



**MERIDIAN**

## Special Edition

DSP Digital Active Loudspeakers



*2014 marks the 25th anniversary of the launch of Meridian's first digital loudspeaker, D600 – the first digital loudspeaker in the world – in 1989. From the very beginning, Meridian loudspeakers had been Active – in other words they included the amplifiers and line-level crossovers inside the cabinet. But Meridian had taken the leap into digital audio technology with the introduction of the Compact Disc several years earlier: it had been evident to Meridian's founders that an all-digital signal path from the source to the loudspeaker was the future.*

*Meridian has launched a new series of Special Edition loudspeakers to celebrate the 25th anniversary of the launch of our pioneering D600 in 1989, the foundation upon which today's Meridian DSP Digital Active Loudspeakers are built.*

*A DSP Loudspeaker includes the entire system's electronics inside the enclosure – providing dramatically increased efficiency and enabling them to deliver a level of performance equivalent to a passive design of eight times their physical volume. The DSP approach also eliminates the space, power, and thermal management requirements for other individual system components and, significantly, creates a system in which the individual components are all perfectly matched and sonically balanced.*

The new Special Edition DSP Digital Active Loudspeakers from Meridian provide the most revealing, lifelike and powerful performance of any Meridian loudspeakers to date. Developed from expertise honed over more than 25 years of original research and continual system development, these new Special Edition loudspeakers particularly benefit from Meridian's scientific research into how humans perceive sound – 'how we hear' – in particular, focusing on how our brains process sound.

Meridian's fundamental philosophy, building on co-founder Bob Stuart's unique background, has always taken its cues from neuroscience and psychoacoustics as the starting points for audio system design, placing Meridian in a unique position to resolve the challenges of high-resolution and high-performance audio reproduction.

Guided by original research, and always striving to bring the subtle nuances of a musical performance to the listener at home, Meridian's engineers have addressed important new areas in developing these new Special Edition loudspeakers.

With the new Special Edition loudspeakers, Meridian delivers more accurate time-domain response and offers significantly improved transient handling across the entire digital active system.

### Product highlights

The most revealing, lifelike and powerful performance of any Meridian loudspeakers to date

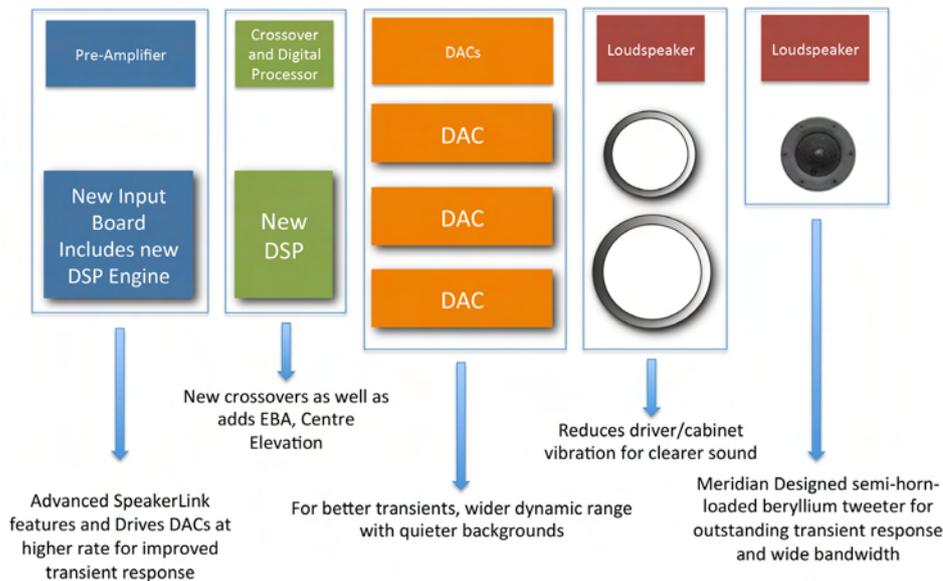
DSP5200SE, DSP7200SE and DSP8000SE available plus DSP5200HCSE, DSP7200HCSE horizontal centre-channel versions

New Meridian-designed short-horn-loaded tweeter with a Beryllium dome for outstanding transient response and extended frequency range

New mechanical clamp rings on the mid-range and bass drivers provide enhanced mechanical stability and further minimise coloration

New extended-bandwidth analogue electronics, optimised to deliver maximum performance from high-resolution recordings

New DSP provides several performance enhancements including the latest implementation of 'EBA' (Enhanced Bass Alignment) technology (patent applied for) to ensure accurate time-domain response, providing additional clarity and an open, transparent sound-stage.



The Special Edition loudspeakers introduce Meridian's latest innovations in digital loudspeaker system design, including a new driver, new electronics and new firmware, plus mechanical enhancements to deliver the highest-performing Meridian DSP Digital Active Loudspeakers available. The three new models all feature the following performance-enhancing improvements, developed over hundreds of hours of critical measurement and listening.

### Beryllium-dome tweeter

For the most natural sound a high-frequency driver's cone must have superior transient handling for dynamic range and contrast. It must also have extensive power handling for wide dynamic range. A perfect material for this is Beryllium – it is seven times more rigid than, and over twice as fast as, aluminium, the traditional tweeter cone material. The new Beryllium-dome tweeter uses a semi-horn-loaded approach and was designed by Meridian engineers.

