



DSP5500

DSP Loudspeakers

Sales information
1st December 2001

- **Three-way active loudspeaker with DSP crossover**
- **Self-contained audio system, each comprising four custom drivers, four amplifiers, three digital converters, digital crossovers and advanced sound-shaping DSP computers**
- **Remote controlled and requiring no unsightly speaker cables**
- **Listener control over features including bass, treble tilt, listening axis, volume, time-compensated balance and absolute phase**
- **Laminated wood and steel cabinet construction for rigidity**
- **Magnetic shielding prevents disturbing TVs**
- **Horizontal centre channel available**
- **Maximum output level up to 112dB spl**

Background

Meridian has long led the market with their highly acclaimed DSP loudspeaker designs. The current models have won a steady stream of awards. In fact the DSP6000 – which was introduced in 1990 – is the only loudspeaker to hold the coveted *Stereophile* Class A rating for eight successive years.

The Meridian DSP loudspeakers uniquely combine excellent acoustic and drive-unit technology, with multiple built-in power amps, performance-enhancing DSP and digital conversion systems.

Meridian DSP5500

The DSP5500 is a single-box DSP loudspeaker, designed to provide performance similar to the highly popular DSP6000. This new model is a front-facing format that can be effectively built into system cabinets – DSP functions are provided to correct the frequency response in a number of locations. A unique removable wood and steel side panel arrangement allows for easy colour changes or custom finishes. The side panels are bolted in place; in addition to providing magnetic shielding, the resulting solid, stiff cabinet provides massive acoustic damping, giving the speaker remarkable mid-range transparency.

Acoustic system and format

The DSP5500 is a powerful 3-way active acoustic reflex system. The bass system uses two 200mm long-throw composite bass drivers. The cabinet vents through a floor-level wide-area coupling slot; this configuration – along with the active and DSP correction – maintains smooth powerful bass in the room down to 30Hz with very low mid-range colouration.

The mid-range is mounted in a separate enclosure and uses a custom 160mm polypropylene driver. The tweeter is the Meridian 25mm aluminium-dome, silver-wire tweeter used in all the DSP loudspeakers. Each of the four drive units has its own 75W power amplifier.

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The main cabinet is constructed from high-density MDF. A unique 'sandwich' construction method clamps sheet steel all over the cabinet sides between the main cabinet and the real wood veneer side panels. This technique results in a very inert cabinet and provides exceptional magnetic screening – allowing the DSP5500 to be placed immediately next to small or large TVs. The top of the cabinet has an attractive 4mm plate-glass top.

Electronic system

Each speaker incorporates an electronic panel in the rear part of the cabinet. The speaker accepts digital signals and there are two inputs. The input receiver uses a FIFO memory buffer for the lowest possible jitter from almost any source.

The crossovers, equalisation, tuning for a number of locations including cabinet installation, protection and tone controls are all implemented in a 100MHz Motorola Digital Signal Processor (DSP) inside each speaker. The DSP feeds carefully tailored individual signals to the bass, mid and tweeter DACs. The DSP5500 uses four Meridian Class-A discrete 75W low-distortion power amplifiers to individually power the drivers. The electronics are powered by a high-current toroidal transformer through a custom high-speed power supply.

Technical Specification

- Performance:** Frequency response in-room within 3dB from 30Hz to over 20kHz.
Output >112dB spl @ 1m on music material.
Noise less than 15dB spl.
Overall distortion typically <0.02% at any frequency or level.
- Inputs:** Two digital inputs to SPDIF standard; 32kHz–96kHz sampling rates at up to 24 bit; MHR support. (A future software update will enable support for 192kHz.)
- Construction:** 3-way acoustic reflex system.
2 x 200mm long-throw bass drivers.
1 x 160mm polypropylene mid driver in separate enclosure.
1 x 25mm aluminium-dome tweeter, silver wire, short horn-loaded with protective grille.
Cabinet constructed from high-density MDF. Integral magnetic shielding and user-changeable real wood veneer acoustic damping side panels.
FIFO memory buffer input for the lowest possible jitter from almost any source.
Four precision 128x oversampling converters for bass, mid and tweeter signals
Analogue gain and filtering using proprietary Meridian Class-A discrete amplification.
Digital and conversion electronics constructed using advanced surface-mount techniques and partitioned 6-layer printed-circuit boards.
Four 75W power amplifiers, one for each of the drivers.
Power amplifiers use a unique feedback topology and precision local error-correction systems to achieve a performance equivalent to the conversion system.
- Dimensions:** 1100mm (43.31in) H, 284 (11.2) W, 450 (17.72) D
Weight 81kg (179lbs) each
- DSP:** 100MHz Motorola digital signal processor.
Digital crossover at 200Hz and 2.6kHz.
Response correction for the whole system.
- Controls:** Rear-panel controls for Power On/Off.
MSR and RS232 port provide control over bass, treble tilt, listening axis, volume, time-compensated balance and absolute phase.
- Front display:** Eight-character display with system lights, can be blank.

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