

Simply the Finest Digital-to-Analog Converters in the World



MSB
TECHNOLOGY

A listening experience like no other

The house lights dim as the Concertmaster stands, bringing the excited audience chatter down to a mere whisper. The Principal Oboe plays a steady 'A' and the orchestra makes its final tuning adjustments. There is a moment of anticipation followed by applause as the Conductor arrives at the podium. The baton is raised, and a hushed silence fills the concert hall as if all present are holding their breath. Then, music excites the air, stirring emotions, and evoking memories.

It is both a luxury and a privilege to have such an experience. Imagine being able to have this experience at home, whenever you desire. That is the goal of a properly set up high-fidelity audio system; to transport the listener to another time and place via the recording.

Reproducing all of the lifelike musical nuances within digital recordings is our mission at MSB Technology. Our range of digital-to-analog converters use cutting edge electronic and mechanical engineering to transport the listener back to the concert hall. You will hear the dynamics of the brass section, the sweet complexity of the strings, the punctuation of the percussion section, the burnished tone of the horns, and the slinky bell-like clarity of the woodwind section. But more than this, you will hear the space surrounding those instruments and feel the deep silence between the notes.

You don't survive on a diet of classical music alone? Never fear, the same technical qualities which allow our products to transport you back to the concert hall will also put you in front of your favourite jazz, blues, rock, pop, or electronic artists. Feel like an evening with Ella Fitzgerald and Louis Armstrong? Done. Maybe a night at the opera with Queen? Done. How about Roy Orbison or maybe Nat King Cole? Done. With an MSB Technology digital-to-analog converter at the heart of your high-fidelity audio system you really can have it all, whenever you like.

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The Digital-to-Analog Converters (DACs)

Meet Our New Digital Family

THE DISCRETE DAC



THE PREMIER DAC



THE SELECT DAC



THE REFERENCE DAC



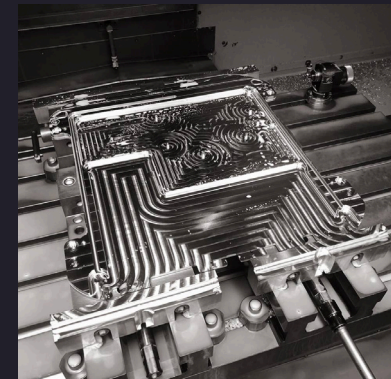
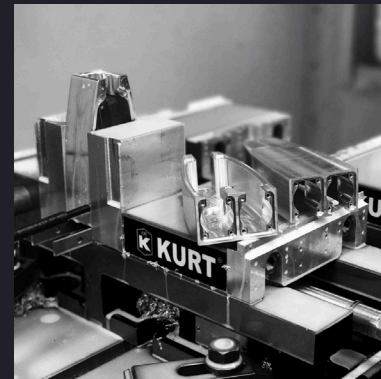
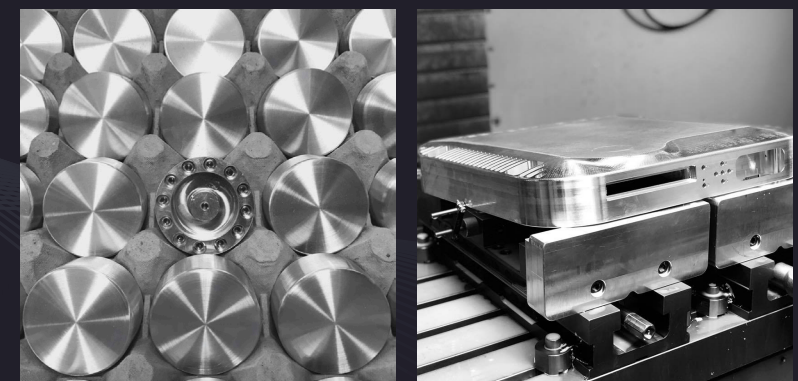
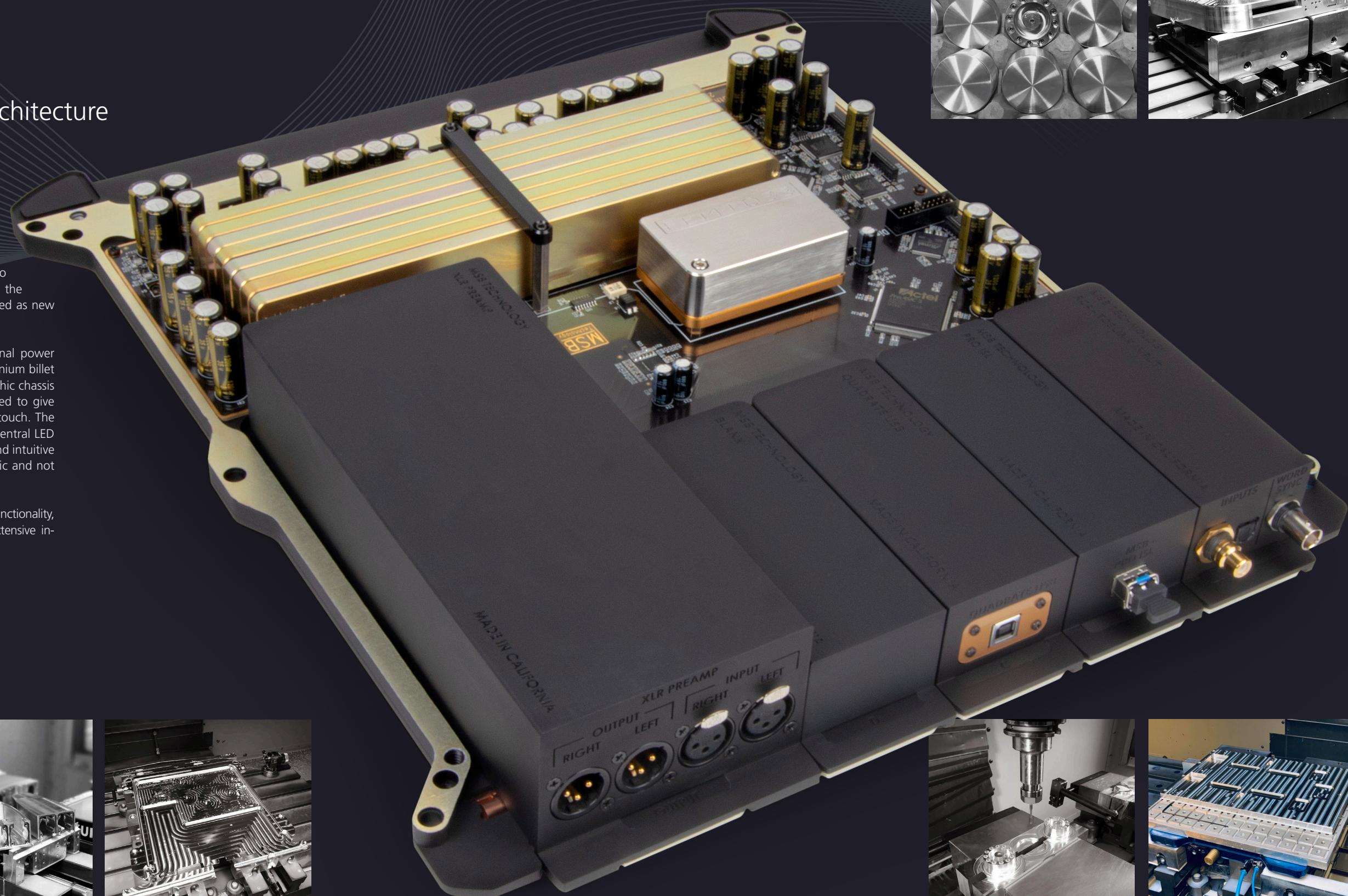
The Design

