables in recess in case of L1590 enclosure.

Notes

Measure in a typical listening room.

Special features

Special features listed in previous editions.