

DSP8000 XE

DIGITAL ACTIVE LOUDSPEAKER

OVERVIEW

The DSP8000 XE represents a major advance in the design and performance of Meridian Digital Active DSP loudspeakers, achieving a level of sound-quality which exceeds that of any previous Meridian loudspeaker. Drawing on a wealth of knowledge in psychoacoustics, many of Meridian's unique technologies are implemented in the loudspeaker. The highest specification components are combined with a new audio architecture to provide new levels of sonic realism.

USER FEATURES

- Powerful and flexible audio settings. These include day-to-day controls such as *Treble*, *Bass*, and *Balance*, and other settings, including *Position*, which relate to installation. The settings can be accessed and adjusted from a connected Meridian controller product, or via the Meridian B-Link device supplied.
- Includes MQA Renderer technology, which can connect to an MQA Core signal and complete the final unfold of an MQA file.
- Meridian B-Link, supplied with the DSP8000 XE, supports Bluetooth® wireless technology, allowing the loudspeakers to play audio wirelessly from a Bluetooth device such as a smartphone, tablet or computer. B-Link also provides the option of control from iOS and Android devices via the Meridian Control app.
- Controllable via IR, USB, RS232 or from other Meridian controller products.
- USB audio input provides a direct connection for playing sound from a computer. Supports signals with sampling rates up of to 384kHz @ 24-bit resolution.
- Fitting the IA21 Analogue Input Module (supplied) changes the functionality of the DSP8000 XE so it can be fed from any non-Meridian product or system which features a balanced or unbalanced line-level analogue output.



DRIVE UNITS



ULTRASONIC TWEETER

- 25mm beryllium dome with silver voice-coil, steel custom waveguide.
- Combines pinpoint imaging with wide dispersion to provide a three-dimensional image over a wider listening area.
- Custom waveguide is mounted flush to the surrounding cabinet surface.
- Capable of reproducing frequencies in excess of 40kHz.



EVO MID-RANGE DRIVER

- Meridian's Evo mid-range driver.
- Bespoke 160mm long-throw design with clear cone.
- Large motor system with newly developed non-conductive voice-coil former.
- Developed from previous designs to play louder and produce less distortion.



SUBSONIC BASS DRIVERS

- 6 x all-new 200mm long-throw (24mm excursion) bass driver with huge motor system and polypropylene cone.
- Three drivers are mounted on each side of the cabinet in Meridian's Force Balanced configuration. This horizontally-opposed arrangement ensures internally generated pressure waves produced from the back of the bass drivers cancel out each other. As a result, the Force Balanced configuration greatly reduces vibration of the cabinet which would manifest itself as undesirable resonance.
- The two upper pairs of bass drivers are fed with frequencies up to the crossover point of the mid-range driver, while the lowest pair is dedicated to reinforcing only the lower bass frequencies. This provides the DSP8000 XE with bass which extends to the lowest depths while remaining remarkably clear and controlled.



CONSTRUCTION

Each DSP8000 XE loudspeaker is comprised of two separate enclosures, The upper enclosure carries the tweeter and mid-range driver, while the lower houses the six bass-drives and the electronics section. Curved lines, based on an ellipse, contribute to rigidity and avoid parallel internal surfaces, to prevent standing waves from occurring within the cabinet. Both enclosures feature substantial internal bracing and have outer walls engineered from a multi-layered combination of birch plywood, aluminium and resin, creating an incredibly inert cabinet which underpins the overall performance of the loudspeaker. The separation of the enclosures provides mechanical isolation between the two sections meaning that the forces created inside the loudspeaker when producing sounds from the bass-drivers – even at the most prodigious levels - are confined within the lower enclosure. The upper enclosure is kept free from vibrations, allowing the full potential of the mid-range driver and the tweeter to be revealed. This has a major influence on sound quality, as this area of the audio spectrum includes frequencies to which human hearing is most acutely honed. The DSP8000 XE stands on triangulated, adjustable, machined foot assemblies with provision for floor spikes or skids. Designed to acoustically isolate the cabinet from any unwanted resonances from the floor, the feet are a vital element in the overall cabinet design.



ANTI-RESONANCE CLAMP RING MOUNTING SYSTEM

Each of the mid-range and bass-drivers is mounted to the cabinet using a combination of a rigid aluminium clamp ring on the outside of the cabinet and four sturdy steel clamping sections inside the cabinet to prevent undesirable vibrations or resonances at the interface between the drive-unit and the cabinet.