Our Modular, Future-Proof Architecture

Common to all of MSB Technology's digital-to-analog converters is a modular architecture which permits future upgradability. The ladder DAC modules, the digital clock, the input modules, and the output modules simply plug into the main circuit board and all power supplies are external to the digital-to-analog converter chassis. Your investment is protected as new technologies, improvements, or formats emerge.

Every MSB Technology digital-to-analog converter and external power supply starts its life as a solid block of the highest-grade aluminium billet which is extensively CNC machined in-house to create monolithic chassis with no visible fasteners. The sculptural metalwork is anodised to give flawless matte black or matte silver surface which invites the touch. The faceplates are an exercise in minimalism with an informative central LED display and only those controls required to access the simple and intuitive user interface. After all, your attention should be on the music and not on the equipment.

Achieving such an impeccably high standard of product design, functionality, and aesthetic is only possible because of MSB Technology's extensive in-house capabilities and rigorous quality control processes.





The Heart & Soul

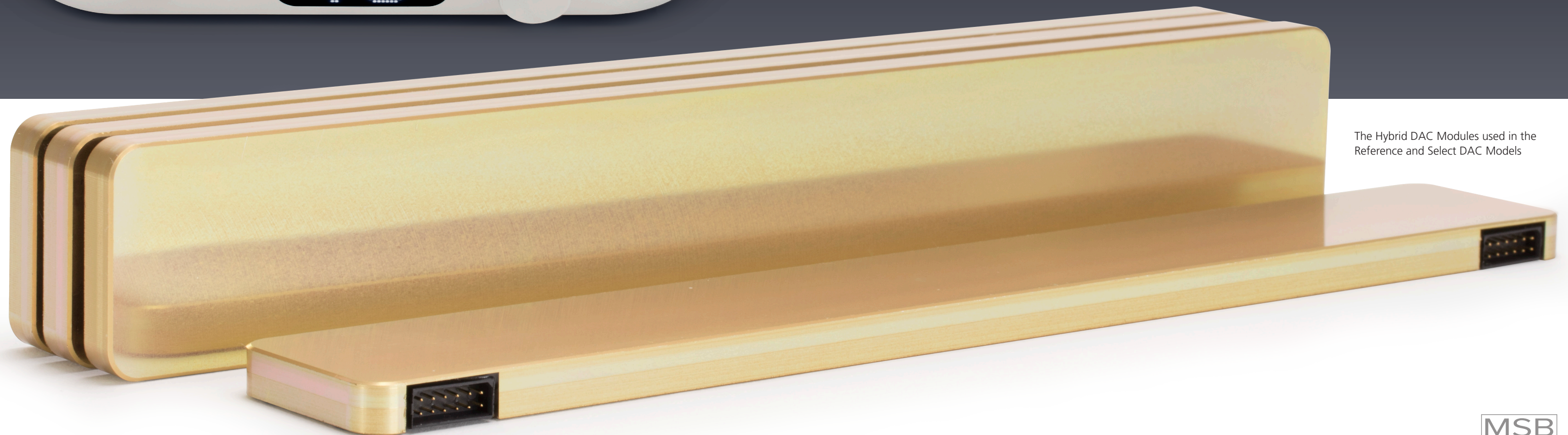
30 Years of Digital Innovation

MSB Technology has been researching, designing, and manufacturing discrete resistor-to-resistor (R2R) ladder DACs for over 30 years. Despite being incredibly more expensive and complex to manufacture than the more common chip-based delta-sigma DAC, the ladder DAC module is the only viable approach for achieving lifelike music reproduction, particularly when only the finest and most precise resistors are used. Designing and building your own ladder DAC modules in-house also means that the digital filters can be written specifically to realise the optimum performance potential of the hardware with any type of digital music format.

The culmination of MSB Technology's ongoing research in the field of discrete resistor-to-resistor ladder DACs is the Prime and Hybrid DAC modules used in the current generation of digital-to-analog converters.

