

# marantz®

SA-10 SUPER AUDIO CD PLAYER



the new reference

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# because music matters



# dedicated to detail

For many years, the Marantz Reference Series of MA-9, SC-7 and SA-7 has set the standards for playback and amplification: not only does it draw on all the expertise the company has developed over decades, it's also the embodiment of the thinking underpinning every product the company makes, summed up in the simple phrase 'because music matters'. Now Marantz is challenging its own Reference Series with the introduction of the Premium 10 Series – products designed to create a new reference through new design and engineering.

Comprising the SA-10 SACD/CD Player and matching PM-10 integrated amplifier, this new series sees a complete re-invention of the design principles behind the company's statement products. The player and amplifier are the result of an extensive research, development and – of course – listening process, leading to the incorporation of new thinking and new architectures alongside established Marantz technologies and strengths. All of this has targeted one very clear aim – the best possible reproduction of music, from CD quality all the way up to the latest ultra-high-resolution formats.

because music matters



# SA-10

## SUPER AUDIO CD PLAYER



HDAM® SA2



### Reference class Super Audio CD player with USB DAC, digital inputs and unique Marantz Musical Mastering technology

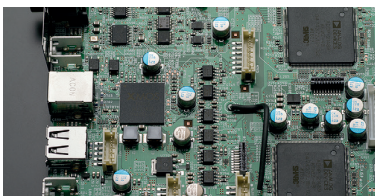
The SA-10 is an exceptional player of both CD and SACD discs, but can also play high-resolution music stored on computer-burned discs, as well as being a high-end digital to analog converter for computer-stored music. From the unique new disc transport designed for this player all the way through to a complete rethink of the way digital audio data is converted into analog signals, the SA-10 is a 'clean sheet' design, the result of painstaking research and development and extensive listening in Marantz's custom-built listening facilities. That's symptomatic of the way Marantz has always done things: while it always aims for the most elegant engineering solution, the listening test is always the final arbiter. It's all to do with that simple phrase running through the heart of everything the company does: 'Because Music Matters'.

#### It starts with the disc

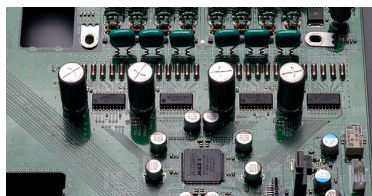
Whether playing SA-CD or CD, or data discs containing music, it's vital that any player retrieves the information as accurately as possible: unlike a computer reading a disc for ripping, there's no time for repeated re-scans when playing music – it happens in real time, so the disc transport needs to get things right first time. Many modern CD and SACD players use computer-style DVD or 'universal' disc drives, simply because it's increasingly difficult for manufacturers to source dedicated 'music drives', purely designed for SACD/CD playback. The Marantz solution? If you can't buy it off the shelf, design it and have it made: at the heart of the SA-10 is an all-new SACD-M3 transport mechanism, engineered solely for the best possible performance when playing SA-CDs, CDs and music stored on data discs. Not only does this new mechanism promise the very best sound quality from conventional CD and SA-CD discs, its extended ability with the playback of music files stored on DVD-ROM discs makes it possible for users to create their own high-resolution audio compilation discs using a computer DVD burner. The SA-10 can play FLAC files from 44.1kHz to 192kHz at up to 24-bit resolution, and DSD2.8MHz and DSD5.6MHz, well as ALAC (Apple Lossless), AIFF and MP3 files. That means making and playing hi-res disc compilations is now just as simple as it's always been to make such discs in CD quality.

#### At a glance

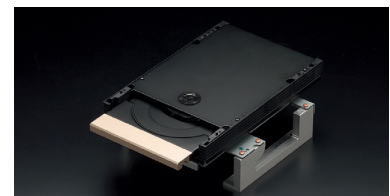
- All-new SACD-M3 transport mechanism for CD, SACD and more
- Playback of high-resolution audio compilations on DVD-ROM
- USB input for hi-res audio up to PCM / DXD 384kHz/32bit and DSD11.2MHz
- Isolation of USB and digital inputs to remove noise from connected sources
- USB-A input for USB memory device, external harddisc and iDevice
- Innovative upsampling to DSD and filtering using unique Marantz Musical Mastering – Stream technology
- All-new custom-designed 1-bit direct Marantz Musical Mastering – Conversion from DSD to analog
- High-quality analog output stage with Marantz HDAMs
- Generous power supply using toroidal transformer
- Dedicated headphone amplifier with all-discrete construction