Flush-fitting, perforated steel grilles on the mid-range and bass-drivers offer protection and provide the open surface area required for audio transparency while maintaining an uninterrupted silhouette to the sculptured form of the cabinet.

Each loudspeaker sits atop three adjustable foot assemblies which are secured to a thick aluminium plate on the underside of the cabinet. This gives extra rigidity and increases isolation at the fundamentally important coupling between the floor and the loudspeaker.

ELECTRONICS

At the heart of the electronics section, the Command board carries the loudspeaker's DSP (digital signal processing) as well as the circuitry which controls all aspects of the loudspeaker's functionality.

Meridian's Bespoke Signal Mapping technology performs the task of a "digital crossover", separating the sound into four separate channels which are then passed on to be converted into analogue audio signals. Three of these channels cover the whole frequency range in the form of treble, middle and bass. The treble channel feeds the tweeter, middle feeds the mid-range and the bass channel is used to feed two of the pairs of bass drivers. The fourth channel feeds only the lowest of the bass frequencies to the third pair of bass drivers.



The DSP8000 XE features Meridian's Sync-Link system to pass digital audio via shielded RJ45 cables from the Command board to two DAC boards, there is 1 x 2-channel DAC per board. Separate DACs are used for treble, mid-range, bass and sub-bass channels. The DAC boards are mounted directly above the two amplifier boards. This reduces the length of the analogue audio paths which minimises interference on the analogue signals. Each DAC board receives its own power from ultra-low noise linear regulators which greatly improves the electrical isolation between the digital and analogue sections.

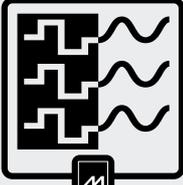
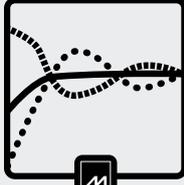
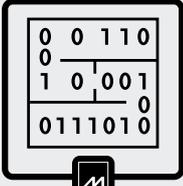
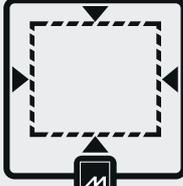


The amplifiers for the tweeter and mid-range driver are Class-AB designs capable of delivering 150W into 4Ω with extremely low noise and distortion under all conditions.

Each of the six bass drivers is fed from a bridged pair of Class-D amplifiers with post filter feedback; each pair is capable of delivering 240W into 4Ω.

Power is provided by a massive toroidal transformer featuring independent windings for each amplifier as well as the digital circuitry. A separate low-power supply operates when the loudspeaker is in standby mode.

TECHNOLOGIES

SIGNAL CONDITIONING	SYSTEM OPTIMISATION	PLAYBACK ENHANCEMENT	PERFORMANCE MANAGEMENT
 DIGITAL PRECISION	 FFA	 E3 BASS	 PRO-ACTIVE BASS
 Q-SYNC	 FREE-Q	 IMAGE FOCUS +	 PRO-ACTIVE THERMAL
 TRUE LINK	 PERFECT BALANCE		
 TRUE TIME	 BSM		

CONNECTIVITY

REAR PANEL



The DSP8000 XE features more connectivity options than any other Meridian loudspeaker.

The SpeakerLink (RJ45) connections carry audio and control signals when the loudspeakers are used with other Meridian equipment.

Other digital audio sources can be connected to the loudspeakers via the digital co-ax, optical, and USB audio connections.

The mains power switch, channel selector switch and reset button are easy to access, helping simplify installation.

The infra-red input and USB maintenance socket provide additional options for control and automation of the loudspeakers.

IA21 ANALOGUE INPUT MODULE

Supplied with each DSP8000 XE loudspeaker, the analogue input module allows the loudspeakers to be used in non-Meridian systems. The module mounts to the underside of the loudspeaker and is connected using a single SpeakerLink cable (also supplied).



Once installed, the module causes the loudspeaker to automatically configure itself ready for use in this way. The module accepts a variable line-level analogue input in either balanced (XLR) or single-ended (RCA phono) form.

The three-way input sensitivity switch allows a wide-range of third-party pre-amplifiers as well as other sources with a variable output to be used.

A signal-sense detect system automatically activates the loudspeaker when it receives audio and switches it to standby if no audio is played for approximately 20 minutes. Alternatively, the trigger connection (3.5mm minijack) can be used to remotely switch between On and Standby mode from a suitable device, or the loudspeaker can be set to remain on whenever it is powered.

CONNECTIVITY



MERIDIAN B-LINK

The Meridian B-Link is a multipurpose device supplied with each pair of DSP8000 XE loudspeakers. It connects to the SpeakerLink input on the Master loudspeaker. A suitable cable is provided for this purpose. The B-Link enables audio to be streamed to the loudspeakers from a Bluetooth device such as a smartphone, tablet or computer.