These DAC modules facilitate playback of all currently available types of digital music, including PCM from 44.1 kHz to 3,072 kHz at up to 32-bits as well as single, double, quad, and eight-speed DSD.

Each of the MSB Technology digital-to-analog converters uses two or more of the Prime or Hybrid DAC modules for a true balanced architecture with the added benefit of extremely low output impedance. This means that the DAC modules themselves drive the input stage of your power amplifier or active crossover loudspeaker directly, with no intervening op-amps or active buffer circuitry. The result is the purest possible music reproduction.



The Hybrid DAC Modules used in the Reference and Select DAC Models

The Inputs

Input Modules for Today... and for the Future

All of the MSB Technology digital-to-analog converters share the same suite of digital input modules. This means that if you upgrade, for example from The Discrete DAC to The Reference DAC, you can migrate your existing digital input modules to the new product.

Digital input modules are available for all current connection types, including optical/coaxial RCA (with word sync output), AES/EBU XLR (with word sync output), USB (with quad-rate DSD and MQA capability), and MSB Technology's proprietary Pro-IS2S for use with older-generation MSB Technology Digital Transports.

Two new digital input modules have been developed for cutting edge performance. They are the Network Renderer Version 2 and the Pro-ISL modules. Both ensure that the connected source is perfectly synchronized with the clock inside the DAC.



PRO-ISL DIGITAL INPUT MODULE

The proprietary Pro-ISL digital input module uses an infrared laser diode to transmit data over a single-mode fibre cable. This enables features like clock sync and error correction, all while obtaining perfect electrical isolation and ensuring the lowest possible jitter. It provides the optimum connection between any of the current generation MSB Technology digital-to-analog converters and the Reference or Select Transports.



PRO USB DIGITAL INPUT MODULE

For those listeners who still prefer a USB connection between their computer and one of the current-generation MSB Technology digital-to-analog converters, the new Pro USB offers complete electrical isolation while providing the full performance and potential of MSB Technology's proprietary Pro-ISL input format. The combination of Pro-ISL digital input module and Pro USB enables playback of PCM up to 768 kHz and 8-speed DSD as well as MQA decoding.



THE NETWORK RENDERER V2 DIGITAL INPUT MODULE

Developed entirely in-house, the Network Renderer V2 digital input module is a fully-certified Roon endpoint which enables the listener to stream music over their home network using content stored locally on hard drives or over the internet using services such as Tidal and Qobuz. It supports gapless playback, performs MQA decoding, and delivers bit-perfect playback of PCM from 44.1 kHz to 768 kHz at up to 32-bits as well as single, double, quad-rate DSD. Furthermore, firmware updates are automatically applied over an internet connection to ensure that you will always enjoy the latest features and performance capabilities.

roon
ready



The Select DAC Analog Output Expansion Module



Preamp Output Module for The Reference DAC

The Outputs

The Purest Output for the Purist Listener

The incredible capabilities of MSB Technology's truly balanced Prime and Hybrid DAC modules means that the current family of digital-to-analog converters can drive the analog outputs directly, free of any additional circuitry containing op-amps, transistors, or vacuum tubes. This level of sonic purity is maximised by a range of passive volume control options.

The Discrete, Premier, and Reference DAC models utilise proprietary advanced hybrid analog/digital volume control technology with 1 dB steps. If using a separate preamplifier or headphone amplifier, the volume control can be bypassed.

In the case of the Discrete DAC model the analog output is only available on XLR connections and cannot be swapped out by the user. In the case of the Premier and Reference DAC models the analog outputs are available on either RCA or XLR connections via a choice of model-specific modules.

An optional upgrade for the Reference DAC model is the Preamp Output Module which uses MSB Technology's proprietary constant impedance passive volume control technology and includes one analog input which can be volume controlled or used as a home-theatre bypass if desired. Furthermore, extra analog input modules (RCA or XLR) and one additional analog output module (RCA or XLR) can be added to the Preamp Output Module.

The Select DAC model includes its own version of the Preamp Output Module as standard equipment in a choice of either RCA or XLR connection types. It includes additional shielding in order to extract the maximum performance from MSB Technology's flagship digital-to-analog converter.

The Reference and Select DAC models can thus replace your existing separate analog preamplifier, saving on valuable equipment rack real estate while delivering the maximum level of musical engagement from all of your digital AND analog source components.



The Clocks

A New Era of Timing Precision & Accuracy

Much of the incredibly lifelike performance from MSB Technology's range of digital-to-analog converters can be attributed to their ultra-low jitter clock technology.

Jitter exists in the digital-to-analog conversion process when timing errors occur, measured in Femtoseconds (a femtosecond is one millionth of a nanosecond), and typically sounds like a harshness overlaid on the music which can take on an artificial characteristic. Minimising or eliminating the undesirable effects of jitter naturally starts with an audio clock which itself has extremely low levels of jitter.

By designing and building its audio clocks in-house, MSB Technology has reduced jitter to vanishingly low levels.



The Discrete and Premier DAC models utilise the same low jitter audio clock. The Premier DAC can be field-upgraded to the Femto 93 clock via a plug-and-play module on the rear of the chassis.

The Reference DAC includes MSB Technology's Femto 140 audio clock as standard equipment but can be upgraded to either the Femto 77 or Femto 33 audio clocks for even higher levels of musically natural playback.

The flagship Select DAC includes the Femto 77 audio clock as standard equipment but can be upgraded to the Femto 33 clock for the ultimate in digital audio performance.



The Femto 140 Clock



The Femto 77 Clock



The Femto 33 Clock

The Power Supplies

Unleashing the Power of the Music

All of the MSB Technology digital-to-analog converters utilise external power supplies in order to keep stray magnetic fields and electrical noise away from the sensitive digital and analog circuitry.

THE DISCRETE POWER SUPPLY

The Discrete and Premier DAC models include the Discrete Power Supply which feeds both digital and analog circuits with stable, low-noise direct current.