### New SpeakerLink input board and DSP

A new SpeakerLink board provides enhanced interoperability between Meridian Controllers and DSP Loudspeakers. Digital Signal Processing has been enhanced for higher clock speeds, giving superb handling of the high sample rates encountered with high-resolution audio sources. The source information that appears in the loudspeaker display is now derived from the controller, allowing for additional custom legending. Meanwhile, additional enhancements

include Bass, Tilt, and Axis presets for enhanced control and a new crossover design. All SE centre channel products include Centre Elevation – allowing the image from a centre channel loudspeaker positioned under a screen, for example, to be raised to match the rest of the system, and at a height for realistic dialogue delivery.

### Enhanced Bass Alignment

Enhanced Bass Alignment (patent applied for) extends across the entire frequency range for accurate time-alignment of all the drivers in the system, delivering exceptional imaging and a clear, transparent and more lifelike sound. In a loudspeaker, unlike real life, lower frequencies are progressively delayed compared with the MF and HF range. The extent of this timing error is determined by the crossover, driver, and enclosure type. To eliminate the delay between low and mid & high frequencies, Meridian has designed a combination of digital filters and time delays for the mid and high frequencies. This solution enables the mid and high frequencies to "wait" for the low frequencies, delivering perfectly-timed music playback.

In the Special Edition loudspeakers, mid and high frequencies are delayed to time-align them, while upper bass is delayed with allpass filters, enabling delay within the driver's range. These features *require* a DSP loudspeaker design; they are impossible to achieve in any passive or analogue-active loudspeaker design.

### Wideband analogue electronics

Each individual amplifier within the Special Edition enclosure has been refined to provide a more lifelike sound, with optimised transient response, extended frequency response and enhanced dynamic range – complementing the improvements in DSP performance and delivering overall a more authentic sound.

### Clamp Rings minimise vibration

A great deal of effort has gone into ensuring that Meridian DSP Loudspeaker enclosures are rigid and free from resonances. The addition of driver clamp rings ensures that the driver is rigidly attached to the cabinet, maximising authenticity and minimising coloration. You hear the loudspeaker, not the cabinet.

### Additional enhancements

The source information that appears in the loudspeaker display is now derived from the controller, allowing for additional custom legending. Meanwhile, additional enhancements include Bass, Tilt, and Axis presets for enhanced control and a new lowpass crossover design.

All SE centre channel products include Centre Elevation – allowing the image from a centre channel loudspeaker positioned under a screen, for example, to be raised to be in line with main left and right loudspeakers and at a suitable height for realistic dialogue delivery.

### Availability and colour options

The new SE loudspeakers are available in addition to the current production DSP8000, DSP7200 and DSP5200 speakers, in Piano Lacquer Black and High Gloss White paint finishes as standard, as well as the full set of custom finishes as part of the Meridian Select programme.

### Upgrade path

Upgrade paths are available for owners of DSP7200 and DSP8000 DSP Loudspeakers – including the Anniversary Edition – and most models of DSP5200. Contact a Meridian Retail Partner for full details.

The upgrades also include a full new warranty for the entire loudspeaker system.

# SPECIAL EDITION DSP8000

## DIGITAL ACTIVE LOUDSPEAKER

### PERFORMANCE

Frequency response in-room 20Hz – >32kHz  $\pm$ 3dB (for inputs at 44.1kHz or 48kHz). ‘3 1/2’-way crossover system with linear-phase mid–top crossover; 6th-order Linkwitz-Riley bass–mid crossover. Output >118dB spl @ 1m on music material. Noise less than 15dB spl. Overall distortion typically <0.02% at any frequency or level

### INPUTS

SpeakerLink balanced digital (2ch, RJ45)  
S/PDIF unbalanced digital (2ch, phono)  
32kHz–96kHz sampling rates

### OUTPUTS

1x RJ45 with balanced digital audio and control for a second loudspeaker.  
Carries infra-red pickup for system automation.

### AUDIO PROCESSING

FIFO memory buffer input for the lowest possible jitter from almost any source. Four 24-bit D/A converters. 3x150W amps on bass (1 amp per driver pair) and 2x150W amps on midrange and tweeter. All upsampling and processing is performed by 2 x Freescale 56367 running at 150MHz.

### CONSTRUCTION

Two separate enclosures: mid/top and bass.  
Horizontally opposed and profiled bass system introduces minimal vibration to the mid/top enclosure. Entire speaker manufactured from interlaminated panels with glass front.

## **AMPLIFIERS**

Bass: 3 x 150W power amplifiers

Mid: 150W

Treble: 150W

Total: 750W

Drivers 6 x 200mm long-throw bass drivers

1 x 160mm polypropylene (TPX) mid driver in separate enclosure

1 x 25mm (1") Meridian piston in short horn, beryllium dome with silver voice-coil.

## **DSP**

2 x Freescale 56367 running at 150MHz, 4 x 24-bit Multi-bit delta-sigma DACs with 128x oversampling. Crossover minimum-phase at 2.6kHz.

Response correction for the whole system. Bass protection. User tone controls. Analogue/digital volume and phase control.

## **CONTROL**

Rear-panel controls for Power On/Off. Full control via MSR+ and RS232

SpeakerLink carries Comms, serial and balanced digital audio via RJ45/CAT 5

## **FRONT DISPLAY**

Eight-character display with system lights, can be blanked.

## **POWER**

20W standby, 920W max.

## **DIMENSIONS**

1350mm (53.2in) H, 400 (15.7) W, 528 (20.8) D

## **WEIGHT**

105kg (231lb) each