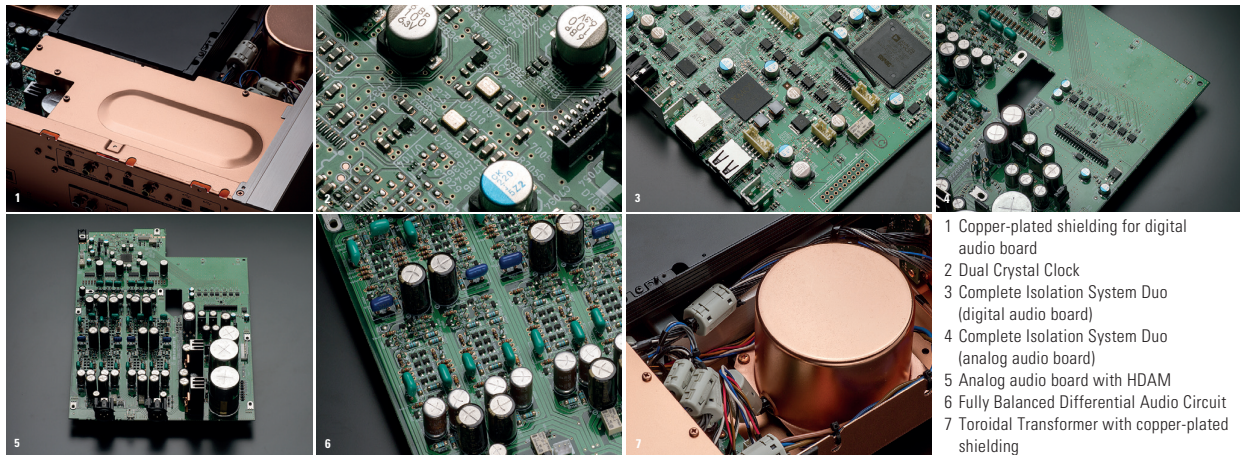
DAC board with digital isolation circuitry and - Stream processing



MMM - Conversion



Marantz mechanism SACDM-3



- 1 Copper-plated shielding for digital audio board
- 2 Dual Crystal Clock
- 3 Complete Isolation System Duo (digital audio board)
- 4 Complete Isolation System Duo (analog audio board)
- 5 Analog audio board with HDAM
- 6 Fully Balanced Differential Audio Circuit
- 7 Toroidal Transformer with copper-plated shielding

## CDs, SA-CDs and beyond

However, the SA-10 goes so much further than just disc playback: it's also a fully-functional digital-to-analog converter for music stored on a home computer, as well as having conventional digital inputs for existing source components. Those conventional inputs – optical and coaxial – can handle files at up to 192kHz/24bit, but in addition the player's digital input section includes a USB-B asynchronous input for the direct connection of a computer, and this is compatible with PCM and DXD music files at up to 384kHz/32bit, as well as DSD2.8MHz, DSD5.6MHz and DSD11.2MHz.

That means the SA-10 is not only equipped to handle all the commonly-available high-resolution audio formats now sold by online retailers, but also the ultra-high-resolution files becoming available from a number of specialist labels and outlets. In other words, the player is entirely futureproof. What's more, the digital input section is completely isolated, to avoid any electrical noise from connected components – a particular problem when computers are used as a source – from finding its way into the signal-path.

## More than just a DAC

CD players (and indeed amplifiers) with built-in DACs usable for computer audio are nothing new, and neither is DSD capability on such devices. Indeed, the Marantz range already has several CD/SA-CD models so equipped. However, the SA-10 takes things further – just as it features an all-new disc transport mechanism, so the digital to analog conversion has also been subject to a radical rethink, taking full advantage of the 1-bit conversion technology found in past flagship Marantz players, and incorporating brand-new filtering and upconversion to take advantage of this simple, but elegant solution.

## The DSD advantage

Marantz has long been an advocate of the benefits of the DSD format, originally developed to enable Super Audio CD, and was one of the first manufacturers of SA-CD players, its first 'statement' player, the SA-1, being launched in 2001. In more recent times, it has demonstrated both analog and CD content converted and upsampled to DSD: played via a DSD-compatible DAC, this delivers an audibly superior output.

The way this is done is nothing new: in fact, the famous Bitstream conversion technology developed relatively early in CD's history, in which digital data is handled as individual bits – rather than the chunks of data on which conventional DACs work – is ideal for this task. Of late, Bitstream converters have fallen out of favor, but one of the very best of their kind was the TD1547, otherwise known as the DAC 7, used in Marantz players of the past.