An optional upgrade for both the Discrete and Premier DAC models is the addition of a second Discrete Power Supply, leaving one to power the digital circuitry and the other to power the analog circuitry.



The Discrete Power Supply



The Premier DAC atop the Premier Powerbase

THE PREMIER POWERBASE

Alternatively, the Premier Powerbase, containing four isolated power supplies and featuring superior shielding, filtering, and electrical grounding, can be used with either the Discrete or Premier DAC models for a major sonic upgrade.



The Reference Dual Powerbase



THE REFERENCE DUAL POWERBASE

The Reference DAC includes the separate Reference Dual Powerbase but an optional upgrade is two Reference Mono Powerbases, one for the digital circuitry and the other for the analog circuitry. The result is an even lower noise floor which allows the full resolving capabilities of the Hybrid DAC modules to shine.



The Select DAC atop two Select Mono Powerbases

THE SELECT DUAL POWERBASE

The Select DAC includes the separate Select Dual Powerbase but an optional upgrade is two Select Mono Powerbases, one to power the digital circuitry and the other to power the analog circuitry. The result is an even lower noise floor which allows the full resolving capabilities of the Select DAC modules to shine.



The Comparison

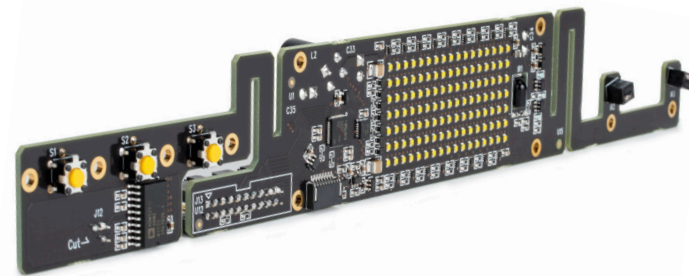


The Interface

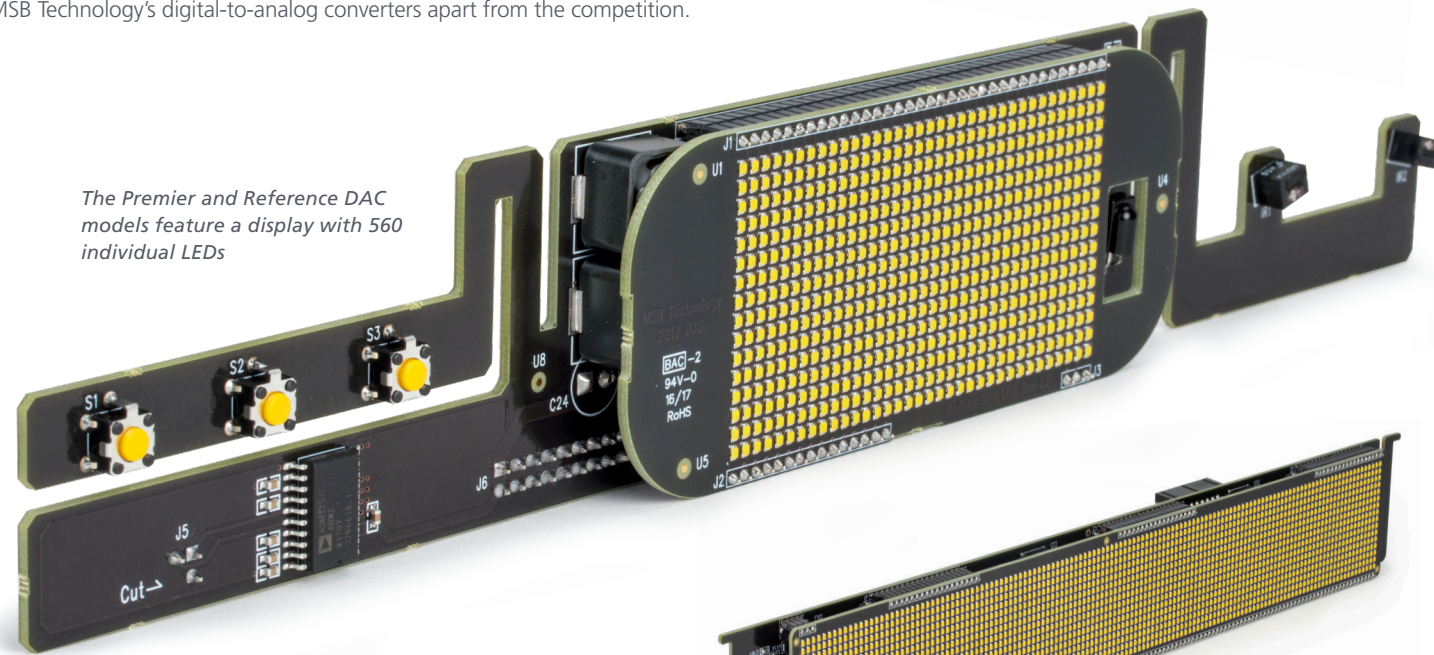
A Display for the Listening Chair

All of the MSB Technology digital-to-analog converters feature elegant LED displays which clearly show critical information such as the selected input, the sample rate and bit-depth, and the volume control setting. The displays, each housed in a dedicated pocket within their respective monolithic chassis, are slaved to the audio clock and refreshed between digital music processing for the lowest possible electrical interference. It is this type of attention to the smallest details which sets the performance of MSB Technology's digital-to-analog converters apart from the competition.