The B-Link also allows control of the loudspeakers from a phone or tablet via the **Meridian Control** app. The app provides an intuitive interface for adjusting volume level, switching the loudspeakers on and off, and accessing other settings such as Treble and Bass. It also allows selection of any other sources which may be connected directly to the loudspeakers.

In addition, the B-Link can be used to access and select set-up menus which are used during the installation of the loudspeakers. This includes the "Position" setting which uses Meridian's Free-Q technology to optimise the low-frequency performance of the loudspeakers to suit their location in the room. Such installation settings are stored in the loudspeakers' non-volatile memory, so they are retained even if the B-Link is disconnected and put aside.

SPECIFICATION

INPUT CONNECTIVITY	<ul style="list-style-type: none"> • 1 x Meridian SpeakerLink connector [RJ45] • 1 x co-axial digital audio [RCA phono] supporting up to 192kHz @ 24-bit • 1 x optical digital audio [Toslink] supporting up to 96kHz @ 24-bit • 1 x USB digital audio [type C] supporting up to 384kHz @ 24-bit • Bluetooth via the Meridian B-Link [supplied] • 1 x balanced analogue audio [XLR] on analogue input module • 1 x unbalanced analogue audio [RCA phono] on analogue input module
OUTPUT CONNECTIVITY	<ul style="list-style-type: none"> • 1 x Meridian SpeakerLink connector [RJ45]
CONTROL OPTIONS WITHOUT ANALOGUE INPUT MODULE	<ul style="list-style-type: none"> • Meridian comms via SpeakerLink • Bluetooth via Meridian B-Link module [supplied] and the Meridian Control app • Integrated IR receiver • External IR receiver connection • RS232 via SpeakerLink input • USB via Maintenance connection
CONTROL OPTIONS WITH ANALOGUE INPUT MODULE	<ul style="list-style-type: none"> • Automatic signal-sense detect. Switch on detect time less than three seconds; switch to standby time-out approximately 20 minutes. • Trigger input on analogue input module [3.5mm minijack]
PERFORMANCE	<ul style="list-style-type: none"> • Peak SPL: 120dB@1m for a single speaker • Frequency response in room within 3dB: 18Hz – 40kHz
TWEETER AMPLIFIER	<ul style="list-style-type: none"> • Class AB, capable of greater than 150W into 4Ω, < 1% THD • THD + noise @ 1kHz < 0.005% • Bandwidth >100KHz
MID-RANGE AMPLIFIER	<ul style="list-style-type: none"> • Class AB, capable of greater than 150W into 4Ω, < 1% THD • THD + noise @ 1kHz < 0.005% • Bandwidth >100KHz
BASS AMPLIFIERS	<ul style="list-style-type: none"> • Six bridged pairs of Class-D amplifiers - each pair capable of greater than 240W into 4Ω, < 1% THD. • THD + noise @ 1kHz < 0.008%
TWEETER	<ul style="list-style-type: none"> • 25mm beryllium dome with silver voice-coil, steel custom waveguide
MID-RANGE DRIVERS	<ul style="list-style-type: none"> • 1 x 160mm with non-conductive voice-coil former and anti-resonance clamp-ring mounting system
BASS DRIVERS	<ul style="list-style-type: none"> • 6 x 200mm polypropylene long-throw [up to 24mm excursion] with anti-resonance clamp-ring mounting system
FRONT-PANEL INDICATOR	<ul style="list-style-type: none"> • Blue in Standby, White in use [can also be unlit in use]
REAR-PANEL CONTROLS	<ul style="list-style-type: none"> • Power On/Off, channel selector switch, input sensitivity switch [on analogue input module]
DIMENSIONS/WEIGHT	<ul style="list-style-type: none"> • WIDTH: 400mm [15.2in] tapering to 158mm [6.2in] • DEPTH: 528mm [20.8in] tapering to 210mm [8.3in] • HEIGHT*: 1350mm [53.2in]* • WEIGHT: 110.5kg [243lbs]
HEAD UNIT PACKED	<ul style="list-style-type: none"> • WIDTH: 490mm [19.3in] • DEPTH: 490mm [19.3in] • HEIGHT*: 400mm [5.7in]
MAIN UNIT PACKED	<ul style="list-style-type: none"> • WIDTH 650MM [25.6 in] • DEPTH: 800mm [31.5in] • HEIGHT*: 1350mm [53.1in]

*With feet/spikes fitted

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