Known for its musical sound and even tonal balance, the DAC 7 was a 1-bit DAC, just as DSD is a 1-bit format: rather than the combination of, say 24-bit resolution at a 192kHz sampling rate, as used in many hi-res files, DSD uses 1-bit, but at a much higher sampling rate. So DSD64, as used for SA-CD discs, is 1-bit at 2.8224MHz, and DSD256, or Quad-DSD, is 11.2MHz/1-bit. This means music stored in DSD is a much more literal representation of the original analog waveform of the sound recorded, and thus needs much less processing to turn it into audio able to be passed to an amplifier. Or, as the company puts it, 'DSD is analog'.



#### **Custom-made Block Capacitors**

The analog circuit is fed by an oversize power supply with customized block capacitors with 4.700 $\mu$ F each. This guarantees in any situation of playing demanding music that no detail gets lost or diminished. In addition, the capacitor holders – usually from brass – have been made out of copper. These improvements, a result of countless hours of testing and listening, deliver a unique performance under all musical conditions.

#### **Thick Nickel-plated Copper Output Terminals**

The analog RCA output terminals are hand-made from a solid pure copper core, and plated with a nickel substrate. Again, this has been chosen after extensive tests with different terminals and materials, as it brings out the full beauty, stability and power from all recordings.

#### **Fully Discrete Headphone Amplifier with Gain Control**

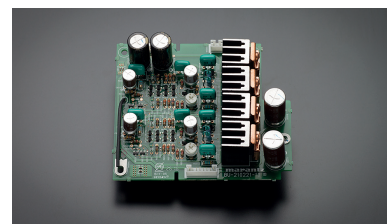
For music lovers enjoying their favorite recording via headphones, the SA-10 features a high quality headphone stage with dedicated Marantz-own HDAM-SA2 amplifier modules. This unique circuit ensures a high Signal-to-Noise ratio, minimum interferences and an overall rich bandwidth music playback. To work with a wide variety of headphones the gain factor can be changed from low to mid to high. It drives low to high impedance headphones effortlessly for the ultimate private listening experience.



Custom-made Block Capacitors



Thick nickel-plated copper output terminals



Fully discrete headphone amplifier

**SPECIFICATIONS**

AUDIO		SUPER AUDIO	CD
Frequency Response		2 Hz ~ 60 kHz (-3 dB)	2 Hz ~ 20 kHz (±1 dB)
S/N Ratio		112 dB	104 dB
Dynamic Range		109 dB	98 dB
Total Harmonic Distortion		0.0008 % (1 kHz)	0.0015 % (1 kHz)
INPUTS / OUTPUTS			
Analog Audio out	Balanced / Unbalanced		1 / 1
Digital Audio out	Coaxial / Optical		1 / 1
Digital Audio in	Coaxial / Optical		1 / 1
	USB-A		1
	USB-B		1
Headphone out			140 mW @ 600 Ω / 330 mW @ 250 Ω / 710 mW @ 100 Ω
GENERAL			
Power Consumption			50 W
Standby Consumption			0.3 W
Maximum Dimensions (W x H x D)			17.3 x 5 x 16.5 inches
Weight			40.9 lbs

**USB-B / DIGITAL COAXIAL / DIGITAL OPTICAL**

INPUT	FORMAT	SAMPLING RATE	BIT LENGTH
USB-B	DSD	2.8 / 5.6 / 11.2 MHz	1 bit
	PCM	44.1 / 48 / 88.2 / 96 / 176.4 / 192 / 352.8 / 384 kHz	16 / 24 / 32 bit
Digital Coaxial	PCM	44.1 / 48 / 64 / 88.2 / 96 / 176.4 / 192 kHz	16 / 24 bit
Digital Optical	PCM	44.1 / 48 / 64 / 88.2 / 96 / 176.4 / 192 kHz	16 / 24 bit

**USB-A IN**

FORMAT	SAMPLING RATE	BIT RATE	BIT LENGTH	FILE EXTENSION
DSD	2.8 / 5.6 MHz	—	1 bit	.dsf / dff
WAV	44.1 / 48 / 88.2 / 96 / 176.4 / 192 kHz	—	16 / 24 bit	.wav
FLAC	44.1 / 48 / 88.2 / 96 / 176.4 / 192 kHz	—	16 / 24 bit	.flac
ALAC	44.1 / 48 / 88.2 / 96 kHz	—	16 / 24 bit	.m4a
AIFF	44.1 / 48 / 88.2 / 96 / 176.4 / 192 kHz	—	16 / 24 bit	.aif/.aiff
MP3	44.1 / 48 kHz	32 – 320 kbps	—	.mp3
WMA	44.1 / 48 kHz	48 – 320 kbps	—	.wma
AAC	44.1 / 48 kHz	16 – 320 kbps	—	.aac/.m4a





# **Value Electronics**

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