The Discrete DAC features 119 individual LEDs



The Premier and Reference DAC models feature a display with 560 individual LEDs



The Select DAC display is huge and comprises 2096 individual LEDs

	DISCRETE	PREMIER	REFERENCE	SELECT
Number of DAC Modules	2X Prime DAC	4X Prime DAC	4X Hybrid DAC	8X Hybrid DAC
Clock Options	Included On Board Clock (No Upgrade Options)	Included Premier Clock Upgrade Options Femto 93	Included Femto 140 Upgrade Options Femto 77 Femto 33	Included Femto 77 Upgrade Options Femto 33
Digital Inputs	2x User Replaceable Input Slots Fixed Inputs 2X Toslink 1X Coaxial 1X XLR 1X Word-Sync	3x User Replaceable Input Slots Coaxial / Toslink Module Included 1X Toslink 1X RCA Coaxial 1X Word-Sync	4x User Replaceable Input Slots Coaxial / Toslink Module Included 1X Toslink 1X RCA Coaxial 1X Word-Sync	4x User Replaceable Input Slots Coaxial / Toslink Module Included 1X Toslink 1X RCA Coaxial 1X Word-Sync
Supported Digital Input Modules	Pro I2S XLR Coaxial / Toslink Pro ISL MQA/Quadrate USB Network Renderer V2	Pro I2S XLR Coaxial / Toslink Pro ISL MQA/Quadrate USB Network Renderer V2	Pro I2S XLR Coaxial / Toslink Pro ISL MQA/Quadrate USB Network Renderer V2	Pro I2S XLR Coaxial / Toslink Pro ISL MQA/Quadrate USB Network Renderer V2
Output Modules	Analog Outputs XLR Outputs Only 300 Ohm Impedence Analog Inputs Not Supported	Analog Outputs RCA or XLR Outputs 150 Ohm Impedence Analog Inputs Not Supported	Analog Outputs RCA or XLR Outputs 150 Ohm Impedence Analog Inputs RCA or XLR Inputs	Analog Outputs RCA or XLR Outputs 75 Ohm Impedence Analog Inputs RCA or XLR Inputs
Analog Expansion Modules	Not Supported	Not Supported	RCA or XLR Input RCA or XLR Output Isolated Sub Output	RCA or XLR Input RCA or XLR Output Isolated Sub Output
Power Supply Options	Discrete Power Supply or 2X Discrete Power Supply or Premier Powerbase	Discrete Power Supply or 2X Discrete Power Supply or Premier Powerbase	Dual Powerbase or 2X Mono Powerbase	Dual Powerbase or 2X Mono Powerbase
Power Interconnect	Dual-Link Cable	Dual-Link Cable	Hybrid DAC Cable	Hybrid DAC Cable
Chassis Foot Threading	M6x1	M6x1	M6x1	M6x1 Mechanically Isolated Design
Display	119 LED Discrete Display	560 LED Discrete Display	560 LED Discrete Display	2096 LED Discrete Display
Supported Formats (Input Dependant)	44.1kHz to 3,072kHz PCM up to 32 bits 1xDSD, 2xDSD, 4xDSD, 8xDSD Supports DSD via DoP on all inputs	44.1kHz to 3,072kHz PCM up to 32 bits 1xDSD, 2xDSD, 4xDSD, 8xDSD Supports DSD via DoP on all inputs	44.1kHz to 3,072kHz PCM up to 32 bits 1xDSD, 2xDSD, 4xDSD, 8xDSD Supports DSD via DoP on all inputs	44.1kHz to 3,072kHz PCM up to 32 bits 1xDSD, 2xDSD, 4xDSD, 8xDSD Supports DSD via DoP on all inputs
Companion Products			Reference Transport Reference Transport Powerbase Reference Headphone Amp	Select Transport Select Transport Powerbase Select Headphone Amp

The Transports

Flawless Music Playback



The Select Transport



The Reference Transport

MSB Technology manufactures two cutting-edge digital transports which can play every standard optical disc format, such as CD, DVD-Audio, DVD-Video, SACD, 4K Blu-ray, Blu-ray, and 3D Blu-ray. They can also act as a Roon endpoint or access content from DLNA servers and SMB shares over your local area network.

The Reference Transport matches the design language of the Reference DAC while the Select Transport complements the Select DAC.

Both transports support multi-channel DSD, as well as 192 kHz/24-bit PCM used in high-resolution lossless formats such as AIFF, ALAC, APE, FLAC, WAV. In addition, the latest in surround formats, such as Dolby TrueHD, DTS-HD, Dolby Atmos, and DTS:X are accommodated for those who like to combine their high-end stereo listening with state-of-the-art home cinema.

Both products feature MSB Technology's proprietary Pro ISL interface which ensures clock sync and error correction, perfect electrical isolation, and the lowest possible jitter when partnered with any of the current generation of MSB Technology digital-to-analog converters and the Pro ISL digital input module.

An optional upgrade for both transports is a matching Transport Powerbase which reduces the noise floor even further through specialised isolating transformers. A single power supply inside the Transport Powerbases supplies the audio side of the transport, while an isolated power supply is dedicated to the video side, yielding an unprecedented level of performance.





The Amplifiers

Amps Without Compromise... for DACs Without Compromise

For over 16 years we've been refining and building our unique M200 series of amplifiers, created out of necessity to illuminate the industry leading performance of our ladder DACs. The distinctive looking M200 series produced exceptional sound quality with a wide range of speakers.

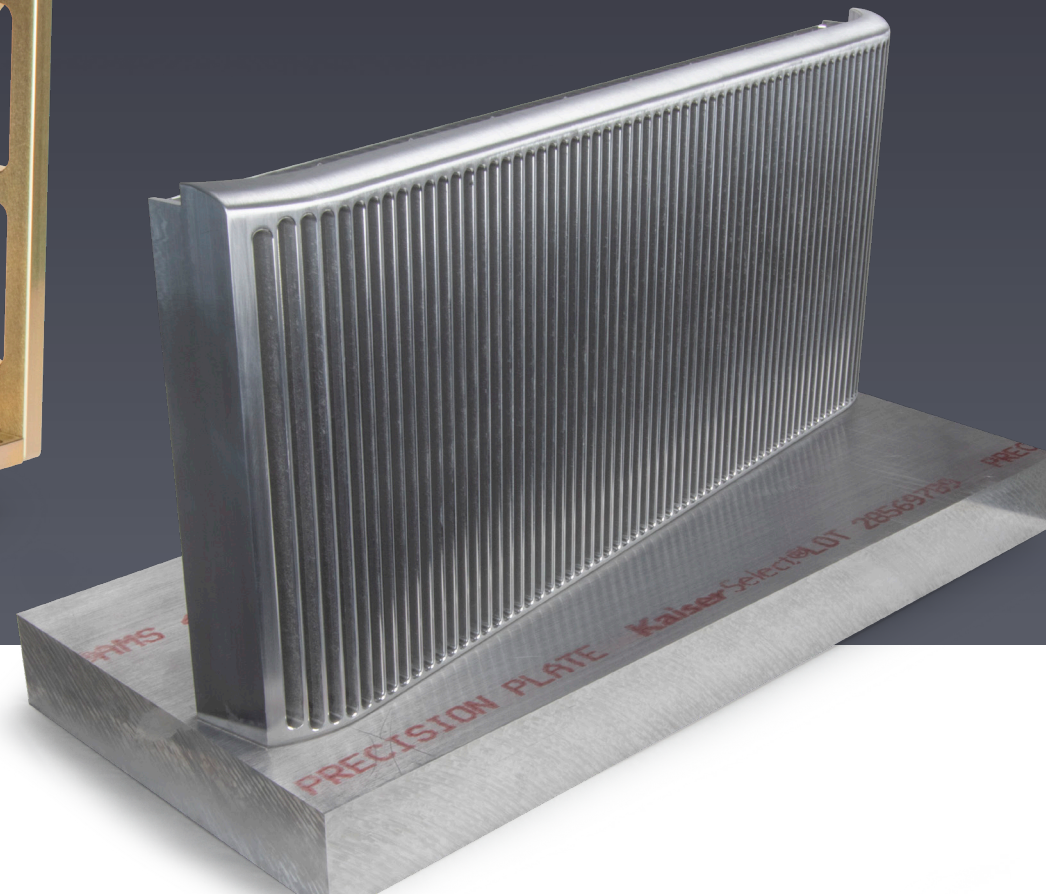
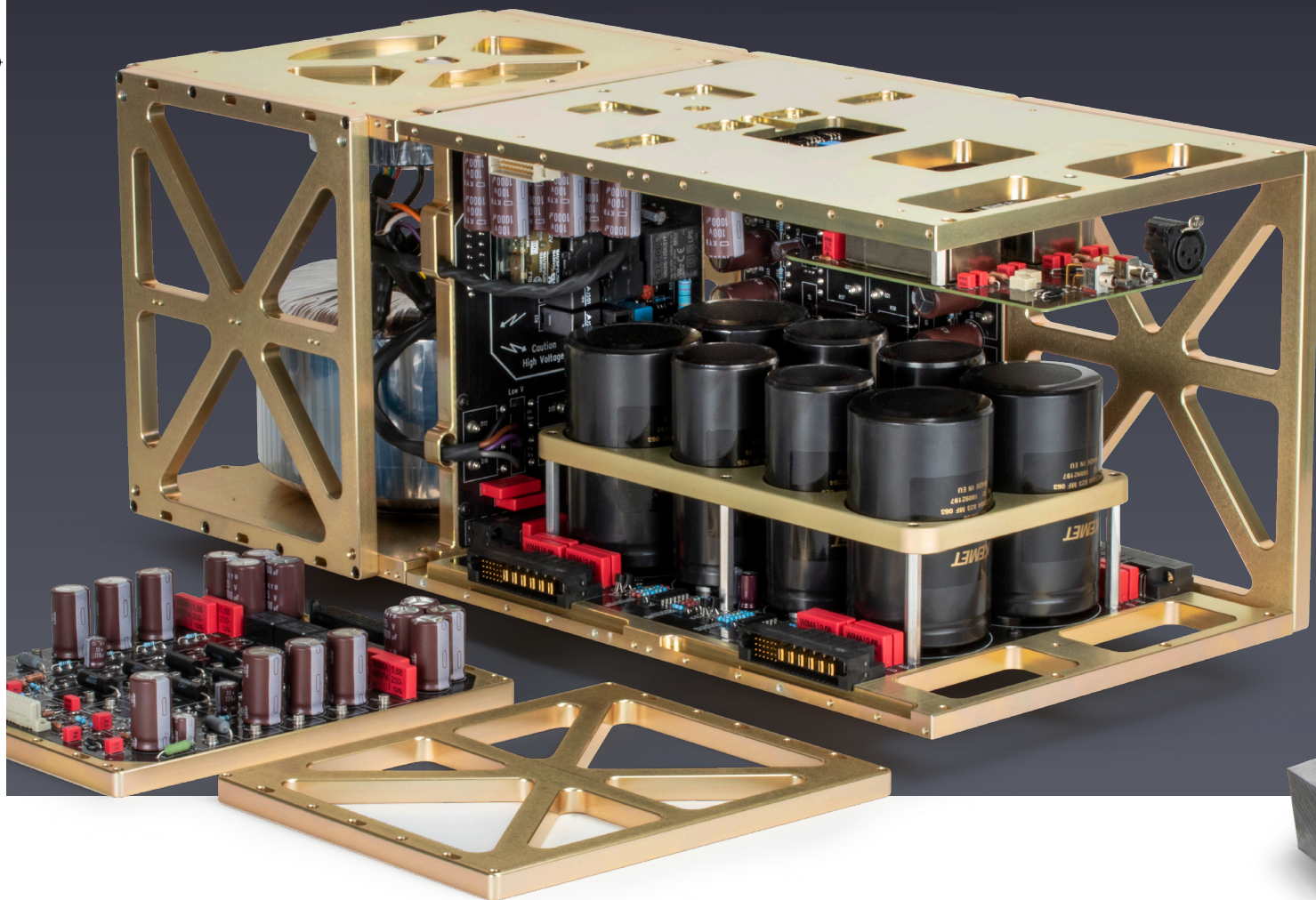
Our latest family of digital-to-analog converters: The Discrete DAC; The Premier DAC; The Reference DAC; and The Select DAC; have established new standards for both technical excellence and lifelike musical performance and thus demanded partnering amplification of equal stature and minimalist aesthetic.

Introducing the S500 stereo power amplifier and the M500 monoblock power amplifiers from MSB Technology. Using a clean-sheet design approach we have optimised audio performance, product longevity, future serviceability, and compatibility with any loudspeaker load. The result is an amplifier with an extremely high degree of modularity, starting with an inner "core" where each of the enclosure's six faces contains a separate sub-assembly.

Each of the heatsinks originate from a 23 kg block of aluminium billet which undergoes 8 hours of in-house CNC machining to create a 7.9 kg finished product. Each amplifier chassis is constructed from perfectly anodised aluminium and features an astounding 6.5 square metres of heat dissipating surface area!

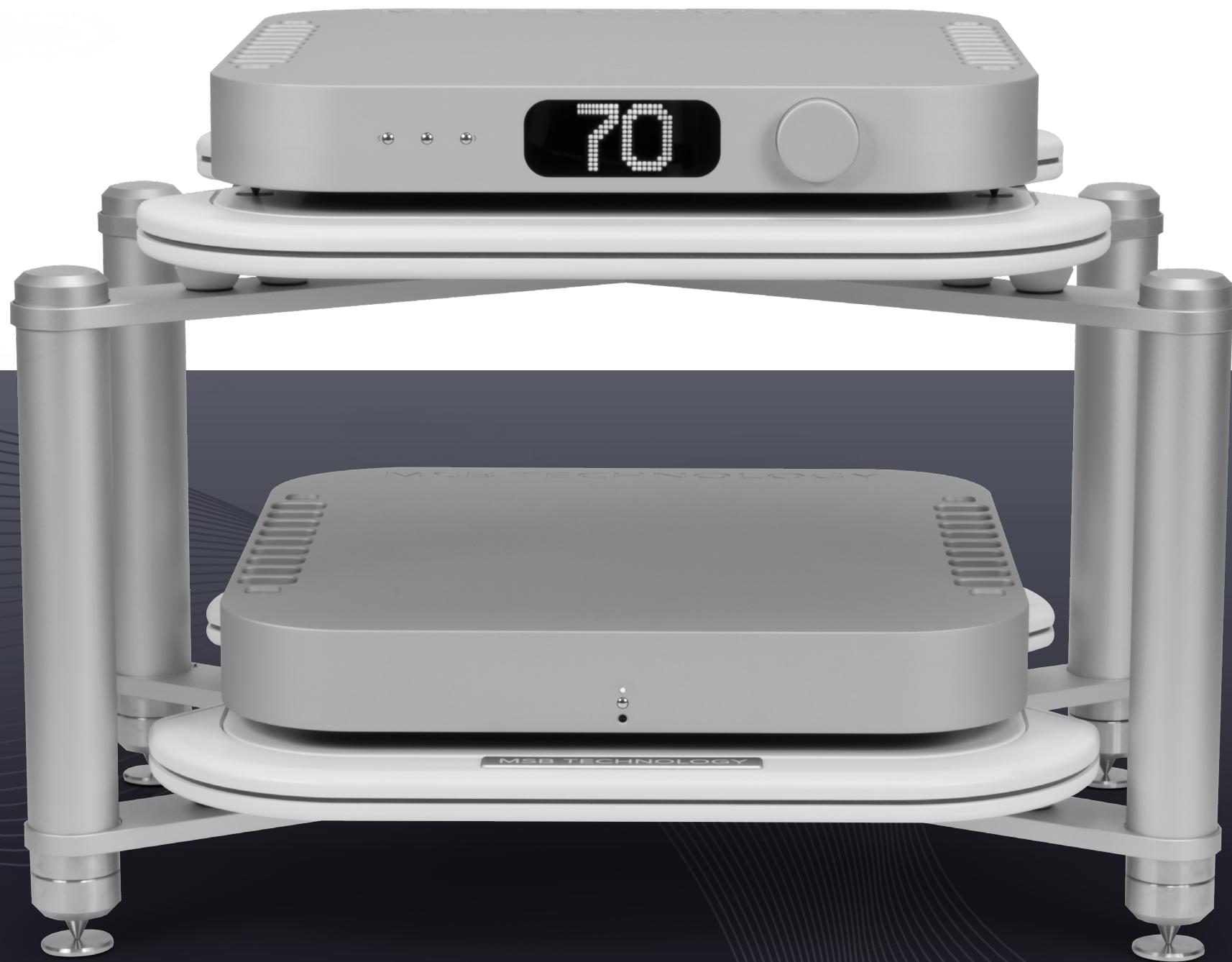
The low output impedance of the Prime or Hybrid DAC modules inside our Discrete, Premier, Reference, or Select digital-to-analog converters is a perfect match for the selectable impedance of the discrete, Class A, current-mode input stage of our new 500 Series amplifiers. The result is ultra-low input noise and distortion, incredible dynamic range, minimized signal reflections and maximum power transfer, all with zero negative feedback!

From every angle, our new S500 and M500 power amplifiers are the ultimate musical bridge between our current range of MSB Technology digital-to-analog converters, or a well-designed transistor lineage preamplifier, and ANY loudspeaker.



The MSB Rack

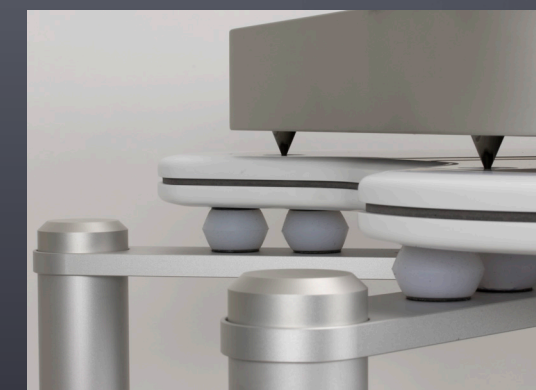
A Sonic and Visual Showcase for Your
MSB Technology Electronics



Your investment in state-of-the-art MSB Technology electronics deserves to be showcased in a truly elegant manner, which is why we have developed a truly modular and expandable equipment rack system which echoes the design language of our product range while maximising sonic performance.

Components rest serenely atop beautifully-finished, constrained-layer damped shelves with polymeric inlays and are shaped to maximise air flow while "floating" on load-rated isolators made from a special silicone formulation.

The super-rigid and highly-damped aluminium frame is micro-pearl anodised and comprises CNC-machined cross braces and variable length upright posts filled with crushed quartz.





The Company

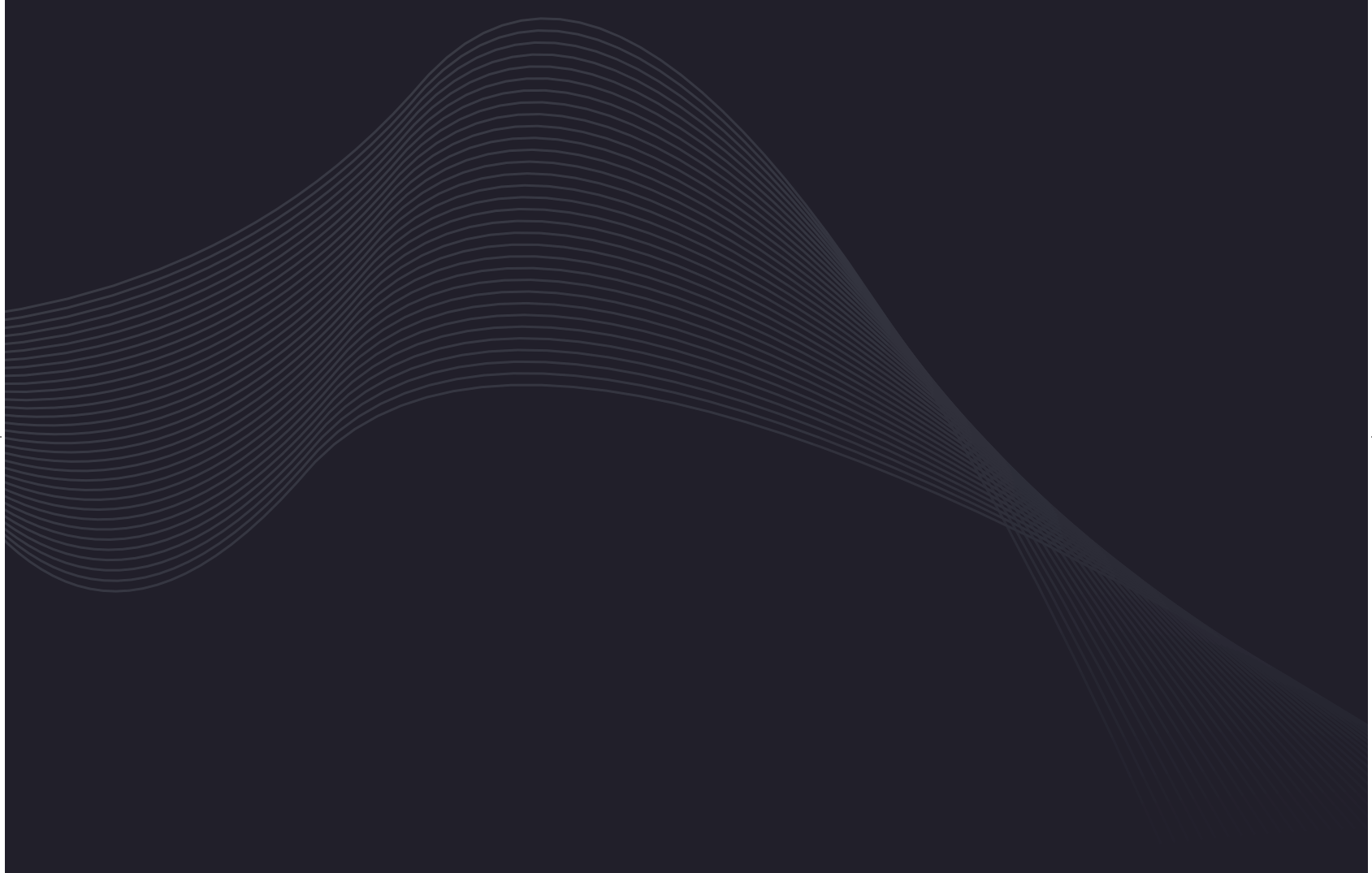
A Passionate and Talented Team

MSB Technology is located within the Silicon Valley region of Northern California, a global centre for high technology and innovation. Our team of music-loving engineers and production specialists are led by brothers Jonathan and Daniel Gullman.





Jonathan, an electrical engineer, and Daniel, a mechanical engineer, grew up inside the MSB Technology family. In 2016, they became co-owners of the company with Jonathan assuming the role of CEO and continuing as Engineering Manager and Daniel continuing in his role as Product Designer. Jonathan adopts a very hands-on approach as CEO, personally managing technical support for all MSB Technology products while fostering a team environment of excellence driven by passion for high performance audio.

Daniel's first MSB Technology product was the Analog DAC which set a new direction for the company with its monolithic chassis machined from a single block of aluminium billet and modular digital input architecture. That same design philosophy was later applied to the flagship Select DAC and is now instantly recognisable across the entire MSB Technology product range.

Today, MSB Technology has extensive in-house design, circuit board assembly, and CNC machining capabilities, enabling them to quickly prepare several prototypes for testing purposes. This flexibility is the key to MSB Technology's innovative approach to state-of-the-art audio reproduction.



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